

Nuthills Farm, Chippenham

Preliminary Roost Assessment (PRA) Report

Final

1604/Version 1.0

Client: James Hoffman

Date: 16 December 2024

DOCUMENT CONTROL

Report prepared for:

James Hoffman

Main contributors:

Nicole Evans BSc (Hons)

Assistant Ecologist

Ellie Hack BSc (Hons) ACIEEM

Principal Ecologist

Reviewed by:

Tessa Pepler BSc (Hons) MCIEEM

Principal Ecologist

Issued by:

Ellie Hack BSc (Hons) ACIEEM

Principal Ecologist

Green Tree House, 11 St Margaret's St, Bradford on Avon, Wiltshire, BA15 1DA
T: 01225 723652 E: info@johnsassociates.co.uk | W: www.johnsassociates.co.uk

DOCUMENT REVISIONS

Version	Details	Date
1.0 Draft	Draft Preliminary Roost Assessment issued to Client for review	19 November 2024
1.0 Final	Final Preliminary Roost Assessment issued to Client for submission	16 December 2024

Third party disclaimer

Any disclosure of this report to a third party is subject to this disclaimer. The report was prepared by Johns Associates at the instruction of, and for use by, our client named on the front of the report. It does not in any way constitute advice to any third party who is able to access it by any means. Johns Associates excludes to the fullest extent lawfully permitted all liability whatsoever for any loss or damage howsoever arising from reliance on the contents of this report. We do not however exclude our liability (if any) for personal injury or death resulting from our negligence, for fraud or any other matter in relation to which we cannot legally exclude liability.

NON-TECHNICAL SUMMARY

Purpose of the Report	To provide the results of a Preliminary Roost Assessment (PRA) conducted at Nuthills Farm, Sandy Lane, Chippenham, to inform the requirement for further bat surveys and to identify the need for avoidance, mitigation, compensation and/or enhancement measures.
Surveys Undertaken	The PRA of the site was carried out on the 17th October 2024. All external and internal areas of the Byre outbuilding proposed for development, along with three other buildings on site, were inspected for signs of bats and features that could be used by roosting bats.
Summary of Results	The Byre outbuilding was confirmed as a roost for a minimum of four species of bat, comprising common pipistrelle, soprano pipistrelle, brown long-eared and Natterer's bat, which was confirmed by DNA analysis of droppings present and the presence of a roosting soprano pipistrelle bat during the PRA survey. All three of the other buildings inspected were also confirmed as bat roosts, likely to support horseshoe bats due to the characteristics of the bat droppings present. The habitats within and surrounding the site have high suitability to support roosting, foraging and commuting bats.
Conclusions	The Site is of high value to bats, with four bat roosts present within the Byre outbuilding.
Further Surveys Required	Roost characterisation surveys are required comprising three emergence surveys between mid-May to September 2025. Surveys will inform a bat mitigation strategy for the site, which will be submitted as part of a bat mitigation licence application.
Avoidance	Avoid roof stripping works or works which will impact bat roosts within the Byre outbuilding during the bat hibernation season (December to February inclusive). Further timing recommendations for bats will be provided following roost characterisation surveys. A bat sensitive lighting strategy should be implemented, which should be informed by a suitably qualified ecologist. Roofing felt suitable for use within bat roosts (Type 1F or a breathable membrane which has passed the snagging propensity test) must be used. Any timber treatments must be selected from the bat safe list. Avoid construction works within Byre outbuilding during bird nesting season (March to August inclusive) or a suitably qualified ecologist to inspect for nesting birds prior to works. Should nesting birds be present, works will need to be halted in proximity to the nest whilst it remains active.
Mitigation	Bat boxes will be required as alternative roost provision during works. Models and number of bat boxes will be provided following roost characterisation surveys.
Compensation	Bat compensation features will be required within the newly renovated building. Design and location of compensation features will be provided following roost characterisation surveys. A minimum of 3 no. barn swallow cups are recommended to be installed in appropriate locations to compensate for the loss of nesting opportunity within the Byre outbuilding.
Enhancement	A bat friendly planting scheme is recommended, as well as the installation of additional bat and bird boxes.
Data Valid Until	October 2025

TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	Background.....	1
1.2	Summary of Proposals	1
1.3	Purpose of this Report	1
1.4	Personnel	1
1.5	Site Description and Location	1
1.6	Legislation and Policy	2
2	METHODOLOGY	4
2.1	Desk study.....	4
2.2	Data search	4
2.3	Preliminary Roost Assessment	4
2.3.1	Bat Habitat Suitability Assessment	4
2.3.2	Bat DNA Analysis	5
2.4	Limitations Constraints and Assumptions	6
3	RESULTS	7
3.1	Desk study.....	7
3.1.1	Statutory Designated Sites.....	7
3.1.2	Priority habitats.....	7
3.1.3	Protected and Notable Species Records	7
3.1.4	Granted Protected Species Licenses.....	8
3.2	Preliminary Roost Assessment (PRA)	8
3.2.1	Buildings on site	8
3.2.2	Bat Habitat Suitability Assessment	13
3.2.3	Bat DNA Analysis	13
3.2.4	Proposed Lighting.....	13
4	DISCUSSION, RECOMMENDATIONS AND MITIGATION	15
4.1	Designated sites.....	15
4.2	Bats	15
4.2.1	Status of Bats on Site	15
4.2.2	Impact of Proposals	15
4.2.3	Further Surveys Required	15
4.2.4	Bat Mitigation, Compensation and Enhancement Strategy.....	15
4.2.5	Bat Mitigation Licence	17
4.3	Nesting birds	18
4.3.1	Status of Nesting Birds on Site	18
4.3.2	Recommendations	18
5	ECOLOGICAL ENHANCEMENTS	19
5.1.1	Bat Friendly Planting.....	19
5.1.2	Bat and Bird Boxes.....	19
6	CONCLUSIONS	21
7	REFERENCES	22

1 INTRODUCTION

1.1 BACKGROUND

James Hoffman commissioned Johns Associates Ltd in October 2024 to undertake a Preliminary Roost Assessment (PRA) of the existing site at Nuthills Farm, Chippenham, in support of a planning application for the site. The site is located at post code SN15 2PZ (central Ordnance Survey (OS) grid reference ST 96550 68225). The Site consists of a residential home, guest house/barn, log store barn and a garage.

1.2 SUMMARY OF PROPOSALS

The proposals under planning application PL/2024/06123 are to renovate the existing byre outbuilding, which includes re-roofing and installation of roof lights to the southern wing, lining the internal parts of the roof on the northern wing, and installation of double doors on the east face of the northern wing. In addition, 10 no. new external luminaries are proposed in the gardens and entranceway of the site, as well as the replacement of one additional external light fitting.

1.3 PURPOSE OF THIS REPORT

The purpose of this report is to identify key ecological constraints to the proposed development and inform master-planning to allow significant ecological effects to be avoided or minimised wherever possible. The information in this report enables any further ecological surveys needed to be identified and appropriately designed. The purpose of the report is to:

- Provide an assessment of the potential for bats on site.
- Identify key ecological constraints to the proposed development.
- Inform master-planning to allow significant ecological effects to be avoided or minimised wherever possible.
- Provide the requirements for further surveys.
- Provide an indication (where possible) of the likely mitigation or compensation measures that will be required as part of the development proposals.

1.4 PERSONNEL

The PRA and review of the report was carried out by Ellie Hack BSc (Hons) ACIEEM, an experienced Principal Ecologist at Johns Associates with seven years' experience in ecological consultancy. Ellie is particularly experienced in bat ecology, working as bat specialist within the company – she holds Level 3 and 4 bat licences, and has extensive experience in designing and implementing bat mitigation schemes for complex projects

The PRA and production of the report was carried out by Nicole Evans BSc (Hons) Assistant Ecologist, with one years' experience in ecological consultancy. Nicole has experience of a range of protected species surveys, including bats, reptiles, GCN, dormouse and badgers.

1.5 SITE DESCRIPTION AND LOCATION

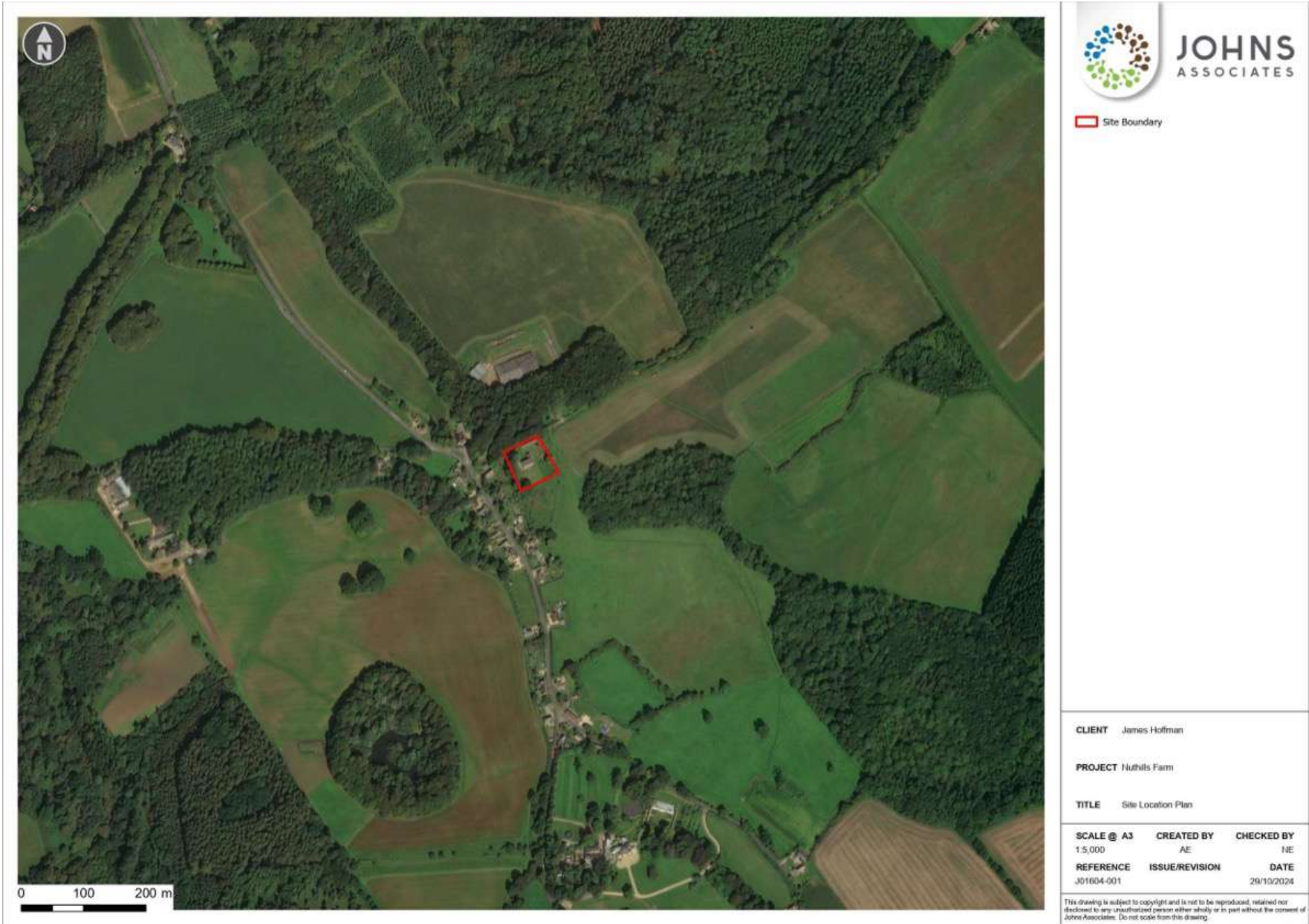
Nuthills Farm, which hereafter is referred to as the 'Site', comprises five buildings on a residential property, with associated gardens and land. The Site is located in Sandy Lane, to the southeast of Chippenham in Wiltshire. The area of the Site is approximately 0.4 ha in size. The Site is bordered to the north by mixed broadleaved woodland, the south and east by agricultural fields and the west by a road and the small village of Sandy Lane.

At the landscape level, the Site is surrounded by agricultural fields, with several areas of woodland, including ancient woodland and wood pasture and parkland. The closest area of ancient woodland is 290 m northeast of the site, with another area of ancient woodland 400 m southeast. The A342 road runs to the west approximately 70 m west of the Site. The Site is located within a rural setting; connectivity to the wider landscape is optimal for bat species via linear features including hedgerows with access to multiple woodland sites.

1.6 LEGISLATION AND POLICY

The legislation and national and local planning policies which are relevant to this assessment are provided in Appendix A to this report.

Figure 1: Site Location Red Line Boundary Plan and Context of Site



2 METHODOLOGY

2.1 DESK STUDY

A desk study was undertaken to collate all relevant existing information relating to the Site and its surrounding area. The data was used to inform the scope of the Site survey and to enable a full assessment of the likely effects of any development at the Site on any sites, habitats, or species of conservation interest to be carried out. The Multi Agency Geographic Information for the Countryside (MAGIC) website was used to conduct the following desk study searches on 28 October 2024:

- Records and citations to a 2 km radius for national statutory designated wildlife sites including Sites of Special Scientific Interest (SSSI), Local Nature Reserves (LNR) and National Nature Reserves (NNRs).
- Records and citations to a 5 km radius of international statutory designated wildlife sites including Special Areas of Conservation (SACs) which are designated for habitats, and Special Protection Areas (SPAs).
- Records and citations to a 10 km radius of SACs designated for supporting species of bat.
- Records of European Protected Species (EPS) Licenses to a 2 km for bats

Google Maps aerial images were used to assess habitats at a landscape level (www.maps.google.com) in proximity to the Site.

2.2 DATA SEARCH

A data search was conducted through the Wiltshire and Swindon Biological Records Centre (WSBRC) on 28 October 2024 to identify the presence of any bat records within 2 km of Site.

2.3 PRELIMINARY ROOST ASSESMENT

A survey of the built structures on Site was carried out on 17 October 2024, the weather was 14°C, dry and sunny with good visibility. The inspection followed the professional survey guidance as detailed in Bat Survey Guidelines for Professional Ecologists: Good Practice Guidelines (Collins, J. 2023).

The survey entailed a direct search for evidence of bats on both internal and external features of the buildings on Site. The external building inspections were carried out from the ground. Other supporting equipment included close focusing binoculars and a high-powered torch, as required. The buildings were examined externally for features that could support roosting bats and features that could lead to internal potential roost features (PRFs). The buildings were also subject to an internal inspection.

The presence of roosting bats can be observed through signs such as accumulations of moth or butterfly wings or bat droppings and staining and/or scratch marks around potential entrance and exit points. However, the absence of droppings/evidence cannot be treated as conclusive proof that bats are not present, and therefore an assessment was also made of the potential of the building to support bats based on the criteria detailed by the Bat Survey Guidelines (2023) and provided in Table 1 below.

2.3.1 Bat Habitat Suitability Assessment

The overall suitability of the Site and adjacent habitats for foraging and commuting bats was also assessed to determine its importance within the wider local context, particularly with reference to the location of known roosts obtained through the Desk Study. The assessment was conducted using the criteria described in Table 1.

Table 1: Guidelines for assessing the potential suitability of proposed development sites for bats, based on presence of habitat features within the landscape, to be applied using professional judgement (Collins, J, 2023)

Suitability	Description Roosting Habitats	Commuting and Foraging Habitats
None	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).
Negligible ^a	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 flightpaths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions ^b 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 and not a classic cool/stable hibernation site but could be used by individual hibernating bats ^c).	Habitat that could be used by small numbers of bats as flightpaths 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.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions ^b 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 categorisation 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 flightpaths 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 ^b and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flightpaths 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 broadleaved woodland, tree-lined watercourses, and grazed parkland. Site is close to and connected to known roosts.
a. Negligible is defined as ‘so small or unimportant as to be not worth considering, insignificant’. This category may be used where there are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute). b. For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance. c. 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., 2016 and Jansen et al., 2022). Common pipistrelle swarming has been observed in the UK (Bell, 2022 and Tomlison, 2020) and winter hibernation of numbers of this species has been detected at Seaton Delaval Hall in Northumberland (National Trust, 2018). This phenomenon requires some research in the UK, but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in prominent buildings in the landscape, urban or otherwise.		

2.3.2 Bat DNA Analysis

Bat droppings collected were sent to Swift Ecology & Ecotype Genetics laboratory for multi-species DNA analysis.

2.4 LIMITATIONS CONSTRAINTS AND ASSUMPTIONS

The findings of this report are considered valid at the time of survey (17 October 2024). Should there be delays to the project timetable and/or implementation of the proposed development, updated desk study and/or survey work may be required. In this instance, advice should be sought to ensure the data, recommendations and conclusions set out in this report remain valid.

It has been assumed that the development proposals are as described in this document and that all proposed mitigation and enhancement measures will be implemented in full. This report outlines that further roost characterisation surveys are required to be conducted and these survey results are required to inform a planning decision. At this stage this report does not provide sufficient data to support a planning application.

Biological records obtained by third parties and presented in the desk study do not represent a full and complete species list for the area. The records are mostly submitted on an *ad-hoc* basis, often resulting in areas of deficiency within the data. As such, an absence of a species record within the dataset does not infer an absence of the species. Furthermore, the MAGIC EPS licence records may not have been recently updated.

Full access was provided to all parts of the site and surveyors were able to inspect all areas of the buildings. No limitations during the survey was observed.

No other limitations or constraints with regard to the field survey or desk study were encountered and therefore the assessment is considered valid.

3 RESULTS

3.1 DESK STUDY

3.1.1 Statutory Designated Sites

One statutory Site of Special Scientific Interest (SSSI) is present within 2 km of the Site. There were no international designated sites recorded within 5 km of the Site. There were no Special Areas of Conservation (SACs) for bats were identified within 10 km of the Site; a summary is provided in Table 2.

Table 2: Statutory Designated Sites within 2km of the Site.

Statutory designated site name	Reason for designation	Location from the Site
Spye Park (SSSI)	An extensive habitat mosaic comprising large expanses of some of the finest undisturbed Alderwoods in the county, along with oakwoods, parkland and an area of dry acidic grassland containing several locally uncommon plants. Rich communities of lichens, bryophytes and vascular plants flourish in the wet soil conditions prevailing over much of the park.	580 m west of the Site

3.1.2 Priority habitats

There are 164 different priority habitats within 2 km of the Site including areas of: lowland fen, ancient woodland, deciduous woodland, traditional orchard and wood pasture and parkland.

The closest ancient woodland is 290 m northeast of the site and is approximately 3 ha in size. There is a 0.02 ha of deciduous woodland, and wood pasture and parkland BAP which shares the northern boundary of the site.

3.1.3 Protected and Notable Species Records

Wiltshire and Swindon Biological Records Centre provided 77 records for bats within 2 km of the site, dating from 1977 to 2021. This included records of 10 bat species. A summary of these records is included in Table 3.

Table 3. Bat records within 2 km of Site

Species	Records
Serotine	WSBRC returned 7 records of serotine within 2km of the Site, 3 of which were within the past 10 years. This was for a confirmed roost recorded in 2017, located approximately 580m east of Site. The other records were for acoustic records at Spye Park and Whetham Lake in 2008 and 2006 respectively.
Common pipistrelle	WSBRC returned 12 records of common pipistrelle within 2km of the Site, 5 of which were within the past 10 years. 3 of these records were recorded at the same location for a confirmed bat roost located approximately 580m east of Site (all dated 2017). The fourth record was located approximately 2.5km northwest and was for an acoustic record (dated 2021). The final record was for a roost 0.4km southwest of the site in 2018.
Soprano pipistrelle	WSBRC returned 8 records of soprano pipistrelle within 2km of the Site. All of which were recorded at the same location for a confirmed bat roost. Located approximately 580m east of Site (all dated 2017).
Brown long-eared	WSBRC returned 14 records brown long eared within 2km of the Site, 4 of which were within the past 10 years. Of the records within the past 10 years, three records were for a confirmed bat roost located approximately 580m east of Site (all dated 2017). The fourth record was located approximately 1.4km northwest and was for a confirmed bat roost (dated 2020). The remaining 10 records were all for local roosts, the closest being 0.4km southwest of the site in 2018.
Lesser horseshoe	WSBRC returned 3 records of lesser horseshoe within 2.2km of the Site. All of which were recorded at the same location for a maternity roost (a count of 15 bats). The most recent record for the roost was 2018.

Greater horseshoe	There are 9 records for greater horseshoe bat within 2km of the site, from 1977 – 2002, including 7 roost records. The closest roost record is for 1.7km west of the site in 2002 at Spy Park House.
Brandt's bat	There was one record of a Brandt's bat roost in 1994, located 1.5km west of the site.
Daubenton's bat	There is one record of a Daubenton's bat roost in 1985 0.4km southeast of the site.
Natterer's bat	There were 6 records for Natterer's bats, between 1985 – 2001, including 3 roost records. The closest record of a roost was in 2001 for a location 1.3km east of the site.

3.1.4 Granted Protected Species Licenses

There was one European Protected Species (EPSL) licence issued by Natural England for bats identified within 2 km of the Site. The EPSL covered the years 2017-2023 and was for the destruction of a common pipistrelle *Pipistrellus pipistrellus* resting place (Licence number 2017-31969-EPS-MIT), located 1.3km east of Site.

3.2 PRELIMINARY ROOST ASSESMENT (PRA)

3.2.1 Buildings on site

A total of five buildings are present on site, four of which were surveyed during the PRA. **All four buildings surveyed were confirmed to support bat roosts.** The buildings present are as follows:

- Building 1: Byre outbuilding (subject to planning application)
- Building 2: Potting shed
- Building 3: Long Barn/log store
- Building 4: Garage
- Building 5: Main House (not surveyed)

The results of the PRA survey are detailed in Table 4 below.

Table 4: Preliminary Roost Assessment results

Structure reference and location	Bat features/evidence present	Photograph of bat feature(s)
Building 1: Byre Outbuilding		
Northern wing – western elevation 	External: 1. Large fly-in access through opening at either side of the building (TN1). 2. Gaps below the metal corrugated roof ridge and where the central and lower roof panel join (TN2). Eaves access behind the guttering. 3. To the right of the window there were two holes in the cladding leading into an internal cavity (Plate 1, TN3). Internal (Plate 2): 4. Overlapping areas of felt were present but were largely sealed from internal access by chicken wire (Plate 3). 5. Double ridge beam with a crevice observed between, behind chicken wire.	Plate 1: Bowed wooden cladding 

	6. Several mortice and tenon joints were accessible internally and suitable for roosting bats (Plate 3). 7. A soprano pipistrelle was found roosting within the mortice and tenon joint confirming the presence of a soprano pipistrelle bat roost (plate 4, TN4). 8. Scattered bat droppings present throughout (100s), confirmed by DNA analysis as common pipistrelle, Natterer's and brown long-eared bat.	Plate 2: Internal roof space  Plate 3: Internal mortice and tenon joints and felt covered by chicken wire  Plate 4: Roosting soprano pipistrelle in mortice and tenon joint 
Northern wing – northern elevation 	External: 9. Two locations where the central metal roof panel had lifted, providing potential bat access beneath. 10. Eaves access was present below guttering (Plate 5), which would lead to internal space behind the chicken wire.	Plate 5: Eaves access on northern elevation. 

Northern wing – eastern elevation	External: 11. Fly-in access through open doorway (TN1). 12. Additional lifted areas of roof covering.	
Central south facing gable 	External: 13. Cladding in poor condition with gaps between boards, leading to an internal cavity (Plate 6, TN5)	Plate 6: Cladding gaps on southern gable. 
Southern wing – western elevation 	External: 14. Interlocking triple roman clay tiles which were lifted/slipped in places. Potential bat access at the eaves below guttering. Internal: 15. Converted internally and fully plastered and boarded up to the ridge. 16. Bat droppings scattered internally below hole in plaster above central dividing door, in ground floor bedroom and within loft void (approx. 50 droppings) (Plate 7, TN6). 17. Scattered bat droppings below the mortice and tenon joints in the bedroom (TN7). Small void at apex which was inaccessible. Living room had 2 king post trusses with no PRFs. Small loft void present above kitchen to house boiler. Scattered bat droppings internally (10-30) (TN8).	Plate 7: Scattered bat droppings internally.  Plate 8: Internal bedroom area 

		Plate 9: Internal living room space  Plate 10: Internal void with scattered bat droppings (TN8). 
Southern wing – eastern elevation 	External: 18: Clay pan tiles which were lifted/slipped in places. Wet ridge. Lead along northern verge.	
Southern wing – southern elevation 	External: 19: Muck missing from the verge causing gaps below barge board, leading onto wall plate (Plate 11, TN9).	Plate 11: Gaps in mortar below barge board. 

Building 2: Potting Shed		
	20. Open doorway with fly-in access available. Gaps below corrugated metal roofing sheets. 21. Two collections of bat droppings (approx. 50) internally below roof beams, visually characteristic of lesser horseshoe bat.	Plate 12: Lesser horseshoe-like bat droppings present. 
Building 3: Long Barn/Log store		
	22. Open doorway with fly-in access available. 23. Clay panned tiles with many gaps underneath. The tiles on the northern section of the roof were shaded and covered in moss. More likely to be damp/less desirable to crevice dwelling species. 24. Low numbers (< 10) of scattered bat droppings throughout, characteristic of lesser horseshoe bat.	
Building 4: Garage		
	25. Large numbers of bat droppings throughout, with an aggregation at the northern gable end (approx. 100 bat droppings, varying ages), below the ridge beam and on the stairs (approx. 100 bat droppings, varying ages). 26. Missing/broken tile at the southern gable ridge providing potential fly-in access.	Plate 13: Internal view (1st floor) in garage  Plate 14: Aggregation of bat droppings towards northern gable end in garage.

		
--	--	---

3.2.2 Bat Habitat Suitability Assessment

The habitats on and surrounding the site are considered to have high suitability for bats, with good connecting habitat to local areas of ancient and deciduous woodland and a high number of priority habitats local to the site, providing good foraging opportunities.

3.2.3 Bat DNA Analysis

Bat DNA analysis results were provided by Swift Ecology & Ecotype Genetics on 11 November 2024, as follows:

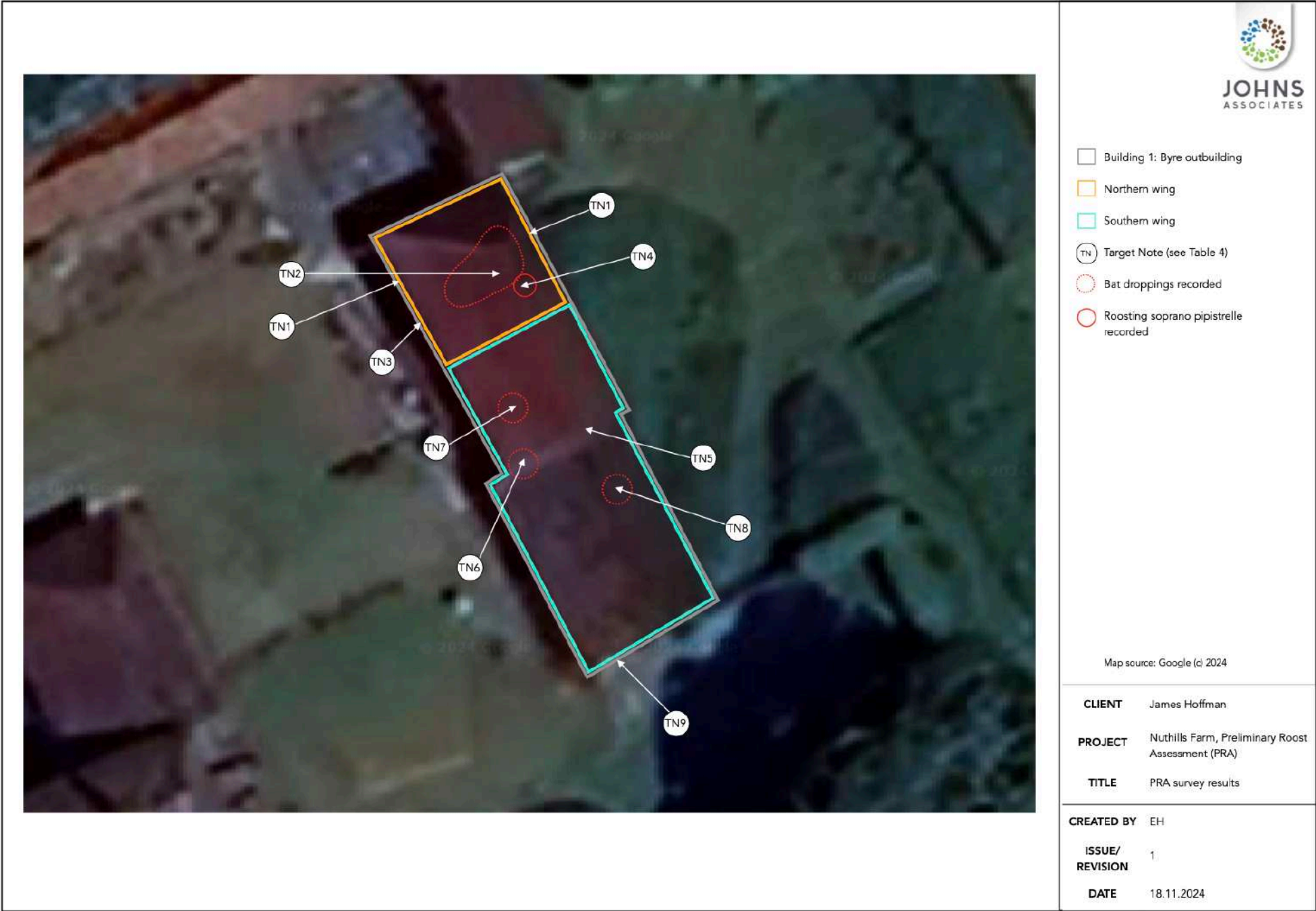
- Byre outbuilding, northern wing: common pipistrelle, brown long-eared and Natterer's bat;
- Byre outbuilding, southern wing: common pipistrelle and soprano pipistrelle bat.

Droppings collected from buildings 2, 3 and 4 were not sent for DNA analysis at this time.

3.2.4 Proposed Lighting

During the PRA survey, the locations of the proposed light fittings were inspected on site. The locations of the light fittings have been chosen as such to ensure that artificial light is directed downwards only, in concentrated locations. All new lights installed will be on PIR/motion sensors, with short intervals set to minimise the periods that lights are switched on (<5 minutes). Fittings within the gardens are proposed to be installed low to the ground (<0.5m in height).

Figure 2: Bat Preliminary Roost Assessment Results



4 DISCUSSION, RECOMMENDATIONS AND MITIGATION

4.1 DESIGNATED SITES

Due to the nature and small scale of the proposed development, it is considered unlikely that the proposed development will impact upon the local statutory designated site of Spyre Park SSSI. No further assessment is required.

4.2 BATS

4.2.1 Status of Bats on Site

Of the four buildings surveyed, all were confirmed to support bat roosts due to the presence of bat droppings internally. A minimum of five species of bats are confirmed to roost on Site, comprising common pipistrelle, soprano pipistrelle, Natterer's bat, brown long-eared bat and horseshoe species. The data search confirmed the presence of a minimum of 10 bat species within 2 km of the Site. The Site and the surrounding area provide high quality habitat for roosting, foraging and commuting bats.

The proposals include re-roofing and renovation of the Byre outbuilding. In addition, 10 No. new external luminaries are proposed in the gardens and entranceway of the site, as well as the replacement of one additional external light fitting.

The Byre outbuilding is a confirmed bat roost for a minimum of four bat species, and an individual soprano pipistrelle was identified roosting within the building during the PRA survey on 17 October 2024.

4.2.2 Impact of Proposals

The proposed works will have an impact on bats and their roosts. Without mitigation, the works could damage, destroy or modify bat roosts and impact the surrounding bat habitat.

4.2.3 Further Surveys Required

Roost characterisation surveys are required to confirm the species, type of roosts and number of bats using the roosts supported by the Byre outbuilding. Due to the confirmed presence of bat roosts on site, three separate dusk emergence survey visits are required. Surveys should be undertaken in accordance with best practice guidelines detailed by the Bat Survey Guidelines for Professional Ecologists: Good Practice Guidelines (Collins, J. 2023). Emergence surveys should be conducted between mid-May and September, with a minimum of two surveys between May and August and a minimum of 3 weeks between surveys. The surveys should maximise the possibility of detecting maternity roosts which can switch roosts between pregnancy and lactation, and the optimum coverage include the pre-parturition, post parturition and mating periods.

Night Vision Aids (NVA) will be required during emergence surveys, comprising of static infra-red or thermal cameras to record all bat activity.

A minimum of two surveyors and three NVA cameras will be required per survey of the Byre outbuilding. Following completion of bat surveys, analysis of all bat sound files and NVA camera footage will be conducted, to characterise all bat roosts present.

4.2.4 Bat Mitigation, Compensation and Enhancement Strategy

Following characterisation of all bat roosts at the Byre outbuilding, a bat mitigation, compensation and enhancement strategy will be designed. The submission of a mitigation and compensation strategy that will be delivered under a Natural England bat EPS licence is necessary to permit the proposed works. The mitigation strategy will detail all

mitigation measures required, to minimise the risk of killing or injury of individual bats during the works process. The compensation strategy demonstrates that compensatory roosts will be provided to replace the roosting opportunities present at the existing building, which will be either temporarily damaged or permanently lost as a result of the proposals.

The features will consider the proposed works on Site, the roosting requirements of the bats present and a solution will be designed to minimise impacts to bats as much as possible. This strategy will be included within a detailed bat impact assessment report to support a planning application for the Site.

Roofing Membrane

NO breathable roofing membrane will be permissible in any part of the building that may be used by bats. Type 1F bitumen roofing felt must be used at areas where bats may gain access (to be discussed with licensed ecologist but generally including features such as traditional clay-tiled roofs, verges, ridges, chimney bases, dormer windows, etc.) or where specific bat roosting features are created, as breathable roofing membranes are proven to create a lethal entanglement hazard to bats. Natural England will not permit the use of breathable roofing membranes at sites where confirmed bat roosts have been recorded. Any deviation from use of Type 1F bitumen roofing felt must be discussed and approved in advance by a licensed ecologist. Mitigation solutions can sometimes be found where optimal ventilation is required (for example, where the proposed works include the conversion of loft voids into habitable spaces).

Timber Treatment

Any use of timber-treatment or pest control treatment must be selected from the approved lists for safe use in or near bat roosts which can be provided on request.

Bats and Lighting

An ecological sensitive lighting strategy will be required for the site to ensure that proposals do not introduce inappropriate lighting which might otherwise fragment habitats and prevent continued foraging and commuting activity by the bat species recorded on the site. This will be especially important considering the presence of horseshoe bats on site, which are considered highly light sensitive.

The proposed light fittings were reviewed during the PRA survey, which are proposed to be installed low in height (<0.5 m) and directed downwards.

Overarching principles to be observed within the ecologically sensitive lighting strategy includes the following:

- Bat roosting areas and other bat sensitive areas (e.g. key commuting and foraging habitats), must be either retained at their existing Lux level or not exceed 0.5 Lux at all heights;
- Column height will be carefully considered to ensure minimal light spill is achieved, with fittings preferably <0.5 m in height;
- All lamps will be fitted with UV filters or lack UV elements when manufactured;
- A warm white spectrum (<2700 Kelvin) will be adopted as this will reduce impacts of blue light upon wildlife;
- LED lamps will be used where possible;
- The use of bollard or low-level luminaires to retain darkness above will be included where appropriate;
- Luminaires with an Upward Light Ratio above zero will be used;

- Any lights installed should incorporate PIR/motion sensors if possible, which are set on a short interval once triggered (<5 minutes);
- If/ where outside security lighting is required these will be specified with ecologist and lighting engineer input to avoid later unchecked installation by the householders. These should be set on a motion-sensors and timers to decrease the light pollution impacts. These lights will also be directed away from vegetation (and hooded/cowled where necessary) and be of the lowest intensity/brightness necessary for their purpose;
- Where required, accessories such as baffles, hoods or louvres will be used on the lamps to reduce light spill;
- The potential for glare to act upon dark corridors must be considered and managed where possible; and
- The orientation of fences, walls, the open space of gardens and other permanent features can be used to achieve the lighting strategy parameters.

Should a lighting strategy or design be required, Lux contour plans should be produced by a qualified lighting engineer. The following requirements are recommended:

- All modelling should include the combined effect of internal and external light spill;
- Four horizontal calculation planes used; one at ground level, one at 1m in height, one at 3m in height and one at roof height;
- Vertical calculation planes should be used where appropriate to show the illumination directly upon the edges of the habitat feature;
- Each plot should be accompanied by their minimum, average and maximum Lux values;
- Where dimming, PIR or variable illuminance states are to be used, a plot should accompany each of these states;
- The contours for 0.5, 1, 2 and 3 Lux (and up to 10 Lux in 1lux intervals) must be clearly shown as well as contours for values above these in either 5 or 10 Lux intervals;
- Modelled plots should not include any light attenuation factor from new or existing planting due to the lag time between planting and establishment and the risk of damage, removal or failure of vegetation which may result in difficulties in enforcing the screening effect or when undertaking post-construction compliance surveys;
- Only a maintenance factor of 1 may be used in order to best replicate the brightness of luminaires to be expected at 'Day 1' of operation; and
- The lux contour plots should be accompanied by an explanatory note from the lighting engineer to list where, in their opinion, sources of glare (essentially the experience of high contrast between a light source and the surrounding darkness) acting upon the dark corridors may occur and what has been done/can be done to reduce their impacts (hoods, screening, orientation, reconfiguration etc).

4.2.5 Bat Mitigation Licence

Prior to the commencement of works, a bat mitigation licence will be required for the Site, granted by Natural England. Dependent upon which roosts/bat species are present, three different licensing routes are possible comprising full European Protected Species (EPS) Licence, Bat Mitigation Class Licence (BMCL) or Earned Recognition (ER) Licence. The licence application can only be submitted following planning approval by the Local Planning Authority. A Suitably Qualified Ecologist (SQE) will be required act as Named Ecologist on the bat

mitigation licence, and to supervise the works on Site. Whilst Natural England aim to provide licensing decisions within 30 working days, processing times can range between 30 to 60 working days.

4.3 NESTING BIRDS

4.3.1 Status of Nesting Birds on Site

The buildings on site have the potential to support nesting birds, and the northern wing of the Byre outbuilding had evidence of nesting pigeons. It is an offence under UK legislation to willfully destroy or damage the nest of a wild bird while it is being built or is in use in any location (Wildlife and Countryside Act 1981 (as amended) and the CROW Act 2000).

4.3.2 Recommendations

To avoid disturbance to nesting birds within the buildings, works should be undertaken outside of the bird nesting season (which runs approximately from 1st March to 31st August inclusive). If works are necessary during the bird nesting season, the buildings should be assessed by a SQE and the appropriate level of avoidance applied prior to any works to avoid disturbance of any nesting birds which may be present. If active nests are recorded, a suitable buffer will be retained around these until all chicks have fledged (to be confirmed by an SQE).

5 ECOLOGICAL ENHANCEMENTS

There are opportunities on Site to enhance habitat suitability for a range of species, for example through planting in the front and rear gardens. There is a wide range of advice available from organisations such as the RHS, Wildlife Trusts, RSPB e.g. <https://www.kew.org/read-and-watch/how-to-make-your-garden-more-biodiverse>.

5.1.1 Bat Friendly Planting

A native planting scheme (for example, using night-scented species to attract invertebrate prey for bats) is recommended as part of the proposals. Plant species should be chosen for their ability to provide nectar or fruit. A suggested planting list for horseshoe bats is provided in Appendix B of this report.

5.1.2 Bat and Bird Boxes

One building will be retained with access for swallows to nest within with 3No. swallow cups installed within it to provide additional nesting opportunities. Swallow cups should be installed a minimum of 1 m apart with a minimum of a 6 cm gap above them. Suitable locations for swallow cups should be determined by an SQE.

Additional boxes for bats and birds could be installed to enhance the site for roosting bats and nesting birds. It is recommended that two Schwegler 2FN bat boxes and two Schwegler 1B bird boxes are installed on buildings or habitats within the ownership boundary of the client. Suggested install locations of enhancement bat and bird boxes are provided in Figure 3.

Figure 3: Proposed locations for enhancement bat and bird boxes



6 CONCLUSIONS

In summary, evidence of roosting bats (droppings and one soprano pipistrelle bat present) was found within the Byre outbuilding (subject to a planning application) along with three additional buildings on Site. Further roost characterisation surveys are required to inform a detailed assessment of the bats onsite, to inform mitigation/compensation strategies for the proposed works and to inform the submission of a European Protected Species Licence (EPSL) application to Natural England.

7 REFERENCES

Collins, J. (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines. 4th edition. Bat Conservation Trust, London.

MAGIC Map <https://magic.defra.gov.uk/MagicMap.aspx>

Mitchell-Jones, A. J. & McLeish, A. P. (2004). Bat Workers' Manual (3rd Edition). JNCC

Reason, P.F. and Wray, S. (2023). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Version 1.1. Chartered Institute of Ecology and Environmental Management, Ampfield.

Schofield, H. W. & Mitchell-Jones, A.J. (2004). The Bats of Britain and Ireland. Vincent Wildlife Trust, Ledbury.

UK Government (1990) Town and Country Planning Act 1990. Available at <https://www.legislation.gov.uk/ukpga/1990/8/contents>

UK Government, (1981). Wildlife and Countryside Act 1981 (as amended). Available at: <https://www.legislation.gov.uk/ukpga/1981/69>

UK Government, (2006). Natural Environment and Rural Communities Act 2006. Available at: <https://www.legislation.gov.uk/ukpga/2006/16/contents>

UK Government, (2019). Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Available at: <https://www.legislation.gov.uk/uksi/2019/579/contents/made>

UK Government, (2021). Environment Act 2021. Available at: <https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted>

Wray, S., Wells, D., Long, E. & Mitchell-Jones, T. (2010) Valuing Bats in Ecological Impact Assessment. In Practice, No. 70.

APPENDIX A - LEGISLATION AND PLANNING POLICY

LEGISLATION

Many species of animal and plant receive some degree of legal protection. For the purposes of this report, legal protection refers to: species included on Annex II of the Habitats Directive 1992 (Council of European Communities, 22/07/1992) , Schedules 2 and 5 of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and Schedules 1, 5 and 8 of the Wildlife and Countryside Act 1981 (as amended) , excluding species that are only protected in relation to their sale (see Section 9[5] and 13[2]) reflecting the fact that the proposed development does not include any proposals relating to the sale of species.

- Legal offences associated with species listed on Schedule 2 of the Conservation of Habitats and Species Regulations and Schedule 5 of the Wildlife and Countryside Act in England and Wales include inter alia:
- Deliberate capture, injury or killing of animals or taking or destroying their eggs;
- Deliberately disturb animals in a way that would significantly affect their local distribution or abundance, or affect their ability to survive, breed or rear young;
- Intentional or reckless disturbance of an animal in its place of shelter or protection;
- Damaging or destroying a resting place or breeding site;
- Intentionally or recklessly obstructing access to a place of shelter or protection; and
- Possess, control, transport, sell, exchange or offer for sale/exchange any live or dead animal or any part of an animal.

Relevant species listed on these Schedules that are potentially associated with this Site include bats and reptile species (e.g. slow worm). All species of bat receive full protection from all legal offences listed above. Common reptile species receive partial protection under the Wildlife and Countryside Act in that they are protected from killing and injury only.

All species of wild bird are protected under the Wildlife and Countryside Act (1981) (as amended) from killing or injury. In addition, it is an offence to take or damage/ destroy their eggs and to damage or destroy a nest whilst it is in use. Species listed on Schedule 1 (such as barn owl) receive additional protection in that it is illegal to disturb birds or their young whilst occupying, or near to, an active nest.

A number of wild plants, habitats and animals (including reptiles, hedgehog and most species of bat) are also included within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 which lists flora, fauna and habitats considered by the Secretary of State to be of principal importance for conserving biodiversity. The publication of the "England Biodiversity List" satisfies the requirements of Section 41 of the NERC Act 2006 for the conservation of biodiversity. Section 40 of the NERC Act 2006 requires public bodies, including local planning authorities, to have regard for the conservation of biodiversity in England, when carrying out their normal functions.

Badgers are protected under the Protection of Badgers Act 1992 (UK Government, 1992) which makes it an offence to willfully kill, injure or take (or attempt to kill, injure or take) a badger; or to disturb badgers whilst occupying their setts.

NATIONAL PLANNING POLICY

There are numerous national and local planning policies associated with flora and fauna (also referred to as biodiversity) that need to be addressed as part of the planning process. The Government has issued its National Planning Policy Framework (NPPF) 2021, which requires impacts to biodiversity to be minimised. Paragraph 181 of

the NPPF applies the same protection to Ramsar sites as that conferred by the Habitats Regulations to SACs and SPAs. The NPPF requires development to apply the following principles (Paragraphs 179-180):

- Minimise impacts on and provide net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressure;
- Identify and pursue opportunities for securing measurable net gains for biodiversity;
- Ensure that there will be no adverse impacts to SSSIs (such development would not normally be permitted);
- Ensure that there will be no loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees), unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- Where significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts) adequate mitigation, or as a last resort compensation, must be provided.
- The NPPF and associated Planning Practice Guidance also emphasise the requirement for ecological networks and wildlife corridors to be created throughout the wider landscape (paragraph 179).

Planning authorities should follow key principles to ensure that the potential impacts of planning decisions on biodiversity conservation are considered. Circular 06/05: Biodiversity and Geological Conservation provides guidance on the application of the law relating to planning and nature conservation and complements the NPPF.

The Natural Environment Paper

“The Natural Choice: Securing the Value of Nature” outlines the Government’s approach and vision for nature in the UK including protecting and improving our natural environment, growing a green economy and reconnecting people and nature.

APPENDIX B – RECOMMENDED PLANTING LIST FOR HORSESHOE BATS

Appendix – Table 1: Food plants of bat prey species for lesser and greater horseshoe bat. Data obtained from Andrews & McGill, 2022; which details a comprehensive review of bat prey invertebrate species, based on data from various sources. Plant species were selected for this list if they had a minimum of 5 invertebrate prey species associated with them.

Plant category	Plant species common name	Plant species latin name	No. invertebrate prey species associated with plant for horseshoe bats	
			Lesser horseshoe prey	Greater horseshoe prey
Tree	Field maple	<i>Acer campestre</i>	10	5
	Sycamore	<i>Acer pseudoplatanus</i>	13	7
	Alder	<i>Alnus glutinosa</i>	12	13
	Silver birch	<i>Betula pendula</i>	13	10
	Downy birch	<i>Betula pubescens</i>	13	10
	Hornbeam	<i>Carpinus betulus</i>	8	11
	Sweet chestnut	<i>Castanea sativa</i>	15	15
	Hazel	<i>Corylus avellana</i>	29	26
	Midland hawthorn	<i>Crataegus laevigata</i>	15	15
	Hawthorn	<i>Crataegus monogyna</i>	25	35
	Beech	<i>Fagus sylvatica</i>	19	17
	Ash	<i>Fraxinus excelsior</i>	6	15
	Apple	<i>Malus domestica</i>	9	13
	Crab apple	<i>Malus sylvestris</i>	11	12
	Scots pine	<i>Pinus sylvestris</i>	6	8
	Aspen	<i>Populus tremula</i>	12	12
	Wild plum	<i>Prunus domestica</i>	6	10
	Blackthorn	<i>Prunus spinosa</i>	30	34
	Pear	<i>Pyrus communis</i>	7	13
	Sessile oak	<i>Quercus petraea</i>	15	7
	Pedunculate oak	<i>Quercus robur</i>	18	15
	Goat willow	<i>Salix caprea</i>	6	7
	Rowan	<i>Sorbus aucuparia</i>	12	18
Shrub	Heather	<i>Calluna vulgaris</i>	16	13
	Broom	<i>Cytisus scoparius</i>	8	14
	Bog-myrtle	<i>Myrica gale</i>	5	7
	Bilberry	<i>Vaccinium myrtillus</i>	14	9
Climber/scrambler	Common ivy	<i>Hedera helix</i>	7	4
	Hop	<i>Humulus lupulus</i>	9	7
	Honeysuckle	<i>Lonicera periclymenum</i>	7	13
	Bramble	<i>Rubus fruticosus</i>	9	20

Flowering plant	Burdocks	<i>Arctium spp.</i>	6	3
	Oraches	<i>Atriplex spp.</i>	5	5
	Wild cabbage	<i>Brassica oleracea</i>	5	7
	Plumeless thistles	<i>Carduus spp.</i>	6	3
	Common knapweed	<i>Centaurea nigra</i>	7	3
	Goosefoots	<i>Chenopodium spp.</i>	8	5
	Field bindweed	<i>Convolvulus arvensis</i>	6	5
	Wild carrot	<i>Daucus carota</i>	10	3
	Wild strawberry	<i>Fragaria vesca</i>	8	7
	Common bird's-foot-trefoil	<i>Lotus corniculatus</i>	4	5
	Restharrows	<i>Ononis spp.</i>	5	4
	Plantains	<i>Plantago spp.</i>	17	7
	Primrose	<i>Primula vulgaris</i>	5	5
	Docks	<i>Rumex spp.</i>	25	23
	Common chickweed	<i>Stellaria media</i>	6	4
	Dandelion	<i>Taraxacum spp.</i>	18	12
	Clovers	<i>Trifolium spp.</i>	10	8
	Stinging nettle	<i>Urtica dioica</i>	10	13
Grass	Cock's-foot	<i>Dactylis glomerata</i>	12	4
	Common couch	<i>Elymus repens</i>	7	2
	Annual meadow-grass	<i>Poa annua</i>	6	4
Fern	Bracken	<i>Pteridium aquilinum</i>	7	5

APPENDIX C – PROPOSED SITE PLAN

