# ROOST CHARACTERISATION SURVEYS OF:

# MAINLAND MARKETING
# HIGH CROSS LANE
# ST MARY'S
# ISLES OF SCILLY
# TR21 0NG

*Client: Mr Keith Hale*

*Our reference: BS25-2020RCS*

*Report date: 24th July 2020*

*Author: Darren Mason BSc (Hons).*

*Report peer reviewed: Sarah Mason.*

*Report signed off: Sarah Mason.*

***REPORT ISSUED IN ELECTRONIC FORMAT ONLY***

**This page is intentionally blank**

# Contents

## Non-Technical Summary

- On 20th March 2020, the Isles of Scilly Wildlife Trust (IoSWT) conducted a Preliminary Ecological Appraisal (PEA) and Preliminary Roost Assessment (PRA) of Mainland Marketing Ltd, High Cross Lane, Old Town, St Mary's, Isles of Scilly, TR21 0NG (BS25-2019), to help inform the determination of planning application P/20/009. The survey concluded that the building had 'moderate' potential to support roosting bats.
- DNA analysis of droppings found within the development confirmed the presence of Common Pipistrelle.
- Three presence/absence surveys were recommended, and the results of these surveys are outlined in this roost characterisation survey report.
- An external dusk survey conducted on 19th May did not identify any bats emerging from roosting sites associated with the building. A subsequent internal dusk survey conducted on the 20th May identified 2 roosts at the eastern end of the southern elevation and a single roost exit at the apex of the gable end of the east elevation used by Soprano Pipistrelle.
- A dawn re-entry survey conducted on the 25th June identified 2 Common Pipistrelle returning to roost. The first at the apex of the western gable end of the barn. The second above the first-floor window on the eastern elevation of the barn overlooking the courtyard area. Inspection internally around these entry points confirmed the roost sites.
- The second dusk emerge survey conducted on the 23rd July re-affirmed the roost entrances/exits previously used by the same number of bats
- The results of the surveys confirm the presence of a non-breeding summer roost of Common and Soprano Pipistrelle bats within the barn at Mainland Marketing.
- An impact assessment identified that the proposed works would not result in the destruction of these roosts, but temporary disturbance is likely if appropriate measures are not taken to protect these species
- It is considered that appropriate mitigation measures can be put in place to ensure that the proposed works can proceed without negatively impacting on the Favourable Conservation Status (FCS) of both Common and Soprano Pipistrelle on St Mary's in the long-term. If minded to approve permission, it is recommended that the Decision Notice includes a compliance condition that works should proceed in accordance with the mitigation measures outlined.
- The recommendations are that no further surveys or a European Protected Species Mitigation License (EPSML) are required
- Mitigation measures recommended include the appropriate timing of works, the provision of further roosting sites and ecological oversight of works.

# 1.0 Introduction

## 1.1 Background

The Isles of Scilly Wildlife Trust (IoSWT) was commissioned by Mr. Keith Hale to undertake a Preliminary Ecological Appraisal (PEA) and Preliminary Roost Assessment (PRA) of Mainland Marketing Ltd, High Cross Lane, Old Town, St Mary's, Isles of Scilly, TR21 0NG (BS25-2019). The report identified that the building under consideration provided 'moderate' roosting potential for bats. DNA analysis of droppings found within the barn confirmed the presence of Common Pipistrelle. Additional presence/absence surveys (roost characterisation surveys) were recommended to meet best practice guidance to support a planning application. This report outlines the results of these additional surveys.

## 1.2 Survey Objectives

The objectives of this Roost Characterisation Survey (RCS) report, are to provide further ecological information to help inform an impact assessment and mitigation strategy for the proposed development activity and to support the planning proposal:

- To identify how many bats the roost supports
- To identify the location of the(se) bat roost(s)
- To identify entry/exit points to the roost(s) and entry/exit points to and from the building
- To identify the type of bat roost (i.e. what it is used for)
- To assess the surrounding vegetation and lighting in relation to the entry/exit points and how bats use the habitat surrounding the development
- Subjecting this information (and the information from the PEA and PRA) to an evaluation and impact assessment
- To provide advice on the potential for contravention of legislation/policy
- To provide recommendations on any further actions needed (i.e. further surveys, licensing, mitigation, or enhancement)

## 1.3 Surveyor details

The survey was undertaken by Darren Mason BSc (Hons) of the Isles of Scilly Wildlife Trust and with the assistance of Rob Carrier and Rhianna Pearce. Darren has undertaken professional Bat Licence Training and a Natural England WML-A34-Level 2 (Class 2 License); registration number: 2020-46277-CLS-CLS which permits him to survey bats using artificial light, endoscopes, hand, and hand-held static nets.

# 2.0 Methodology

## 2.1 External Dusk emergence and Dawn re-entry surveys

The objective of the dusk emergence surveys was to detect active bat use of the site and identify any exit locations being used around the building. Survey effort was concentrated on areas of the site where suitable features or bat field signs were noted from the PRA. The survey involved;

- The survey timings accord with best practice guidance, with dusk surveys commencing 15 minutes before sunset and continuing for approximately 1.5-2hours after[1]. Dawn re-entry surveys commenced 1.5 hours before sunrise and continued until 15 minutes after sunrise[1];
- commenced
- Identification of further bat species primarily through the use of ultrasound characteristics. To aid identification flight and habitat characteristics were also noted (where possible) to determine the species.
- The surveys were designed with sufficient surveyors appropriately positioned to ensure that all potential access points to the building could be observed simultaneously.
- The use of a night vision camera assisted in Identifying how bats may use the surrounding habitat
- The surveys also identify the number of bats leaving or entering the building

## 2.2 Internal survey inspections and static bat detector survey

The objective of further internal survey inspections and a static bat detector survey was to identify or confirm roost(s) locations within the development; to establish the material the roost is constructed of; to establish how bats used the internal space of the building prior to emergence and to ascertain the variability in bat activity during periods when surveyors aren't present The surveys involved;

- Starting the survey 15 minutes before sunset and continuing for approximately 1 hour, until 10 minutes elapsed between the last recorded bat leaving/returning to their roost location.
- Observation of bats utilizing entry/exit location points
- Observation of bats leaving or returning to roost locations within the building
- Observation of how bats used the building prior to emergence
- Searching for further evidence i.e. fresh droppings and/or bats
- Analysis of static bat detector data to establish other species of bat that utilizes the building
- Analysis of static bat detector data to establish the frequency of use and the times it is being used to determine the type of roost

## 2.3 Equipment

The following equipment was used for the dusk emergence, dawn re-entry and internal surveys at the site:

- Anabat Express (Frequency Division) static bat recorder
- Elekon Batscanner Stereo Hetereodyne
- Elekon Batscanner Heterodyne
- Magenta Bat 4 Bat Detector
- Bestguarder WG-50 Night vision camera
- Cluson ML-7 LED torch
- EasyLog USB temperature and humidity recorder

Sound recordings were analysed using Anabat Insight software Version 1.9.2.0

## 2.4 Survey Limitations

Surveys carried out during a specific season can only provide information on bat presence at that particular time, as bats are highly mobile in nature and may only use buildings at certain times of the year that favour a particular part of their roosting, maternity and hibernating requirements.

# 3.0 Results

## 3.1 Survey weather conditions, temperature, timings and surveyor locations

| Survey Information: | Start and End Times: | Conditions (Start): | Conditions (End): |
|---|---|---|---|
| **1st Dusk emergence (external):** 20/5/20 | Start: 20:54<br>Sunset: 21:11<br>End: 22:41 | Temp: 14$^0$C<br>Humidity: 75%<br>Wind speed: 14mph - W<br>Cloud cover: 95%<br>Rain: none | Temp: 12$^0$C<br>Humidity: 87%<br>Wind speed: 12mph - WNW<br>Cloud cover: 95%<br>Rain: none |
| | **Surveyors** | | |
| | 1. NV Camera<br>2. Darren Mason<br>3. Rob Carrier<br>4. Rhianna Pearce | Notes: Light level at Lux 2: 21:40 | |

*Table 1. Site conditions for 1st dusk emergence survey (external) 20-5-20*

| Survey Information: | Start and End Times: | Conditions (Start): | Conditions (End): |
|---|---|---|---|
| **1st Dusk emergence (internal):** 21/5/20 | Start: 20:53<br>Sunset: 21:12<br>End: 22:05 | Temp: 12$^0$C<br>Humidity: 75%<br>Wind speed: 30mph – n/a<br>Cloud cover: n/a<br>Rain: n/a | Temp: 12$^0$C<br>Humidity: 87%<br>Wind speed: n/a<br>Cloud cover: n/a<br>Rain: n/a |
| | **Surveyors** | | |
| | Darren mason | Notes: Light level at Lux 2: 21:35 | |

*Table 2. Site conditions for 1st dusk emergence survey (internal) 21-5-20*

| Survey Information: | Start and End Times: | Conditions (Start): | Conditions (End): |
|---|---|---|---|
| **1st dawn re-entry (external and internal):** 25/6/20 | Start: 03:45am<br>Sunrise: 05:16am<br>End: 05:30am | Temp: 14$^0$C<br>Humidity: 81.5%<br>Wind speed: 6mph NE<br>Cloud cover: 0%<br>Rain: none | Temp: 13.5$^0$C<br>Humidity: 94%<br>Wind speed: 5mph NE<br>Cloud cover: 0%<br>Rain: none |
| | **Surveyors** | | |
| | 1. Darren Mason<br>2. NV Camera<br>3. Rob Carrier<br>4. Rhianna Pearce | Notes: Light level at Lux 2: 05:05am | |

*Table 3. Site conditions for 1st dawn re-entry survey (external) 25-6-20*

| Survey Information: | Start and End Times: | Conditions (Start): | Conditions (End): |
|---|---|---|---|
| **2nd Dusk emergence (external):** 23/7/20 | Start: 20:54<br>Sunset: 21:11<br>End: 22:41 | Temp: 14$^0$C<br>Humidity: 75%<br>Wind speed: 14mph - W<br>Cloud cover: 95%<br>Rain: none | Temp: 12$^0$C<br>Humidity: 87%<br>Wind speed: 12mph - WNW<br>Cloud cover: 95%<br>Rain: none |
| | **Surveyors** | | |
| | 1. NV Camera<br>2. Darren Mason<br>3. Rob Carrier<br>4. Rhianna Pearce | Notes: Light level at Lux 2: 21:40 | |

*Table 4. Site conditions for the 2nd dusk emergence survey (external) 23-7-20*


*Figure 1. Surveyor locations for all survey visits (20/5/20; 25/6/20 and 23/7/20)*

## 3.2 Findings during the Roost Characterisation Surveys

### 3.2.1 Dusk and Dawn internal and external surveys

The species confirmed during the 2 dusk emergence and single dawn re-entry surveys were Common pipistrelle (*Pipistrellus pipistrellus*) and Soprano pipistrelle (*Pipistrellus pygmaeus*) along with several *pipistrellus* calls that could not be assigned to either species (due to the frequency overlaps of their calls). Activity during both dusk emergence surveys was dominated by feeding behaviour, particularly along the southern aspect of the development, in and around the courtyard area and between the hedge-banks that line the access road to the south. This behaviour was typically the first bat call/contact noted by surveyors 3 and 4 and began within 20 minutes of sunset and lasting between 10 to 15 minutes before the bat(s) moved on. This behaviour was then recorded very intermittently during the remaining time of each survey, with commuting behaviour (noted by the type of call) becoming more frequent. In contrast, commuting behaviour was more apparent during the dawn re-entry survey, with feeding behaviour limited to observations of both Common and Soprano pipistrelle foraging along the length of the Elm hedgerow to the north of the development by surveyor 1 (for routes taken during the external activity surveys see Figure 3.). In total 35+14 and 53 bat contacts were made during these external activity surveys, the majority associated with feeding behaviour during the dusk emergence surveys south and west of the development, with limited feeding activity observed in the location of the proposed works (see Figure 3.).

*Photo 1. First entrance/exit location from the building on eastern gable end*

No bats were seen leaving or entering the building during the first external dusk emergence survey, but 'swarming' behaviour was noted during the dawn re-entry survey by surveyor 3 and 4, resulting in the confirmation of 2 locations where bats were entering the barn. The first was located at the apex of the western gable end of the barn, the second above the 1st floor windows on the eastern elevation overlooking the courtyard area (see photo 1.). In both instances the bats used the gap created between the soffit board and the 'miss' section of the 'hit and miss cladding of the barn to gain access into the building. The species confirmed entering the building at both these locations were Common Pipistrelle.

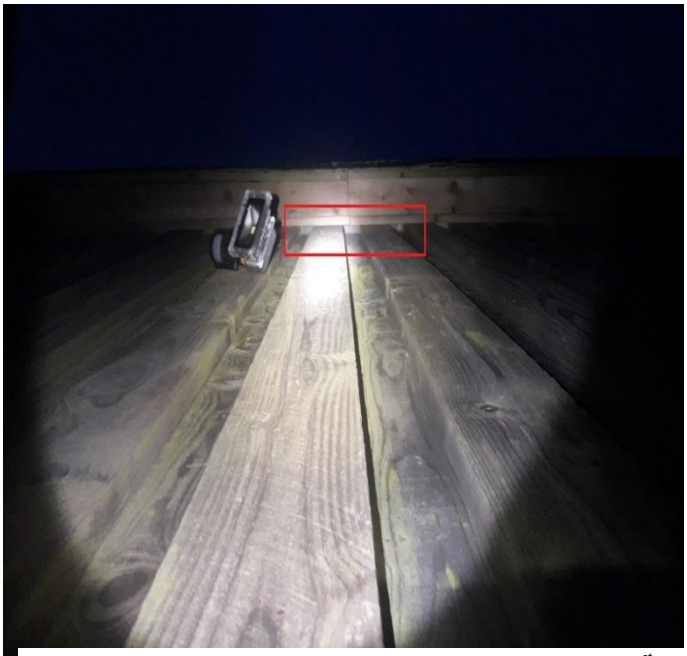

*Photo 2. Second entrance/ exit location from the building above 1st floor windows overlooking courtyard area*

*Photo 3. Location of 2 roosts above ground floor south-facing windows in south-east corner*

A further location used by bats for entering and leaving the building was established during the internal dusk emergence survey. Here the bats exited over the apex of the gable end rafter of the far eastern elevation of the building. Viewed externally (see photo 2), the bats again took advantage of the gap created between the soffit board and the 'miss' section of the cladding. During the internal dusk emergence survey, the species confirmed using this exit from the building were Soprano Pipistrelle. For all entrance/exit locations used see Figure 2.

All three exits were re-affirmed during the 2nd dusk emergence survey with surveyor 2 recording one Common Pipistrelle and one Soprano Pipistrelle exiting from the eastern gable end of the building, surveyor 3 recording a single Common Pipistrelle exiting the western gable end of the development and surveyor 4

noting a single Common Pipistrelle exiting the building above the 1st floor windows of the eastern elevation overlooking the courtyard area.

### 3.2.2 Internal Inspections

Two internal inspections were made to establish where the internal roosts were located, the materials used for the roost and how the bats used the internal space of the barn. The first two roosts were located between the gaps created between the wooden 'miss' sections of the cladding and the horizontal load bearing beam on the short southern elevation overlooking the courtyard area (see photo 3) on the evening of the internal dusk emergence survey. Both were occupied by single bats, which were observed feeding within the interior of the barn prior to and after dusk, before returning to these roost locations.

*Photo 4. Evidence of dropping on lintel below 1st floor roost*

Two further roosts were located after the dawn re-entry survey after inspection of the general area where the bats were seen entering the building. The first (above the 1st floor windows on the short eastern elevation) was located in the gap created between the 'miss' section of the cladding and roof rafter (south-facing rafter), in the exact location where the bat had been seen entering the building . Examination of the lintel above the 1st floor window revealed fresh droppings (see photo 4.) confirming the roost location. The fourth roost was located not far from the entrance at the western gable end, in a crevice between the roof rafter (south-facing) and its central brace (see photo 5.) Fresh droppings could be seen caught in cobwebs below the crevice entrance and examination by

*Photo 5. roost location at western gable end*

endoscope revealed fresh droppings just inside this entrance and a single bat much deeper in the cavity. The internal inspections also revealed that bats were using the internal space of the barn to feed before exiting the roost, or to feed before returning to their roosts. During these inspections the bats were seen flying in a figure of eight pattern from the south-eastern corner to the north-west corner at an approximate height of 3m, before turning to the south-west corner up and over the mezzanine at approximately 5m height, before heading back to the north-east corner.

During the month of June analysis of the static bat recorder revealed that bat(s) emerged from their roost(s) on average 21 minutes after dusk (ranging between 4 minutes prior to dusk to 58 minutes after) and fed within the barn for up to an hour on many occasions before presumably leaving the barn or returning to their roost. Feeding activity was then recorded intermittently throughout the rest of each night within the barn. Analysis also revealed that bat(s) returned on average to their roost(s) 44 minutes prior to dawn (ranging between 14 minutes and 198 minutes), suggesting the barn is being utilised as both a night and day roost. These activities were recorded for 28 nights during June, by both Common and Soprano Pipistrelle. The latter recorded 20 out of 29 days returning at dawn (See Appendix 2 for timings). Throughout the month activity (as recorded by the number of times the static bat detector was triggered) levels from both Common and Soprano Pipistrelle increased as June progressed, but particularly during the latter half of the month.

### 3.3 Summary

The combined survey results have shown the barn at Mainland Marketing supports a day and night roost for at least 3 Common Pipistrelle and 2 Soprano Pipistrelle bat, most likely as a summer roost, used by males and non-breeding females.

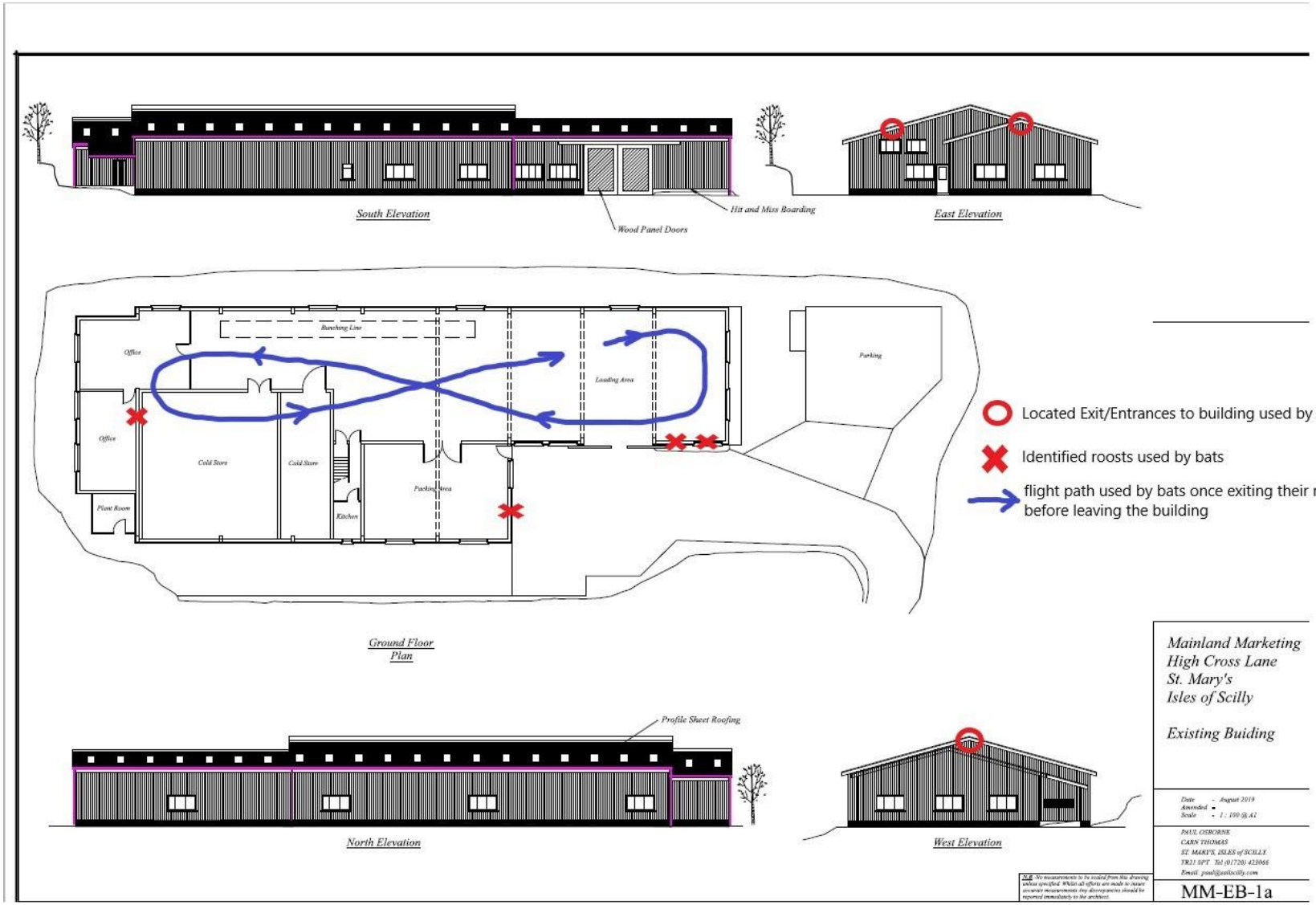


*Figure 2. Entrances and exits from the building, roost locations and internal flight path behaviour during roost characterisation surveys*

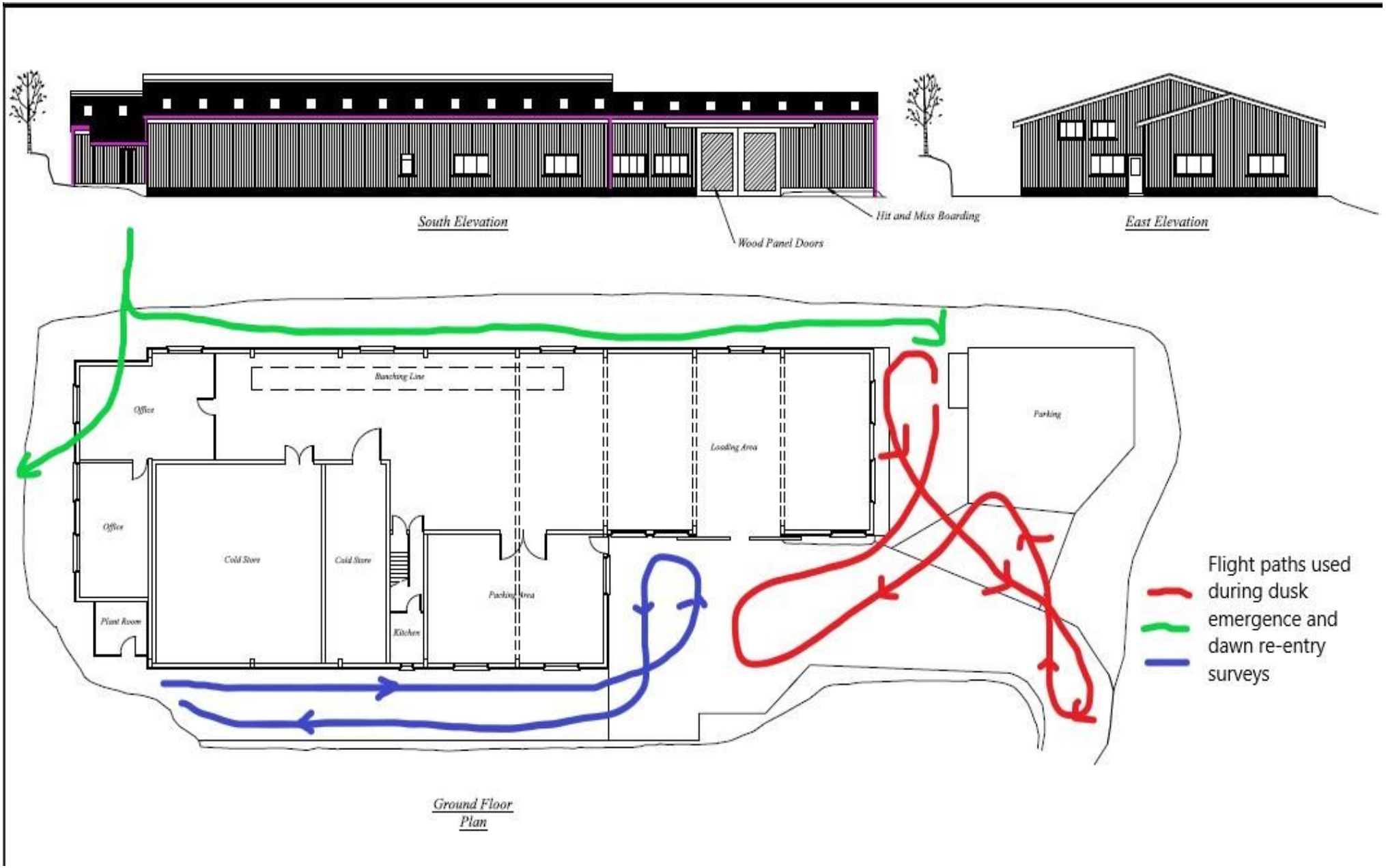


*Figure 3. External flight path behaviour during roost characterisation surveys*

## 4. Evaluation of Results

To identify which ecological features are important and which could potentially be affected by the proposed project, an evaluation of their importance for example in a geographical context, degree of scarcity or level of protected status needs to be undertaken[2]. The table below outlines those features identified as important, the nature conservation legislation relevant to those features and an assessment of the level of impact from the proposed development on those features.

| Ecological Feature | Relevant Legislation | Evaluation (of importance) | Mitigation Hierarchy | Impact Level |
|---|---|---|---|---|
| | | | | |
| Bats | CHSR, W&CA & NPPF | Local | A, M, E | Low/Medium |
| | **Status** – both Common and Soprano Pipistrelle have seen an increase in their population size since 1999[3] and are deemed to be *common* and widespread.<br>**Value –** Taking the small number of non-breeding bats and their status, the value of the building for roosting bats is determined to be of 'Local' importance[4].<br>**Impact to roost sites:** The proposed works would not lead to the permanent destruction of the roost sites identified; the works would not block or obstruct the roost entrances/exits into and out of the building or alter the bats flight paths to and from these locations.<br>**Impacts to bats:** The proposed works could result in short-term disturbance to bats due to increased human presence at the site, extra noise and a change in environmental conditions during the demolition phase and increased human presence and extra noise during the construction phase. Short-term disturbance is not likely to negatively affect the Favourable Conservation Status (FCS) of Common and Soprano Pipistrelle on St Mary's, Isles of Scilly and potential disturbances could be adequately mitigated for. Long-term positive impact could be achieved by creating new roost entrances/exits and roost sites within the area of the proposed works[5].<br>However please note a summary of criminal offences with respect to bats and their roosts (see Appendix C regarding legislation) | | | |
| Key to Legislation and Mitigation Hierarchy | | | | |
| CHSR – Conservation of Habitats and Species Regulations 2017[6] - http://www.legislation.gov.uk/uksi/2017/1012/made<br>W&CA – Wildlife & Countryside Act 1981 (as amended)[7] - http://www.legislation.gov.uk/ukpga/1981/69/contents<br>NPPF – National Planning Policy Framework 2019[8] - https://www.gov.uk/government/publications/national-planning-policy-framework--2<br>**A** – Avoid, **M** – Mitigate, E – Enhancement | | | | |

*Table 5. Evaluation of the ecological features affected by the development*

# 5. Recommendations and Mitigation

The recommendations in this section are provided as information only and specialist legal advice may be required. If works are delayed for more than one year, then re-assessment may be required.

## 5.1 Further survey requirements

No further surveys are recommended with regards to the proposed development. It is considered that this report, alongside the PRA produced separately, constitute a comprehensive ecological baseline from which to assess the impacts of this application.

## 5.2 EPS Licence requirement

For any development that is reasonably likely to commit an offence (or offences) under Regulation 41 of the Conservation of Species and Habitats Regulations (CHSR) 2017 in respect to a European Protected Species (EPS) i.e. bat a Mitigation license (EPSML) licence will be required. In this instance it is considered that the proposed activity is **reasonably unlikely** to result in an offence under Regulation 41 of CHSR, therefore **no EPSML will be required**. If, in the unlikely event a bat was found during the demolition phase of the project, Reasonable Avoidance Measures (RAM) must be following and will determine any further action, such as licensing if necessary.

## 5.3 Planning Recommendation(s)

The information gathered in the PRA (BS25-2020) and this report is sufficient to support a planning application with regards to protected species in accordance with relevant best practice guidelines. It is considered that the impacts of the proposed works on protected species can be mitigated sufficiently to ensure that the Favourable Conservation Status (FCS) of Common and Soprano Pipistrelle on St Mary's is not negatively impacted. The mitigation outlined in Section 5.5 would represent appropriate measures.

If minded to do so, it is recommended that planning permission be granted if compliance with the recommendations in Section 5.4 of this report is conditioned.

## 5.4 Mitigation Proposals (Outline)

### Timing of works (Avoidance)

No significant constraints on timing of works are considered necessary due to the status of the roost as a non-breeding summer roost used by a small number of common species of bat. However, the months of

November to February should be avoided where possible as this is when bats enter a time of reduced activity or torpor which makes disturbance impacts more significant.

### Ecological Oversight

The controlled part of the demolition may expose potential roosting sites of bats, during demolition these structures would need to be removed by hand and with care under the supervision and direction of a licensed bat worker. Structures on the identified building which would potentially need to be removed under supervision of a licensed bat worker would include:

- A limited number of 'hit and miss sections of boarding, particularly the sections at the western and eastern ends of the existing building (where the new rafters are to be placed).

Once the above features have been removed or inspected and the licensed bat worker is satisfied that all potential roosting sites have been exposed, then works can proceed under distant supervision.

During the construction phase some parts of the planned work has the potential to disturb bats at 2 existing roost sites. These structures would need to be first inspected by a licensed bat worker for bats, prior to works commencing. Structures/work on the identified building which would potentially need to be inspected prior to work commencing would include:

- The attachment of the new roof rafters to the existing buildings structure at the western gable end and the eastern gable section above the 1st floor window (overlooking the courtyard).

Once the above features have been inspected and the licensed bat worker is satisfied that roosting bats are not present the works can proceed.

If a bat were found to be present during works' it would be captured by the licensed bat worker in a gloved hand and placed elsewhere in the building near to other roost sites (away from the proposed development), or allowed to disperse of its own accord.

The full scope of the supervision works would be agreed by all relevant parties to ensure the above objectives are met.

## Other avoidance measures

i. Ensure all workers on site (including sub-contractors) are made familiar with bat legislation and agree to work in accordance with and fully follow best practice measures.

ii. Carry out prior to demolition of the remaining areas carrying out careful checks of any cracks/crevices and cavities in or on the building. Signs of usage include bat droppings, dis-colouration or polishing of access points where bats rub against them, urine stains and a lack of cobwebs, particularly if other crevices around them have plenty.

iii. Individual bats may be found in/under; cladding, between timber boards, between corrugated sheeting, in soffit boxes, behind lead flashing and sometimes just clinging to timber beams around joins as well as other areas. When any of these are removed, please do so carefully, lifting outwardly, and checking for bats continually. If in doubt, consult the licensed bat worker.

iv. Try to minimise any dust generated from demolition works from entering the building and limit the amount of internal/external lighting during works.

v. In the unlikely event that a bat is found when supervision by the bat worker is complete please see below:

1. At no point should a worker handle a bat. Untrained handling may cause undue stress and injury to the bat, and if bitten may expose the worker to rabies-related European Bat Lyssavirus
2. Where possible replace any covering without damaging the bat, then halt works and contact **Natural England** (Tel: 0845 601 4523), or the **Bat Conservation Trust Helpline (**0845 1300 228), or **IoSWT** (01720 422153) for advice.
3. Any bats that go to ground should be covered with a box and left alone until a licensed bat worker arrives to assess the condition of the bat
4. If the bat attempts to fly at any point allow it to do so. Preventing natural behavior will cause unnecessary stress and may cause injury. Attempt to see where bat goes. If the bat returns to the building, halt works and report the escaped bat to the local bat worker

## Ecological Enhancement

Opportunities for the provision of additional roosting features have been discussed with the occupier and incorporated into the structure of the new building where practicable. For example:

- The inclusion of a new roost exit/entrance created towards the apex of the new roof by leaving one 'miss' section of boarding 25mm lower that the roof rafter. To minimise entry by birds the inclusion of a soffit board externally would cover this gap.
- The incorporation of potential new roost sites internally by installing 6" x 2" tanalised timber soffit boards along the southern interior wall at the height of the eaves and over the 'hit and miss section of boarding, creating a gap behind the soffit board and the 'miss' sections of the building construction.

As the Isles of Scilly has the most southern population of Common Pipistrelle in the UK and Soprano Pipistrelle has been identified as a Regulation 41 priority species (BAP species), enhancement measures such as those mentioned above could help to improve the long-term conservation status of these species. These measures may also help the Local Planning Authority which has a statutory obligation under Part 3 Section 40 of the Natural Environment & Rural Communities Act 2006[9] (NERC 2006) to have due regard for biodiversity when carrying out their functions and under Section 15 paragraph 170(d) of the NPPF 2019[8], all planning policies and decisions shall contribute to and enhance the natural and local environment by providing net gains in biodiversity.

## Monitoring

Due to the scale of impact identified no post-completion monitoring of the mitigation measures would be necessary.

## 6. Bibliography


1. Collins, J. (ed.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edition). The Bat Conservation Trust

2. CIEEM. (2016). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal* (2nd edition). Chartered Institute of Ecology and Environmental Management, Winchester.

3. BCT. (2020). National Bat Monitoring Programme Annual Report 2019. Bat Conservation Trust, London

4. Wray, S., Wells, D., Long, E. and Mitchell-Jones, T. (2010). *Valuing Bats in Ecological Impact Assessment.* In Practice 70: pp23-25. Chartered Institute for Ecology and Environmental Managers (CIEEM).

5. Mitchell-Jones, A.J. (2004). *Bat mitigation guidelines*. English Nature.

6. H.M.S.O. (2017). *The Conservation of Habitats and Species Regulations.* London.

7. H.M.S.O. (1981). *The Wildlife and Countryside Act 1981* (as amended). London.

8. Ministry of Housing, Communities & Local Government. (2019). *National Planning Policy Framework*. OGL

9. H.M.S.O. (2006). *The Natural Environment and Rural Communities Act 2006*. London

# APPENDIX A – BAT CONTACTS SURVEY TABLES

| Date: | 20/5/20 – 1st Dusk emergence survey (external) | | | |
|---|---|---|---|---|
| **Survey Type:** | **Surveyor 2** | **Night vision camera** | **Surveyor 3** | **Surveyor 4** |
| **Location:** | All unseen | No contacts recorded | S to N, S to N, S to N, unseen, unseen, unseen, | Unseen, unseen, unseen, unseen, N to S, E-W, N to S, N to S, N to S, N to S, unseen, unseen, unseen, N to S, N to S, unseen, unseen, unseen, unseen, unseen, unseen, N to S |
| **Exit/Entry point:** | None recorded | None | None recorded | None recorded |
| | | | | |
| **Time(s):** | 21:31; 21:50; 21:51; 22:11; 22:12; 22:13; 22:15; 22:19; 22:20; 22:25; 22:30; 22:32 & 22:33 | | 21:33 (x4); 21:35 (x4); 21:40 (x6); 22:29; 22:32 and 22:36 | 21:23; 21:25 (x2); 21:26; 21:32; **21:35**; 21:36; 21:37; 21:39; 21:41; 21:42 (x 2); 21:47; 21:48; **21:50**; **21:51** (x2); **22:12**; **22:13**; **22:15**; **22:19**; 22:23; 22:31; **22:32**; **22:33** (x3); **22:36** and 22:37 |
| **Species of bat:** | Common pipistrelle and unidentified pipistrelle | None recorded | Common pipistrelle | Common pipistrelle |
| **Roost present:** | None confirmed | None confirmed | None confirmed | None confirmed |

*Table 6. 1st Dusk emergence survey results 20-5-20*

| Date: | 21/5/20 |
|---|---|
| **Survey Type:** | **1st Dusk emergence survey (internal)** |
| **Location:** | Circling barn in a broad figure of 8 pattern; seen dropping from eaves above window in south-east corner; left barn via east gable end; return to roost above windows in south east corner |
| **Exit/Entry point:** | Exit – Eastern gable apex of barn<br>Roosts – two above windows on southern elevation of courtyard |
| | |
| **Time(s):** | 21:08; 21;12; 21:54 and 21:57 |
| **Species of bat:** | Unidentified Pipistrelle |
| **Roost present:** | Confirmed x 2 |

*Table 7. Internal dusk emergence survey results 21-5-20*

| Date: | 25/6/20 - 1st Dawn re-entry survey | | | |
|---|---|---|---|---|
| **Survey Type:** | **Surveyor 1** | **Night Vision camera** | **Surveyor 3** | **Surveyor 4** |
| **Location:** | Unseen; Unseen; N to S; W to E; Unseen; N to S before moving W to E | No contacts recorded | Unseen; around trees at south end of building; unseen; south end of building; south end of building; south end of building; circling apex of gable end | Unseen; Unseen; circling courtyard; Unseen; Unseen; circling courtyard; circling courtyard |
| **Exit/Entry point:** | None | None | Apex of western gable end of two-storey barn | Above 1st floor left hand window |
| | | | | |
| **Time(s):** | 04:13; 04:18; 04:21; **04:24**; 04:26 and **04:30** | No contacts recorded | **04:10**; **04:15**; 04:22; 04:25; **04:30**; 04:32 and 04:40 | **04:10**; **04:15**; 04:24; 04:29; 04:30; 04:33 and 04:34 |
| **Species of bat:** | Soprano Pipistrelle and Common Pipistrelle | None recorded | Common Pipistrelle | Common Pipistrelle |
| **Roost present:** | None confirmed | None confirmed | Confirmed | Confirmed |

*Table 8. Dawn re-entry survey results 25-6-20*

| Date: | 23 /7/20 – 2nd Dusk emergence survey | | | |
|---|---|---|---|---|
| **Survey Type:** | **Surveyor 2** | **Night Vision camera** | **Surveyor 3** | **Surveyor 4** |
| **Location:** | Exit from east gable end of main building x 2; S to W; unseen; unseen; unseen; W to E (fbz); unseen (fbz); unseen; unseen; unseen (fbz); unseen; unseen; unseen (fbz); unseen; unseen; unseen and unseen | | Exit from western gable end of main building; unseen; unseen; unseen; N to S; unseen; unseen; unseen; unseen; unseen; unseen; unseen; unseen; unseen; unseen; unseen; unseen; unseen; unseen; unseen; unseen; unseen and unseen | Exist from 1st floor left hand window; N to S; courtyard; N to S to N; courtyard; courtyard; unseen; W to E; unseen; unseen; W to E; unseen; unseen; unseen; unseen; unseen and unseen; |
| **Exit/Entry point:** | Eastern gable end | None | Western gable end | Above 1st floor left hand window of eastern elevation overlooking courtyard area |
| | | | | |
| **Time(s):** | 21:31; 21:44; **21:52; 21:55**; 22:01; **22:02**; 22:03; 22:04; 22:06; 22:08; 22:10; 22:11; 22:12; 22:13; **22:15**; **22:22**; 22:23; 22:28; **22:33** and 22:38 | No contacts recorded | 21:40; 21:48; **21:50**; 21:51; **21:52**; **21:55**; **22:00**; **22:02**; 22:04; 22:06; 22:08; **22:09**; 22:11; 22:12; **22:13**; 22:14; **22:15**; 22:16; 22:17: 22:18: **22:19**: 22:20; 22:21; **22:22**; 22:23: 22:24; 22:25; 22:27; **22;33**; 22:37 and 22:39 | 21:43; 21:45; **21:50**; **21:52**; **21:55**; **22:00**; **22:02**; 22:03; 22:05; 22:07; **22:09**; **22:13**; **22:15**; **22:19**; **22:22**; 22:26; **22:33**; 22:36 and 22:38 |
| **Species of bat:** | Common and Soprano Pipistrelle | None recorded | Common Pipistrelle | Common Pipistrelle |
| **Roost present:** | Re-affirmed | None confirmed | Re-affirmed | Re-affirmed |

*Table 8. 2nd Dusk emergence survey results 23-7-20 (fbz) – feeding buzz*

# APPENDIX B – ROOST USE DURING JUNE 2020

| Date | Sunset | First bat call | 1st call (Minutes) after sunset | Sunrise | Last bat call | Last call (Minutes) before sunrise | Used during the night | Likely Type of Roost |
|---|---|---|---|---|---|---|---|---|
| **Week/b 1-6-20** | | | | | | | | |
| 1-6-20 to 2-6-20 | 21:25pm | 21:48pm | 23 | 05:20am | 04:45am | 35 minutes | Y | Night + Day roost |
| 2-6 to 3-6 | 21:26 | 21:50 | 24 | 05:19 | 04:53 | 26 | Y | Night + Day roost |
| 3-6 to 4-6 | 21:27 | 22:01 | 34 | 05:18 | 04:50 | 28 | Y | Night + Day roost |
| 4-6 to 5-6 | 21:28 | 21:42 | 14 | 05:18 | 04:39 | 37 | Y | Night + Day roost |
| 5-6 to 6-6 | 21:29 | 21:59 | 30 | 05:17 | 23:24 | 353 | Y | Night roost only? |
| 6-6 to 7-6 | 21:30 | 22:06 | 36 | 05:17 | 04:48 | 29 | Y | Night + Day roost |
| 7-6 to 8-6 | 21:31 | 21:46 | 15 | 05:17 | 04:33 | 44 | Y | Night + Day roost |
| **Week/b 8-6-20** | | | | | | | | |
| 8-6-20 to 9-6-20 | 21:31pm | 21:42pm | 11 minutes | 05:16am | 04:49am | 27 minutes | Y | Night + Day roost |
| 9-6 to 10-6 | 21:32 | 21:58 | 26 | 05:16 | 03:40 | 96 | Y | Night + Day roost |
| 10-6 to 11-6 | 21:33 | 22:31 | 58 | 05:16 | 04:31 | 45 | Y | Night + Day roost |
| 11-6 to 12-6 | 21:33 | 22:08 | 35 | 05:15 | 04:34 | 41 | Y | Night + Day roost |
| 12-6 to 13-6 | 21:34 | 21:55 | 22 | 05:15 | 04:39 | 34 | Y | Night + Day roost |
| 13-6 to 14-6 | 21:35 | 21:47 | 12 | 05:15 | 04:46 | 29 | Y | Night + Day roost |
| 14-6 to 15-6 | 21:35 | 22:13 | 38 | 05:15 | 04:37 | 38 | Y | Night + Day roost |

*Table 9. Roost use data for first two week during June 2020*

| Date | Sunset | First bat call | 1st call (Minutes) after sunset | Sunrise | Last bat call | Last call (Minutes) before sunrise | Used during the night | Likely Type of Roost |
|---|---|---|---|---|---|---|---|---|
| **Week/b 15-6-20** | | | | | | | | |
| 15-6-20 to 16-6-20 | 21:36 | 22:05pm | 29 minutes | 05:15am | 04:49am | 26 minutes | Y | Night + Day roost |
| 16-6 to 17-6 | 21:36 | 21:52 | 16 | 05:15 | 04:52 | 23 | Y | Night + Day roost |
| 17-6 to 18-6 | 21:36 | 21:49 | 13 | 05:15 | 04:52 | 23 | Y | Night + Day roost |
| 18-6 to 19-6 | 21:37 | 22:02 | 25 | 05:15 | 04:51 | 24 | Y | Night + Day roost |
| 19-6 to 20-6 | 21:37 | 21:39 | 2 | 05:16 | 04:33 | 43 | Y | Night + Day roost |
| 20-6 to 21-6 | 21:37 | 22:02 | 19 | 05:16 | 04:46 | 30 | Y | Night + Day roost |
| 21-6 to 22-6 | 21:37 | 21:49 | 12 | 05:16 | 04:43 | 43 | Y | Night + Day roost |
| **Week/b 22-6-20** | | | | | | | | |
| 22-6-20 to 23-6-20 | 21:37 | 21:38pm | 1 minute | 05:16am | 05:02am | 14 minutes | Y | Night + Day roost |
| 23-6 to 24-6 | 21:38 | 21:46 | 8 | 05:17 | 04:44 | 33 | Y | Night + Day roost |
| 24-6 to 25-6 | 21:38 | 21:59 | 21 | 05:17 | 04:56 | 21 | Y | Night + Day roost |
| 25-6 to 26-6 | 21:38 | 21:59 | 21 | 05:18 | 05:04 | 14 | Y | Night + Day roost |
| 26-6 to 27-6 | 21:38 | 22:16 | 38 | 05:18 | 05:02 | 16 | Y | Night + Day roost |
| 27-6 to 28-6 | 21:37 | 21:33 | -4 | 05:19 | 02:02 | 198 | Y | Night roost only? |
| 28-6 to 29-6 | 21:37 | 22:08 | 31 | 05:19 | 04:53 | 26 | Y | Night + Day roost |

*Table 10 Roost use data for last two weeks during June 2020*

# APPENDIX C -LEGISLATION

## a) Legislation

All species of bats receive special protection under UK law making it a criminal offence under Schedule 5 section 9 (4) (b) and (c) of the Wildlife and Countryside Act 1981 (as amended) to *"intentionally or recklessly disturb a bat at a roost"* or *"intentionally or recklessly obstruct access to a roost" and under* Regulations 43 (1) and (2) of the Conservation of Habitats and Species Regulations 2017 (The Habitat Regulations) to *"deliberately disturb a bat in a way that would affect its ability to survive, breed or rear young or, affect the local distribution or abundance of the species;* or to "*damage or destroy a roost"* without first having obtained the relevant licence for derogation from The Habitat Regulations from the Statutory Nature Conservation Organisation (the SNCO – Natural England in England).

The word 'roost' is not used in the legislation but is used here for simplicity. The actual wording in law is 'any structure or place which any wild animal...uses for shelter or protection' or 'breeding site or resting place'. Because bats tend to re-use the same roosts after periods of vacancy, legal opinion is that the roost is protected whether or not the bats are present at the time.

**Penalties on conviction of a bat-related crime - the maximum fine is £5,000 per incident or per bat, up to six months in prison, and forfeiture of items used to commit the offence, e.g. vehicles, plant, machinery.**