Preliminary Ecological Appraisal, Bat & Protected Species Survey and Bat Emergence Survey

Home Farm Cottage
Oare
Wiltshire
SN8 4JA

Planning Reference:		**Report Reference:**	230311 rev01
Client:	Renshaw Hiscox		
Architect/Agent:	Hiscox Palade		
Survey Date/s:	20th April 2023		
Report Date:	October 2023	**OS Grid Ref:**	SU 15973 63168
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Surveyors & Licence N°:	Dominic Sheldon	**Bats:** 2016-20473-CLS-CLS (CL-18)	

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SECTION 1 SUMMARY

1.1 Introduction

It is proposed to demolish the existing dwelling (Building 1) and garage (Building 2) and construct a new dwelling at Home Farm Cottage, Oare, Wiltshire, SN8 4JA. The annex (Building 3) and outbuilding (Building 4) are to be retained.

1.2 Survey Results

In addition to the four buildings, the site comprised modified grassland and hardstanding (artificial unvegetated unsealed surface) bordered by hedgerows. The site was approximately 0.2 ha. The habitats present on site are likely to be used by common amphibians, badgers, bats, hedgehog and reptiles for foraging and dispersing and by birds and dormice for foraging and nesting. Building 1 was confirmed to support a summer day roost for common pipistrelle *Pipistrellus pipistrellus* and long-eared bats *Plecotus* species (to be confirmed via DNA analysis).

1.3 Impacts

The proposed development works to the cottage will destroy the identified bat roost within the cottage and could cause disturbance and/or injury to any bats present at the time of works.

1.4 Recommendations

- It will be necessary to apply and obtain a standard European Protected Species Licence (EPSL) for bats from Natural England incorporating mitigation and compensation measures;
- The bat roosting provisions, bat access points, and corresponding flight lines linking the provisions to the surrounding environment, must not be illuminated by external lighting (see 5.8.6 for further detail);
- Sensitive timing of works including avoidance of the nesting bird season;
- Any excavations or pipework to be fenced or covered overnight;
- Protection of the retained habitats, including hedgerow/tree protection fencing;
- Management of sections of the garden as a meadow by allowing the grassland to grow and cutting twice annually in March and August;
- All new planting to comprise native species of local providence; and,
- Creation/installation of amphibian, bat, bird, hedgehog and reptile provisions.

SECTION 2 INTRODUCTION

2.1 Proposals

It is proposed to demolish the existing dwelling (Building 1) and garage (Building 2) and construct a new dwelling at Home Farm Cottage, Oare, Wiltshire, SN8 4JA. The annex (Building 3) and outbuilding (Building 4) will be retained.

2.2 Survey Objectives

The Preliminary Ecological Appraisal (PEA) and Bat and Protected Species Survey (BAPS) were undertaken to consider and assess the perceived ecological impacts associated with the proposal, including any perceived impacts to:

- Legally protected species or species of conservation concern;
- Legally protected habitats or habitat of conservation concern;
- Any statutory or non-statutory sites of conservation interest; and,
- Opportunities to provide biodiversity enhancement(s).

2.3 Site Description

The property was located in the village of Oare, approximately 6.5 km south-west of the town of Malborough, Wiltshire.

The property was bordered by residential dwellings and associated gardens to the east and south, and agricultural land to the north and west (Figure 1). The wider landscape comprised woodland and agricultural land.

The site comprised modified grassland, artificial unvegetated unsealed surface and four buildings bounded by hedgerows (Figure 1). The site was approximately 0.2 ha.



Key

Red line boundary

N

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Ordnance Survey 0100031673

Site Location

Client: Hiscox Palade	
Project: Home Farm Cottage	
Date: April 2023	Ref: 220311
Rev: 01	Author: ALS
Scale (A3): NTS	Approved: AC

Ecologic

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SECTION 3 SURVEY METHODS

3.1 Preliminary Ecological Appraisal

3.1.1 Scope of the Assessment

The zone of influence covers the extent of the site, the site boundaries and areas directly adjacent to the site. The assessment considers designated sites, habitats, and species of importance for biodiversity conservation and protected species.

3.1.2 Desk Study

A desk-based review was undertaken for the proposed development area using the Government's mapping website MAGIC (www.magic.gov.uk) and other web-based resources. Records of protected species, statutory sites (e.g. Special Areas of Conservation (SACs) and Sites of Special Scientific Interest (SSSIs)), non-statutory sites designated for wildlife conservation and priority habitats were searched for within 2 km of the site.

A search was made of MAGIC for European Protected Species (EPS) licenses issued by Natural England in the surrounding area since 2009.

3.1.3 Field Survey

The field survey comprised of a walkover assessment of the site using Phase 1 Habitat Survey methodology (JNCC, 2010). This is a standard technique for classifying and mapping British habitats.

The site survey was undertaken on 20th April 2022 by Dominic Sheldon. All areas within the site were surveyed and assessed for indicators of ecological value, including the presence or signs of any protected or rare habitats and species.

3.2 The Bat & Protected Species Survey (Building Inspections)

The survey was conducted by Dominic Sheldon on the 20th April 2023, with the aid of head and hand-held torches, an endoscope, close-range binoculars, an extendable ladder and a digital camera.

The aim of the survey was to assess levels of use by bats through the presence of actual animals or their field signs, such as droppings, insect prey remains and/or urine staining, and the potential suitability of the buildings for roosting.

The presence of other protected species, notably nesting birds and barn owl/s, was also investigated, including the presence and behaviour of any actual animals or their field signs, such as whitewash, pellets and or nest debris.

3.3 The Bat Emergence Surveys

The bat emergence survey of Building 1 consisted of three evening survey visits undertaken on the following dates:

- 18th May 2023 by Providence Ecological Ltd; and,
- 8th June 2023 by Providence Ecological Ltd; and,
- 6th July 2023 by Providence Ecological Ltd.

The surveys were undertaken from 15 minutes prior to sunset until 1½ hours after sunset. The surveyors were positioned to cover all aspects of the building, with particular emphasis placed on the areas which had potential to be utilised by emerging bats. When a bat was detected, it was identified with its position and activity noted on a field base plan. The time and position of each bat was recorded, along with its direction of flight (light permitting) and whether the bat was emerging, foraging or commuting. Cloud cover, wind strength, precipitation, humidity and temperature were all recorded at the start and on completion of the survey.

The surveyors were each equipped with a bat detector and recording device, comprising of a Wildlife Acoustics Echo Meter Touch 2 Pro and Wildlife Acoustics Songmeter Mini Bat. To aid species identification, all recordings were analysed using Kaleidoscope Viewer (ver4.5.5), BatSound (ver3.3 and/or ver4.03) and/or Analook (ver3.8) computer software.

SECTION 4 SURVEY RESULTS

4.1 Desk Study

4.1.1 Statutory & Non-Statutory Designated Sites

There were three statutory sites designated for nature conservation located within 2 km of the site. These were:

- Jones's Mill Site of Special Scientific Interest SSSI, designated as it is an important calcareous valley mire, located approximately 600 m northwest;
- Pewsey Downs SSSI, which supports a rich chalk grassland flora and butterfly fauna, located approximately 1.75 km southwest; and,
- River Avon Special Area of Conservation SAC, which supports Desmoulin's whorl snail, sea and brook lamprey and Atlantic salmon, was located approximately 1.75 km southwest.

There were no records for non-statutory designated sites of nature conservation significance available within 2 km of the site.

4.1.2 Protected Species & Species of Conservation Concern

The desk study revealed records for legally protected notable species within 2km of the site.

Species identified that are afforded significant legal protection included European water vole *Arvicola amphibius*, Eurasian badger *Meles meles* and hazel dormouse *Muscardinus avellanarius*.

Species identified that are afforded less significant legal protection include grass snake Natrix Helvetica, common lizard Zootoca vivpara, common frog *Rana temporaria* and common toad *Bufo bufo*.

Records are largely obtained as incidental recordings. Subsequently an absence of any specific species recordings does not consequently indicate an absence of a species.

4.2 Field Survey

Table 1. Environmental conditions on 20th April 2023

Temperature (°C)	Wind Speed (Beaufort Scale)	Cloud cover (%)	Precipitation	Sunset time
10	0	100	0	N/A

Constraints on the survey:
The Preliminary Ecological Appraisal records the plants species present at the time of the survey, therefore plants that appear during different times of the year may not be recorded.

4.2.1 Habitat Descriptions

The site comprised modified grassland, artificial unvegetated unsealed surface and four buildings bounded by hedgerows. The site was approximately 0.2 ha. A habitat map is provided in Appendix 1.

Modified Grassland

The site predominantly comprised modified grassland, which was managed to a short sward height (Figures 2 & 3). Species noted included creeping bent *Agrostis stolonifera*, Cock's-foot *Dyctalis glomerata*, perennial-rye-grass *Lolium perenne*, small flowered buttercup *Ranunculus abortivus*, creeping thistle *Cirsium arvense*, daisy *Bellis perennis*, ground elder *Aegopodium podagraria*, dove's-foot cranesbill *Geranium mole*, oxeye daisy *Leucanthemum vulgare,* feverfew *Tanacetum parthenium*, and bristly ox-tongue *Helminthotheca echioides*.



Figure 2. The site viewed from the northern extent



Figure 3. The site viewed from the north-eastern extent

Hedgerows

Hedgerows and post and rail fences formed the boundaries of the site.

The north-western boundary comprised a large hedgerow (Hedgerow 1) of cypress species approximately 3 m in height and 2 m wide (Figure 4).

The hedgerow (Hedgerow 2) along the north-eastern boundary comprised a hedgerow interspersed with trees and a post and rail fence (Figure 5). The hedgerow measured approximately 2 m in height x 1.5 m wide and species noted included beech *Fagus sylvatica*, ash *Fraxinus excelsior*, willow species Salix sp. and dogwood *Cornus sanguinea*.

Hedgerow 3 formed the south-eastern boundary and was similar to Hedgerow 2 in composition with the addition of ornamental and invasive species including Japanese rose *Rosa rugosa* and Wilson's honeysuckle *Lonicera nitida*.

Hedgerow 4, located along the south-western boundary, comprised a native hedgerow measuring approximately 2 m high x 2 m wide (Figure 7). Species noted within the hedgerow included silver birch *Betula pendula*, beech, hawthorn *Crataegus monogyna*, *Cupressus* × *leylandii*, ivy *Hedera helix* and elder *Sambucus nigra*.



Figure 4. Hedgerow 1, pictured back left, forming the north-western boundary



Figure 5. Hedgerow 2 forming the north-eastern boundary



Figure 6. Hedgerow 3 forming the south-eastern boundary



Figure 7. Hedgerow 4 forming the south-western boundary

4.2.2 Building Descriptions

Building 1 (dwelling)

Building 1 comprised an original 1990's dwelling with later two storey and single storey extensions to the north-eastern elevation (Figure 8). The walls of the dwelling were constructed from brick and the roof was covered with interlocking curved clay tiles. The eaves were surrounded with uPVC soffit boxes.

Two loft voids were present within Building 1 the first (Loft void 1) within the original section measured approximately 8.5 m long x 4 m wide x 1.5 m in height. Loft void 2, located within the later two-storey extension measured approximately 10 m long x 6 m wide x 1.8 m in height. Loft void 1 was uncluttered, open and underlined with plastic underlining. Loft void 2 was of a trussed construction and was underlined with type 1F bitumen felt.

Building 2 (garage)

Building 2, was located south of Building 1 and comprised of a garage with two garage doors on the south-western elevation (Figure 9). The walls of the garage were constructed from brick and the roof was covered with interlocking clay tiles. The eaves were surrounded with wooden fascia and barge boards. The internal space of the garage was open and the roof was underlined with type 1F bitumen felt.

Building 3 (annex)

Building 3 was located southwest of Building 1 and was constructed from brick, covered with wooden cladding and the roof was covered with interlocking curved clay tiles (Figure 10).

Building 4 (outbuilding)

Building 4 was located west of Building 1 and was constructed from brick and wooden cladding (Figure 11). The roof was covered with interlocking curved clay tiles.



Figure 8. The south-western elevation of Building 1



Figure 9. The north-western elevation of Building 2



Figure 10. The north-eastern elevation of Building 3



Figure 11. The north-eastern elevation of Building 4

4.3 Fauna & Flora

4.3.1 Amphibians

The hedgerows provide terrestrial habitat in the form of shelter and foraging resources, for amphibian species. The modified grassland was managed to a short sward height and currently provides negligible habitat for amphibians.

There is one waterbody within 500 m of the site, located approximately 300 m south of the site within the large gardens of Oare House.

There are no records for great crested newt within 2 km of the site.

4.3.2 Badger

There were four records for badger available within 2 km of the site. There were no signs of badger noted during the survey, however it is considered that badger/s are likely to frequent the site when dispersing and/or foraging.

4.3.3 Dormice

The hedgerows in combination with hedgerows within the surrounding landscape provide suitable foraging resources and shelter for dormice.

There were no records for dormouse available within 2 km of the site.

4.3.4 Hedgehog

The modified grassland and hedgerows provide shelter and foraging resources for hedgehog.

There were no records for hedgehog within 2 km of the site.

4.3.5 Nesting Birds

Multiple records of bird species have been recorded within 2 km of the site.

Habitats

The hedgerows provide foraging and nesting opportunities for birds and the modified grassland provides general foraging habitat for birds.

Buildings

Four house martin nests were noted upon Building 1 and one swallow nest was identified within Building 2.

4.3.6 Reptiles

The hedgerows provide terrestrial habitat in the form of shelter and foraging resources, for reptile species. The modified grassland was managed to a short sward height and currently provides negligible habitat for reptiles.

Two records for grass snake were available within 2 km of the site.

4.3.7 Bats

There were no records for bats within 2 km of the site.

Bats – Flight & Dispersal

The modified grassland has been managed to a short sward height and currently provides limited foraging habitat; however, the hedgerows provide suitable foraging resources and dispersal routes for bats.

Bats – Roosting

Building 1

Approximately 150 medium-sized droppings, morphologically characteristic of long-eared bat species, were identified within the north-eastern extent of Loft Void 2 below the gable end wall.

Approximately 50 medium-sized droppings, morphologically characteristic of long-eared species, were identified scattered within Loft Void 2.

The roof tiles and fascia appeared to be tight-fitting, however gaps were noted under the lead flashing surrounding the chimneys.

Further surveys were undertaken of Building 1 and the results are provided in Section 4.4.

Building 2

The roof tiles appeared to be tight-fitting, however a gap was noted beneath the fascia board.

Building 3

The roof tiles and fascia appeared to be tight-fitting and no visible gaps were noted upon the building. An internal inspection was not undertaken on this building as the building will be retained.

Building 4

The roof tiles and fascia appeared to be tight-fitting, however gaps were noted under the wooden cladding. An internal inspection was not undertaken on this building as the building will be retained.

4.4 The Bat Emergence Survey

The bat emergence survey of Building 1 comprised three survey visits undertaken on the 18th May, 8th June and 6th July 2023. Weather conditions recorded at the start and end of the survey are presented in Table 2.

Table 2. Timings and environmental conditions relating to the bat emergence survey

Date & Times	Start/End	Temp (ºC)	Wind Speed (Beaufort Scale)	Cloud Cover %	Precipitation	Humidity %
18th May 2023 Sunset: 20:56	Start of Survey	16	0	0	0	-
Start Time: 20:35 End Time: 22:30	End of Survey	13	1	0	0	-
8th June 2023 Sunset: 21:20	Start of Survey	20	1-2	0	0	-
Start Time: 21:05 End Time: 22:50	End of Survey	18	1	0	0	-
6th July 2023 Sunset: 21:25	Start of Survey	15	1-2	10	0	-
Start Time: 21:04 End Time: 22:54	End of Survey	15	1	10	0	-

4.4.1 The Bat Emergence Survey Visit – 18th May 2023

There were no bats observed emerging from Building 1.

4.4.2 The Bat Emergence Survey Visit – 8th June 2023

There were no bats observed emerging from Building 1.

4.4.3 The Bat Emergence Survey Visit – 6th July 2023

One common pipistrelle was observed emerging from the apex of north-eastern gable of Building 1 (Figure 12).

4.4.4 Additional Bat Activity

During the bat emergence presence / absence survey, incidental bat activity recorded included common and soprano pipistrelle bats, barbastelle, serotine, noctule, *Myotis* sp. and *Plecotus* sp.

Only common and soprano pipistrelle bats were recorded both commuting, foraging and displaying social behaviour (calls and chasing). All other species were only recorded commuting.



Figure 12. One common pipistrelle (red arrow) emerging from the apex of the gable end, south-east of the chimney. The blue line indicates the path of travel towards the north-east. The image was taken using an Infrared camera.

SECTION 5 DISCUSSION & RECOMMENDATIONS

5.1 Proposed Development

The proposals include demolishing Buildings 1 and 2, with an extent of the modified grassland removed, to allow for the construction of a new dwelling. Buildings 3 and 4 are to be retained.

5.2 Statutory & Non-statutory Designated Sites

The desk-based review identified the following statutory sites: Jones's Mill SSSI, Pewsey Downs SSSI and River Avon SAC within 2 km of the site. It is considered that these designated sites will not be directly impacted by the proposal as they are distinctly separate to the site.

5.3 Amphibians & Reptiles

The hedgerows present on site are suitable for common amphibians and reptiles. The modified grassland currently provides negligible habitat for these species' groups.

It is considered unlikely that great crested newts are present on site as the on-site habitat was assessed as negligible due to the current management and it is likely that higher suitability habitats are available in closer proximity to the identified waterbodies.

It is understood that areas of the modified grassland will be removed to construct the new dwelling, however the hedgerows will be retained.

Precautionary measures will be required to ensure that common amphibians and reptiles are not harmed during the works:

- Continued management of the grassland to a short sward height; and,
- Protection of the retained habitats during the construction period.

Post-construction the following measures should be implemented to enhance the site for amphibians and reptiles including:

- Management of sections of the garden as a meadow by allowing the grassland to grow and cutting twice annually in March and August; and,
- Creation of two habitat piles in undisturbed locations adjacent to a hedgerow (Appendix 1).

5.4 Badger

There were no signs of badger present on site. However, it is considered likely that badger/s are frequent the site when dispersing and/or foraging.

Precautionary measures should be employed to ensure no badgers are harmed or injured during the construction period of the development including the following:

- Any excavations or pipework, which are to remain open overnight, should be fenced or covered to prevent potential entrapment and/ or injury of species such as badger.

5.5 Dormice

The hedgerows present on site are suitable for dormice and it is likely that dormice use the hedgerows in combination with habitats surrounding the site.

It is understood that the hedgerow will be retained, however to ensure that dormice can continue to use the boundary habitats for foraging and dispersal the following should be included:

- A sensitive lighting plan;
- Protection of the hedgerows during development with tree protection fencing;
- Suitable management of the hedgerows including trimming on a three-year rotation and removal of the invasive Japanese rose; and,
- All new planting to comprise native species of local providence.

5.6 Hedgehog

The hedgerows and modified grassland provide suitable habitat for hedgehog.

Precautionary measures should be employed to ensure no hedgehogs are harmed or injured during the construction period of the development including the following:

- Any excavations or pipework, which are to remain open overnight, should be fenced or covered to prevent potential entrapment and/or injury of species such as hedgehog.

5.7 Nesting Birds

The hedgerows, and Buildings 1 and 2, provide nesting and foraging habitat for birds.

It is understood that the hedgerows will be retained, however Building 1 & Building 2 will be demolished.

Mitigation and compensation measures will be required including the following:

- Any vegetation removal or building demolition works should be undertaken outside of the nesting bird season, which extends from March-August;
- Protection of the hedgerows and trees during development with tree protection fencing;
- All new planting to comprise native species of local providence; and,
- Four house martin nesting provisions to be installed under the eaves of new dwelling (Appendix 2); and,
- Two swallow nesting provisions to be installed within a building with free flight access or under a covered structure (Appendix 2).

5.8 Bats

5.8.1 Flight & Dispersal

The hedgerows present on site provide foraging resources and dispersal routes for bats.

As a signatory to the Bonn Convention (Agreement on the Conservation of Bats in Europe) the UK has committed to protecting bat habitats, which necessitates the identification and protection from damage or disturbance of important feeding areas and commuting routes.

It is understood that the hedgerows will be retained, however it is important to ensure that bats can continue to use the boundary habitats for foraging therefore the following will be required:

- A sensitive lighting plan;
- Protection of the hedgerows during development with tree protection fencing;
- Suitable management of the hedgerows including trimming on a three-year rotation and removal of the invasive Japanese rose; and,
- All new planting to comprise native species of local providence.

5.8.2 Roosting

Building 1: The combined survey results identified a day roost for common pipistrelle (peak count 1) at the north-eastern gable and day roosts for long-eared bat (to be confirmed via DNA analysis) within loft voids 1 and 2 (low numbers/individuals).

Building 2 was identified as having limited opportunities for roosting bats due to presence of gaps beneath the fascia boards. The building is not considered to support a roost, but as a precautionary measure it is recommended that the building is demolished under the supervision of a bat licensed ecologist as a precautionary measure.

5.8.3 Legislation

Bats are protected under several articles of UK and European legislation, notably the Wildlife & Countryside Act 1981, the CroW Act 2000, and the Conservation (Natural Habitats, &c) (Amendments) 2017 Regulations [referred to as HR]. Under this legislation, it is illegal to:

- Intentionally or deliberately kill or injure bats;
- Deliberately disturb bats; and,
- Recklessly disturb roosting bats or obstruct access to their roosts; and,
- Damage or destroy bat roosts.

Where works are proposed that would result in offences being committed, a European Protected Species Licence (EPSL) is required under the Habitats Regulations (2017).

5.8.4 Implications of the Proposal

The proposed demolition works will destroy the identified bat roost and could cause disturbance and/or injury to any bats present at the time of works. It will be necessary to apply and obtain a standard European Protected Species Licence (EPSL) from Natural England under the conservation (Natural Habitats, &c) (Amendments) 2010 Regulations, to legally allow the proposed works.

In order to apply for the licence, it will be required to successfully obtain full planning permission from the Local Planning Authority (LPA). With specific reference to the identified roosts, the EPSL could be facilitated through registration of the site to the Bat Mitigation Class Licence.

5.8.5 Mitigation & Compensation for Bat Species

Specific mitigation and compensatory measures will need to be incorporated into the proposal/s, including:

- Commencement of works relating to the bat roost/s with ecological supervision, required to safely exclude and remove any roosting bats from the working area/s;

- Positioning of temporary bat roosting provisions, consisting of at least two bat boxes positioned upon suitable building/s and/or tree/s on the property. These bat boxes would be used to relocate any non-horseshoe bats found during the works;
- Two lead flashing gaps (measuring 25 mm high x 40 mm wide) and two integrated bat tubes (Appendix 4) will be installed within the new dwelling and/or garage;
- Use of suitable building materials will be required in association with the bat roosting provision/s, including traditional cut roof designs, bitumen roofing felt and mortared ridge tiles (no trussed roofs, breathable membranes or dry ridge tiles); and,
- The bat roosting provisions, bat access points, and corresponding flight lines linking the provisions to the surrounding environment, must not be illuminated by external lighting (see 5.8.6 for further detail).

5.8.6 Lighting

External Lighting

External lighting should be avoided, however if lighting is required, it will be installed adjacent to access, doorways, steps etc. only, below 1 m in height and directed below a 70-degree plane. Any external lighting associated with the development will be adapted to be based on a Passive Infrared Sensor (PIR) system (being motion-sensitive only to large objects) and on a short timer (no longer than 1 minute). The bat access points and corresponding flight lines linking the roosts to the surrounding environment must not be illuminated by any artificial lighting. Lighting will specifically not be positioned where it could illuminate surrounding vegetation (woodland, trees, hedgerows, hedgebanks etc.) or any areas beyond the development area.

Lighting must be kept at the minimum height permissible. LED luminaires which lack UV elements with glass glazing should be used instead of mercury or metal halide lamps. This type of lighting can be used more directionally and will reduce the range of light wavelengths emitted thus significantly reducing the levels of light which may attract increased levels of invertebrate bat prey items. Such light should be positioned to only illuminate the required areas, limiting light spill, both horizontally and vertically beyond the site.

A warm white spectrum (ideally <2700 Kelvin) should be adopted to reduce the blue light component. Luminaires should feature peak wavelengths higher than 550 nm to

avoid the component of light most disturbing to bats (Institution of Lighting Professionals & the Bat Conservation Trust 2018). Additionally, hoods, cowls, louvers and/or shields should be used to further direct any lighting.

Internal Lighting

Internal lighting should be recessed where installed in proximity to windows and blinds should be fitted to reduce glare and light spill (Institution of Lighting Professionals & the Bat Conservation Trust 2018).

5.9 Ecological Enhancements

The National Planning Policy Framework outlines the Government's commitment to minimise impacts on biodiversity and provide net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

Therefore, in order for the development to result in an increase in wildlife opportunities the following will need to be included in addition to the measures detailed above and any measures recommended following the bat emergence surveys:

- Two bird nesting provisions incorporated within the external walls of the new dwelling and/or garage (Appendix 3);
- Two bat roosting provisions incorporated within the external walls of the new dwelling and/or garage (Appendix 3);
- Four invertebrate provisions installed in a sunny location, at a minimum height of 1 m (Appendix 5).

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APPENDICES

Appendix 1: Site Habitat Map
Appendix 2: Example of Habitat Piles
Appendix 3: Examples of Bird Nesting Provisions
Appendix 4: Examples of Bat Roosting Provisions
Appendix 5: Examples of Invertebrate Provisions



Key

- Red line boundary
- g4 - modified grassland
- u1b5 - buildings
- u1c - artificial unvegetated unsealed surface

Secondary Codes	Secondary Code Description
64	Mown

N

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Ordnance Survey 0100031673

UK Habitat Classification Map

Client: Hiscox Palade

Project: Home Farm Cottage

Date: April 23	Ref: 230311
Rev: 01	Author: ALS
Scale (A3): NTS	Approved: AC

Habitat Pile



Size: 2-8 m long x 1-1.5 m high

Materials: Logs, brash, bramble cuttings, grass cuttings

Location: Create in marginal habitats adjacent to both low, open vegetation and dense vegetation

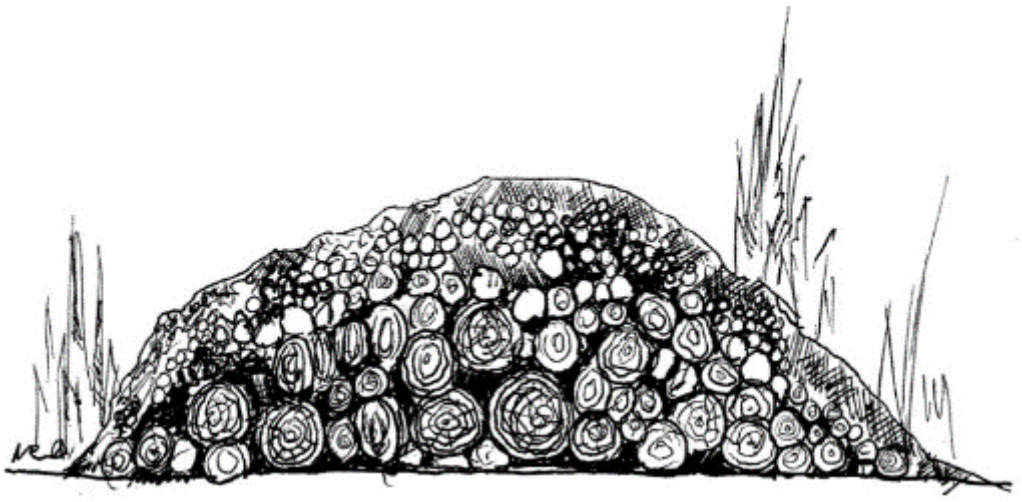
Creation:

- A mixture of materials, shapes and sizes should be used to increase complexity of the structure
- The central core of the structure should be compacted and the outer layers laid loosely on top



Management:

- Add additional material to the habitat pile as it decomposes
- Consider partially burying, anchoring or securing with wire if located on a site with high public access

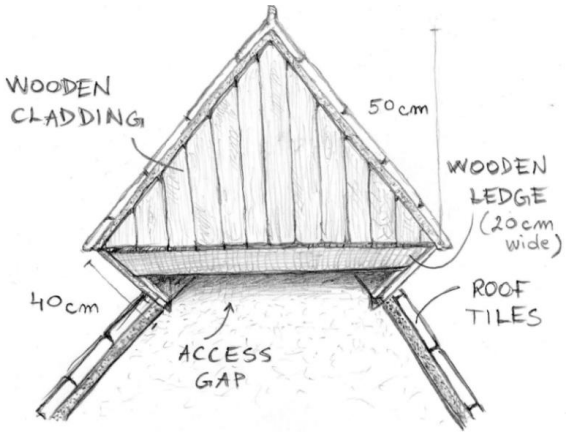


Swallow Nesting Provisions

Swallow nesting cups should be installed within a building with open free flight access or within an overhang structure with a clear flight path to and from.

The overhang structure is positioned at the gabled of an exisiting structure, constructed from timber (measuring 400 mm in height x 400 mm in depth) and roofed with tiles to match the building.

The nest cups are woodcrete with a water resistant glued chipboard mouting panel, which can be painted. Measurements are 110 mm H x 250 mm W x 140 mm D.





House Martin Cups

Suitable for: House martins
Material: Plywood and woodstone

Height: 115 mm
Width: 380 mm
Depth: 160 mm
Weight: 1.8 kg

Position: Externally at eaves, at a minimum height of 4 m



WoodStone Build in Open Nest Box



Suitable for: robins, wrens and blackbirds.
Material: Woodstone
Height: 180mm
Width: 220mm
Depth: 180mm
Weight: 4.2kg

Position: Within external walls, at a height of 2m or above.

Schwegler Sparrow Terrace



Suitable for: House sparrows and individual blue & great tits
Material: Woodcrete
Height: 245mm
Width: 430mm
Depth: 300mm
Weight: 7kg

Position: At a height of at least 2m upon external wall

Woodstone Sparrow Terrace



Suitable for: House sparrows and individual blue & great tits
Material: Woodcrete
Height: 220mm
Width: 290mm
Depth: 165mm
Weight: 7kg

Position: At a height of at least 2m within external wall

APPENDIX 4 EXAMPLES OF INBUILT BAT ROOSTING PROVISIONS

Segovia Build-In Woodstone Bat Box



Material: Woodcrete

Width: 210 mm
Height: 500 mm
Depth: 170 mm
Entrance Width: 160 mm
Entrance Height: 25 mm

Position: Built into external wall, below eaves or at a minimum height of 3 m with the entrance face at the front, remaining exposed and visible. The sides can be removed and multiple boxes placed next to each other to create a larger roosting space

Vivara Pro Woodstone Bat Tube



Material: Woodstone

Width: 160 mm
Height: 400 mm
Depth: 220 mm
Entrance Width: 150 mm
Entrance Depth: 20 mm
Weight: 6 kg

Position: Within external walls in place of a standard block on a southerly aspect, beneath eaves or at a minimum height of 3 m

Green & Blue Bat Block



Material: Cast concrete (75% waste materials from Cornish China Clay Industry)

Width: 215 mm
Height 440 mm
Depth: 120 mm

Position: Within external walls in place of a standard block on a southerly aspect, beneath eaves or at a minimum height of 3 m

APPENDIX 5 EXAMPLES OF INVERTEBRATE PROVISIONS

Bee Brick
Each bee brick includes nesting compartments for solitary nesting bees, including for egg laying and hibernation.

Bee bricks to be positioned within southerly elevations, which includes part or full sun, between 1m to 2m above ground level, and ideally facing garden or boundary habitats.





Bee Brick - case in concrete: 215mm x 105mm x 65mm
http://greenandbluebuild.co.uk/product/bee-brick/

Woodstone Insect Block

Suitable for bees, lacewings and ladybirds.

Material: Woodstone

Height: 270 mm
Width: 185 mm
Depth: 90 mm

Position: Site in a southerly facing location, adjacent to garden or boundary habitats at a minimum height of 2 m.

