Contract No: 2021/39/2

Reptile and Bat Surveys

Land at Bean Cottage, Shellbank Lane, Bean DA2 8AX

Report to:
Mr Shumshair Haider

2nd August 2021

CALUMMA
Ecological Services

COPYRIGHT and LEGAL GUIDANCE

This report may contain sensitive information relating to the presence of protected species. Such information must not be disseminated without the prior consent of Calumma Ecological Services.

Information contained in this report does not represent legal opinion. If such advice is required, the opinion of a suitably qualified legal professional should be sought.

Information, including any survey data, contained within this report must only be relied upon for a maximum period of one year from the date of the report.

Calumma Ecological Services

info@calumma.co.uk
www.calumma.co.uk

Contents

1. Summary

Background

1.1 Land at Bean Cottage has been proposed as the location of a new development project.

1.2 An ecological assessment of the site undertaken in 2021 determined that the proposed development site offered potential for amphibians, reptiles, bats, dormouse and foraging badger.

1.3 Calumma Ecological Services was subsequently commissioned to undertake a reptile and bat emergence survey and advise on the need for appropriate mitigation.

Bats

1.4 A series of bat surveys of a single dwelling and outbuilding at Bean Cottage was undertaken in June and July 2021.

1.5 A single common pipistrelle bat emerged from the flashing around the eastern chimney of the dwelling and flew south on 2nd June 2021.

1.6 A single common pipistrelle bat emerged from a crack in the wall at the northwest of the dwelling, and flew east between the building and boundary trees on 21st June 2021.

1.7 During all the surveys foraging bats were recorded, dominated by common pipistrelles and noctules, with occasional soprano pipistrelle, Nathusius' pipistrelle, unidentified myotis and brown long eared bats.

1.8 A Protected Species Mitigation Licence will be required to demolish the dwelling as it will result in the destruction of two day roosts of common pipistrelle bats.

Reptiles

1.9 Survey work undertaken in 2021 confirmed the presence of viviparous lizard within the study site.

1.10 Available information indicates that the proposed study site supports a low number of viviparous lizard and a good population of slow-worm.

1.11 Reptiles present within the study area likely form part of the same population that also occupies the adjacent Bean Woods Country Park. Combined, these areas may qualify for reptile specific conservation designations.

1.12 Proposed development works will result in the loss and modified management of reptile habitat.

1.13 The scale of proposed development combined with the relative population size of extant reptiles means that onsite mitigation can be undertaken.

Other Remarks

1.14 If development work is not undertaken within two years of the date of this report, a further site assessment should be undertaken.

2. Site Location and Assessment

Site Name:	Land at Bean Cottage, Bean - *the site*; Fig. 2.1
Grid Reference:	TQ 588 719
County:	Kent
Planning Authority:	Dartford Borough Council
Site Name:	Land at Bean Cottage, Bean - *the site*; Fig. 2.1
Planning Ref:	Tbc
Natural Area:	North Kent Plain

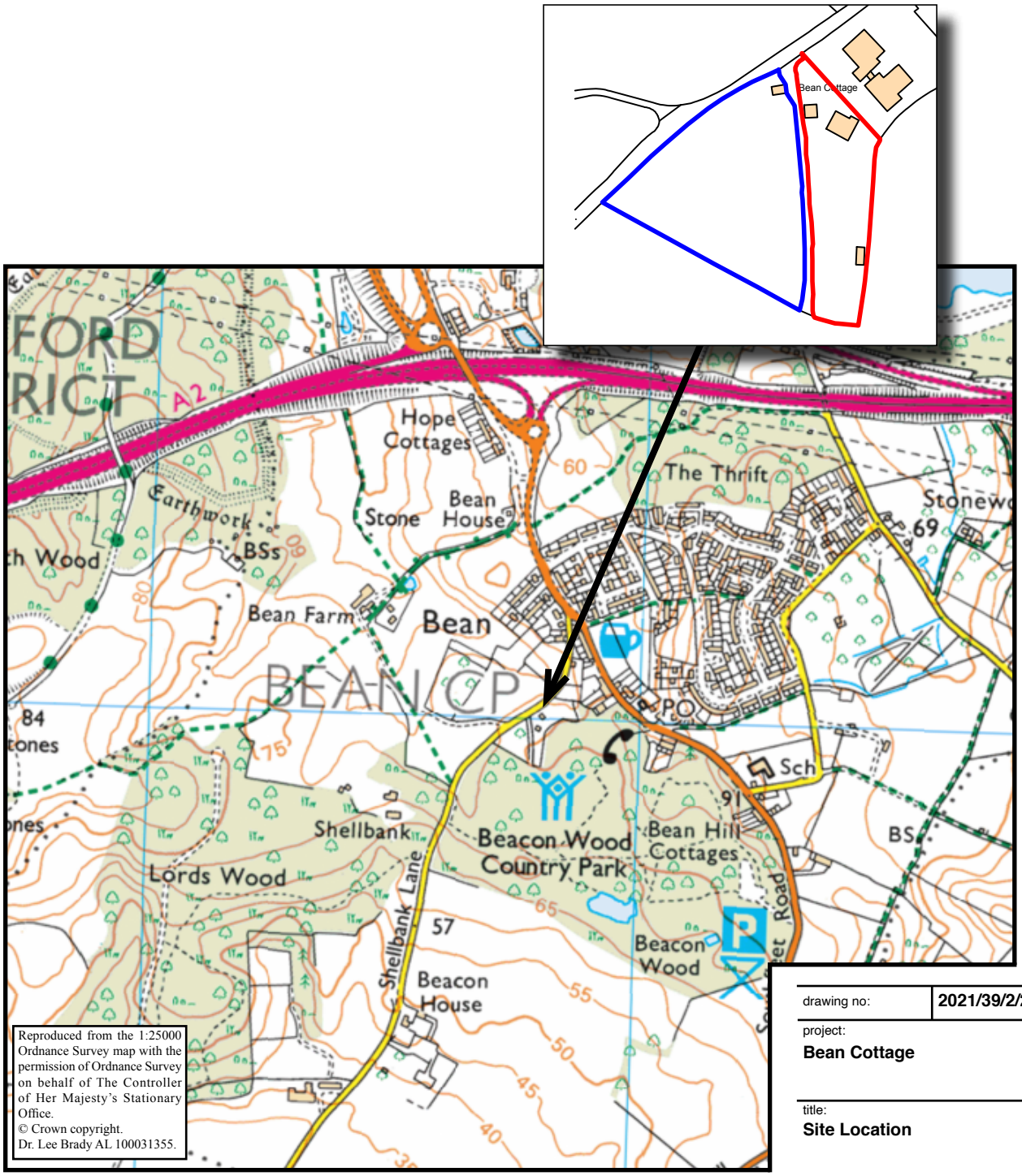
Client:	Mr Shumshair Haider
Proposed Disturbance:	Demolition of existing structures and construction of single residential dwelling.
Survey Request:	Reptile survey and bat emergence survey

Surveyors:	Lee Brady PhD, MCIEEM Kate Baldock MCIEEM Emily Lawrence

Assessment Period:	31st March to 15th July 2021
Limitations:	The assessment was undertaken following good practice guidelines and expert opinion. Lack of observations does not necessarily confirm absence. This report may need to be updated if new information becomes available.
Reliance:	Information, including any survey data, contained within this report must only be relied upon for a maximum period of one year from the date of the report.

Fig. 2.1 Land at Bean Cottage, Bean (TQ 588 719)

Location of study site.



drawing no:	**2021/39/2/2.1**

project:
Bean Cottage

title:
Site Location

scale: **N.T.S.**	date: **Aug 2021**

CALUMMA Ecological Services
13 Woodside Cottages,
Dunkirk,
Kent ME13 9NY
Tel/Fax: 01227 751408
info@calumma.co.uk
www.calumma.co.uk

3. Legal Protection

The legal protection of animals and plants in the United Kingdom is governed by several different regulations and conventions. Principally, these include:

- The Wildlife & Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000 and
- The Habitats and Species Directive (92/43/EC) enacted through the Conservation of Habitats and Species Regulations 2017. Development works affecting listed species are subject to a licence granted by an appropriate authority. This authority is currently Natural England.
- The Natural Environment and Rural Communities (NERC) Act 2006
- The Hedgerow Regulations 1997

Species and habitats receive legal protection that may prohibit sale, disturbance and/or killing/injury.

3.1 Bats

All species of bat and their breeding sites or resting places (roosts) are protected under Regulation 41 of The Conservation of Habitats and Species Regulations 2010 and Section 9 of the Wildlife and Countryside Act 1981. It is an offence for anyone to intentionally kill, injure or handle a bat, to possess a bat (whether live or dead), deliberately disturb a roosting bat, or sell or offer a bat for sale without a licence. It is also an offence to damage, destroy or obstruct access to any place used by bats for shelter.

3.2 Reptiles

All native reptiles are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (WCA 1981). It is an offence for anyone to intentionally kill or injure a 'widespread' reptile species (viviparous lizard, slow-worm, grass snake or adder), or sell or offer for sale without a licence.

The sand lizard and smooth snake, their breeding sites or resting places (any structure that may offer refuge) are protected under Regulation 41 of The Conservation of Habitats and Species Regulations 2010. It is an offence for anyone intentionally to kill, injure or handle either of these two species, to possess an animal (whether live or dead), deliberately disturb a sheltering animal, or sell or offer an animal for sale without a licence. It is also an offence to damage, destroy or obstruct access to any place used by sand lizards and smooth snakes for shelter.

4. Survey Methods

4.1 Bats

Four buildings were identified within the site during the PEA (Table 4.1)

Building Number	Roost Potential	Recommend No of Surveys	Actual No of Surveys	Notes
1	Medium	2	3	Bat roost confirmed during the first survey.
2	Low	1	1	
3	Negligible	0	0	
4	Negligible	0	0	

Table 4.1. Building assessment for bats (Updated from Calumma Ecological Services, 2021).

4.1.1 Emergence Survey

In accordance with the Bat Conservation Trust Good Practice Guidelines (2016) for buildings with low bat roosting potential, dusk emergence surveys of the buildings were undertaken. All features of bat roosting/access potential could be adequately observed by 3 surveyors.

The survey started approximately 15 minutes before sunset, and ceased approximately 75 minutes after sunset, when it was considered too dark to see any emerging bats.

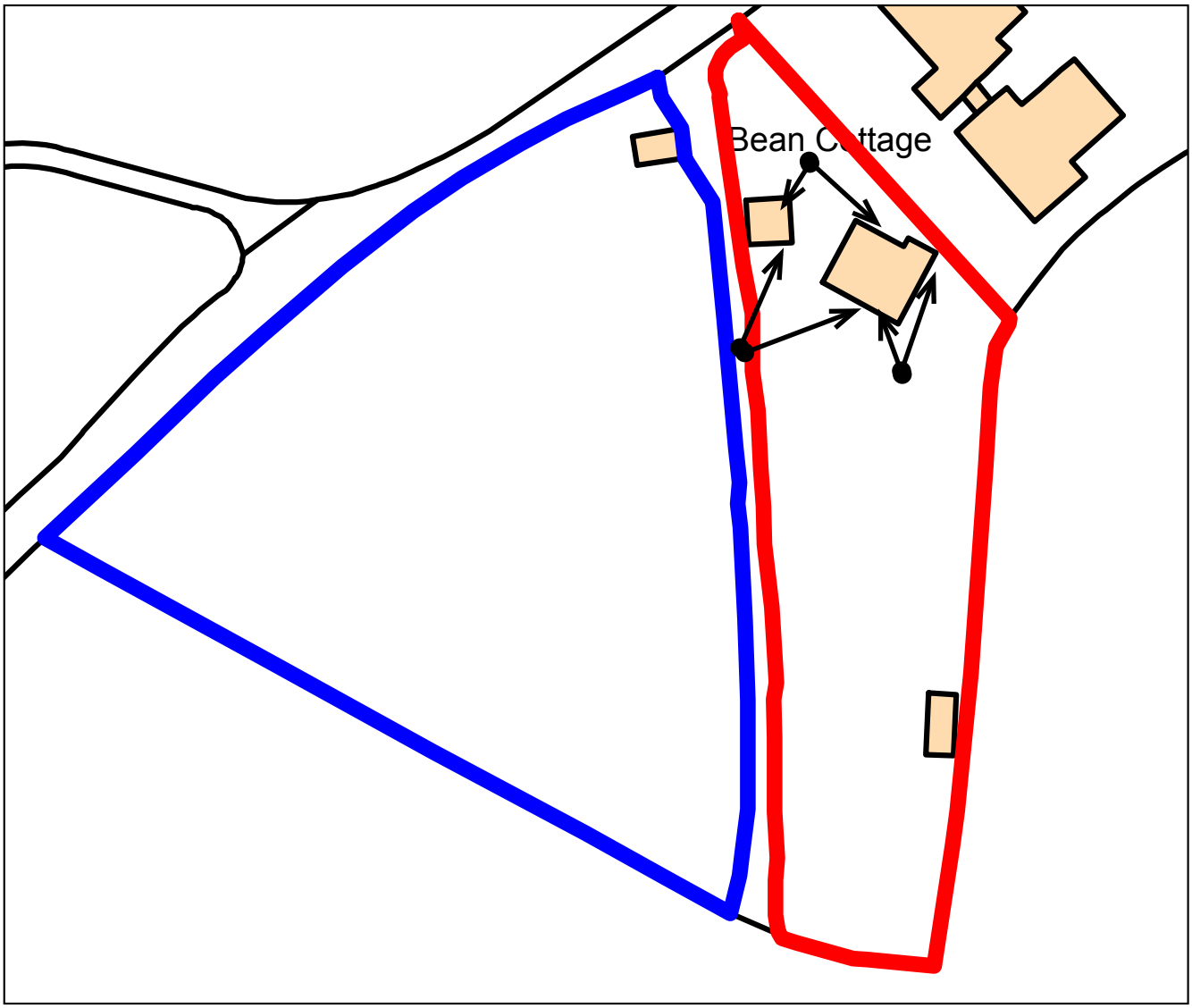
Equipment used included Elekon Batlogger and Wildlife Acoustics EM Touch detectors, and a TrackIRPro 35 thermal imaging camera.

Surveyors were positioned as illustrated in Fig. 4.1.

4.1.2 Personnel

The surveys were conducted by ecologist Kate Baldock (Level 2 bat survey licence 2015-12362-CLS- CLS) assisted by ecologist Dr Lee Brady and experienced bat surveyor Emily Lawrence.

Fig. 4.1 Bat Surveyor Locations



drawing no:	**2021/39/2/4.1**

project:
Bean Cottage

title:
Surveyor Locations

scale: **N.T.S.**	date: **Aug 2021**

CALUMMA
Ecological Services
13 Woodside Cottages,
Dunkirk,
Kent ME13 9NY
Tel/Fax: 01227 751408
info@calumma.co.uk
www.calumma.co.uk

4.1.3 Weather Conditions

Details of survey conditions are shown in Table 4.2.

Date	Sunset	Start	End	Weather	Temperature (˚C)	Notes
2/6/2021	21:06	20:55	22:21	Overcast, dry, light breeze	13 – 12	-
21/6/2021	21:19	21:04	22:34	Dry, still, 50% cloud	12 – 10	-
15/7/2021	21:09	20:55	22:24	40% cloud, dry, light breeze	18 – 16	-

Table 4.2. Meteorological data and times for emergence survey visits during 2021.

4.1.4 Limitations of Bat Survey Assessment

The surveys were undertaken within the optimum time for carrying out bat activity surveys, and all features of bat potential could be seen. All reasonable effort was taken to identify bat roosts within the site. It should be noted that bat roosts are dynamic and bat surveys are a snapshot in time, and bats may locate and occupy other features within the buildings following the surveys.

Pre-dawn surveys were not undertaken, as it was considered that an adequate assessment of all features of bat roosting potential could be undertaken during dusk emergence surveys.

4.2 Reptiles

A walkover survey was undertaken on 18th February 2021 to assess the site's potential for supporting populations of different protected species and to identify areas within the site where such species were most likely to be found (Calumma Ecological Services, 2021). The site was surveyed for reptiles on seven occasions between March and July 2021.

4.2.1 Reptile Presence/Likely Absence Assessment

Reptile survey work undertaken during 2021 included direct visual searching for basking animals and examination of available 'in-situ' refugia (e.g. logs etc). Artificial cover objects (ACOs) were also deployed in suitable habitat throughout the proposed development site. ACOs consisted of 0.5 m^2 mats constructed from roofing felt that were placed in areas offering potential habitat for basking animals. A total of 25 ACOs were deployed. Distribution of cover objects is illustrated in Fig. 4.2.

The site was visited on a total of seven occasions to visually survey for reptiles and to allow the monitoring of all cover objects. See Table 4.3 for reptile survey dates.

Date	Survey Period (GMT)
March	
31/3/2021	12:00 – 13:00
April	
13/4/2021	13:00 – 15:00
20/4/2021	10:30 – 11:00
27/4/2021	09:00 – 11:00
May	
5/5/2021	09:00 – 11:00
28/5/2021	10:00 – 12:00
July	
9/7/2021	10:00 – 11:00

Table 4.3. Dates for reptile survey visits during 2021. Survey periods are ranked by hour.

4.2.2 Weather Conditions

Survey work was undertaken during appropriate survey conditions wherever possible. Meteorological data is summarised in Table 4.4.

Date	Max. Air Temperature (˚C)	Cloud Cover (%)	Wind Speed	Wind Direction	Precipitation	Ground Conditions
March						
31/3/2021	18.0	50	Still	-	None	Dry
April						
13/4/2021	10.5	100	Still	-	None	Dry
20/4/2021	11.0	20	Light	-	None	Dry
27/4/2021	11.0	20	Light	NE	None	Dry
May						
5/5/2021	10.0	50	Light	W	None	Dry
28/5/2021	18.0	35	Still	-	None	Dry
July						
9/7/2021	23.0	40	Still	-	None	Dry

Table 4.4. Meteorological data for terrestrial survey visits during 2021.

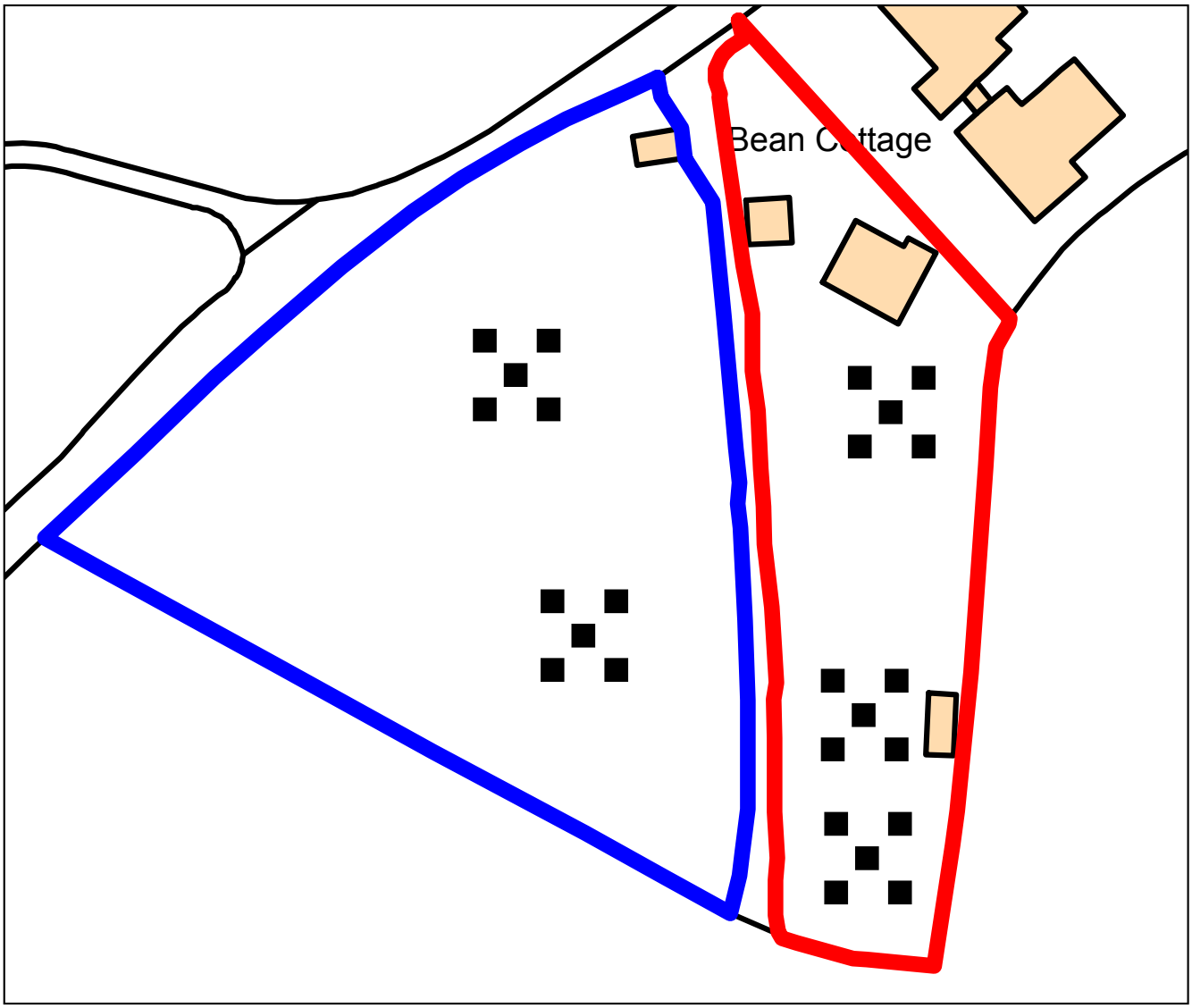
4.2.3 Personnel

All reptile survey work was undertaken by Dr. Lee Brady (PhD, BSc hons, MCIEEM), a qualified ecologist with over 30 years experience of field surveying.

4.2.4 Limitations of Reptile Survey Assessment

The assessment was undertaken following good practice guidelines and according to expert opinion. Although temperatures at the start of the survey period were below the seasonal average, reptile observations were made during the survey period. The applicant was also engaged in management works that reduced the available vegetation. Despite these constraints, Calumma Ecological Services is confident that conditions remained acceptable for determining the likely presence of reptiles that may forage or shelter within the study area.

Fig. 4.2 Artificial Cover Objects



drawing no:	**2021/39/2/4.2**

project:
Bean Cottage

title:
Artificial Cover Objects

scale: **N.T.S.**	date: **Aug 2021**

CALUMMA
Ecological Services
13 Woodside Cottages,
Dunkirk,
Kent ME13 9NY
Tel/Fax: 01227 751408
info@calumma.co.uk
www.calumma.co.uk

5. Proposed Development and Summary Site Description

5.1 Site Location

Land at Bean Cottage is located in a rural area within the North Kent Plain Natural Area (English Nature, 1998). The site is accessed directly from Shellbank Lane.

5.2 Proposed Development

The proposed development includes demolition of existing structures and construction of a single residential dwelling.

The proposed development area is approximately 0.26 Ha.

The site also includes an orchard that is 0.42 Ha. This is currently outside of the proposed development area, but will be subject to management works.

The proposed development site is illustrated in Fig. 5.1.

5.3 Aquatic Habitat

Ponds located within the local area have been identified using the following sources:

- Ordnance Survey (https://www.bing.com/maps)
- MAGIC (http://magic.defra.gov.uk)
- Google Earth

No ponds are located within the proposed development site. Available information indicates that four waterbodies are known to be located within 500 m of the site. Two of these are ponds located within 250 m. Small ornamental ponds could also occur in nearby residential gardens.

5.4 Terrestrial Habitat

Land within the proposed development area includes a residential garden that is dominated by trees, shrubs and grassland. Part of the garden includes a traditional orchard. The proposed development area is bounded on two sides by deciduous woodland.

Habitat available within the proposed development area is illustrated in Figs. 5.2.

5.5 Buildings

Four structures are located within the proposed development site:

B1 – One-storey residential property with tiled roof.

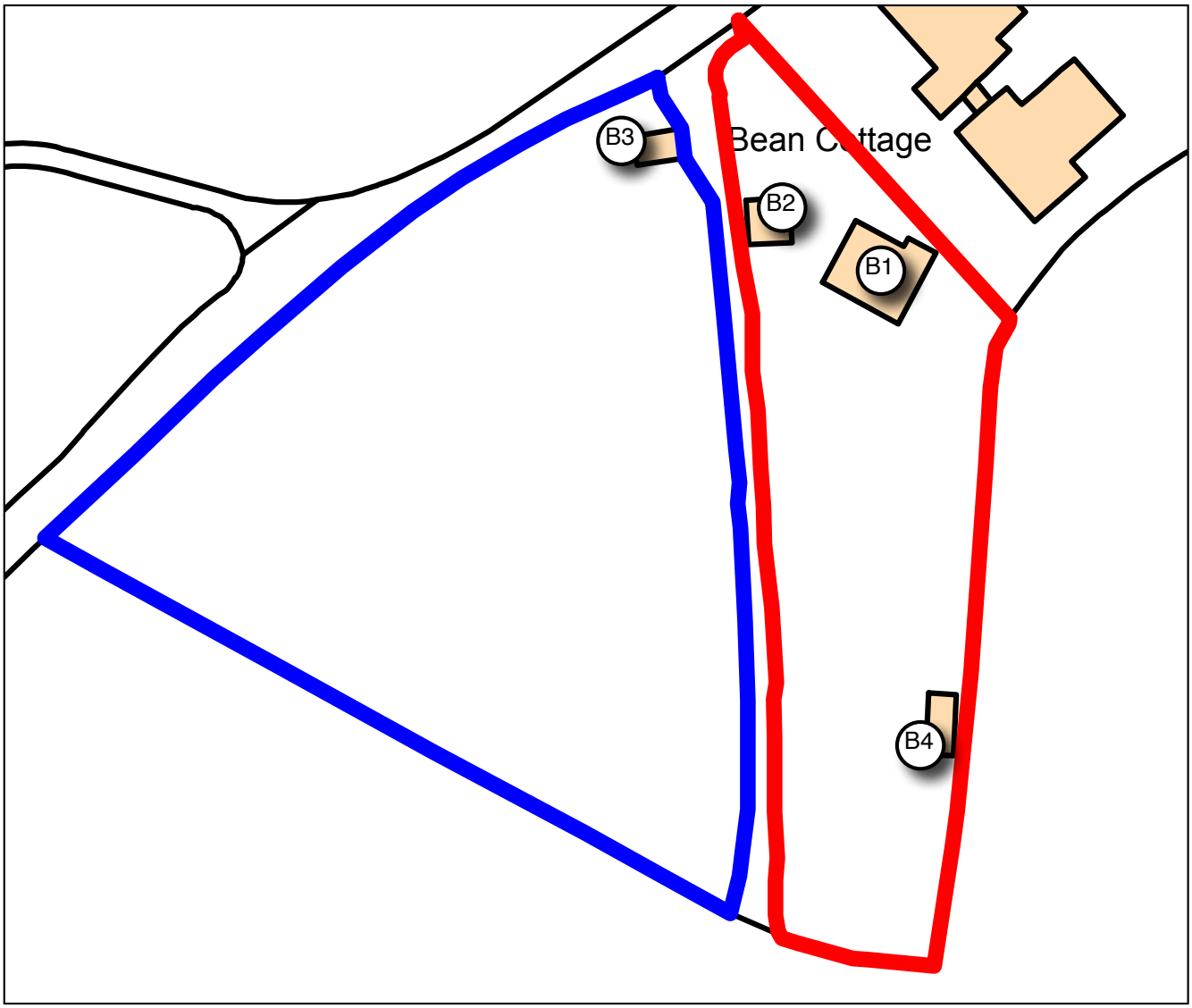
B2 – Brick garage with tiled roof

B3 – Old bomb shelter

B4 – Dilapidated wooded shed.

Fig. 5.1 Proposed Development Area

Red area = 0.26 Ha
Blue area = 0.42 Ha



drawing no:	**2021/39/2/5.1**

project:
Bean Cottage

title:
Development Area

scale: **N.T.S.**	date: **Aug 2021**

CALUMMA
Ecological Services
13 Woodside Cottages,
Dunkirk,
Kent ME13 9NY
Tel/Fax: 01227 751408
info@calumma.co.uk
www.calumma.co.uk

The proposed development site consists of a residential property with associated garden that includes an orchard. The property includes a detached one storey dwelling (B1) that is constructed from brick and characterised by a tiled roof. Several trees and shrubs were removed during the site assessment.

There are gaps under several tiles. There are also gaps in the brickwork on the north and western aspects (inset). These features provide potential for roosting bats. Bats were seen emerging from two locations (see Fig. 6.1).

Fig. 5.2 Site Photographs

Figure illustrates habitat features located within the study area.

The garden area includes trees, shrubs and grassland. The grassland was populated by ant nests indicating prior low disturbance in recent years. Part of the garden includes fruit trees that are considered to form a traditional orchard (inset).

During the course of the survey period, management works significantly reduced the area of bramble scrub across the study area. Ant nests were also removed. Viviparous lizard and slow-worm (inset) were encountered across the site.

drawing no:	**2021/39/1/5.2**
project: **Bean Cottage**	
title: **Available Habitat**	
scale: **N.T.S.**	date: **Aug 2021**

CALUMMA Ecological Services

13 Woodside Cottages,
Dunkirk,
Kent ME13 9NY

Tel/Fax: 01227 751408
info@calumma.co.uk

www.calumma.co.uk

6. Survey Results and Impact Assessment

6.1 Bat Survey Results

6.1.1 Study Area

The site contains four buildings, summarised in Table 4.1 and described in the Preliminary Ecological Appraisal report prepared by Calumma Ecological Services (2021), set within a garden. To the south and east the site is bounded by deciduous woodland, with a residential garden to the north and woodland/farmland to the west. These features provide optimal foraging resources and year round roosting opportunities for bats.

6.1.2 Daytime Roost Assessment

An initial daytime assessment was undertaken to inform the PEA and identified medium potential for crevice dwelling bat species in building B1. Gaps into the roof void were present but no evidence of bats was recorded, thus lowering the risk of void dwelling species being present. The outbuildings were in a generally poor state of repair, with low to negligible potential to support roosting bats.

6.1.3 Emergence Survey

2nd June 2021 (B1)

At 21:20, a single common pipistrelle emerged from the flashing around the eastern chimney of the dwelling (B1) and flew south.

Consistent foraging activity was recorded over the site and the boundary vegetation, dominated by a small number of noctules and common pipistrelle bats, with occasional soprano pipistrelle, Nathusius' pipistrelle and unidentified myotis calls.

21st June 2021 (B1 & B2)

At 21:55, a single common pipistrelle bat emerged from the crack in the wall at the northwest of the dwelling and flew east between the building and boundary trees. No bats emerged from B2.

Consistent foraging activity was recorded over the site and around the boundary vegetation, dominated by a small number of common pipistrelle bats (including social calling), with occasional soprano pipistrelle, noctule, unidentified myotis and brown long eared bats.

15th July 2021 (B1)

No bats were seen to emerge from the dwelling.

Relatively low levels of foraging activity were recorded, dominated by common pipistrelle and noctule, with occasional soprano pipistrelle and unidentified myotis bat calls.

6.1.4 Potential Impacts

Two common pipistrelle bats were recorded emerging from the dwelling (B1). The roosts are considered to be day roosts (likely to be males or non-breeding females). Therefore, unmitigated demolition will destroy two common pipistrelle day roosts, and potentially kill/injure/significantly disturb individual bats, all of which are offences under UK legislation.

The proposed demolition will result in the destruction of two occasionally used day roosts, of low conservation significance, which are a common feature in the landscape. The predicted impacts are therefore expected to be at the site level only and can be offset by compensatory roost features.

There is a risk of light disturbance to foraging bats, and a reduction in available foraging habitat.

The measures detailed in Section 7 will ensure that there will be a net increase in roosting opportunities and enhancement of foraging opportunities. It is not anticipated that there will be any detrimental impacts on the favourable conservation status of bats as a result of the proposals.

6.2 Reptile Survey Results

Survey work confirmed the presence of viviparous lizard and slow-worm within the proposed development site (Table 6.1; Appendix I). Habitat within the site was initially found to be favourable for reptiles but was subject to ongoing management during the survey period that reduced its suitability.

6.2.1 Reptile Observations

Viviparous lizard: A total of six lizard observations were made within the proposed development area and adjacent orchard. The maximum adult count of two lizard within single survey session indicates the presence of a *low* population across the whole site. The locations of lizard observations are illustrated in Fig. 6.2.

Slow-worm: A total of 13 slow-worm observations were made within the proposed development area and adjacent orchard. The maximum adult count of six slow-worms within a single survey session indicates the presence of a *good* population across the whole site. The locations of slow-worm observations are illustrated in Fig. 6.3.

Grass snake: Not recorded within the study area during the 2021 survey period.

Adder: Not recorded within the study area during the 2021 survey period.

Year	Maximum Adult Count			
	Viviparous Lizard	Slow-worm	Grass Snake	Adder
2021	2	6	0	0

Population Size Class:	Low	Good	Not recorded	not recorded
Population Score:	1	2	-	-
Total Key Reptile Site Score:	3			

Table 6.1. Reptile survey results for land at Bean Cottage in 2021. Figures represent maximum number of adult observations within single survey session per year across the whole study area. Survey work was principally aimed at determining presence and population size classes are estimated using Froglife (1999) criteria.

6.2.2 Reptile Evaluation

6.2.2.1 SSSI Designations

Beebee and Grayson (1998) have summarised the criteria used to evaluate candidate Sites of Special Scientific Interest (SSSI).

All established populations of sand lizard and smooth snake should be selected. For the widespread reptile species, the best locality supporting at least three species should be selected. The presence of species that are locally rare or at the limits of their geographical range should count positively in the evaluation of sites.

Reptile survey results are unlikely to influence SSSI designation and notification criteria for proposed development land.

6.2.2.2 Key Reptile Site Status

Criteria for the selection of Key Reptile Sites have been published by Froglife (1999):

1. The site supports three or more reptile species.
2. The site supports two snake species.
3. The site supports an *exceptional* population of one species.
4. The site supports an assemblage of species scoring at least four, based on the relative population scoring system described by Froglife (1999).
5. The site is of particular regional importance due to local rarity.

Available data suggests that the proposed development site does not meet the minimum requirements necessary to qualify as a Key Reptile Site. However, reptiles present at Bean

Cottage likely form part of a wider metapopulation that includes animals within the adjacent Bean Woods Country Park. Combined, the sites are of local conservation importance.

6.2.2.3 Reptile Evaluation and Impact Assessment

Viviparous lizard and slow-worm were confirmed present within the study area at Bean Cottage. The range of species and number of observations means that, when considered in isolation, the site does not meet the minimum requirements necessary for reptile-based conservation designations. However, reptiles likely form a larger metapopulation with the adjacent Bean Woods Country Park. The relatively small size of the study area means that the reptile population is considered to be of local, rather than county, conservation interest.

Since only a relatively small number of reptiles likely occupy the site and proposed development will include the retention of the orchard area, the proposed development will have a low negative impact at the site level and on-site mitigation works can be undertaken.

6.3 Other Observations

An adult male stag beetle was observed flying across the site on 15th July 2021.

Fig. 6.1 Roost Locations

2nd June 2021. 1 x common pipistrelle bat emerged.

21st June 2021. 1 x common pipistrelle bat emerged.

drawing no:	**2021/39/2/6.1**

project:
Bean Cottage

title:
Bat Roost Locations

scale: **N.T.S.**	date: **Aug 2021**

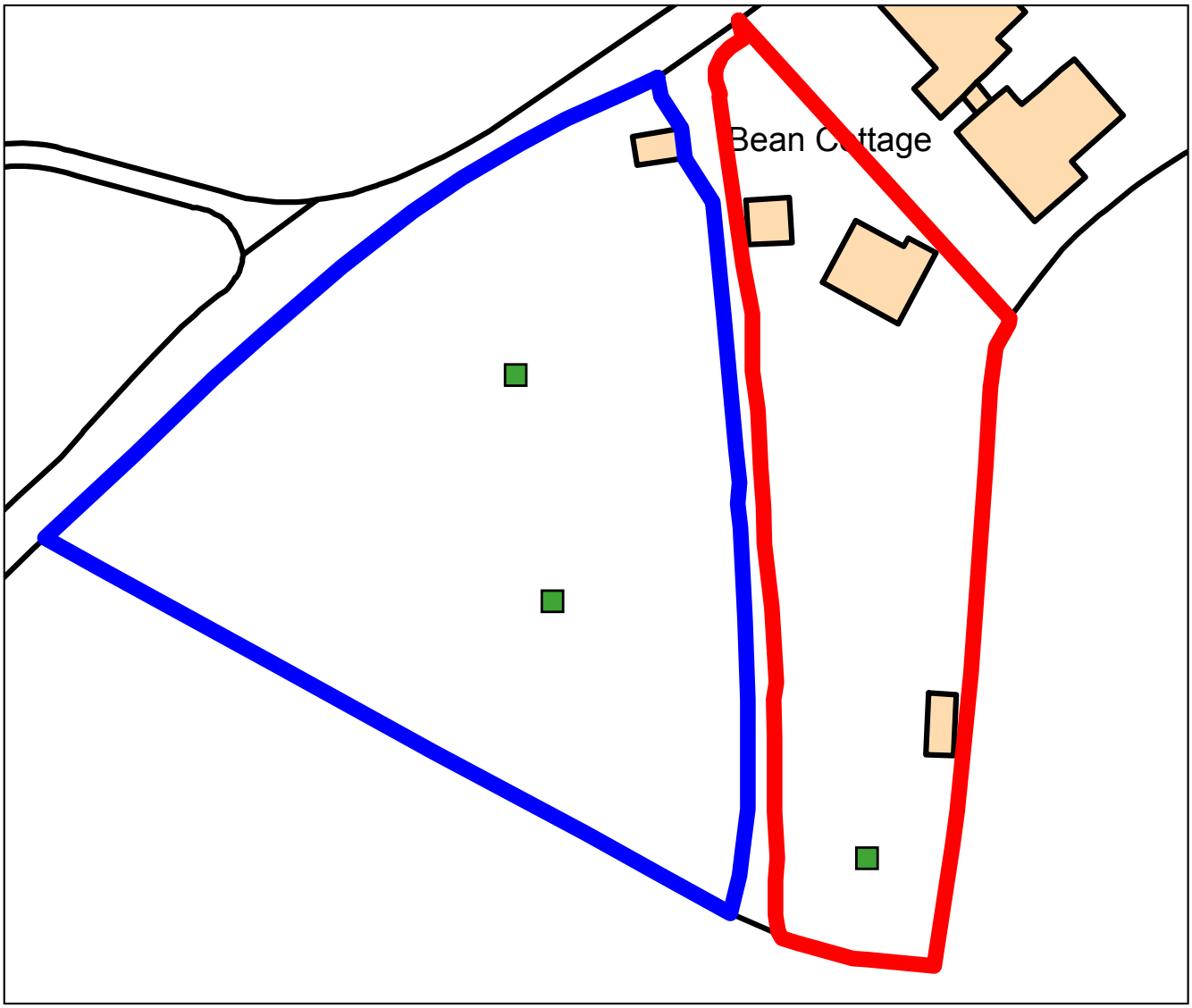
CALUMMA
Ecological Services

13 Woodside Cottages,
Dunkirk,
Kent ME13 9NY

Tel/Fax: 01227 751408
info@calumma.co.uk

www.calumma.co.uk

Fig. 6.2 Viviparous Lizard



drawing no:	**2021/39/2/6.2**

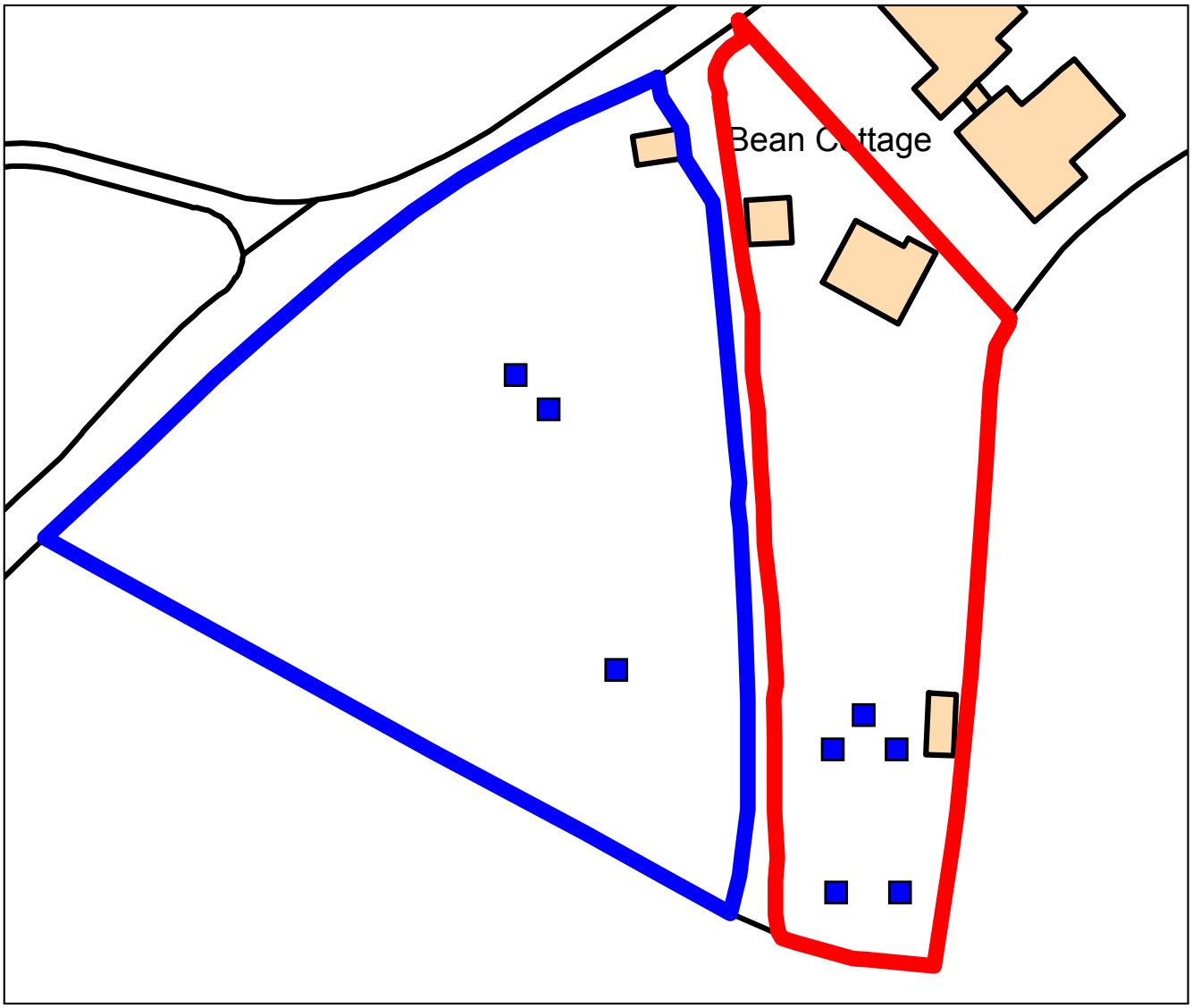
project:
Bean Cottage

title:
Viviparous Lizard

scale: **N.T.S.**	date: **Aug 2021**

CALUMMA
Ecological Services
13 Woodside Cottages,
Dunkirk,
Kent ME13 9NY
Tel/Fax: 01227 751408
info@calumma.co.uk
www.calumma.co.uk

Fig. 6.3 Slow-worm



drawing no:	**2021/39/2/6.3**

project:
Bean Cottage

title:
Slow-worm

scale: **N.T.S.**	date: **Aug 2021**

CALUMMA
Ecological Services
13 Woodside Cottages,
Dunkirk,
Kent ME13 9NY
Tel/Fax: 01227 751408
info@calumma.co.uk
www.calumma.co.uk

7. Recommendations

7.1 Further Survey Work

If the proposed development does not proceed within the next year, it is recommended that the surveys are updated, to confirm if the results of the current survey are still valid.

7.2 Bat Mitigation

7.2.1 Mitigation Licence

A Protected Species Mitigation Licence will be required for the demolition of B1 as it will result in the destruction of two common pipistrelle day roosts and has the potential to kill/injure/disturb bats.

Licences are applied for once planning permission has been granted and are issued by Natural England who aim take 30 days to process the application, but at the time of writing, processing time was approximately 60 days.

The licence, which is written by the consultant ecologist, consists of four documents:

- Application form, which details the basic information;
- Method Statement, which is used to determine whether the 'favourable conservation status' of the bats will be maintained i.e. is the mitigation adequate?; and
- Bat Work Schedule, which details the timing of work and mitigation.

7.2.2.1 Mitigation Actions

The licence application will detail mitigation and compensation measures required for the work to proceed. These will include:

- Installation of two bat boxes on retained trees. These will be used to relocate any bats found during demolition.
- Hand removal of the features used by roosting bats, supervised by a licensed ecologist. The roosts are of a single bats and hence there are unlikely to be any seasonal constraints (TBC during licensing process). However, it is recommended that the winter months (November to March) are avoided to minimise the risk of encountering hibernating bats which are extremely vulnerable to disturbance.

Precise details of the mitigation, including the location, style and make of roost feature will be determined during the licence application stage.

Due to the low impact of this project upon bats, it is unlikely that post works monitoring will be required (TBC by Natural England during licensing process).

7.2.2.2 Lighting

As bat activity was recorded during the survey, it is recommended that any lighting is designed to minimise impact on foraging/commuting bats.

If external lighting is required, this should be low or zero UV, which is preferred to reduce attraction of insects to lighting and therefore to reduce the attraction of foraging bats to these areas.

Lighting should be directed away or shielded from any adjacent trees, grassland and hedgerows to allow bats safe foraging routes where they will not be visible to predators.

7.2.2.3 Landscaping

Through a detailed landscaping plan, there is scope for enhancement of the surrounding foraging habitats, and to incorporate foraging habitats into the development, for the benefit of bats and other species.

7.3 Reptile Mitigation

Although survey work found relatively low numbers of reptiles within the proposed development area, the population of slow-worm was considered *good* across the whole study area.

Development based mitigation for reptiles normally includes the following elements (from English Nature, 2001, 2005):

Habitat creation, restoration or enhancement. A receptor area for displaced individuals must be identified and appropriate enhancement work undertaken to compensate for habitat lost to development. Wherever possible, receptor sites should be located close to the donor (development) site.

Avoidance of disturbance, killing or injury: taking all reasonable steps to ensure works do not harm individuals, by altering working methods or timing to avoid animals; capture and removal; exclusion to prevent animals entering development areas etc.

Long-term habitat management and maintenance: to ensure herpetofauna population(s) will persist after construction works are completed.

Post-development population monitoring: to assess the success of the scheme and to inform management or remedial operations.

7.3.1 Onsite Mitigation

The low number of observations combined with a proposed development that will retain the area of orchard means that it will be possible to achieve onsite mitigation.

7.3.2 Site Safeguard

Receptor sites should be safe from development, inappropriate disturbance and unsympathetic management for the foreseeable future. Site safeguards should extend beyond the monitoring period. Such safeguards must be agreed with the landowner and may be a requirement of any granted planning consent.

7.3.3 Assurance of Long-term Favourable Management

Land management issues on receptor sites must be addressed before mitigation works commence. The construction of habitat 'features' (e.g. hibernation areas, log piles etc) and vegetation management may conflict with future use of the land. Such conflicts must be resolved before a receptor site is adopted. Note that favourable management of the site will need to take place even after monitoring works have been completed.

Management work should aim to encourage a structurally complex grassland sward that is not shaded by trees/scrub.

7.3.4 Access for Monitoring

A monitoring programme should form part of the mitigation exercise. The period of monitoring is dependent upon the scale of impact of the development and the relative population size of the species affected by the works. Monitoring programmes for low impact developments typically run for 1 - 3 years. For larger developments, or impacts on important populations, monitoring may be required for 5 or more years.

Monitoring work for reptiles should be undertaken in order to meet the following objectives:

- Review habitat enhancement works and recommend remedial actions as appropriate.
- Determine whether the translocated species remains present within the receptor area.
- Determine whether the translocated species displays successful breeding.

For larger projects, monitoring should also include the following:

- Determine relative population sizes of translocated species.
- Determine whether translocated populations increase, decrease or stabilise.

7.3.5 Outline Reptile Mitigation Recommendations

Note that the following proposed actions are provided as a guide and dependent upon several factors (e.g. client agreement, planning officer approval etc). Agreed details should be confirmed in a reptile mitigation method statement.

1. Land within the study area that will not be disturbed by proposed construction works should be selected as a receptor area. Such land should include land within the orchard. This land must be clearly shown on a site plan and demarcated on the ground to ensure it is not disturbed during construction works.
2. Habitat enhancement work should be undertaken to create terrestrial sheltering places at strategic locations within the proposed receptor site (a minimum of 5 log piles are recommended).
3. Areas zoned for development must be cleared of animals in advance of construction activities. A phased habitat clearance and destructive search accompanied by a watching brief undertaken by a suitably experienced ecologist should be undertaken.
4. Implement post construction monitoring programme at receptor site (3 years minimum). Monitoring works should include a single annual visit to ensure that habitat remains favourable within the receptor area.

7.3.6 Mechanism for ensuring delivery

It is recommended that appropriate reptile mitigation works be secured as a condition of any granted planning permission.

Suggested condition wording:

"*Prior to the start of the development hereby approved, a reptile mitigation method statement will be submitted to and approved in writing by the Local Planning Authority. This will confirm the location of the onsite reptile receptor area and include full details of habitat enhancement works and follow-up management. The approved details will be implemented before any development activities are undertaken that could result in disturbance to reptiles*."

8. References and Further Reading

Bat Conservation Trust (2016). Bat Surveys – Good Practice Guidelines. 3rd Edition. Bat Conservation Trust, London, UK.

Calumma Ecological Services (2021). Preliminary Ecological Appraisal. Land at Loddington Cottages.

English Nature (2002). Bats in roofs: a guide for surveyors. English Nature, Peterborough, UK.

Froglife (1999) Reptile survey. An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.

Gent, T. and Howarth, W. (1998) Amphibians and reptiles and the law. In: Herpetofauna Workers' Manual. Gent, A. H. & Gibson, S. D. (eds.), Joint Nature Conservation Committee, Peterborough, pp. 75 - 93.

Griffiths, R. A. and Inns, H. (1998) Surveying. In: Herpetofauna Workers' Manual. Gent, A. H. & Gibson, S. D. (eds.), Joint Nature Conservation Committee, Peterborough, pp. 1 - 6.

Gunnel, K., Murphy, B. & Williams, C. (2013). Designing for Biodiversity: A technical guide for new and existing buildings. RIBA, UK

Herpetofauna Groups of Britain and Ireland (1998) Evaluating local mitigation/translocation programmes: Maintaining Best Practice and lawful standards. HGBI advisory notes for Amphibian and Reptile Groups (ARGs). HGBI, c/o Froglife, Halesworth.

Mitchell-Jones, A. J. (2004). Bat Mitigation Guidelines. English Nature, Peterborough, UK.

Appendix I: Reptile Survey Results

Source:

Calumma Ecological Services

Bean Cottage Survey Results for Development Area [2021]

Site Name & Survey Area	Grid Reference:	Vice County:	Natural Area:
Bean Cottage Development Area	TQ 5881 7196	West Kent	North Kent Plain

Species Observed in Development Area Terrestrial Habitat [2021]:

Slow-worm, Viviparous Lizard

Reptile Survey Summary:

	V. Lizard	Slow-worm	Grass Snake	Adder
Maximum Adult Count:	1	3		
Population Status:	Present	Present	Absent	Absent

Reptile Survey Results

Session	Date	Air Temp	Wind	Rain	V. Lizard			Slow-worm			Grass Snake			Adder		
					Adult	Imm	Neo	Adult	Imm	Neo	Adult	Imm	Neo	Adult	Imm	Neo
LB1	31/3/2021	18.0	Still	None												
LB2	13/4/2021	10.5	Still	None	1											
LB3	20/4/2021	11.0	Light	None												
LB4	27/4/2021	11.0	Light	None												
LB5	5/5/2021	10.0	Light	None	1											
LB6	28/5/2021	18.0	Still	None				1								
LB7	9/7/2021	23.0	Still	None				3	4							

Date Of Last Modification: 23/07/2021

Calumma Ecological Services Reference: 2021/39

Bean Cottage Survey Results for Orchard [2021]

Site Name & Survey Area	Grid Reference:	Vice County:	Natural Area:
Bean Cottage Orchard	TQ 5876 7195	West Kent	North Kent Plain

Species Observed in Orchard Terrestrial Habitat [2021]:

Slow-worm, Viviparous Lizard

Reptile Survey Summary:

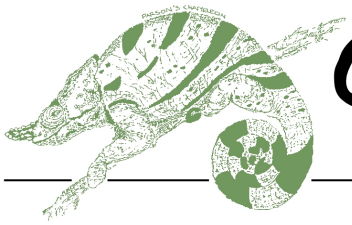
	V. Lizard	Slow-worm	Grass Snake	Adder
Maximum Adult Count:	1	3		
Population Status:	Present	Present	Absent	Absent

Reptile Survey Results

Session	Date	Air Temp	Wind	Rain	V. Lizard			Slow-worm			Grass Snake			Adder		
					Adult	Imm	Neo	Adult	Imm	Neo	Adult	Imm	Neo	Adult	Imm	Neo
LB1	31/3/2021	18.0	Still	None												
LB1	13/4/2021	18.0	Still	None												
LB3	20/4/2021	11.0	Light	None												
LB4	27/4/2021	11.0	Light	None	1											
LB5	5/5/2021	10.0	Light	None	1											
LB6	28/5/2021	18.0	Still	None	1			1	1							
LB7	9/7/2021	23.0	Still	None	1			3								

Date Of Last Modification: 23/07/2021

Calumma Ecological Services Reference: 2021/39



Calumma Ecological Services is an independent wildlife consultancy specialising in the applied conservation of amphibians and reptiles. *Calumma Ecological Services* offers a full range of specialist services to private companies, local authorities, government agencies, wildlife organisations and members of the public.

Calumma Ecological Services works towards the policy of 'best practice' advocated by ARG UK (formally known as Herpetofauna Groups of Britain and Ireland).

For more details please contact:

Dr. Lee Brady, *Calumma Ecological Services,*

13 Woodside Cottages, Dunkirk, Faversham, Kent ME13 9NY

Tel/Fax: 01227 751408

info@calumma.co.uk

www.calumma.co.uk

Printed by Calumma Ecological Services