



Elite Ecology

Passionate about Ecology

**Barn Acre,
Wargrave**



Bat Emergence Survey

December 2024

 01782 308418

admin@eliteecology.co.uk
www.eliteecology.co.uk



 Part of Harmil Environmental Ltd.
Company Reg Number: 11310919
Company VAT Number: 320559225

The New Barn, Suites 2/3, Shellow Lane,
Gawsworth, Cheshire, CW12 2FQ



Bat Emergence Survey

Document Control			
Document Properties			
Organisation	Elite Ecology		
Prepared For	Mr. Alex Griffiths (Proprietor)		
Author	Miss. Alison Burke		
Approved (1 st Checker)	Mr. Marek Fraczek		
Approved (2 nd Checker)	Mr. Richard Millington		
Title	Barn Acre, Loddon Drive, Wargrave Bat Emergence Survey		
Version History			
Date	Version	Status	Description/Changes
18/07/2024	V1	Draft	First Draft
23/07/2024	V1	Draft	DNA Results Added
24/07/2024	V1	Final Report	Proofread
18/09/2024	V2	Draft	Bat Emergence Results Added
03/12/2024	V2	Draft	Lates Plans Added and Impact Assessment Updated
03/12/2024	V2	Final Report	Proofread

0. Executive Summary

- 0.1** This report has been prepared at the request of Mr. Alex Griffiths (Proprietor). It relates to the potential presence of bats at the proposed re-development site at Barn Acre, Loddon Drive, Wargrave, Berkshire, RG10 8HN (OS Grid Reference: SU 77423 77707). To fulfil this brief, Elite Ecology undertook both a desktop study and a field survey.
- 0.2** Under the current proposals, the property is to be extended on the ground floor, and also on the first floor.
- 0.3** Due to the amount of potential ingress/egress points and suitable roosting features, the building was deemed as having a **high** potential to support roosting bats and a **low** potential to support nesting birds. Therefore, a minimum of three activity surveys are required during the bat survey season (May to September, inclusive). These were subsequently undertaken in August and September 2024.

0.4 Summary

Bat Presence/Absence

From the survey visit undertaken on the site, it can be concluded that **B1** contains day roosts of soprano pipistrelle (*Pipistrellus pygmaeus*) bats. In addition to this, commuting and foraging brown long-eared (*Plecotus auritus*), common pipistrelle, Daubenton's (*Myotis daubentonii*), Leisler's (*Nyctalus leisleri*), myotis (*Myotis* sp.), noctule (*Nyctalus noctula*), serotine (*Eptesicus serotinus*), and soprano pipistrelle bats are present in the local landscape.

Bird Presence/Absence

No bird presence/evidence was identified in relation to Barn Acre, although there are features present for birds to nest. In addition to this, birds are likely to be present within the local landscape with ample habitat surrounding the site available to support their presence.

Ecological Value of Building Units

The ecological value of the structure has been deemed as **high** to bats due to the presence of roosting soprano pipistrelle bats. The ecological value of the building to birds has been deemed **low** due to the potential features in which birds can create nests during the breeding season.

0.5 Recommendations

The recommendations for Barn Acre, Wargrave can be summarised as follows (please refer to **Section 5 – Recommendations** for a more in-depth description):

- All proposed works are to be undertaken away from the identified bat roosting areas.
- A bat method statement and toolbox talk for contractors are required.
- No works can be undertaken during the bird breeding season of March to August (inclusive) unless the structure has been inspected by a suitably qualified ecologist no more than twenty-four hours before the commencement of works.
- **Optional:** Install a variety of bird boxes around the site post development to enhance the site for the local bird populations. These can be purchased by contacting admin@eliteecology.co.uk.

Bat Emergence Survey

Contents

0. Executive Summary	2
1. Introduction	4
1.1 Report Rationale	4
1.2 Site Description	4
1.3 Proposed Works	5
1.4 Aims of Surveys	5
2. Survey Methodology	6
2.1 Desktop Survey Methodology	6
2.2 Field Survey Methodology	6
2.3 Surveyors Information	9
2.4 Field Surveys	10
3. Results	11
3.1 Desktop Survey Results	11
3.2 Field Surveys	12
4. Impact Assessment	18
4.1 Constraints	18
4.2 Potential Impacts of the Re-development	18
5. Recommendations	20
5.1 Bats	20
5.2 Birds	21
6. Summary	22
6.1 Bat Presence/Absence	22
6.2 Bird Presence/Absence	22
6.3 Ecological Value of Building Units	22
6.4 Recommendations	22
7. References	23
8. Appendices	24
Appendix A: Site Plans	25
Appendix B: Ecological Data Search Maps and Tables	29
Appendix C: Artificial Lighting and Bats	33
Appendix D: Photographic Records	34
Appendix E: The Annual Bat Year (BCT)	49
Appendix F: Legislation and Policy	50
Appendix G: Bat DNA Results	51
9. Notice to Readers: Conditions of this Report	52

1. Introduction

1.1 Report Rationale

This report has been prepared at the request of Mr. Alex Griffiths (Proprietor). It relates to the potential presence of bats and birds at the proposed re-development site at Barn Acre, Loddon Drive, Wargrave, Berkshire, RG10 8HN (OS Grid Reference: SU 77423 77707). To fulfil this brief, Elite Ecology undertook both a desktop study and a field survey.

1.2 Site Description

The site itself is situated in a rural setting within the village and civil parish of Wargrave, Berkshire. The habitats located near the surveyed structure are amenity grassland, hard standing ground, hedgerows, river, and woodland. The building of interest measures a total of approximately 158m². Therefore, the site is considered to contain the potential to support the local bat and bird populations by offering roosting/nesting, commuting, and foraging opportunities.

Figure 1: An aerial photograph of the surveyed site at Barn Acre, Wargrave (as shown by the red outline).



1.3 **Proposed Works**

Under the current proposals, the property is to be extended on the ground floor, and also on the first floor.

1.4 **Aims of Surveys**

The aims of the surveys were to undertake an assessment of the building(s), vegetation and surrounding area to establish whether any bats may be present and, if so, in what way they are using the site. The actions of the surveyors on the site and during the production of this report were conducted in accordance with Bat Conservation Trust (BCT) guidelines (3rd edition).

1.4.1 This survey effort considered the potential for all **bat and bird species (including barn owls)** onsite:

- To establish the possibility of bat roosts and bird nests being present at the proposed development site.
- To assess any roost/nest status (i.e. what type and numbers of individuals).
- To assess suitable food, resources, and habitat requirements on site and in the local landscape.

1.4.2 The information will subsequently be used in conjunction with the knowledge of the proposed works at the site to determine the potential need for further survey effort, the impacts of the proposed scheme of works, to establish whether a Natural England Development Licence is required along with species-specific mitigation and compensation. This is done in order to keep any protected species at a favourable conservation status on site.

2. Survey Methodology

2.1 Desktop Survey Methodology

- 2.1.1 A variety of resources were independently consulted to assess the known local records within the nearby area and the importance of the site within the local landscape from an ecological perspective. The resources used were the Local Records Centre, www.naturalengland.org.uk, www.ordnancesurvey.co.uk, Google Maps, Google Earth, and Bing Maps. A search for other relevant nature conservation information was made using the Multi-Agency Geographic Information for the Countryside (MAGIC) database.
- 2.1.2 The local records centre was contacted to provide data on all bat and bird species within 2km of the proposed development site. Thames Valley Environmental Records Centre (TVERC) were the relevant local record centre for this project.

2.2 Field Survey Methodology

2.2.1 Initial Site Survey

This is done by assessing the site by visually inspecting all building/s/structures and any trees/vegetation to be impacted by the proposed works. This is done to assess the resource availability for protected species on site and in the immediate area. Particular reference is made to:

- The presence or absence of bats and birds onsite.
- Any evidence of potential bat roosts and bird nests onsite.
- Whether any additional survey effort will be required.

During the initial survey, an internal and external inspection of the building(s) is undertaken to look for signs of bat activity. This is done in accordance with BCT guidelines for the assessment of building(s) and built structures.

2.2.2 External Inspection

This survey method is used to locate potential ingress and egress points around the structures that both bats and birds could use to gain access into the building. It also aims to identify any areas where cracks and crevices are present to be used as roosting/nesting features. This visual inspection is carried out in full daylight using binoculars, endoscopes, torches, and ladders. This will allow for the determination of the following information:

- The type of building(s) surveyed.
- The approximate age of building(s) surveyed.
- The construction type and materials used.
- The presence of potential roost features (e.g. missing roof tiles, raised ridge tiles, air vents, cracks, and crevices within the mortar).
- The presence of suitable ingress and egress points (e.g. missing windows and doors, missing mortar, lifted tiles).
- The location of any anecdotal evidence for the presence of protected species (e.g. nests, droppings, or food remains).

2.2.3 Internal Inspection

This survey method aims to locate and examine areas which potentially provide suitable environmental conditions for bats. This visual inspection was undertaken by using binoculars, endoscopes, torches, ladders and bat detectors to inspect internal features of the building(s).

This will allow for the determination of the following information:

- The presence of warm areas, dark areas, joints, crevices, beams, and cavities that could be used for roosting and nesting purposes by bats and birds.
- To locate possible bat roost and bird nest sites.
- To listen for social calling bats.
- To locate any evidence of bat and bird presence through the identification of live or dead specimens, grease marks, droppings, food remnants, urine stains, and/or the characteristic smell of bats.

2.2.4 Building/Vegetation Classification

A building/vegetation classification will be assigned to each surveyed feature that is proposed to be impacted by the scheme of works. This classification is based on the features potential to support roosting bats. The rating is also influenced by the location of the structure(s) in the local landscape, along with the number of suitable alternative roosting features, the type of features present in the landscape and the surveyor's experience. For example:

A structure that has a high level of anthropogenic disturbance with limited opportunities for access by bats, that is also situated within an urbanised area with few, or no mature trees, parkland, woodland, or wetland would generally equate to having **negligible/low** potential.

Conversely, an older structure (e.g. pre 20th century or early 20th century) with multiple features suitable for use by bats that is close to optimal foraging habitat would equate to having **high** potential.

The amount of additional survey effort required for each feature will depend on its rating:

- **Negligible** – No further survey effort is required.
- **Low** – One further activity survey is required (structures only).
- **Moderate** – Two further activity surveys are required.
- **High** – Three further activity surveys are required.

2.2.5 Roost Categories

Any structures with evidence of bats will be further evaluated to assess which of the following roost categories may be present onsite:

➤ **Day Roost:**

A place where individual bats, or small groups of males, rest or shelter during the daytime. These bats are rarely found at night at these sites.

➤ **Feeding Roost:**

A place where individual bats rest or feed during the night but are rarely present in the day.

➤ **Hibernation Roost:**

A place where bats may be found either individually or together during the winter months. These roosts often have a constant cool temperature and high humidity.

➤ **Maternity Roost:**

A place where female bats give birth and raise their young to independence.

➤ **Mating Roost:**

A place where mating/copulation takes place between male and female bats. These can continue through the winter months.

➤ **Night Roost:**

A place where bats rest and/or shelter during the night but will rarely be found here during the day. These can be used colonially or individually by the bats.

➤ **Satellite Roost:**

These are alternative roosting sites that are found within close proximity to the main nursery colony within the maternity roost. These are used throughout the breeding season by individual or small groups of female bats.

➤ **Swarming Site:**

A place where large numbers of bats come together during the latter summer months through until autumn. These sites are classed as being important mating areas.

➤ **Transitional/Occasional Roost:**

A place that is used by individuals or small groups of bats for a small period of time. These are used by the bats before hibernation and/or shortly after hibernation.

2.2.6 Bat Detector Survey (presence/absence survey)

If required, the object for this survey method is to detect any bats leaving or returning to their roost sites within the surveyed features. This is achieved by undertaking dusk and dawn activity surveys under the following protocol:

- Commencing the survey fifteen minutes before sunset (dusk survey) and two hours before sunrise (dawn survey).
- Listening for any social calls at potential roost sites using bat detectors.
- Standing at different survey points around the building(s) and/or vegetation using bat detectors to hear the bat echolocation.
- The survey will attempt to witness the first bats emerging (dusk) and the bats returning (dawn) to their roosts.
- Standing at different transect points at foraging/commuting areas around the site.
- Carrying out this survey methodology for up to two hours after sunset (dusk) and up to fifteen minutes after sunrise (dawn). This will cover the emergence and re-entry of the bats at the potential roost site, for some bat species.

- 2.2.7 In order to comply with the required legislation, the results from the surveys will be collated to establish whether a European Protected Species (EPS) development licence will be required. If required, project appropriate species-specific compensation and mitigation measures will be devised to ensure the species remains at a favourable conservation status at the impacted site.

2.3 Surveyors Information

- 2.3.1 The survey was undertaken by licensed bat ecologist/s and members of the Chartered Institute of Ecology & Environmental Management (CIEEM) and Elite Ecology staff members:

Mr. Matthew Cotterill: PG Dip, Ecologist. Natural England Bat Survey Licence Number: 2019-43981-CLS-CLS Bat Survey Level 1.

Mr. Matthew Nixon: BSc (Hons), Assistant Ecologist

Miss. Rebecca Kay: FdSc, Assistant Ecologist.

Miss. Emily Baughn: MSc, Assistant Ecologist

Miss. Katherine Ward: MSc, Assistant Ecologist

Miss. Louisa Williams: MSc, Assistant Ecologist.

Mr. William Harrington: BSc (Hons), Assistant Ecologist

Bat Emergence Survey

2.4 Field Surveys**2.4.1 Site Surveys**

Elite Ecology were not made aware of any previous site surveys.

2.4.2 Roost Surveys

The building at Barn Acre, Wargrave was externally and internally inspected for the presence of bats with the use of various types of equipment (including binoculars, torches, endoscopes, and ladders) in full daylight. Subsequent emergence surveys use a variety of bat detectors that include Bat Box Duet, SSF Bat2, ODRO NightVision Camcorder, EchoMeter Touch and the EcoObs Batcorder. The following table outlines the environmental variables from the survey visits:

Environmental variables	PRA Survey of the Building – 15 th July 2024. Daytime	1 st Emergence Survey of B1- 1 st of August 2024. Dusk	2 nd Emergence Survey of B1– 22 nd of August 2024. Dusk	3 rd Emergence Survey of B1– 12 th of September 2024. Dusk
Temp Start:	18°C	20°C	18°C	11°C
Temp Finish:	18°C	19°C	17°C	8°C
Humidity Start:	82%	91%	88%	76%
Humidity Finish:	82%	91%	88%	85%
Cloud Cover Start:	100%	70%	90%	95%
Cloud Cover Finish:	100%	40%	80%	30%
Wind Speed Average:	9km/hr	7km/hr	15km/hr	11km/hr
Precipitation:	None	None	None	None

3. Results

3.1 Desktop Survey Results

The ecological data search provided by TVERC revealed multiple bat and bird species within the 2km search radius of the structure at Barn Acre, Wargrave.

3.1.1 Bats

The ecological data search revealed several bat records within the 2km search radius.

The UKBAP species recorded in the search were brown long-eared (*Plecotus auritus*), noctule (*Nyctalus noctula*), and soprano pipistrelle (*Pipistrellus pygmaeus*) bats. The non-UKBAP bat species recorded in the search were common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's (*Myotis daubentonii*), Leisler's (*Nyctalus leisleri*), Nathusius's pipistrelle (*Pipistrellus nathusii*), Natterer's (*Myotis nattereri*), serotine (*Eptesicus serotinus*), and whiskered (*Myotis mystacinus*) bats.

In addition to these, there were a few records of unidentified bat (*Chiroptera* sp.), unidentified long-eared bat (*Plecotus* sp.), unidentified myotis (*Myotis* sp.), and unidentified pipistrelle (*Pipistrellus* sp.) specimens within the search radius.

The nearest records to the site pertain to brown long-eared, common pipistrelle, and Nathusius's pipistrelle, noctule, and soprano specimens, all located approximately 70m to the south-west.

3.1.2 Birds

Within the ecological data set received by TVERC, eighty-seven bird species were revealed. The nearest records to the site pertain to barnacle goose (*Branta leucopsis*), dunnoek (*Prunella modularis*), fieldfare (*Turdus pilaris*), greylag goose (*Anser anser*), little egret (*Egretta garzetta*), mallard (*Anas platyrhynchos*), pochard (*Aythya ferina*), redshank (*Tringa tetanus*), redwing (*Turdus iliacus*), red kite (*Milvus milvus*), rook (*Corvus frugilegus*), song thrush (*Turdus philomelos*), widgeon (*Mareca Penelope*), woodpigeon (*Columba palumbus*), and wren (*Troglodytes troglodytes*), all located approximately 200m to the south-west.

3.1.3 Designated Sites

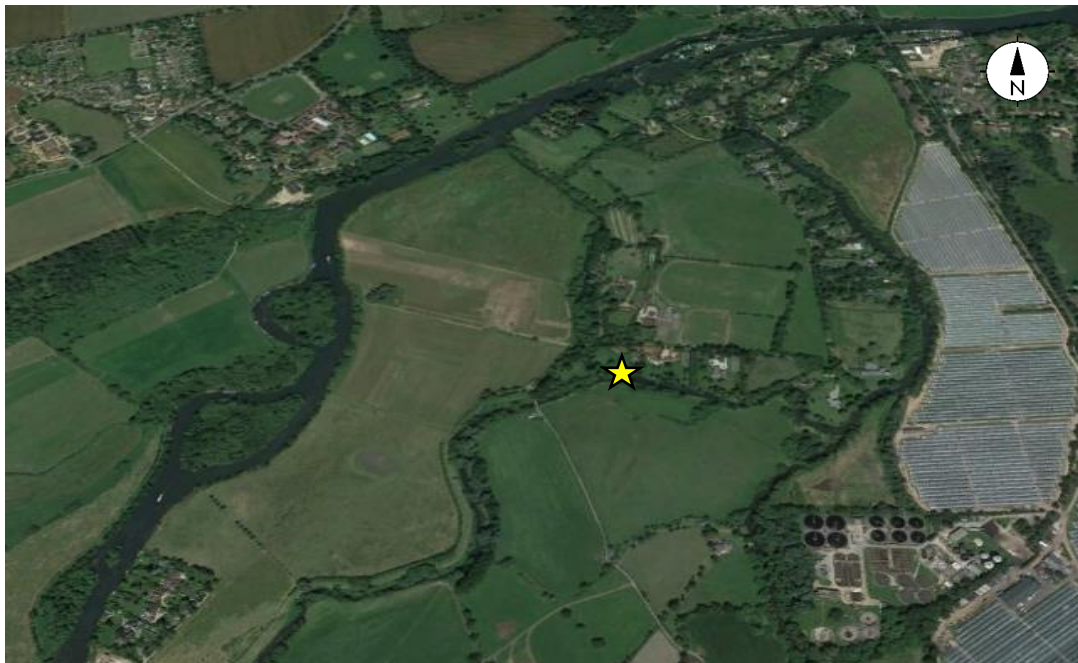
As the current proposals remain within the site boundary, it was not necessary to obtain any further information regarding both Statutory and Non-Statutory Nature Conservation Designations. This is due to the proposed works not altering any of the landscape surrounding the site.

3.2 **Field Surveys**

3.2.1 **Habitat Description**

Barn Acre is situated in a rural setting within the village and civil parish of Wargrave, Berkshire. There is amenity grassland, hard standing ground, scattered trees, and woodland on site. Within the wider landscape, further habitats are present, which come in the form of arable land, hedgerows, parkland, pastureland, residential dwellings (with their associated gardens), waterways (rivers and streams), and scattered trees are evident within the wider landscape. Therefore, the habitats that are present in and around the site contain all the elements that are critical in both bat and bird life cycles.

Figure 2: An aerial photograph of the surveyed site (yellow star) and some of the nearby habitats to Barn Acre, Wargrave.



3.2.2 Building Survey

External Inspection

The surveyed structure is a detached residential building and is constructed of solid brick walls. The walls consist of exposed brickwork with hanging tiles decorating the dormers and the gabled roof is pitched with clay and ridge tiles. The window frames are wooden, as well as the door, with no noticeable gaps around these features. Lead flashing has been used around the dormers, with some gaps present in areas. Wooden fascia and bargeboards are present, with gaps in these features providing opportunities for bats and birds to enter the building. The structure was found to have some gaps around the soffit box, and at the eaves. In addition to this, a conservatory is also present with a glass roof. The building has thick honeysuckle (*Lonicera* sp.) vegetation growing up the brickwork on the southern aspect of the building which would provide climbing opportunities for bats to roost within. Upon the external walls, artificial lighting has been installed around entrance points to the property, with a sensor noted, although some of the lights are not on a sensor.

The roof of the building is gable shaped, with dormer windows included. The building was found to have various slipped, lifted, and dislodged tiles, providing potential roosting opportunities for bats. There are also some gaps under the ridge tiles, once again providing potential roosting opportunities.

Whilst bird nests were not found externally, there is a bird box present that could be utilised by breeding birds.

No external evidence of bat presence was noted.

Internal Inspection

The internal inspection revealed that the structure is currently in use as a residential dwelling, with a boarded loft void. The loft void is roughly 2m in height, with timber beams supporting the roof structure. The roof is lined with a combination of bitumen felt and a breathable material. The internal walls appear to have been painted or plastered, with single skin brick the other side. No cracks or gaps are evident in the wall for roosting or nesting opportunities.

Cobwebs are present inside the loft space, with a number of bat droppings scattered throughout. These were found both along the floor underneath the ridge beam, as well as on the exterior of the lining material. The droppings did not appear fresh, but may have been from the previous twelve months. These droppings were sent for DNA analysis, with the results shown in **Section 3.2.4**. A deceased bat was found within the void, confirming bats can access the void, however this was too desiccated to identify. In addition to this, mouse droppings were found, as well as a wasp nest. No bird nests were noted internally.

3.2.3 Summary of the Building Inspection

Due to the amount of potential ingress/egress points and suitable roosting features, the structure at Barn Acre, Wargrave were deemed as having the following bat and bird potential.

Table 1: The potentials of the building to support roosting bats and nesting birds, at Barn Acre, Wargrave.

Building	Nesting Bird Potential	Bat Roost Potential	Number of bat activity surveys required	Number of surveyors required for bat activity survey
Barn Acre	Low	High	3	6

Therefore, a minimum of three bat emergence surveys are required on the property during the bat survey season of May to September, with at least two of these surveys required during the optimal months of mid-May and August.

Table 2: Low/Moderate/High potential building(s) survey recommendations. The full guidance can be found in the Bat Conservation Trust Good Practice Survey Guidelines. These guidelines are what all local authorities abide by.

Bat Conservation Trust

Table 7.3 Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).

Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit. One dusk emergence or dawn re-entry survey ^a (structures). No further surveys required (trees).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey. ^b	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn. ^b

^a Structures that have been categorised as low potential can be problematic and the number of surveys required should be judged on a case-by-case basis (see Section 5.2.9). If there is a possibility that quiet calling, late-emerging species are present then a dawn survey may be more appropriate, providing weather conditions are suitable. In some cases, more than one survey may be needed, particularly where there are several buildings in this category.

^b Multiple survey visits should be spread out to sample as much of the recommended survey period (see Table 7.1) as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more. A dawn survey immediately after a dusk one is considered only one visit.

3.2.4 DNA Results

A small sample of droppings were collected and sent for DNA analysis at EcoWarwicker, based at the University of Warwick. The results from this assessment identified the species to be soprano pipistrelle (*Pipistrellus pygmaeus*).

Please be aware that results from DNA testing reflect the droppings collected. This may not be a true representation of all species using the surveyed site.

3.2.5 Emergence Surveys

Three emergence surveys were undertaken on the buildings on the 1st and 22nd of August, and the 12th of September 2024.

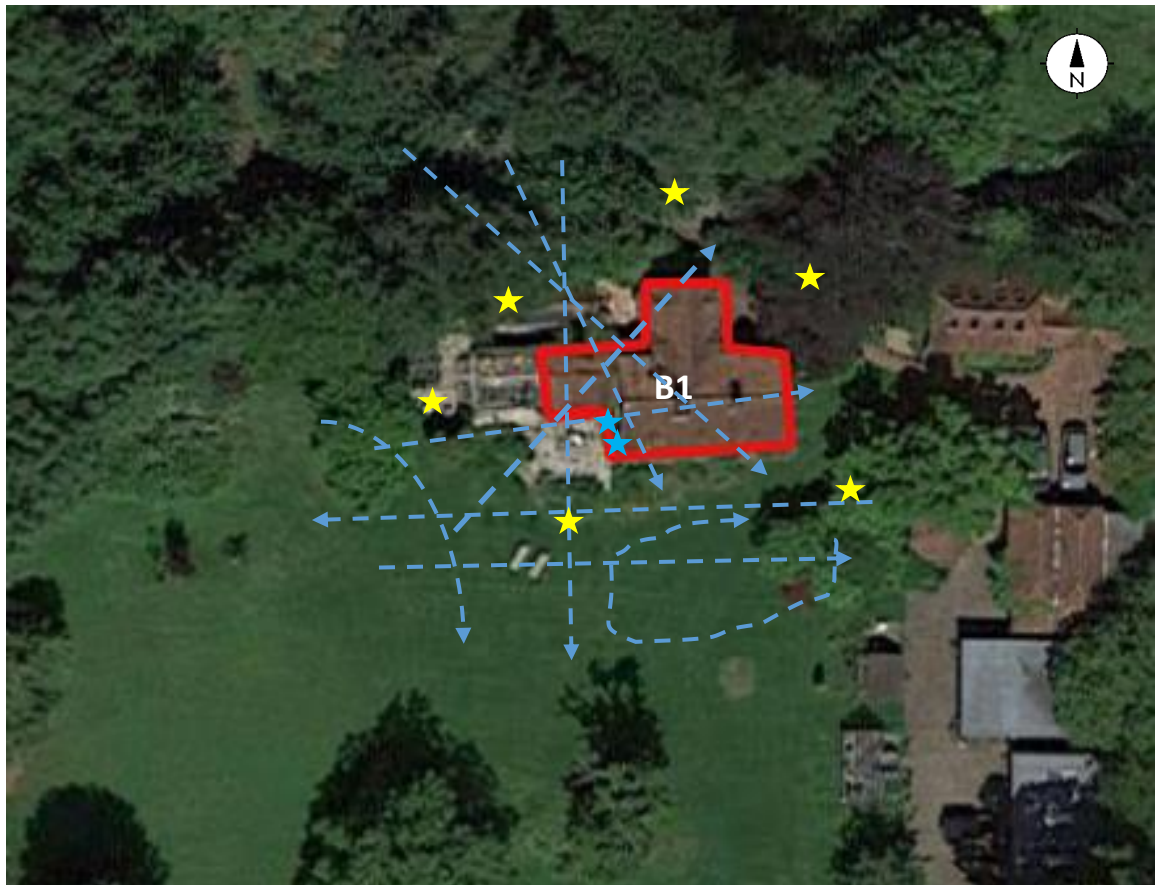
Emergence Survey 1 (1st of August 2024)

The emergence survey was undertaken at dusk, with sunset being recorded at 20:50.

During the survey three bat emergences were recorded from the south western gable end of **B1**. These were of soprano pipistrelle (*Pipistrellus pygmaeus*).

The site was utilised by common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's (*Myotis daubentonii*), Leisler's (*Nyctalus leisleri*), myotis (*Myotis* sp.), noctule (*Nyctalus noctula*), serotine (*Eptesicus serotinus*), and soprano pipistrelle (*Pipistrellus pygmaeus*) bats for passing, foraging, and socialising.

Figure 3: An aerial photograph of the surveyed building (red outline), the surveyor locations (yellow stars) and the common bat flight paths (dotted blue lines). The soprano pipistrelle bat emergence points are shown by the blue stars.



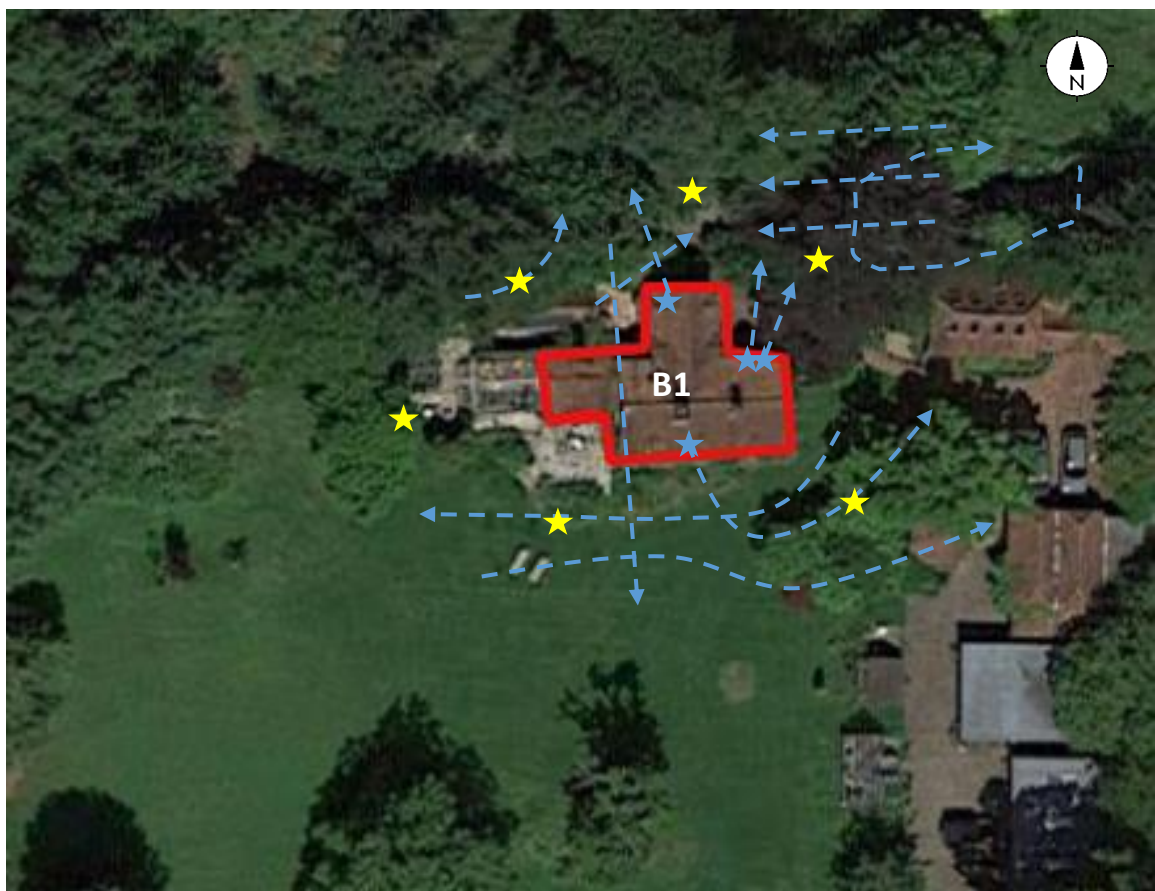
Emergence Survey 2 (22nd of August 2024)

The emergence survey was undertaken at dusk, with sunset being recorded at 20:12.

During this survey, five soprano pipistrelle bats were identified emerging from the north side of the structure from underneath slate tiles on the roof.

In addition to this, the site was utilised by brown long eared (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's (*Myotis daubentonii*), myotis (*Myotis* sp.), noctule (*Nyctalus noctula*), serotine (*Eptesicus serotinus*), and soprano pipistrelle (*Pipistrellus pygmaeus*) bats for passing, foraging, and socialising.

Figure 4: An aerial photograph of the surveyed buildings (red outline), the surveyor locations (yellow stars) and the common bat flight paths (dotted blue lines). The soprano pipistrelle bat emergence points are shown by the blue stars.

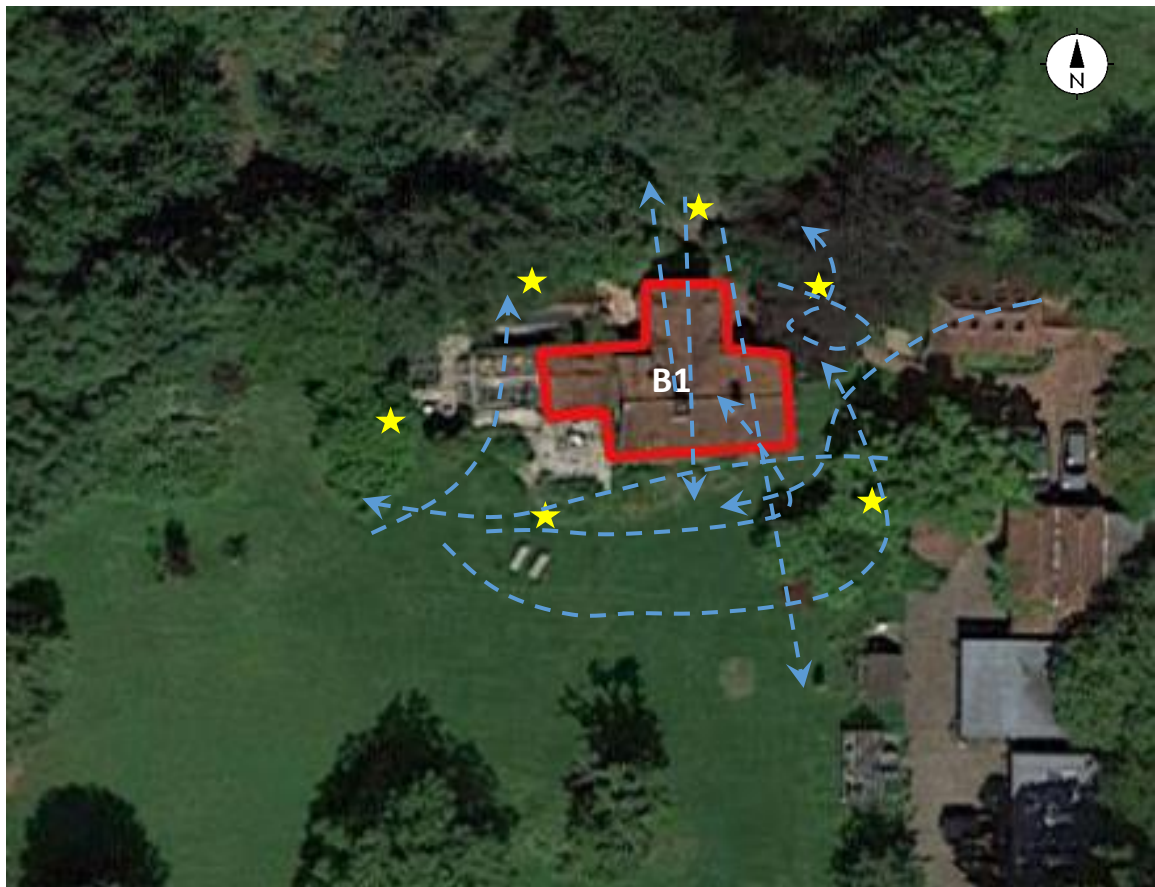


Emergence Survey 3 (12th of September 2024)

The activity survey was undertaken at dusk with sunset being recorded at 19:25.

During the survey no emergences were recorded, however the site was utilised by common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's (*Myotis daubentonii*), serotine (*Eptesicus serotinus*), and soprano pipistrelle (*Pipistrellus pygmaeus*) bats for passing, foraging, and socialising.

Figure 5: An aerial photograph of the surveyed buildings (red outline), the surveyor locations (yellow stars) and the common bat flight paths (dotted blue lines).

**Summary**

In summary, the structure has been shown to be in use as a day roosts for soprano pipistrelle bats. The bat roosts are not located where the proposed extension and works will occur.

In addition to this, foraging and commuting brown long eared (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's (*Myotis daubentonii*), Leisler's (*Nyctalus leisleri*), myotis (*Myotis* sp.), noctule (*Nyctalus noctula*), serotine (*Eptesicus serotinus*), and soprano pipistrelle (*Pipistrellus pygmaeus*) bats were detected around the site.

4. Impact Assessment

4.1 Constraints

Constraints on:	Survey Information	Equipment Used
Constraint (Yes or No):	No	No
Explanation of Constraints:	N/A	N/A
Action Taken:	N/A	N/A

4.2 Potential Impacts of the Re-development

Under the current proposals, the property is to be extended on the ground floor, and also on the first floor. The potential impacts of these works have been identified as follows:

4.2.1 Designated Sites

As the proposed works are believed to remain within the site boundary, the presence of any designated sites nearby does not apply to this project. This, therefore, means that any building works would be of no detriment to the surrounding habitats and landscape.

4.2.2 Bat Roosts

	Short-term Impacts: Disturbance	Long-term Impacts: Roost Modification	Long-term Impacts: Roost Loss
Classification:	Low	Negligible	Negligible
Justification:	The structure was found to support day roosts of soprano pipistrelle (<i>Pipistrellus pygmaeus</i>) bats.	The identified soprano pipistrelle (<i>Pipistrellus pygmaeus</i>) bat roosts are not located where the proposed extension is to be undertaken.	The identified soprano pipistrelle (<i>Pipistrellus pygmaeus</i>) bat roosts are not located where the proposed extension is to be undertaken.
Any further action:	Species-specific mitigation measures are required (please see Section 5 for more information).	No further action is required.	No further action is required.

4.2.3 Bird Nests

B1 was deemed to have a **low** potential to support nesting birds due to the absence of nests. There was one nest box present attached to the north west aspect of the building. No optimal nesting features were identified, and bird droppings were absent from the surveyed site at the time of surveying. Any building work will therefore have a low impact on local bird populations.

4.2.4 Foraging and Commuting Habitat

It is considered that the re-development of the site would have a **negligible** effect on potential foraging and commuting habitat. The site itself offers little foraging habitat, with the adjacent land containing better opportunities for bats to use. Post development, all foraging and commuting habitats will be maintained, thus not negatively affecting the local landscape.

5. Recommendations

5.1 Bats

From the site survey, it has been established that Barn Acre contains roosting bats. The roosts are classified as soprano pipistrelle (*Pipistrellus pygmaeus*) day roosts. It is worth noting that the identified roosts are not where the proposed works will be undertaken.

These are bats. In addition to this, commuting and foraging brown long-eared (*Plecotus auritus*), common pipistrelle, Daubenton's (*Myotis daubentonii*), noctule (*Nyctalus noctula*), serotine (*Eptesicus serotinus*), and soprano pipistrelle bats are present in the local landscape.

Due to the works being undertaken away from the identified bat roosting area. Therefore, no Natural England Mitigation Licence is required.

Due to the proximity of the works to the identified bat roosts, a bat method statement will be required to be followed. A toolbox talk prior to the commencement of works with building contractors is also required, ensuring the contractors know what to do should a bat be found unexpectedly.

As all bat roosts will be retained, no mitigation measures are required for the site.

Artificial lighting should be avoided around compensatory roosting features. If artificial lighting is required, a sensitive lighting plan with sensor lights triggered by large bodies should be incorporated.

Optional Bat Site Enhancements

To improve the roosting opportunities on site, a variety of Bat Boxes can be installed in varying locations. These can be purchased by contacting admin@eliteecology.co.uk.

Bat Emergence Survey

The site can further be enhanced by introducing a bat friendly planting scheme in the soft landscaping plan. The table below outlines species recommended by the Bat Conservation Trust, all of which could be incorporated into the site post development.

Flowers for borders	Trees, shrubs & climbers
Aubretia	Bramble
Candytuft	Common alder
Cherry pie	Dogrose
Corncockle	Elder
Corn marigold	English oak
Corn poppy	Gorse
Echniacea	Guelder rose
English bluebell	Hawthorn
Evening primrose	Hazel
Field poppies	Honeysuckle (native)
Honesty	Hornbeam
Ice plant 'pink lady'	Ivy
Knapweed	Jasmine
Mallow	Pussy willow
Mexican aster	Rowan
Michaelmas daisy	Silver birch
Night-scented stock	Herbs
Ox-eye daisy	Angelica
Phacelia	Bergamot
Poached egg plant	Borage
Primrose	Coriander
Red campion	English marigolds
Red valerian	Fennel
Scabious	Feverfew
St. John's Wort	Hyssop
Sweet William	Lavenders
Tobacco plant	Lemon balm
Verbena	Marjoram
Wallflowers	Rosemary
Wood forget-me-not	Sweet Cicely
Yarrow	Thyme

5.2 Birds

Due to the lack of evidence of nesting birds and no suitable features identified within the site boundary, no further action is required to mitigate the impacts of the proposed works on nesting birds.

No works can be undertaken during the bird breeding season of March to August (inclusive) unless the structure has been inspected by a suitably qualified ecologist no more than twenty-four hours before the commencement of works.

Bird Site Enhancements

Although the proposed works were deemed **low** in their impact on nesting birds, the site could still be enhanced post development. As an optional site enhancement, bird boxes can be installed on site to enhance nesting opportunities for birds in the local area. The following models are recommended but similar alternatives are also acceptable: [Vivara Pro WoodStone Swift Nest Box](#) and/or [Sparrow Terrace Nest Box](#).

6. Summary

6.1 Bat Presence/Absence

From the survey visit undertaken on the site, it can be concluded that **B1** contains day roosts of soprano pipistrelle (*Pipistrellus pygmaeus*) bats. In addition to this, commuting and foraging brown long eared (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's (*Myotis daubentonii*), Leisler's (*Nyctalus leisleri*), myotis (*Myotis* sp.), noctule (*Nyctalus noctula*), serotine (*Eptesicus serotinus*), and soprano pipistrelle (*Pipistrellus pygmaeus*) bats are present in the local landscape.

6.2 Bird Presence/Absence

No bird presence/evidence was identified in relation to Barn Acre, although there are features present for birds to nest. In addition to this, birds are likely to be present within the local landscape with ample habitat surrounding the site available to support their presence.

6.3 Ecological Value of Building Units

The ecological value of the structure has been deemed as **high** to bats due to the presence of roosting soprano pipistrelle bats.

The ecological value of the building to birds has been deemed **low** due to the potential features in which birds can create nests during the breeding season.

6.4 Recommendations

The recommendations for Barn Acre, Wargrave can be summarised as follows (please refer to **Section 5 – Recommendations** for a more in-depth description):

- All proposed works are to be undertaken away from the identified bat roosting areas.
- A bat method statement and toolbox talk for contractors are required.
- No works can be undertaken during the bird breeding season of March to August (inclusive) unless the structure has been inspected by a suitably qualified ecologist no more than twenty-four hours before the commencement of works.
- **Optional:** Install a variety of bird boxes around the site post development to enhance the site for the local bird populations. These can be purchased by contacting admin@eliteecology.co.uk.

7. References

Bat Conservation Trust (2023). *Bat Surveys – Good Practice Guidelines*. 4th Edition. Bat Conservation Trust: London.

Berthinussen, A. & Altringham, J.D. (2012). The effect of a major road on bat diversity. *Journal of Applied Ecology* 49: p.p. 82–89.

Biodiversity Action Reporting System (2010). *Biodiversity Action in Staffordshire*. BARS. [Online]. Available at: http://ukbap-reporting.org.uk/plans/map_county.asp.

BSBI (2008). *BSBI 2007 List*. [Online]. Available at: <http://www.bsbi.org.uk/html/database.html>.

Countryside and Rights of Way Act 2000 (c.37). London: HMSO.

Dietz, C., von Helversen, O. & Nill, D. (2009) *Bats of Britain, Europe and Northwest Africa*. London: A. C. Black

Hutson, A.M., Spitzenberger, F., Aulagnier, S., Coroiu, I., Karataş, A., Juste, J., Paunovic, M., Palmeirim, J. & Benda, P. (2008) *Pipistrellus pipistrellus*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.1

Mitchell-Jones, A.J. (2004) *Bat mitigation guidelines*. English Nature. Peterborough.

Reason, P.F. and Wray, S. (2023). *UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats*. Chartered Institute of Ecology and Environmental Management, Ampfield

RSPB (2002). *The Population Status of Birds in the UK 2002-2007*

Rydell J & Racey, P A (1993). Street lamps and the feeding ecology of insectivorous bats. Recent Advances in Bat Biology, *Zool Soc Lond Symposium* abstracts.

The Conservation of Habitats and Species Regulations 2017 (Amendment). SI 2017/1012.

The Conservation (Natural Habitats, &c.) (Amendment) Regulations 2007. SI 2007/1843, London: HMSO.

UK Biodiversity Action Plan (2007). *UK List of Priority Species*. Joint Nature Conservation Committee. [Online]. Available at: <http://www.ukbap.org.uk/NewPriorityList.aspx>.

Wildlife and Countryside Act 1981 (and amendments) (c.69). London: HMSO.

8. Appendices

Appendix A: Site Plans

Appendix B: Ecological Data Search Maps and Tables

Appendix C: Artificial Light and Bats

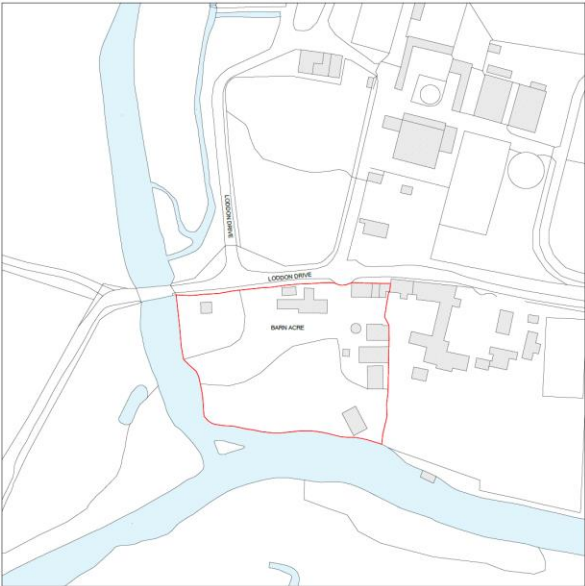
Appendix D: Photographic Records

Appendix E: The Annual Bat Year (BCT)

Appendix F: Legislation

Appendix G: Bat DNA Results

Appendix A: Site Plans



Copyright Fineline Architects Ltd. This drawing, or any of its contents, may not be copied, reproduced or distributed without the written consent of Fineline Architects. Do not scale off this drawing. Figure dimensions to be taken from this drawing only. All contractors, subcontractors and/or specialists are responsible for taking and checking all dimensions relating to their work on site. This drawing is to be read in conjunction with all consultants information.

Revision	Issue Date	Drawn By	Checked By
----------	------------	----------	------------



GENERAL NOTES - LOCATION

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL GENERAL ARRANGEMENT, PROJECT DETAILS, SPECIFICATIONS AND CONSULTANTS DRAWINGS.
2. UNLESS NOTED OTHERWISE, ALL DIMENSIONS ARE TO STRUCTURAL FACES AND/OR PARTITION STUDS.
3. LEGEND
4. ALL ELEMENTS OF WORK TO BE INSTALLED ACCORDING TO THE APPROPRIATE MANUFACTURER'S INSTRUCTIONS.

Status
PLANNING

Project
BARN ACRE
LODDON DRIVE, RG10 8HN
Drawing Title
LOCATION PLAN

Date	Scale	Drawn By	Checked By
AUG 2024	1:1250 @ A3	CA	KA
Project No.	Drawing No.	Revision	
24.122	PL.1200	-	

fineline

01491 120 120
studio@finelinearchitects.co.uk
finelinearchitects.co.uk



Copyright Fineline Architects Ltd. This drawing, or any of its contents, may not be copied, reproduced or distributed without the written consent of Fineline Architects. Do not scale off this drawing. Figure dimensions to be taken from this drawing only. All contractors, subcontractors and/or specialists are responsible for taking and checking all dimensions relating to their work on site. This drawing is to be read in conjunction with all consultants information.

Revision	Issue Date	Drawn By	Checked By
----------	------------	----------	------------



GENERAL NOTES - SITE PLAN

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL GENERAL ARRANGEMENT, PROJECT DETAILS, SPECIFICATIONS AND CONSULTANTS DRAWINGS.
2. UNLESS NOTED OTHERWISE, ALL DIMENSIONS ARE TO STRUCTURAL FACES AND/OR PARTITION STUDS.
3. LEGEND
4. ABBREVIATIONS:
SVP SOIL AND VENT PIPE
DP DRAINAGE POINT
RWP RAIN WATER PIPE
BIS BACK INLET GULLY
5. ALL ELEMENTS OF WORK TO BE INSTALLED ACCORDING TO THE APPROPRIATE MANUFACTURER'S INSTRUCTIONS.

Status
PLANNING

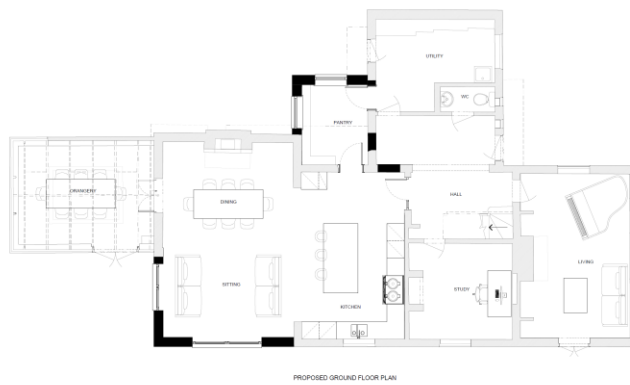
Project
BARN ACRE
LODDON DRIVE, RG10 8HN
Drawing Title
EXISTING BLOCK PLAN

Date	Scale	Drawn By	Checked By
AUG 2024	1:500 @ A3	CA	KA
Project No.	Drawing No.	Revision	
24.122	PL.1201	-	

fineline

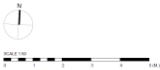
01491 120 120
studio@finelinearchitects.co.uk
finelinearchitects.co.uk

Bat Emergence Survey



Copyright © Elite Ecology Ltd. This drawing is one of a number of drawings in a set of drawings prepared for the purpose of a planning application. It is not to be used for any other purpose without the written consent of Elite Ecology Ltd. The drawings are prepared to the best of our knowledge and belief, but we do not accept any liability for any errors or omissions, or for any consequences arising from the use of the drawings. The drawings are prepared in accordance with the requirements of the Building Regulations 2010 and the Planning (Listed Buildings and Conservation Areas) Act 1967.

Project: Barn Acre, Wargrave Date: 10/10/2023 Scale: 1:500



GENERAL NOTES: PLANS & ELEVATIONS

1. THE DRAWINGS SHALL BE USED IN CONJUNCTION WITH ALL GENERAL NOTES AND SPECIFICATIONS AND SHALL BE USED TO CONSTRUCT THE BUILDING.
2. THE DRAWINGS SHALL BE USED TO CONSTRUCT THE BUILDING IN ACCORDANCE WITH THE BUILDING REGULATIONS 2010 AND THE PLANNING (LISTED BUILDINGS AND CONSERVATION AREAS) ACT 1967.
3. THE DRAWINGS SHALL BE USED TO CONSTRUCT THE BUILDING IN ACCORDANCE WITH THE BUILDING REGULATIONS 2010 AND THE PLANNING (LISTED BUILDINGS AND CONSERVATION AREAS) ACT 1967.
4. ALL DIMENSIONS OF WORK TO BE INSTALLED SHALL BE TO THE DIMENSIONS SHOWN ON THESE DRAWINGS.

Date: 10/10/2023

Project: BARN ACRE, LODDON DRIVE, RG10 5HN

Proposed: PROPOSED FIRST FLOOR PLAN

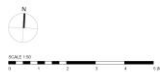
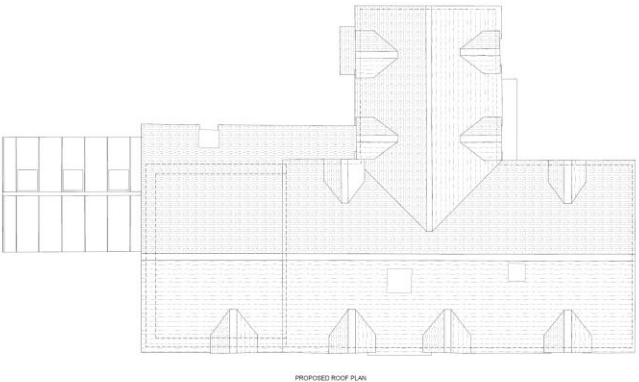
Date: 10/10/2023
Drawn by: 1000-00-01
Checked by: 1000-00-01
Project: BARN ACRE, LODDON DRIVE, RG10 5HN

fineline

0100 000 000
0100 000 000
0100 000 000

Copyright © Elite Ecology Ltd. This drawing is one of a number of drawings in a set of drawings prepared for the purpose of a planning application. It is not to be used for any other purpose without the written consent of Elite Ecology Ltd. The drawings are prepared to the best of our knowledge and belief, but we do not accept any liability for any errors or omissions, or for any consequences arising from the use of the drawings. The drawings are prepared in accordance with the requirements of the Building Regulations 2010 and the Planning (Listed Buildings and Conservation Areas) Act 1967.

Project: Barn Acre, Wargrave Date: 10/10/2023 Scale: 1:500



GENERAL NOTES: PLANS & ELEVATIONS

1. THE DRAWINGS SHALL BE USED IN CONJUNCTION WITH ALL GENERAL NOTES AND SPECIFICATIONS AND SHALL BE USED TO CONSTRUCT THE BUILDING.
2. THE DRAWINGS SHALL BE USED TO CONSTRUCT THE BUILDING IN ACCORDANCE WITH THE BUILDING REGULATIONS 2010 AND THE PLANNING (LISTED BUILDINGS AND CONSERVATION AREAS) ACT 1967.
3. THE DRAWINGS SHALL BE USED TO CONSTRUCT THE BUILDING IN ACCORDANCE WITH THE BUILDING REGULATIONS 2010 AND THE PLANNING (LISTED BUILDINGS AND CONSERVATION AREAS) ACT 1967.
4. ALL DIMENSIONS OF WORK TO BE INSTALLED SHALL BE TO THE DIMENSIONS SHOWN ON THESE DRAWINGS.

Date: 10/10/2023

Project: BARN ACRE, LODDON DRIVE, RG10 5HN

Proposed: PROPOSED ROOF PLAN

Date: 10/10/2023
Drawn by: 1000-00-01
Checked by: 1000-00-01
Project: BARN ACRE, LODDON DRIVE, RG10 5HN

fineline

0100 000 000
0100 000 000
0100 000 000



GENERAL NOTES - PLANS & ELEVATIONS

1. THIS DRAWING IS TO BE USED IN CONJUNCTION WITH ALL GENERAL REQUIREMENTS, PARTICULARLY DETAIL SPECIFICATIONS AND CONSULTANT DRAWINGS.
2. THESE NOTES CONCERN ALL WORKMANSHIP AND TO EXISTENTIAL FACTS AND PARTITION STOPS.
3. ASSUMPTIONS:
 - CLAY ROOF FLEES TO MATCH EXISTING
 - CLAY ROOF FLEES TO MATCH EXISTING
 - CLAY ROOF FLEES TO MATCH EXISTING
 - CLAY ROOF FLEES TO MATCH EXISTING
4. ALL ELEMENTS OF WORK TO BE INSTALLED ACCORDING TO THE APPROPRIATE MANUFACTURER'S INSTRUCTIONS.

PLANNING

BARN ACRE
LODDON DRIVE, RG10 8HN

PROPOSED ELEVATIONS
SHEET 1

Date: AUG 2024 Scale: 1:50 @ A1 Drawn by: CA Checked by: KA
Project No: 24.122 Drawing No: PL.1010 Revisions: -

fineline

0101 120 000
0101 120 000
0101 120 000

GENERAL NOTES - PLANS & ELEVATIONS

1. THIS DRAWING IS TO BE USED IN CONJUNCTION WITH ALL GENERAL REQUIREMENTS, PARTICULARLY DETAIL SPECIFICATIONS AND CONSULTANT DRAWINGS.
2. THESE NOTES CONCERN ALL WORKMANSHIP AND TO EXISTENTIAL FACTS AND PARTITION STOPS.
3. ASSUMPTIONS:
 - CLAY ROOF FLEES TO MATCH EXISTING
 - CLAY ROOF FLEES TO MATCH EXISTING
 - CLAY ROOF FLEES TO MATCH EXISTING
 - CLAY ROOF FLEES TO MATCH EXISTING
4. ALL ELEMENTS OF WORK TO BE INSTALLED ACCORDING TO THE APPROPRIATE MANUFACTURER'S INSTRUCTIONS.

PLANNING

BARN ACRE
LODDON DRIVE, RG10 8HN

PROPOSED ELEVATIONS
SHEET 2

Date: AUG 2024 Scale: 1:50 @ A1 Drawn by: CA Checked by: KA
Project No: 24.122 Drawing No: PL.1011 Revisions: -

fineline

0101 120 000
0101 120 000
0101 120 000



SCALE 1:50
1 2 3 4 5 6

Bat Emergence Survey

Appendix B: Ecological Data Search Maps and Tables

The results within the following table are a collation of the bird and bat species identified within the desktop search, undertaken by TVERC.

Bats	
Common Name	Latin Name
Bats	Chiroptera
Brown Long-eared Bat	<i>Plecotus auritus</i>
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>
Daubenton's Bat	<i>Myotis daubentonii</i>
Leisler's Bat	<i>Nyctalus leisleri</i>
Nathusius's Pipistrelle	<i>Pipistrellus nathusii</i>
Natterer's Bat	<i>Myotis nattereri</i>
Noctule Bat	<i>Nyctalus noctula</i>
Pipistrelle Bat species	<i>Pipistrellus</i> sp.
Serotine Bat	<i>Eptesicus serotinus</i>
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>
Unidentified Long-eared Bat	<i>Plecotus</i> sp.
Unidentified Myotis	<i>Myotis</i> sp.
Whiskered Bat	<i>Myotis mystacinus</i>

Birds	
Common Name	Latin Name
Barn Owl	<i>Tyto alba</i>
Barnacle Goose	<i>Branta leucopsis</i>
Bittern	<i>Botaurus stellaris</i>
Black-headed Gull	<i>Chroicocephalus ridibundus</i>
Black-tailed Godwit	<i>Limosa limosa</i>
Brambling	<i>Fringilla montifringilla</i>
Bullfinch	<i>Pyrrhula pyrrhula</i>
Cetti's Warbler	<i>Cettia cetti</i>
Common Gull	<i>Larus canus</i>
Common Sandpiper	<i>Actitis hypoleucos</i>
Common Tern	<i>Sterna hirundo</i>

Bat Emergence Survey

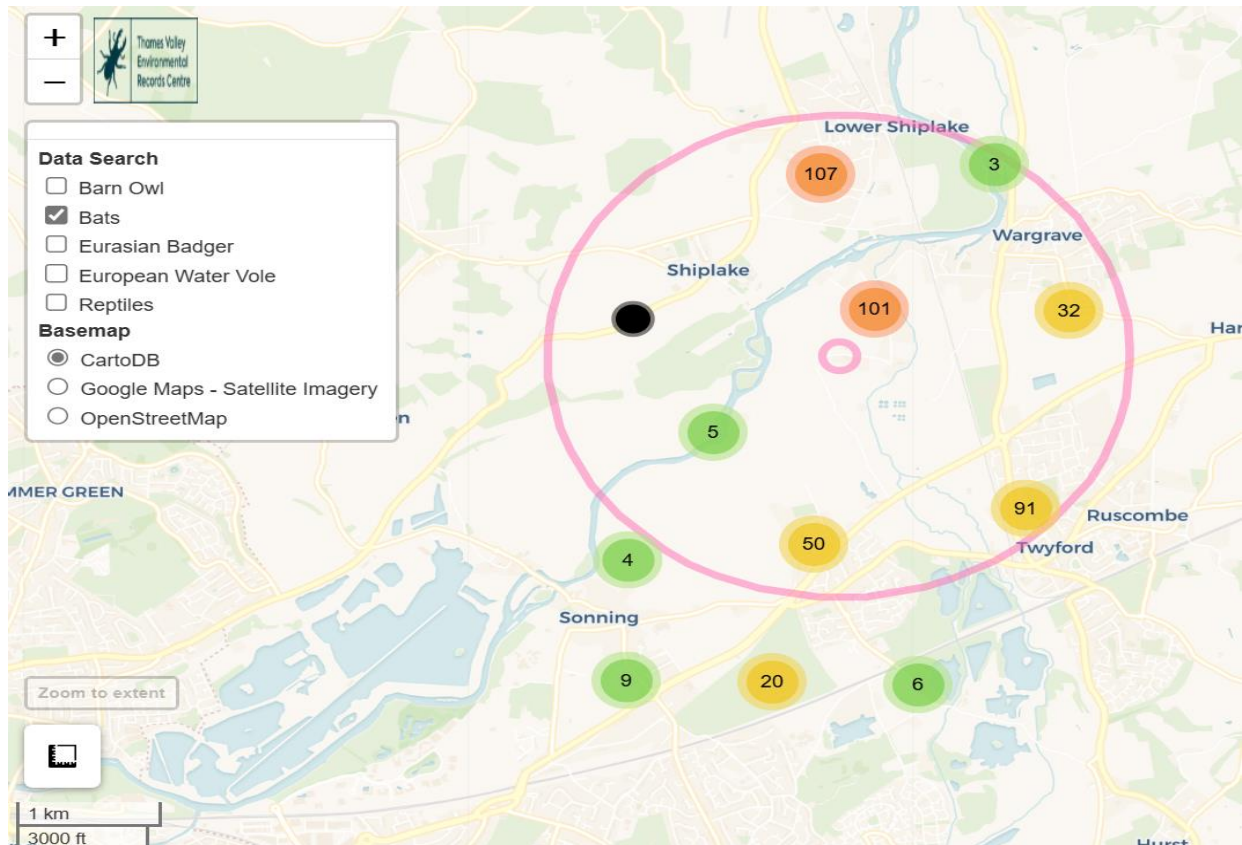
Cuckoo	<i>Cuculus canorus</i>
Curlew	<i>Numenius arquata</i>
Dunlin	<i>Calidris alpina</i>
Dunnock	<i>Prunella modularis</i>
Fieldfare	<i>Turdus pilaris</i>
Firecrest	<i>Regulus ignicapilla</i>
Gadwall	<i>Anas strepera</i>
Golden Plover	<i>Pluvialis apricaria</i>
Goldeneye	<i>Bucephala clangula</i>
Great Black-backed Gull	<i>Larus marinus</i>
Green Sandpiper	<i>Tringa ochropus</i>
Greenfinch	<i>Chloris chloris</i>
Grey Wagtail	<i>Motacilla cinerea</i>
Greylag Goose	<i>Anser anser</i>
Hawfinch	<i>Coccothraustes coccothraustes</i>
Herring Gull	<i>Larus argentatus</i>
Hobby	<i>Falco Subbuteo</i>
House Martin	<i>Delichon urbicum</i>
House Sparrow	<i>Passer domesticus</i>
Kestrel	<i>Falco tinnunculus</i>
Kingfisher	<i>Alcedo atthis</i>
Lapwing	<i>Vanellus vanellus</i>
Lesser Black-backed Gull	<i>Larus fuscus</i>
Lesser Redpoll	<i>Acanthis cabaret</i>
Lesser Spotted Woodpecker	<i>Dryobates minor</i>
Linnet	<i>Linaria cannabina</i>
Little Egret	<i>Egretta garzetta</i>
Little Gull	<i>Hydrocoloeus minutus</i>
Mallard	<i>Anas platyrhynchos</i>
Marsh Tit	<i>Poecile palustris</i>
Meadow Pipit	<i>Anthus pratensis</i>
Mediterranean Gull	<i>Ichthyaetus melanocephalus</i>
Merlin	<i>Falco columbarius</i>
Mistle Thrush	<i>Turdus viscivorus</i>
Moorhen	<i>Gallinula chloropus</i>

Bat Emergence Survey

Oystercatcher	<i>Haematopus ostralegus</i>
Peregrine	<i>Falco peregrinus</i>
Pintail	<i>Anas acuta</i>
Pochard	<i>Aythya farina</i>
Red Kite	<i>Milvus milvus</i>
Redshank	<i>Tringa tetanus</i>
Redstart	<i>Phoenicurus phoenicurus</i>
Redwing	<i>Turdus iliacus</i>
Reed Bunting	<i>Emberiza schoeniclus</i>
Ringed Plover	<i>Charadrius hiaticula</i>
Rook	<i>Corvus frugilegus</i>
Ruff	<i>Calidris pugnax</i>
Sandwich Tern	<i>Thalasseus sandvicensis</i>
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>
Shelduck	<i>Tadorna tadorna</i>
Shoveler	<i>Anas clypeata</i>
Skylark	<i>Alauda arvensis</i>
Smew	<i>Mergellus albellus</i>
Snipe	<i>Gallinago gallinago</i>
Song Thrush	<i>Turdus philomelos</i>
Sparrowhawk	<i>Accipiter nisus</i>
Spotted Flycatcher	<i>Muscicapa striata</i>
Starling	<i>Sturnus vulgaris</i>
Stock Dove	<i>Columba oenas</i>
Swift	<i>Apus apus</i>
Tawny Owl	<i>Strix aluco</i>
Teal	<i>Anas crecca</i>
Tree Sparrow	<i>Passer montanus</i>
Turtle Dove	<i>Streptopelia turtur</i>
Water Pipit	<i>Anthus spinoletta</i>
Wheatear	<i>Oenanthe oenanthe</i>
Whinchat	<i>Saxicola rubetra</i>
Whitethroat	<i>Sylvia communis</i>
Wigeon	<i>Anas penelope</i>
Willow Warbler	<i>Phylloscopus trochilus</i>

Bat Emergence Survey

Woodpigeon	<i>Columba palumbus</i>
Wren	<i>Troglodytes troglodytes</i>
Yellow Wagtail	<i>Motacilla flava</i>
Yellow-legged Gull	<i>Larus michahellis</i>
Yellow Hammer	<i>Emberiza citrinella</i>



Appendix C: Artificial Lighting and Bats

Artificial lighting is known to affect bat's roosting and foraging behaviour, with lighting resulting in a range of impacts that includes roost desertion (BCT, 2009), delayed emergence of roosting bats (Downs et al., 2003), increased activity of some bat species and decreased activity by others (Stone et al., 2012).

An experimental approach using LED units, demonstrated that relatively fast-flying bat species, including the common pipistrelle, showed no significant impacts as a result of new artificial lighting, even when lighting was set at relatively high levels close to 50 lux.

In contrast, slow flying bats such as the myotis bats (*Myotis* spp.) showed sharp reductions in presence, even at low light levels of 3.6 lux (Stone et al., 2012).

Current recommendations for all bat species specifies that no bat roost should be directly illuminated.

Due to the impacts of lighting, mitigation and sensitive lighting design schemes are required for projects where bats are present. These should include bat friendly lighting plans that should aim to avoid lighting wherever possible. If this is not possible, then the minimisation of any lighting impacts is required by adopting the following measures:

➤ **To introduce lighting curfews or use of PIR sensors.**

Lighting curfews can be an effective way of avoiding impacts on bats. These curfews may involve either turning off lighting or dimming light units at specific times of the night, dimming units at key times of the year, providing the luminaire allows for this option via a control unit. Lighting to be triggered by PIR sensors can be expected to be illuminated only when required and for a low proportion of time.

➤ **To consider no lighting solutions where possible.**

Options such as white lining, good signage and LED cat's eyes should be considered as preferable. Reflective fittings may help make use of headlights to provide any necessary illumination in some areas.

➤ **To use only high pressure sodium or warm white LED lamps where possible.**

High pressure sodium and warm white LED lamps emit lower proportions of insect attracting UV light than mercury, metal halide lamps and white LED lighting. Generally, lamps should have a lower proportion of white or blue wavelengths, with a colour temperature <4200 kelvin recommended (BCT, 2014).

➤ **To minimise the spread of light.**

The light spread should be kept at or near horizontal to ensure that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Baffles, hoods, louvres and shields should be used where necessary to reduce light spill.

➤ **To consider the height of the lighting column.**

While downward facing bollard lighting is often preferable, it should be noted that a lower mounting height does not automatically reduce impacts to bats as bollard lighting can often be designed to provide up-lighting. Where bollard lighting is considered to be the most appropriate system, bollard spacing or unit density should be kept to a minimum and units should be fitted with the appropriate hoods/deflectors to reduce any up-lighting.

➤ **To avoid reflective surfaces below lights.**

The polarisation of light by shiny surfaces attracts insects increasing bat activity (BCT, 2012). Consequently, surface materials around lighting require consideration.

Appendix D: Photographic Records

Plate 1: An image of the entrance of the surveyed structure.



Plate 2: An image of the side elevation.



Plate 3: An image showing the external apex of the roof and fascia



Plate 4: An image showing a dormer with hanging tiles providing potential entry points



Plate 5: An image showing a dormer with hanging tiles providing potential entry points



Plate 6: An image showing the front aspect of the building with guttering, soffits and fascia present



Plate 7: An image showing the front aspect of the building with potential entry points in dormers



Plate 8: An image showing the building from the gable end



Plate 9: An image showing the front aspect of the building



Plate 10: An image showing a potential entry point via the fascia in the dormers



Plate 11: An image showing dormers including soffits and fascia's, a potential entry and exit point



Plate 12: An image showing loose tiles on the roof and gaps under the soffit



Plate 13: An image showing loose tiles on the roof and gaps in soffit



Plate 14: An image showing loose tiles on the roof and gaps in the soffit



Plate 15: An image showing gaps under decorative tiles and the dormer fascia boards and soffits



Plate 16: An image showing potential entry points of gaps under the soffit



Plate 17: An image showing a side aspect of the building including gaps under the soffit



Plate 18: An image showing the roof on the lower level with multiple loose tiles which could provide entry points



Plate 19: An image showing the roof on the lower level with multiple loose tiles which could provide entry points



Plate 20: An image showing the southern facing aspect of the building attached to the conservatory



Plate 21: An image showing the southern facing aspect of the building attached to the conservatory. Some gaps under the tiles are visible.



Plate 22: An image showing thick vegetation, Wysteria, growing up the brick work on the southern aspect of the building



Plate 23: An image showing a hole in the brickwork that could potentially provide an entry point.



Plate 24: An image showing the interior of the roof including the polyplastic material lining the interior and boarded floor

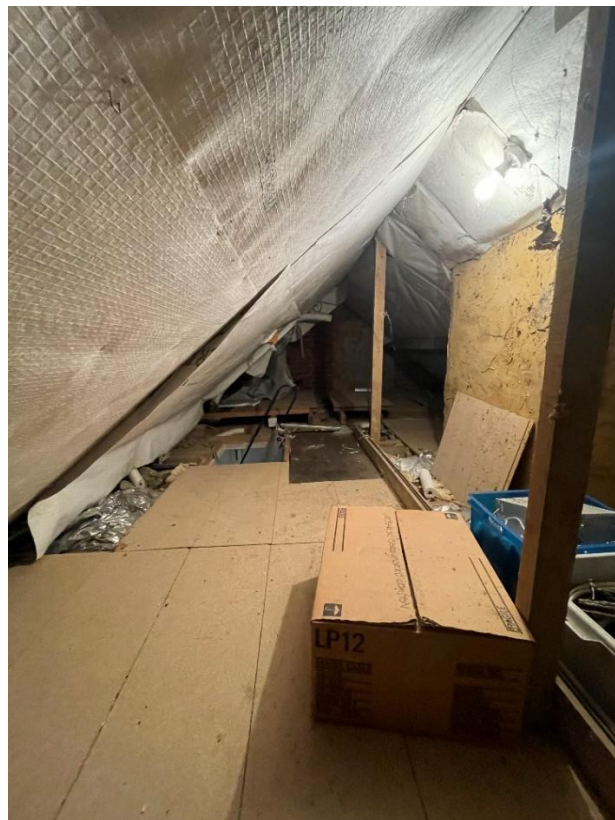


Plate 25: An image showing bat droppings present in the interior roof



Plate 26: An image showing deceased bat found in the interior roof



Plate 27: An image showing bat droppings in the interior roof



Plate 28: An image showing bat droppings in the interior roof



Plate 29: An image showing bat droppings in the interior roof



Bat Emergence Survey

Appendix E: The Annual Bat Year (BCT)

A Year in the Life of a Bat			
January		February	
	Hibernating; using up fat reserves.		Still hibernating; few fat reserves left.
March		April	
	Some activity; occasional bat seen feeding.		Awake and feeding at night.
May		June	
	Females looking for nursery sites.		Young born, usually only one.
July		August	
	Young still suckling.		Young start catching insects; females leave nursery to find males.
September		October	
	Mating season begins; start building fat reserves for hibernation.		Search for suitable hibernation site.
November		December	
	Hibernation begins although still some activity in warm weather.		Hibernating.

Appendix F: Legislation and Policy

All species of bat are fully protected under a variety of domestic, European and international legislation and conventions. These include:

- Bern Convention (Appendix II)
- Bonn Convention (Appendix II)
- Conservation Regulations (Northern Ireland) 1995
- Conservation of Habitats and Species Regulations 2017
- Countryside Rights of Way Act 2000
- Eurobats Agreement
- Habitats Directive (Annexes IV and II)
- Habitats Regulations 1994 (as amended) Scotland
- NERC Act 2006
- Wildlife and Countryside Act 1981 (as amended)
- Wild Mammals Protection Act

In addition to this, some species have additional protection by being listed on the UK Biodiversity Action Plan (UKBAP).

The legislation afforded to bats makes it illegal to possess or control any live or dead specimens, to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a bat while it is occupying a structure or place which it uses for that purpose.

All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended), which protects birds, nests, eggs and nestlings from harm. In addition to this, some rarer species, such as barn owls are afforded extra protection.

National Planning Policy Framework, Section 15:

In early 2012, the National Planning Policy Framework (NPPF) replaced much previous planning policy guidance, including Planning Policy Statement 9: Biological and Geological Conservation. The government circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System, which accompanied PPS9, still remains valid. A presumption towards sustainable development is at the heart of the NPPF. This presumption does not apply however where developments require appropriate assessment under the Birds or Habitats Directives. The latest National Planning Policy Framework was updated in February 2019, with the section in relation to conserving the natural environment being located within section 15.

Section 15, on conserving and enhancing the natural environment, sets out how the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and, where possible, provide net gains in biodiversity. Opportunities to incorporate biodiversity gains into a development should be encouraged.

Biodiversity 2020:

This sets out to halt overall biodiversity loss and support healthy well-functioning ecosystems by establishing coherent ecological networks, with more and better places for nature, to the benefit of wildlife and people. The government's policy is aimed at individuals, communities, local authorities, charities, business and government, which all have a role to play in delivering Biodiversity 2020.

Appendix G: Bat DNA Results

5 August 24

Re: Identification Results for Richard Millington, Elite Ecology

Job number 20944, received 22 July 2024

Sample labelled: Barn Acre, Loddon Drive, Wargrave, Berkshire, RG10 8HN. 15/7/24

PCR amplification successful. DNA sequence:

GATGCCTAATAGGGATCCAAAATCCATCATGCTGAGATGTTTGATGGAGCTGGTAG
GTCAATGAATGAGCTGTTAATAATTTTGATTAGGGGATGGGACTTTCGAATGTTTGTC
AT

Phylogenetic analysis identification: *Pipistrellus pygmaeus*

Confirmed by maximum likelihood, maximum parsimony, bootstrap 100%.

Best regards,

Professor Robin Allaby

The results and conclusions in this report are based on an investigation of mtDNA sequence analysis. The results obtained have been reported with accuracy. The interpretation represents the most probable conclusion for the DNA sequence obtained rather than the sample provided given current levels of species data. It should be borne in mind that different circumstances might produce different results. Therefore, care must be taken with interpretation of the results especially if they are used as the basis for commercial recommendations.

Professor Robin Allaby

School of Life Sciences,
Gibbet Hill Campus,
University of Warwick,
Coventry CV4 7AL
Tel: 02476575059
Fax: 02476574500
Email: r.g.allaby@warwick.ac.uk

9. Notice to Readers: Conditions of this Report

All reports are certified products and cannot be shown, copied, or distributed to third parties without the written permission of Elite Ecology. No liability is accepted for the contents of the report, other than to that of the client(s). If any part of this report is altered without the written permission of Elite Ecology, then the whole report becomes invalid.

Elite Ecology agrees to supply ecological consulting services and advice of a preliminary or thorough nature as advised or commissioned. Upon commissioning Elite Ecology to undertake the work, the client(s) grant access to the site upon the agreed date. If no site access is available upon this date, Elite Ecology holds the right to charge the client(s) for lost staffing time and additional travel costs.

Elite Ecology undertake all site surveys with reasonable skill, care, and diligence, within the terms of the contract that has been agreed with the client and abiding by the Elite Ecology Terms and Conditions. The actions of the surveyors on site, and during the production of the report, were undertaken in accordance with the Code of Professional Conduct for the Chartered Institute of Ecology and Environmental Management.

The latest good practice guidelines put in place by Natural England or the relevant statutory conservation bodies have been followed by the surveyors on site. If those methodologies fail to identify a protected species during the survey efforts, no responsibility can be attributed to Elite Ecology. If any of these guidelines are adapted between the date(s) of the surveys being undertaken and the submission of this report, then Elite Ecology takes no responsibility for this.

Should any equipment be damaged or lost on site at the fault of the client(s), then Elite Ecology withholds the right to charge 100% above the current market value for that exact product or the nearest similar product.

The survey results purport the current status of the site and its potential for protected species utilisation at the time of surveying. It should not be viewed as a complete list of the possible flora and fauna species that could be using the site at different times of the year.

Elite Ecology has been provided with full payment for this report and thus the product has been released to the client(s) for the purpose of their planning application. If any part of the report is lost or altered without the written permission of Elite Ecology, then the entire report becomes invalid. Due to the potential for continual change within the natural world, this report is valid for **2 years only** from the date of the last survey visit. If this report is submitted after the 2 year deadline, then a further updated inspection will be required to ascertain whether the site remains in the same condition as it was when initially inspected.

No reliance should be made on any such comments in relation to the structural integrity of the features located on the surveyed site. All information within the report is based solely on evidence that has been found on site during the service provided. No individual opinion or inference will be made other than that of the suitably qualified ecologist appointed to the project.