



Bat, Breeding Bird and Barn Owl Survey

Manor Farm Barns, Rufforth

October 2023

MAB Environment & Ecology Ltd

11a Kirkgate, Thirsk, North Yorkshire, YO7 1PQ

Tel. 01845 574125

Email: info@mab-ecology.co.uk

www.mab-ecology.co.uk

Registered in the UK, No.6504129

Registered office: 11a Kirkgate, Thirsk YO7 1PQ

Author	Jake Walker BSc Hons & Alice Brown BSc (Hons)	
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Draft	26/10/2023	Giles Manners CEnv MCIEEM

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Site:

Manor Farm Barns
Rufforth
York

Dates:

Walkover survey: Tuesday 8th August 2023
Emergence survey: 29th August 2023

Client:

Drs Jonathan & Judith Evans

Client's agent:

Sean Graham

Planning Authority:

North Yorkshire County Council

Our ref:

2023-1603

DRAFT

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1 Summary

A bat, breeding bird and barn owl survey has been undertaken at barns at Manor Farm, Rufforth to accompany a planning application for conversion.

Visual inspection of the site during the initial site visit found bat droppings throughout the surveyed buildings, both scattered and accumulated. Endoscopic inspection above one accumulation of droppings along the apex wall top of the internal gable wall in Building 3a found large amounts of droppings between the roof and liner, and many bats roosting. This is considered a maternity roost. DNA analysis of these droppings (and those found in Building 2) confirmed presence of both Natterer's and brown long-eared bats within Building 3a, and Natterer's presence within Building 2. As the roost found during the visual inspection had disbanded in Building 3a before the emergence survey was carried out, further survey effort will be required to inform which species, and the numbers, are utilising the roost.

An additional maternity roost was identified in Building 1 of brown long-eared bats. Droppings were identified during the visual inspection, and 16 bats were found inside the building during the emergence survey. The bats were seen exiting the rear of the building using masonry crevices and a lifted tile near the wall top.

Scattered day roosts (5 in total) of brown long-eared and common pipistrelle bats were identified across the buildings, mostly utilising masonry cracks and crevices. No bats were found roosting in Building 3c.

Proposed works to the buildings will result in the loss/modification of the identified roosts. Therefore, a Natural England Licence will be required prior to works on these buildings. At least one further emergence/re-entry survey will be required on the buildings with bat roosts to inform the Natural England protected species licence.

Roosts and potential roost habitat lost to the development will be mitigated for via the installation of at least one bat loft and five suitable crevice roost features on-site.

Swallow nests were identified, along with potential nesting habitat in vegetation growing on the buildings. Evidence of barn owl presence was also identified in Building 2. Works should be timed to avoid bird nesting season, or a pre-works check should be conducted for breeding birds, and works should be delayed until all chicks have fully fledged. An open sided structure should be created for barn swallows, and at least two bird boxes and one barn owl box will be installed on-site.

DRAFT

2 Introduction

MAB Environment and Ecology Ltd was commissioned by Drs. Jonathan & Judith Evans to undertake a bat, breeding bird and barn owl survey on a previously agricultural barn/garage on the property of Manor Farm Barns, Rufforth, to accompany a planning application for conversion works into a dwelling.

The site is located at Manor Farm, Rufforth (Central grid reference: SE52825149).

The location of the site is shown on Figure 1 below.

The report was written by Jake Walker BSc (Hons) and Alice Brown BSc (Hons) of MAB Environment and Ecology Ltd.

The report's primary objective is to provide an impact assessment for the development on bats, define any necessary mitigation proposals, and to assess the requirement for a Protected Species Licence. A secondary objective is to assess potential impact on breeding birds.

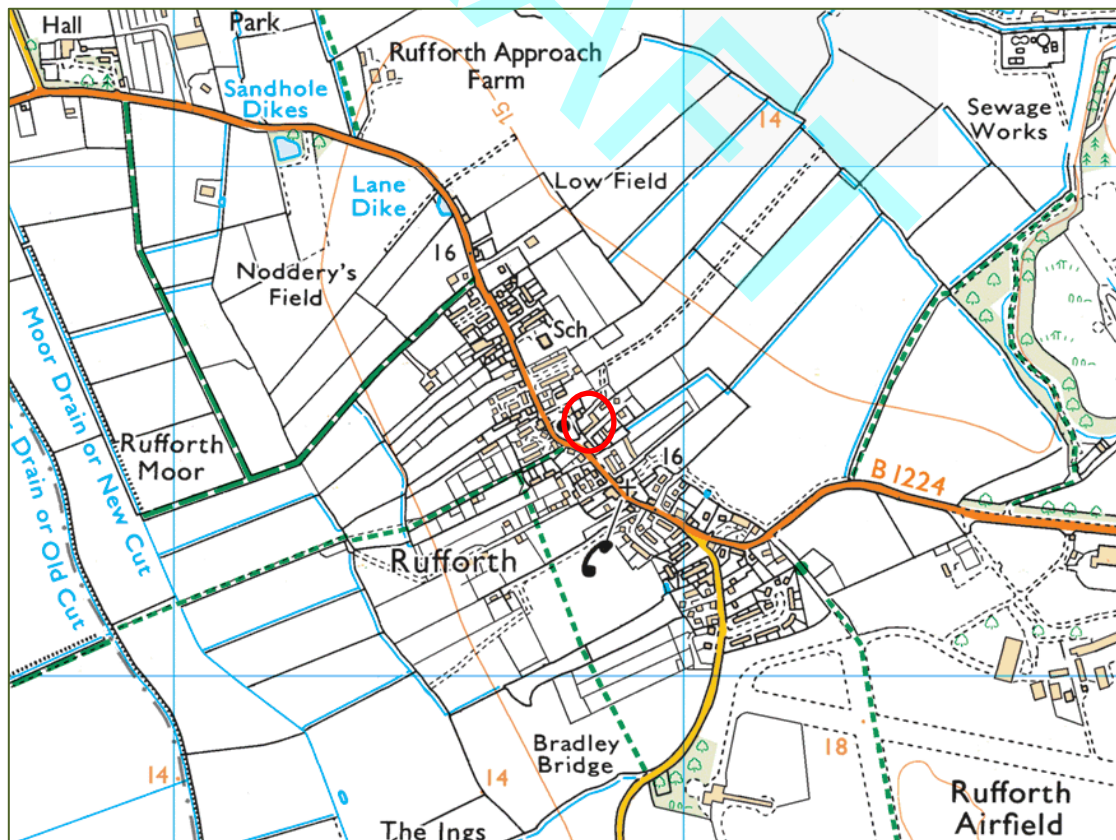


Figure 1: Site location. Streetmap.

3 Methodology

3.1 Desktop Study

3.1.1 Bat roost records for a 2km radius around the site were commissioned from the North Yorkshire Bat Group (NYBG).

3.1.2 Aerial imagery from Google Earth and 'MAGIC' government website were used to assess the location of the site and the surrounding habitat for value to bats. This includes proximity of the site to good bat foraging habitat such as woodland and water bodies and if the site is linked to such habitats by linear features like hedgerows, woodland edges or rivers which bats use to commute around the environment.

3.2 Field Survey

3.2.1 The site was surveyed by Jake Walker who is a Senior Ecologist and a qualifying member of CIEEM. He has worked for MAB since 2020 and holds a Class Survey Licence WLM-A34 (Bat Survey Level 1) registration number 2021-51430-CLS-CLS; and a Level 1 Class Survey Great Crested Newt Licence 2022-10177-CL08-GCN. He has a BSc (Hons) in Ecology and Environmental Science from the University of Hull.

3.2.2 The interior and exterior of the buildings were inspected during the day using halogen torches (500,000 candle power), binoculars, ladders, and a flexible endoscope (a Sea Snake LCD inspection scope). All normal signs of bat use were looked for, including bats, bat droppings, feeding waste, entry and exit holes, grease marks, dead bats, and the sounds/smells of bat roosts.

3.2.3 All signs of breeding bird activity and barn owl (*Tyto alba*) activity were looked for. Signs looked for included white droppings, often vertical down walls or beams; active nests and nesting materials; (birds flying into and out of barns: generally, summer only); bird feathers, particularly swift (*Apus apus*), swallow (*Hirundo rustica*) and house martin (*Delichon urbica*), bird corpses, feeding waste (including pellets), and the sound/smell of birds.

3.2.4 Trees marked for removal or directly affected by the development scheme were assessed during the day from the ground using close focusing binoculars and a halogen torch (500,000 candle power). Features such as woodpecker holes, splits, cracks, rot holes, dense ivy, and peeling bark were looked for which are commonly used by bats

for roosting and for shelter. Any features were then inspected for any signs of bat use, including staining around potential access points, bat droppings bats, and the sounds / smells of bat roosts.

3.2.5 Other trees within the site and areas of vegetation were also assessed for value to bats and their importance as foraging and commuting habitat.

3.2.6 The buildings were assessed for their degree of potential to support roosting bats. This includes assessing the building design, materials and condition. See Table 1 for more information.

Colour code	Bat roost potential.	Roosting habitats	Commuting and foraging habitats
	Confirmed	Signs of roosting bats present (e.g. entry / exit points, accumulated bat droppings, visible bats).	
Red	High risk	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 and surrounding habitat.	<p>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.</p> <p>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.</p> <p>Site is close to and connected to known roosts.</p>
Amber	Moderate risk	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only-the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	<p>Continuous habitat connected to the wider landscape that could be used by bats for commuting such as a line of trees and scrub or linked back gardens.</p> <p>Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.</p>
Yellow	Low risk	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 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)	<p>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.</p> <p>Suitable but isolated habitat that could only be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.</p>
Green	Very low risk	All potential bat roost habitat <i>comprehensively</i> inspected and found to be clear of past or present bat usage.	
Grey	Negligible risk	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.

Table 1: Guidelines for assessing the suitability of proposed development sites for bats. Adapted from BCT Bat surveys for Professional Ecologists, Good Practice Guidelines 2016.

3.2.7 Droppings were collected and sent to Swift Ecology Ltd for analysis. The analysis follows a standardised procedure for DNA extraction: PCR amplification of bat DNA using universal markers that amplify DNA from all bat species. If DNA is successfully

amplified it is purified and then Sanger sequenced. The resulting sequence is then assessed using bioinformatic tools in order to infer species identity, by crossmatching the genetic sequence. Negative controls are in place to ensure samples are contamination free.

3.2.8 An emergence survey was carried out using 6 surveyors with ultra-sound detectors (Pettersson D240x, Elekon M2 Batlogger and BatBox Duet). The D240x detector was set to 10x expansion with manual triggering with an Edirol R09 WAV solid state recording device for the time expansion channel, with heterodyne output through the other channel.

3.2.9 Surveyors used were:

- Jake Walker (JW) as above.
- Alice Brown (AB) who is a Consultant Ecologist for MAB. She is a qualifying member of CIEEM and has a BSc (Hons) in Ecology and Conservation. She has worked for MAB since the beginning of 2022 and holds a Class Survey Licence CL17 (Bat Survey Level 1) registration number 2023-11025-CL17-BAT.
- Sam Newton (SN) is a seasonal bat surveyor, who has carried out bat surveys for MAB since 2017.
- Rachel Boulton (RB) who is an Assistant Ecologist for MAB.
- Jordan Brandrick (JB) who is an Ecologist for MAB. She is a Qualifying member of CIEEM and holds a BSc (Hons) in Biosciences from the University of Durham.
- Emily Rose (ER) is a seasonal bat surveyor for MAB.

3.2.10 The emergence surveys also used Sony AX100 Nightshot Camcorders combined with 12v 50W external infra-red floodlighting.

3.2.11 Automated species-identification software was employed to assist with bat identification. Software used was Sonobat™. Manual confirmation of any automated identification was carried out using BatSound software from Pettersson.

4 Constraints

The surveys were not constrained.

5 Site Description

The site consists of a series of adjoining, brick-built barns in the centre of Rufforth, York.

6 Results

6.1 Desktop Study

The site is located directly to the east of York and is surrounded by predominantly by open agricultural land with some small polygons of deciduous woodland in all directions providing some good foraging habitat within proximity to the site. These small woodland areas are connected to the site via tree belts and hedgerows which provide opportunities for bat species to commute to these optimal foraging habitats. Many of these hedgerows and tree belts line moor drain streams and dykes such as that of Foss Dyke approximately 1km to the east of the site, providing further optimal foraging habitat for bat species.



Figure 2. Aerial view of the surrounding landscape © Google earth, 2023.

6.1.2 Bat Group Records

North Yorkshire Bat Group (NYBG) records from within a 2km radius of the site returned 38 records; one of which is for Manor Farm itself in 2000 of a pipistrelle summer (potentially maternity) roost. Records for the area relate to pipistrelle or 'unknown' species. See Appendix 3 for full results.

6.2 Visual Inspection



Figure 3. Surveyed buildings. © Google earth, 2023.









Building ref	Description & photos	PBRH features
Building 1: Moderate potential risk of supporting roosting bats	<p>Single-storey brick garage with a bitumastic lined clay pantile roof, adjoins Building 2 along its north gable wall. Gaps between tiles and liner, and along the brickwork on the north elevation; masonry crevices along the north wall lead into the interior of the buildings. Door top gaps also provide potential access. Gaps along gable wall tops, and timber purlins internally. Scattered bat droppings present throughout the building, on stored materials. Anecdotal evidence from the client indicates a maternity roost of brown long-eared bats used to be present within the building.</p>     <p>Photo 1: Building 1 - south aspect. Photo 2: North elevation masonry crevices. Photo 3: Inside building 1. Photo 4: Wall top gaps.</p>	<p>Gaps between tiles and liner</p> <p>Internal wall top gaps with potential access on north wall and along door tops.</p>
Building 2: Moderate potential risk of supporting roosting bats	<p>Two-storey barn brick and stone barn, with a bitumastic lined clay pantile roof. Abundance of external masonry crevices, between brickwork, around timber lintels and along stone slate edging. Large openings on the north and south elevations providing internal access. Internally the building is open to the roof, with exposed queen post timber trussed. Scattered bat droppings throughout the building, accumulations of droppings beneath the west gable wall; gaps along gable wall tops and around timber purlins. Barn owl droppings and pellets on ground floor; anecdotal evidence suggest barn owls have nested in previous years.</p>     <p>Photo 5: Southern elevation. Photo 6: northern gable wall. Photo 7: Northern elevation. Photo 8: Inside Building 2.</p>	<p>Masonry crevices, gaps between tiles and liner, wall top gaps and crevices around timber purlins.</p>



Photo 9: Accumulation of droppings.



Photo 10: Internal gable wall.



Photo 11: bat droppings beneath internal gable wall.

Building 3a & 3b: confirmed bat roost

Single-storey brick stable block with a bitumastic lined roof; central section of the stables (3b) has been converted. 3a adjoins Building 2 on the south elevation, two distinct stable area, split by a low internal wall, open window on the northern elevation providing access. Scattered bat droppings present throughout 3a, along with feeding remains (yellow underwing moth) with accumulations of bat droppings on the internal wall which separates 3a from 3b; endoscopic inspection of the wall top revealed accumulated droppings between the liner and identified a group of bats roosting along the ridge above section 3b. Bats are using the space between ceiling boards and clay tiles to roost, likely accessing the roost via the open window of 3a. Swallow nests present within 3a.

Gaps between tiles and liner and along wall tops.



Photo 12: Building 3a.



Photo 13: Roof of 3a & 3b.



Photo 14: 3a – potential access point.



Photo 15: 3a – low internal wall.



Photo 16: Location of roost.



Photo 17: Droppings along wall tops.



Photo 18: Inside 3b.

Building 3c: Low risk of supporting roosting bats

Same construction as 3a & 3b and forms part of the same stable block. However, the roof is unlined, and internal conditions are bright and heavily cobwebbed; no evidence of bats was identified internally. Potential roost habitat limited to internal wall top gaps along the internal wall between section 3c and 3b.



Photo 19: Building 3c.



Photo 20: Inside 3c..



Photo 21: Inside 3c.

Internal wall top gaps.

6.3 Emergence Survey

Site name: Manor Farm, Rufforth

Table 2 – Survey details and environmental conditions

Date	Timings	Structure reference	Equipment used	Weather	
29/08/2023	Start:	Buildings 1-3	3x Petterson D240x time expansion ultrasound detector with Ediol R09 recorder 2x Elekon Batlogger 1x BatBox Duet Heterodyne detector set to 50KHz. 3x Sony AX100 Nightshot Camcorder combined with 12v 50W external infra-red floodlighting.	Start	End
	19:45			Temp (°C): 15 Wind (BF): 0 Humidity (%): 50 Rain: 0 Cloud cover (%): 50	Temp (°C): 12 Wind (BF): 0 Humidity (%): 63 Rain: 0 Cloud cover (%): 50
	Sunset:				
	20:03				
	End:				
	21:35				
Number of surveyors used: 6					
Surveyors used: Jake Walker (JW) licence number 2021-51430-CLS-CLS; Alice Brown (AB) licence number 2023-11025-CL17-BAT; Jordan Brandrick (JB); Emily Rose (ER); Sam Newton (SN); Rachel Boulton (RB)					

Identified roosts

Table 3 - Roost identified and details.

Date	Start and end times	Species and numbers	Roost type	Structure reference	Roost location	Access points	Explanation of where roost is
29/08/2023	Start: 19:45 End: 21:35	16 x Brown Long Eared	Maternity	1	Wall top gaps	Wall top crevice Lifted tile	Emergence from gap along wall top in the centre to the rear of building one and lifted tile
		1x Common pipistrelle	Day	1	Lintel crevice	Lintel crevice	Lintel crevice above door on southwest aspect
		2 x Brown Long Eared	Day	2	External timber lintel crevice	External timber lintel crevice	External timber lintel crevice above large barn door on southwest aspect
		3x Brown long eared	Day	2	Internal Crevice	Doorway	Internal wall top gaps/crevices
		9 x Common pipistrelle	Day	2	Internal Crevice	Doorway	Internal wall top gaps/crevices
		2 x Common pipistrelle	Day	3a	Internal crevice	Window	Internal crevice, using open window on northwest for access

Summary/comments:

Six bat roosts were identified across the target buildings: 3 of brown long-eared and 3 of common pipistrelle. All roosts were day roosts of low numbers of bats, located in masonry and lintel crevices, except one roost: a maternity roost of brown long-eared bats, which were active inside the building from the start of the survey. This roost is located in the garage (Building 1), utilising wall top gaps and a lifted tile for access.

Observations:

Surveyor	Building ref	Time	Species	Count	Activity	Annotation
AB+JW	1	19:45	Brown Long-eared	16	Inside garage	★
AB	1	20:22	Common pipistrelle	1	Emerged from door lintel crevice	1 ★ →
RB	N/A	20:29	Common pipistrelle	1	Foraging	→
RB	N/A	20:40	Common pipistrelle	1	Foraging	→
RB	1	21:08	Brown Long-eared	1	Emergence from under a raised roof tile	2 ★ →
RB	1	21:17	Brown Long-eared	1	Emerged from large wall top gap	3 ★ →
JW	2	20:17	Brown Long-eared	1	Emerged from timber lintel crevice	4 ★ →
JW	3a	20:27	Common pipistrelle	2	Emerged from window	5 ★ →
JW	2	20:27	Brown Long-eared	1	Emerged from timber lintel crevice	4 ★ →
JW	2	21:00	Brown Long-eared	1	Emerged from building 2 doorway and flew into building 3a window	6 ★ →
JB	2	20:16-end	Common pipistrelle	9	Exited, and entered the building repeatedly	7 ★ →
JB	2	20:21-20:23	Brown Long-eared	2	Exited, and entered the building repeatedly	7 ★ →

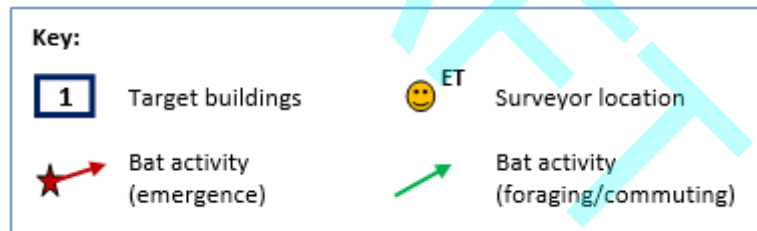
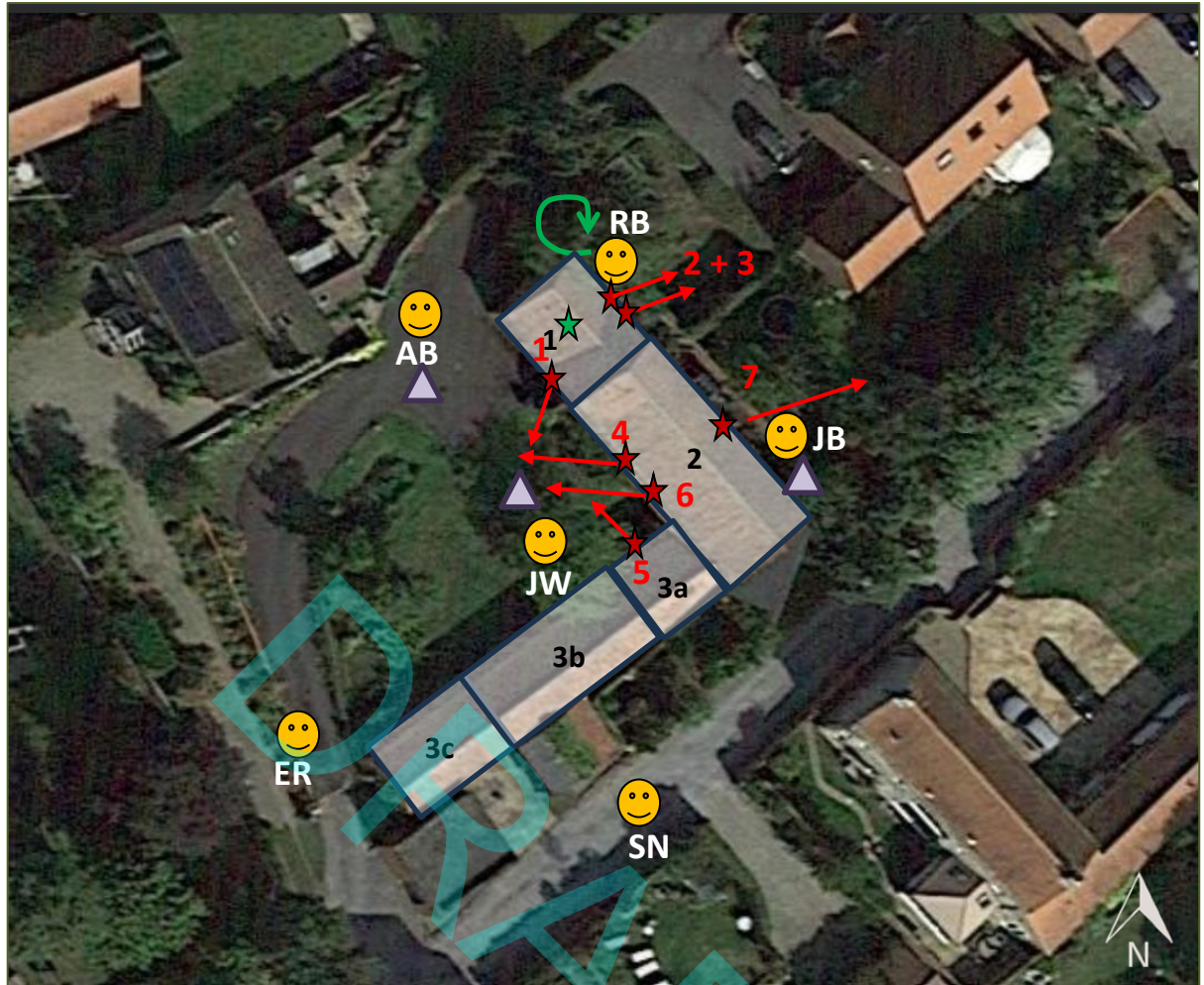


Figure 4 – Surveyor locations and bat activity recorded during survey.

Emergence locations:



Figure 5. Emergence location 1; Building 1



Figure 6. Emergence location 3; Building 1



Figure 7. Emergence location 4; Building 2



Figure 8. Emergence location 5; Building 3a



Figure 9. Emergence location 7; Building 2

6.4 DNA Analysis

Order Number: 2288



jordan@mab-ecology.co.uk

Samples submitted

Sample Code	Multi-species?	Sample Type	Date Sample Found	Species Group	Site postcode/post town /grid ref	Site description / comments (Optional)	Suspected identity of species
SEL-2288-1	Yes	Faecal	08/08/2023	C. Bats	YO23 3QF	Manor Farm Barns, Rufforth, Building 2.	
SEL-2288-2	Yes	Faecal	08/08/2023	C. Bats	YO23 3QF	Manor Farm Barns, Rufforth, Building 3a.	

Analysis Results

Sample Code	DNA Extraction Code	Species Identified	ID Method	Ct value	% match
SEL-2288-1	EG-2023-1282	Myotis nattereri (Natterer's bat) <small>Note: All UK bat species tested for - only a single species detected in this sample.</small>	qPCR	17	

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Order Number: 2288



jordan@mab-ecology.co.uk

SEL-2288-2	EG-2023-1283	Plecotus auritus (Brown long-eared bat) and Myotis nattereri (Natterer's bat)	qPCR	21/17	
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6.5 Results Summary

Survey	Date	Roost	Species	Notes
Desktop	2000	Summer (likely maternity)	Pipistrelle	For main house.
Visual inspection	08/08/2023	1x Maternity	Unconfirmed – DNA of droppings showed Natterer's and brown long-eared	Many bats above wall tops in Building 3a
Survey 1 - Emergence	29/09/2023	1x Maternity 5x Day roosts	Brown long-eared and common pipistrelle	Brown long eared maternity roost in Building 1 BLE and common pipistrelle day roosts across buildings.

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7 Discussion and Analysis

Visual inspection of the site during the initial site visit found bat droppings throughout the surveyed buildings, both scattered and accumulated.

Endoscopic inspection above one accumulation of droppings along the apex wall top of the internal gable wall in Building 3a found large amounts of droppings between the roof and liner, and many bats roosting. This is considered a maternity roost. DNA analysis of these droppings (and those found in Building 2) confirmed presence of both Natterer's and brown long-eared bats within Building 3a, and Natterer's presence within Building 2. As the roost found during the visual inspection had disbanded in Building 3a before the emergence survey was carried out, further survey effort will be required to inform which species, and the numbers, are utilising the roost.

An additional maternity roost was identified in Building 1 of brown long-eared bats. Droppings were identified during the visual inspection, and 16 bats were found inside the building during the emergence survey. Bats were seen exiting the rear of the building using masonry crevices and a lifted tile near the wall top.

Scattered day roosts of brown long-eared and common pipistrelle bats were identified across the buildings, mostly utilising masonry cracks and crevices. No bats were found roosting in Building 3c.

A protected species licence will be required for works to the buildings with bat roosts. At least one further emergence/re-entry survey will be required to inform this.

Swallow nests were identified, along with potential nesting habitat in vegetation growing on the buildings. Evidence of barn owl presence was also identified in Building 2.

8 Impact Assessment

Bats

Conversion works to the buildings will result in the loss/modification of the identified bat roosts in Buildings 1-3b. Works undertaken on the buildings will also result in the loss of potential crevice roost habitat and cause potential disturbance to any bats present; Table 4 below shows the impacts proposed works could have on any potential bats on the site.

Impact on bats	Impact on roosting habitats	Impact on commuting and foraging habitats
Physical disturbance Noise disturbance through, for example increased human presence or use of noise generating equipment. Injury/mortality (e.g. in roost during destruction or through collision with road/rail traffic)	Modification of access point to roost either physically or through, for example lighting or removal of vegetation. Modification of roost either physically, for example by roof removal, or through, for example, changed temperature, humidity, ventilation or lighting regime. Loss of roost.	Modification of commuting or foraging habitats either physically or through disturbance, e.g. light spill/noise. Severance of commuting routes (fragmentation) Loss of foraging habitats.

Table 4: Impacts on bats that can arise from proposed activities (from BCT survey guidelines 2016)

Breeding birds and barn owl

Works will result in the loss of bird nesting habitat, and barn owl roosting and potential nesting habitat.

9 Mitigation & Compensation

9.1 Mitigation Summary

To reduce the risk of detrimental impacts upon bats and to ensure compliance with current wildlife legislation (see Section 10), an outline method statement for future works is included below. A full method statement will be required for a Natural England (NE) licence which will be applied for prior to works, but after planning permission has been granted. At least one additional activity survey on the buildings with bat roosts will be required to inform the licence.

Mitigation for bats will involve the installation of at least one bat loft, and five roosting features on-site.

A directional lighting scheme is recommended for the site.

Works should be timed to avoid bird nesting season, but if not possible, a pre-works check for nesting birds and barn owl should be conducted and work delayed to any areas with chicks until fully fledged. An open sided structure should be created for barn swallows, and at least two bird nest boxes and one barn owl box will be installed.

9.2 Method Statement

Bats

9.2.1 Works to roost areas will require a NE licence. The schedule of works to buildings/areas covered by a licence will be specified within the NE application and is subject to the approval of Natural England.

9.2.2 At least one further survey of the buildings with bat roosts will be required to inform the licence.

9.2.3 Prior to any works commencing on site, workers and contractors will be informed of the protection afforded to bats and understand the method statement and procedure to be followed.

9.2.4 Prior to works, at least two professional quality bat boxes will be installed temporarily on site in locations agreed with the ecologist for the release of any bats uncovered during works.

9.2.5 Work to all roost locations, including roofing works and re-pointing will be carried out under the supervision of a suitably qualified ecologist (SQE), and when bats are active.

9.2.1 Day roosts lost to the development will be mitigated for via a minimum of five roosting features. These should include retaining/creating suitable masonry crevices and/or leaving several roof tiles lifted when re-roofing works are conducted. Alternatively, professional, long-lasting woodcrete bat boxes can be installed on-site (such as Schwegler 1FF, 1FQ Schwegler Bat Roost, or equivalent), in suitable locations to be agreed by the ecologist. Integral boxes are preferred where possible.

9.2.2 Replacement maternity roost void habitat will be provided through the creation of at least one bat loft for brown long-eared bats: an additional bat loft may be required dependent on results of further bat activity survey effort (e.g., identification of Natterer's maternity roost in 3a). Bat lofts should have dimensions of at least 4m by 5m, with a void height of ideally 2.8m, but no less than 2m. Suitable bat access will be provided at the ridge and at the eaves. Bat lofts should include the following features:

- a) The roof construction will be a non-trussed type to create an uncluttered flight void.
- b) Along the ridge at 2-3 points on either side there will be a slot created either by leaving a gap in the mortar or else by setting one ridge tile above another. The slots will measure 25mm by 100mm, and will be created by inserting a batten of those dimensions into the mortar bedding and remove when the mortar is semi-set.
- c) Bitumastic hessian backed (Type 1F) roofing felt will be used throughout the bat roost area. No modern breathable roofing membranes (which can entangle bats) will be used in this area.
- d) Slots of dimensions 30mm by 100mm will be cut into the roofing felt under the ridge access points to permit movement into the void.

- e) Gaps will also be left under the eaves to permit bats to crawl up the felt.
- f) Internal crevices will be created inside the bat loft which will ensure that a range of temperature and roosting conditions are provided to benefit a variety of different bat species. These will be provided within the internal walls and around the timber joists.
- g) There will be no lighting installed within the bat loft area.
- h) Insulation shall be installed at ceiling level only, and must not block any access points at the eaves.

Lighting

9.2.3 A directional lighting scheme is recommended for the site boundaries, to maintain current ecological functionality of the site, particularly for commuting and foraging bats. It is recommended the following features are considered in the lighting scheme.

- a) Metal halide and fluorescent sources of light should not be used and lack UV elements.
- b) LED lighting should be used where possible due to their sharp cut-off, lower intensity, good colour rendition, and dimming capabilities.
- c) A warm-white spectrum (ideally less than 2700 Kelvin) should be adopted to reduce the blue light component.
- d) Lighting should feature peak wavelengths higher than 550nm to avoid the component most disturbing to bats.
- e) Column heights should be carefully considered to minimise light spill.
- f) Lights should always be mounted on the horizontal, ie no upward tilt.
- g) Accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it to only where it is needed.

Breeding birds and barn owls

9.2.4 Works should be timed to avoid bird nesting season (1st March - 31st August). If this timing is not possible, a pre-works check of the site should be undertaken before work commences to check for the presence of nesting birds and barn owl. If any active nests are found, then work to those areas should be delayed until after any chicks have fully fledged.

9.2.5 At least two suitable bird boxes will be installed on-site to provide nesting habitat for passerine species in locations agreed by a suitably qualified ecologist. Suitable bird box examples include Vivara Pro Seville WoodStone Nest Boxes, Schwegler sparrow terrace 1SP or brick sparrow box, swift boxes, e.g. ibstock swift box, Schwegler No. 16 or 1MF (bat and swift) which can be installed under the shelter of overhanging eaves.

9.2.6 An open-sided structure, such as a log or bin store, should be created onsite to provide alternate barn swallow nesting habitat.

9.2.7 A professional quality, long-lasting barn owl box should be installed onsite, preferably integral within a building.

10 Recommended Ecological Enhancement

Additional bat and bird roosting/nesting features may be installed onsite for further ecological enhancement. We recommend a variety of features are provided as this will encourage a variety of species to use the site.

11 Information concerning bat protection and the planning system

11.1 Relevant Legislation

All bat species are protected under the Wildlife and Countryside Act (WCA) 1981 (as amended), the Countryside and Rights of Way Act 2000 and The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

Under the WCA it is an offence for any person to intentionally kill, injure or take any wild bat; to intentionally disturb any wild bat while it is occupying a structure or place that it uses for shelter or protection; to intentionally damage, destroy or obstruct access to any place that a wild bat uses for shelter or protection; to be in possession or control of any live or dead wild bat, or any part of, or anything derived from a wild bat; or to sell, offer or expose for sale, or possess or transport for the purpose of sale, any live or dead wild bat, or any part of, or anything derived from a wild bat.

Under The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, it is an offence to (a) deliberately capture, injure or kills any wild animal of a European protected species (EPS), (b) deliberately disturb wild animals of any such species, (c) deliberately take or destroy the eggs of such an animal, or (d) damages or destroys a breeding site or resting place of such an animal. Deliberate disturbance of animals of a European protected species (EPS) includes in particular any disturbance which is likely to impair their ability (i) to survive, to breed or reproduce, or to rear or nurture their young; or (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong.

Prosecution could result in imprisonment, fines of £5,000 per animal affected and confiscation of vehicles and equipment used. In order to minimise the risk of breaking the law it is essential to work with care to avoid harming bats, to be aware of the procedures to be followed if bats are found during works, and to commission surveys and expert advice as required to minimise the risk of reckless harm to bats.

11.2 Licences

Where it is proposed to carry out works which will damage / destroy a bat roost or disturb bats to a significant degree, an EPS licence must first be obtained from the Natural England (even if no bats are expected to be present when the work is carried out). The application for a license normally requires a full knowledge of the use of a site by bats, including species, numbers, and timings. Gathering this information usually involves surveying throughout the bat active season. The licence may require ongoing monitoring of the site following completion of the works.

Licences can only be issued if Natural England are satisfied that there is no satisfactory alternative to the development and that the action authorised will not be detrimental to the maintenance of the population of the species at a favourable conservation status in their natural range.

11.3 Planning and Wildlife

National planning guidance for ecological issues is set out in the updated February 2019 National Planning Policy Framework (NPPF). The requirements are consistent with those specified in the July 2018 NPPF; which advocate biodiversity net gain and improvement where possible, as evidenced below.

Paragraph 174 refers to the requirement of plans to “protect and enhance biodiversity and geodiversity” In order to do this, “plans should:

- a) 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; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
- b) 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.”

In paragraph 175 the NPPF indicates that “when determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- b) 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;
- c) 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 reasons and a suitable compensation strategy exists; and
- d) 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.”

The accompanying ODPM/Defra Circular 06/2005 remains pertinent; circular 06/2005 is prescriptive in how planning officers should deal with protected species, see paragraphs 98 and 99:

The presence of a protected species is a material consideration when considering a proposal that, if carried out, would be likely to result in harm to the species or its habitat (see ODPM/Defra Circular, para 98)

LPAs should consider attaching planning conditions/entering into planning obligations to enable protection of species. They should also advise developers that

they must comply with any statutory species protection issues affecting the site (ODPM/Defra Circular, para 98)

The presence and extent to which protected species will be affected must be established before planning permission is granted. If not, a decision will have been made without all the facts (ODPM/Defra Circular, para 99)

Any measures necessary to protect the species should be conditioned/planning obligations used, before the permission is granted. Conditions can also be placed on a permission in order to prevent development proceeding without a Habitats Regulations Licence (ODPM/Defra Circular, para 99).

The need to ensure ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances.

Further to NPPF and OPDM Circular 06/2005, Section 40 of the Natural Environment and Rural Communities Act (2006) states that 'Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity'. Section 40(3) also states that 'conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat'.

11.4 Legislation in relation to barn owls

Barn owls are afforded full protection under the Wildlife and Countryside Act, 1981. Their inclusion in Schedule One protects against wilful disturbance whilst an owl is at or near the nest, and makes it an offence to carry out any of the following actions:

- Killing or injuring a barn owl
- Catching a barn owl
- Taking or destroying any egg of a barn owl
- Damaging or destroying the active nest site with eggs or young or before eggs are laid
- Disturbing the dependent young of a barn owl
- Possessing, offering for sale or selling a barn owl (but see exceptions)
- Release or allow the escape of a barn owl into the wild (but see exceptions)

These actions are punishable by a maximum fine, upon conviction, of £5,000. Nesting has been recorded in every month of the year.

Protection is also given under the Countryside and Rights of Way Act, 2000 against reckless disturbance whilst nesting.

Because of recent declines in numbers, and concern over their current status, barn owls are also listed in the EC Birds Directive and Appendix II of the Bern Convention. They are an Amber Listed species in “Birds of Conservation Concern” (RSPB).

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Appendix 1: Glossary of bat roost terms

Bat Roost Definitions:

Day roost: a place where individual bats, or small groups of males, rest or shelter in the day but are rarely found by night in the summer.

Night roost: a place where bats rest or shelter in the night but are rarely found in the day. May be used by a single individual on occasion or it could be used regularly by the whole colony.

Feeding roost: a place where individual bats or a few individuals rest or feed during the night but are rarely present by day.

Transitional / occasional roost: used by a few individuals or occasionally small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation.

Swarming site: where large numbers of males and females gather during late summer to autumn. Appear to be important mating sites.

Mating sites: where mating takes place from later summer and can continue through winter.

Maternity roost: where female bats give birth and raise their young to independence.

Hibernation roost: where bats may be found individually or together during winter. They have a constant cool temperature and high humidity.

Satellite roost: an alternative roost found in close proximity to the main nursery colony used by a few individual breeding females to small groups of breeding females throughout the breeding season.

Appendix 2: Standard good working practices in relation to bats

Bats are small, mobile animals. Individual bats can fit into gaps 14-20mm wide. They can roost in a number of places including crevices between stonework, under roof and ridge tiles, in cavity walls, behind barge boards, in soffits and fascias and around window frames. Builders should always be aware of the potential for bats to be present in almost any small gap accessible from the outside in a building. The following guidelines are provided in order to reduce the risk of harm to individual bats.

- Roofs to be replaced, or which are parts of a building to be demolished, should be dismantled carefully by hand. Ridge tiles, roof tiles and coping stones should always be lifted upwards and not slid off as this may squash/crush bats.
- Re-pointing of crevices should be done between April and October when bats are active. Crevices should be fully inspected for bats using a torch prior to re-pointing.
- Any existing mortar to be raked should be done so by hand (not with a mechanical device).
- Look out for bats during construction works. Bats are opportunistic and may use gaps overnight that have been created during works carried out in the daytime.
- If any bats are found works should stop and the Bat Conservation Trust (0845 1300 228) or a suitably qualified bat ecologist should be contacted.

If it is necessary to pick a bat up always use gloves. It should be carefully caught in a cardboard box and kept in a quiet, dark place. The Bat Conservation Trust or a suitably qualified bat ecologist should be contacted.

Appendix 3: NYBG bat roost records

Species	Site	Gridref	Present	Date	Status	Comment
Pipistrelle species	19 Southfield Close, Rufforth	SE532512	Present	29-Jul-87	Summer Roost	
Pipistrelle species	19 Southfield Close, Rufforth	SE532512	Present	1984	Not recorded	
Pipistrelle species	19 Southfield Close, Rufforth	SE532512	Present	Jun-84	Not recorded	
Pipistrelle species	19 Southfield Close, Rufforth	SE532512	2	26-Jun-84	Summer Roost	
Pipistrelle species	19 Southfield Close, Rufforth	SE532512	Present	10-Jul-86	Summer Roost	Droppings only
Pipistrelle species	24 Southfield Close, Rufforth	SE532512	Present	1989	Not recorded	
Pipistrelle species	24 Southfield Close, Rufforth	SE532512	Present	1984	Maternity Roost	
Pipistrelle species	24 Southfield Close, Rufforth	SE532512	Present	18-May-87	Not recorded	
Pipistrelle species	24 Southfield Close, Rufforth	SE532512	Present	19-May-87	Not recorded	
Pipistrelle species	24 Southfield Close, Rufforth	SE532512	Present	21-May-87	Not recorded	
Pipistrelle species	24 Southfield Close, Rufforth	SE532512	Present	10-Jun-86	Not recorded	
Pipistrelle species	24 Southfield Close, Rufforth	SE532512	Present	13-Jun-96	Not recorded	
Pipistrelle species	24 Southfield Close, Rufforth	SE532512	Present	09-Jul-86	Not recorded	
Pipistrelle species	24 Southfield Close, Rufforth	SE532512	Present	22-May-87	Not recorded	
Pipistrelle species	24 Southfield Close, Rufforth	SE532512	51	13-Jul-85	Summer Roost	
Pipistrelle species	24 Southfield Close, Rufforth	SE532512	Present	29-May-87	Not recorded	

Pipistrelle species	24 Southfield Close, Rufforth	SE532512	Present	30-May-87	Not recorded	
Pipistrelle species	24 Southfield Close, Rufforth	SE532512	30	25-May-99	Not recorded	
Pipistrelle species	24 Southfield Close, Rufforth	SE532512	Present	22-Jun-88	Not recorded	
Pipistrelle species	24 Southfield Close, Rufforth	SE532512	Present	26-Sep-86	Summer Roost	
Common Pipistrelle	24 Southfield Close, Rufforth	SE532511	Present	1997	Summer Roost	
Pipistrelle species	Manor Farm, Rufforth	SE52795151	Present	May-00	Summer Roost	
Pipistrelle species	Manor House Farm, Hessay	SE521532	Present	30-Dec-87	Not recorded	
Pipistrelle species	Rufforth	SE524514	30	25-May-99	Not recorded	
Pipistrelle species	Rufforth	SE524514	30	25-May-99	Summer Roost	
Pipistrelle species	Rufforth Hall	SE520523	1	03-Jul-87	Not recorded	
Pipistrelle species	Rufforth Hall, Rufforth	SE520523	Present	05-Jul-87	Not recorded	
Unknown	Rufforth vicarage	SE527515	Present	1986	Summer Roost	
Pipistrelle species	York	SE529515	Present	2000	Not recorded	RCS: Roost characterisation survey (structures)
Unknown	The Beck, Bradley Lane, Rufforth	SE5251	Present	1996	Summer Roost	
Unknown	Wetherby Road, Rufforth	SE527514	Present	04-Feb-09	Not recorded	
Pipistrelle species	Willow Close, Hessay	SE526534	Present	1987	Summer Roost	Only odd bats present from time to time this season
Pipistrelle species	Willow Close, Hessay	SE526534	Present	30-Mar-85	Summer Roost	
Pipistrelle species	Willow Close, Hessay	SE526534	Present	16-Jun-86	Summer Roost	Now dispersed for season

Pipistrelle species	Willow Close, Hessay	SE526534	Present	11-Jun-85	Not recorded	
Pipistrelle species	Willow Close, Hessay	SE526534	Present	09-Apr-85	Not recorded	
Pipistrelle species	York	SE529515	Present	01-Jan-00	Summer Roost	
Pipistrelle species	Rufforth	SE524514	30	25-May-99	Not recorded	RCS: Roost characterisation survey (structures)

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