



**Isles of Scilly Wildlife Trust**

Trenoweth, St Mary's, Isles of Scilly, TR21 0NS

Tel: 01720 422153

DarrenHart@ios-wildlifetrust.org.uk

[www.ios-wildlifetrust.org.uk](http://www.ios-wildlifetrust.org.uk)

# PRELIMINARY ECOLOGICAL APPRAISAL & PRIMARY BAT ROOST ASSESSMENT OF:

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BANK COTTAGE  
SOUTH'ARD  
BRYHER  
ISLES OF SCILLY  
TR23 0PR

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Client: Ms Mary Loweth

Our reference: BS10-2018

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Author: Darren Hart BSc (Hons)

Report peer reviewed: Darren Mason BSc (Hons)

Report Authorised: Sarah Mason 21.11.18

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## Non-Technical Summary

- On 13th November 2018 a Primary Ecological Appraisal (PEA) and a Preliminary bat Roost Assessment (PRA) of Bank Cottage and associated buildings was undertaken to inform the following proposals; to make alterations and an extension of the main house including raising the roof and removing the porch and a gabled extension to provide a two bedroom house, renovation and extension of the cottage to improve ancillary accommodation, creation of a new workshop/ studio to replace existing shed and replacement of the small standalone shed south of the cottage with a terrace.
- This report details the results of a PEA and PRA of Bank Cottage and associated buildings.
- The Preliminary Bat Roost Assessment comprised of a detailed search of the external and internal of all the buildings where possible – there were a number of survey constraints (see 5.1 survey constraints).
- The desk study revealed information on 3 species of bat recorded within the 2km Zone of Influence (ZOI) of the site.
- Evidence of bats was found in the main house, cottage and small standalone shed and the features suggested a moderate roost potential for breeding bats.
- The shed had no features potentially suitable for roosting bats either on the exterior or on the interior and no visible signs of bats were found.
- During the survey evidence of nesting birds were found and this will need to be considered in any mitigation strategy.
- It is recommended that buildings with 'moderate' bat suitability require two separate survey visits; one dusk emergence and a separate dawn re-entry survey between May and September.

## 1.0. Introduction

### 1.1 Survey and reporting

This report details the results of a Primary Ecological Appraisal (PEA) and a Preliminary Roost Assessment (PRA) of Bank Cottage and associated buildings. The survey, carried out on 13<sup>th</sup> November 2018 was undertaken to inform the following proposals: to make alterations and add an extension to the main house, renovation and extension of the Cottage to improve ancillary accommodation and creation of a new workshop/ studio to replace existing shed. This report details the results of a PEA and PRA of Bank Cottage and associated buildings (see section 2).

### 1.2 The application site

Within the application site (Bank Cottage and associated buildings (National Grid Reference SV87578 14728, Figure 1.)) there are a number of buildings, these are; the main house which stands at the highest point of the site at the north-east boundary (see photo 1), a single story granite cottage that sits close to the main house on the south-east boundary (see photo 2), a large cement mono-block and timber shed at the bottom south-west corner (see photo 3). Opposite the shed in the southern corner is the Moorings; a single storey bungalow, which is within the site but is not the subject of any proposed development. South of the cottage is a small standalone shed, which may have housed an outside lavatory in the past (see photo 4). The total area of the site is approximately 1330m<sup>2</sup> (red area, see Figure 1).

### 1.3 Details of proposed works

It is proposed to make alterations and add an extension to the main house including raising the roof and removing the porch and gabled extension to provide a two bedroom house, renovation and extension of the Cottage to improve ancillary accommodation, creation of a new workshop/studio to replace existing shed and replacement of the small standalone shed south of the cottage by a terrace.



Figure 1 - Location of Bank Cottage site.





Photo 1 - The main house (south-west aspect).



Photo 2 - The cottage (north-west aspect).



Photo 3 - Shed (south-east and south-west aspects)



Photo 4 - Small standalone shed (north-east aspect).



## 2.0. Methodology

### 2.1 Preliminary Ecological Appraisal – Desk Study

A desk study data search was carried out. This involved gathering any records from the Local Record Centre (LRC) of bat species and roosts in the area. Citations of statutory designated sites of importance for nature conservation were looked at and whether they are within the ZOI of the survey area (considered to be 2km in this case). Surrounding habitats were also identified and the connectivity of habitat was assessed through the use of aerial photography.

### 2.2 Preliminary Bat Roost Assessment

The Preliminary Bat Roost Assessment comprised of a detailed search of the external and internal of all the buildings looking for bats, bat sign and also for features that could potentially be used by bats. Moorings cottage did not form part of the survey as there is no proposed development of this structure. Also an assessment of the surrounding habitat and its suitability for commuting and foraging bats was carried out.

The survey was carried out from ground level looking for bats and/or evidence of bats including grease and scratch marks, droppings (on walls, surfaces as well as on the rooves), staining at potential roost exit holes, live or dead bats and features. Features might include raised or missing tiles, a gap in the mortar, overhanging tiles or gaps behind fascia boards, any small space potentially suitable for use by roosting bats. A ladder, binoculars and a high powered torch were used when required.

### 2.3 Classification of a building's bat roost potential

The building was classified using a number of factors to determine its suitability for use by roosting bats. The classification was dependent on a number of factors including:

- Bats and/or bat sign
- Features potentially suitable for use by roosting bats, these may include gaps in mortar and behind fascia boards.
- Night light levels
- Disturbance levels
- Setting
- Proximity to suitable foraging habitat and commuting routes.

The categories used to classify the buildings and the survey effort needed to determine the presence or absence of bats is taken from the Bat Conservation Trust's Good Survey Guidelines<sup>1</sup> and are described in Table 1.

### 2.4 Surveyor details

The survey was undertaken by Darren Hart (BSc) and Darren Mason (BSc) who have both undertaken professional Bat Licence training to permit them to undertake professional surveys. They are currently gathering sufficient 'working hours' to achieve a Natural England Class Level 1 Licence.



## 3.0 Results

### 3.1 Primary Ecological Appraisal (PEA)

#### 3.1.1 Pre-existing information on bat species

The desk study showed that no species of bat have previously been recorded within the building. A data search of LRC records for bats revealed information on 3 species of bat recorded within the 2km ZOI of the site. The species conclusively identified were Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*) and Brown Long-eared Bat (*Plecotus auritus*). The nearest known roost lies within 500m of the proposed development.

**Table 1 – Description of the categories used to classify a building’s bat roost potential and the survey effort required to determine the likely presence or absence of bats**

<b>Bat Roost Potential</b>	<b>Roost status</b>	<b>Description</b>	<b>Survey effort required to determine the likely presence or absence of bats</b>
	High	Numerous features potentially suitable for use by roosting bats, optimal or good quality bat foraging habitat nearby and good habitat connectivity. Alternatively, a building with fewer features potentially suitable for use by roosting bats and optimal foraging habitat nearby.	Three dusk emergence and/or pre-dawn re-entry surveys between May and September. Optimum period May – August. Two surveys should be undertaken during the optimal period and at least one survey should be a pre-dawn survey.
	Moderate	More than a few features potentially suitable for use by roosting bats, good foraging habitat nearby and limited habitat connectivity. Alternatively, a building with a few features potentially suitable for use by roosting bats but optimal foraging habitat nearby.	Two or three dusk emergence and/or pre-dawn re-entry surveys between May and September (but only if features will be affected by the proposals).
	Low	Only a few features potentially suitable for use by roosting bats but good bat foraging habitat nearby. Alternatively, a building with more than a few features potentially suitable for use by roosting bats but sub-optimal foraging habitat nearby and limited habitat connectivity.	One or two dusk emergence and/or pre-dawn re-entry surveys between May and September (but only if features will be affected by the proposals).
	Negligible	Very few features potentially suitable for use by roosting bats and / or in an area (such as a densely populated urban area) which has limited habitat connectivity and poor foraging habitat.	No further surveys required.

### 3.1.2 Statutory and non-statutory sites

In addition, the desk study also revealed the presence of the following statutory designated sites within the 2km ZOI of the site:

- i. Shipman Head and Shipman Down SSSI** – Lying approximately 508m north of Bank Cottage, Shipman Head and Shipman Down SSSI the site is notified for its geological deposits, maritime ‘waved heath,’ species rich maritime grassland and its seabird colony. Species of note include the nationally rare Orange bird’s-foot (*Ornithopus pinnatus*) and the notable Hairy Bird’s-foot Trefoil (*Lotus subuliflorus*). The associated lichen flora includes the nationally rare *Teloschistes flavicans*, *Heterodermia leucomela*, *Heterodermia japonica* and *Lobarium pulmonarium*.
- ii. Pool of Bryher and Popplestone Bank SSSI** – Situated approximately 67m due north-west of Bank Cottage is Pool of Bryher and Popplestone Bank SSSI. Notified for the shallow saline pool and narrow coastal dune system and associated grassland. Important for species such as Sea Milkwort (*Glaux maritima*), Lesser Sea-spurrey (*Spergularia marina*) and the nationally rare Early Meadow-grass (*Poa infirma*).
- iii. Rushy Bay and Heathy Hill SSSI** – Located approximate 139m south of Bank Cottage the SSSI is particularly important for its dune grassland and the occurrence of the very rare Dwarf Pansy (*Viola kitaibeliana*) and the nationally scarce Sea Spurge (*Euphorbia paralias*), Portland Spurge (*Euphorbia portlandica*) and Western Clover (*Trifolium occidentale*). On Heathy Hill the nationally rare Orange Bird’s-foot also occurs (*Ornithopus pinnatus*) and Small Adder’s-Tongue (*Ophioglossum azoricum*).
- iv. Castle Down SSSI** – Lying 1199m north east of Bank Cottage, Castle Down SSSI on Tresco is notified for its lichen-rich maritime ‘waved heath.’ Species of note include the nationally rare Early Meadow-grass (*Poa infirma*).
- v. Great Pool SSSI** – Lying 1340m east of Bank Cottage, Great Pool on Tresco is a large body of freshwater supporting species including Brackish Water-crowfoot (*Ranunculus baudotii*), and Alternate Water-milfoil (*Myriophyllum alterniflorum*). The water-logged soils are important for the nationally scarce Tubular Water-dropwort (*Oenanthe fistulosa*) and the locally important Royal Fern (*Osmunda regalis*).

- vi. **Samson (with Green, White, Puffin and Stony islands) SSSI** – Lying 1373m south of Bank Cottage, Samson has areas of lowland acidic heathland dominated by Heather (*Calluna vulgaris*), Bell Heather (*Erica cinerea*) and Western Gorse (*Ulex gallii*). Nationally rare Balm-leaved Figwort (*Scrophularia scorodonia*), Blunt-fruited Water-starwort (*Callitriche obtusangula*) and Blinks (*Montia fontana*) have been found. Samson and the surrounding islands are also of particular note for their seabird colonies, including six species of breeding seabirds. The colony of Lesser Black-backed Gull (*Larus fuscus*) is of national importance.
  
- vii. **Norrard Rocks SSSI** – 745m west of Bank Cottage, this group of islands are of particular importance for their seabird colonies, supporting some 10 species of breeding seabirds including Puffin (*Fratercula arctica*), Storm petrel (*Hydrobates pelagicus*) and Shag (*Phalacrocorax aristotelis*). The isolated rocks and islands of Norrard Rocks are one of the most important breeding sites on Scilly for Grey seal (*Halichoerus grypus*). The nationally restricted rove beetle (*Omalium allardi*) has been recorded on several of the islands.
  
- viii. **Pentle Bay, Merrick and Round islands SSSI** – Lying 1735m south east of Bank Cottage the site exhibits an important transition from dunes to lichen-rich heathland. The site also incorporates a number of small uninhabited islands, including Merrick Island and Round Island, which are important for breeding seabirds. There are records of the Schedule 8 species Shore Dock (*Rumex rupestris*) and the nationally rare Orange Bird's-foot (*Ornithopus pinnatus*).

### 3.1.3 Habitats surrounding the application site

Bank Cottage is on the west side of Bryher within a small community of buildings including the Hell Bay Hotel complex nearby. The site is immediately surrounded by tracks on three sides with mature hedgerows. Great Porth, a sandy bay, lying immediately to the south west provides a foraging opportunity for Pipistrelle bats - it has been shown that they will often exploit coastal habitats, particularly the strandline along beaches<sup>2</sup>. On three sides the site is also surrounded by gardens with a good amount of mature shrubs and hedges providing shelter and good connectivity to outlying habitat.

To the north-west, only 67 metres away, is the Pool of Bryher and Popplestones Bank SSSI. A saline pool riparian habitat, flower rich grassland and narrow dune system. More immediately to the north

the Hell Bay hotel complex and its grounds which contains open areas of grass with mature hedgerows and mature shrubs providing good areas of habitat for bats.

Timmy's Hill is to the north-east of the site; a relatively high point on the island reaching 33m above sea level, dominated on four sides by Pittosporum (*Pittosporum tenuifolium*), also abundant is European Gorse (*Ulex europaeus*) and Coprosma (*Coprosma repens*) with areas of grassland and heath. To the south, Rushy Bay and Heathy Hill SSSI are open and exposed areas of flower rich grassland. To the south-east are a number of small grass and cultivated fields bounded with mature hedgerows; these fields stretch to the south and east side of the island and along most of the eastern side there are fields and hedgerows. These fields and associated hedgerows provide good habitat over a large area of Bryher and great connectivity to most of the other available habitat on the island. It has been shown that bats use tree lines and hedgerows for both commuting and foraging<sup>3</sup>. Soprano pipistrelles (*Pipistrellus pygmaeus*) are known to preferentially forage in riparian habitats, over water and in adjacent riparian woodland<sup>4,5,6</sup>. Common pipistrelle (*Pipistrellus pipistrellus*), however, has been recorded foraging over a wider range of habitats, including rivers, lakes, woodland and cattle pasture<sup>4,5,6</sup>. Therefore the commuting and foraging habitat available from Bank Cottage is considered to be of high quality for bats.

### 3.1.4 Habitats within the application site

The large garden is central within the site with the buildings roughly in the four corners. There is a hedge running almost the whole length of the site on the western boundary. The site is bounded by a large amount of hedgerow and mature shrubs. The hedges are predominantly Pittosporum (*Pittosporum tenuifolium*), but also Coprosma (*Coprosma repens*) with some Escallonia (*Escallonia macrantha*). A clipped hedge on the eastern boundary runs between the cottage and the Moorings. Hedges also run from west to east breaking the garden into three distinct areas dominated by lawn. In the garden in front of the main house (south-west aspect) and to the side, there is a substantial area planted with shrubs and plants of various sizes including, Aoenium (*Aoenium cuneatum*), Echium (*Echium pininana*), Camellia (*Camellia*) spp, African Lily (*Agapanthus praecox ssp.*), an Agave species, New Zealand flax (*Phormium colensoi*), Montbretia (*Crocasmia x crocosmiiflora*), French hydrangea (*Hydrangeaceae sp*), Rhododendron (*Rhododendron ferrugineum*), Cotoneaster species, Geranium species, Marigold species, Mesembryanthemum species, Bottlebrush (*Callistemon sp*) and Candytufts (*Iberis sp*) amongst others. In the central area, where there is a fish pond, there are a few trees including a mature Apple (*Malus sp.*), Palm (*Areaceae sp.*) and a Yucca species. Other plants included Altar-lily (*Zantedeschia aethiopica*) and a Hedge veronica (*Veronica xfranciscana*). The third area of garden, next to the shed and in front of the Moorings, is mainly laid to grass. There is a small fenced lawn in front of the Moorings. There is also a good amount of Atlantic ivy (*Hedera hibernica*) in the garden, mainly growing up the western aspect of the cottage and also on three sides of the small stand alone shed. Atlantic ivy is a good late nectar source for insects which provide food for bats. This garden is a sheltered area of habitat that provides good foraging for bats; it is known that bats are more active in sheltered areas of habitat than exposed areas<sup>4</sup>.

In summary, the habitat within the development site is of good ecological value, there is a pond and many species of flowering plants both of which will attract invertebrates which bats may prey upon and the surrounding hedgerows provide shelter and hunting grounds, as well as a corridor to more foraging areas.



## 3.2 Primary Roost Assessment (PRA)

### 3.2.1 External

The **main house** was originally a long simple one and a half storey granite building. Additions over the years have included a two storey gabled extension on the south west aspect, a porch on the north-west aspect, dormer windows on the south-west aspect and a flat roofed extension with a roof terrace again on the south-west aspect. The rooves are slate with concrete ridge tiles and a pitch between 30<sup>0</sup> & 35<sup>0</sup>. The house has a cream rendered finish, although the original granite can still be seen on the north-east aspect. There are UPVC windows with wooden soffit and fascia boards.

The main house has a number of features potentially suitable for roosting bats, including:

- Gaps behind the soffit board and the granite on the porch's northern and western sides (see photo 5). It should be noted that bird nesting material was found behind the soffit board on the western corner.
- Several gaps behind the soffit boards on the gabled extension north-west aspect, particularly at the western corner (see photo 6).
- Several gaps behind the soffit boards on the north-east aspect of the original building, particularly on the northern corner (see photo 7).
- South-west aspect - the gaps are numerous behind the soffit boards on the south eastern aspect of the gabled extension and on the south-west aspect of the flat roofed extension (see photos 8 & 9). Although not continuous they do run the length of the boards.
- South-west aspect gap behind the soffit and flashing beyond the down pipe and before the dormer (see photo 10).
- South-western aspect – Gaps under the flashings on the left hand side of both dormers (see photos 11 & 12)



Photo 5 - Gapping behind the soffit on the porch.

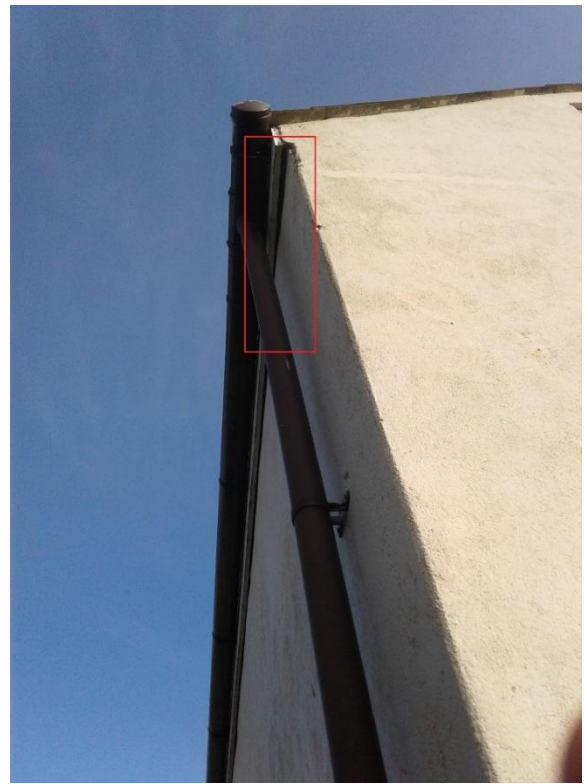


Photo 6 - Gaps behind the soffit at corner of extension.



Photo 7 - Gaps behind the soffit.



Photo 8 - Gap behind soffits.



Photo 9 - Gaps behind the length of the soffit boards.

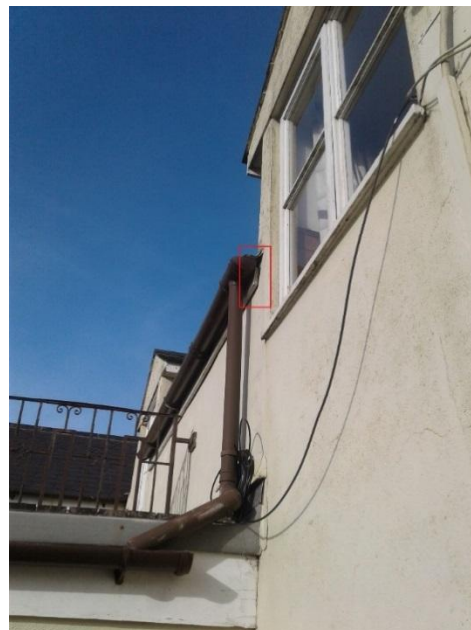


Photo 10 - Gap behind the soffit & flashing.



Photo 12 - Gap under flashing of the east dormer.



Photo 11 - Gap under flashing of the west dormer.

**The Cottage** is a single storey gabled granite outbuilding, with a slate roof and concrete ridge tiles. The roof has a pitch of 25°. There are two wooden framed windows on the north-west aspect with a wooden door and the soffit boards are also all wooden (see photo 13).





Photo 13 - The granite cottage.

The cottage has a number of features potentially suitable for roosting bats, including:

- North-west aspect – gap in soffit left of right hand side window (see photo 14).
- North-west aspect – gap in soffit where cable enters soffit. Small mammal dropping visible but not retrievable (see photo 15).
- North corner of north-west aspect – Cavity under and behind the fascia board appears to enter the roof space. Bird nesting material present (see photo 16).
- North-east aspect – gaping between the bargeboard and the granite towards the apex (see photo 17).

The south-east aspect was not accessible to survey also the south-west aspect and the small structure in front was not surveyed due to both being covered in thick Atlantic ivy (see 5.1 Survey constraints).



Photo 14 - Gap in soffit above granite.



Photo 15 - Gap in soffit.



Photo 16 - Cavity behind the fascia boards.



Photo 17 - Gaping between the bargeboard and the granite.

The **Shed** is a cement block single storey structure with some wooden cladding. The roof is wooden framed and has a pitch of 9° and is finished with bitumen felt (see photo 3). There is a clear plastic extension on the north-east aspect.

There were no features potentially suitable for roosting bats either on the exterior or on the interior and no visible signs of bats were found. All surfaces were checked inside, the roof felt was tightly adhered and there were no gaps in the wooden cladding and no gapping behind the wooden soffit boards.

The **small standalone shed** (see photo 4) standing south-west of the cottage was also surveyed. The outside of the building was covered in Atlantic ivy so much so that it hindered the ability to see what was underneath, this limiting feature is potentially obscuring any real or potential roosting features (see photo 4). The building itself appeared to be concrete in structure with a corrugated fibre cement roof. Currently it is serving as a small storage shed.

### 3.2.2 Internal

Inside the **main house** there were two loft spaces that were examined. The first of which was in the south-east part of the original building. This small loft space was well boarded with no gapping between the cement blocks and the boards affording no points of access (see photo 18).





Photo 18 – Loft space in south-east end of main house.

The second loft is in the north-west end of the house, within the roof space of the gabled extension. The loft has a closed-coupled roof with wooden beams and rafters (see photo 19). The roof membrane looked to be fibre felt. The cobwebs were minimal. There were no boards which meant searching for bats and bat sign could only be undertaken from the hatch with a torch. One end of the loft could not be viewed successfully due to it being partially partitioned off (see photo 22).

Four samples of mall mammal droppings were found (see photos 20 & 21). Three were within the measurement guidelines given for Common pipistrelle (*Pipistrellus pipistrellus*) species of bat.



Photo 19 – Loft of gabled extension.



Photo 20 – Dropping on beam.



Photo 22 – End of the loft partially partitioned off.



Photo 21 – Droppings on beam.

The loft space within the **cottage** has a collar beam roof (see photo 23) with chip-board above the collar beams to the apex (see photo 24). The collar beams, rafters and tie beam are all timber. Due to lack of boarding the survey was carried out from the hatch with a torch. The roof membrane is a patch work of breathable and original fibre felt. The fibre glass insulation was between the tie beams and few cobwebs were seen. With the lights off access points into the loft space from the south-east aspect (see photo 25) could be seen. Small mammal droppings were found and of the four samples taken, two were within the measurement guidelines given for Common pipistrelle (*Pipistrellus pipistrellus*) (see photo 26). There were other mammalian dropping in the shed thought to be Scilly shrew (*Crocidura suaveolens*) and Brown rat (*Rattus norvegicus*) (see photos 27 and 28).



Photo 23 – Cottage loft space.



Photo 24 – Chipboard above collar beam.

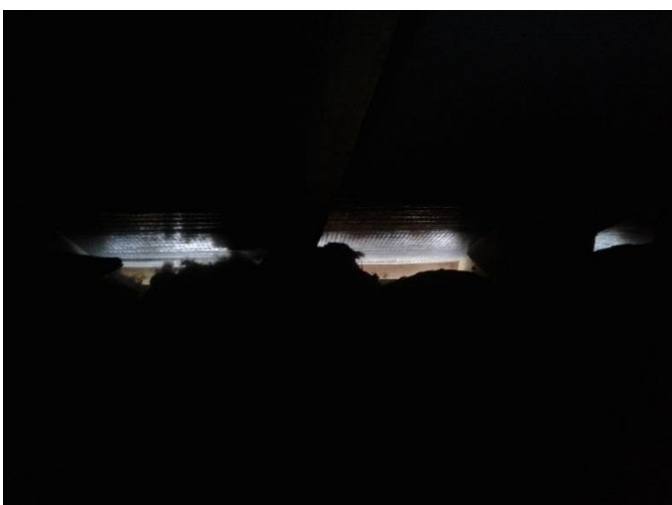


Photo 25 – Access points into loft space.



Photo 26 – Probable Common pipistrelle dropping.





Photo 27 – Small mammal droppings.



Photo 28 – Small mammal droppings.

The **small standalone shed** has obvious access to the interior of the structure through the wooden slats above the door (see photo 4). Small mammal droppings were found inside the shed thought to be Scilly shrew (*Crocidura suaveolens*) (see 29).

There are a number of features potentially suitable for roosting bats, including:

- Gaps below the cement fibre roof sheets and the back wall (see photo 30).
- Gaps above lintel in the roof (see photo 30).



Photo 29 - Small mammal droppings.



Photo 30 - Inside the small standalone shed.

## 4.0 Assessment and recommendations

### 4.1 Protected Sites

The proposed development falls into the SSSI Impact zones of Shipman Head and Shipman Down, Pool of Bryher, Rushy bay & Heathy Hill, Castle Down, Great Pool, Samson (with Green, White, Puffin and Stoney Islands), Norrard Rocks and Pentle Bay, Merrick & Round Islands. Impact zones are used in the assessment of planning applications for the likely impacts on SSSI's, Special Areas of Conservation (SAC), Special Protected Areas (SPA) and Ramsar sites (England). However, this development and its scale is not likely to impact on the surrounding SSSIs, the zones are important for large-scale residential developments.

### 4.2 Nesting Birds

All wild birds are protected under the Wildlife & Countryside Act 1981 (as amended). Section 1 of this Act makes it an offence to kill, injure or take away any wild bird, or intentionally to take, damage or destroy the nest of any wild bird while that nest is in use or being built.

During the survey evidence of nesting birds was found in the cottage and in the porch of the main house, therefore it is likely that the site hosts birds. Demolition of any structure should either take place outside the breeding season (March 1<sup>st</sup> to August 31<sup>st</sup>), or a thorough search of the structure should be made prior to the start of any demolition works to check that it is not being used by breeding birds. If breeding birds are found then all work must stop until the last bird has fledged and left the structure and the structure is no longer being used, so as not to contravene the Wildlife & Countryside Act 1981 (as amended).

## 5.0 Assessment and recommendations - bats

### 5.1 Survey constraints

The survey was undertaken at a suitable time of year for carrying out preliminary roost assessments. However, there were a number of areas where vegetation growing on structures hindered the ability to see what was underneath, potentially obscuring any real or potential roosting features. On the south-west aspect of the cottage (see photo 31) and on the Standalone small shed, a thick cover of Atlantic ivy is present obscuring the view of any potential roost features (see photo 4). Access was not possible at the south-east aspect of the cottage. Parts of the loft-space in the cottage and the loft in the gabled extension of the main house could not be surveyed for safety reasons (insufficient boarding). Part of the loft in the north-west end of the house, within the roof space of the gabled extension, was partitioned off and no access was possible (see photo 22). These limitations have been taken into consideration in the assessment and recommendations given below.





Photo 31 – Vegetation on south-west aspect.

## 5.2 Further Survey requirements

The value of the structures for bats is 'moderate' (see Table 1). This assessment is based on the occurrence of the following features within or immediately adjacent to the site:

- A number of features potentially suitable for use by roosting bats.
- Optimal foraging habitat nearby with good connectivity.
- Droppings found in two buildings indicate the possible presence of Common pipistrelle.

**To confirm whether or not bats use the structure further surveys would need to be carried out during the bats active season (see section 5.3).**

## 5.3 Presence or absence surveys

The Bat Conservation Trust's Bat Survey Guidelines<sup>1</sup> (referred to by Natural England in their advice to planning officers) states that buildings with 'moderate' bat suitability require two separate survey visits between May and September. These surveys should consist of one dusk emergence survey and a separate dawn re-entry survey, these two visits should be spaced at least two weeks apart.

The surveys should be undertaken in optimum weather conditions, so that to maximise the likelihood of recording bats, with dusk air temperatures exceeding 10<sup>0</sup>C and no rain or strong wind.

Dusk emergence surveys should start 15 minutes before sunset and finish 1.5-2 hours after sunset. Dawn re-entry surveys should start 1.5-2 hours before sunrise and end 15 minutes after sunrise.

Sufficient surveyors should be used on each survey so that all aspects of a building can be viewed at one time. Surveyors should be no more than 50m away from the structure with an awareness of the likely exit/entry points and potential roost locations. Each bat surveyor should be equipped with a bat detector and recording equipment and should count the bats in a defined area.

If no roosts are found during the presence or likely absence surveys then no further surveys would be required.

## 5.4 Mitigation

In order to comply with planning policy and wildlife legislation (both domestic and European) it will be necessary to ensure that following the development the “favourable conservation status” of bats will be maintained. This means that, where a roost will be lost, appropriate mitigation needs to be provided.

If a roost is found, a detailed roost characterisation survey would be required to establish how bats use the roost, the intensity of use and what features and characteristics of the roost and surroundings are important. The information gained would allow an accurate assessment of the potential impacts of the development on the bats and inform the requirement of a European Protected Species Mitigation licence, to be considered and issued by Natural England prior to the works commencing.

If roosts are found then a data search will be required to support the European Species Mitigation licence if an application is required. Information should be obtained in relation to bat roost sites or any sites of nature conservation importance designated for their bat interest within or near to the proposed development site. When requesting information a minimum search of 2km from the site should be applied.

## 6.0 Summary

The main house, the cottage and the small standalone shed each have a number of features that could potentially support roosting bats. With optimal foraging habitat close by including small hedged fields and mature shrubs providing good connectivity to outlying habitat.

To assess whether bats roost in any of the structures, two further surveys should be carried out; one dusk emergence and one separate dawn re-entry survey carried out between mid-May and September.

If bats are found in any of the structures, the status of the roost(s) will then need to be identified. Further surveys would then be required to inform a mitigation strategy which would need to be implemented. Other than bats, the building is likely to host birds in the breeding season and so will need to be considered in any mitigation strategy.

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