



ECOLOGICAL APPRAISAL & BAT SURVEY REPORT

ROSEWOOD, BROOK LANE
BOTLEY
SOUTHAMPTON
SO30 2ER

SEPTEMBER 2022

ON BEHALF OF BPS DESIGN CONSULTANTS LTD



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It is company policy to share species records collected during our surveys with local biological records centres unless instructed otherwise by the client.

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SUMMARY

1. LC Ecological Services Limited (LCES) was commissioned by BPS Design Consultants Limited to undertake an ecological appraisal and phase 1 and 2 bat surveys of the property at Rosewood, Brook Lane, Botley, Southampton, SO30 2ER. These surveys were conducted to support a planning application to demolish the existing detached garage, with a proposal for a two-storey side extension on the southern elevation, Planning Application number H/22/93216.
2. An ecological appraisal is essentially a baseline habitat survey which is extended to include an assessment of a site's potential to support any legally protected, notable and/or invasive species. The survey is conducted with the objective of identifying any ecological constraints such as habitats of high nature conservation value, habitats that could potentially support legally protected or notable species, and the presence of invasive species.
3. Gould Copse Site of Importance for Nature Conservation (SINC) adjoins the site on the southern boundary. The implications of any development proposals in relation to this non-designated site are discussed further in section 5.1.
4. The site comprises a residential property with a detached garage. The dwelling is backed by a well-managed amenity grassland lawn with ornamental shrub borders. Cherry laurel and holly shrubs line the southern side of the detached garage.
5. The site provides some potentially suitable habitat for badger. No evidence of badger activity was identified during the walkover survey. Badger has been recorded locally. Further recommendations are provided in section 5.2.
6. Buildings on site were assessed for their potential to support roosting bats. The main house was assessed as holding **negligible potential** to support roosting bats. The detached garage was assessed as holding **low potential** to support roosting bats due to a limited number of access and roosting features.
7. A single phase 2 bat survey was conducted on the detached garage. No bat species were recorded emerging or re-entering the detached garage, therefore this building has been assessed as having a likely absence of bat roosts. Several bat species were found to be using the site for foraging and commuting purposes. Further recommendations are provided in section 5.3.
8. Three ponds were recorded within 500 metres of the property, with a ditch linking these ponds. These have the potential to support great crested newts. The habitat on site could hold potential for foraging and hibernating great crested newts within their terrestrial phase. This is discussed in section 4.2.2.

9. Recommendations including to increase biodiversity value of the site and contribute towards achieving a Biodiversity Net Gain (BNG) for any development proposals, include various habitat creation measures and provisions for bats, birds, invertebrates, and hedgehogs. Further details are provided in section 5.4 and 5.5.

1.0 INTRODUCTION

LC Ecological Services Limited (LCES) was commissioned by BPS Design Consultants Limited to undertake an ecological appraisal and phase 1 and 2 bat surveys of the property at Rosewood, Brook Lane, Botley, Southampton, SO30 2ER (OS grid ref SU 50677 12387). These surveys were conducted to support a planning application to demolish the existing detached garage with a proposal for a two-storey side extension on the southern elevation, Planning Application number H/22/93216. A proposal plan has been provided in appendix II.

An ecological appraisal is essentially a baseline habitat survey which is extended to include an assessment of a site's potential to support any legally protected, notable and/or invasive species. The survey is conducted with the objective of identifying any ecological constraints such as habitats of high nature conservation value, habitats that could potentially support legally protected or notable species, and the presence of invasive species.

Section 2 of the report provides some background information on legislative requirements and relevant policy. Section 3 details the methodologies adopted for the various ecological surveys that were conducted and section 4 provides an account of the survey results. Section 5 provides information on the relevance of the results to the proposed development and makes recommendations for measures to mitigate and compensate for the effects on a particular habitat or species.

2.0 RELEVANT POLICY AND LEGISLATION

2.1 Legislation

The following legislation may be of relevance to the proposed works. Full details of statutory obligations with respect to biodiversity and the planning system can be found in DCLG Circular 06/2005.

- **The Conservation of Habitats and Species Regulations 2017:** This transposes the EU Habitats Directive (Council Directive 92/43/EEC) into domestic law. The Regulations provide protection for a number of species including:
 - All species of bat
 - Hazel dormouse (*Muscardinus avellanarius*)
 - Great crested newt (*Triturus cristatus*)

This legislation makes it an offence to deliberately capture, kill or injure individuals of these species listed on Schedule 2 and damage or destroy their breeding site or place of shelter. It is also illegal to deliberately disturb these species in such a way as to be likely to significantly affect: (i) the ability of any significant group of the species to survive, breed or rear or nurture their young; or (ii) the local distribution or abundance of the species¹.

This legal protection means that where development has the potential to impact on bats, or other European protected species, the results of a protected species survey must be submitted with a planning application.

Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are also protected under this legislation. These are a network of sites designated for supporting habitats or species of high nature conservation importance in the European context. Any activity that has a detrimental effect on these European sites is made an offence under the Regulations. Where a development is likely to have a significant impact on a European site, the Regulations require a rigorous assessment of the impacts, known as an Appropriate Assessment.

- **The Wildlife and Countryside Act 1981 (and amendments):** Protected fauna and flora are listed under Schedules 1, 5 & 8 of the Act. Species likely to be of relevance include:

¹ The Conservation of Habitats and Species Regulations 2017 consolidates the numerous amendments that were made to the Conservation (Natural Habitats, &c.) Regulations 1994. Of particular relevance are amendments made in August 2007 and January 2009 which increased the threshold of illegal levels of disturbance to European Protected Species (EPS). An offence is only committed if the deliberate disturbance would result in significant impacts to the EPS population. However, it should be noted that activities that cause low levels of disturbance to these species continue to constitute an offence under Section 9 of the Wildlife and Countryside Act (see below).

- All species of **bat**. It is an offence to intentionally or recklessly disturb any bat whilst it is occupying a roost or to intentionally or recklessly obstruct access to a bat roost.
- All species of British **reptile** (in particular grass snake (*Natrix natrix*), common lizard (*Zootoca vivipara*), adder (*Vipera berus*) and slow worm (*Anguis fragilis*). It is illegal to kill or injure these species.
- **Great crested newt**. It is illegal to obstruct access to any structure or place which great crested newts use for shelter or protection or to disturb any great crested newt while it is using such a place.
- **Water vole**. It is an offence to intentionally kill, injure or take water vole (*Arvicola amphibius*), intentionally or recklessly damage, destroy, obstruct access to water vole burrows or disturb them whilst in a burrow.

This Act also makes it an offence to intentionally kill, injure or take any wild bird or to take, damage or destroy their eggs and nests (whilst in use or being built). In addition, it is an offence to disturb any nesting bird listed on Schedule 1 or their young.

Schedule 9 of the Act lists those species for which it is an offence to cause their spread. Schedule 9 species that are most likely to be encountered are Japanese knotweed (*Fallopia japonica*) and giant hogweed (*Heracleum mantegazzianum*).

Sites of Special Scientific Interest (SSSIs) are also protected under the Wildlife and Countryside Act 1981. These are a network of sites identified as being of national nature conservation importance and hence afforded legal protection.

National Nature Reserves (NNRs) are also protected under the Act (section 35 (1)) and established under the National Parks and Access to the Countryside Act 1949. These are nature reserves which are considered to be of national importance by the relevant statutory bodies i.e. Natural England, Natural Resources Wales.

- **Natural Environment and Rural Communities Act (NERC) 2006:** This Act enforces a duty on the planning authority and local council to conserve biodiversity (section 40). Additionally, section 41 encourages the local councils to be aware of the species and habitats of ‘principal importance’ and to act accordingly to protect and manage these habitats and species.
- **The Countryside and Rights of Way Act 2000:** This Act strengthens nature conservation and wildlife protection. It places a duty on Government Ministers and Departments to conserve biological diversity, provides police with stronger powers relating to wildlife crimes, and improves protection and management of SSSIs.
- **The Protection of Badgers Act 1992:** This Act makes it an offence to wilfully take, injure or kill a badger (*Meles meles*); cruelly mistreat a badger; interfere with badger setts. A licence is required for work which may damage or disturb a sett.

- **Wild Mammals (Protection) Act 1996:** This Act provides protection for all wild animals from intentional acts of cruelty.
- **Hedgerow Regulations 1997:** These Regulations establish a set of criteria for assessing the importance of hedgerows. Where a hedgerow is deemed to be ‘important’ its removal is prohibited without consent from the local Planning Authority.

2.2 Policy

The following policy is of relevance to the proposed works:

- **National Planning Policy Framework (NPPF):** This sets out the Government’s vision for biodiversity in England with the broad aim that planning, construction, development and regeneration should maintain and enhance, restore, or add to biodiversity and geological conservation interests. NPPF (2021) includes sections on legally protected species and sites (see section 2.1).
- **Local Sites (including Sites of Importance for Nature Conservation (SINCs), Local Nature Reserves (LNR), and Biological Notification Sites (BNSs)/Local Wildlife Sites (LWSs)):** These are a network of sites designated for their nature conservation importance in a local context. Where such development is permitted, the local planning authority will use conditions and/or planning obligations to minimise the damage and to provide compensatory and site management measures where appropriate.
- **Natural England Protected Species Standing Advice:** The standing advice is used by local authorities as a fallback position when in pre-application consultation or during the determination period to define habitat and species survey efforts and mitigation proposals.
- **Biodiversity Action Plans (BAPs):** BAPs set out policy for protecting and restoring priority species and habitats as part of the UK’s response as signatories to the Convention on Biological Diversity. BAPs operate at both a national and local level with priority species and habitats identified at a national level and a series of Local BAPs that identify ecological features of particular importance to a particular area of the country. The requirement to consider and contribute towards BAP targets was strengthened through the Countryside and Rights of Way Act 2000. Habitat and Species Action Plans that are likely to be of relevance include:
 - Great crested newt (UK BAP)
 - Brown long-eared (*Plecotus auritus*) (UK BAP)
 - Noctule (*Nyctalus noctula*) (UK BAP)
 - Soprano pipistrelle (*Pipistrellus pygmaeus*) (UK BAP)
 - Reptiles (all species) (UK BAP)

3.0 METHODOLOGY

3.1 Desk study

Records of protected species and non-statutory sites within a two-kilometre radius of the site were obtained from Hampshire Biodiversity Information Centre (HBIC). The Multi-Agency Geographical Information for the Countryside (MAGIC) website was also used to provide any information relating to statutory designated sites within a five-kilometre radius of the proposed development.

3.2 Field study

3.2.1 Vegetation

The standard phase 1 habitat survey methodology (JNCC, 2016) was adopted whereby habitats are mapped using colour codes (see appendix III), whilst also following CIEEM (2017) Guidelines for Preliminary Ecological Appraisal. A detailed walkover survey was undertaken on 4th August 2022 by Becca Oswin, directly searching for legally protected and invasive species of plant and categorising any habitats of ecological value that were encountered. A general description of the vegetation was also noted, listing species encountered and scoring their abundance using the DAFOR scale shown below, whilst recording plant species using the nomenclature according to Stace (2010):

D	Dominant
A	Abundant
F	Frequent
O	Occasional
R	Rare
L	Local (used as a prefix to any of the above)

3.2.2 Protected species assessment

Habitats and features were assessed for their potential to support protected species (see section 2). In many cases determining the presence, distribution and population size of protected species will require additional, specialist surveys.

Badger

A direct search was undertaken for signs of badger. Signs of badger may include setts, dung pits, latrines, paths or hairs on fences and vegetation. Any setts encountered were classified according to the number of entrances and the extent of their use.

Where setts were recorded these were classified into four main categories, defined by the number of holes present, as per criteria set out by (Harris, Cresswell, and Jefferies, 1989):

- Main sett: A large well used and well-established sett used for breeding. There is usually only one main sett within each clan of badgers.
- Annex sett: These are additional setts often located close to the main sett connected by well-worn paths.
- Subsidiary sett: These are additional setts often some 150 metres from the main sett which are sometimes used for breeding but do not have obvious paths linking to other setts and are not always active.
- Outlier sett: These setts are usually smaller in size than the other setts, intermittently used and located some distance from the main sett.

Setts recorded were then examined to establish their level of usage. Each hole was classified under one of the following categories:

- Active: An entrance free of leaf litter and showing recent signs of excavation.
- Partially used: An entrance with some leaf litter and debris around the hole but also showing some signs of recent digging.
- Disused: An entrance with debris and leaf litter partially obscuring the hole with no recent signs of digging, or a hole that exhibits the characteristics of a badger hole with a large D-shaped entrance and old spoil piles at the entrance but shows no other signs of badger activity.

Bats

Phase 1 bat survey

Potential for the site to support roosting, foraging, and commuting bats was assessed by ecologist Becca Oswin on the 4th August 2022 in accordance with the Bat Conservation Trust (BCT) *Bat Surveys for Professional Ecologists Good Practice Guidelines* (Collins *et al.*, 2016).

Buildings

Bats roost in a wide variety of sites within buildings, with many species roosting in cracks and crevices, within brick work, under slates and tiles, and within timber beam joints where they are difficult to see.

Bats often access roosts at key areas such as the gable end, soffits, barge boards, ridge tiles, between double lintels, around window frames, through open joints in the brickwork or broken tiles through open doors / entrances to the buildings.

The presence of roosting bats can be spotted through signs such as accumulations of moth or butterfly wings, staining, bat droppings, or bats themselves. The absence of these cannot, however, be treated as conclusive evidence that bats are not using the buildings. An assessment was therefore also made of the potential of the building to support bats based on the following scale in table 1. derived from the BCT survey guidelines (Collins *et al.*, 2016):

Table 1: Criteria for assessing bat roosting potential of structures.

Confirmed Roost	Evidence of bat occupation found
High Roosting Potential	With significant roosting potential, either because they contain a large number of suitable features or those features present appear optimal
Moderate Roosting Potential	Features with moderate roosting potential, with roosting features appearing less suitable
Low or Negligible Roosting Potential	Buildings with few, if any, features suitable for roosting

A ladder was used to access and inspect suitable roosting features on the building and where access by ladder was restricted due to height, close focusing binoculars were used.

Trees

All bats use trees as they provide a foraging area, and connectivity between different habitats, however, the most significant use is as a roost. Features such as, old woodpecker holes, splits, cavities, and rot holes, loose or flaking bark will be exploited by bats to roost. Any trees present on site were therefore assessed for their potential to support roosting bats by searching for such features. The survey looked to identify suitable roosting features in trees and to assess their roosting potential in relation to current guidance (BTHK, 2018, 2020). The potential for trees to support roosting bats is based on the criteria in table 2 below.

Table 2: Criteria for assessing bat roosting potential of trees.

High Roosting Potential	Trees with multiple, highly suitable features capable of supporting larger roosts including maternity and hibernation roosts.
Moderate Roosting Potential	Trees with definite bat potential, supporting fewer suitable features than high roosting potential trees or with potential for use by small numbers of bats.
Low Roosting Potential	Trees with potential to support an individual bat, or no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found or the tree supports some features which may have limited potential to support bats.
Negligible Roosting Potential	Trees with no potential to support bats.

Foraging and commuting habitat

The habitat on the site was assessed for the quality of potential foraging and commuting habitat for the local bat populations. Bats navigate using linear features in the landscape, such as hedgerows and these can be important features for local roosts. The site itself may also provide important foraging habitat and support local bat roosts. Annex II species of bat may use the site for foraging and commuting.

Phase 2 emergence/re-entry surveys

Following the phase 1 bat survey, the detached garage was subject to one dusk emergence survey conducted on 11th August 2022. This survey was undertaken with reference to the BCT survey guidelines (Collins *et al.*, 2016). The emergence survey commenced 15 minutes before sunset and continued for approximately two hours. The ecologists undertaking these phase 2 bat surveys were led by experienced ecologist Pete Duffy and assisted by ecologist Jamie Palmer.

Surveyors were positioned on the northern and southern elevations of the detached garage, situated at optimum locations to view the building and any bats leaving or entering it. Echo Meter Touch (EMT) bat detectors were used to record any bats that were seen leaving/entering the building. Visual observations were also used to record flight patterns and feeding behaviour to aid identification to species level. General bat activity within the vicinity of the property was also recorded. Notes were recorded on times, species, and behaviour.

All recorded bat calls were subsequently analysed using the software Kaleidoscope.

Limitations

Bat species such as long-eared bats can be difficult to detect on bat recording equipment due to their quiet and directional echolocation calls. In addition, the use of the software to determine species level is not accurate for determination of the different *Myotis* species and where *Myotis* bats are detected they are not broken down into species level.

Great crested newts

Suitable breeding ponds are essential to support populations of great crested newt, although they actually only spend a relatively short period of the year in the ponds during the spring for breeding. The remainder of the year is spent in suitable ‘foraging’ habitat such as tall grassland and woodland. During the winter the great crested newt hibernates, often amongst the roots of trees and scrub or in places such as piles of rubble, amongst foundations of buildings or under fallen trees and logs.

Great crested newts are known to forage up to at least 500 metres from their breeding sites and suitable habitats that fall within 500 metres must be considered even in situations where the breeding site itself will not be affected. Any ponds within a 500-metre radius will therefore be identified during this survey and habitats within and immediately adjacent to the site were assessed in terms of their suitability as terrestrial habitat. Further specialist surveys will be recommended where appropriate.

Hazel dormice

The habitats on the site were assessed for their potential to support hazel dormice, which are found in habitats such as woodlands, scrub and hedgerows with good connectivity and suitable food plants. Satellite images were used to assess the connectivity of any suitable habitat present on the site to other areas of woodland and hedgerow networks.

Reptiles

Reptiles are widespread in habitats that provide both cover, in the form of scrub or tall vegetation, and basking areas such as areas of hardstanding or short grassland communities. Piles of debris or rubble also provide excellent cover and hibernation sites for reptiles. The site was assessed for its potential to support reptile species and recommendations for further action made where appropriate.

4.0 RESULTS

4.1 Desk study

Statutory and non-statutory sites

Table 3 below lists statutory designated sites for nature conservation located within a five-kilometre radius and non-statutory designated sites located within a one-kilometre radius of the site.

Table 3: Statutory designated sites within five kilometres and non-statutory designated sites within a one-kilometre radius of the site.

Site name	Conservation status	Distance and direction from site	Size (Ha)	Habitat description
Solent Maritime	SAC ²	0.8 km east	165,300	The Solent encompasses a major estuarine system on the south coast of England. Designated for its estuary, salt meadow, coastal lagoons, mudflats. Qualifying species includes Desmoulin's whorl snail (<i>Vertigo moulinsiana</i>).
Solent and Southampton Water	SPA ³	0.8 km east	11,325	The site qualifies for breeding populations of common tern (<i>Sterna hirundo</i>), little tern (<i>Sterna albifrons</i>), Mediterranean gull (<i>Larus melanocephalus</i>), roseate tern (<i>Sterna dougallii</i>), sandwich tern (<i>Sterna sandvicensis</i>); and overwintering black-tailed godwit (<i>Limosa limosa islandica</i>), dark-bellied brent goose (<i>Branta bernicla bernicla</i>), ringed plover (<i>Charadrius hiaticula</i>), teal (<i>Anas crecca</i>) and an internally important assemblage.
	Ramsar ⁴	0.8 km east	5,346.44	The site comprises estuaries and adjacent coastal habitats including intertidal flats, saline lagoons, shingle beaches, saltmarsh, reedbeds, damp woodland, and grazing marsh. Supporting an important assemblage of rare plants and invertebrates with at least 33 British Red Data Book invertebrates and at least eight British Red Data Book plants are

² SAC - Special Area of Conservation

³ SPA - Special Protection Area

⁴ Ramsar - Wetlands of International Importance

Site name	Conservation status	Distance and direction from site	Size (Ha)	Habitat description
				represented on site. Species to qualify the site for Ramsar status include migratory ringed plover, overwintering dark-bellied brent goose, Eurasian teal, and black-tailed godwit, as well as overwintering waterfowl assemblage.
Upper Hamble Estuary and Woods	SSSI ⁵	0.8 km east	148.7	Upper Hamble Estuary and Woods SSSI comprises the uppermost section of the estuary of the River Hamble and associated salt marsh, reed swamp and ancient semi-natural woodland habitats. The woodlands support small-leaved lime (<i>Tilia cordata</i>) and wild service tree (<i>Sorbus torminalis</i>) and a species rich ground flora.
Manor Farm	LNR ⁶	0.2 km south	144.07	The site contains woodland and grassland habitats. The site supports abundant wildlife from roe deer (<i>Capreolus capreolus</i>) in the woods to curlews (<i>Numenius arquata</i>) along the river and skylarks (<i>Alauda arvensis</i>) in the fields.
Gould Copse	SINC ⁷	Adjoins southern boundary	3.15	Priority lowland mixed deciduous woodland. An area containing ancient semi-natural woodland.

The Solent Maritime SAC, Solent and Southampton Water SPA and Ramsar, and Upper Hamble Estuary and Woods SSSI are located 0.8 kilometres east of the site. Manor Farm LNR is located 0.2 kilometres south of the site. Gould Copse SINC is located on the southern boundary of the site.

The identified designated sites are situated at considerable distances from the development site, and it is considered highly unlikely that any impacts to these would result from the proposed works. Further recommendations have been made in section 5.1 to ensure that no direct or indirect impacts to the non-designated site, Gould Copse SINC, which may arise from the proposed works on site.

Protected species records

Records from 1994 onward were provided by HBIC (Ref - 10892) for notable or protected species; species with Hampshire Noteworthy status; or invasive species, within 100 metres search radius. A full copy of the data search can be provided on request; however, a summary is provided below:

⁵ SSSI - Site of Special Scientific Interest

⁶ LNR - Local Nature Reserve

⁷ SINC - Site of Importance for Nature Conservation

Birds

Records of nine protected and threatened bird species were provided, the most relevant of these included records of house sparrow (*Passer domesticus*), firecrest (*Regulus ignicapilla*), starling (*Sturnus vulgaris*), redwing (*Turdus iliacus*), and barn owl (*Tyto alba*).

Higher plants

Two records of protected higher plants were provided, including corn marigold (*Glebionis segetum*), and stinking hellebore (*Helleborus foetidus*).

Invertebrates

Four records of invertebrates of principal importance⁸ were provided, all of which were lepidoptera.

Mammals

One bat record of a brown long-eared bat (*Plecotus auritus*) was provided.

A single record of badger (*Meles meles*) dating from 2019 was also provided.

These records of protected and notable species in the vicinity of the site increase the likelihood of them being present where suitable habitat is identified in the field survey.

4.2 Field survey

4.2.1 Vegetation

The accompanying phase 1 habitat map provided as appendix III depicts the habitats encountered. Photographs of the habitats and features on site are included as appendix VI.

The site comprises a residential property with a detached garage. The house is backed by a well-managed amenity grassland lawn with ornamental shrub borders. Cherry laurel and holly shrubs line the southern side of the garage. A broadleaved woodland (Gould Copse SINC) adjoins the site on the southern boundary which connects the site to the wider landscape.

Hardstanding

There are areas of tarmac hardstanding adjacent to the north-eastern boundary of the site which comprise a vehicle access driveway and parking areas. The area between the house and garage has a gravelled surface and connects the tarmac parking areas to a paved patio to the rear of the house.

⁸ Under Section 41 of the NERC Act 2006

The areas of hardstanding on site are considered to be of negligible ecological value and unsuitable to support any protected or notable species. No further action is required.

Amenity grassland

The garden has two areas of short sward, intensively managed lawn to the front and rear of the property.

The areas of amenity grassland are of low botanical value; however, this habitat could potentially support foraging badger. This species is discussed further in section 4.2.2.

Ornamental planting

Ornamental planting beds comprising non-native species are present throughout the site. Species include cherry laurel (*Prunus laurocerasus*) and holly (*Ilex aquifolium*).

The areas of ornamental planting are of low botanical value; however, this habitat could potentially support foraging badger. This species is discussed further in section 4.2.2.

Buildings

A total of three buildings are present on site, including the existing house, detached garage, and shed / outbuildings

The buildings have been discussed further in section 4.2.2 in relation to the bat surveys undertaken.

4.2.2 Protected species assessment

Badger

During the walkover survey in August 2022 no signs of badger activity such as setts, latrines, hair, or footprints were recorded. The habitats on site, including amenity grassland and ornamental beds, provides some suitable foraging habitat for badger. HBIC returned 1 record of badger within 100 metres of the site.

Further recommendations to safeguard badgers and other fauna from harm during the construction phase of the development are provided in section 5.2.

Bats

Phase 1 bat survey

The phase 1 bat survey was undertaken on 4th August 2022. The weather conditions at the time were as follows:

Wind - 2/10, Cloud – 30%, and the temperature was 22°C.

Buildings/structures

The survey area contains two buildings, the house (B1 in the phase 1 habitat map), and a detached garage (B2). A third building, a shed (B3) will not be affected by the proposals and therefore was not included in the survey. The proposed development will involve the demolition of the detached garage, and a two-storey extension on the southern elevation. Therefore, these buildings were assessed for their potential to support roosting bats.

A description of the buildings has been provided below whilst photographs have been provided in appendix VI.

Main house (B1)

External survey

The main house is a two-storey detached brick build with a multi-pitched roof of clay tiles and rounded ridge tiles, with bonnet hip tiles. uPVC soffits and double-glazed windows are present. The house was re-roofed fifteen years ago and has solar panels fitted.

Internal survey

The roof void consisted of wooden purling and rafter design with a boarded floor and breathable roof membrane lining. The space is regularly used and accessed for storage. Two Velux windows are installed allowing in light.

Detached garage (B2)

External survey

The garage is of breeze block construction with a pitched clay tile roof with old pointed wet ridge. Access is via a wooden side door and metal rollback door. There is a wooden barge board at the gable with very exposed spacing leaving no sheltered crevice. Wooden soffits are also present.

Internal survey

Internally the garage is open plan to the roof space with oriented strand board type lining. Some of the boarding is missing exposing the roof tiles internally. The flooring is concrete, and the space contains storage items.

Survey results

Main house (B1). External and internal survey: evidence of bats

A thorough external and internal survey of the main house was undertaken; however, no bat droppings or evidence of bats was encountered. No access / egress points were observed. No bat droppings were present in the roof void; however, mouse droppings were recorded. Furthermore, only the southern elevation of the building will be affected by the proposed plans.

Detached garage (B2). External and internal survey: evidence of bats.

A thorough external and internal survey of the detached garage was undertaken; however, no bat droppings or evidence of bats was encountered. Some wooden boarding was missing, exposing the tiles, however the internal crevice was considered to have low suitability for roosting bats.

Potential for bats

Buildings

The main house (B1) was assessed as having ***negligible potential*** for roosting bats, with no access points, or roosting opportunities.

The detached garage (B2) was assessed as having ***low potential*** to support roosting bats, due to the presence of access points, and some limited opportunity for roosting.

A single phase 1 bat survey bat emergence/re-entry survey was undertaken on site in accordance with the guidelines established by the BCT (Collins *et al.*, 2016).

Trees

All of the trees on site were assessed as holding ***negligible potential*** to support roosting bats, with no features of any significant potential to support roosting bats identified.

Phase 2 bat survey results

The full results of the phase 2 evening emergence survey are provided in appendix IV whilst a summary is provided below.

Dusk emergence survey 11th August 2022

No bats were recorded emerging from the detached garage.

General activity

- Common pipistrelle (*Pipistrellus pipistrellus*) bats were recorded commuting and foraging over the front and rear garden between 20:47 and 22:04.
- Soprano pipistrelle (*Pipistrellus pygmaeus*) bats were recorded commuting and foraging over the front and rear garden between 21:05 and 21:59.
- Noctule (*Nyctalus noctule*) bats were recorded but not seen at 21:03, 21:42, and 21:52.
- A serotine (*Eptesicus serotinus*) was recorded but not seen at 21:37.

No evidence of roosting bats was found during the phase 2 survey, however the habitat in the vicinity was used by several species for foraging and commuting purposes, therefore recommendations and ecological enhancements have been suggested in section 5.3

Great crested newt

This species requires both aquatic habitat for breeding along with suitable terrestrial habitat for foraging and hibernation within 500 metres of each other. There are no ponds or other waterbodies on site which could potentially provide suitable breeding habitat for great crested newt. A review of satellite imagery and OS maps identified a total of three potentially suitable ponds, linked by ditches, within a 500-metre radius of the site. These ponds were located approximately 170 metres west, and 200 metres west in a neighbouring farm, and 190 metres south within Goulds Copse SINC. The locations of these waterbodies are indicated on the plan provided as appendix V. Access to these waterbodies was not available.

Although these waterbodies may provide suitable breeding habitat for great crested newts the habitats within the site were of poor quality and provided no suitable foraging and sheltering habitat. Hibernation habitat was noted within the roots of the hedgerows present along the boundary habitat only. Furthermore, these areas will not be affected by the proposed development plans which are restricted to the areas of hardstanding only.

HBIC returned no records of great crested newt within a 100-metre radius of the site and no great crested newt licence returns were noted within 1 kilometre of the site. There are no records of great crested newt within 2 kilometres of the site from NBN Atlas data (NBN Atlas, 2022). A Natural England 'Rapid Risk Assessment' calculation was undertaken, and illustrated in table 4, to establish whether the proposed development might result in an offence being committed, should great crested newt be present within the nearby waterbodies. The calculation returned a result of 'Offence highly unlikely'. The site is therefore considered not to support great crested newts.

Table 4: Natural England great crested newt Rapid risk assessment

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	0.01 - 0.1 ha lost or damaged	0.01
Land >250m from any breeding pond(s)	0.1 - 0.5 ha lost or damaged	0.005
Individual great crested newts	No effect	0
Maximum:		0.01
Rapid risk assessment result:	GREEN: OFFENCE HIGHLY UNLIKELY	

No further action is required.

Hazel dormouse

The ornamental planting on site is all non-native, species-poor, and is regularly managed. The hedgerows on site lack suitable structure, connectivity, and food sources in order to support a population of hazel dormouse. This species requires diverse woodland foraging habitats (or connecting hedgerow habitat), which is present in the adjoining woodland habitat at Gould Copse SINC, situated to the south of the site. However, only hardstanding will be affected in the proposed development plans, therefore, hazel dormouse will not be impacted. HBIC did not return any records of hazel dormice within a 100-metre radius of the site.

No further action required.

Reptiles

Due to the short sward height of the vegetation, and the lack of habitat diversity on site to support foraging and sheltering reptile species, reptiles are not considered to be present.

No further action is required.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The site comprises a residential property with a detached garage. The house is backed by a well-managed amenity grassland lawn with ornamental shrub borders. Cherry laurel and holly shrubs line the southern side of the garage. A broadleaved woodland area (Goulds Copse SINC) adjoins the property to the south, which connects the site to the wider landscape. The wider local landscape comprises arable and pasture farmland with associated hedgerows, broadleaved woodlands, as well as residential areas. The site is considered to be of low ecological value.

The following impacts to habitats and species could potentially occur in the absence of mitigation:

- Direct and indirect impacts to a non-statutory site.
- Loss of potential foraging badger habitat. Safeguarding measures for badger are outlined below.
- Loss and/or degradation of suitable foraging and commuting habitat for bats.

Mitigation strategies and further recommendations to address these possible impacts have been outlined below along with recommendations to enhance the site for wildlife.

5.1 Non-designated sites

5.1.1 Summary of findings

Goulds Copse SINC

Goulds Copse SINC is situated on the adjoining southern boundary of the site. It is 3.15 hectares of broadleaved woodland and was designated due to the quality of woodland habitats found there. It is priority lowland mixed deciduous woodland containing ancient semi-natural woodland, and other woodland with some supporting characteristics of ancient woodland. Due to the close proximity of Gould Copse SINC the following mitigation will be adhered to avoid direct impacts to trees within this area, as well as indirect impacts such as construction pollution and littering and furthermore to minimise any construction disturbance.

5.1.2 Mitigation

To ensure that no adverse impacts to trees that border the site from Goulds Copse SINC, a root protection zone will be installed along this boundary with the woodland. It should be protected in accordance with the British Standards Institute guidance (2012) by installing Heras fencing along the root protection zones before any works commence on site.

A Construction Method Statement (CMS) will be prepared and implemented on site to avoid and minimise the risks of any indirect impacts to Goulds Copse SINC (as summarised above) occurring during the construction phase.

The following matters will be addressed in the CMS:

- Details of how building materials, fuels and chemicals will be stored and controlled on-site to avoid pollution and siltation, for example, there will be designated areas on site for storage of construction materials and for refuelling of equipment/machinery, all plant will be fitted with drip trays in order to avoid potential pollution incidents, and spill kits will be made available on site at all times.
- Details on the proposed construction methodology including factors such as construction access, methods of construction, timing of the works and working hours. The construction works for this development will be largely restricted to daytime hours.
- Industry standard measures to minimise dust, siltation, and soil erosion.
- Measures to limit construction noise and vibration.
- Safeguarding of wild fauna such as badger by fencing off construction areas with Heras fencing and ensuring that any construction pits are covered overnight, or an escape ramp is provided.
- Site induction for workers. This should include reference to the importance of Goulds Copse SINC to local wildlife, with comment to no littering within the SINC, and the use of the proper welfare facilities which will be on the construction site.

5.2 Badger

5.2.1 Summary of findings

No specific evidence of any current badger activity was recorded on site during the walkover survey, however the amenity grassland and ornamental planting on site do hold some limited potential to support foraging badgers. The site is adjacent to an area of broadleaved woodland (Goulds Copse SINC) which provides optimal foraging and sett building habitat for badger. The desk study confirmed presence of badger within 100 metres of the site.

It is considered that there is a minor risk that badgers could be harmed during site preparations and construction works.

5.2.2 Recommendations for further actions

Measures within the CMS should include the following:

- Prior to works commencing the working area should be delineated with Heras fencing to dissuade badgers from entering the site during the construction period.

- Where possible, excavations should not be left open overnight. However, if excavations are left open at night, then an earth or wooden ramp should be installed to enable any animals that fall in to escape. Work areas should be checked daily to ensure that no animals are trapped.
- Any piping should be capped over-night to prevent animals becoming trapped.

5.3 Bats

5.3.1 Summary of findings

The phase 1 survey assessed the main house as holding negligible potential to support roosting bats, and the detached garage was assessed as holding low potential to support roosting bats due to a limited number of access and roosting features. The detached garage was subject to a single phase 2 bat survey. Following the phase 2 bat survey of the detached garage, no bats were recorded emerging or re-entering the structure, therefore this building was assessed as having a likely absence of bat roosts. The general activity across the site consisted predominantly of common pipistrelle bats commuting across the site and foraging in the front and rear gardens. Soprano pipistrelle, noctule, and serotine were also recorded in low numbers, commuting near to the property, or were recorded and not seen.

However, as there is always a chance that the presence of bats may have been missed, any works to the building should proceed with caution. If at any stage bats are discovered, work will be stopped immediately, and a licenced ecologist will be contacted for further advice before proceeding. This advice will include leaving the bat to disperse of its own accord or wait for the licensed handler to appear and move the bat. Builders and contractors are explicitly forbidden from handling bats.

Although impacts on foraging and commuting bats, once operational, were not significant, a lighting strategy will be implemented as a measure of best practice. This will be implemented in accordance with Bats and Artificial Lighting in the UK (BCT & ILP, 2018). The following measures will be used:

- Selection and design of the lighting systems and by using accessories such as cowls or hoods to minimise light spill and direct light only to where it is needed.
- Using light sources that emit minimal ultra-violet light, peak higher than 550nm and be of a warm/neutral colour <2,700 kelvin.
- LED luminaires should be used where possible.

Further recommendations are made in section 5.4.

5.4 Ecological enhancements

It is important that the proposed works minimises impacts on existing biodiversity, but it will also need to provide positive net gains in biodiversity (NPPF, 2021) and specify management regimes where appropriate. All new developments must include built in provisions for birds, bats, bees, and hedgehogs.

A number of suggestions on ecological enhancement measures that could potentially be incorporated into the proposed development are provided below:

- The incorporation of integral features for roosting bats, nesting bird species such as swift (*Apus apus*), house martin (*Delichon urbica*) and house sparrow (*Passer domesticus*), and pollinating insects. This will include:
 - One integral bat box should be built into the new extension.
 - One integral bird box should be built into the new extension.
 - Provision of two bee bricks to be built into wall of the new extension. These should be placed in the southern elevation of the building, or a sunny aspect depending on the layout of the development scheme.

Provision of log and brushwood piles within the site will provide refugia and hibernacula for species such as hedgehog.

Where shrub and tree planting are proposed for any landscaping, this should aim to provide ecological networks and wildlife corridors wherever possible. The species used should be native and of UK origin. Suitable tree and shrub species would include hazel, field maple (*Acer campestre*), pedunculate oak (*Quercus robur*), crab apple (*Malus sylvestris*), goat willow (*Salix caprea*), dogwood (*Cornus sanguinea*), spindle, blackthorn (*Prunus spinosa*) and hawthorn.

5.5 Biodiversity Net Gain (BNG)

A Biodiversity Net Gain (BNG) calculation will be undertaken in order to demonstrate that the development proposals for the site will result in a measurable positive net gain for biodiversity of at least 10%. This is in line with the forthcoming mandatory BNG requirements included in the Environment Act 2021. Net gain will be quantified through the use of the latest DEFRA Biodiversity Metric (version 3.1, published April 2022).

6.0 REFERENCES

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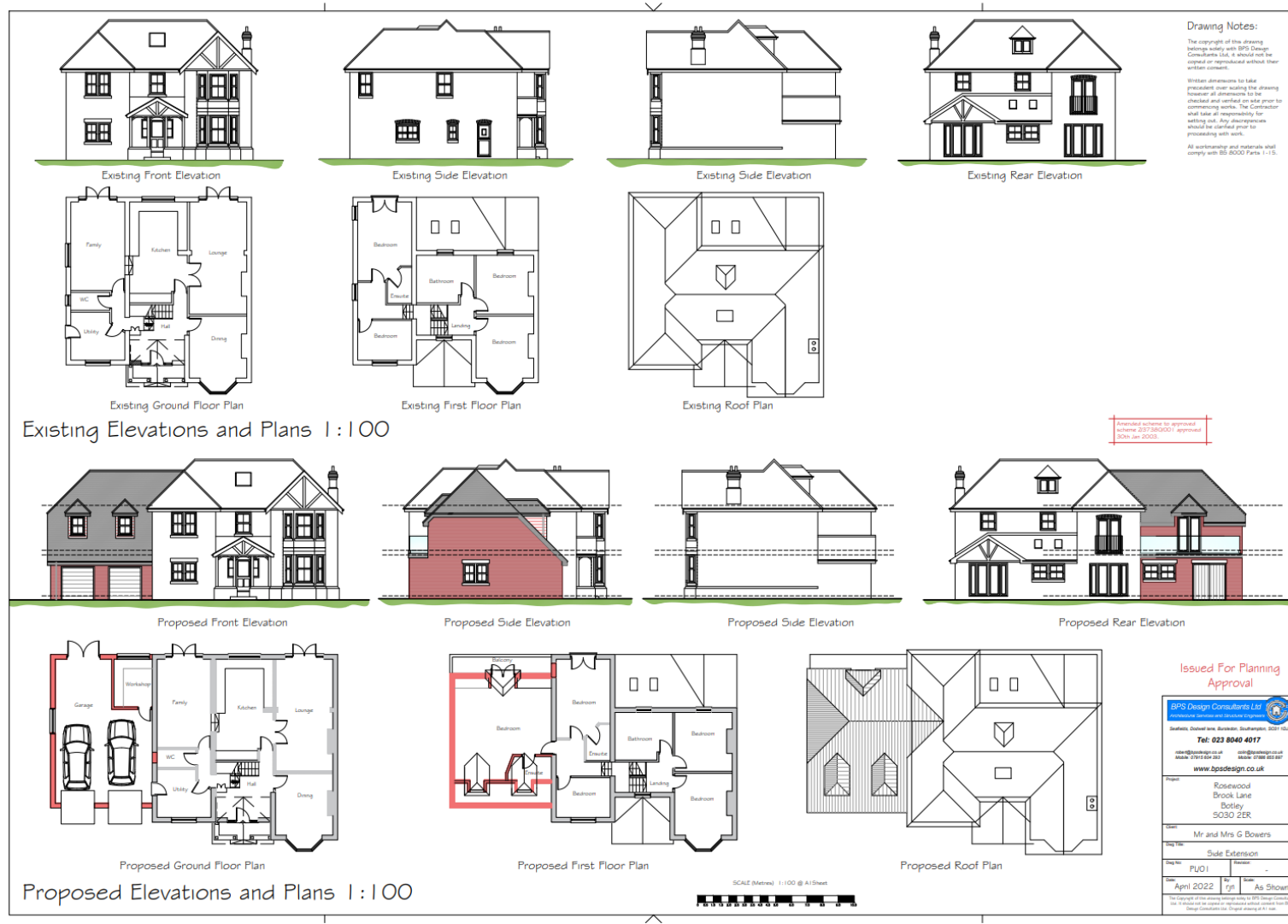
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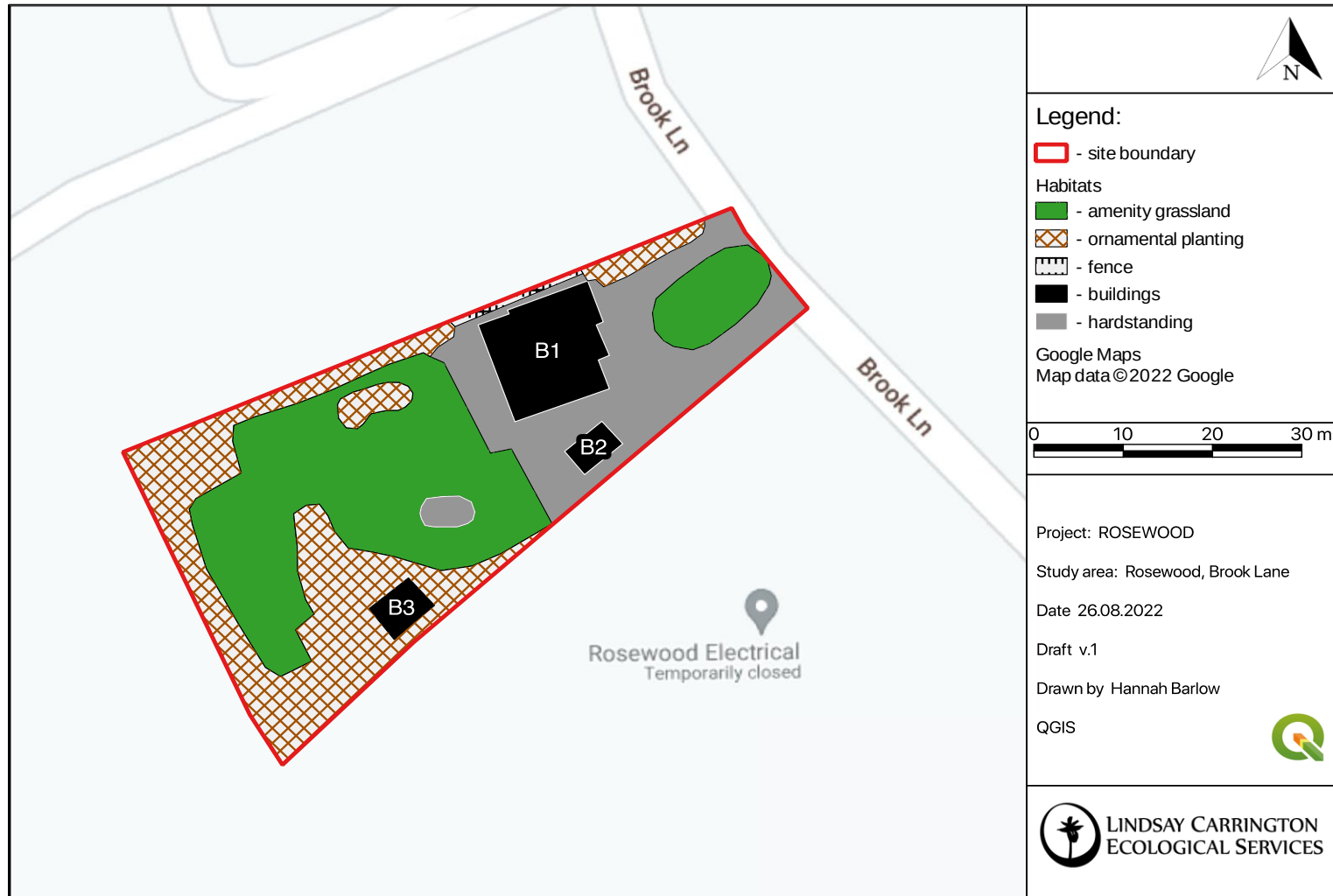
APPENDIX I: Site location plan



APPENDIX II: Proposed site plans



APPENDIX III: Phase 1 habitat map



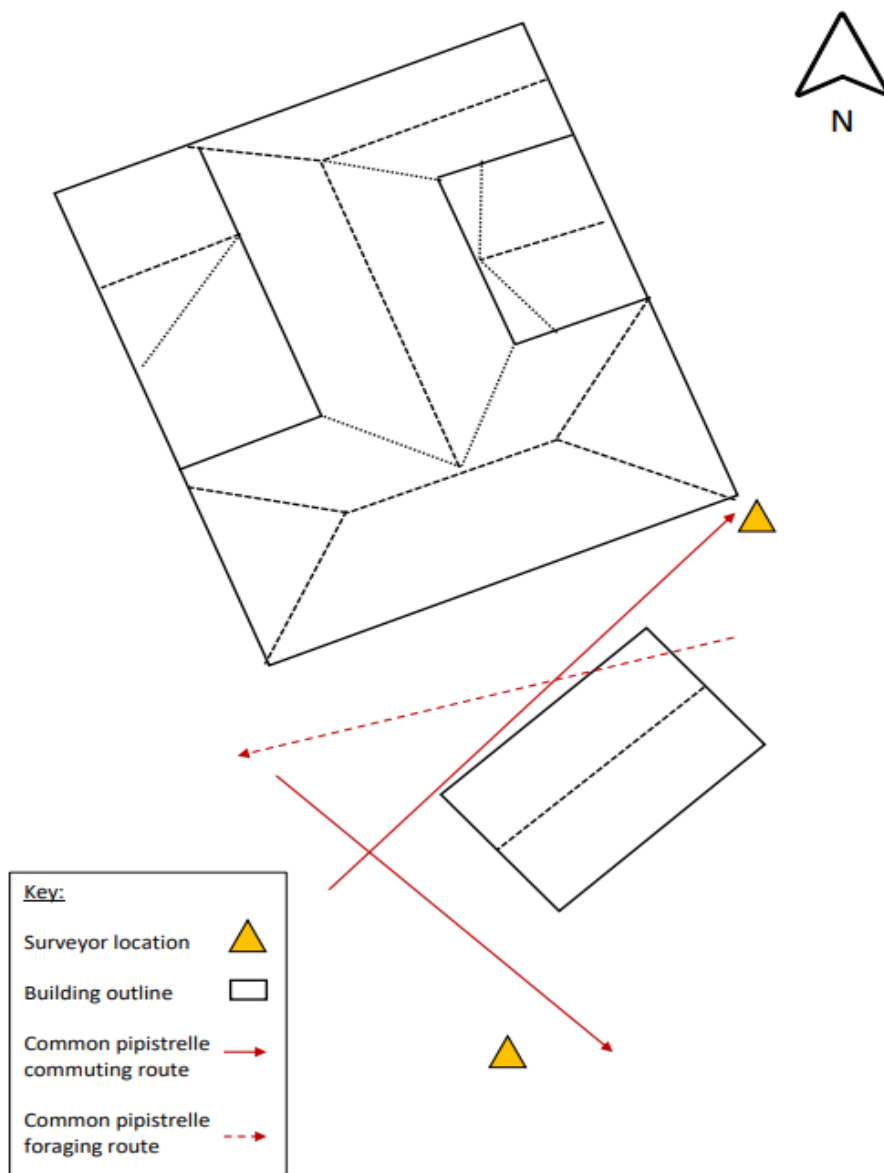
APPENDIX IV: Phase 2 bat survey results

Dusk survey 11th August 2022

BAT EMERGENCE SURVEY					
SURVEY LOCATION:	Rosewood	SURVEYORS:	PD, JP	DATE:	11/08/2022
TEMP AT START:	24.0°C	SUNSET:	20:34	START TIME:	20:19
TEMP AT END:	21.0°C	CLOUD COVER (oktas):	0/8	END TIME:	22:04
WIND (bft):	0/12	RAINFALL:	0	WEATHER:	Warm/Dry
ADDITIONAL INFO:	iPad & EMT northern and southern elevations of garage				
TIME	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.		
20:47	Common pipistrelle	1	Commuting passed front of house from west to east probably emerged from neighbour's house		
20:49 – 20:58	Common pipistrelle	1	Heard not seen, commuting north to south, foraging in back garden		
21:03	Noctule	1	Heard not seen commuting		
21:04-05	Common pipistrelle	1	Commuting passed front of house from east to west then foraging over neighbour's garden to west		
21:05	Soprano pipistrelle	1	Continuous foraging over rear garden		
21:06	Common pipistrelle	1	Foraging over neighbour's garden to west		
21:08-21:13	Common pipistrelle	1	Continuous foraging over neighbour's garden to west, lots of quiet brief calls		
21:13	Common pipistrelle	1	Commuting from north to east then south toward rear garden		
21:14	Soprano pipistrelle	1	Foraging over rear garden		
21:14-21:15	Common pipistrelle	1	Foraging over front garden and driveway then off to east		
21:16	Common pipistrelle	1	Brief call. Heard not seen		

21:17-21:19	Common pipistrelle	1	Continuous foraging over front garden and driveway and neighbour's garden to west
21:20-21:24	Common pipistrelle	2	Continuous foraging over front garden and driveway and neighbours garden to west. Feeding buzz
21:25	Common pipistrelle	1	Continuous foraging over front garden and driveway and neighbours garden to west
21:26	Common and soprano pipistrelle	2	Continuous foraging over front garden and driveway and neighbour's garden to west
21:28	Common pipistrelle	1	Foraging east to west
21:29	Common pipistrelle	1	Heard not seen foraging
21:31	Common pipistrelle	1	Brief call quiet. Heard not seen
21:35-36	Common and soprano pipistrelle	2	Heard not seen foraging
21:37	Common pipistrelle and serotine	2	Heard not seen foraging
21:39	Common pipistrelle	1	Very brief quiet call. Heard not seen
21:42	Pipistrelle Sp.	1	Social calls brief. Heard not seen
21:42	Noctule	1	Heard not seen
21:43-21:49	Common pipistrelle	1	Heard not seen foraging
21:50-21:56	Common pipistrelle	2	Heard not seen foraging (social calls)
21:52	Noctule	1	Heard not seen commuting
21:54	Common pipistrelle	1	Heard not seen foraging
21:59	Common pipistrelle	1	Heard not seen foraging, Feeding buzz
22:00	Common pipistrelle	1	Heard not seen commuting

22:02-22:03	Common pipistrelle	1	Heard not seen foraging
22:04	Common pipistrelle	1	Heard not seen commuting



APPENDIX V: Location of ponds



APPENDIX VI: Site photographs



Photo 1: Front (eastern) elevation of main house



Photo 2: Rear (western) elevation of main house



Photo 3: Rear garden



Photo 4: Ornamental planting



Photo 5: Roof detail, eastern elevation, main house



Photo 6: Roof void, main house



Photo 7: Northern elevation of garage



Photo 8: Southern elevation main house, and northern and western elevations of garage



Photo 9: Potential roost feature on garage – damaged/lifted tiles



Photo 10: Roof void within garage