Elite Ecology

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2 Bushylease Cottages,
Ewshot

Bat Activity Survey Report

August 2023

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Part of Harmil Environmental Ltd.

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0. Executive Summary

0.1 This report has been prepared at the request of Mr. and Mrs. Hart (proprietors). It relates to the potential presence of bats and birds at the proposed re-development site located at 2 Bushylease Cottages, Redlands Lane, Ewshot, Hampshire, GU10 5AR (Central OS Grid Reference: SU 80542 49162). To fulfil this brief, Elite Ecology undertook both a desktop study and a field survey.

0.2 The surveyed building is proposed to be re-developed. Under the current proposals, the structure will be extended to the east, with dormer windows and a balcony incorporated on the northern roof.

0.3 Due to the amount of potential ingress/egress points and suitable roosting features, the buildings were deemed to be of the following bat roosting potential:

B1 = **Moderate**

Therefore, a minimum of two bat activity surveys were required during the bat survey season (May to September, inclusive). These were subsequently undertaken in May and June 2023.

The building was deemed to have a **low** potential to support nesting birds.

0.4 **Summary**

Bat Presence/Absence

From the site survey, it has been established that the structure at 2 Bushylease Cottages, Ewshot contains a day roost of common pipistrelle (*Pipistrellus pipistrellus*) bats. In addition to this, foraging and commuting barbastelle (*Barbastella barbastellus*), brown long-eared (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*), Leisler's (*Nyctalis leisleri*), myotis (*Myotis* sp.), Natterer's (*Myotis nattereri*), noctule (*Nyctalus noctula*) and soprano pipistrelle (*Pipistrellus pygmaeus*).

Bird Presence/Absence

From the survey visits, the building was not found to support nesting birds. However, the surrounding landscape provides all of the necessary habitat elements that birds require.

Ecological Value of Building Units

The ecological value of the structure has been deemed as **High** to bats due to the absence of roosting bats.

The ecological value of the buildings to birds has been deemed to be **negligible** because the structure was not found to support nests.

0.5 **Recommendations**

The recommendations for 2 Bushylease Cottages, Ewshot, can be summarised as follows (please refer to **Section 5 – Recommendations** for a more in-depth description):

Apply for a Natural England Development Licence to legally carry out the works.
No re-development works can proceed on the structure until October when the bats have gone to their hibernation roosts.
At the start of works, site supervision by a licenced bat ecologist in accordance with the Natural England Development Licence will be required.
Install bat compensatory features on the site in accordance with **Section 5 Recommendations**.
Artificial lighting should be avoided around compensatory roosting features.
No breathable roofing membrane is to be used on the structure.
Optional: Install a variety of bird boxes around the site post development to enhance the site for the local bird populations. Some suitable examples are shown in **Section 5**.

Contents

1. Introduction

1.1 Report Rationale

This report has been prepared at the request of Mr. and Mrs. Hart (proprietors). It relates to the potential presence of bats and birds at the proposed re-development site located at 2 Bushylease Cottages, Redlands Lane, Ewshot, Hampshire, GU10 5AR (Central OS Grid Reference: SU 80542 49162). To fulfil this brief, Elite Ecology undertook both a desktop study and a field survey.

1.2 Site Description

The site is located in the rural village of Ewshot in Hampshire. It lies on the north-east of the county close to the Surrey border. The habitats present across the survey site included amenity grassland, buildings, hard standing ground, hedgerows, introduced shrub, and scattered trees. The surveyed building measures approximately 97m^2. This report relates to the building structure on site. The habitats on site are considered to contain 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 structures at 2 Bushylease Cottages, Ewshot (as shown by the red outlines).

1.3 Proposed Works

Under the current proposals, the structure will be extended to the east, with dormer windows incorporated on the northern roof, along with a balcony. Please refer to the site plans in **Appendix A.**

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 of other relevant nature conservation information was made through the use of 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 Hampshire Bat Group (HBG) were the relevant local record centres 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 prior to 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 Diploma, BSc (Hons), Ecologist. Natural England Bat Survey Licence Number: 2019-43981-CLS-CLS Bat Survey Level 1.

Mr. Richard Millington, BSc (Hons), ACIEEM, CERPIT, MRSB, MArbA, Principal Ecologist. Natural England Bat Survey Licence Number: 2016-26861-CLS-CLS Bat Survey Level 2.

Mr. Alan Britton, PGDip, Assistant Ecologist

Mr. James Hrynkiewicz, BSc (Hons)**,** Ecologist

2.4 Field Surveys

2.4.1 Site Surveys

Elite Ecology conducted a Preliminary Roost Appraisal (PRA) on the 17th of November 2022.

2.4.2 Roost Surveys

The building at 2 Bushylease Cottages, Ewshot, was externally inspected for the presence of bats with the use of various types of equipment (including binoculars, torches, endoscopes, and ladders) in full daylight. An internal inspection was also carried out. Subsequent activity surveys use a variety of bat detectors that include Bat Box Duet, SSF Bat2, EchoMeter Touch and the EcoObs Batcorder. The following table outlines the environmental variables from the survey visits:

Environmental variables	PRA Survey of the Buildings – 28th of February 2022. Daytime	Activity Survey of the Buildings – 5th of May, 2023. Dusk	Activity Survey of the Buildings – 4th of June, 2023. Dawn	Activity Survey of the Buildings – 19th of June, 2023. Dusk
Temp Start:	11°C	15°C	11°C	19°C
Temp Finish:	11°C	13°C	9°C	17°C
Humidity Start:	76%	90%	74%	70%
Humidity Finish:	76%	88%	81%	76%
Cloud Cover Start:	95%	2%	0%	25%
Cloud Cover Finish:	95%	2%	10%	35%
Wind Speed Average:	Low	Low	Low	Low
Precipitation:	None	None	None	None

3. Results

3.1 Desktop Survey Results

Hampshire Bat Group (HBG) supplied all bat records within 2km of the proposed development site.

3.1.1 Bats

Within the 2km search radius, twelve bat species were revealed.

The UKBAP species recorded in the search were Barbastelle (*Barbastella barbastellus*), brown long-eared (*Plecotus auritus*), noctule (*Nyctalus noctula*), and soprano pipistrelle (*Pipistrellus pygmaeus*) bats.

The non-UKBAP bat species recorded in the search were Brandt's (*Myotis brandtii),* common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's (*Myotis daubentonii*), Leisler's (*Nyctalus leisleri*), Nathusius' pipistrelle (*Pipistrellus nathusii*), Natterer's (*Myotis nattereri*), serotine (*Eptesicus serotinus*), and whiskered (*Myotis mystacinus*) bats.

Finally, some records of unidentified bat (*Chiroptera* sp.), unidentified myotis (*Myotis* sp.) and unidentified pipistrelle (*Pipistrellus* sp.),

The closest records to the property were of common pipistrelle and soprano pipistrelle bats, both located approximately 569m to the north-east of the site centroid.

3.1.2 Birds

There has been no ecological data search for protected bird species for this report. All birds in the UK can be split into three categories of conservation importance (red, amber, and green – please refer to the RSPB for more information).

3.1.3 Designated Sites

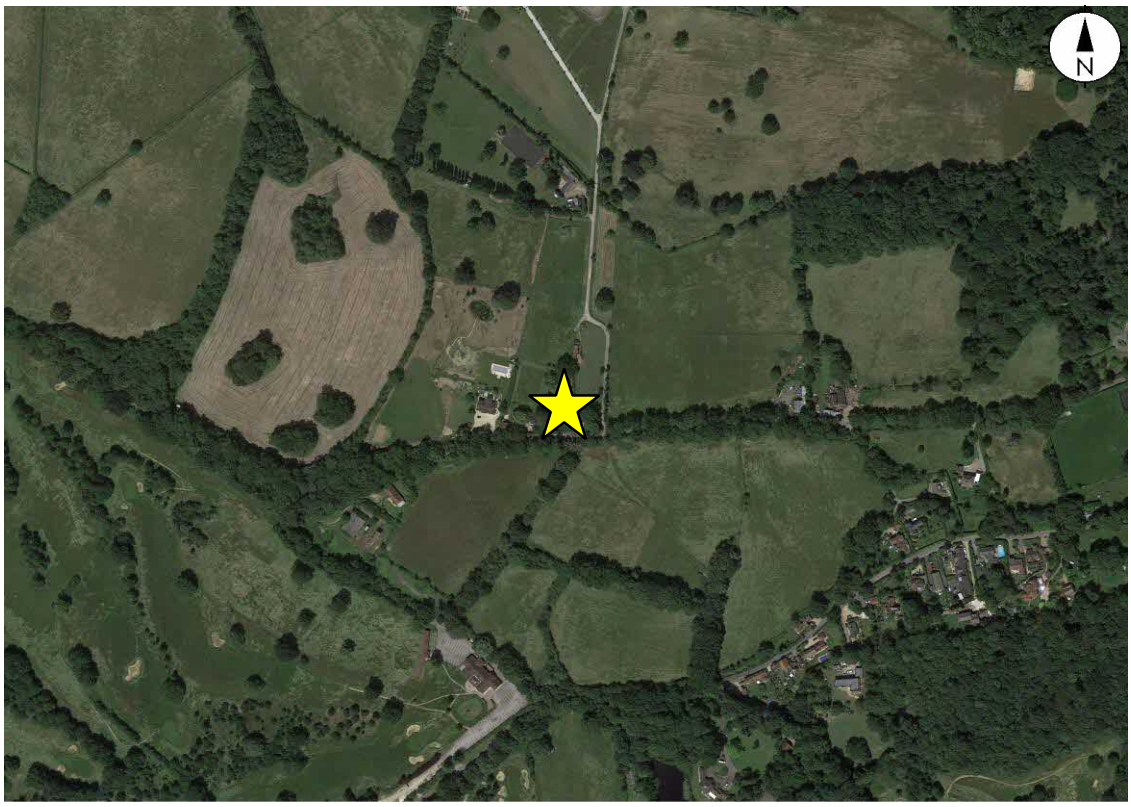
As the current proposal remains within the site boundary, it was not necessary to obtain any further information regarding both Statutory and Non-Statutory Nature Conservation Designations. This is due to the proposed works not altering any of the landscape surrounding the site.

3.2 Field Surveys

3.2.1 Habitat Description

The site is located in the rural village of Ewshot in Hampshire. It lies on the north-east of the county close to the Surrey border. The habitats present across the survey site included amenity grassland, buildings, hard standing ground, hedgerows, introduced shrub, and scattered trees. Within the wider landscape, further habitats are present. These come in the form of amenity grassland, arable land, buildings (and their associated gardens/yards), hard standing ground, hedgerows, scattered trees, standing water (in the form of Basingstoke Canal), and woodland. Therefore, the habitats that are present in and around the site contains all of the elements that are considered to be 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 2 Bushylease Cottages, Ewshot.



3.2.2 Building Surveys

On site, there is one building present which is being re-developed.

Residential Dwelling

External Inspection

B1 is a two-storey 17th Century semi-detached residential dwelling. It is constructed of solid red brick walls on the original cottage, with cavity red brick walls on the extended sections, all of which have been painted. The window frames are made of wood to the front (south) of the property and uPVC to the rear, with dormer windows present on the northern elevation. A flat roof is present on the northern elevation where dormer roofs made of uPVC windows and hanging tiles. The remainder of the roof is pitched, with clay tiles present, with some skylights present.

The tiles are in relatively good condition, although some gaps are present for bats and birds to gain access into the structure. There are lifted tiles and gaps beside the flashing present around the dormer windows and skylights. In addition to this, the occasional tile is lifted, providing possible access and roosting points within the property. Eaves with wooden soffits are present, of which there are gaps beneath the eaves of the north-west elevation of the building. The eaves of the newer extension are capped by vents, with no access to the interior from this section.

In addition to this, a porch is present on the southern elevation. This has a hipped clay tile roof, with one of the tiles smashed to provide internal access.

No signs of bird nests were found externally on this property.

Internal Inspection

The property is currently inhabited and utilised for residential purposes. There are two loft voids within, one of which is in the old cottage and the other in the newer extension. The roof is supported by timber beams, and the tiles have been lined with bitumen felt. The bitumen felt is in moderate condition, with some small gaps present, although the majority is intact. The walls are a mixture of brick and breezeblock internally.

Both of the loft voids contain cobwebs, indicating bats have not been within the void. However, gaps between the tilework and the felt are apparent, leading to the potential for anecdotal evidence to be located outside of the view of the surveyors. Despite this, there are a small scattering of mouse droppings within the void, indicating ingress points are possible. A small wasp (*Vespula vulgaris*) nest is apparent within the eastern loft. No anecdotal evidence of bats or birds was identified within either loft space.

3.2.3 Summary of the Building Inspections

Due to the amount of potential ingress/egress points and suitable roosting features, the structure at 2 Bushylease Cottages, Ewshot was deemed as having **moderate** bat roosting potential, and **low** bird nesting potential.

Therefore, a minimum of two further bat emergence/re-entry surveys were required on the structure during the bat survey season of May to September, with at least one in the optimal survey months of mid-May to August. These were subsequently carried out in May and June 2023.

Table 1: 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

No droppings were found around the surveyed structures, as such no DNA analysis was undertaken.

3.2.5 Activity Surveys

Three activity surveys were undertaken on the buildings on the 5th of May, the 4th of June and the 19th of June 2023.

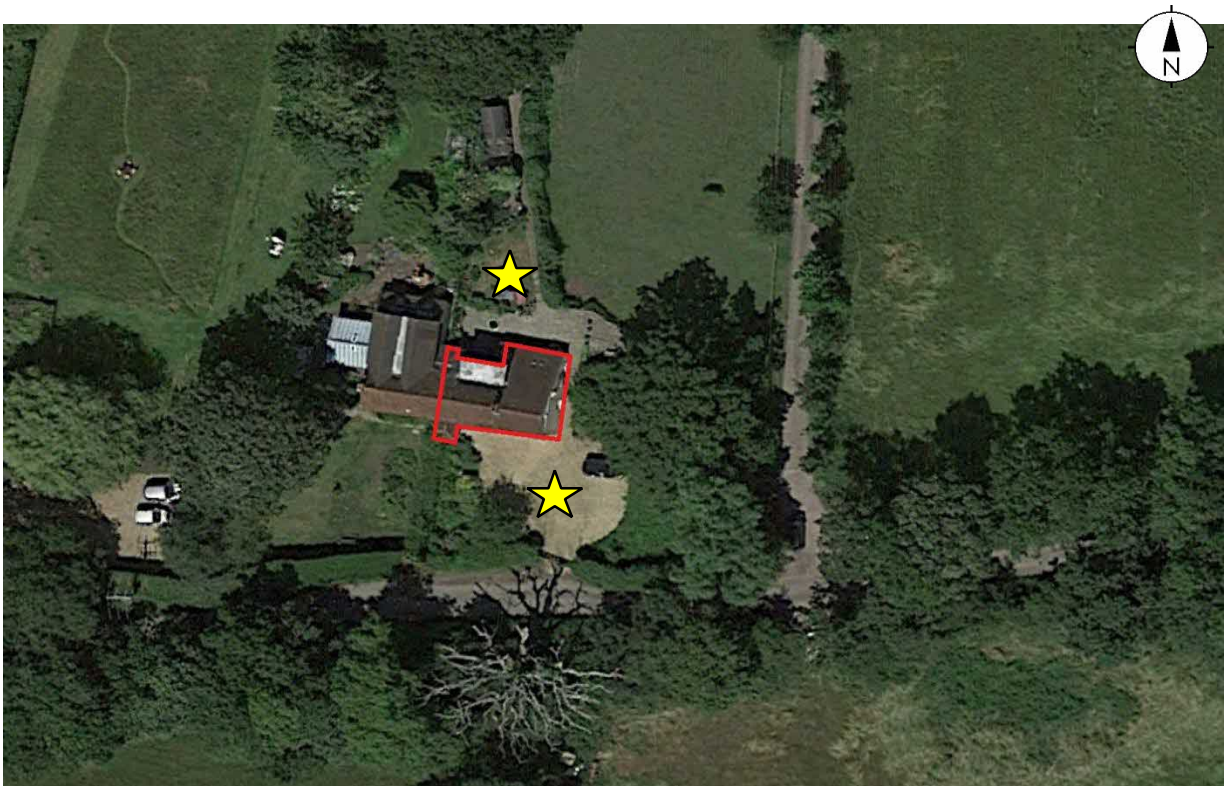
Activity Survey 1 (5th of May 2023):

This activity survey was undertaken at dusk, with sunset recorded at 20:32.

No bats were observed to be emerging from the building on this survey.

However, brown long-eared (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*), myotis (*Myotis* sp.), Natterer's (*Myotis nattereri*), noctule (*Nyctalus noctula*) and soprano pipistrelle (*Pipistrellus pygmaeus*) bats were identified to be using the site for commuting and foraging.

Figure 3: An aerial photograph of the surveyed buildings (red outline) and the surveyor locations (yellow stars).



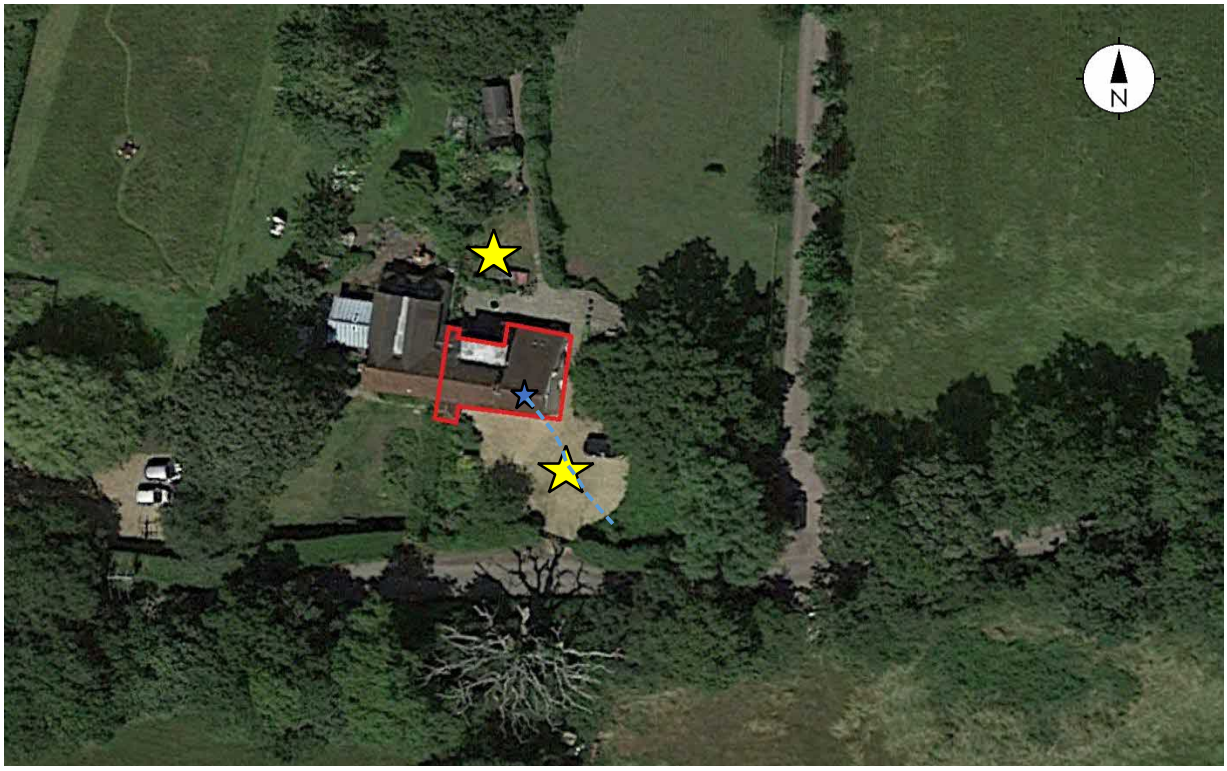
Activity Survey 2 (4th of June 2023):

This activity survey was undertaken at dawn, with sunrise recorded at 04:51

During this survey, one common pipistrel was seen to re entre the structure using a lifted tile.

Additionally, brown long-eared, common pipistrelle, Leisler's (*Nyctalis leisleri*), Natterer's, noctule and soprano pipistrelle bats were identified to be using the site for commuting and foraging.

Figure 4: An aerial photograph of the surveyed buildings (red outline) and the surveyor locations (yellow stars).



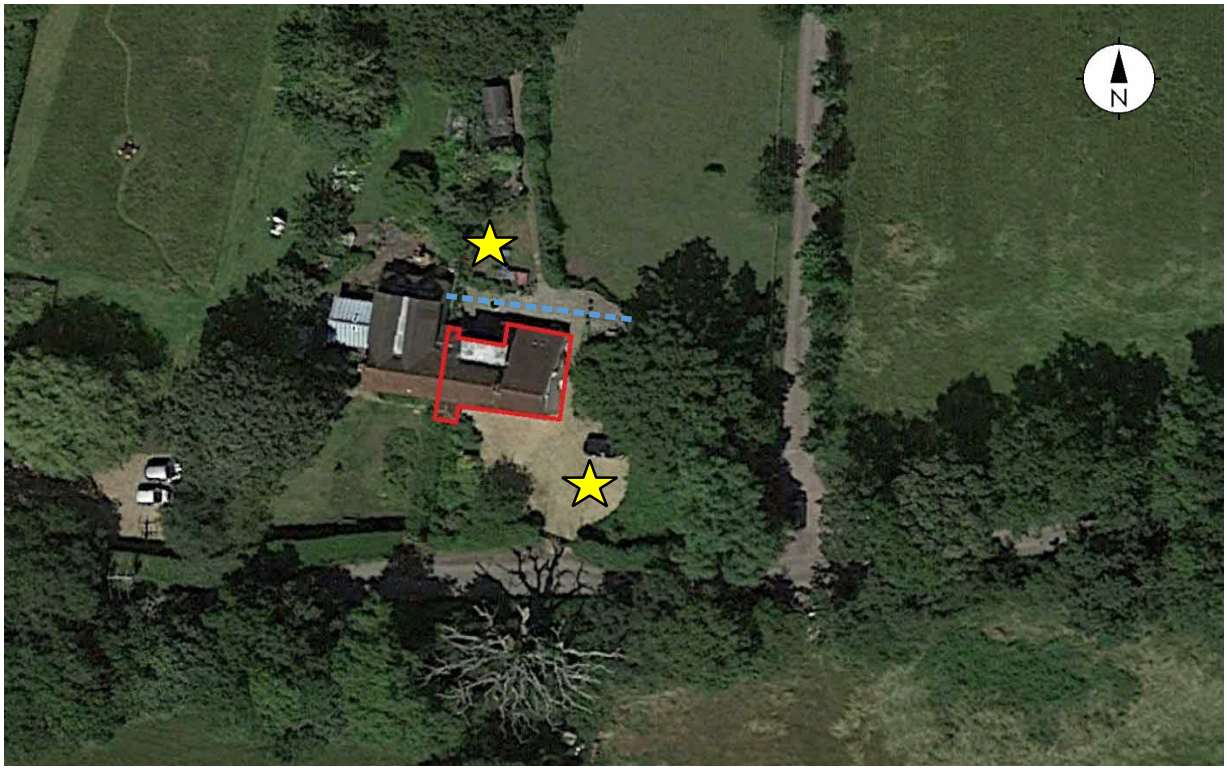
Activity Survey 3 (19th of June 2023):

This activity survey was undertaken at dawn, with sunrise recorded at 04:51.

No bats were observed to re-enter the building on this survey.

However, Barbastelle (*Barbastella barbastellus*), brown long-eared, common pipistrelle and soprano pipistrelle bats were identified to be using the site for commuting and foraging.

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



Summary:

In summary, the structure has been shown to be in use as a day roost for both common pipistrelle bats.

In addition to this, foraging and commuting barbastelle (*Barbastella barbastellus*), brown long-eared (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*), Leisler's (*Nyctalis leisleri*), myotis (*Myotis* sp.), Natterer's (*Myotis nattereri*), noctule (*Nyctalus noctula*) and soprano pipistrelle (*Pipistrellus pygmaeus*).

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 structure will be extended to the east, with dormer windows incorporated on the northern roof, with a balcony. The potential impacts of works to this site have been identified as follows:

4.2.1 Designated Sites

As the proposed works are due to remain within the site boundary, the presence of any designated sites nearby is not applicable 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:	**High**	**High**	**High**
Justification:	The structure was found to support day roosts of common pipistrelle (*Pipistrellus pipistrellus*) bats.	The structure was found to support day roosts of common pipistrelle (*Pipistrellus pipistrellus*) bats.	The structure was found to support day roosts of common pipistrelle (*Pipistrellus pipistrellus*) bats.
Any further action:	Species-specific mitigation measures are required (please see **Section 5** for more information).	Species-specific mitigation measures are required (please see **Section 5** for more information).	Species-specific mitigation measures are required (please see **Section 5** for more information).

4.2.3 Bird Nests

Due to the absence of bird nests in relation to the surveyed structure, the proposed scheme of works will be of a **negligible** effect to the 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 wider landscape containing better opportunities for bats and birds to use. Post development, all foraging and commuting habitats will be retained, thus not negatively affecting the local landscape.

5. Recommendations

5.1 Bats

From the site survey, it has been established that the structure at 2 Bushylease Cottages, Ewshot contains a day roost of common pipistrelle (*Pipistrellus pipistrellus*) bats. In addition to this, foraging and commuting barbastelle (*Barbastella barbastellus*), brown long-eared (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*), Leisler's (*Nyctalis leisleri*), myotis (*Myotis* sp.), Natterer's (*Myotis nattereri*), noctule (*Nyctalus noctula*) and soprano pipistrelle (*Pipistrellus pygmaeus*).

Prior to any works, a Natural England Low Impact Class Development Licence is necessary to legally close or disturb the bat roost. Natural England licences take thirty working days once all the paperwork has been completed and submitted. As part of the licence, post-monitoring surveys will be required in subsequent years to assess whether any bats are using the compensatory measures installed around the site. The Natural England Low Impact Class Development Licence can be applied for and undertaken at any time of the year.

Works on the structure should only take place in conditions that are deemed suitable for bat activity (temperature above 7^{o}C and avoiding heavy rain). This will reduce any impacts on bats should they be found during the work.

A licenced ecologist is required to undertake soft demolition by accompanying building contractors in inspecting the structure by hand. This will ensure that no hibernating bats are harmed by the works.

One 1FS Schwegler Large Colony Bat Box or similar (one per species) will be required to be installed on the morning of the commencement of the bat inspection. This will need to be situated on a nearby tree (facing north) so that any bats found can be translocated to this feature and enable the works to commence without impacting upon the bats.

To mitigate for the loss of the common pipistrelle day roost, one eco bat box is to be placed on the eastern gable end. Elite Ecology can be contacted at admin@eliteecology.co.uk regarding bat boxes.

Figure 6: Proposed elevation plans of the new building with potential placements of Bat Boxes as enhancements (shown by blue shape). Please note that these boxes are not to scale.

5.2 Birds

From the survey visits, the building was not found to support nesting birds.

However, a variety of bird boxes can be installed around the site to enhance the nesting opportunities for a variety of species within the local landscape. It could incorporate at least one of each of the following options:

Apex Bird Box
Apex Robin Box
Large Bird Nest Box
Blue Tit 25mm entrances (bark box)
House Sparrow/Great Tit bird boxes (bark box)
1ZA Schwegler Wren Roundhouses

Bird boxes installed on buildings should face between north and east to avoid strong sunlight and wet winds. Boxes installed on trees can face any direction as the trees will provide shelter however the entrance must be kept clear of branches and vegetation. All bird enhancements must be situated in a way that prevents access to predators such as cats. Kindly contact Elite Ecology at admin@eliteecology.co.uk regarding the bird boxes.

6. Summary

6.1 Bat Presence/Absence

From the site survey, it has been established that the structure at 2 Bushylease Cottages, Ewshot contains a day roost of common pipistrelle (*Pipistrellus pipistrellus*) bats. In addition to this, foraging and commuting barbastelle (*Barbastella barbastellus*), brown long-eared (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*), Leisler's (*Nyctalis leisleri*), myotis (*Myotis* sp.), Natterer's (*Myotis nattereri*), noctule (*Nyctalus noctula*) and soprano pipistrelle (*Pipistrellus pygmaeus*).

6.2 Bird Presence/Absence

From the survey visits, the building was not found to support nesting birds. However, the surrounding landscape provides all of the necessary habitat elements that birds require.

6.3 Ecological Value of Building Units

The ecological value of the structure has been deemed as **High** to bats due to the absence of roosting bats.

The ecological value of the buildings to birds has been deemed to be **negligible** because the structure was not found to support nests.

6.4 Recommendations

The recommendations for 2 Bushylease Cottages, Ewshot, can be summarised as follows (please refer to **Section 5 – Recommendations** for a more in-depth description):

Apply for a Natural England Development Licence to legally carry out the works.
No re-development works can proceed on the structure until October when the bats have gone to their hibernation roosts.
At the start of works, site supervision by a licenced bat ecologist in accordance with the Natural England Development Licence will be required.
Install bat compensatory features on the site in accordance with **Section 5 Recommendations**.
Artificial lighting should be avoided around compensatory roosting features.
No breathable roofing membrane is to be used on the structure.
Optional: Install a variety of bird boxes around the site post development to enhance the site for the local bird populations. Some suitable examples are shown in **Section 5**.

7. References

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8. Appendices

Appendix A: Site Plans

Appendix B: Eco Data Map

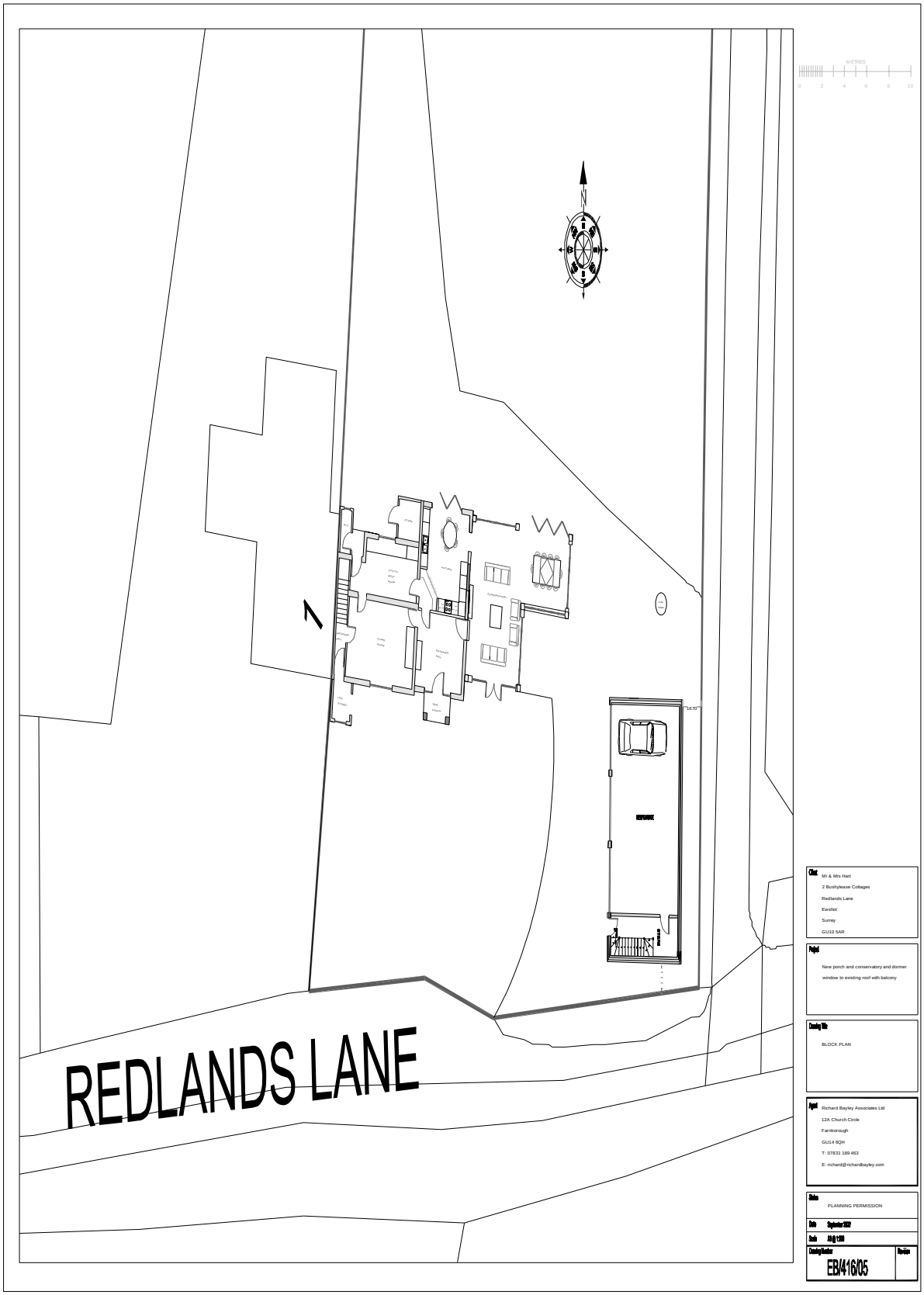
Appendix C: Artificial Light and Bats

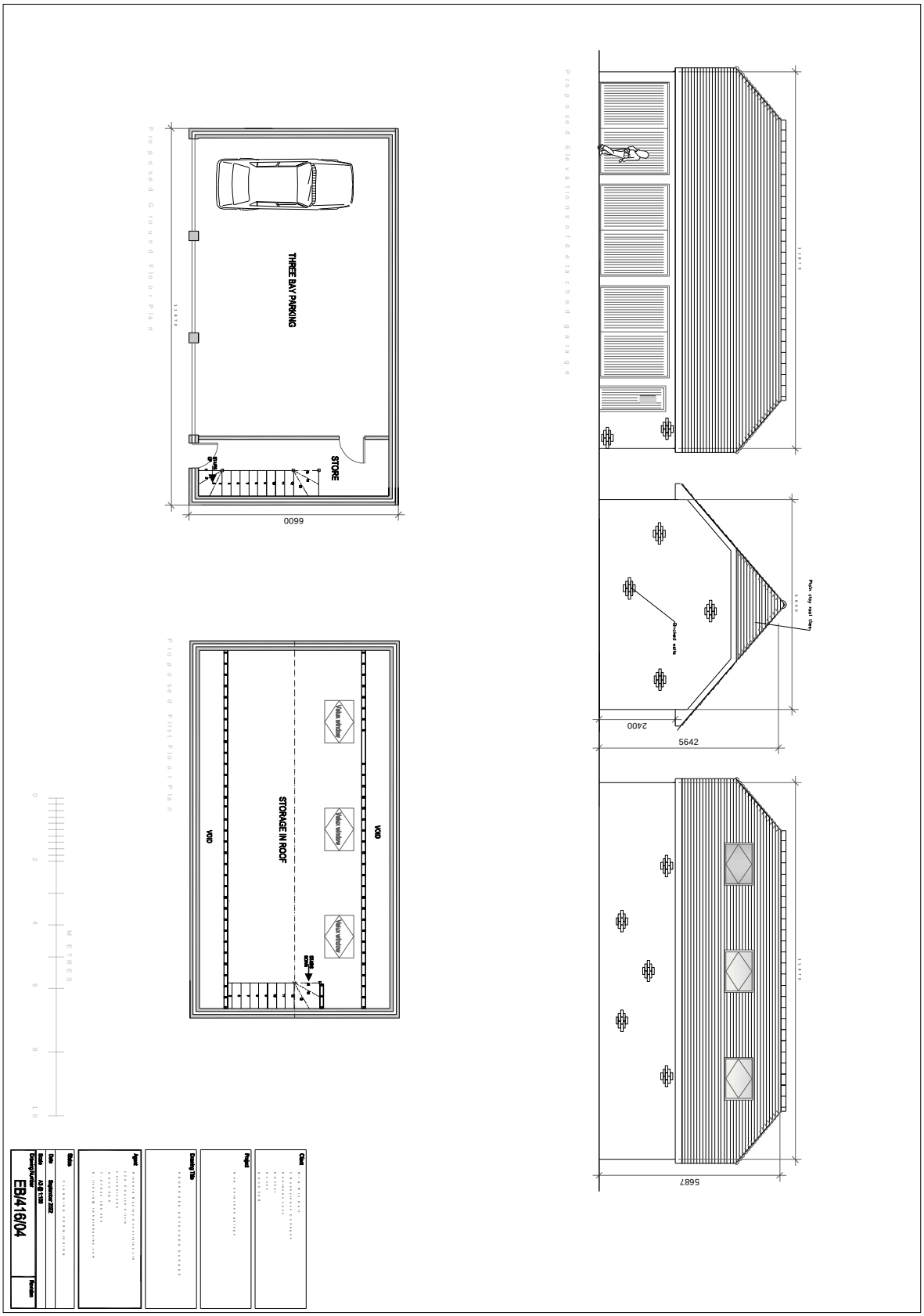
Appendix D: Photographic Records

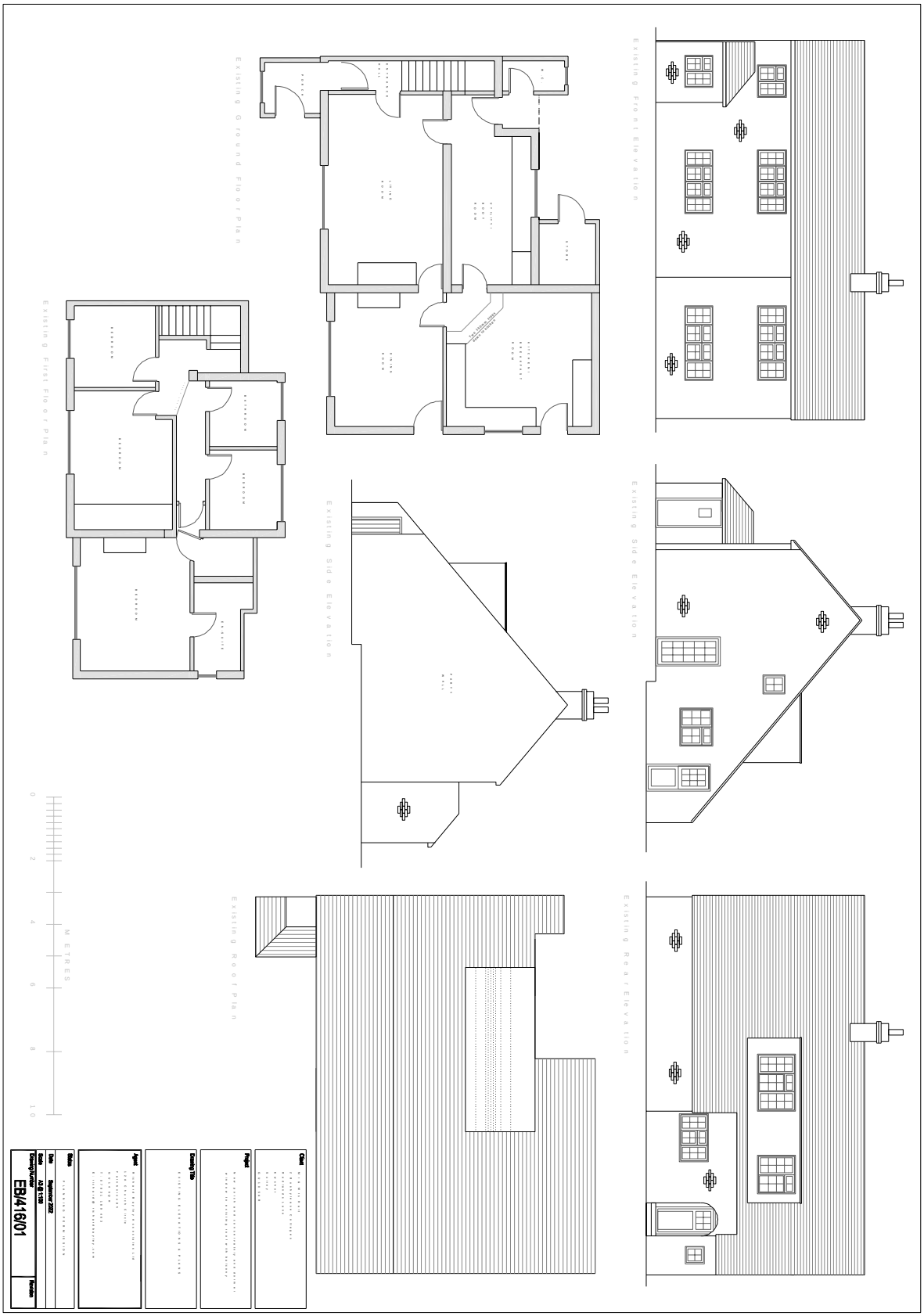
Appendix E: The Annual Bat Year (BCT)

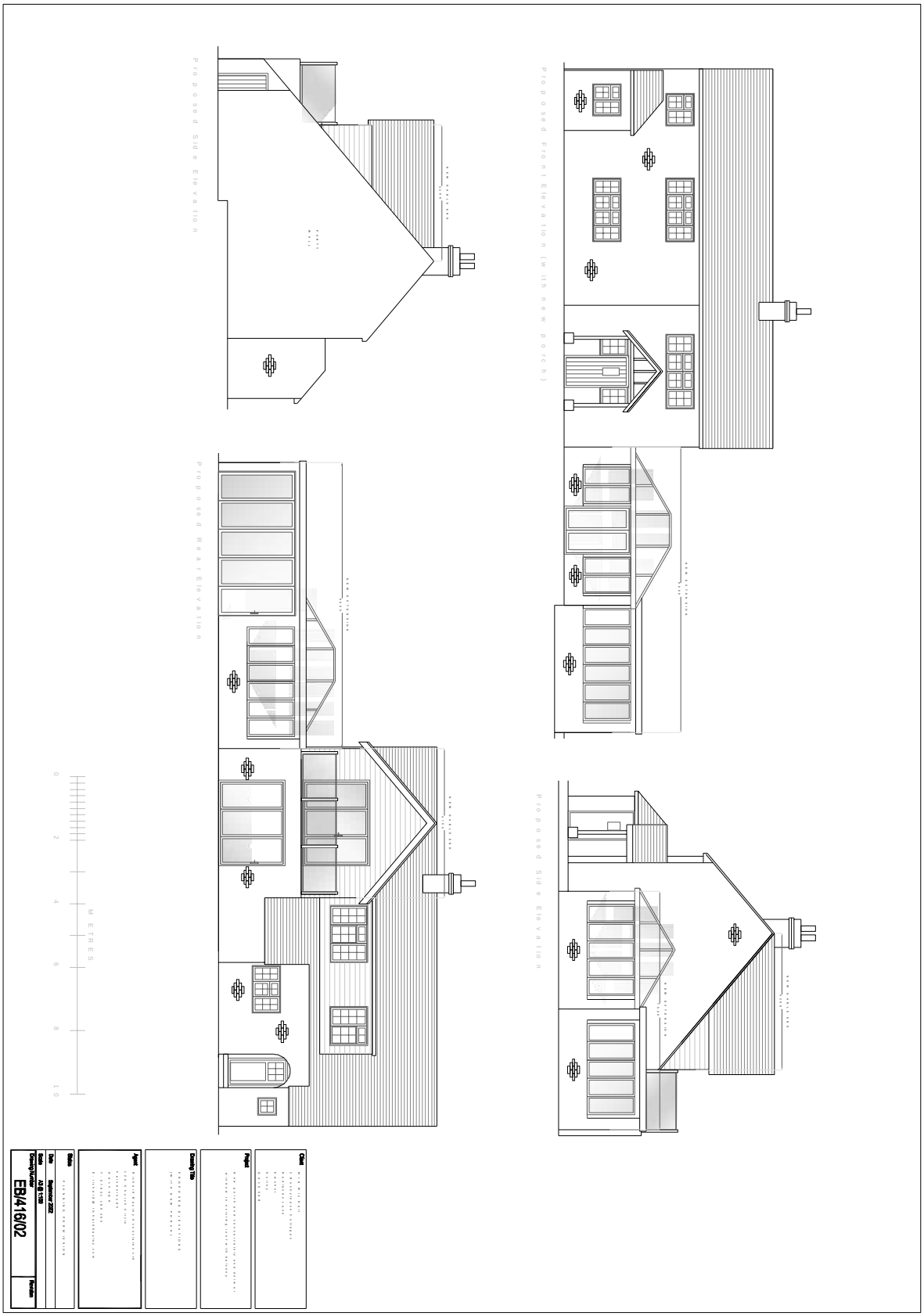
Appendix F: Legislation

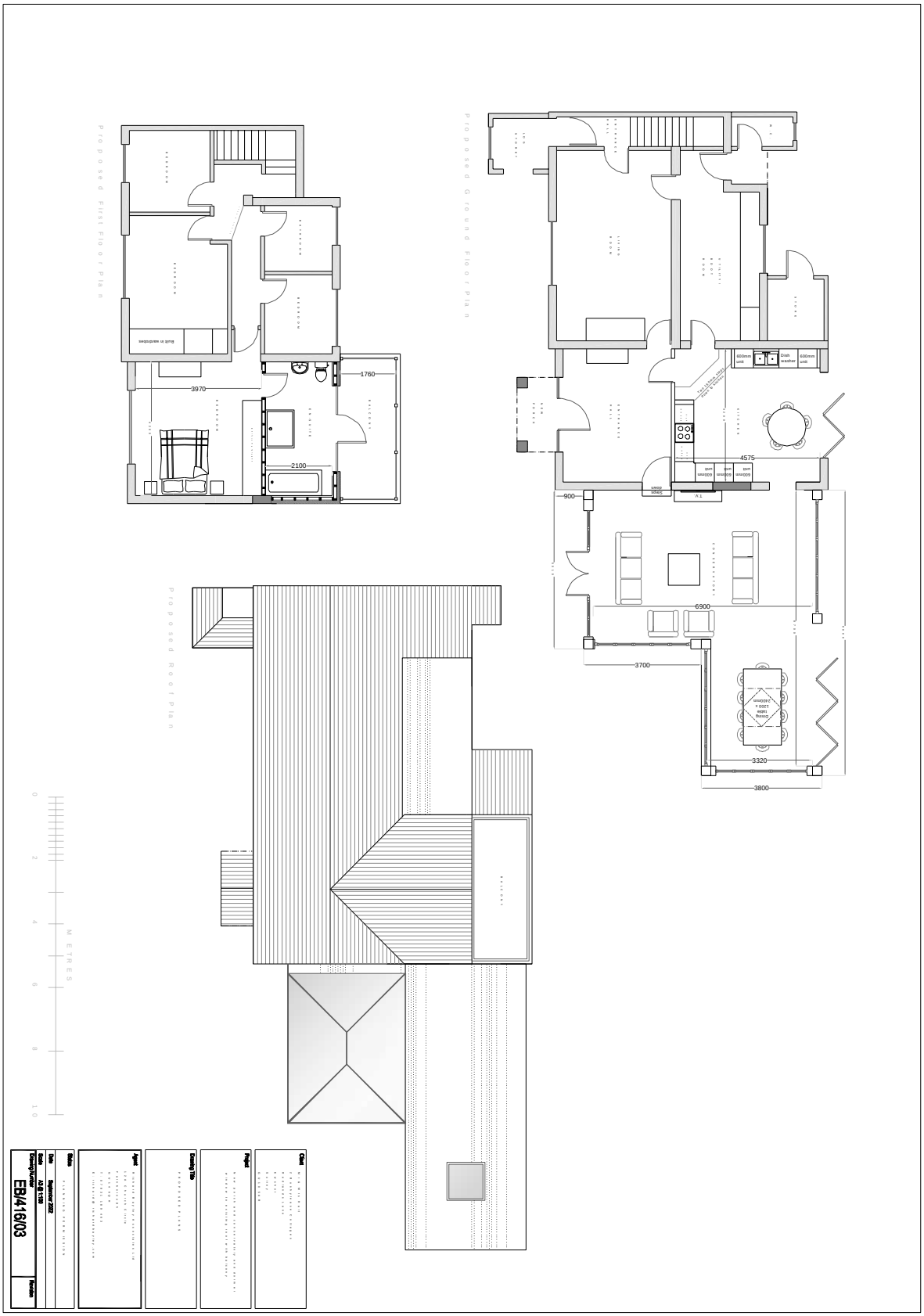
Appendix A: Site Plans




Proposed Ground Floor Plan
THREE BAY PARKING
STORE
6600
Proposed First Floor Plan
VOID
STORAGE IN ROOF
VOID
Main inflow
Main inflow
Main inflow
Proposed Elevations of detached garage
Proposed walls
Plain clay roof tiles
2400
5642
5687
METRES
0 2 4 6 8 10
Client
Project
Drawing Title
Agent
Status
Date
Scale
Drawing Number
Revision
EB/416/04


Existing Ground Floor Plan
Existing First Floor Plan
Existing Front Elevation
Existing Side Elevation
Existing Side Elevation
Existing Roof Plan
Existing Rear Elevation
METRES
0 2 4 6 8 10
Client
Project
Drawing Title
Figure
Status
Date
Scale
Drawing Number
Revision
EB/416/01


Proposed Side Elevation
Proposed Front Elevation (with new porch)
Proposed Rear Elevation
Proposed Side Elevation
METRES
0 2 4 6 8 10
EB/416/02
Client
Project
Drawing Title
Agent
Status
Date
Scale
Drawing Number
Revision


Proposed First Floor Plan
Built in wardrobe
3970
1760
2100
Proposed Ground Floor Plan
dish washer
4575
900
6900
3700
3320
3800
Proposed Roof Plan
0 2 4 6 8 10
METRES
EB/416/03

Appendix B: The Ecological Data Search Maps

No ecological data maps were provided to Elite Ecology for this site.

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 myotid 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 cats 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: A photograph of the front elevation (south facing) of **B1**.

Plate 2: Photograph of the rear elevation (north facing) of **B1**.

Plate 3: Evidence of the gaps in the flashing located around on of the dormer windows on the rear (north facing) of **B1** (circled in red).

Plate 4: Evidence of a ridge gap on the southern elevation.

Plate 5: Evidence of lifted tiles on the southern elevation.

Plate 6: Evidence of the interior of the loft structured with timber beam.

Plate 7: Evidence of spiderwebs in the loft void.

Plate 8: A photograph of the floor insulation, plyboard flooring installation and bitumen felt in the roof void.

Plate 9: Evidence of Velux windows with gaps in the tiles on the north elevation of the building.

Plate 10: Evidence of venting in the north elevation of the building.

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
The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019
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.

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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.

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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.

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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.