

**New Barn Farm,
Sibford Gower
Preliminary Ecological Appraisal
and Bat Emergence Survey**

On Behalf of:
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1. Executive Summary

- 1.1 New Barn Farm is a farm house with attached barns, located 1km south-west of the village of Sibford Gower in the Cherwell district of the county of Oxfordshire (Central Grid Reference SP 34169 37088).
- 1.2 Proposals have been put forward to demolish the house and replace with a new dwelling built to modern standards. Therefore, a Preliminary Ecological Appraisal has been requested to inform the planning decision.
- 1.3 The field survey was undertaken by an experienced ecologist, with a Natural England bat survey licence (Class Registration Number 2016-13769-CLS-CLS). The survey used standard Phase I methodology, with the buildings on-site assessed for bat roost potential.
- 1.4 There is a farmyard with associated buildings on the northern side, with the main house and attached barn conversion on the southern side of the farmyard. Bat droppings, identified as Pipistrelle droppings, were found in the roof space of the main house. Bat droppings, identified as Brown Long-eared, were found at the eastern end of the barn conversion.
- 1.5 Therefore, the house and barn conversion were confirmed as a roost and bat emergence surveys were undertaken. No signs of bats were found in the associated farm buildings and they were assessed as negligible potential for roosting bats with no further surveys on these buildings required.
- 1.6 The three emergence surveys confirmed a minor Common Pipistrelle roost was present in the main house and a minor Brown Long-eared roost was present in the barn.
- 1.7 The proposed works will be carried out under a Bat Low Impact Class Licence, with the works carried out under a Working Method Statement and mitigation to include the placing of bat slates into the roof along with an integrated bat box placed at the apex of the newbuild with the bat boxes put in place for the working method statement retained as a site enhancement. The converted attached stock shed is un-affected by the proposed works and no evidence of bats was found here.
- 1.8 There are two ponds within 100m of the site. Habitat Suitability Index assessments were carried out on the ponds. The ponds were assessed as good habitat for Great Crested Newt. When this information is placed into the Natural England GCN risk assessment tool a result of Red: Offence Highly Likely is obtained.
- 1.9 Therefore, it is recommended that the works are carried out under a Naturespace District Licence, along with a Working Method Statement. With this in place GCN are not viewed as a constraint to the proposed works.

- 1.10 The on-site pond contained an infestation of *Crassula helmsii* (New Zealand Pigmy weed or Australian Swamp Stonecrop). This is a non-native, invasive species that is Schedule 9 and requires removal. Some suggestions for this have been put forward, including potential licences for GCN that may be present.
- 1.11 There are no records of reptiles within 1km of the site. The habitats on the site are sub-optimal for reptiles. However, as a precaution, the working method statement for GCN will also apply for reptiles.
- 1.12 Any works to trees and hedges should be carried out using methods to avoid disturbance to nesting birds.
- 1.13 No other protected or notable species are believed to be present or affected by the proposed works.
- 1.14 Some suggestions have been made to enhance the site for wildlife to fulfil the aims of the NPPF.

2. Introduction

Background

- 2.1 New Barn Farm is situated 1km south-west of the civil parish of Sibford Gower within the Cherwell district of the county of Oxfordshire (Central Grid Reference SP 34169 37088).
- 2.2 The site consists of a farmyard with farmhouse with rear garden on the south-eastern corner an attached barn conversion on the western side with barns perpendicular to the converted barn. On the northern side of the farmyard are associated farm buildings. There are proposals to demolish the house and re-site the new dwelling to the east of the present location.
- 2.3 Therefore, the local planning authority have requested a Preliminary Ecological Appraisal of the site and buildings to inform the planning decision.
- 2.4 Bat droppings, identified as Brown Long-eared bat droppings, were found in the roof space of the converted barn along with bat droppings, identified as Pipistrelle droppings, were found in the roof space of the main house. Therefore, further surveys in the form of two dusk emergence and one dawn re-entry surveys were required following best practice guidelines (BCT 2016) to identify which species are using the house, to classify the type of roost and to inform the application of the protected species licence to demolish the house.
- 2.5 Matthew Burnford commissioned 4 Acre Ecology Limited on 12th July 2021 to undertake a Preliminary Ecological Appraisal of the site and buildings and on 12th August 2021 to carry out a set of bat emergence surveys.

Aims and Objectives

- 2.6 The aim of the surveys was to determine the ecological value of the site and to assess possible ecological constraints that may be present on the site, suggesting any further surveys or mitigation required. The aim of the bat emergence survey was to determine if bats are using the buildings to roost. with the objective of informing the planning decision, whilst maintaining the conservation status of bats and other wildlife within the local area.

3. Methodology

Desk Study

- 3.1 A data search was commissioned from the Thames Valley Environmental Records Centre (TVERC) for protected species within 1km of the site along with bat records within 2km of the site. Biological Records Centres hold information regarding statutory designated sites, local nature reserves, sites of conservation interest, records of protected species and other species of conservation concern. However, this data cannot be considered fully comprehensive and therefore the absence of data, in response to a data search, does not imply that a species, important habitat or designation does not exist within that search area.
- 3.2 The Multi-Agency Geographical Information for the Countryside (MAGIC) website was consulted to determine if there were any sites designated for bats within 5km of the site boundary, or any designated sites within 2km and what European Protected Species licences had been issued in the area.
- 3.3 The NBN Gateway was consulted to ascertain the number of bat records held for bats within 5km of the site.
- 3.4 The land within 500m of the site was examined through aerial/satellite images and on-line mapping tools to identify any likely ponds that may support Great Crested Newts (GCNs).

Field Survey

Preliminary Ecological Appraisal

- 3.5 A preliminary ecological appraisal was carried out across the site and up to 30m beyond its boundary to investigate the potential for badger setts. The survey used Phase I habitat survey techniques, which is a standardised, rapid mapping technique for obtaining baseline ecological information over large areas of land. It uses standard habitat definitions for classifying areas of land based on the vegetation present. The technique was modified to provide more detail over a smaller area and give further consideration to the presence of fauna. The standard habitat definitions were used, with coarse grassland as an additional category to cover unmanaged, secondary grasslands that are species poor.
- 3.6 Easily identified higher plant species from each habitat type were recorded and their abundance was assessed on the DAFOR scale:

D	Dominant (81-100% Cover)
A	Abundant (61-80% Cover)
F	Frequent (41-60% Cover)
O	Occasional (21-40% Cover)

R Rare (1-20% Cover)

- 3.7 This scale is only representative of the area covered within each habitat type on the site and does not reflect national, regional or local abundances. As plant cover is stratified total percentage cover by adding up the scale can easily be greater than 100%. The names of all species follow the *National Biodiversity Network's Species Dictionary*.

Preliminary Bat Survey

- 3.8 An external and internal inspection of the buildings was made by a Natural England Licensed bat surveyor (Class Licence Registration number 2016-13769-CLS-CLS). The exterior of the buildings was searched for evidence of bats, looking for grease stains in external crevices and searching for droppings on windows sills, windows, walls and ledges and on the ground below potential entrance/exit areas to the roof or walls
- 3.9 The interior of the buildings, in particular any roof spaces, were searched using high powered torches for evidence of bats. This evidence includes sightings, dead bats, feeding remains, smell, droppings and grease marks at entry/exit points. The potential of the building as a bat roost was judged and any signs of bats or features offering roost potential were noted.

Habitat Suitability Index Assessment

- 3.10 Any ponds identified as present within 250m of the site were subject to a Habitat Suitability Index (HSI) Assessment to determine the likely presence of GCNs (if access was available), as any GCN population beyond this will be unaffected by the proposals, according to the Natural England GCN Risk Assessment.
- 3.11 The HSI is a geometric mean of ten suitability indices, with the ten Suitability Indices scored for a pond in the field and from map work. The ten field scores are converted to SI scores, on a scale from 0.01 to 1 (0.01 is used as the bottom end of the range instead of 0, because multiplying by 0 reduces all other SI scores to 0).
- 3.12 The ten SI scores are then multiplied together and the tenth root of this number is then calculated $(X)^{1/10}$, so that the calculated HSI for a pond should score between 0 and 1.
- 3.13 Lee Brady has developed a system for using HSI scores to define pond suitability for great crested newts on a categorical scale:

HSI Pond suitability

- <0.5 = poor
0.5 – 0.59 = below average
0.6 – 0.69 = average
0.7 – 0.79 = good

> 0.8 = excellent

Bat Emergence Surveys

- 3.14 Following best practice guidelines (BCT, 2016) it was determined that two dusk emergences with one dawn re-entry survey on the house was required to determine which bat species are using the building, to classify the type of roost and to inform the application of the protected species licence.
- 3.15 The New Barn house is a large property with a central cross gable at the front along with a cross gable at the rear therefore, four surveyors, with two at the front of the house and two surveyors covering the rear were required to cover all aspects of the building.
- 3.16 For dusk surveys the surveyors arrive half an hour before sunset and continue to survey for up to two hours after sunset, to allow for late emerging bat species. For the dawn survey, the surveyors would arrive one and a half hours before sunrise and continue to survey for up to quarter of an hour after dawn.
- 3.17 Surveyors were equipped with an Echo Meter Touch attached to an I-pad for immediate identification and recording for later analysis of any unidentified bats. Surveyors also had standardised recording forms, a map of the site and building, pencils, a weather writer and head-torch with replacement batteries.
- 3.18 Any registrations of bats on the detectors and/or direct observations of bats or their behaviour were noted with the time on the recording forms and a location of this on the map. As emergence from the roost was a priority, surveyors did not always see passing bats out of their line of vision and would therefore mark where they were standing when the registration occurred. Most bats were identified by the surveyors by sound through experience, but the recordings allowed verification and identification of unknown bats where required.
- 3.19 The survey data was summarised into the number of passes by each species, the location of exit/entrance points in the building and the type of behaviour (e.g., foraging or emerging). Where direct observations of bats emerging/re-entering were made, these are depicted on a plan.

4. Legislation and Planning Policy

4.1 There are a number of tiers of legislation protecting wildlife in England and Wales. The highest tier is for those species protected by European Legislation, such as the Dormouse, Great Crested Newt, Otter and all species of bat. These are known as European Protected Species (EPS), which gain their protection from the Conservation of Habitats and Species Regulations (Habitat Regulations) 2017 (and amendments), whereby under section 43 it is an offence to

- deliberately capture, injure or kill an EPS
- deliberately disturb or take/destroy the eggs of an EPS
- damage or destroy a breeding site or resting place of an EPS

4.2 Nationally protected species are either fully protected (e.g. Water Vole) or partially protected (e.g. Adder or Smooth Newt) under the Wildlife and Countryside Act (WCA) 1981 and amendments, including the Countryside and Rights of Way Act (CRoW) 2000. Under the WCA it is an offence to:

- intentionally kill, injure or take any wild bird, take or destroy any wild bird egg or take, damage or destroy any nest while it is in use or being built
- intentionally or recklessly disturb any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young; or disturb dependent young of such a bird
- intentionally or recklessly at any other time take, damage, destroy or otherwise interfere with any nest habitually used by any wild bird included in Schedule A1
- intentionally or recklessly kill, injure or take from the wild or possess all or any part of a Schedule 5 species
- intentionally or recklessly damage or destroy any structure or place which a schedule 5 species uses for shelter or protection, or disturb a schedule 5 species while it is occupying such a place
- obstruct access to any structure or place which a schedule 5 species uses for shelter or protection
- intentionally pick, uproot or destroy any wild plant included in Schedule 8

4.3 The CRoW Act 2000 added the term recklessly after intentionally in the Wildlife and Countryside Act 1981 and introduced a maximum custodial sentence of 6 months for offences.

- 4.4 The Natural Environment and Rural Communities Act 2006 (NERC) made provision about bodies concerned with the natural environment and rural communities and in connection with wildlife, sites of special scientific interest, National Parks and the Broads. Section 41 established a list of the living organisms and types of habitat which in the Secretary of State's opinion are of principal importance for the purpose of conserving biodiversity. This is known as the UK Biodiversity Action Plan (BAP) list.
- 4.5 Under the Protection of Badgers Act 1992 it is an offence to wilfully kill, injure or take a Badger and damage, destroy or obstruct a badger sett, cause a dog to enter a Badger sett or disturb a badger while it is occupying a sett.
- 4.6 The National Planning Policy Framework (NPPF) updated in 2021 states that Planning policies and decisions should contribute to and enhance the natural and local environment by:
- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
 - b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
 - c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
 - d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
 - e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
 - f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.
- 4.7 To protect and enhance biodiversity and geodiversity, plans should:
- a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and

b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

5. Results

Desk Study

- 5.1 The data search from the local Biological Records Centre has been summarised in the tables below, with Table 1 showing the sites of wildlife interest and Table 2 Ancient semi-natural woodland. Table 3 records notifiable and protected species recorded within 1km of the site.
- 5.2 TVERC (Thames Valley Environmental Records Centre) hold 207 protected species records within 1km of the site. Only those species which are protected by legislation or are Section 41/UK BAP species have been included in the table.
- 5.3 TVERC holds 23 records of bats within 2km of the site covering at least 8 species.
- 5.4 There are two sites of national importance within 2km of the site. There are no protected sites designated for GCN or Bats within 5km of the site.
- 5.5 There are no European Protected Species Licences (EPSL) for GCN within 1km of the site. Six EPS licences have been issued for bats within 5km of the site. None of the licences issued involve a maternity roost.
- 5.6 The NBN Gateway holds 108 records of bats covering at least 7 species within 5km of the site, these are: Brown Long-eared (15), Daubenton's (18), Lesser Horseshoe (12), Natterer's (52), Pipistrelle (7), Western Barbastelle (3) and Whiskered/Brandts (1).
- 5.7 There are two ponds within 250m of the main house, 60m east on site and 75m south-south-west off-site. The latter is a pond that was constructed as part of the planning permission for the adjacent Muddle Barn Farm development in 2018. There is one further pond within 500m of the site, 380m to the south-east.

Table 1. Sites of Wildlife Interest

Site Name	Grid Ref.	Area (ha)	Distance from Site	Direction from site	Description
European Importance					
-	-	-	-	-	-
National Importance					
Sharp's Hill Quarry	SP338359	2.4ha	1.0km	SW	Site of Geological Importance
Cotswolds AONB	SP3111	2041 sq.km	350m	W	A Limestone scarp with grassland and ancient Beech woodlands
Local Importance					
-	-	-	-	-	-

Table 2. Ancient or Semi-Ancient Woodland

Name	Grid Ref.	Area (ha)	Distance from Site	Direction from site	Description
-	-	-	-	-	-

Table 3. Species of Wildlife Interest

Species	European Protected	Nationally Protected	UK BAP	NERC 41	No. of Records	Suitable Habitat on-site
Amphibians						
-	-	-	-	-	-	-
Birds						
Barnacle Goose	Yes	No	No	No	1	No
Bittern	Yes	Yes	Yes	Yes	1	No
Bullfinch	No	No	Yes	Yes	1	Yes
Corn Bunting	No	No	Yes	Yes	7	No
Cuckoo	No	No	Yes	Yes	3	No
Dunnock	No	Yes	Yes	Yes	1	Yes
Fieldfare	No	Yes	No	No	6	Yes (Winter only)
Grasshopper Warbler	No	No	Yes	Yes	1	No
Grey Partridge	No	Yes	Yes	Yes	10	No
Hobby	No	Yes	No	No	1	No
House Sparrow	No	No	Yes	Yes	4	Yes
Kestrel	Yes	No	No	No	5	No
Kingfisher	Yes	Yes	No	No	6	No
Marsh Tit	No	No	Yes	Yes	8	No
Merlin	Yes	Yes	No	No	1	No
Quail	No	Yes	No	No	5	No
Red Kite	Yes	Yes	No	No	3	No
Red Wing	No	Yes	No	No	2	Yes (Winter only)
Reed Bunting	No	No	Yes	Yes	1	No
Skylark	No	No	Yes	Yes	2	No
Song Thrush	No	No	Yes	Yes	1	No
Spotted Flycatcher	Yes	Yes	Yes	Yes	3	Yes
Starling	No	No	Yes	Yes	1	Yes
Tree Sparrow	No	No	Yes	Yes	5	Yes
Turtle Dove	Yes	No	Yes	Yes	1	No
Willow Tit	Yes	No	Yes	Yes	1	No
Yellowhammer	No	No	Yes	Yes	4	Yes
Mammals						
Badger	No	Yes	No	No	7	No
Brown Hare	No	No	Yes	Yes	4	No

Brown Long-eared	Yes	Yes	Yes	Yes	3	Yes
Common Pipistrelle	Yes	Yes	No	No	8	Yes
Daubenton's	Yes	Yes	No	No	3	No
Lesser Horseshoe	Yes	Yes	Yes	Yes	3	No
Noctule	Yes	Yes	Yes	Yes	2	No
Pipistrelle	Yes	Yes	No	No	1	Yes
Serotine	Yes	Yes	Yes	Yes	1	Yes
Soprano Pipistrelle	Yes	Yes	Yes	Yes	1	Yes
Unidentified Bat	Yes	Yes	Yes	Yes	1	Yes
Invertebrates-Butterfly						
Small Heath	No	No	Yes	Yes	3	No
Invertebrates-Moths						
Beaded Chestnut	No	No	Yes	Yes	1	Yes
Blood Vein	No	No	Yes	Yes	1	No
Brown-spot Pinion	No	No	Yes	Yes	1	Yes
Buff Ermine	No	No	Yes	Yes	1	Yes
Garden Tiger	No	No	Yes	Yes	2	Yes
Ghost Moth	No	No	Yes	Yes	1	Yes
Grey Dagger	No	No	Yes	Yes	1	No
Mouse Moth	No	No	Yes	Yes	1	Yes
Powdered Quaker	No	No	Yes	Yes	1	No
Rustic	No	No	Yes	Yes	3	No
Shaded Broad-bar	No	No	Yes	Yes	1	No
White Ermine	No	No	Yes	Yes	2	Yes
Species	European Protected	Nationally Protected	UK BAP	NERC 41	No. of Records	Suitable Habitat on-site
Reptiles						
-	-	-	-	-	-	-
Vascular Plants						
Basil Thyme	No	No	Yes	Yes	1	No
Bluebell	No	Yes	No	No	1	No
Cornflower	No	Yes	Yes	Yes	1	No
Perfoliate Penny-cress	No	Yes	No	No	2	No

Field Survey

Habitats

5.8 The field survey was undertaken on 15th July 2021 by an experienced ecologist with a Bat Survey Class Licence (2016-13769-CLS-CLS) and GCN handling licence (2021-52513-CLS-CLS).

5.9 The results are summarised on the Phase I map (Figure 1) but the following habitats were identified during the survey:

- Trees
- Hedgerow
- Amenity Grassland
- Hard Standing

- Buildings
- Pond

Local Context

5.10 New Barn Farm lies in a rural location to the south-west of Sibford Gower. The site is surrounded by intensively farmed fields with few hedgerows and small areas of woodland. The River Stour lies 800m to the south and the boundary of the Cotswolds AONB boundary lies 350m to the west.

Trees and Shrubs

- 5.11 There is a semi-mature Ash to the east of the main house, but to the south of the drive. Garden shrubs are found on both sides of the lawn to the south of the main house, with shrubs in borders to the north of the main house and barn.
- 5.12 In the south-east corner of the garden there are a small number of fruit trees with amenity grassland beneath, which is less intensively mown than the main lawn.

Hedgerow

- 5.13 The northern boundary hedge is old and comprised Ash (standard trees and several old laid coppice stools), Hawthorn, Elder, Apple, Dog-rose and Hazel. Ground flora contained Cow Parsley, Red Campion, Germander Speedwell and Ivy.
- 5.14 The southern boundary hedge is a mixed species hedgerow of Hawthorn, Blackthorn, Hazel and Bramble, with four Oak standards in it.
- 5.15 In addition, a Yew hedge lines both sides of the drive from the field edge in the east finishing short of the gravel parking area 25m east of the main house, both being around 60m in length. These are well-managed and are 2.5m high and 1.5m wide.

Amenity/Improved Grassland

5.16 The main area of lawn is to the south of the house, with areas east of the drive and the southern lawn grading into improved grassland, the main difference being the level of management, with the field topped occasionally, while the formal lawn is regularly mown. The grassland has a species-poor sward comprising Rye-grass, White Clover, Dandelion, Creeping Buttercup and Daisy.

Hard Standing

5.17 A concrete drive leads up from the road, becoming a gravel drive to the north of the house. On the western side of the drive there is a concrete courtyard surrounded on two sides by former stables, with another concrete area to the south of this surrounded

by 2m high concrete block and brick walls, to the west of the barn. South of the barn is an area of concrete hard standing surrounded by buildings on the north, east and west sides and a concrete wall on the southern side. This is accessed from gaps in the walls to the north, down a 1m drop from the higher ground level.

- 5.18 There is a small pavement east of the main house, leading to a rear patio area next to the house and another paved area around an outdoor swimming pool to the south-east of the house. All these areas are well-maintained.

Buildings (See Figure 2)

- 5.19 The New Barn Farmhouse is a one and two-storey house. On the northern side of the house there is a central cross gable with a twin pitch roof and clay tiles. On the western side of the cross gable the roof is flat to the eaves with crenelations cut into the parapet. On the eastern side of the cross gable there is a single-storey flat roof with crenelations cut into the parapet. The walls are rendered and painted.
- 5.20 The southern side is two-storey with a twin-pitch clay tiled roof and brick walls. At the south-eastern corner is a cross gable projecting to the south. There are chimneys either side of the central cross gable and at the western end area solar panels. There were gaps around the chimneys and raised tiles along with gaps at the apex on the eastern side.
- 5.21 Internally there is no roof space in the section with a flat roof. The central cross gable has a breathable membrane liner. The southern side has mineral felt lining with 200mm glass fibre insulation laid on the ceiling. The new roof has been placed over the old rafters.
- 5.22 At the eastern end there were mouse and rat droppings, while at the chimney on the eastern side of the central cross gable there was a cluster of 50 bat droppings, which were 1.5-2.0mm in diameter, 7-9mm long with a fine texture. There were also scattered bat droppings of the same type, along with mouse droppings, between the two chimneys (See Figure 2).
- 5.23 The converted barn is attached to the main house at the western end and is a stone walled building with a twin pitch slate roof. There are solar panels on the southern aspect of the roof, with a chimney on the northern wall. The former barn door to the north is now a large full height window, while the southern one has been filled with shiplap boarding that contains a diamond shaped window centrally (See Figure 6).
- 5.24 Internally, the barn is one large space with a vaulted ceiling. There is a wooden staircase leading to a small balcony area at the eastern end of the barn, adjacent to the wall that connects to the main house.
- 5.25 There was a small cluster of 20 bat droppings just to the west of the balcony, with a few scattered droppings on the balcony and the stairs, the majority being in the central

area beneath the ridge. There were also bat droppings on a roof beam to the west of the cluster. The droppings were 2.5-3.0mm in diameter, 8-10mm long with a coarse texture.

- 5.26 At the south-west corner of the barn, and running perpendicular to the barn, is a single storey stone walled converted stock shed with a twin-pitch slate roof.
- 5.27 Internally the building is connected to the house through a door, south of the doorway into the barn. The roof is vaulted throughout, with the exception of an area 4m by 4m towards the southern end above a bathroom. However, there was no access into this enclosed roof space. No signs of bats were found in or around this section of the building.
- 5.28 To the north of the gravelled parking area is an open sided, modern barn. This has a concrete block rear wall, with the eastern gable formed of ship-lap boarding. The southern side of this is open, the roof supported by wooden beams. This has a twin-pitched clay-tile roof. On the western end of this is a store room with rendered, single-skin concrete block walls and a twin-pitched asbestos tile roof (See Figure 6). Internally the roofs are open to the concrete floors below, with a low collar roof structure and breathable membrane liner.
- 5.29 To the west of this, forming two sides of the concrete courtyard, are single-storey rendered stables with mono-pitched corrugated asbestos roofs. Internally the unlined single-skin roofs are open to the concrete floors below.
- 5.30 No evidence of bats was found in or around these outbuildings.

Pond

- 5.31 Sixty metres east of the house, within the improved pasture, there is a Pond. This is roughly 20m in diameter with a central island around 7m in diameter. The island is dominated by a Norwegian Maple, with a fringe of Meadowsweet. The western side is generally shallower, with the deeper and more open water to the east of the island.
- 5.32 The shores are gently sloping, with frequent Reed Mace across the watered area and various sedges fringing the banks, particularly on the eastern edge. Throughout the pond there is a large infestation of *Crassula*, known commonly as New Zealand Pygmy Weed or Australian Swamp Stonecrop (See Figure 6).

6. Discussion

Sites

- 6.1 There are two sites of national importance within 2km of the site; Cotswolds AONB lies 350m west and the Sharp's Hill Quarry SSSI 1.2km south of the site. The small nature of the works on already developed land means that these sites will not be affected by the development.

Habitats

- 6.2 The habitats within the immediate landscape are the result of human activity, the hedgerow with mature trees to the north of the new Barn House, along with the hedges to the east and rear of the house will provide good commuting and foraging habitat for bats along with providing nesting habitat for common and farmland bird species. The buildings on the site, along with the very large new build dwelling 60m to the west will provide potential roosting habitat for bats. The two ponds to the east and south-south-west of the site offer potential habitat for amphibians and invertebrates.
- 6.3 The wider landscape is one of large intensively farmed agricultural fields with few connecting hedgerow and small isolated woodland areas, with the River Stour 800m to the south. This landscape will offer moderate commuting and foraging habitat for bats.
- 6.4 This is discussed in greater detail below.

Species

Amphibians

- 6.5 There are no European Protected Species Licences (EPSL) issued for Great Crested Newts (GCN) within 1km of the site. The local records centre holds no records of amphibians within 1km of the site.
- 6.6 There are two ponds within 250m of the site with one other pond within 500m. When this information is placed in the Natural England Rapid Risk Assessment, assuming GCN are present, a result of Red: Offence highly likely is obtained.
- 6.7 The terrestrial habitat in the surrounding area, consisting of hedgerow with small areas of woodland, offers limited potential terrestrial habitat for Great Crested Newt. A Habitat Suitability Index (HSI) assessment of the two ponds has been carried out with the results set out below.

Habitat Suitability Index Assessment

Pond 1

Criteria	Description	Notes	Score
Location SI SI1	Geographic Location: Optimal 1, Marginal 0.5, Unsuitable 0.01	Optimal	1
Pond Size SI2	Area – See graph	400m ²	0.8
Pond Drying SI3	Never – 0.9, Rarely – 1 (2 in 10 or in drought), Sometimes – 0.67 (3 to most years in 10), Annually – 0.1	Never	0.9
Water Quality SI4	Good (1) Abundant/diverse inverts, Moderate (0.67) Poor (0.33) Low inverts, few plants, Bad (0.01) Polluted, no veg.	Moderate	0.67
Shade SI5	Trees within 1m – see graph	0	1
Fowl SI6	None 1, Present, little impact 0.67 Severe Impact 0.01	Present Little Impact	0.67
Fish SI7	Absent – 1, Possible - 0.67 Minor 0.33, Major 0.01	None	1
Ponds SI8	Total pond number within 1km, divided by 3.14 & read off graph	4	0.67
Terrestrial Habitat SI9	Good – 1, Moderate – 0.67 Poor – 0.33, None – 0.01	Moderate	0.33
Macrophytes SI10	% surface area covered by macrophytes – Read Graph	50%	0.8
HSI Score			0.81

Pond 2

Criteria	Description	Notes	Score
Location SI SI1	Geographic Location: Optimal 1, Marginal 0.5, Unsuitable 0.01	Optimal	1
Pond Size SI2	Area – See graph	230m ²	0.6
Pond Drying SI3	Never – 0.9, Rarely – 1 (2 in 10 or in drought), Sometimes – 0.67 (3 to most years in 10), Annually – 0.1	Never	0.9
Water Quality SI4	Good (1) Abundant/diverse inverts, Moderate (0.67) Poor (0.33) Low inverts, few plants, Bad (0.01) Polluted, no veg.	Moderate	0.67
Shade SI5	Trees within 1m – see graph	0	1
Fowl SI6	None 1, Present, little impact 0.67 Severe Impact 0.01	Present Little Impact	0.67
Fish SI7	Absent – 1, Possible - 0.67 Minor 0.33, Major 0.01	Possible	0.67
Ponds SI8	Total pond number within 1km, divided by 3.14 & read off graph	4	0.67
Terrestrial Habitat SI9	Good – 1, Moderate – 0.67 Poor – 0.33, None – 0.01	Poor	0.33
Macrophytes SI10	% surface area covered by macrophytes – Read Graph	30%	0.6
HSI Score			0.68

- 6.8 Pond 1 is a circular pond with an island located 60m east of the main house. There was Australian Stonecrop vegetation present in the pond. The pond achieved an HSI score of 0.81. This result indicates that the pond has excellent potential for breeding GCN with 91% of ponds in this category having GCN in them when subject to presence/absence surveys.
- 6.9 Pond 2 is an ovoid pond located 75m south-south-west of the site set within a pasture field. The pond achieved an HSI score of 0.68. The result indicates that the pond has average potential for breeding GCN with 55% of ponds in this category having GCN in them when subject to presence/absence surveys.
- 6.10 When the ecological appraisal survey was carried out it was after the peak survey period of April to mid-June for GCN and no testing for eDNA or presence/absence surveys would be able to be carried out until March 2022. The works are to demolish the current main house, building a new one to the east of the current location, with a new drive going north of the pond, rather than its current location to the south of it.
- 6.11 Therefore, it is recommended that the works are carried out under a GCN District Class Licence issued through an application via the Naturespace Partnership. With this licence in place there are no further surveys required. It is also recommended that the works are carried out under a GCN working method statement as part of this licence.

Bats

- 6.12 There are no sites designated for bats within 5km of the site. Six EPS licences have been issued for bats within 5km of the site, the closest is 2.2km to the south-south-west. This is sufficiently far enough away to be un-associated with the site.
- 6.13 The local records centre holds 23 records of bats within 2km of the site, covering at least eight species. This represents a fair reflection of the species present in the area. The low number of records is likely to be from a lack of recording in the area and it is likely that there is a greater population present than these records indicate.
- 6.14 Two sets of emergence surveys in 2014 and 2016 on the adjacent Muddle Barn Farm maisonette identified a minor Common Pipistrelle bat roost, but only in 2016. This house has now been demolished with mitigation put in-place in the rebuild, including integrated bat boxes.
- 6.15 The site lies in a rural area with few buildings and is surrounded by intensively farmed large agricultural fields. There are few linking hedgerows with small relatively isolated woodlands with the River Stour to the south. This leads to the landscape only offering moderate commuting and foraging habitat for bats, with the buildings within the village of Sibford Gower offering potential roosting habitat.

- 6.16 There were gaps around the chimneys raised tiles and gaps at the apex of the gable end. These are areas where crevice dwelling bats such as Common Pipistrelle could roost without any signs being found by the surveying ecologist (Jones and Racy 2008).
- 6.17 Internally a cluster of 50 bat droppings were found near to the eastern chimney with scattered bat droppings between the chimneys. The droppings were 1.5-2.0mm diameter, 7-9mm long with a fine texture. These droppings are indicative of Pipistrelle bats (Jones and Racy 2008).
- 6.18 At the eastern end of the barn conversion a small cluster of 20 bat droppings, along with many scattered bat droppings that were found on a beam, with more on cobwebs from a gap next to a rafter above (See Figure 6). The droppings were 2.5-3.0mm in diameter 8-10mm long with a coarse texture. These droppings are indicative of Long-eared bat species. There are two Long-eared bat species present in UK Brown Long-eared and Grey long-eared. Grey Long-eared are rare and not found in this area therefore, the droppings are likely to be from brown Long-eared bats (Entwistle and Swift 2008).
- 6.19 Therefore, following best practice guidelines (BCT2016) emergence surveys, in the form of two dusk emergence surveys along with one dawn re-entry survey, were required to establish which species were using the house and barn conversion, classify the type of roosts and inform the application for a protected species mitigation licence.
- 6.20 The barn and the perpendicular converted stock shed to the south of this are to be retained. No signs of bats were found in the remaining barn and out-buildings and they were assessed as having negligible potential for roosting bats with no further surveys required.

First Dusk Emergence Survey (See Figure 3)

- 6.21 The survey was conducted on the 11th August 2021 a dry night with a temperature of 19° centigrade a light wind and 60% cloud cover. Sunset was at 20:37.
- 6.22 The survey began at 20:22 and ended at 22:07. Five Common Pipistrelle emerged from the house.
- 6.23 The first bat recorded was at 20:55, a Common Pipistrelle emerged from the eastern gable end of the house. Between 20:59 to 21:06 four Common Pipistrelle emerged from the rear cross gable, western chimney and the southern aspect of the roof. The remainder of the survey consisted mainly of foraging and commuting Common pipistrelles along with Brown Long-eared at the southern and eastern ends of the house with foraging Soprano Pipistrelles at the western end.
- 6.24 There was a total of 129 registrations made by the four surveyors during the 90 minutes of the survey after sunset. This equates to 0.35 registrations per minute per surveyor, indicating a low level of bat activity.

6.25 Common pipistrelle made up 70% of registrations, Brown Long-eared 10%, Soprano Pipistrelle 9%, Noctule 8%, Lesser Noctule 2% and Serotine 1%.

Dawn Re-entry Survey (See Figure 4)

6.26 The survey was conducted on the 30th August 2021 a dry morning with a temperature of 12° centigrade, a light to moderate wind and 100% cloud cover. Sunrise was at 06:14.

6.27 The survey began at 04:44 and ended at 06:14. Two Common Pipistrelle re-entered the house.

6.28 At 04:48 Brown Long-eared and Common Pipistrelle were recorded social calling and commuting on the eastern and southern sides. Between 05:01 and 05:46 Common Pipistrelle were observed circling the rear cross gable and chimneys with Brown Long-eared false approaching to the east chimney. At 05:51 a Common Pipistrelle re-entered the house on the southern side, while the final bat at 05:53, a Common Pipistrelle, re-entered the house on the southern side.

6.29 There were a total of 308 registrations made by the four surveyors during the 90 minutes of the survey before dawn. This equates to 0.85 registrations per minute per surveyor, indicating a moderate level of bat activity.

6.30 Common Pipistrelle made up 92% of the registrations, with Brown Long-eared 6% and Noctule 2%.

Second Dusk Emergence Survey (See Figure 5)

6.31 The survey was conducted on the 21st September 2021 a dry clear night with a temperature of 15° centigrade a no wind. Sunset was at 19:08.

6.32 The survey began at 18:53 and ended at 20:38. No bats were observed emerging from the buildings

6.33 The first bat recorded was at 19:33, a Noctule commuting from the south-east heading north-west. At 19:44 a Myotis bat was observed foraging in the rear garden. The remainder of the survey was made up of commuting and social calling Common Pipistrelle with Nathusius Pipistrelle also recorded at the western end.

6.34 There were a total of 105 registrations made by the four surveyors during the 90 minutes of the survey after sunset. This equates to 0.29 registration per minute per surveyor, indicating a low level of activity.

6.35 Common Pipistrelle made up 87% of the registrations, Noctule 6%, Myotis 5%, Nathusius Pipistrelle 1% and Soprano Pipistrelle 1%

- 6.36 Therefore, the New Barn Farm house has been confirmed as a minor day roost for low numbers of Common Pipistrelle. The works will be carried out under a Bat Low Impact Class Licence, along with a working method statement which is set out in the next section.
- 6.37 No bats were observed emerging or re-entering the barn conversion, although Brown Long-eared bats were recorded on two of the surveys and did fly around the eastern chimney, indicating a likely entrance in that area. As bat droppings from Brown Long-eared were found the barn has been confirmed as an occasional roost for Brown Long-eared, but the demolition of the main house is unlikely to impact the roost in the barn.
- 6.38 The house is to be demolished, therefore the mitigation for the new build will include an integrated bat box (See Figure 8) to be fitted at the gable end apex of the new build, along with two bat slates with one bat slate fitted at the ridge with the other bat slate placed on the southern aspect (See Figure 7).
- 6.39 As the Building has been confirmed as a bat roost, the ‘three tests’ required for a European Protected Species Licence must be satisfied these are;
- That the work is for imperative reasons of overriding public interest
 - There is no satisfactory alternative
 - There is no detrimental effect to the population of bats at a favourable conservation status within their natural range.
- 6.40 In this case the first is covered by the planning permission when it is granted, so that the building can be updated to modern living standards and the housing stock for this semi-rural area maintained in lines with the NPPF and the local plan.
- 6.41 For the second test, the site has one residence and rural planning policy allows for replacement or extensions to existing dwellings but would not allow a new building to be built. To site the building elsewhere would involve the development of a green-field area, which goes against planning policy.
- 6.42 The final test is to maintain the conservation status of bats in the area. As bats are roosting in the house a replacement roost in the form of the raised bat slates or integrated bat box will be provided as mitigation.
- 6.43 In addition, the temporary bat boxes used in the working method statement and the ecological supervision will prevent detrimental effects occurring to individuals or the local population in the short-term, whilst retention of the bat boxes after the works have been completed will enhance the roosting potential in the area.

Badger

6.44 The local records centre holds seven records of Badgers within 1km of the site. No signs of Badgers in the form of trails, footprints, snuffle marks or latrines were found on the site, although the 2014 report for Muddle Barn Farm mentioned the existence of an outlying sett to the south-east. Despite the latter, as no evidence of them being on site was found, Badgers are considered to be absent and are not a constraint to the proposed works.

Birds

6.45 The local records centre holds 143 records of birds within 1km of the site. There were few species of birds present on the day of the survey. The hedges, shrubs and trees on-site provide potential nesting and foraging habitat for common and farmland birds.

6.46 All breeding birds are protected by law. Therefore, any tree or scrub removal or surgery work should avoid the bird nesting season of March to September, or, if this is not possible, an ecologist should check the vegetation to be removed for nesting birds. If a nest is found it and 5m of habitat around it should be left undisturbed until the young have fledged before removal.

6.47 A working method statement will be followed with regard to nesting birds for the development of the site (see recommendations section).

Dormouse

6.48 Dormice can be found in thick hedgerow, but their preferred habitat is woodland. There are no records of Dormice within 1km of the site and the habitats on the site are sub-optimal for Dormice. Therefore, Dormice are considered absent and not a constraint to the proposed works.

Invertebrates

6.49 The habitats on the site will support the common invertebrate species with any habitat lost easily replaced within the new development gardens. Therefore, invertebrates are not considered a constraint to the proposed works.

Otter

6.50 The local records centre holds no records of Otter within 1km of the site. There are no suitable waterbodies on the site or bordering the site, therefore Otters are considered absent and are not a constraint to the development.

Reptiles

6.51 The local records centre holds no records of reptiles within 1km of the site. the surrounding landscape is one of intensively farmed fields with the amenity grassland and hardstanding on the site results in sub-optimal habitat in the outlying landscape

and within the site. Therefore, reptiles are considered absent and are not a constraint to the proposed development.

Water Vole

6.52 The local records centre holds no records of Water Vole within 1km of the site. There is no suitable habitat on-site for Water Voles. Therefore, Water Voles are believed to be absent from the site and are not considered a constraint to the development.

Invasive Species

6.53 Australian Swamp Stonecrop (*Crassula*) was found in abundance in the pond. This is a Schedule 9 invasive species that requires removal.

6.54 Australian Swamp Stonecrop is not easy to remove. Pond life state the most effective way is filling in the pond and digging a new one. However, a combination of methods has proved effective in the past, with chemical treatment, excavation and draining the pond some of the methods to combine.

6.55 The best recommendation is for draining the pond, applying Glyphosate and then later excavating the remains and immediate surrounds. The material would need to be moved off-site and put into landfill or incinerated to destroy roots and seeds.

6.56 The complication is the potential presence of Great Crested Newts in the pond. Discussion with the District Licencing team is required to determine if this can be covered within the licence.

7. Further Surveys, Recommendations and Enhancements

Further Surveys

- 7.1 No further surveys are currently required, but after discussions with Naturespace (the District Licencees for this area) eDNA analysis may be required between mid-May and the end of June, or aquatic GCN surveys from mid-April to mid-June if a full mitigation licence is required, or to determine absence of Great Crested Newts.

Recommendations

- 7.2 There will be no direct lighting of the trees and hedgerow on the site or immediate surrounding area. Any outdoor lighting should be;
- Less than 3 lux light level
 - Led luminaries with warm white spectrum <2700 Kelvin (To Avoid Blue / UV Elements)
 - Bollard or low-level downward directional luminaries are used and mounted on the horizontal with no upward tilt.
 - Any security lighting should not exceed 75w in power, the light should be motion activated with short timers (1 Minute), angled downwards as sharp as possible to light up the immediate area only.
- 7.3 Native plants will be used in any planting schemes for the site, with particular regard for night flowering plants to encourage insects for bats, such as Evening Primrose, White Jasmine and Honeysuckle.
- 7.4 A bat licence will be required to legally demolish the main house, with a confirmed Common Pipistrelle bat roost in it. This can be achieved through a site registration under a Bat Mitigation Class Licence, as this is a minor roost of a commonly occurring species of bats.
- 7.5 The work will be carried out under a working method statement with appropriate mitigation for the loss of a roost. This is detailed below;

Bat Working Method Statement

- 7.6 One Schwegler 2FN and one Schwegler 1FF bat box will be erected in suitable trees within the grounds of the house. These bat boxes will be retained on-site after the works have been completed as an enhancement to the site.
- 7.7 Before works commence the Ecologist licenced to disturb bats will inspect the roof spaces as a final check for roosting bats, removing any found by hand and placing them in the bat boxes.

- 7.8 A tool-box talk will be carried out by a qualified ecologist to inform the contractors of the method statement, the protection afforded bats, how to recognise bats and what course of action they will need to follow if a bat is found during the construction.
- 7.9 The ecologist licenced to disturb bats will oversee the initial removal of tiles and bat features, such as ridge tiles and soffits. All tiles will be lifted from the roof, not slid off, to avoid injury to bats if they are present beneath and other features removed carefully by hand after inspection by the licenced bat ecologist.
- 7.10 If, in the unlikely event that a bat is encountered, it will be taken by hand by the ecologist, who is very experienced in handling bats. The bat will be stored in a cotton bag to keep it calm and secure and moved the newly erected bat box.
- 7.11 The roof of the new build will have one bat slate placed at the ridge with one other bat slate placed on the southern aspect however the bat slates will not be placed opposite each other.
- 7.12 The top batten for the tiles will be placed 20mm away from the ridge board and the ridge tiles will not be completely in-filled, just bedded-in at each joint to prevent a through draught, but create a void within the ridge tile that is favoured by most crevice dwelling bats.
- 7.13 Two integrated bat boxes are to be fitted at the gable end apex of the new build (See Figure 8).

Method Statement for breeding birds

- 7.14 Scrub and tree removal will be carried out outside the bird nesting period, which is March to September. If this is not possible an ecologist will check the habitat to be removed for active birds' nests. If nests are found they will be left in place, with suitable surrounding habitat (e.g. 5m of surrounding hedgerow) until the birds have fledged before its removal.
- 7.15 Where possible no work should be carried out within 5m of the surrounding hedgerow during the nesting period March to September. If this is not possible then an ecologist will check the hedgerow for nesting birds, and if nests are found they will be left in place with suitable surrounding habitat until the birds have fledged and work within the 5m of the hedgerow can then continue.

GCN Working Method Statement

- 7.16 The footprint of the development should be maintained in its current condition until the application of the method statement.
- 7.17 Any existing habitat that will not be retained will be removed by cutting in two sweeps. The first would reduce vegetation to no lower than 150mm, cutting the rough area in the west of the site from north to south to allow reptiles and amphibians to

move ahead of the strimmer's. The following day a second cut of the vegetation will be made, taking the vegetation down to ground level. This will only be undertaken between March and October inclusive, when reptiles and amphibians are active, and when temperatures are above 6 degrees centigrade, for the same reason.

- 7.18 The contractors will be given a tool-box talk before works commence. This will describe the legal protection for reptiles, what they look like, what action should be taken if any are found and have the method statement explained to them clearly.
- 7.19 If GCN are found then work should stop and the ecologist will attend site to ensure that no harm comes to any reptiles and that the work can continue within the law.
- 7.20 Ground-works will only take place in daylight hours when amphibians and reptiles are active and during the spring to autumn months of March to October.
- 7.21 Materials will be stored on pallets or tarpaulin sheeting to prevent the creation of habitat suitable for amphibians and reptiles to shelter in.
- 7.22 All construction vehicles will access the site via the existing road system and remain on the working footprint.
- 7.23 Excavations will be filled in as soon as possible after they are made. Excavations will be made when required, in a phased order, rather than all at the start of the development, to minimise the time holes are exposed for.
- 7.24 Any trenches, if left open, will always have ramp placed in it to allow amphibians, reptiles and other wildlife to climb out of the trench if they fall into it.
- 7.25 Any excavated holes will be checked for reptiles if left open overnight. Any amphibians or reptiles found should be moved to the nearest suitable habitat.

GCN District Class Licence

- 7.26 The development works are to be carried out under a GCN District Class Licence through the Naturespace Partnership. However, if discussions with Naturespace determine that the work, including the removal of the Australian Swamp Stonecrop, requires a full mitigation licence, aquatic surveys would be required to inform the licence, or an eDNA test of the on site and offsite ponds would be required to determine likely absence. If GCN are present and a full mitigation licence is required, full aquatic surveys would be required.

Enhancements

- 7.27 Four bird nest boxes could be placed on retained trees on the site to provide replacement nesting opportunities for birds.

7.28 If close-board fencing is to be used around the site, Hedgehog holes should be created in the base to keep the porosity of the site, allowing hedgehogs to move freely. The holes should be 13cm² or 5 inches square and so will be too small for most pets.

8. Figures

Figure 1: Phase I Plan

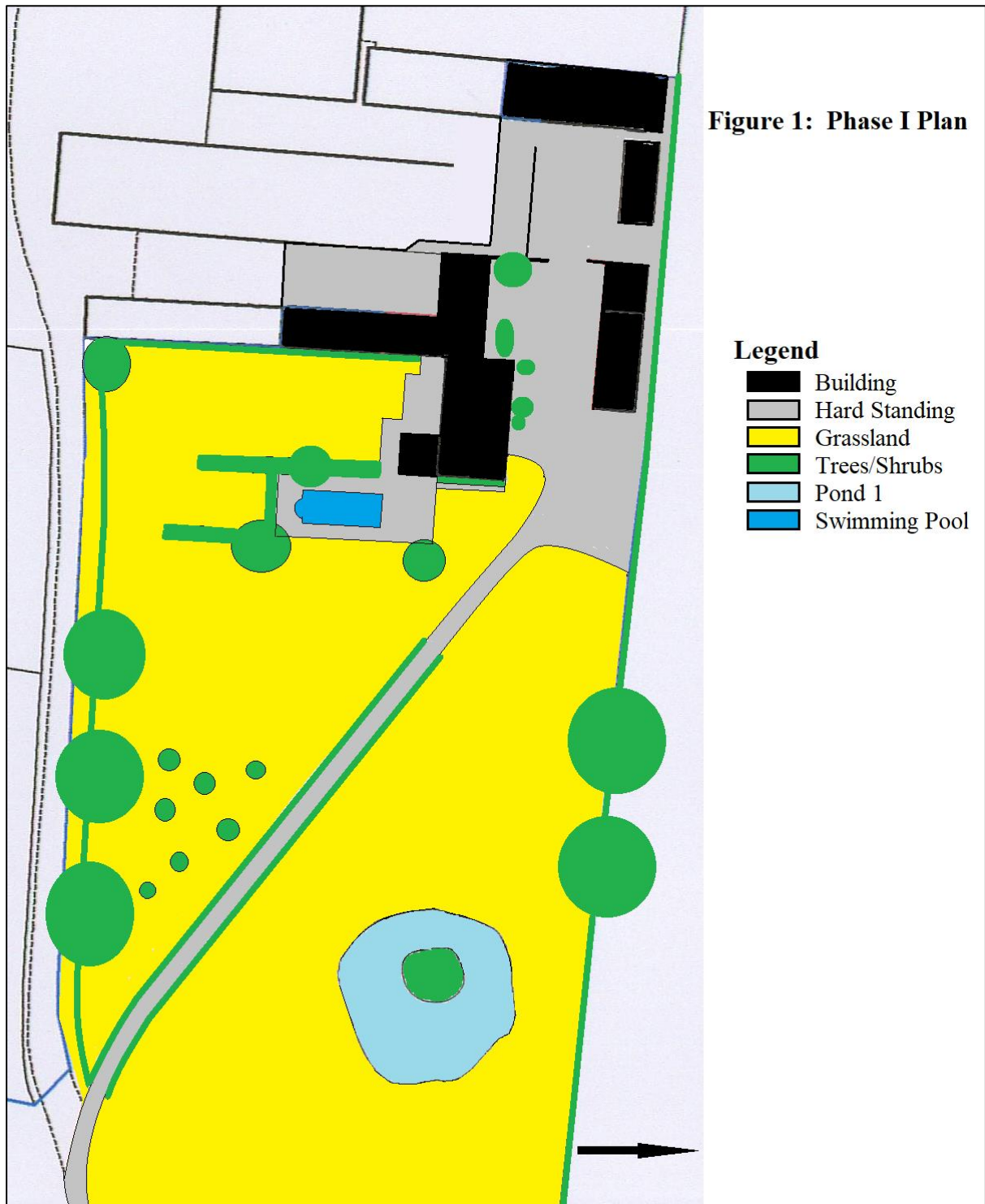


Figure 2: Preliminary Bat Survey

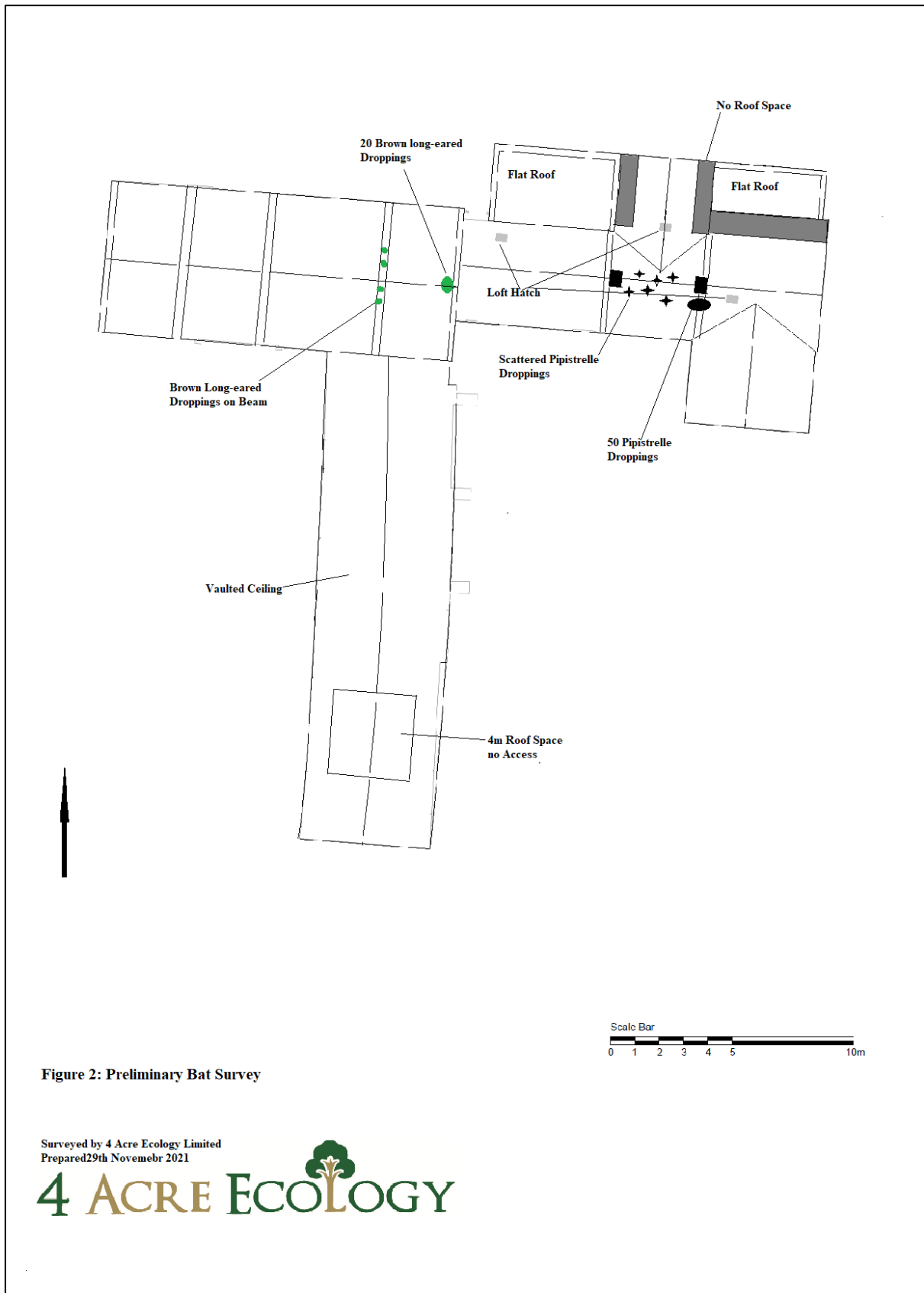


Figure 3: First Dusk Emergence Survey

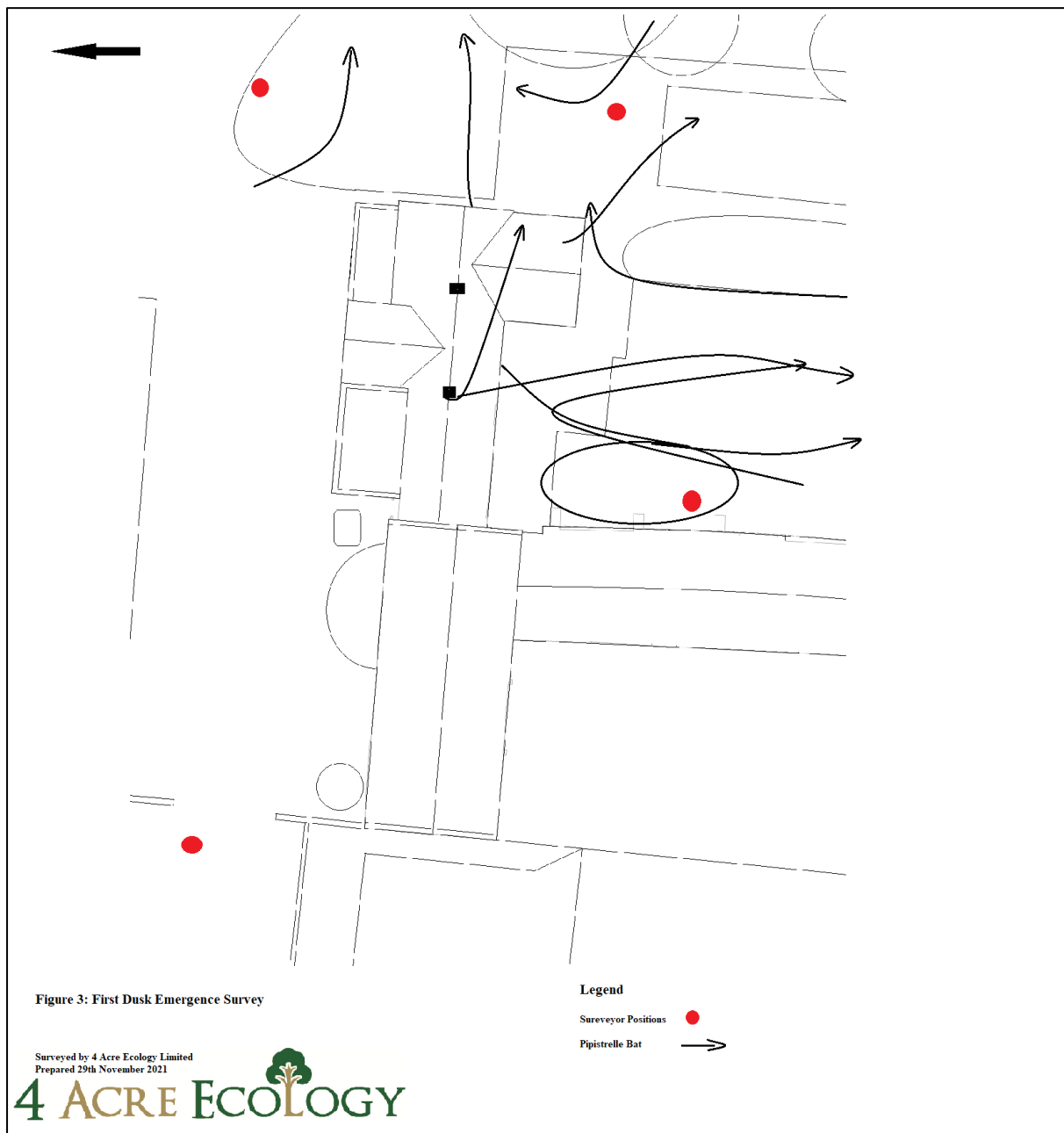


Figure 4: Dawn Re-entry Survey

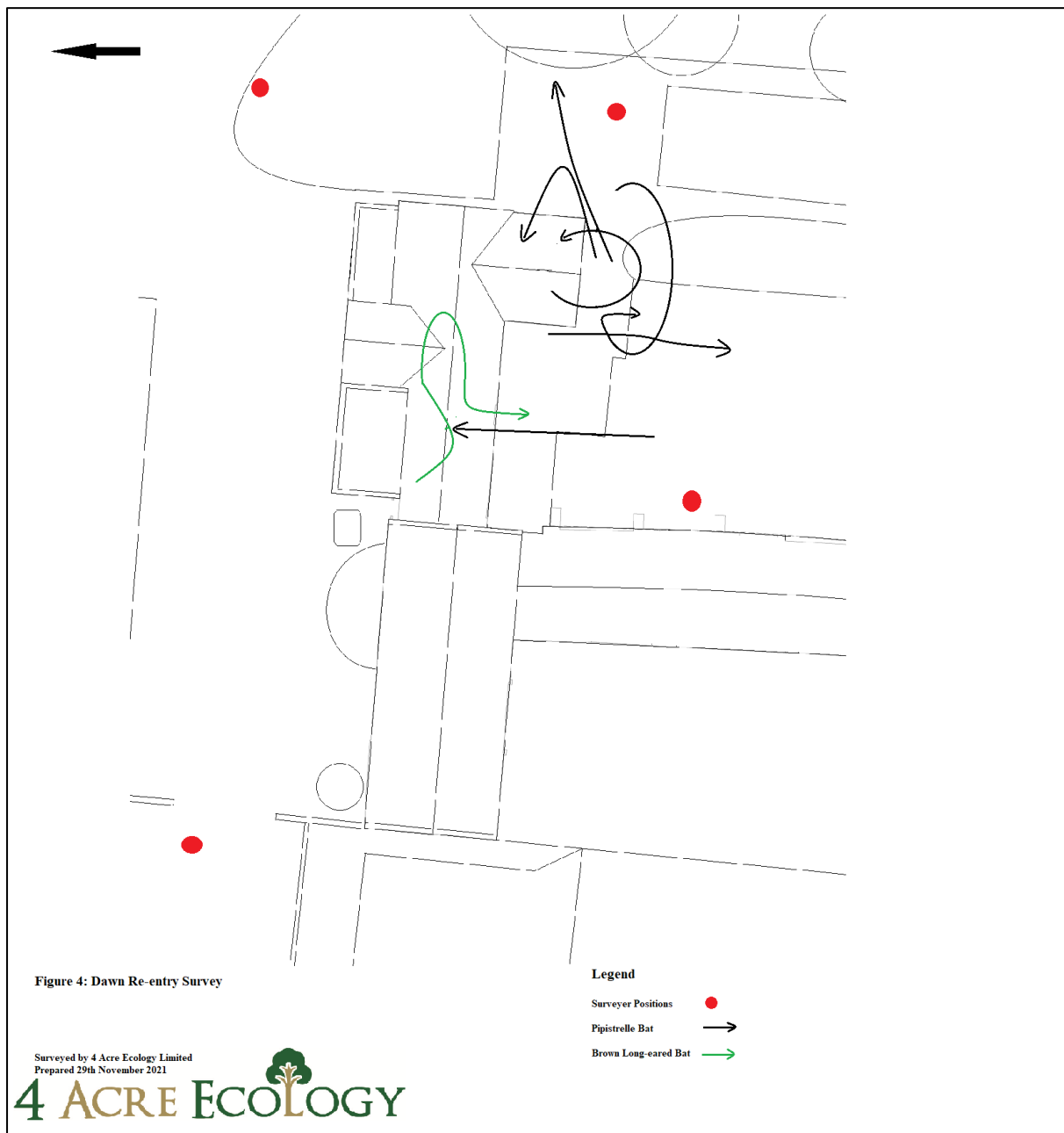


Figure 5: Second Dusk Emergence Survey

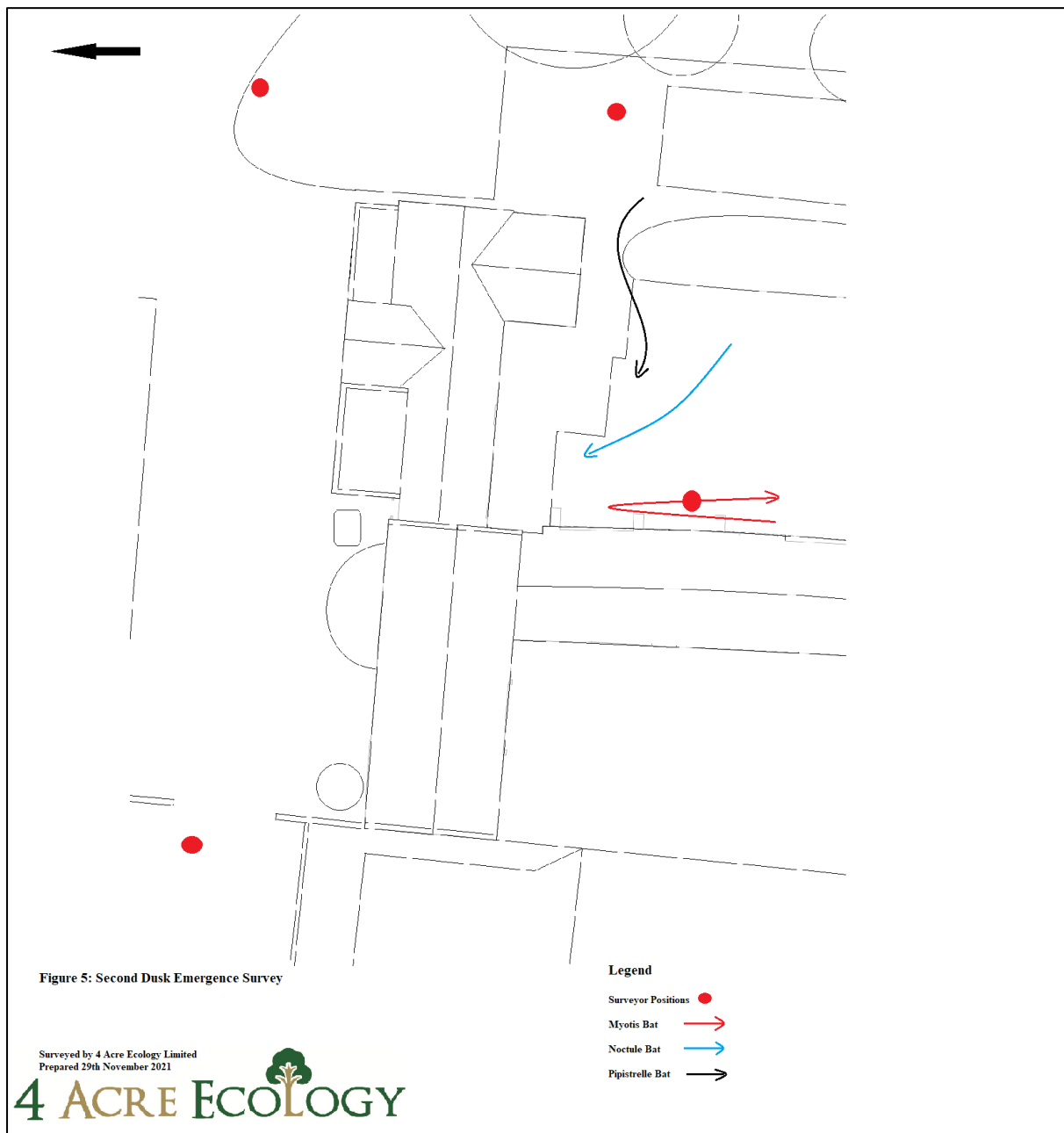


Figure 6: Images



1. Main house from the north-east



2. Barn and house from the north-west



3. Main house from the south



4. Southern lawn



5. Pond 1 from the west



6. Australian Swamp Stonecrop in Pond 1



7. Western vaulted roof space of main house



8. Northern cross gable in main house



9. Pipistrelle bat droppings next to eastern chimney



10. Interior of barn looking west



11. Brown Long-eared droppings on eastern beam



12. Bat droppings coming from gap by rafter/beam



13. Vaulted ceiling in converted stock sheds



14. Barn and store on north of gravel parking area



15. Stables in north-west corner of site



16. Barn and enclosed yard from the south

Figure 7: Bat Slates

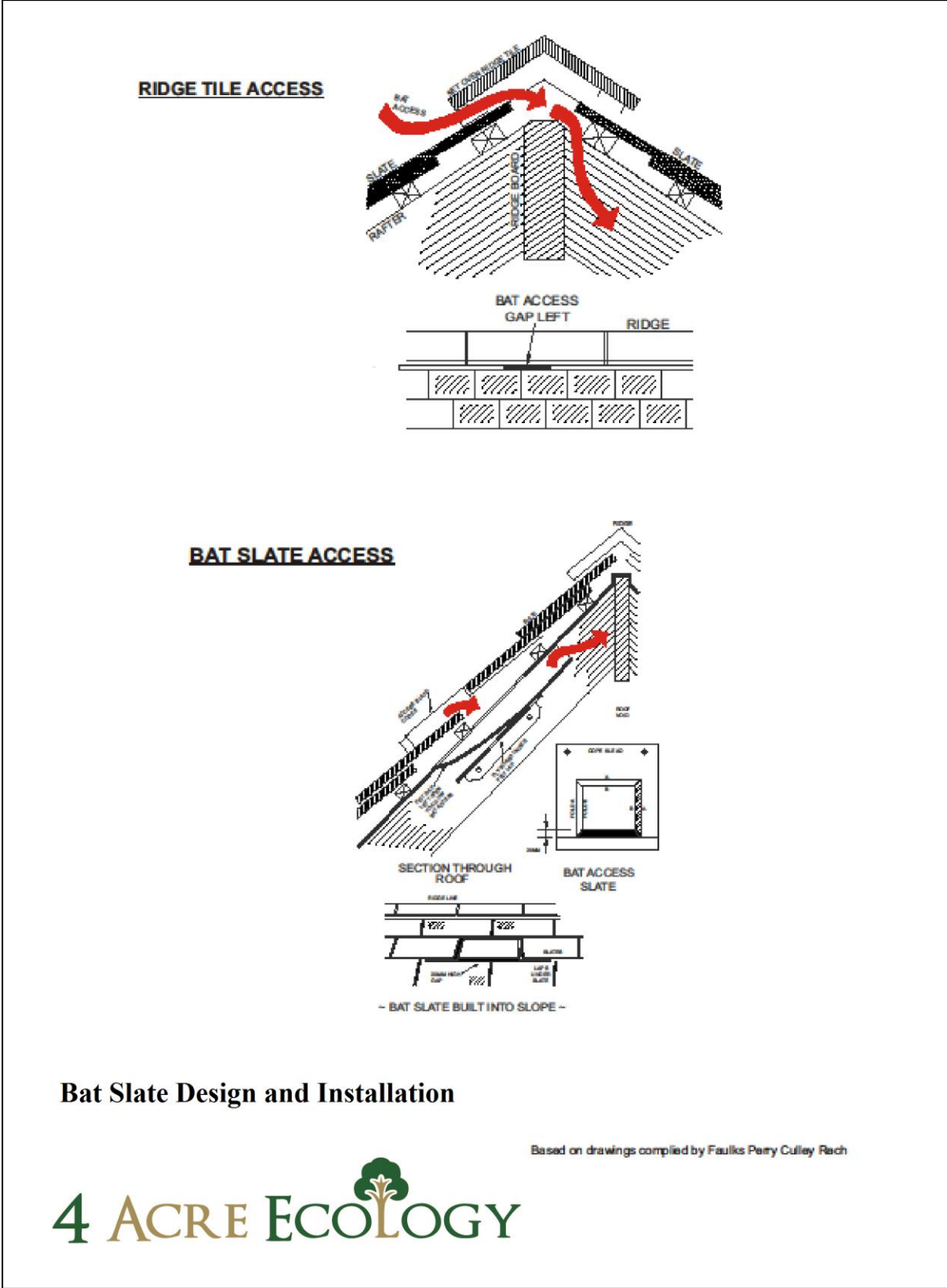





Figure 8: Examples of Integrated Bat Boxes

Ibstock Brick Limited
 Leicester Road, Ibstock, Leicestershire, LE67 6HS
 t: 01530 261999 f: 01530 257457 www.ibstock.com

<p>Free Access Bat Box A</p> <ul style="list-style-type: none"> • Available in all brick types • Discrete single bat brick • Easy to install • Allows bats to create a natural home habitat within the cavity of the building 		
<p>Enclosed Bat Box B</p> <ul style="list-style-type: none"> • Designed specifically for the pipistrelle bat • Available in all brick types • Discrete home for bats • Various sizes • Several roosting zones are created inside the box • Bats are contained within the bat box itself • Maintenance free with entrance at the base • Ideal for new build & conservation work 		
<p>Enclosed Bat Box C with engraved motif</p> <ul style="list-style-type: none"> • Designed specifically for the pipistrelle bat • Available in smooth blue, smooth gold & smooth red • Discrete home for bats • Various sizes • Several roosting zones are created inside the box • Bats are contained within the bat box itself • Maintenance free with entrance at the base • Ideal for new build & conservation work 		

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