

ECOLOGY ASSESSMENT

FOR NICK WOOLEY

10 GUN STREET, READING | NOVEMBER 2022 |

VERSION 1

Client	Project
PDR Limited	Project Name: 10 Gun Street
9 Gun Street,	Project code: FN22-024
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EXECUTIVE SUMMARY

Future Nature WTC was commissioned to undertake Preliminary Bat Roost Assessment and subsequently bat presence/likely absence surveys at 10 Gun Street in Reading, Berkshire.

The development proposals include the refurbishment of the existing building and creation of an extension to the south.

The site comprises a disused commercial building with a yard to the rear.

A maximum of four common pipistrelle day roosts were identified within the building (two confirmed, two unconfirmed), each supporting a single bat. A common pipistrelle day roost supporting two bats was also identified within the building adjoining the site to the east.

The yard was found to be used by foraging bats and the building also provided opportunities for nesting birds.

A bat licence would be required before the proposed works could proceed. Enhancements and recommendations have been made in the report to ensure that the proposed works would be lawful and be of maximum benefit to local wildlife.

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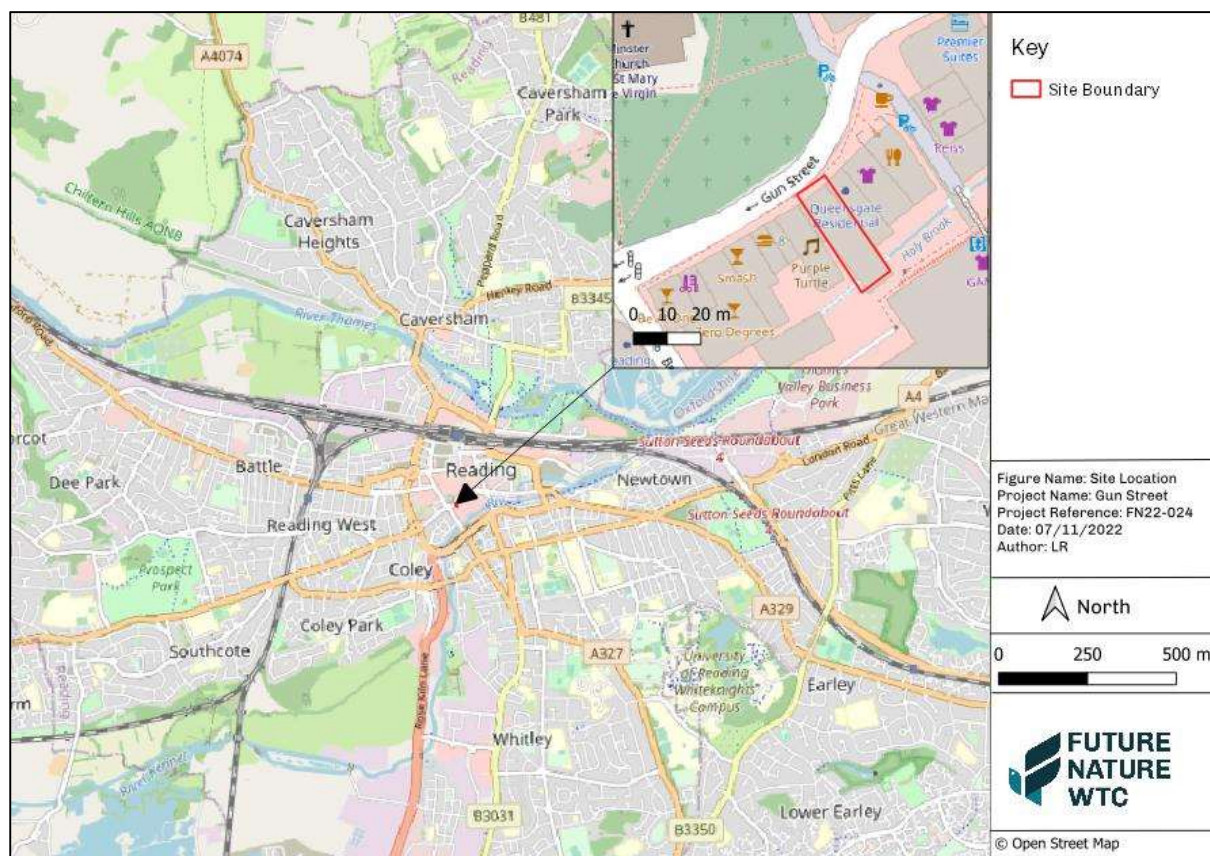
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1 INTRODUCTION

1.1 SITE LOCATION & DESCRIPTION

Future Nature were commissioned to undertake a Preliminary Bat Roost Assessment (PRA) of a site located at 10 Gun Street in Central Reading, RG1 2JR (approximate central grid reference of SU 71472 73278), as illustrated in Figure 1.

Figure 1: Site Location



The site is located within the urban centre of Reading and forms part of a terraced line of buildings on the southern side of Gun Street. A church and associated graveyard are located to the north of Gun Street and further built-up areas of Reading, including commercial buildings, roads and the Oracle Shopping Centre, lay to the south, east and west.

The survey site comprises a disused business premises within the urban centre of Reading with an outdoor space where previous extensions have been demolished and subsequently become colonised with scattered vegetation. A stream; the Holy Brook, flows through a culvert below the southern end of the site, emerging from the culvert to the east of the boundary.

Previous bat surveys have found the former business premises to have bat roost potential and it was found to support a bat roost in 2016. This PRA has been commissioned to inform proposals to redevelop the site, as described in Section 1.3 below.

1.2 REPORT OBJECTIVES

The objectives of this report are to:

- Identify statutory designated sites within 1km of the site;
- Identify records of protected bat species within 1km of the site;
- Identify the habitats present on the site and their potential to support bats;
- Assess any potential effects to bats and their roosts arising from the proposals;
- Provide details of measures required by the project to avoid, mitigate and if necessary compensate for any effects; and
- Advise of measures to further enhance and improve the biodiversity on the site.

1.3 SITE PROPOSALS

The development proposals are for the reconfiguration of 10 Gun Street in order to extend the Purple Turtle bar and nightclub situated next door at 9 Gun Street (to the west). The existing building is due to be retained and refurbished to provide café/bar facilities on all levels from the basement to the second floor.

Connections to the adjoining Purple Turtle premises would also be created and a two to three storey extension would be created to the rear (south) of the existing premises extending the full length of the existing yard area, to the southern boundary.

The existing northern elevation, roof and internal loft space would not be affected by the proposals. The existing southern elevation would be lost and extended southwards also resulting in the loss of the existing yard area.

The Holy Brook stream would be retained within the culvert beneath the site, exiting it to the east.

The redline boundary is shown on Figure 2.

Figure 2: Redline Boundary Map



Any changes to the proposed development plans may require the recommendations, proposed mitigation and/or enhancement measures to be updated accordingly.

2 METHODOLOGY

2.1 DESK STUDY

A desk study was undertaken to assess the nature of the surrounding habitats and included:

- An assessment of aerial imagery and Ordnance Survey mapping;
- A search of the Multi Agency Geographic Information for the Countryside (MAGIC) website¹ for statutory designated sites, priority habitats and records of European protected species within 1km of the survey area; and
- A data search submitted to Thames Valley Environmental Records Centre (TVERC) for records of bats within 1km of the site boundary.

Background research was also undertaken into previous planning applications for the site and any ecology assessments that supported them to gain an understanding of the previous ecological value.

2.2 FIELD SURVEY

2.2.1 Habitats/Protected Species

The focus of the field survey was to identify the suitability of the site to support bats and their roosts. However, habitat types were also identified and the site was checked for evidence of other protected and priority species, and habitats were assessed for their potential to support them.

The survey visit was undertaken on 4th August 2022 in suitable weather conditions, as reported in Table 3.3.

2.2.2 Preliminary Bat Roost Assessment

Survey effort and assessment are based on best practice guidelines produced by the Bat Conservation Trust², which classifies the suitability (negligible, low, moderate or high) of the roosting, foraging and commuting habitats within the site. Full details of the classifications are provided in Appendix D.

¹ Multi Agency Geographic Information for the Countryside (www.magic.gov.uk)

² Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). Bat Conservation Trust

Structures within the site to be impacted by the development were inspected³ internally and externally for Potential Roosting Features (PRFs). The survey involved recording any field signs, including bats, if present⁴.

The preliminary bat roost assessment was undertaken by Louisa Medland BSc (Hons) CEcol MCIEEM and Julie Watson BSc (Hons) MSc MCIEEM. Louisa and Julie have experience in undertaking PRA's for a range of projects and Julie holds a Natural England Level 2 Bat Survey Licence.

The following equipment was utilised during surveys:

- Binoculars; and
- Clulite torch with directional beam.

2.2.3 Presence/Likely Absence Surveys

Dusk emergence/dawn re-entry surveys are recommended for buildings/structures containing features suitable for roosting bats in order to identify the presence/likely absence of a bat roost.

Presence/likely absence surveys involve placing a suitable number of surveyors around a building at pre-identified vantage points where PRF's can be clearly observed. Each surveyor would use a bat detector in order to record any bat activity in the vicinity of the building or any bats emerging/re-entering the building. Infrared cameras can also be used to monitor PRF's when positioned with surveyors and can record footage that can then be analysed to give confidence in whether bats have emerged or re-entered a roost.

Surveys should be spaced apart by a minimum of two weeks and also be conducted during periods of suitable weather; avoiding extended periods of heavy rain and strong winds or low temperatures (typically below 8° Celsius). The number of surveys is dependent on the suitability of the building, as detailed in Appendix D.

Dusk emergence surveys should commence a minimum of 15 minutes before sunset and continue for at least 1.5 hours after sunset.

Dates of survey visits undertaken at the site, with survey timings and weather conditions, are shown in Table 3.3.

³ It should be noted that assessment relates entirely on the structure or tree's suitability to support bats and or other protected species. Assessment must in no way be taken as an assessment of the structure's integrity or safety.

⁴ If bats are recorded during appropriate measures are undertaken to limit any potential disturbance

The presence/likely absence surveys were undertaken by Principal Ecologist Louisa Medland BSc (Hons) CEcol MCIEEM, Louisa Reeve BSc (Hons), Aarun Sharma-McLachlan and Julie Watson BSc (Hons) MSc MCIEEM. All of the ecologists listed above have experience in undertaking bat presence/likely absence surveys.

The following equipment was utilised during surveys:

- EM Touch Pro Bat Detector;
- Anabat Scout Bat Detector; and
- Infrared camera (Canon XF100) and infrared lights.

2.3 LIMITATIONS TO SURVEY

The preliminary bat roost assessment was conducted in good conditions with good visibility of the entire structure to allow the identification of PRFs. The presence/likely absence surveys were undertaken in line with best practice guidelines and during predominantly suitable weather conditions.

Survey 2 finished ten minutes early due to the onset of rain but this is considered unlikely to have resulted in emerging bats having been missed as the species of bat recorded using the site over the three surveys comprised species that typically emerge closer to sunset. Bats had emerged well before the end of the survey and were already actively foraging and commuting.

3 RESULTS

3.1 DESK STUDY

3.1.1 Designated Sites

A search of the MAGIC Website⁵ and local records centre indicated that there are no statutory designated sites within the 1km search area.

3.1.2 Priority Habitats

A search of the MAGIC website identified the following priority habitats within the 1km search area:

- **Coastal Floodplain Grazing Marsh and priority chalk stream:** There is a large area of coastal floodplain grazing marsh 1230m south west of the site. This comprises the floodplain of the River Kennet which flows 165m south of the site and continues south to the floodplain grazing marsh. The Holy Brook, which passes through the site in a culvert, is a tributary of the River Kennet. Apart from the river itself, along which bats could commute, there is very little connectivity to the site with the built-up centre of Reading between the two and the majority of the Holy Brook contained within a culvert for much of that length.
- **Deciduous Woodland:** There are a number of small patches of deciduous woodland within 1km of the site but again there is very little connectivity between them.

3.1.3 European Protected Species Licencing

The MAGIC website identified five granted European Protected Species (EPS) license within 1km of the site, detailed in Table 1. These were predominantly for common pipistrelle with the nearest being more than 500m from the site.

Table 1: Granted EPS licenses within 1km

Reference	Species	Start and End Date	Type	Distance from Survey Area (Closest Point)
2017-28045-EPS-MIT	Daubenton's bat	08/03/2017-08/03/2022	Unknown	687m
EPSM2013-6155	Common Pipistrelle	19/09/2013-31/08/2015	Destruction of a resting place	603m

⁵ Multi Agency Geographic Information for the Countryside (MAGIC) www.magic.gov.uk

2019-44194- EPS-MIT	Common Pipistrelle, Soprano Pipistrelle	01/02/2020- 31/03/2020	Destruction of a resting place	539m
2016-22301- EPS-MIT	Common Pipistrelle	21/04/2016- 20/04/2021	Damage and destruction of a resting place	727m
2017-32379- EPS-MIT	Common Pipistrelle	04/12/2017- 29/11/2022	Damage and destruction of a resting place	823m

3.1.4 General Land Use

A review of aerial imagery and Ordnance Survey mapping indicates the main land use within the search areas to be urban.

3.1.5 Local Records Centre Data

No records of bats within 1km of the survey site were returned by the Thames Valley Environmental Records Centre.

3.1.1 Background

The building at 10 Gun Street was first surveyed for its suitability to support bats in 2009. A PRA (Middlemarch, 2009) found the building and culvert on the site to provide PRF's but no bats were seen to emerge during a subsequent emergence survey. A single common pipistrelle was observed emerging from The Purple Turtle bar to the west of the site.

A subsequent PRA (Urban Tree Experts, 2015) was conducted in December 2015 during which a small number of bat droppings were identified in the loft space of the building. This was followed up with three dusk emergence and dawn re-entry surveys (Urban Tree Experts, 2016) in May 2016 during which no bats were found to be roosting and recommendations were made for the sensitive removal of PRF's.

3.2 FIELD SURVEY

A summary of the survey conditions during the PRA are provided in Table 2.

Table 2: Preliminary Roost Assessment Survey Conditions				
Date	Temperature	Rain	Wind Conditions (Beaufort scale)	Cloud Cover
04/08/2022	22°C	None	2	1/8

A summary of the survey conditions during the evening emergence surveys are provided in Table 3.

Table 3: Evening Emergence Survey Timings and Conditions								
Survey	Date	Sunset	Start Time	End Time	Temp.	Rain	Wind (Beaufort Scale)	Av. Cloud
Em1	04/08/22	20:47	20:32	22:17	18C	None	2	1/8
Em2	15/08/22	20:26	20:11	21:46	21C	None until 21.46	1	1/8
Em3	05/09/22	19:41	19:26	21:11	16C	None	1	1/8

3.2.1 Preliminary Roost Assessment

The site boundary comprises an unused commercial building and associated yard area to the rear. The building was formally used as office space but has been predominantly disused for a number of years, other than for informal storage, and is in need of some refurbishment. The majority of the building pre-dates the mid-Twentieth century with more recent extensions to the south having now been demolished.

It comprises a three storey, brick-built, terraced property with elevations to the north and south. The pitched roof comprises clay tiles and a loft is present, accessible by the main stairwell.

3.2.1.1 North elevation

The north elevation is constructed from brick with lintels above the first and second storeys. The ground floor comprises two, large windows (one being a bay window) and a door with some ornamental, stone casing around them. The first and second floors contain four sash windows with wooden frames. Guttering and a cable are also attached to the exterior.

The northern elevation is in good overall condition with no apparent gaps or crevices within the brickwork. However, the age and style of the property means there is potential for small gaps and crevices around lintels and window frames that could have the potential to support small roosts suitable for individual or low numbers of bats.

The same is true of the roof tiles, which appear to be in overall good condition but are of an age and style that they are irregularly shaped and therefore provide small gaps that have the potential to support small roosts suitable for individual or low numbers of bats. The northern aspect makes it less suitable for bat roosts which typically favour a more southerly aspect. A photograph of the northern elevation is provided below:

Picture 1: Northern elevation.



3.2.1.2 South elevation

The south elevation comprises the exterior of the original building with signs of a number of subsequent revisions. The original southern side of the pitched roof is present across the full length of the three-storey elevation. A similar, smaller section of pitched roof is present on a two-storey section of the building that extends southwards and has a tall, brick chimney upon it.

A square tower also extends south from the original elevation which houses a stairwell. It comprises brick at the ground floor level and is rendered above. The remaining external wall is part exposed brickwork and part rendered but also includes exposed interior features, such as interior doorways, where extensions have been removed. A large amount of damage is visible, including large gaps in the brickwork and a large gap at the eastern end of the roof eaves. Some exposed features are covered in plastic sheeting. There are a number of windows present which are typically boarded internally with glass panes missing or broken.

The southern elevation provides a number of PRF's and access points into the building. The sections of tiled roof are similar to the northern elevation and provide a number of small gaps suitable for individual or small numbers of bats. The damaged section of roof provides access into the roof void and potentially into a void between the loft floor (which is boarded) and the ceiling below.

The damaged sections of wall provide small roosting opportunities within small gaps and cracks but also provide potential access points into larger voids and into the interior of the building. The broken windows also provide potential access into the interior of the building where boarding behind is either missing or in poor condition.

Picture 2: Southern elevation



3.2.1.3 Building interior

The building comprises three-storeys plus a loft space and basement. The interior is predominantly disused but is used by the adjacent Purple Turtle bar to store materials which are mostly confined to the ground floor.

Loft space

The loft is accessible by the main staircase and the floor is fully boarded but the space is currently unused. It is constructed by a timber 'A' frame which is lined behind and generally in good condition. Brick walls make up the gable ends and large gaps are present at the top at each end of the loft providing connectivity to the adjoining properties.

The damage identified to the exterior provides a large access point in the south east corner of the roof and a further, small, access point was identified on the southern side, further west. This gap was full of cobwebs and unlikely to have been recently used by bats.

The loft void itself provided a suitable feature for large numbers of bats to roost. The wooden frame appeared to be in good condition and well connected so provided limited gaps or crevices for bats to roost within.

The floor and vertical beams were thoroughly searched and no bat droppings or bat feeding remains were found to be present. Rat droppings were present throughout.

Picture 3: Loft space



Ground floor, first floor and second floor

The main interior of the building was previously used as office space and was divided into a number of rooms used for that purpose, plus toilet and kitchen areas. The majority of these areas were well lit by the large windows in the north elevation and no areas were free from daylight, except for an internal kitchen area on the first floor that was closed off to the rest of the interior.

The majority of the interior walls and ceilings were intact and where there was damage this was superficial. The exception to this was the areas of damage already noted on the southern exterior where a number of gaps were present which opened up into the interior of the building. There were also a small number of inspection hatches that had been created in the ceiling which provided access to the space above the ceiling.

The overall suitability of the interior as a roost space was low due to it being well lit and having relatively few voids, cracks or crevices for bats to utilise. However, a single bat dropping was identified behind a board leaning against a door on the ground floor. The dropping was old and was characteristic of a pipistrelle bat dropping. The board was considered a sub-optimal roosting location and the absence of other signs of bat presence suggested its use had been minimal.

No other signs of bat presence were identified despite all floors and surfaces being thoroughly checked. Rat droppings were present. There is potential for other stored materials within the interior to provide similar sub-optimal roosting conditions to the board, although no signs of bats using other materials were identified.

Pictures 4 to 8: Interior



Picture 1: Bubble-wrapped board leaning against interior door on ground floor where a single bat dropping was identified, attached to the rear (approximate location indicated by the red circle).



Picture 2: Former interior door on first floor now open to exterior with gap above. Superficial damage to wall providing no potential roost space.



Picture 3: Partially boarded window in stairwell with missing panes behind.



Picture 4: Gap at top of window frame on second floor north elevation.

Basement

The basement had an overall smaller footprint than the rest of the building. It comprised two sections partially separated by an internal wall. The walls were constructed from brick with some timber beams present. Electrical equipment was present on one wall. The ceiling had partially collapsed in places revealing a low void above.

The basement void itself provided a suitable feature for large numbers of bats to roost and the void above the ceiling provided an additional opportunity. The walls were intact and provided no crevices or gaps that bats could utilise. The electrical equipment was of metal construction and therefore any small gaps behind it was generally considered unsuitable as a roost site.

All surfaces were thoroughly searched for signs of bat activity and none were found. Rat droppings were present throughout. The basement is a suitable location for a hibernation roost although no signs to suggest its use as such were identified.

Picture 9 and 10: Basement



3.2.1.4 Yard

The area to the south of the building predominantly comprised scattered vegetation where species such as buddleia *Buddleja davidii* and hedge bindweed *Calystegia sepium* had established over rubble and bare ground left following the demolition of the former extensions. An area of hard standing was present at the southern end of the site which was used to store materials. A large amount of materials and debris were also present throughout the vegetated area.

The yard provided no opportunities for bats to roost but the vegetation was likely to support a sufficient number of night flying insects to make it of some value as a foraging resource to bats. The yard was not well connected to other areas of suitable habitat but the graveyard of St. Mary's Church was only separated from it by Gun Street and the buildings that line it. The churchyard comprised grassland and mature trees which provided suitable habitat for foraging bats.

The Holy Brook Stream also provided a limited foraging resource immediately east of the site. Due to it being in a culvert for most its length, and the absence of a natural bank profile or significant areas of vegetation, the culvert was considered relatively poor habitat for foraging bats.

Picture 11 & 12: Yard (before and after vegetation cut)



3.2.1.5 Culvert

The culvert that runs beneath the site was assessed from the point it exits the culvert immediately east of the site boundary. The culvert is constructed from brick and is believed to have been first culverted in the 19th Century. The brickwork around the culvert exit and the brick walls that formed the channel sides after the culvert appeared old but were generally intact and well rendered. No obvious gaps or cracks that could provide bat roost potential were evident. The full length of the culvert below the site could not be accessed so it is unknown what the condition of the brickwork is for the full length.

At the time of the survey, during a prolonged dry period, the water in the channel was shallow and slow flowing. The top of the culvert was approximately 1m above the water but this distance is likely to be less when water levels are higher. This would further limit opportunities for bats to roost.

Picture 13: Culvert



A summary of the PRF's and potential access points identified during the survey are provided in Table 4.

Table 4: Summary of Potential Roost Features and access points.	
Feature	Potential value to bats
<u><i>Northern elevation:</i></u>	
Potential small gaps and crevices around lintels and window frames and beneath roof tiles.	Potential roost space for individual or small numbers of crevice dwelling bats.
Slightly ajar windows.	Access into the interior of the building.
<u><i>Southern elevation:</i></u>	
Potential small gaps and crevices beneath roof tiles.	Potential roost space for individual or small numbers of crevice dwelling bats.
Damage to roof in SE corner.	Potential roost space for individual or small numbers of crevice dwelling bats. Access into the interior of the building.
Damaged walls/brickwork.	Potential roost space for individual or small numbers of crevice dwelling bats. Potential access to larger voids behind brickwork/created by damage Access into the interior of the building.
Broken or missing window panes.	Access into the interior of the building.
<u><i>Loft space:</i></u>	
Loft void	Potential roost space for large numbers of bats. No signs of bats present.
Wooden frame	Potential roost space for individual or small numbers of crevice dwelling bats. No signs of bats present.
<u><i>Ground floor, first floor and second floor:</i></u>	
Limited shelter behind stored materials, such as the board on the ground floor.	Limited potential for individual or small numbers of bats. A single bat dropping was found attached to one board.
Inspection hatches.	Potential roost space for small to medium numbers of bats. No signs of bat use were identified.
<u><i>Basement:</i></u>	
Basement void.	Potential roost space for large numbers of bats, including as hibernation roost. No signs of bats present.
Ceiling void.	Potential roost space for small to medium numbers of bats. No signs of bat use were identified. No signs of bats present.
<u><i>Yard:</i></u>	
Vegetated yard in an urban area with connectivity to foraging habitat in nearby graveyard.	No roost potential but provides opportunities for foraging bats.
<u><i>Culvert:</i></u>	
Brick culvert.	Roosting potential deemed to be limited due to intact brickwork and limitation of water level. However, cannot be completely ruled out as full length of culvert inaccessible.

Overall, the building on the site was found to contain a number of features suitable to be bat roosts. One bat dropping was identified within the building confirming that at least one bat has entered the building. The lack of any further signs of bat activity meant that there was no evidence that the building interior is well used as a bat roost but it is likely that at least one bat has found shelter for a limited time at the location where the bat dropping was found. The dropping was characteristic of a pipistrelle bat. There were a number of external features that provided potential roost locations for low number of bats and crevice dwelling species which could not be accessed during the survey.

Overall, due to the number of features present, the presence of a bat dropping and the evidence of the building being used as a roost in 2016, the building was found to have High bat roost potential.

The culvert was considered to have limited opportunities for bats to roost but because the full length of the culvert could not be accessed its full roost potential could not be determined. However, it was considered to have overall Low bat roost potential.

3.2.2 Bat presence/absence survey

The building was assessed as having High potential for roosting bats therefore, three presence/likely absence surveys were undertaken. The culvert was assessed as having Low potential for roosting bats so one presence/likely absence survey was undertaken. The locations of surveyors can be found in Appendix 1.

The survey findings are presented below:

3.2.2.1 Building

Dusk 4th August 2022: A single common pipistrelle bat was observed emerging from below a ledge on the exterior of the stairwell tower, on the south elevation, at 21:38.

Dusk 15th August 2022: No bats were seen to emerge from the building.

Dusk 5th September 2022: Two common pipistrelles were seen to emerge from below the eaves of the building to the east of the site, which overhung the site boundary, at 19:57.

A common pipistrelle was seen flying in close proximity to the building where there was a gap above exposed brickwork at 19:58. It appeared to briefly enter the building before exiting seconds later.

There were two further potential emergences which could not be confirmed by the surveyor or infra-red recording. At 20:09, a common pipistrelle potentially emerged from the roof ridge at the

eastern end of the building. At 20:19, a common pipistrelle potentially emerged from the eastern side of the building near to the exposed, white, interior door.

Bat activity

No other bats were seen to emerge from the building but common pipistrelle were recorded around the front of the building with activity originating in the church yard opposite. Common pipistrelle were also recorded foraging in the yard area behind the building with bats arriving/leaving predominantly from the north, east and west.

A low number of calls from other species were recorded but calls were faint and could not be identified to species level. They were most characteristic of bats from the group of 'big bats' and were likely recorded foraging and commuting within the wider area.

3.2.2.2 Culvert

Dusk 15th August 2022: No bats were seen to emerge from the culvert.

Bat activity

A soprano pipistrelle bat was recorded foraging along the stream briefly. Otherwise, no direct bat activity was recorded along the stream. Bats foraging within the yard of 10 Gun Street were detected and they occasionally crossed the eastern site boundary. They predominantly comprised common pipistrelle contacts.

4 DISCUSSION

There are no designated sites for bats within 1km of the site and therefore there will be no impacts to consider in relation to them.

The preliminary bat roost assessment found the building to continue to have High bat roost potential and the presence/absence surveys confirmed that the building was being used as a summer bat roost. The basement had potential to be a hibernation roost.

The building was found to support a low number of common pipistrelle bats with individual bats found to use a number of small, crevice type roost features on the southern elevation. A total of four different roost features were potentially identified with each supporting a single bat.

In addition, two common pipistrelle bats were seen to emerge from the eaves of a building to the east of the site which overhung the yard.

The findings of the surveys suggest the building on the site and the adjoining building to the east both support day roosts for low numbers of common pipistrelle. It is possible that the bats may also utilise other small, crevice type PRF's found across the southern elevation.

The roost features are shown on Picture 13 below with light blue arrows showing confirmed roost locations and yellow arrows showing possible roost locations.

Picture 13: Identified and possible roost features



The proposals for the site are for an extension to the south elevation which would result in the loss of two confirmed roost locations and one possible roost location. The possible roost location at the

roof ridge would not be directly affected by the proposals but could be affected should any remedial works to the roof be required.

The works would also result in disturbance to the roost entrances into the building to the east due to the creation of a two-storey extension in close proximity. The roof of the extension would form a roof garden and be accessible to guests resulting in increased noise, light and the presence of people in close proximity to the roost.

The proposals would also result in the loss of the yard which was found to be used by low numbers of bats for foraging.

The culvert was not found to be used as a bat roost and would not be directly affected by the proposals. However, there is potential for disturbance to the culvert from construction activities above it.

Mitigation measures are required to ensure alternative roost and foraging features are provided on the site and these are discussed in Section 5 of this report.

4.1 ASSESSMENT OF VALUE

Once bat roosts are confirmed to be present, the bat surveys facilitate the characterisation of roost type. This ensures that appropriate mitigation and compensation measures can be designed to inform a bat mitigation license application to Natural England.

The following roost sites have been confirmed:

- Common pipistrelle day roost – considered to be of local value.

Possible, unconfirmed roost sites:

- Common pipistrelle day roost – considered to be of local value.

The conservation value of the confirmed roosts are considered to be of local value and low conservation significance. The roosts consist of individual bats of common species (common pipistrelle).

Given the timing of surveys, the potential presence of a maternity roost of any species within the building can be ruled out.

5 MITIGATION AND ENHANCEMENT MEASURES

The proposed works would result in the permanent loss of, and obstruction to, known common pipistrelle day roosts. The following recommendations will ensure that works comply with wildlife legislations and ensure the benefits to local wildlife and biodiversity are maximised.

5.1.1 Bat mitigation licence

A bat mitigation licence would be required in advance of any works taking place, once planning permission had been granted, to ensure destruction of the roost was lawful. The licence application would need to include full details of the methods that would be used to sensitively remove the roost features present, with least effect to bats, including considering suitable timings and appropriate working methods.

It would be necessary to compensate for the loss of the roost features currently present and full details would need to be provided on the types of alternative roost that would be provided, their suitability for the species being lost (common pipistrelle) and where they would be located.

Further details of these requirements are set out below:

- Prior to works commencing, alternative roost locations would need to be provided within the vicinity of the existing roosts. There are no mature trees present on the site so bat boxes/tiles would need to be installed on buildings. These could be located within retained sections of the building; such as the south facing roof, or within the adjoining property to the west (which is under the same land ownership). A minimum of five alternative roost features should be provided, suitable for common pipistrelle and at a similar height and aspect to those being lost. They should be in a location where they are free from disturbance and should not need to be moved again;
- Works to remove the known roosts and other PRF's would need to be timed to take place outside of the summer months when bats would be roosting. As a precaution, works to the basement should not be undertaken during the winter months due to being a suitable location for a hibernation roost;
- The removal of these features would need to be undertaken under the watching brief of a bat licenced ecologist. Methods would need to be agreed that removed features sensitively and would be likely to include hand stripping sensitive features;

- Additional roost features should be designed into the fabric of the extension to provide additional roosting opportunities for bats. These could comprise bat bricks or tiles that can be installed within walls and roofs. A minimum of five roost features should be provided;
- The lighting strategy for the proposals would need to ensure that artificial lighting did not light any of the roost features created, or the retained PRF's within the south-facing roof. Lighting should only be used where it is needed and directional, downward facing luminaires should be used to prevent upward light spill.

5.1.2 Nesting birds

Due to the suitability of the site for nesting birds, the works should avoid the active breeding season for birds which runs from March to September inclusive. Should works be required within this period, the building should first be inspected by a suitably qualified ecologist to determine if any active nests are present. Should an active nest be present, works that could affect it would need to be halted until the ecologist had confirmed that the nest was no longer in use. The ecologist would advise on the restrictions needed to protect the nest.

5.1.3 New Planting

As foraging and commuting bats were recorded during the nocturnal surveys, development proposals should seek to maintain and enhance the value of the Site for bats.

A sedum roof is currently within the project design and it is recommended that this is amended to become a biodiverse roof. The roof should contain a nutrient poor substrate and building materials could be used as part of this, such as crushed concrete and brick. This will provide an infertile growing medium capable of supporting a variety of early successional plants and/or wildflower grasses and herbs.

The substrate can be used to create a varied profile to provide suitable conditions for a greater variety of plants, and in turn the fauna they support. Biodiverse roofs can be particularly rich habitat for invertebrates which in turn provide a food source for bats. Best practice guidance should be followed in its design and creation and the [Creating Green Roofs for Invertebrates. A Best Practice Guide](#) (Gedge et al, undated) should be followed.

Any other planting within pots/planters should contain species of known attraction to night-flying invertebrates. These could include:

- Cherry pie (*Heliotropium arborescens*)

- Evening primrose (*Oenothera biennis*)
- Honeysuckle (*Lonicera periclymenum*)
- Night-scented catchfly (*Silene noctiflora*)
- Night-scented stock (*Matthiola bicornis*)
- Nottingham catchfly (*Silene nutans*)
- Soapwort (*Sapnoria officinalis*)
- Sweet rocket (*Hesperis matronalis*)
- Tobacco plant (*Nicotiana alata*)
- White jasmine (*Jasminum officinale*)

The creation of a biodiverse roof and the introduction of planting that attracts night flying invertebrates would provide an alternative foraging resource for bats of greater value than the recently established vegetation in the yard.

5.1.4 Bird Boxes

Further enhancement at the site could be provided in the form of additional bird boxes on the new buildings. Boxes chosen should be suitable for the species currently recorded within or in close vicinity to the site in consultation with a suitably qualified ecologist.

6 CONCLUSIONS

The property at 10 Gun Street was found to support a common pipistrelle day roost that could be affected by the proposals. The neighbouring building also supported a common pipistrelle day roost and could also be affected by the proposals.

It is possible to mitigate the effects of the proposals by providing alternative roosting features both before the project commences and within the project design. Along with the use of sensitive working practices, the potential effects on bats and their roosts can be minimised. A bat mitigation licence would be required.

Proposals for a sedum roof could be amended to provide a biodiverse roof which would be of greater value to wildlife, including bats. This would compensate for the loss of the existing vegetation in the yard that is used by bats for foraging.

The use of night-scented flowers to attract night-flying invertebrates and the inclusion of bird boxes into the project design would further enhance the project for wildlife.

APPENDICES

APPENDIX A – SURVEYOR LOCATIONS



APPENDIX C - POLICY AND LEGISLATION

National Planning Policy Framework (NPPF)⁶

The revised National Planning Policy Framework sets out the government's planning policies for England and how these are expected to be applied. It provides a framework within which locally prepared plans for housing and other development can be produced. Planning law requires that applications for planning permission be determined in accordance with the development plan. The key paragraphs from the relating to the natural environment are detailed below:

Ecologically Relevant Paragraphs of the NPPF	
Paragraph	Statement
174	Planning policies and decisions should contribute to and enhance the natural and local environment by: - protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan); - recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland; - maintaining the character of the undeveloped coast, while improving public access to it where appropriate; - minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures; - preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.
175	Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework⁷; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

⁶ NPPF July 2021 (<https://www.gov.uk/government/publications/national-planning-policy-framework--2>)

⁷ Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality.

176	Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and the Broads ⁸ . The scale and extent of development within all these designated areas should be limited, while development within their setting should be sensitively located and designed to avoid or minimise adverse impacts on the designated areas.
177	When considering applications for development within National Parks, the Broads and Areas of Outstanding Natural Beauty, permission should be refused for major development ⁹ other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of: the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy; the cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.
178	Within areas defined as Heritage Coast (and that do not already fall within one of the designated areas mentioned in paragraph 176), planning policies and decisions should be consistent with the special character of the area and the importance of its conservation. Major development within a Heritage Coast is unlikely to be appropriate, unless it is compatible with its special character.
179	To protect and enhance biodiversity and geodiversity, plans should: Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity ¹⁰ ; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation ¹¹ ; and promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.
180	When determining planning applications, local planning authorities should apply the following principles: if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts),

⁸ English National Parks and the Broads: UK Government Vision and Circular 2010 provides further guidance and information about their statutory purposes, management and other matters.

⁹ For the purposes of paragraphs 176 and 177, whether a proposal is 'major development' is a matter for the decision maker, taking into account its nature, scale and setting, and whether it could have a significant adverse impact on the purposes for which the area has been designated or defined.

¹⁰ Circular 06/2005 provides further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system.

¹¹ Where areas that are part of the Nature Recovery Network are identified in plans, it may be appropriate to specify the types of development that may be suitable within them.

	adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused; development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest; development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons¹² and a suitable compensation strategy exists; and development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.
181	The following should be given the same protection as habitats sites: potential Special Protection Areas and possible Special Areas of Conservation; listed or proposed Ramsar sites¹³; and sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.
182	The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

Natural Environment and Rural Communities (NERC) Act 2006^{14 15}

Section 40 – To conserve biodiversity

Section 40 puts a duty on public authorities to conserve biodiversity when undertaking its duties and functions,

Section 41 – Biodiversity list and Action

Section 41 – Requires the Secretary of State *to publish a list of the living organisms and types of habitat considered to be of principal importance for the purpose of conserving biodiversity*. They must also *take such steps as appear to the Secretary of State to be reasonably practicable to further the conservation of the living organisms and types of habitat included in any list published under this section or promote the taking by others of such steps*.

¹² For example, infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat.

¹³ Potential Special Protection Areas, possible Special Areas of Conservation and proposed Ramsar sites are sites on which Government has initiated public consultation on the scientific case for designation as a Special Protection Area, candidate Special Area of Conservation or Ramsar site.

¹⁴ <https://www.legislation.gov.uk/ukpga/2006/16/section/40>

¹⁵ <https://www.legislation.gov.uk/ukpga/2006/16/section/41>

The 2007 lists were superseded by the UK Post-2010 Biodiversity Framework.

UK Priority Habitats (excl. marine habitats) ¹⁶	
UK BAP broad habitat	UK BAP priority habitat
Rivers and Streams	Rivers
Standing Open Waters and Canals	Oligotrophic and Dystrophic Lakes
	Ponds
	Mesotrophic Lakes
	Eutrophic Standing Waters
	Aquifer Fed Naturally Fluctuating Water Bodies
Arable and Horticultural	Arable Field Margins
Boundary and Linear Features	Hedgerows
Broadleaved, Mixed and Yew Woodland	Traditional Orchards
	Wood-Pasture and Parkland
	Upland Oakwood
	Lowland Beech and Yew Woodland
	Upland Mixed Ash woods
	Wet Woodland
	Lowland Mixed Deciduous Woodland
	Upland Birch woods
Coniferous Woodland	Native Pine Woodlands
Acid Grassland	Lowland Dry Acid Grassland
Calcareous Grassland	Lowland Calcareous Grassland
	Upland Calcareous Grassland
Neutral Grassland	Lowland Meadows
	Upland Hay Meadows
Improved Grassland	Coastal and Floodplain Grazing Marsh
Dwarf Shrub Heath	Lowland Heathland
	Upland Heathland
Fen, Marsh and Swamp	Upland Flushes, Fens and Swamps
	Purple Moor Grass and Rush Pastures
	Lowland Fens
	Reedbeds
Bogs	Lowland Raised Bog
	Blanket Bog
Montane Habitats	Mountain Heaths and Willow Scrub
Inland Rock	Inland Rock Outcrop and Scree Habitats
	Calaminarian Grasslands
	Open Mosaic Habitats on Previously Developed Land
	Limestone Pavements
Supralittoral Rock	Maritime Cliff and Slopes
Supralittoral Sediment	Coastal Vegetated Shingle
	Machair
	Coastal Sand Dunes

Protected Species Legislation

European Protected Species

European Protected Species (EPS) are species of plants and animals (other than birds) protected by law throughout the European Union. They are listed in Annexes II and IV of the European Habitats Directive and

¹⁶ <http://jncc.defra.gov.uk/page-5706>

receive full protection under The Conservation of Species and Habitats Regulations (as amended) 2019. This make it an offence to:

- deliberately capture, injure or kill any European Protected Species (EPS)
- to deliberately disturb any European Protected Species (EPS);
- to damage or destroy a breeding site or place of rest or shelter used by any European Protected Species (EPS).

The Wildlife and Countryside Act 1981 (as amended) adds further protection by making it an offence to intentionally or recklessly¹⁷ disturb an EPS while it is occupying a structure or place which it uses for shelter or protection, or to obstruct access to any structure or place the species uses for shelter or protection.

European Protected Species relevant to the UK			
Animals		Plants	
All bat species	Great Crested Newt	Yellow marsh saxifrage	Creeping marshwort
Large blue butterfly	Otter	Shore dock	Slender naiad
Wild cat	Smooth snake	Killarney fern	Fen Orchid
Marine turtles, dolphins, porpoises and whales (all species)	Sturgeon fish	Early gentian	Floating-leaved water plantain
Dormouse	Natterjack toad	Lady's slipper	
Sand lizard	Pool Frog		
Fisher's Estuarine Moth	Snail, Lesser Whirlpool Ram's-horn		

Other Protected Species		
Species	Legislation	Level of Protection
Birds	Wildlife and Countryside Act 1981 (as amended)	Under the Wildlife and Countryside Act (1981) it is an offence if any person: • intentionally kills, injures or takes any wild bird • intentionally takes, damages or destroys the nest of any wild bird whilst that nest is in use or being built; • intentionally takes, damages or destroys eggs of any wild bird; Wild birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) are protected from: • intentional or reckless disturbance whilst it is building a nest or is in, on or near a nest containing eggs or young; • disturbance of dependent young

¹⁷ Under the Countryside and Rights of Way Act 2000 (CROW Act) extended the protection to cover reckless damage or disturbance

APPENDIX D - BAT SUITABILITY AND SURVEY EFFORT

Classifications of suitability are based on those provided within the Bat Conservation Trust Good Practice Survey Guidelines¹⁸, with the table below taken from page 35 of the guidelines (table 4.1).

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)		
Suitability	Description	
	Roosting Habitats	Commuting and Foraging Habitats
Negligible	Negligible habitat features on site, likely to be used by roosting bats	Negligible habitat features on site, likely to be used by commuting and foraging bats
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions^a 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^b). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential^c.	Habitat that could be used by small numbers of commuting bats such as 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.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions^a and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are 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.
High	A structure or tree 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^a and surrounding habitat	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, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as

¹⁸ Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). Bat Conservation Trust

		broadleaved woodland, tree lined watercourse and grazed parkland. Site is close to and connected to known roosts.
a. For example in terms of temperature, humidity, height above ground level, light levels or levels of disturbance. b. Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten et al., 2015). This phenomenon requires some research in the UK but ecologists should be aware of potential for larger numbers of this species to be present during the autumn and winter in larger buildings in highly urbanised environments. c. The system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015)		

The classification of the suitability relates to the level of further survey recommended.

Survey effort and timing depending on suitability of the structure or tree (Tables 7.1-7.3 in the BCT Guidelines)			
	Low roost suitability	Moderate roost suitability	High roost suitability
Survey Effort	One survey visit One dusk emergence or dawn re-entry survey	Two separate visits One dusk emergence and a separate dawn re-entry survey	Three separate visits At least one dusk emergence and a separate dawn re-entry survey. The third can be either dusk or dawn.
Timings	May-August (structures) No further survey (trees)	May to September. At least one must be in the optimum period (May to August)	May to September. two must be in the optimum period (May to August)
If bats are recorded	If bats emerge during surveys, the survey schedule will be adjusted to increase the survey effort so that enough information can be collected to characterise the roost and provide data should a Natural England Licence be required.		