



## **Internal & External Building Assessment for Bats**

**Land at Hook Farm  
Effingham Common, Norwood Farm,  
KT24 5JE**

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**LIABILITIES:**

Whilst every effort has been made to guarantee the accuracy of this report, it should be noted that living animals and plants are capable of migration/establishing. Whilst such species may not have been located during the survey duration, their presence may be found on a site at a later date. This report provides a snap shot of the species that were present at the time of the survey only and does not consider seasonal variation. Furthermore, where access is limited or the site supports habitats which are densely vegetated, only dominant species may be recorded.

The recommendations contained within this document are based on a reasonable timeframe between the completion of the survey and the commencement of any works. If there is any delay between the commencement of works that may conflict with timeframes laid out within this document, or have the potential to allow the ingress of protected species, a suitably qualified ecologist should be consulted.

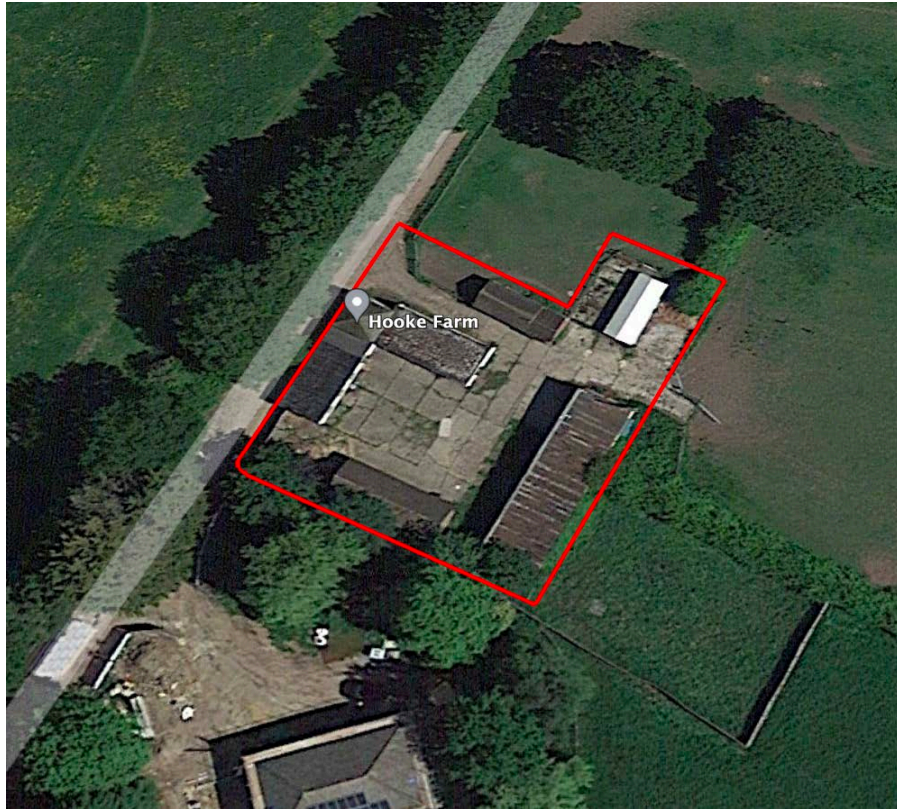
It is the duty of care of the landowner/developer to act responsibly and comply with current environmental legislation if protected species are suspected or found prior to or during works.

## **1.0 Introduction**

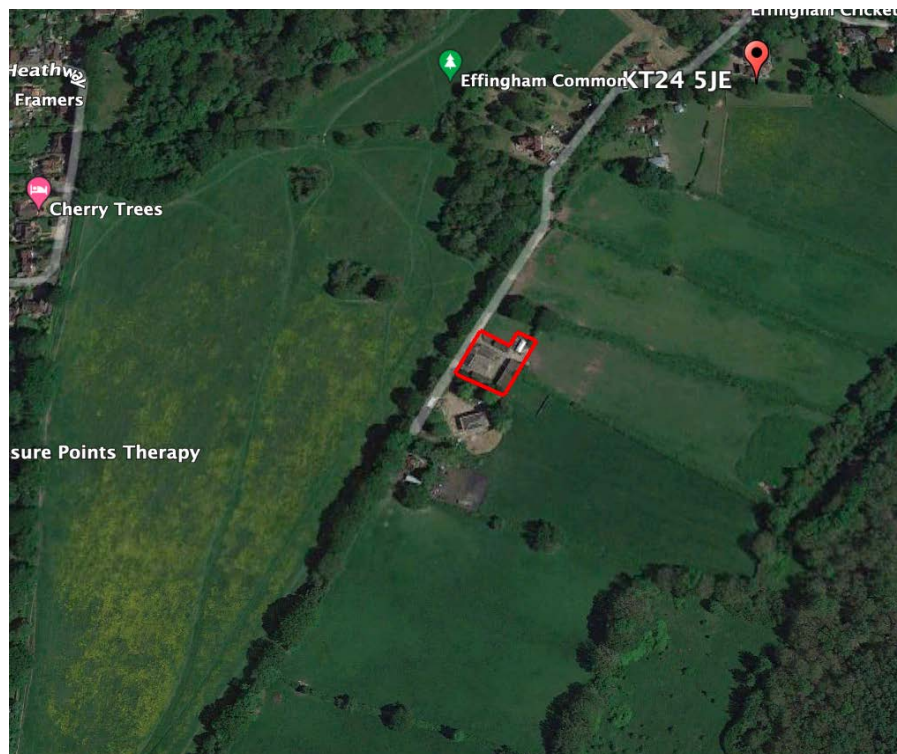
- 1.1 The Ecology Partnership was commissioned by Runnymede Homes to undertake an internal and external building assessment of the buildings present on Land at Hook Farm, Effingham Common, Norwood Farm, East Horsely, Surrey, KT24 5JE.
- 1.2 This report presents the findings of the surveys on site, which aim specifically to assess the sites potential to support roosting bats. Potential mitigation measures and recommendations for the site will be included within this report.
- 1.3 This report comprises:
- The legislative and planning context (Section 1);
  - Assessment methodologies (Section 2);
  - Results (Section 3);
  - Implications for development (Section 4);
  - Conclusions (Section 5).

### **Site Context**

- 1.4 The site is located to the east of Horsely, to the south of Effingham Junction and to the north of Effingham. The central grid reference is TQ 10355 54937. The immediate surrounds are Effingham Common to the north and west of the site. The immediate habitats to the north are grazed horse fields and to the south a residential unit and gardens. The wider landscape supports extensive ancient woodland.
- 1.5 The aerial photograph below (Figure 1) shows the extent of the buildings and Figure 2 shows the site in the wider landscape.



*Figure 1: Surveyed buildings (Google Earth Pro, 2022)*



*Figure 2: Approximate red line boundary of the surveyed buildings in the wider landscape (Google Earth Pro, 2022)*

### **Description of Proposed Development**

- 1.6 It is understood that proposals include the demolition of the buildings and the construction of a new residential development.

### **Legislation**

- 1.7 Under the NERC Act (2006) it is now the duty of every Government department in carrying out its functions *“to have regard, so far as it is consistent with the proper exercise of those functions, to the purpose of conserving biological diversity in accordance with the Convention”*.
- 1.8 Bats are covered by the following relevant legislation: the Wildlife and Countryside Act (1981) (as amended); the Countryside and Rights of Way Act, 2000; the Natural Environment and Rural Communities Act (NERC, 2006); and by the Conservation of Habitats and Species Regulations (2010).

Under the WCA 1981 it is an offence to:

- intentionally, recklessly or deliberately disturb a roosting or hibernating bat (i.e. disturbing it whilst it is occupying a structure or place used for shelter or protection)
- intentionally or recklessly obstruct access to a roost (i.e. a structure or place used for shelter or protection).

Under the CHSR 2010 it is an offence to:

- deliberately capture (or take), injure or kill a bat
- intentionally, recklessly or deliberately disturb a bat, in particular (i) any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young; (ii) any disturbance which is likely to impair their ability in the case of hibernating or migratory species, to hibernate or migrate; or (iii) any disturbance which is likely to affect significantly the local distribution or abundance of the species to which they belong
- damage or destroy a breeding site or resting place (roost) of a bat.

## 2.0 Methodology

### Bat Internal and External Survey

2.1 The barn was internally and externally assessed for its suitability for roosting bats. The survey was undertaken on 26<sup>th</sup> September 2023 by The Ecology Partnership ecologist and Natural England bat licence holder Alexia Tamblyn MA (Oxon) MSc CEcol CEnv MCIEEM FRGS.

2.2 The surveyor assessed the building visually and searched for evidence such as:

- Staining beneath or around a hole caused by natural oils in bat fur.
- Bat droppings beneath a hole, roost or resting area.
- Bat droppings and/or insect remains beneath a feeding area.
- Audible squeaking from within a hole.
- Insects (especially flies) around a hole.
- Dead bats.

2.3 Buildings which are considered to have a higher potential to support roosting bats would include the following:

- Agricultural buildings (e.g. farmhouses, barns and out buildings) of traditional brick or stone construction and/or with exposed beams;
- Buildings with weatherboarding and/or hanging tiles that are within 200m of woodland and/or water;
- Pre-1960s detached buildings and structures within 200m of woodland and/or water;
- Pre-1914 buildings within 400m of woodland and/or water;
- Pre-1914 buildings with gable ends or slate roofs regardless of location;
- Buildings which are located within or immediately adjacent to woodland and/or immediately adjacent to water;
- Dutch barns or livestock buildings with a single skin roof and board and gap or Yorkshire boarding if, following a preliminary roost assessment the site appears to be particularly suited to bats.



**Table 1. Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement. Table 4.1 within the 'Bat Surveys for Professional Ecologists: Good Practice Guidelines (4<sup>th</sup> ed), 2023'.**

Potential Suitability	Description of Roosting Habitats in structures	Potential flight paths and foraging habitats
<b>None</b>	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices / suitable shelter at all ground / underground levels).	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade / protection for flight-lines, or generate / shelter insect populations available to foraging bats).
<b>Negligible</b>	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non standard bat behaviour.
<b>Low</b>	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).	Habitat that could be used by small numbers of bats as flight paths such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat.  Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
<b>Moderate</b>	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only such as maternity and hibernation – the categorization described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens.  Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
<b>High</b>	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. These structures have the potential to support high conservation	Continuous, high quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, stream, hedgerows, lines of trees and woodland edge.  High quality habitat that is well connected to the wider landscape that is

	status roosts, e.g. maternity or classic cool / stable hibernation site	likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland.  Site is close to and connected to known roosts.
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\*Potential roost features

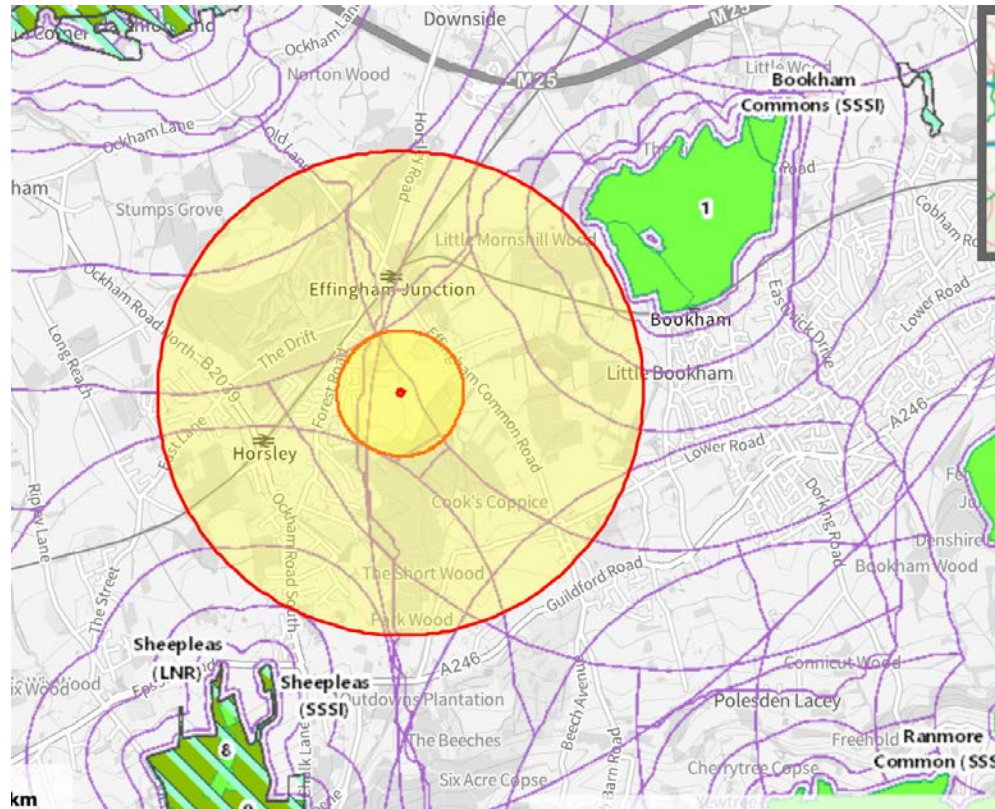
**Limitations**

2.4 It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no single investigation could ensure the complete characterisation and prediction of the natural environment.

**3.0 Results**

**Desk Based Assessment**

3.1 The site does not lie within or adjacent to any designated sites. There are no designated sites within 2km (Figure 3).



*Figure 3: Location of the site in relation to the SSSI in the wider landscape*



- 3.2 The nearest SSSI is located just over 2km to the north east of the site; Bookham Commons SSSI. The site does lie within the impact zone of this SSSI, however, the development is not listed as one which would impact upon the integrity of the SSSI. The site is sufficient distance from the other SSSIs are to not impact upon their integrity.
- 3.3 The site lies approximately 4.7km from the Mole Gap to Reigate Escarpment SAC. The site lies outside the 800m buffer zone of this SAC.
- 3.4 The woodlands within the wider landscape include ancient woodland (Figure 4 below) with Greatlee Wood and Lowerlee Wood to the south east of the site. Additional areas of woodland, lowland deciduous woodland, are present to the north and south.

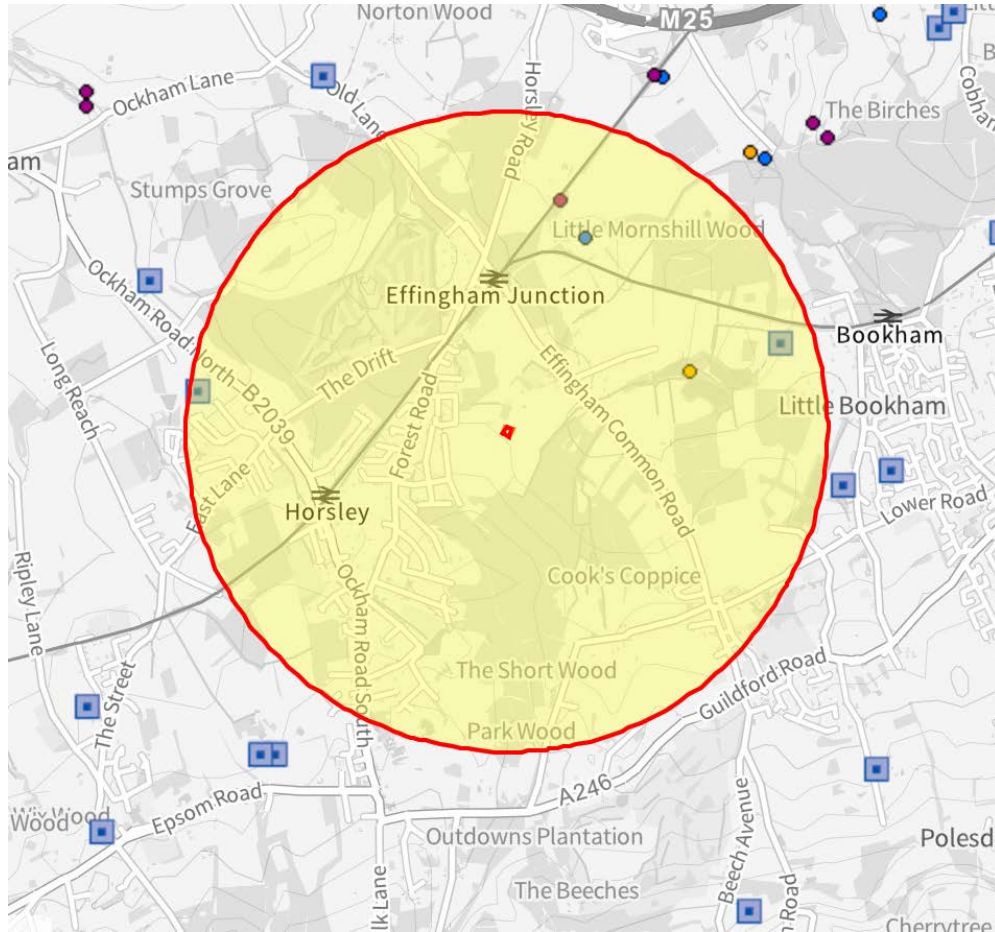


*Figure 4: Location of the site in relation to ancient woodland (Hatched) priority woodland (dark green)*

- 3.5 There are two bat licences within 2km of the redline boundary. To the north east of the site a licence covering brown long eared bats and common pipistrelles (2014-2159-EPS-MIT) covering the damage and destruction of a resting and breeding place located 1.7km north

east and 1.9km west a licence covering brown long eared bats, common and soprano pipistrelles (2019-40701-EPS-MIT) which covers damage and destruction of resting places.

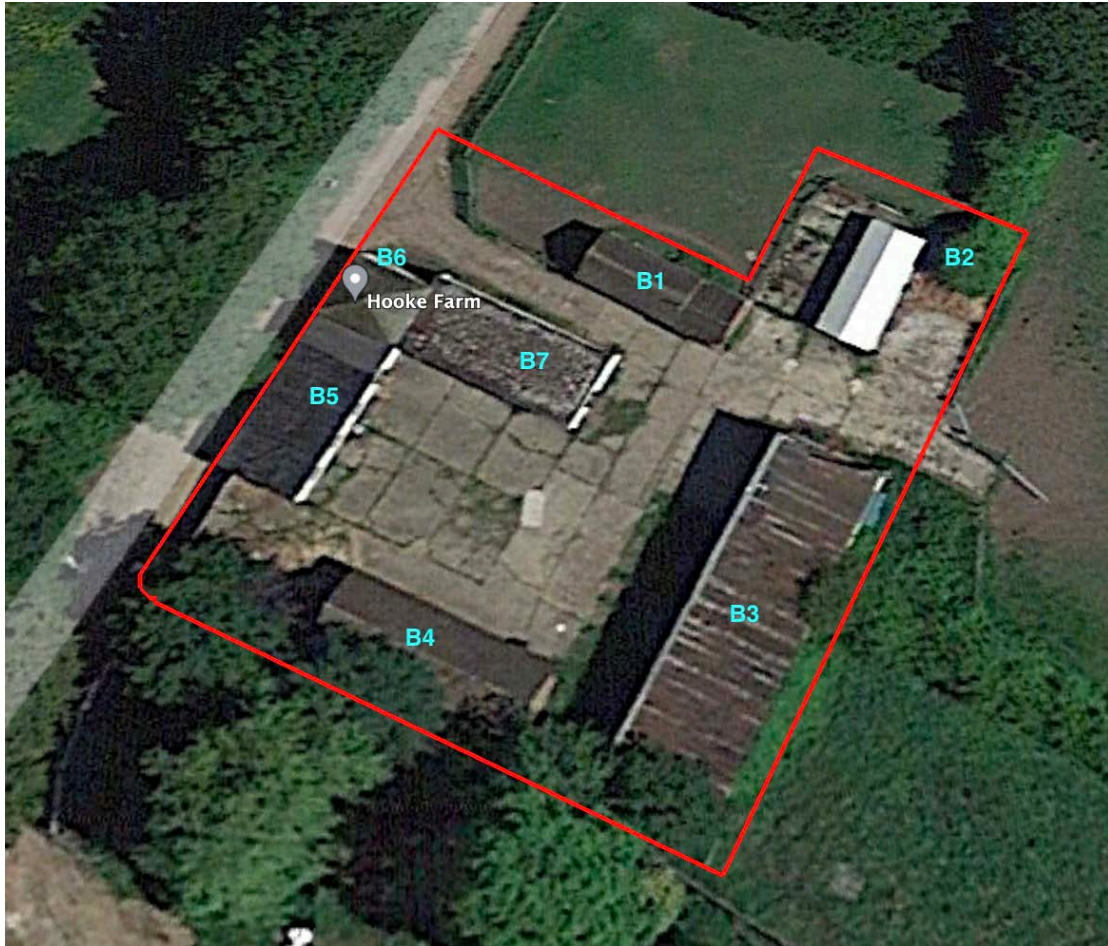
- 3.6 Great crested newts licence returns for positive are shown in blue and red, whilst negative results are shown in orange.



*Figure 5: Location of the site (red) and the bat licence are shown by the blue squares. The circles are GCN licence returns*

#### **External and internal building assessment**

- 3.7 The site supports seven buildings on an area of hardstanding and made-up ground, which forms the yard area.
- 3.8 The buildings were systematically surveyed for evidence of bats and their potential for each of the buildings to support bats. The locations of each of the buildings are shown below in figure 6.



*Figure 6: Location of buildings*

3.9 Each of the buildings are detailed below:

- Building B1: This is a stable block which is in active use. The base of the stables was brick, with a wooden structure for the remaining building. The roof was pitched with wooden tiles located across, but with no internal void. The tiles were in locations warped, but this was superficial, with the tiles directly laid onto internal wooden boarding. Internally, there was no void, with the building open and supporting gaps. There were no cervices which could be exploited. This building was considered to have '**negligible**' potential to support roosting bats.
- Building B2: This building is a corrugate metal structure with no internal voids. The building is open and does not support any structures which bats would utilise. The potential suitability is considered to be '**none**'.
- Building B3: This building was an open barn structure with a corrugated metal sheeting roof structure which support agricultural stored goods. The walls, where present, supported closed boarding and sheet metal. An office room, with a flat roof



and boarding was present. The building did not support crevices or voids which could be exploited by bats. Considering the open nature of the building this building was considered to have **'negligible'** potential to support roosting bats.

- Building B4: This building was also a stable block which was in active use. The block was constructed of a brick base and supported a pitch roof, with concrete interlocking tiles directly attached to wooden boarding. The ridges were well sealed with concrete. There was no internal roof void, with the void open to the stables below. Considering the open nature of the building this building was considered to have **'negligible'** potential to support roosting bats.
- Buildings B5, B6 and B7 are all connected. Building B5 was a single story brick built, painted structure. The roof was flat with sections of what appeared to be plastic and then bitumen on the wooden roof. Wooden barge boards were present around the edges. These were fitted directly onto the brick structure. On the western end of the building the wooden boards were frayed, but did not provide sufficient crevices to support roosting bats, Internally, there are no enclosed voids and no boarding with no crevices to roost within. Considering the open nature of the building this building was considered to have **'negligible'** potential to support roosting bats. Building B6 supported a pitched roof, which was not fully accessed at the time. However, externally the wooden tiles were directly placed on wooden boards. Whilst some were lifted, these appeared to be superficial. As such, it was considered to have **'negligible'** potential to support roosting bats. The final section of this building, B7, was the same build as B5, with the same roofing structure and features and supported stable in active use. it was considered to have **'negligible'** potential to support roosting bats.

3.10 Within the buildings no evidence of roosting bats was identified. Due to the use of the structures by horses, and the presence of animal feed and bedding, the use of the buildings by rats was reasonably extensive.

3.11 The habitats present within the yard area supports largely ruderal vegetation such as knot grass, creeping buttercup, creeping cinquefoil, ribwort plantain, curled dock, greater plantain, common nettles. These habitats are common and widespread.

- 3.12 The habitats to the north and east of the site, and largely to the south, are largely horse grazed field networks. There is a residential dwelling to the south western border with mature trees within the boundaries of the garden. There is a track adjacent to the western with mature trees located on the far side of the track. These mature tree lines are off site.
- 3.13 The wider landscape supports mature trees and tree lines interconnected with both ancient woodland and lowland deciduous woodland habitats.

#### **4.0 Discussion**

- 4.1 No bat droppings were located within any of the buildings on site, and no evidence of bat use, including feeding remains, dead bats or possible well used roosts.
- 4.2 The majority of the structures on site were in use as stable buildings, agricultural storage facilities and office and tack rooms. None of these structures supported features which would support bat roosts, with the structures being largely open and constructed of materials which are highly unsuitable for bats. This includes corrugated metal roofing structures and single plywood, with doors left open and no enclosed voids or crevices.
- 4.3 Several of the buildings supported tiles. Building B1 and B6 supported wooden tiles which were fitted on wooden boarding. Several of these tiles were warped, with some of the wood lifted. However, these features were considered to be superficial and were therefore considered to be '**negligible**' potential, as per table 1 of this report. The metal shed was considered to have no potential.
- 4.4 No further surveys are recommended as part of the development. However, there are a range of measures as part of construction process which should be followed to ensure that no impacts on bats occur as part of the development.

#### **Mitigation and Enhancement**

- 4.5 It is always recommended that all buildings are checked prior to demolition. If any evidence of bats is found then works must cease and an ecologist sought. If tiles are removed and evidence is found, then all works must cease immediately.



- 4.6 It is always recommended that new landscape proposals are included within the design of the new development. New planting and enhancement planting around the edges of the site and within the red line boundary are recommended. This will provide robust ecological networks and retain landscape connectivity.
- 4.7 As bats species make use of the linear features, it is recommended that light should be directed away from these features, maintaining these as 'dark corridors'. Any lighting necessary within proximity to other commuting features should comprise sensitive low-level lighting to minimise any potential impacts on light sensitive species such as brown long-eared bats and some myotis species (Stone *et al.*, 2012).
- 4.8 Lighting can alter bat behaviour significantly in terms of light avoidance with some species unable to cross lit areas even at low light levels. In addition, lighting can affect the availability of insect prey with some groups attracted to lights, creating a 'vacuum effect' in adjacent habitats. Some of the species on site, such as brown long-ears and *Myotis* species, are known to avoid all street lights (Stone *et al.*, 2009, 2012, 2015), meaning that development could seriously impact the abundance of these species on site post-development without careful design and mitigation.
- 4.9 Where lighting is required on site, a sensitive lighting scheme must be implemented. Again collaboration between a lighting professional and ecologist may be required in order to help design this scheme but measures should include:
- The impact on bats can be minimised by the use of Light emitting diodes (LEDs) instead of mercury, fluorescent or metal halide lamps where glass glazing is preferred due to their sharp cut-off, lower intensity and their dimming capability. Lighting should be directed to where it is needed and light spillage avoided.
  - This can be achieved by the design of the luminaire and by using accessories such as hoods, cowls, louvres and shields to direct the light to the intended area only.
  - Soft landscape planting should also be used as a barrier or manmade features such as walls or fencing with planted climbers where required within the build can be positioned so as to form a barrier between any development and the linear features used by bats.

- 4.10 Where lighting is necessary near potential commuting features, bollard lighting is recommended, in place of full street lighting (Figure 7). This will maintain the integrity of these corridors for foraging bats. Warm-white or red lights are recommended to be used if health and safety concerns are great as these are said to limit the impact on insects and therefore bat activity.



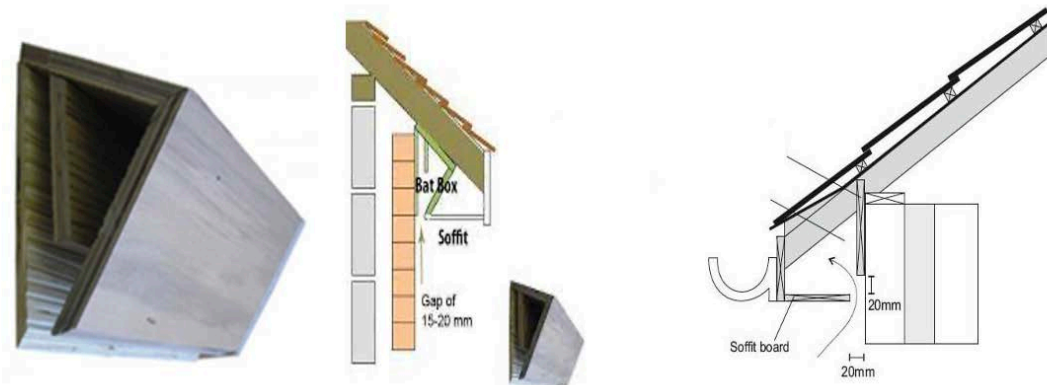
*Figure 7: Example of low level bollard lighting*

- 4.11 If any future scheme follows the above recommendations for retention of existing commuting and foraging habitat on site, and sufficiently protects it from artificial light, then a significant impact on foraging/commuting bats would be unlikely.
- 4.12 It is recommended that new roosting opportunities are created on site through installing bat boxes on retained mature trees along the site boundaries, within areas devoid of artificial light. This would enhance the site for local bat populations and would provide further roosting opportunities. Recommended boxes include:
- Vivara Pro WoodStone Bat Box – A general purpose bat box that supports a range of species (Figure 8). These can be hung on trees in a variety of heights and aspects in order to provide a variety of micro-climates.
  - Large Multi Chamber WoodStone Bat Box – This is a multipurpose box designed for larger colonies and a range of bat species including pipistrelles, noctules and brown long-eared bats. These should be hung on mature trees around the site (Figure 8).



**Figure 8: Vivara Pro WoodStone Bat Box (left) and Large Multi Chamber WoodStone Bat Box (right)**

4.13 Integrated bat boxes may be incorporated into the proposed new buildings. The use of these boxes within the structures of the new buildings would provide features which bats, particularly pipistrelles would be able to exploit. This should be detailed in the building design and be located on a south facing soffit, if possible. Figure 9 shows how the boxes can be inserted into the structure of the buildings.



**Figure 9: Example of an integrated bat box**

4.14 Sweet nectar and protein-rich pollen, especially night-scented flowers, are bait to encourage insects, a food source for bats. These species should be incorporated into the development where possible:

- Evenings primrose (*Oenothera biennis*)
- Field poppies (*Papaver rhoeas*)

- Knapweed (*Centaurea sp.*)
- Night-scented stock (*Matthiola longipetala*)
- Red campion (*Silene dioica*)
- Honeysuckle (*Lonicera periclymenum*)
- Sweet williams (*Dianthus barbatus*)
- Angelica species
- Wisteria (*Wisteria floribunda*)
- Lavenders (*Lavandula sp.*)

## 5.0 Conclusions

5.1 An internal and external building assessment of all of the buildings on site was conducted in September 2023.

5.2 No evidence of bats was found within any of the buildings on site. The buildings were considered to have '**negligible**' potential for roosting bats. Whilst no further bat surveys are recommended it is always recommended that a recheck of buildings is conducted prior to demolition. If there is any evidence of bats being found, then all works must cease and the advice of an ecologist sought.

5.3 Recommendations for enhancing the site post construction, notably with robust planting proposals, sensitive lighting and new bat roosting features, have been recommended.

5.4 It is considered that the proposals would not impact the favourable conservation status of bats in the local landscape.

## 6.0 References

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

Collins, J. (ed.), (2023), *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (4<sup>th</sup> edn). Bat Conservation Trust, London.

Institution of Lighting Professionals., (ILP - 2018), *Guidance Note 08/18 – Bats and artificial lighting in the UK*. ILP, Rugby.

Lintott, P., & Mathews, F. (2018). *Reviewing the evidence on mitigation strategies for bats in buildings informing best-practice for policy makers and practitioners*.

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

### **Internet resources:**

Google Maps: [www.google.co.uk/maps](http://www.google.co.uk/maps)

Magic Interactive Map: [www.magic.gov.uk](http://www.magic.gov.uk)



**Appendix 1: Photos**

**Photo 1:** The stables to the north east (B1)



**Photo 2:** Internal stables to the north east.(B1)



**Photo 3:** The metal barn (B2)



**Photo 4:** The eastern barn, with open roof structure (B3)



**Photo 5:** The stables to the south west of the site (B4)



**Photo 6:** Inside the stables B4





**Photo 7:**  
Buildings B5 on the western side of the site.



**Photo 8:** Inside B5



**Photo 9:** Building B6





**Photo 10:** Building B6  
roof structure



**Photo 11:** Building B7  
roof structure



**Photo 12:** Habitat within  
the yard



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