M54 to M6 Link Road

TR010054

Volume 6

6.3 Environmental Statement Appendices

Appendix 8.7 Bats

Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

January 2020

Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

M54 to M6 Link Road

Development Consent Order 202[ ]

6.3 Environmental Statement Appendices

Appendix 8.7 Bats

Regulation Number	Regulation 5(2)(a)
Planning Inspectorate Scheme Reference	TR010054
Application Document Reference	6.3
Author	M54 to M6 Link Road AECOM Project Team and Highways England

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1 Introduction

1.1.1 Highways England are developing a link road between the M54 and M6 to provide a link between Junction 1 of the M54, M6 North and the A460 to Cannock. The M54 to M6 Link Road (herein referred to as 'the Scheme') aims to reduce congestion on local / regional routes, particularly the A449 and A460 and deliver improved transport links to encourage the development of the surrounding area.

1.1.2 This Appendix has been prepared in respect of bats relating to the Scheme.

1.1.3 This Appendix includes the following information:

- legislation and planning policy relevant to bats;
- methodologies for desk based assessments undertaken in 2015, 2017 and 2018 and methods and metadata for field-based assessments undertaken in 2018 and 2019;
- limitations to the assessments undertaken, and any assumptions made as a result of incomplete data;
- survey results and baseline conditions; and
- the interpretation and approach for determination of the nature conservation importance of the bat assemblage.

1.1.4 This Appendix should be read in conjunction with Chapter 8: Biodiversity of the Environmental Statement (ES) [TR010054/APP/6.1].

2 Relevant Legislation and Policy

2.1 Legislation

2.1.1 Appendix 8.1 Legislation and Policy Framework [TR010054/APP/6.3] provides detail on the legislation that is of direct relevance to the assessment of biodiversity.

2.1.2 All British bats, except for common pipistrelle *Pipistrellus pipistrellus*, are listed at Appendix II of the Bern Convention (Ref 1) as Strictly Protected Fauna.

2.1.3 All British bats are listed on Annex IV of the European Council Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna, 1992 (the 'Habitats Directive' - Ref 2), with some rare species (namely barbastelle *Barbastellus barbastellus,* Bechstein's bat *Myotis bechsteinii*, greater horseshoe bat *Rhinolophus ferrumequinum* and lesser horseshoe bat *R. hipposideros*) also listed on Annex II.

2.1.4 All British bats are also listed under Schedule 2 of the Conservation of Habitats and Regulations 2017 (the Habitat Regulations - Ref 3) as European protected species (EPS).

2.1.5 Licences are issued by Natural England for development where three derogation tests under Regulation 43 of the Habitat Regs are met. These are that:

- There are imperative reasons of over-riding public interest (social or economic) for the proposals;
- There is no satisfactory alternative; and
- The favourable conservation status of the population concerned in their natural range, would be maintained.

2.1.6 All British bats are also listed on Schedules 5 and 9 of the Wildlife and Countryside Act (WCA) 1981 (as amended) (Ref 4).

2.2 Planning policy

2.2.1 Full detail of relevant national and local planning policy relevant to nature conservation is provided in Appendix 8.1 Legislation and Policy Framework [TR010054/APP/6.3] and a summary is provided in Chapter 8: Biodiversity of the Environmental Statement [TR010054/APP/6.1].

2.3 Priority species

2.3.1 Some bat species are listed as species of principal importance (SPI) at Section 41 of the Natural Environment and Rural Communities Act 2006 (Ref 5) (see Appendix 8.1), namely barbastelle; Bechstein's bat; noctule *Nyctalus noctula; s*oprano pipistrelle *Pipistrellus pygmaeus;* brown long-eared bat *Plecotus auritus;* greater horseshoe bat; and lesser horseshoe bat.

2.3.2 The Staffordshire Biodiversity Action Plan (SBAP) 3rd edition (Ref 6) works at a landscape scale and replaces previous habitat and species action plans with 'Ecosystem Action Plans' (EAP) and a 'River Action Plan' for the county. The Scheme falls within the 'Central Farmland' EAP, which targets hedgerows, arable field margin, rivers, lowland acid grassland, heathland and meadows, native woodland, wood pasture and parkland, floodplain grazing marsh, eutrophic standing

water, fens, ponds, purple moor grass and rush pasture and reedbeds. All of these habitats are of importance to maintaining foraging, roosting and commuting opportunities for bats.

2.3.3 Historic species action plans for bats in the SBAP (Ref 7) include those for noctule and common/soprano pipistrelle with objectives to maintain the current existing populations within Staffordshire, to safeguard all known roost sites and to retain and enhance suitable habitat to increase the distribution and population density of these species.

3 Methodology

3.1 Ecological zone of influence

3.1.1 The ecological Zone of Influence (ZoI)[1] for bats is the area defined by the assessment in which bats may be affected as a result of the Scheme.

3.1.2 Bats roosting within the Scheme boundary and a 100 m buffer zone are considered most likely to utilise habitats for foraging and commuting within the Scheme boundary and could be subject to disturbance in both phases (Ref 9 and Ref 10). Bats roosting beyond this distance may also use habitats within the Scheme boundary but it is considered less likely these bats are reliant on these habitats for their survival. Furthermore, the Scheme is within a triangular area of landscape already enclosed by major, well-lit infrastructure with heavy traffic, in the form of the M6, M54 and A460. These are likely to be significant barriers to bat movement thus minimising likely use of habitats within the Scheme boundary by bats roosting beyond these features. During operation there is a risk bats could be killed or injured from collisions with traffic arising from the Scheme.

3.2 Study area

3.2.1 The study areas applied and justification for these is set out in Table 3.1 below.

Table 3.1: Study areas applied within desk and field-based assessments

Item	Study area applied (relative to the Scheme boundary)	Justification
Desk Study	Within and up to 2 km (refer to Figure 8.12 [TR010054/APP/6.2])	Although core sustenance zones (CSZ) of some bat species are greater than 2 km (Ref 9), this distance is considered sufficient given the barriers to movement of bats by the existing local infrastructure described in paragraph 3.1.2; hence records further afield are considered unlikely to be relevant.
Roost identification	Within and up to 100 m (refer to Figure 8.14 [TR010054/APP/6.2])	Bats roosting within 100 m of the Scheme boundary are considered most likely to utilise habitats for foraging and commuting within the Scheme boundary and could be subject to disturbance in both phases.
Activity surveys: - Walked transect surveys; - Static detector surveys; and	Within the Scheme boundary (refer to Figure 8.16 [TR010054/APP/6.2])	Best practice (Ref 11) indicates activity surveys can be required to extend up to 1 km perpendicular from a proposed new road. The Scheme is situated within an area of land bounded by major barriers to the movement of bats (the existing M54, M6 and A460). It is therefore considered unlikely that bats in the wider landscape would be affected by the Scheme. Thus, the area within the Scheme boundary is regarded as appropriate for assessing the likely impacts of the Scheme upon commuting and foraging bats.

[1] Defined as the area over which ecological features may be subject to significant effects as a result of activities associated with a project and associated activities (Ref 8)

Item	Study area applied (relative to the Scheme boundary)	Justification
- Crossing point surveys.		

3.3 Desk study

3.3.1 Records for bats from Staffordshire Ecological Record Centre (SERC), and the ecological database for Birmingham and the Black Country (EcoRecord) were obtained in 2018 for 2 km from the Scheme boundary. This distance is considered appropriate to obtain an indication of bat presence within the wider landscape.

3.3.2 In 2019, the MAGIC Interactive Map (Ref 12) was examined for information on granted European protected species (EPS) derogation licences and Special Areas of Conservation (SACs) or Sites of Special Scientific Interest (SSSIs) designated for bats within 2 km of the Scheme boundary.

3.3.3 In 2019, aerial imagery (Ref 13) and Ordnance Survey maps were studied to identify features in the Scheme boundary and immediate landscape (the triangle of land enclosed by the M54, M6 and A460) that typically support bats.

3.3.4 In addition, publicly available documents for Staffordshire were reviewed for ecological information relevant to bats, namely the SBAP (Ref 6), Staffordshire Mammal Atlas (Ref 14) and the Staffordshire Site of Biological Interest Selection Criteria (Ref 15).

3.3.5 The desk study was used to inform a scoping exercise, which enabled definition of the activity survey areas (i.e. identification of structural or landscape features that have potential value for bats) and informed the assessment of the likelihood of bat presence in areas where access permissions were not granted for undertaking field surveys.

3.4 Field surveys

3.4.1 Field surveys have been conducted to meet three objectives:

- Identify presence and status of any bat roosts within and up to 100 m of the Scheme boundary.
- Identify levels of bat activity and use of habitats by bat species within the Scheme boundary.
- Identify if any important bat commuting or foraging routes are present that would be severed by the Scheme.

3.4.2 All surveys have been informed by published best practice guidance (Ref 9, Ref 10, Ref 11, Ref 16, Ref 17), were informed by previous best practice (Ref 18 and Ref 19 – now superseded by Ref 10), carried out in suitable weather conditions and by competent surveyors. Metadata (timings, date, survey type, air temperature, cloud cover, precipitation and wind speed) is provided in Tables below (Table 3.2, Table 3.3, Table 3.4 and Table 3.5).

Surveyor competency

3.4.3 All field surveys were led by Natural England Bat Class licence holders. Licence numbers for these surveyors are listed here (personal details of the surveyors are not disclosed, in order to comply with data protection requirements): 2015-16148-CLS-CLS, 2018-33650-CLS-CLS, 2015-CLS-CLS-16667, 2015-12585-CLS-CLS, 2016-24731-CLS-CLS, 2015-10290-CLS-CLS, 2018-38239-CLS-CLS, 2018-35942-CLS-CLS, 2016-26529-CLS-CLS, 2018-37885-CLS-CLS, 2019-39607-CLS-CLS, 2018-33409-CLS-CLS and 2017-28721-CLS-CLS.

Roost identification

3.4.4 Roost identification surveys comprised the following:

- Preliminary Bat Roost Assessments (PBRA) of trees and structures.
- Aerial tree inspections.
- Emergence and re-entry surveys.

Preliminary Bat Roost Assessments

3.4.5 Preliminary Bat Roost Assessments (PBRAs) were undertaken in 2018 (18/04/18 - 25/04/18) and 2019 (15/05/19 - 06/08/19) for accessible structures (bridges and buildings) and trees within and up to 100 m of the Scheme boundary to assess their potential for roosting bats.

3.4.6 The PBRAs comprised internal and external inspections of structures and ground level assessments of trees during daylight hours, whereby each structure and tree was searched for potential roosting features for bats and evidence of the presence of bats.

3.4.7 For structures (see Figure 8.13 [TR010054/APP/6.2] for locations), the external inspection involved identification of potential entry/exit points for bats, locations of potential roosting features (e.g. holes in brickwork, cracks and gaps in masonry, broken or raised tiles, etc.), and signs of bat use (e.g. droppings, urine staining, individual bats).

3.4.8 Structures were also subject to an internal inspection, where safe and where access was granted. This comprised searching inside rooms and roof voids to identify any potential entry/exit points, locate potential roost features (e.g. exposed brickwork, wooden beams, crevices), and search for signs of bat use, including the presence of individual bats. The inspection included assessing the structures hibernation potential. Metadata for the surveys of structures is provided in Table 3.2.

3.4.9 For trees, the external inspection involved identification of any potential roost features (e.g. woodpecker holes, rot holes, cracks and splits, knot holes, lifted bark, broken branches, mature ivy and wildlife boxes) and signs of bat use (e.g. droppings, urine staining, individual bats) where features were at a height that could be easily inspected visually with a torch or endoscope. Metadata for the surveys of trees is provided in Table 3.3.

3.4.10 High powered torches and binoculars were used to aid the surveys on both buildings and trees, with photographs and a detailed description taken for each suitable feature, along with any evidence of bats.

3.4.11 Structures and trees were then assigned a low, moderate or high bat roosting potential classification in line with published guidance (Ref 9).

Aerial tree-climbing inspections

3.4.12 Trees assessed as having moderate or high potential to support roosting bats during the PBRAs (see Figure 8.14 [TR010054/APP/6.2]) and considered safe to ascend were subject to aerial tree-climbing inspections in 2018 (15/08/18 - 10/09/18) and 2019 (25/03/19 - 02/10/19). The Fulcrum app was used by surveyors with a bespoke tree climbing risk matrix to allow dynamic assessment of trees on a case by case basis to ascertain their suitability for climbing from a health and safety perspective. Metadata for the surveys of trees is provided in Table 3.3.

3.4.13 Each tree feature was inspected closely for evidence of bats such as individual bats, droppings, staining, odour or other signs of roosting (e.g. smoothing of entry points, scratches around entrances) and a more accurate assessment (than could be made from the ground during that PBRAs) was made for its potential to support roosting bats. This included assessing the trees hibernation potential. The climbed inspections were aided by the use of an endoscope and high-powered torch.

3.4.14 All confirmed and potential roost features were recorded and photographed with a description provided for each feature. Where possible, droppings were collected to allow further DNA analysis to confirm species identification.

3.4.15 Trees with moderate potential were climbed twice within the active bat season (April – September/October, although some surveys were also conducted at the end of March, where conditions were favourable), while trees with high potential were climbed three times within the same period.

3.4.16 Given access restrictions during the core bat survey season (see Section 4 for limitations), the aerial inspection surveys were prioritised based on the likely scale of impact to the feature; trees likely to be subject to direct loss from the Scheme were prioritised for survey first, over those likely to be retained but potentially subject to disturbance.

Emergence/re-entry surveys

3.4.17 Based on the results of the PBRAs, where access allowed, structures with low, moderate or high potential to support roosting bats were subject to one, two or three emergence/re-entry surveys respectively, to watch for bats leaving from and/or returning to potential roost features on the structures (in line with published guidance - Ref 9) in 2018 and 2019.

3.4.18 Emergence surveys were carried out at dusk, commencing 15 minutes before sunset and continuing until at least 90 minutes after sunset. Re-entry surveys were carried out at dawn, commencing 90 minutes prior to sunrise and continuing until at least 15 minutes after sunrise or, if bats were still active at sunrise, until 15 minutes after the last bat recording.

3.4.19 All surveys were carried out during suitable weather and temperature conditions, unless otherwise stated as a limitation, with weather conditions recorded at the start of each survey. Any significant weather or temperature changes were noted during the survey. Metadata for the surveys is provided in Table 3.2.

3.4.20 Surveyors were strategically positioned to allow full visibility of all features that were potentially suitable for roosting bats. Visual observations were supported by ultrasonic bat detectors and recording devices, namely *Echo Meter Touch (EMT) 2* (Wildlife Acoustics) detectors.

Table 3.2: Metadata for roost identification surveys of structures

Structure and location Figure 8.13 [TR010054/APP/6.2]	Survey type	Date	Timings			Weather conditions			
			Start	End	Sunset/ sunrise	Temperature	Cloud cover (/8)[2]	Precipitation[3]	Wind (Beaufort)[4]
Building 1 (E 394754, N 304711)	PBRA	24/07/19	Not recorded for PBRA surveys						
	Re-entry	13/08/19	04:22	05:45	05:45	11°C	4	0	1
	Re-entry	29/08/19	04:43	06:13	06:13	9°C	1	0	0-2
	Emergence	09/09/19	19:24	21:09	19:39	14°C-12°C	6-8	1-0	0
Building 2a & 2b (E 394742, N 304646)	PBRA	24/07/19	Not recorded for PBRA surveys						
	Emergence	22/08/19	20:05	21:50	20:20	16°C-17°C	7-4	0	2-1
	Emergence	03/09/19	19:50	21:20	19:53	17°C-16°C	7-7	0	4
	Re-entry	18/09/19	05:17	06:47	06:47	9°C-6°C	0	0	0
Building 3 (E 394759, N 304663)	PBRA	24/07/19	Not recorded for PBRA surveys.						
Building 4 (E 394731, N 304638)	PBRA	24/07/19	Not recorded for PBRA surveys.						
Building 5 (E 394775, N 304671)	PBRA	24/07/19	Not recorded for PBRA surveys.						
	Emergence	01/08/19	20:58	22:31	21:01	18°C-16°C	8-5	0	1
	Emergence	02/09/19	19:40	21:25	19:55	16°C	8	0	1
Building 6	PBRA	24/07/19	Not recorded for PBRA surveys.						

2 The amount of clouds covering the sky. 0 = no clouds, 8 = full cloud cover
3 Amount of rainfall at the time of survey. 0 = o rain, 8 = heavy rain
4 The beaufort scale is an empirical measure for describing wind intensity based on observed sea conditions ranked from 0-12, where 0 = calm, 12 = hurricane.

Structure and location Figure 8.13 [TR010054/APP/6.2]	Survey type	Date	Timings			Weather conditions			
			Start	End	Sunset/ sunrise	Temperature	Cloud cover (/8)[2]	Precipitation[3]	Wind (Beaufort)[4]
(E 394788, N 304657)	Re-entry	02/08/19	03:59	05:29	05:29	14°C	9 (fog)	0	2
Building 7 (E 394692 N 304663)	PBRA	24/07/19	Not recorded for PBRA surveys.						
Building 8 (E 394607, N 304711)	PBRA	24/07/19	Not recorded for PBRA surveys.						
Building 9&9a (E 395188, N 306298)	PBRA	22/07/19	Not recorded for PBRA surveys.						
	Emergence	16/08/18	20:17	22:02	20:32	17°C	2	0	2
	Emergence	11/09/18	19:18	21:03	19:33	16°C	2	0	2
Building 9b (E 395184, N 306284)	PBRA	22/07/19	Not recorded for PBRA surveys						
	Emergence	06/08/19	20:38	22:23	20:53	16°C	0-1	0	3-2
Building 9c (E 395128, N 306290)	PBRA	22/07/19	Not recorded for PBRA surveys.						
Building 10 (E 395179, N 306321)	PBRA	22/07/19	Not recorded for PBRA surveys						
	Emergence	16/08/18	20:17	22:02	20:32	17°C	2	0	2
Building 11 (E 395169, N 306175)	PBRA	22/07/19	Not recorded for PBRA surveys.						
Building 12 (E 395232, N 306165)	PBRA	22/07/19	Not recorded for PBRA surveys.						
	Emergence	06/08/18	Meta data is not available.						
	Re-entry	22/08/19	Meta data is not available.						
Building 13	PBRA	22/07/19	Not recorded for PBRA surveys.						

Structure and location Figure 8.13 [TR010054/APP/6.2]	Survey type	Date	Timings			Weather conditions			
			Start	End	Sunset/ sunrise	Temperature	Cloud cover (/8)[2]	Precipitation[3]	Wind (Beaufort)[4]
(E 395207, N 306236)									
Building 14 (E 395248, N 306219)	PBRA	22/07/19	Not recorded for PBRA surveys.						
	Emergence	07/08/18	20:35	22:20	20:50	18C	5	0	2
Building 15 (E 395283, N 306226)	PBRA	22/07/19	Not recorded for PBRA surveys.						
Building 16 (E 395378, N 306290)	PBRA	22/07/19	Not recorded for PBRA surveys.						
Building 17 (E 395394, N 306503)	PBRA	22/07/19	Not recorded for PBRA surveys.						
Building 18 (E 395158, N 305486)	No access for full PBRA – external observations made at a site meeting with landowner	26/06/19	Not recorded for PBRA surveys.						
Building 19 (E 395165, N 305408)	No access for full PBRA – external observations only	05/08/19	Not recorded for PBRA surveys.			18C	4-8	Mainly dry, occasional light rain.	0-3
	Re-entry	10/09/19	05:03	06:33	06:33	11°C	7-8	0	1
	Emergence	25/09/19	18:46	19:01	20:31	16°C	7-3	1	0

Structure and location Figure 8.13 [TR010054/APP/6.2]	Survey type	Date	Timings			Weather conditions			
			Start	End	Sunset/ sunrise	Temperature	Cloud cover (/8)[2]	Precipitation[3]	Wind (Beaufort)[4]
Building 20 (E 395191, N 305418)	No access for full PBRA – external observations only	05/08/19	Not recorded for PBRA surveys.			18C	4-8	Mainly dry, occasional light rain.	0-3
	Emergence	26/09/19	18:43	20:28	19:58	15°C-14°C	1-4	0	2
	Emergence	8/10/19	18:15	20:00	18:30	12°C-11°C	0	0	3
Building 21 (E 395162, N 305440)	No access for full PBRA – external observations only	05/08/19	Not recorded for PBRA surveys.			18C	4-8	Mainly dry, occasional light rain.	0-3
	Emergence	12/09/19	05:05	06:35	06:35	12°C	0	0	1
Bridge 22 (E 394746, N 305340)	PBRA	05/08/19	Not recorded for PBRA surveys			18C	4-8	Mainly dry, occasional light rain	0-3
	Re-entry	10/09/19	05:03	06:33	06:33	12°C	7	0	1
	Emergence	24/09/19	18:48	20:33	19:03	15°C-14°C	8	0	3

Table 3.3: Dates for roost identification surveys of trees

Tree number and location (co-ordinates) –Figure 8.14 [TR010054/APP/6.2]	Survey type	Date
T1 (E 394283, N 305000)	PBRA	18/04/18
	Aerial inspection	25/03/19
T2 (E 394297, N 305027)	PBRA	18/04/18
	Aerial inspection	25/03/19
T3 (E 394273, N 305106)	PBRA	18/04/18
	Aerial inspection	25/03/19
T4 (E 394265, N 305129)	PBRA	18/04/18
	Aerial inspection	25/03/19
T5 (E 394320, N 305240)	PBRA	18/04/18
	Aerial inspection	25/03/19
T6 (E 394485, N 305084)	PBRA	18/04/18
	Aerial inspection	15/08/18
	Aerial inspection	25/03/19
T7 (E 394387, N 305128)	PBRA	18/04/18
	Aerial inspection	15/08/18
	Aerial inspection	25/03/19
T8 (E 394375, N 305140	PBRA	18/04/18
	Aerial inspection	15/08/18
	Aerial inspection	25/03/19
T9 (E 394358, N 305148)	PBRA	18/04/18
	Aerial inspection	15/08/18
	Aerial inspection	25/03/19
T10 (E 394284, N 305232)	PBRA	18/04/18
	Aerial inspection	25/03/19
T11 (E 394254, N 305132)	PBRA	18/04/18
	Aerial inspection	25/03/19
T12 (E 394247, N 304922)	PBRA	18/04/18
	Aerial inspection	25/03/19
T13 (E 395597, N 306895)	PBRA	23/04/18
	Aerial inspection	10/09/18
	Aerial inspection	25/03/19
T14	PBRA	23/04/18

Tree number and location (co-ordinates) –Figure 8.14 [TR010054/APP/6.2]	Survey type	Date
(E 395387, N 306886)	Aerial inspection	10/09/18
	Aerial inspection	25/03/19
T15 (E 395451, N 306772)	PBRA	23/04/18
	Aerial inspection	10/09/18
	Aerial inspection	25/03/19
T16 (E 395476, N 306756)	PBRA	23/04/18
	Aerial inspection	10/09/18
	Aerial inspection	25/03/19
T17 (E 395330, N 306652)	PBRA	23/04/18
	Aerial inspection	13/09/18
	Aerial inspection	25/03/19
T18 (E 395337, N 306644)	PBRA	23/04/18
	Aerial inspection	13/09/18
	Aerial inspection	25/03/19
T19 (E 395443, N 306562)	PBRA	23/04/18
	Aerial inspection	25/03/19
T20 (E 395463, N 306553)	PBRA	23/04/18
	Aerial inspection	25/03/19
T21 (E 394288, N 305249)	PBRA	23/04/18
T22 (E 395486, N 306499)	PBRA	23/04/18
	Aerial inspection	26/03/19
T23 (E 395486, N 306499)	PBRA	23/04/18
	Aerial inspection	26/03/19
T24 (E 394326, N 305309)	PBRA	23/04/18
T25 (E 395488, N 306514)	PBRA	23/04/18
	Aerial inspection	26/03/19
T26 (E 395451, N 306540)	PBRA	23/04/18
	Aerial inspection	27/03/19
T27 (E 395464, N 306537)	PBRA	23/04/18
	Aerial inspection	27/03/19
T28 (E 395484, N 306529)	PBRA	23/04/18
	Aerial inspection	27/03/19

Tree number and location (co-ordinates) –Figure 8.14 [TR010054/APP/6.2]	Survey type	Date
T29 (E 395359, N 306627)	PBRA	23/04/18
	Aerial inspection	13/09/18
	Aerial inspection	26/03/19
T30 (E 395244, N 306573)	PBRA	23/04/18
	Aerial inspection	10/09/18
	Aerial inspection	26/03/19
T31 (E 395270, N 306577)	PBRA	23/04/18
	Aerial inspection	10/09/18
	Aerial inspection	26/03/19
T32 (E 395302, N 306244)	PBRA	23/04/18
	Aerial inspection	26/03/19
T33 (E 395005, N 305555)	PBRA	25/04/18
	Aerial inspection	26/03/19
T34 (E 394643, N 305406)	PBRA	25/04/18
	Aerial inspection	10/09/18
	Aerial inspection	26/03/19
T35 (E 394585, N 305410)	PBRA	18/04/18
	Aerial inspection	10/09/18
	Aerial inspection	26/03/19
T36 (E 394489, N 305328)	PBRA	18/04/18
	Aerial inspection	10/09/18
	Aerial inspection	26/03/19
T37 (E 395507, N 306929)	PBRA	18/04/18
	Aerial inspection	10/09/18
	Aerial inspection	27/03/19
T38 (E 395520, N 306941)	PBRA	25/04/18
	Aerial inspection	10/09/18
	Aerial inspection	26/03/19
T39 (E 395484, N 306960)	PBRA	25/04/18
	Aerial inspection	10/09/18
	Aerial inspection	26/03/19
T40 (E 395514, N 307087)	PBRA	25/04/18
	Aerial inspection	13/09/18
	Aerial inspection	26/03/19

Tree number and location (co-ordinates) –Figure 8.14 [TR010054/APP/6.2]	Survey type	Date
T41 (E 395517, N 307096)	PBRA	25/04/18
	Aerial inspection	13/09/18
	Aerial inspection	26/03/19
T42 (E 395438, N 307120)	PBRA	25/04/18
	Aerial inspection	13/09/18
	Aerial inspection	27/03/19
T43 (E 395576, N 306636)	PBRA	25/04/18
	Aerial inspection	27/03/19
T44 (E 395878, N 307111)	PBRA	15/05/19
	Aerial inspection	26/03/19
T45 (E 395808, N 307247)	PBRA	15/05/19
	Aerial inspection	27/03/19
T46 (E 395844, N 307299)	PBRA	15/05/19
	Aerial inspection	26/03/19
T47 (E 395855, N 307667)	PBRA	16/05/19
	Aerial inspection	17/09/19
	Aerial inspection	26/03/19
T48 (E 395898, N 307658)	PBRA	16/05/19
	Aerial inspection	17/09/19
	Aerial inspection	26/03/19
T49 (E 395924, N 307653)	PBRA	16/05/19
	Aerial inspection	17/09/19
	Aerial inspection	26/03/19
T50 (E 395938,N 307646)	PBRA	16/05/19
	Aerial inspection	17/09/19
	Aerial inspection	26/03/19
T51 (E 395964, N 307776)	PBRA	16/05/19
	Aerial inspection	17/09/19
	Aerial inspection	27/03/19
T52 (E 395937, N 307827)	PBRA	16/05/19
	Aerial inspection	17/09/19
	Aerial inspection	27/03/19
T53 (E 395949, N 307827)	PBRA	16/05/19
	Aerial inspection	17/09/19

Tree number and location (co-ordinates) –Figure 8.14 [TR010054/APP/6.2]	Survey type	Date
	Aerial inspection	27/03/19
T54 (E 395425, N 306572)	PBRA	23/04/18
	Aerial inspection	27/03/19
T55 (E 395378, N 306597)	PBRA	23/04/18
	Aerial inspection	27/03/19
T56 (E 395908, N 306903)	PBRA	15/05/18
	Aerial inspection	27/03/19
T57 (E 395908, N 307656)	PBRA	16/05/18
	Aerial inspection	17/09/18
	Aerial inspection	27/03/19
T58 (E 394288, N 305247)	PBRA	18/04/18
	Aerial inspection	27/03/19
T59 (E 394245, N 305104)	PBRA	06/08/19
	Aerial inspection	29/08/19
	Aerial inspection	18/09/19
	Aerial inspection	02/10/19
T60 (E 394337, N 305248)	PBRA	06/08/19
	Aerial inspection	29/08/19
	Aerial inspection	18/09/19
T61 (E 394907, N 305821)	PBRA	06/08/19
	Aerial inspection	29/08/19
T62 (E 395165, N 306283)	PBRA	06/08/19
T63 (E 395182, N 306268)	PBRA	06/08/19
T64 (E 394637, N 305810)	PBRA	06/08/19
	Aerial inspection	18/09/19
T65 (E 394640, N 305799)	PBRA	06/08/19
	Aerial inspection	18/09/19
T66 (E 394617, N 305790)	PBRA	06/08/19
	Aerial inspection	18/09/19
T67 (E 394667, N 305226)	PBRA	06/08/19
	Aerial inspection	09/09/19
T68	PBRA	06/08/19

Tree number and location (co-ordinates) –Figure 8.14 [TR010054/APP/6.2]	Survey type	Date
(E 394929, N 305209)	Aerial inspection	10/09/19
T69 (E 394993, N 305129)	PBRA	06/08/19
	Aerial inspection	10/09/19
T70 (E 394912, N 305093)	PBRA	06/08/19
	Aerial inspection	10/09/19
T71 (E 394963, N 305546)	PBRA	06/08/19
	Aerial inspection	22/08/19
T72 (E 394987, N 305572)	PBRA	06/08/19
	Aerial inspection	22/08/19
T73 (E 395007, N 305579)	PBRA	06/08/19
	Aerial inspection	22/08/19
	Aerial inspection	12/09/19
	Aerial inspection	01/10/19
T74 (E 395051, N 305556)	PBRA	06/08/19
	Aerial inspection	21/08/19
T75 (E 395088, N 305550)	PBRA	06/08/19
	Aerial inspection	21/08/19
	Aerial inspection	12/09/19
T76 (E 395130, N 305543)	PBRA	06/08/19
	Aerial inspection	21/08/19
	Aerial inspection	12/09/19
T77 (E 395043, N 305570)	PBRA	06/08/19
	Aerial inspection	21/08/19
T78 (E 395039, N 305575)	PBRA	06/08/19
	Aerial inspection	21/08/19
	Aerial inspection	13/09/19
T79 (E 394963, N 305590)	PBRA	06/08/19
	Aerial inspection	22/08/19
	Aerial inspection	12/09/19
	Aerial inspection	01/10/19
T80 (E 394795, N 305312)	PBRA	06/08/19
	Aerial inspection	23/08/19
T81 (E 394797, N 305325)	PBRA	06/08/19
	Aerial inspection	23/08/19

Tree number and location (co-ordinates) –Figure 8.14 [TR010054/APP/6.2]	Survey type	Date
T82 (E 394773, N 305299)	PBRA	06/08/19
	Aerial inspection	10/09/19
	Aerial inspection	19/09/19
T83 (E 394747, N 305280)	PBRA	06/08/19
	Aerial inspection	23/08/19
T84 (E 394732, N 305287)	PBRA	06/08/19
	Aerial inspection	23/08/19
T85 (E 394758, N 305314)	PBRA	06/08/19
	Aerial inspection	23/08/19
T86 (E 394621, N 305279)	PBRA	06/08/19
	Aerial inspection	09/09/19
T87 (E 394648, N 305347)	PBRA	06/08/19
	Aerial inspection	19/09/19
	Aerial inspection	01/10/19
T88 (E 394886, N 304877)	PBRA	06/08/19
	Aerial inspection	29/08/19
T89 (E 395291, N 306248)	PBRA	06/08/19
T90 (E 395762, N 306325)	PBRA	06/08/19
	Aerial inspection	28/08/19
	Aerial inspection	13/09/19
T91 (E 395762, N 306334)	PBRA	06/08/19
	Aerial inspection	28/08/19
T92 (E 395723, N 306427)	PBRA	06/08/19
	Aerial inspection	28/08/19
	Aerial inspection	13/09/19
T93 (E 395638,N 306493)	PBRA	06/08/19
	Aerial inspection	28/08/19
	Aerial inspection	13/09/19
T94 (E 395728, N 306004)	PBRA	06/08/19
	Aerial inspection	28/08/19
T95 (E 395243, N 306000)	PBRA	06/08/19
	Aerial inspection	28/08/19
T96	PBRA	06/08/19

Tree number and location (co-ordinates) –Figure 8.14 [TR010054/APP/6.2]	Survey type	Date
(E 395289, N 305803)	Aerial inspection	29/08/19
T97 (E 395392, N 306055)	PBRA	06/08/19
	Aerial inspection	28/08/19
T98 (E 394546, N 305623)	PBRA	06/08/19
	Aerial inspection	19/09/19
T99 (E 394831, N 305213)	PBRA	06/08/19
	Aerial inspection	09/09/19
T100 (E 395080, N 305323)	PBRA	06/08/19
	Aerial Inspection	11/09/19
T101 (E 395105, N 305366)	PBRA	06/08/19
	Aerial inspection	11/09/19
	Aerial inspection	02/10/19
T102 (E 395032, N 305451)	PBRA	06/08/19
	Aerial inspection	09/09/19
T103 (E 395133, N 305517)	PBRA	06/08/19
	Aerial inspection	11/09/19
	Aerial inspection	01/10/19
T104 (E 395119, N 305529)	PBRA	06/08/19
	Aerial inspection	11/09/19
	Aerial inspection	01/10/19
T105 (E 394954, N 305430)	PBRA	06/08/19
	Aerial inspection	09/09/19
T106 (E 394950, N 305578)	PBRA	06/08/19
	Aerial inspection	22/08/19
	Aerial inspection	19/09/19
T107 (E 394936, N 305572)	PBRA	06/08/19
	Aerial inspection	22/08/19
	Aerial inspection	12/09/19
	Aerial inspection	01/10/19
T108 (E 394791, N 305446)	PBRA	06/08/19
	Aerial inspection	10/09/19
T109	PBRA	06/08/19

Tree number and location (co-ordinates) –Figure 8.14 [TR010054/APP/6.2]	Survey type	Date
(E 394764, N 305459)	Aerial inspection	23/08/19
T110 (E 394745, N 305446)	PBRA	06/08/19
	Aerial inspection	23/08/19
T111 (E 394754, N 305430)	PBRA	06/08/19
	Aerial inspection	23/08/19
T112 (E 394751, N 305357)	PBRA	06/08/19
	Aerial inspection	23/08/19
	Aerial inspection	12/09/19
	Aerial inspection	01/10/19
T113 (E 394802, N 305400)	PBRA	06/08/19
	Aerial inspection	23/08/19
T114 (E 394657, N 304735)	PBRA	06/08/19
	Aerial inspection	29/08/19
T115 (E 395211, N 306266)	PBRA	06/08/19
T116 (E 395269, N 306252)	PBRA	06/08/19
T117 (E 395453, N 306566)	PBRA	06/08/19
	Aerial inspection	28/08/19
T118 (E 395463, N 306558)	PBRA	06/08/19
	Aerial inspection	27/08/19
T119 (E 395559, N 306490)	PBRA	06/08/19
	Aerial inspection	27/08/19
T120 (E 395573, N 306478)	PBRA	06/08/19
	Aerial inspection	27/08/19
	Aerial inspection	13/09/19
T121 (E 395576, 306468)	PBRA	06/08/19
	Aerial inspection	27/08/19
T122 (E 395610, N 306435)	PBRA	06/08/19
	Aerial inspection	27/08/19
	Aerial inspection	13/09/19
	Aerial inspection	02/10/19
T123	PBRA	06/08/19

Tree number and location (co-ordinates) –Figure 8.14 [TR010054/APP/6.2]	Survey type	Date
(E 395614, N 306423)	Aerial inspection	18/09/19
T124 (E 394484, N 304725)	PBRA	06/08/19
	Aerial inspection	21/08/19
	Aerial inspection	12/09/19
T125 (E 394416, N 304767)	PBRA	06/08/19
	Aerial inspection	13/09/19
T126 (E 394266, N 304967)	PBRA	06/08/19
	Aerial inspection	13/09/19
T127 (E 394289, N 305026)	PBRA	06/08/19
	Aerial inspection	13/09/19
T128 (E 394265, N 305136)	PBRA	06/08/19
	Aerial inspection	13/09/19
T129 (E 394895, N 305772)	PBRA	06/08/19
T130 (E 394897, N 305832)	PBRA	06/08/19
T131 (E 394866, N 305863)	PBRA	06/08/19
T132 (E 394805, N 305996)	PBRA	06/08/19
T133 (E 394775, N 306106)	PBRA	06/08/19
T134 (E 395083, N 306308)	PBRA	06/08/19
T135 (E 395116, N 306284)	PBRA	06/08/19
T136 (E 395126, N 306281)	PBRA	06/08/19
T137 (E 395169, N 306218)	PBRA	06/08/19
T138 (E 394645, N 305816)	PBRA	06/08/19
T139 (E 394638, N 305790)	PBRA	06/08/19

Tree number and location (co-ordinates) –Figure 8.14 [TR010054/APP/6.2]	Survey type	Date
T140 (E 394621, N 305773)	PBRA	06/08/19
T141 (E 394867, N 305373)	PBRA	06/08/19
T142 (E 394897, N 305458)	PBRA	06/08/19
T143 (E 394941, N 305509)	PBRA	06/08/19
T144 (E 394968, N 305553)	PBRA	06/08/19
T145 (E 395023, N 305573)	PBRA	06/08/19
T146 (E 395117, N 305553)	PBRA	06/08/19
T147 (E 395027, N 305583)	PBRA	06/08/19
T148 (E 394982, N 305595)	PBRA	06/08/19
T149 (E 394984, N 305612)	PBRA	06/08/19
T150 (E 394971, N 305560)	PBRA	06/08/19
T151 (E 394903, N 305510)	PBRA	06/08/19
T152 (E 394903, N 305501)	PBRA	06/08/19
T153 (E 394881, N 305446)	PBRA	06/08/19
T154 (E 394855, N 305415)	PBRA	06/08/19
T155 (E 394689, N 305260)	PBRA	06/08/19
T156 (E 394668, N 305250)	PBRA	06/08/19
T157 (E 394659, N 305216)	PBRA	06/08/19
T158	PBRA	06/08/19

Tree number and location (co-ordinates) –Figure 8.14 [TR010054/APP/6.2]	Survey type	Date
(E 394745, N 305295)		
T159 (E 394620, N 305263)	PBRA	06/08/19
T160 (E 394640, N 305334)	PBRA	06/08/19
T161 (E 394777, N 304718)	PBRA	06/08/19
T162 (E 395582, N 306640)	PBRA	06/08/19
T163 (E 395739, N 306400)	PBRA	06/08/19
T164 (E 395736, N 306409)	PBRA	06/08/19
T165 (E 395731, N 306418)	PBRA	06/08/19
T166 (E 395690, N 306486)	PBRA	06/08/19
T167 (E 395784, N 306099)	PBRA	06/08/19
T168 (E 395770, N 306080)	PBRA	06/08/19
T169 (E 395767, N 306075)	PBRA	06/08/19
T170 (E 395684, N 306041)	PBRA	06/08/19
T171 (E 395768, N 305991)	PBRA	06/08/19
T172 (E 395795, N 305992)	PBRA	06/08/19
T173 (E 394460, N 304742)	PBRA	06/08/19
T174 (E 395240, N 305990)	PBRA	06/08/19
T175 (E 395295, N 305813)	PBRA	06/08/19
T176 (E 395131, N 305773)	PBRA	06/08/19

Tree number and location (co-ordinates) –Figure 8.14 [TR010054/APP/6.2]	Survey type	Date
T177 (E 395202, N 305582)	PBRA	06/08/19
T178 (E 395521, N 305907)	PBRA	06/08/19
T179 (E 395341, N 305967)	PBRA	06/08/19
T180 (E 394911, N 305630)	PBRA	06/08/19
T181 (E 394544, N 305598)	PBRA	06/08/19
T182 (E 394541, N 305609)	PBRA	06/08/19
T183 (E 394549, N 305650)	PBRA	06/08/19
T184 (E 394564, N 305655)	PBRA	06/08/19
T185 (E 394563, N 305696)	PBRA	06/08/19
T186 (E 394582, N 305701)	PBRA	06/08/19
T187 (E 395095, N 305360)	PBRA	06/08/19
T188 (E 395097, N 305353)	PBRA	06/08/19
T189 (E 395100, N 305363)	PBRA	06/08/19
T190 (E 395108, N 305388)	PBRA	06/08/19
T191 (E 395131, N 305466)	PBRA	06/08/19
T192 (E 394934, N 305557)	PBRA	06/08/19
T193 (E 394907, N 305504)	PBRA	06/08/19
T194 (E 394845, N 305488)	PBRA	06/08/19
T195	PBRA	06/08/19

Tree number and location (co-ordinates) –Figure 8.14 [TR010054/APP/6.2]	Survey type	Date
(E 394831, N 305495)		
T196 (E 394828, N 305494)	PBRA	06/08/19
T197 (E 394793, N 305458)	PBRA	06/08/19
T198 (E 394803, N 305447)	PBRA	06/08/19
T199 (E 394720, N 305405)	PBRA	06/08/19
T200 (E 394796, N 305360)	PBRA	06/08/19
T201 (E 395578, N 306466)	PBRA	06/08/19
T202 (E 395619, N 306428)	PBRA	06/08/19
T203 (E 395780, N 306156)	PBRA	06/08/19

Activity surveys

Walked transect surveys

3.4.21 Walked transect surveys were conducted where access allowed in 2018 and 2019. In accordance with best practice guidelines (Ref 9) for medium sized sites with high quality habitat, two visits per walked transect were scheduled for each survey month (April to October), although some of the transects could not be completed at the recommended times due to land access issues (see Limitations in Section 4).

3.4.22 A total of six transect routes were surveyed and were identified based on accessible land within the Scheme boundary comprising habitats likely to be of value to bats, as identified by the desk study. These transect routes are shown on Figure 8.16 [TR010054/APP/6.2].

3.4.23 Transects were routed to focus on specific features likely to be of value to bats, such as waterbodies, built structures, hedgerows, tree lines woodland edge and mature trees.

3.4.24 Each transect was walked by surveyors at a fairly constant pace along the pre-determined routes in order to observe, listen for and record bats in flight away from their roosts using hand-held bat detectors and recorders. In 2018, each transect was walked with activity recorded using hand-held bat detectors and recorders; *Anabat Walkabout* (Titley Scientific) and *Batbox Duet* (Batbox Ltd) & *Roland RO5 / RO7* digital recorders. In 2019 *Echo Meter Touch EMT2* (Wildlife Accoustics) detectors were utilised. All bat activity either observed or heard via audio output from the bat detector was noted and cross-referenced on to a field map.

3.4.25 As far as possible, bats heard during the surveys were identified and contextual information on their behaviour was recorded if this could be ascertained (e.g. foraging; direction of flight).

Static detector surveys

3.4.26 In accordance with published survey guidance for a site of this size and nature (Ref 9), static detectors were deployed in three locations per walked transect (equating to 18 locations). In 2018 detectors were placed in 12 locations, with detectors deployed in an additional seven locations in 2019. This is a total of 19 locations within or adjacent to the Scheme boundary (see Figure 8.15 [TR010054/APP/6.2] for the static detector locations). The additional detector to what is required by survey guidance was placed in an area of highways land in the south of the Scheme boundary (S19 on Figure 8.15 [TR010054/APP/6.2]) given there was restricted access to highways verges for transect surveys in this area on account of health and safety.

3.4.27 Static detectors were deployed monthly in the active bat season (April to October inclusive in 2018 and July to October in 2019) and left in place for a minimum of five consecutive nights. Metadata for bat activity surveys (walked transect surveys) is included in Table 3.4.

3.4.28 *Song Meter 2 and 4* (SM2 and SM4) (Wildlife Acoustics) bat detectors were used for the 2018 and 2019 static detector surveys respectively and were fitted with a

single, omnidirectional microphone positioned pointing upwards at or near features likely to be used by bats.

Table 3.4: Metadata for bat activity surveys (walked transect surveys)

Location Figure 8.16 [TR010054/APP/6.2]	Survey month and number	Date(s)	Timings			Weather conditions			
			Start	End	Sunset/ sunrise	Temperature	Cloud cover (/8)	Precipitation	Wind (Beaufort)
Transect 1	April (survey 1)	19/04/18	19:45	21:45	20:14	22°C-19°C	0	0	2
	April (survey 2)	24/04/18	20:07	21:52	20:22	12°C – 9°C	8	Occasional light rain	2
	May (survey 1)	15/05/18	20:58	23:20	20:58	17°C-15°C	0	0	5
	May (survey 2)	30/05/18	21:04	22:49	21:19	15°C	8	0	0
	June (survey 1)	04/06/18	21:35	23:50	21:25	14°C-13°C	8-7	0	2
	June (survey 2)	20/06/18	21:36	23:37	21:35	14°C-12°C	0	0	2
	June (survey 3)	21/06/18	02:44	04:48	04:44	11°C	0-1	0	2
	July (survey 1)	02/07/18	21:33	23:33	21:34	20°C-17°C	0	0	2
	July (survey 2)	27/07/18	03:15	05:21	05:20	17°C	0	0	1
	August (survey 1)	08/08/18	20:49	22:53	20:48	15°C-17°C	2-0	0	1
	August (survey 2)	29/08/18	20:04	22:22	20:03	15°C-13°C	0	0	2
	September (survey 1)	12/09/18	19:32	21:39	19:31	14°C	2	0	1
	September (survey 2)	28/09/18	19:03	21:12	18:53	12°C-8°C	0	0	1
	October (survey 1)	10/10/18	05:24	07:32	07:25	9°C	8	0	1
	October (survey 2)	24/10/18	17:59	20:00	18:16	12°C-10°C	0	0	2
Transect 2	April (survey 1)	19/04/18	20:15	22:09	20:14	22°C-19°C	0	0	2
	April (survey 2)	23/04/18	20:07	22:21	20:21	12°C-11°C	3	0	4
	May (survey 1)	10/05/18	20:50	22:50	20:50	11°C-10°C	0-2	0	2

Location Figure 8.16 [TR010054/APP/6.2]	Survey month and number	Date(s)	Timings			Weather conditions			
			Start	End	Sunset/ sunrise	Temperature	Cloud cover (/8)	Precipitation	Wind (Beaufort)
	May (survey 2)	21/05/18	21:07	23:12	21:07	18°C-16°C	0	0	1
	June (survey 1)	05/06/18	21:26	23:31	21:26	14°C-13°C	8-7	0	2
	June (survey 2, dusk)	21/06/18	21:36	23:41	21:35	13°C-12°C	0	0	2
	June (survey 2, dawn)	22/06/18	02:45	04:46	04:45	10°C-9°C	2-0	0	1
	July (survey 1)	04/07/18	21:34	23:35	21:33	23°C-21°C	2-0	0	1
	July (survey 2)	27/07/18	03:19	05:21	05:20	17°C	0	0	1
	August (survey 1)	08/08/18	20:49	22:50	20:48	15°C-17°C	2-0	0	1
	August (survey 2)	31/08/18	04:17	06:22	06:17	9°C	0-8	0	1
	September (survey 1)	14/09/18	04:38	06:38	06:40	12°C-11°C	2-0	0	1
	September (survey 2)	27/09/18	05:00	06:59	07:02	15°C-14°C	8-3	0	1
	October (survey 1)	10/10/18	05:24	07:24	07:25	9°C	8	0	1
	October (survey 2)	24/10/18	17:59	20:00	18:16	12°C-10°C	0	0	2
Transect 3	April (survey 1)	29/04/18	20:31	22:34	20:31	7°C-6°C	4	0	5
	April (survey 2)	30/04/18	21:05	23:10	20:33	9°C-8°C	3	0	5
	May (survey 1)	15/05/18	21:05	23:10	20:58	17°C-15°C	0	0	5
	May (survey 2)	22/05/18	21:08	23:08	21:08	15°C-12°C	0	0	1
	June (survey 1)	14/06/18	21:33	23:40	21:33	17°C-14°C	0	0	1
	June (survey 2, dusk)	25/06/18	21:35	23:50	21:36	22°C-19°C	0	0	1

Location Figure 8.16 [TR010054/APP/6.2]	Survey month and number	Date(s)	Timings			Weather conditions			
			Start	End	Sunset/ sunrise	Temperature	Cloud cover (/8)	Precipitation	Wind (Beaufort)
	June (survey 2, dawn)	26/06/18	02:45	04:47	04:46	19°C-16°C	0	0	1
	July (survey 1)	09/07/18	21:30	23:30	21:30	20°C-18°C	2	0	1
	July (survey 2)	30/07/18	21:05	23:05	21:04	19°C-17°C	2	0	1
	August (survey 1)	14/08/18	20:37	22:45	20:36	19°C-18°C	2	0	1
	August (survey 2)								
	September (survey 1)	10/09/18	19:37	21:38	19:35	17°C-16°C	2	0	2
	September (survey 2)	24/09/18	18:59	21:05	19:02	13°C-11°C	0	0	1
	October (survey 1)	16/10/18	18:12	20:13	18:11	14°C-13°C	2	0	1
	October (survey 2)	31/10/18	16:57	19:00	16:40	10°C-9°C	2-0	0	2
Transect 4	May (survey 1)	16/05/18	20:59	23:01	20:59	11°C-9°C	2	0	4-3
	May (survey 2)	30/05/18	21:20	23:31	21:19	15°C-15°C	8	0	1
	June (survey 1)	26/06/18	21:36	23:37	21:35	23°C-18°C	0	0	1
	June (survey 2, dusk)	27/06/18	02:46	04:46	04:47	14°C-12°C	0	0	1
	June (survey 3, dawn)	28/06/18	02:42	04:49	04:47	12°C	2-3	0	1
	July (survey 1)	16/07/18	03:04	05:12	05:04	15°C-13°C	2	0	1
	July (survey 2)	30/07/18	21:05	23:05	21:04	19°C-17°C	2	0	1
	August (survey 1)	17/08/18	02:58	05:04	05:53	11°C-10°C	0	0	1
	August (survey 2)	31/08/18	04:17	06:20	06:17	9°C	0-8	0	1

Location Figure 8.16 [TR010054/APP/6.2]	Survey month and number	Date(s)	Timings			Weather conditions			
			Start	End	Sunset/ sunrise	Temperature	Cloud cover (/8)	Precipitation	Wind (Beaufort)
	September (survey 1)	14/09/18	04:40	06:41	06:40	12°C-11°C	2-0	0	1
	September (survey 2)	27/09/18	Meta data not available						
	October (survey 1)	17/10/18	05:38	07:36	07:37	12°C-11°C	2-0	0	1
	October (survey 2)	31/10/18	16:42	18:42	16:40	10°C-9°C	2-0	0	2
Transect 5	July (survey 1)	23/07/19	21:02	23:29	21:17	26°C-25°C	3	0	0
	August (survey 1)	01/08/19	20:46	23:01	21:01	18°C-17°C	5-8	0	1-0
	August (survey 2, dusk)	02/08/19	03:29	05:29	05:28	15°C -14°C	0	0	0
	August (survey 3, dawn)	12/08/19	20:26	22:41	20:41	14°C-12°C	0	0	1-7
	September (survey 1)	10/09/19	19:21	21:20	19:36	15°C-14°C	7-8	0	1
	September (Survey 2)	17/09/19	19:05	21:20	19:19	13°C-11°C	0	1	0
	October (Survey 1)	02/10/19	18:29	20:44	18:44	12°C-8°C	0	0	0
	October (Survey 2)	16/10/19	17:56	18:11	20:11	13°C-10°C	0	0	0
Transect 6	August (survey 1)	02/08/19	03:29	05:29	05:29	14°C	7	0	1
	August	12/08/19	20:26	22:41	20:41	14°C	2	0	1

Location Figure 8.16 [TR010054/APP/6.2]	Survey month and number	Date(s)	Timings			Weather conditions			
			Start	End	Sunset/ sunrise	Temperature	Cloud cover (/8)	Precipitation	Wind (Beaufort)
	(survey 2, dusk)								
	August (survey 2, dawn)	21/08/19	20:05	21:30	20:22	13°C	3	0	1
	September (survey 1)	09/09/19	19:24	21:39	19:39	14°C	6	0	1
	September (survey 2)	26/09/19	05:01	07:01	07:00	15°C	7-8	1	2
	October (survey 1)	23/10/19	17:41	19:56	17:56	12°C-11°C	4-1	0	0
	October (survey 2)	28/10/19	16:32	18:47	16:47	8°C-7°C	7	0	0

Crossing point surveys

3.4.29 Crossing point surveys were conducted in 2019 informed by published guidance (Ref 11). The survey methodology guidance was published in order to assess the effectiveness of crossing structures as mitigation for bats on linear infrastructure schemes (road or rail) using a robust, standardised replicable method that provides quantifiable data. The survey method guidance was designed to determine whether a man-made structure effectively guides commuting bats safely over or under roads and, when repeated pre- and post-construction, whether there has been any change in the number of bats using a commuting route.

3.4.30 Crossing point surveys were therefore conducted in five locations (A to E on Figure 8.15 [TR010054/APP/6.2]). These locations were determined based on the likely severance points of potential commuting features (flight paths) identified from the desk study analysis of aerial imagery and consultation of potential Scheme alignments.

3.4.31 The surveys comprised two preliminary surveys, undertaken in July and August 2019 (each at dusk and dawn) by two surveyors at each crossing point location undertaking visual assessments with the use of static detectors. Where more than 10 bats were recorded using a particular flight path during these preliminary surveys, an additional six surveys were conducted at dusk or dawn (minimum of three at dusk – August and September) at those locations. Each preliminary or additional survey was undertaken for 60 minutes and either commenced at sunset (for a dusk survey) or 60 minutes prior to sunrise (for a dawn survey. Metadata for the surveys is provided in Table 3.5.

3.4.32 For each bat pass, where possible (i.e. where the bat and it's behaviour could be seen), the time, flight height, distance from feature, side of the feature and direction of the pass was recorded.

3.4.33 Additional surveys were conducted at two of the five crossing point locations, namely B and E, where the requirements set out at para 3.4.31 above were met. At the other three locations (A, C and D), less than 10 bats were recorded during the initial surveys and so no additional surveys at these locations were undertaken.

Table 3.5: Metadata for crossing point surveys

Location (coordinates where relevant) see also Figure 8.15	Survey month and number	Date(s)	Timings			Weather conditions			
			Start	End	Sunset/ sunrise	Temperature	Cloud cover (/8)	Precipitation	Wind (Beaufort)
Location A (E 395497 N 306462)	Preliminary survey 1 dusk	17/07/19	21:08	22:23	21:23	17°C	4	0	2-3
	Preliminary survey 1 dawn	18/07/19	Cancelled due to rain						
	Preliminary survey 2 dusk	15/08/19	20:35	21:35	20:35	16°C-14°C	2	0	2
	Preliminary survey 2 dawn	16/08/19	04:52	05:52	05:52	13°C	8	8	0
Location B (E 395255 N 306016)	Preliminary survey 1 dusk	23/07/19	21:20	22:20	21:20	28°C-27°C	3-4	0	2-0
	Preliminary 1 dawn	24/07/19	Cancelled due to rain						
	Preliminary survey 2 dusk	14/08/19	20:37	21:37	20:37	18°C	6	0	2
	Preliminary survey 2 dawn	15/08/19	04:48	05:48	05:48	14°C	7-4	0	3

Location (coordinates where relevant) see also Figure 8.15	Survey month and number	Date(s)	Timings			Weather conditions			
			Start	End	Sunset/ sunrise	Temperature	Cloud cover (/8)	Precipitation	Wind (Beaufort)
	Additional survey 1	21/08/19	20:22	21:22	20:22	18°C	4	0	2
	Additional survey 2	29/08/19	20:04	21:04	20:04	17°C-16°C	6-4	0	2
	Additional survey 3	02/09/19	19:55	20:55	19:55	15°C	8	0	4
	Additional survey 4	11/09/19	19:34	20:34	19:34	17°C-16°C	4	0	2
	Additional survey 5	No access granted – surveys not completed							
	Additional survey 6								
Location C (E 394977 N 305659)	Preliminary survey 1 dusk	25/07/19	21:13	22:13	21:13	28°C-16°C	3-7	0	1-0
	Preliminary survey 1 dawn	26/07/19	04:18	05:18	05:18	23°C-20°C	1-2	0	0-1
	Preliminary survey 2 dusk	14/08/19	20:37	21:37	20:37	17°C	0	0	0
	Preliminary survey 2 dawn	15/08/19	04:50	05:50	05:50	14°C	4	0	2

Location (coordinates where relevant) see also Figure 8.15	Survey month and number	Date(s)	Timings			Weather conditions			
			Start	End	Sunset/ sunrise	Temperature	Cloud cover (/8)	Precipitation	Wind (Beaufort)
Location D (E 394631 N 305191)	Preliminary survey 1 dusk	25/07/19	21:13	22:13	21:13	28°C-26°C	2	0	2-1
	Preliminary survey 1 dawn	26/07/19	04:18	05:18	05:18	20°C	4	0	2
	Preliminary survey 2 dusk	19/08/19	20:27	21:27	20:27	15°C-13°C	2	0	1
	Preliminary survey 2 dawn	20/08/19	04:58	05:58	05:58	10°C	1	0	1
Location E (E 394811 N 305311)	Preliminary survey 1 dusk	01/08/19	21:01	22:01	21:01	16°C	7	0	2
	Preliminary survey 1 dawn	02/08/19	04:24	05:29	05:29	14°C	8	0	2-1
	Preliminary survey 2 dusk	19/08/19	20:20	21:27	20:27	15°C-14°C	6	0	1
	Preliminary survey 2 dawn	20/08/19	04:48	05:58	05:58	10°C	1	0	1

Location (coordinates where relevant) see also Figure 8.15	Survey month and number	Date(s)	Timings			Weather conditions			
			Start	End	Sunset/ sunrise	Temperature	Cloud cover (/8)	Precipitation	Wind (Beaufort)
	Additional survey 1	10/09/19	19:36	20:36	19:36	15°C	4	0	3-2
	Additional survey 2	12/09/19	05:37	06:37	06:37	12°C-13°C	0	0	2
	Additional survey 3	18/09/19	19:02	20:47	19:17	14°C-13°C	8-6	0	1
	Additional survey 4	23/09/19	19:06	20:06	19:06	14°C	8	1-0	4
	Additional survey 5	25/09/19	05:57	06:57	06:57	14°C-15°C	8	1-2	0-1
	Additional survey6	26/09/19	06:01	07:01	07:01	15°C	8	2-1	2

Data analysis and interpretation

3.4.34 Data analysis and interpretation of results followed the principles of best practice guidance (Ref 9):

3.4.35 For analysis purposes bat activity is recorded as 'registered calls'. This is a sequence of echolocation calls consisting of two or more call notes (pulse of frequency) from one bat, not separated by more than 1 second (Ref 20, Ref 21) with a minimum call note length of greater than or equal to 2 milliseconds (ms) (Ref 223).

3.4.36 Bat species have been identified using characteristic features associated with species echolocation calls (Ref 23, Ref 24). Diagnostic features used in this analysis include:

- characteristic frequency;
- slope (octaves per second);
- call duration;
- time between calls;
- body; start point, end point and peak call frequency of the body of the call; and
- smoothness (distance between successive points before they are not considered part of the same call).

3.4.37 Bat calls are identified to species level where possible or in some cases to a species group (family, such as *Myotis* and *Nyctalus)* as follows:

- 'Big bat' - refers to the three largest UK bat species which are, noctule *Nyctalus noctula,* Leisler's bat *Nyctalus leisleri* and serotine *Eptesicus serotinus* bats;
- Pipistrellus species – common pipistrelle, soprano pipistrelle and Nathusius' pipistrelle *Pipistrellus nathusii*.
- Myotis species - Natterer's bat *Myotis nattereri*, Daubenton's bat *M. daubentonii*, whiskered bat *M. mystacinus*, Brandt's bat *M. brandtii*, Bechstein's bat *M. bechsteinii* and Alcathoe bat *M. alcathoe*.

3.4.38 Where it was not possible to identify a species, they are referred to as unidentified (Unid) bat.

3.4.39 Static detector surveys do not allow the number of individual bats present to be identified as a single bat may pass the detector on several occasions. Activity recorded during static detector surveys has therefore been recorded as an index. The Bat Activity Index (BAI) based on published guidance (Ref 9) allows analysis of bat activity to estimate abundance and / or activity. Two types of BAI calculation are presented in this report, in order to account for seasonal differences in night length:

- BAI (per hour) = Total number of bat 'registered calls' / number of hours of recording.
- BAI (per night) = Total number of bat 'registered calls' / number of nights of recording.

3.4.40 In crossing point surveys, to allow for future monitoring comparisons, in line with published guidance (Ref 11), the total number of bat passes per survey at each

crossing point was determined, together with an analysis of height of pass to determine likely risk of collision.

3.5 Nature conservation evaluation

3.5.1 The evaluation of ecological importance for bats was defined in line with published guidance (Ref 8) in terms of the following geographical context:

- International and European – population or assemblage of Annex II bat species that would meet the qualifying criteria for designation as a SAC (Ref 25). This may be as a primary reason for selection (an outstanding population in a European context or an excellent population above national interest but less than European) or a secondary reason for selection (a population of at least national interest but not significantly above this).
- National (England) - population or assemblage of bats that would meet the SSSI qualifying criteria (Ref 26). The criteria varies by species and includes varying roost sizes (breeding and hibernation) of Annex II species, those considered to be rare or restricted in range such as grey long-eared and significant mixed species assemblages of hibernation and swarming sites.
- Regional (West Midlands) – populations or assemblages that occur within regionally important sites or localities, and whose loss would significantly affect the national distribution of a bat species.
- County (Staffordshire) – populations or assemblages of bats that qualify for designation as a Local Wildlife Site (LWS) known in Staffordshire as Sites of Biological Importance (SBI) – this requires presence of a significant population of a notable species (one with five or less maternity roosts in the county (Ref 15).
- Local (South Staffordshire - District or Shareshill/Hilton - Parish); populations or assemblages of bats which qualify for designation as a Biodiversity Alert Sites (BAS); or contribute to the maintenance of a population at a local level.

3.5.2 Characteristics considered to contribute to the importance of bat populations include, but were not limited to the following taken from the Ratcliffe criteria (Ref 27):

- fragility - of supporting habitats, such as roosting sites and the connections to foraging habitats surrounding them and fragility of the population for example small or isolated populations on the edge of their range;
- rarity – numbers, distribution and ranges of different bat species varies nationally, regionally and locally, depending on the conditions and nature of available roosting sites and supporting habitats;
- size - dependent on population or assemblage size and number of populations within a given area;
- diversity - the variety in number of both communities and species depends largely on the diversity of habitat. Diversity is also related to area and the number of species tends to increase with the size of the area, affecting provision of breeding, foraging and hibernation opportunities;

- potential value - habitats with potential to support bats through appropriate management, improved connectivity or natural change that might result in a more diverse or important population or assemblage;
- typicalness –Habitats that are typical of the field of ecological variation and are common place are considered important. Different bat species occupy different niches and preferences of habitat but hedgerows, tree lines, woodland and watercourses and waterbodies are typically used and their commonplace in the local environs helps ascertain importance. Bats may roost in suboptimal locations when opportunities for roosting are limited;
- position with the ecological/geological unit - connectivity of suitable habitats between roosting, foraging and hibernation sites and away from barriers to dispersal essential for maintaining populations and population stability;
- recorded history - stable, well connected populations with flexibility to move between suitable habitats in differing conditions;
- naturalness - truly natural habitats, unmodified by man, are rare in Britain, and
- most are semi-natural. Such semi-natural habitats nevertheless exhibit a level of quality indicated by a lack of features which indicate gross or recent human modification. This criterion has to take into account the fact that some habitats, (e.g. buildings as potential roosting sites) are anthropogenic in origin; and
- intrinsic appeal – varied and interesting lifecycles and range of species within the UK.

3.5.3 The evaluation has been based on information available from the desk study and ecological surveys, and uses professional judgement, as well as the Ratcliffe criteria for valuing nature conservation resources in a geographical context. It also utilises good practice guidance by Wray et al. (Ref 28) for valuing bats in ecological impact assessment, which provides a framework for assigning a tangible nature conservation value of bats roosts, commuting routes and foraging areas within a geographic context and depending on the rarity of a species.

4 Limitations

4.1 Desk study

4.1.1 The information collected from the desk study record search represents only those records submitted to records centres and is therefore not considered to be a definitive list of protected fauna identified within the desk study area. The absence of desk study records for a particular species does not necessarily suggest an absence of such species but is often an issue of under-recording in that area. The desk study provides contextual information for further detailed survey design and the evaluation of survey results. The desk study was not used alone however, in determining the scope and design of further detailed bat surveys but was used in combination with other sources of information, such as a review of aerial imagery (Ref 13) and Ordnance Survey maps, the SBAP (Ref 6 and Ref 7) and the Mammal Atlas (Ref 14).

4.1.2 Due to the comprehensive review of information from a variety of data sources, the absence of desk study records for any single species is not considered to be a constraint to the design of detailed surveys or the assessment.

4.2 Field surveys

General

4.2.1 Ecological surveys are limited by factors which affect the presence of animals such as the time of year and behaviour. The absence of evidence of a species is not always conclusive proof that the species is not present in an area or that it will not be present in the future. This is of relevance to mobile species such as bats, which can occupy transitory roosts on a seasonal basis.

4.2.2 Bat activity can be influenced by weather conditions and other factors such as availability of prey. Therefore, bats may have made use of features and/or habitats within the Scheme outside of the survey dates and their use of habitats within the Scheme may change in the future. In order to reduce the significance of this limitation, it is considered that a reasonable level of survey effort, informed by best practice guidance, has been applied to determine the likely level of use of the Scheme boundary by bats and determine the importance of the assemblage.

Deviation from Standard Methods

4.2.3 In the case of roost identification in trees, in line with published guidance (Ref 9) trees identified as having low bat roosting potential were not subject to further surveys. Trees assessed as having moderate and high roosting potential were subject to further survey. Given the majority of the moderate and high potential trees identified were present within woodland blocks, which would limit the visibility to surveyors and effectiveness of emergence and re-entry surveys, a programme of aerial inspections was implemented instead. In line with the survey effort described in standard guidance (Ref 9) when undertaking emergence / re-entry surveys of trees, the same level of survey effort was applied to the aerial inspections. All trees safe to climb with moderate and high roosting potential were subject to aerial inspection surveys (tree climbing) with two and three climbs conducted respectively.

These climbing surveys were conducted where possible in the active bat season in September 2018, end of March / April 2019 and August / September 2019.

Land access

4.2.4 Although every effort was taken to ensure all surveys were conducted in accordance with the methodology described, land access restrictions and changes to permissions and type of permission for land access affected the ability to implement this methodology.

4.2.5 Land access restrictions in 2018/19 meant that some of the bat activity surveys including static detector surveys, walked transects and crossing points were not commenced until July 2019 concluding in October 2019. However, this represents the core bat season, with highest expected levels of activity within a year. As such the absence of a spring data set for 2019 is highly unlikely to have affected the assessment for importance to roosting, commuting or foraging bats.

4.2.6 Land access for nocturnal surveys and aerial surveys was also intermittent, between July and October 2019, with some landowners restricting access to daytime assessments only or revoking access for periods of time. Access was temporarily revoked in August 2019 in some areas central to the Scheme boundary (for example Lower Pool woodland), which prevented some survey visits from being completed during the core survey period (before the end of August). However, these were completed in September and when weather conditions were warm and favourable for bat surveys. In addition, when surveys recommenced, they were prioritised in terms of likely scale of impacts as a result of the Scheme and importance to bats. In the case of aerial inspections, high roosting potential trees to be lost to the Scheme were given highest priority for survey first over those of moderate roosting potential and/or those only likely to be at risk from indirect disturbance effects. As such this limitation is unlikely to have significantly altered the outcomes of the surveys, with features of importance e.g. presence of significant roosts, unlikely to have been missed, allowing a reliable and robust assessment to be made.

4.2.7 Buildings 9a/b, 10, 11, 12, 13, 14 and 15 were subject to PBRA surveys in 2018. Those with potential were subject to detailed emergence/dawn surveys in 2018, with the exception of 11, where access was not granted. The internal/external inspections for these buildings were updated in 2019 and a single emergence survey conducted at 9b, however access was then rescinded to buildings 9a – 15 inclusive, preventing any additional update detailed surveys from being conducted in 2019. As such, where available the 2018 data is relied upon. Only two visits were made to building 9a despite it being of high roosting potential but as other surveys were conducted in suitable conditions by competent surveyors and activity data and 2019 data for 9b (adjacent to it) exists it is unlikely a significant roost is present. As building 11 was not subject to detailed surveys in 2018 or 2019, but evidence of bats was found in internal inspections in 2019, precautionary assumptions are made on the presence of a roost (see ‘Approach to Data Gaps’ in this Section and Section 5).

4.2.8 Access was not granted to existing highways land and verges to allow walked transects to be completed due to health and safety concerns; however, no buildings are present within these areas and the majority of vegetation comprises young

plantation woodland unlikely to support roosting potential therefore lack of access is not considered to be a significant limitation.

4.2.9 Table 4.1 below summarises the limitations that affected the roost identification, walked transect and crossing point surveys conducted.

Table 4.1: Survey limitations on bat surveys

Feature / Transect number / Static location / Crossing point location	Survey Limitation Description
Roost identification surveys	
B1	9th September 2019 light rain occurred.
B9&9a	Only two emergence surveys on high potential feature. Third survey in 2018 cancelled. Rescheduling in 2019 was not possible as no access provided by landowner.
B9c	Access provided to allow PBRA in 2019 but was rescinded preventing the required single emergence survey from being conducted.
B11	No access for surveys in 2018. Internal inspection in 2019 only. Landowner revoked access for rest of season preventing emergence/re-entry surveys from being conducted.
B12 to B15	No access from landowner for 2019 update surveys.
B18	No access from landowner to allow surveys. Incidental records made (droppings observed) during on-site meeting with landowner.
B19	25th September 2019 light rain occurred
B19 to B21	No access from landowner to allow detailed internal inspections.
B20	Access limitations for completing the last emergence survey was such that this was completed outside the peak survey season.
B22	Only two emergence surveys undertaken due to surveyor error.
B21 and Bridge 22	Full number of surveys not completed and outside of peak survey season due to access limitations.
T62, T63, T89, T115, T116	PBRAs completed but landowner revoked access for aerial inspections.
T21, T24, T60, T61, T64, T74, T77, T78, T80, T83, T84, T88, T91, T102, T105, T108, T110, T113, T117, T118, T119, T121, T123, T125, T126, T127, T128	Trees deemed unsafe to climb due to dead wood, ivy cover, loose bark, being fully dead, large butt rot and rotten roots and the top of the tree missing,
T96, T97	Landowner revoked access for second aerial climbing visit.
Walked transect surveys	
Transects 5 and 6	No access in 2018 and April to June 2019. Light rain on Transect 5 September 2019 survey and Transect 6 October 2019 survey.
Transect 3	Landowner revoked access for second August survey in 2018.

Feature / Transect number / Static location / Crossing point location	Survey Limitation Description
Transect 6	Landowner revoked access for part of the transect on October 2019 visits, limiting the extent of the route.
Crossing point surveys	
Location A and B	Preliminary survey 1 dawn not undertaken for both locations due to heavy rain.
Location B	Preliminary surveys and four detailed surveys conducted but landowner revoked access for fifth and sixth visits.
Locations A, C, D	Less than 10 bats were recorded during initial preliminary surveys at these locations and therefore no additional surveys were undertaken.
Static detector surveys	
Locations S1 and S7	SD card failure in July 2018
Location S9	SD card failure in August 2018
Location S12	SD card failure in June 2018
Location S17 and S18	Landowner revoked access for August 2019 survey
Location S15 and S16	Landowner revoked access for September and October 2019 surveys
Location S18	Static detector failure September 2019

4.2.10 Where no access was granted the assessment has also followed a precautionary approach using existing information on the ecological features both from the desk study and results of the field survey on adjacent land within the local area, publicly available aerial imagery and professional judgement.

Health and safety constraints

4.2.11 In areas where land was accessible some health and safety constraints were identified including the presence of cattle and clay pigeon shooting taking place. In some cases, this meant that access was not possible on a particular date that might have for example allowed survey in the core season; however, access was obtained on subsequent visits therefore this is not considered to be a significant constraint.

4.2.12 In some cases, trees could not be subject to full aerial assessment on account of health and safety concerns. The Fulcrum app was used by surveyors with a bespoke tree climbing risk matrix to allow dynamic assessment of trees on a case by case basis to ascertain their suitability for climbing from a health and safety perspective. In some cases ground based risk assessment allowed an initial ascent of the tree but the full inspection could not be completed or further climbs could not be conducted due to health and safety concerns. During these initial climbs, in some cases they allowed a more favourable vantage point allowing features to be reassessed in terms of their suitability for bats. Where this was possible the tree was reclassified in terms of its suitability for bats but is marked as ‘unsafe to climb’ as a detailed inspection was not completed. The trees that were not climbed are set out in Table 4.1**Error! Reference source not found.**. A precautionary approach has b een taken based on the potential of the features to support bats, connectivity to

foraging areas and other known roosting sites and professional judgement. This is therefore unlikely to significantly affect the assessment.

Weather conditions

4.2.13 Weather conditions for surveys conducted were optimal with the exception of those identified in Table 4.1.

4.2.14 It is considered that the short spells of light rain experienced on these surveys is unlikely to have significantly affected the results of the surveys as spells of light rain were short lived, temperatures remained optimal and bats were active in the surveys, meaning the results from these survey visits are considered to be valid.

4.2.15 Two surveys had to be cancelled at short notice due to heavy rain conditions, namely one dawn preliminary crossing point survey for Location A on 18th July 2019 and one dawn preliminary crossing point survey for Location B on 24th July 2019. These were not rescheduled, however the results of other crossing point surveys in these locations are available and through consultation of transect and static detectors survey results in the vicinity of these locations, adequate conclusions could be drawn from the data available on the likely presence of bat commuting routes.

Equipment and data analysis

4.2.16 Walked transect activity survey data for 2018 was limited to one transect per month due to failure of SD cards and recording equipment. Nevertheless, given the levels and nature of activity recorded in these areas and collection of data through the active season, this is considered to provide data representative of the use of these areas by bats.

4.2.17 It is not always possible to separate calls from *Myotis sp*. and *Plecotus* sp. during acoustic analysis. In addition, calls from long-eared bats are directional and usually quiet, which makes them difficult to detect and record using current technology. Although unavoidable in static detector surveys, to reduce the significance of this limitation, visual observation was used during the walked transect and roost identification surveys in combination with later analysis of recordings to distinguish species-specific behaviour, where possible. Where it is not possible to identify a bat call to species level, the genus is provided. If recorded calls are of insufficient quality to identify to any genus/species level, then they are categorised as unidentified bat calls.

Approach to data gaps

4.2.18 Where it has not been possible to achieve 100% survey coverage, assessment has been based on a reasonable precautionary approach (considering any pre-existing knowledge, citing supplementary information where deemed relevant and necessary and applying professional judgement). Recent, and where appropriate historic background records, publicly available aerial imagery, the known local distribution of species (Ref 6, Ref 7), survey results from adjacent areas, and the suitability of habitats present have also been used to inform the existing baseline.

4.2.19 This precautionary approach is considered appropriate to identify and assess the main effects of the Scheme on bats.

4.2.20 During PBRAs, where no internal access or nocturnal survey work was permitted by the landowner for a structure, the roosting potential category selected was based on a precautionary approach, whereby a higher potential roosting value was assigned to the structure.

4.2.21 Where land contained suitable roosting, foraging or commuting habitat but no permitted access was available to carry out further detailed survey, a precautionary approach was taken and informed by the presence of survey data gathered from nearby areas and existing bat records for the vicinity.

5 Baseline Conditions

5.1 Desk study

5.1.1 A review of all freely available information identified no designated sites pertinent to bat species, within a 2 km radius of the Scheme boundary.

5.1.2 SER and EcoRecord (updated in 2018) returned 171 records for a minimum of eight species of bats namely:

- Unidentified bats 22 records;
- Myotis sp. 8 records,
- Pipistrelle sp. 28 records,
- common pipistrelle 49 records,
- soprano pipistrelle 32 records,
- Daubenton's bat 3 records,
- noctule 14 records,
- serotine 1 record,
- Brandt's bat 1 record,
- brown long-eared bat 12 records; and
- Leisler's bat 1 record.

5.1.3 These records represent all observations returned between 2006 – 2016 and include field observations of activity, feeding perches and known roosts as well as grounded bats and casualties.

5.1.4 Figure 8.12 [TR010054/APP/6.2] provides a visual indication of the location of bat field records within the vicinity of the Scheme boundary. The records likely represent voluntary surveys in open areas and targeted surveys to inform development from their dispersal. Soprano and common pipistrelle bats have all been recorded within close proximity to the Scheme boundary. Roosts for an unknown bat species along with unknown bats and soprano pipistrelles have been recorded in the village of Shareshill.

5.1.5 The Magic Map Application revealed five Natural England EPS mitigation licences have been granted within 2 km of the centre of the Scheme boundary and these have been granted within the last eight years. Details and species concerned are provided in Table 5.1.

Table 5.1: EPS derogation licences granted within 5 km

Species	Start date	End date	Distance from Scheme boundary	Direction from Scheme	Natural England Licence number
Common Pipistrelle	07/2017	09/2018	2.1 km	S	2017-29836-EPS-MIT
Common pipistrelle / brown	01/2011	12/2012	2.4 km	S	EPSM2010-2665

Species	Start date	End date	Distance from Scheme boundary	Direction from Scheme	Natural England Licence number
long-eared bat					
Soprano pipistrelle	10/2013	09/2015	2.7 km	NW	EPSM2013-6379
Common Pipistrelle	10/2013	10/2014	2.2 Km	NE	EPSM2012-4371
Common pipistrelle / brown long-eared bat	05/2013	08/2015	2.1 Km	NE	EPSA2013-5641

5.2 Field surveys

Roost identification - Structures

5.2.1 Detailed survey results from the roost identification surveys of structures are provided in Table 5.2. These, and the following should be read in conjunction with Figure 8.13 and Figure 8.17 [TR010054/APP/6.2].

5.2.2 Nine active roosts have been confirmed in seven buildings within the bat survey study area (within and up to 100 m from the Scheme boundary), namely:

- five day roosts of low numbers of common pipistrelle (maximum two individuals) in buildings 1; 2a/b, 11, 12 and 21;
- two day roosts of low numbers of brown long-eared bats (single individuals) in buildings 1 and 2a/b; and
- two day roosts of low numbers of soprano pipistrelle bat (single individuals) in buildings 1 and 14.

5.2.3 Scattered, old bat droppings (likely from the previous season or earlier), which from their size and shape indicate they are from pipistrelle bats, were recorded within a loft void in B11 during the PBRA. The number (less than 100) indicate presence of a low number of bats. Landowner access was then revoked preventing detailed nocturnal surveys from being conducted. As such, a precautionary approach has been taken and it is assumed that a pipistrelle bat day roost of low numbers (low conservation significance - Ref 29) is present.

5.2.4 An incidental record of brown long-eared bats was recorded within a building to the east of the Scheme boundary (B18) during a meeting with the landowner. Access permission was not provided to allow detailed PBRA or nocturnal surveys of the building, however surveyors observed an accumulation of droppings on an external windowsill and heard audible socialising by bats. The droppings shape and appearance indicate they were of long-eared bat. The range of grey long-eared bat *Plecotus austriacus* does not extend much further north than south and south western coastal counties (Ref 30) and there are only records of brown long-eared in the vicinity; hence they are assumed to be brown long-eared bat. Given the number of droppings and audible squeaks heard in the core season, a precautionary

approach is to be taken with an assumption that the building supports a brown long-eared maternity roost (of moderate conservation significance - Ref 29).

Table 5.2: Roost identification survey results of structures

Structure and location (co-ordinates)	Distance from Scheme boundary (m) and orientation	Brief description	Photograph of Structure	PBRA result (Negligible, Low, Moderate, High or Confirmed Roost)	Hibernation potential[5]	Emergence (E) and/or re-entry (RE) surveys conducted	Other species[6] recorded as passes (not roosting) during all surveys	Emergence/re-entry survey result with roost classification and species[6] (peak count) – see Figure 8.17
B 1 (E 394754 N 304711)	87 N	Large, derelict two-storey brick residential dwelling with cellar, loft space and clay-tiled roof.	 	Confirmed roost (High potential) – scattered droppings found in roof void	Suitable	13/08/19 – RE 29/08/19 – RE 09/09/19 – E	Nn, Pau, Ppi, Ppy	Confirmed roost Day roost Ppy (1) Day roost Ppi (1) Day roost Pau (1)

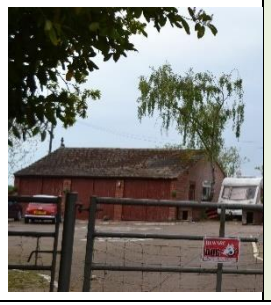
[5] Where access to structures was limited for detailed survey, a precautionary approach has been taken when determining their hibernation potential; it is assumed that any features initially identified as having moderate or higher roosting potential (including confirmed or suspected roosts), could also be suitable for hibernating bats.

[6] Ese = *Eptesicus serotinus,* Mda = *Myotis daubentonii,* Mmy = *Myotis mystacinus,* Myo = *Myotis* spp., Nl = *Nyctalus Leisleri,* Nn = *Nyctalus noctule,* Pau = *Plecotus auratus,* Pna = *Pipistrellus nathusii,* Ppi = *Pipistellus pipistrellus,* Ppy = *Pipistrellus pygmaeus*,

Structure and location (co-ordinates)	Distance from Scheme boundary (m) and orientation	Brief description	Photograph of Structure	PBRA result (Negligible, Low, Moderate, High or Confirmed Roost)	Hibernation potential[5]	Emergence (E) and/or re-entry (RE) surveys conducted	Other species[6] recorded as passes (not roosting) during all surveys	Emergence/re-entry survey result with roost classification and species[6] (peak count) – see Figure 8.17
B 2a&2b (E 394742 N 304646)	21 N	L-shaped brick barn comprising two-story residential dwelling and single-story storage building both with tiled roofs	  	High potential – possible feeding remains found	Suitable	22/08/19 – E 03/09/19 – E 18/09/19 – RE	Nn, Pau, Ppi, Ppy	Confirmed roost Day roost Ppi (2)
B 3 (E 394759 N 304663)	41 N	Single-story breeze block barn with corrugated roofing, utilised for storage		Negligible	None	n/a		

Structure and location (co-ordinates)	Distance from Scheme boundary (m) and orientation	Brief description	Photograph of Structure	PBRA result (Negligible, Low, Moderate, High or Confirmed Roost)	Hibernation potential[5]	Emergence (E) and/or re-entry (RE) surveys conducted	Other species[6] recorded as passes (not roosting) during all surveys	Emergence/re-entry survey result with roost classification and species[6] (peak count) – see Figure 8.17
B 4 (E 394731 N 304638)	11 N	Derelict garage with corrugated roofing		Negligible	None	n/a		
B 5 (E 394775 N 304671)	52 N	Single-story brick building with clay-tiled roof, utilised for storage		Moderate	Suitable	01/08/19 – E 02/09/19 – E	Mda, Nn, Pau, Ppi	No roosts found
B 6 (E 394788 N 304657)	41 N	Large wooden garage with corrugated metal roofing		Low	Potentially suitable	02/08/19 – RE	Nn, Pau, Ppi, Ppy	Confirmed roost Day roost Pau (1)
B 7 (E 394692 N 304663)	27 N	Large two-story prefabricated, corrugated steel building utilised for		Negligible	None	n/a		

Structure and location (co-ordinates)	Distance from Scheme boundary (m) and orientation	Brief description	Photograph of Structure	PBRA result (Negligible, Low, Moderate, High or Confirmed Roost)	Hibernation potential[5]	Emergence (E) and/or re-entry (RE) surveys conducted	Other species[6] recorded as passes (not roosting) during all surveys	Emergence/re-entry survey result with roost classification and species[6] (peak count) – see Figure 8.17
		storage and as a workshop						
B 8 (E 394607 N 304711)	39 N	Large prefabricated, corrugated steel building utilised for storage and as a workshop	 	Negligible	None	n/a		
B 9&9a (E 395188 N 306298)	123 E	Large two-storey brick residential property with clay-tiled roof, large single-storey		High	Suitable	16/08/18 – E 11/08/18 – E No access for 2019 update survey	Ppi, Ppy	No roosts found

Structure and location (co-ordinates)	Distance from Scheme boundary (m) and orientation	Brief description	Photograph of Structure	PBRA result (Negligible, Low, Moderate, High or Confirmed Roost)	Hibernation potential[5]	Emergence (E) and/or re-entry (RE) surveys conducted	Other species[6] recorded as passes (not roosting) during all surveys	Emergence/re-entry survey result with roost classification and species[6] (peak count) – see Figure 8.17
		conservatory at rear						
B 9b (E 395184 N 306284)	126 E	Single-storey, wooden clad shed with concrete tile roofing; used as an office	No photo	Low	None	06/08/19 – E	Nn, Ppy	No roosts found
B 9c (E 395128 N 306290)	93 E	Small, single-storey brick duck house with tiled roof	No photo	Low	Potentially suitable	No access for emergence re-entry surveys in 2018 and 2019		
B 10 (E 395179 N 306321)	100 E	Single-story, brick garage with concrete tile roofing		Low	None	16/08/18 – E No access for update surveys in 2019	No bats recorded	No roosts found

Structure and location (co-ordinates)	Distance from Scheme boundary (m) and orientation	Brief description	Photograph of Structure	PBRA result (Negligible, Low, Moderate, High or Confirmed Roost)	Hibernation potential[5]	Emergence (E) and/or re-entry (RE) surveys conducted	Other species[6] recorded as passes (not roosting) during all surveys	Emergence/re-entry survey result with roost classification and species[6] (peak count) – see Figure 8.17
B 11 (E 395169 N 306175)	17 W	Single-story residential bungalow with pitched tiled roof and loft void.	 	Confirmed roost– several old droppings found in loft – size and shape indicate low number of pipistrelles.	Suitable	No access in 2018 for collection of droppings or detailed surveys in 2019.		
B 12 (E 395232 N 306165)	21 W	Two-story building utilised as a social club		Low	Potentially suitable	06/08/18 – E 22/08/18 – RE No access for update surveys in 2019	Nn, Ppi, Ppy	Confirmed roost Day roost Ppi (1)
B 13 (E 395207 N 306236)	87 W	Mixture of single and two-story corrugated metal buildings		Negligible	None	n/a		

Structure and location (co-ordinates)	Distance from Scheme boundary (m) and orientation	Brief description	Photograph of Structure	PBRA result (Negligible, Low, Moderate, High or Confirmed Roost)	Hibernation potential[5]	Emergence (E) and/or re-entry (RE) surveys conducted	Other species[6] recorded as passes (not roosting) during all surveys	Emergence/re-entry survey result with roost classification and species[6] (peak count) – see Figure 8.17
B 14 (E 395248 N 306219)	45 W	Two-story corrugated metal building with associated corrugated metal lean-to buildings		Low	Potentially suitable	07/08/18 – E No access for update surveys in 2019	Ppy	Confirmed roost Day roost Ppy (1)
B 15 (E 395283 N 306226)	23 W	Three-story corrugated metal storage building	No photo	Negligible	None	n/a		
B 16 (E 395378 N 306290)	Within Scheme boundary	Small wooden square summer house recorded in 2018	No photo	2019 – building no longer exists				
B 17 (E 395394 N 306503)	59 SW	Small wooden square summer house	No photo	Negligible	None	n/a		

Structure and location (co-ordinates)	Distance from Scheme boundary (m) and orientation	Brief description	Photograph of Structure	PBRA result (Negligible, Low, Moderate, High or Confirmed Roost)	Hibernation potential[5]	Emergence (E) and/or re-entry (RE) surveys conducted	Other species[6] recorded as passes (not roosting) during all surveys	Emergence/re-entry survey result with roost classification and species[6] (peak count) – see Figure 8.17
B 18 (E 395158 N 305486)	29 W	Residential brick building with multi pitched roof covered in clay tiles. Projecting verges and crevices at eaves (gaps in soffits) and beneath barge boards at gable ends.	 	Confirmed roost – inferred from external observations only. Droppings recorded on window sill and audible squeaking of bats heard in July 2019 during site meeting.	Suitable	No access for update surveys in 2019		
B 19 (E 395165 N 305408)	101 W	Single-story bungalow with pitched roof		Moderate – inferred from brief external observation only - no access for surveys in 2018 and 2019.	Potentially suitable	10/09/19 – RE 25/09/19 – E	Myo, Nn, Pau, Ppi, Ppy	No roosts found

Structure and location (co-ordinates)	Distance from Scheme boundary (m) and orientation	Brief description	Photograph of Structure	PBRA result (Negligible, Low, Moderate, High or Confirmed Roost)	Hibernation potential[5]	Emergence (E) and/or re-entry (RE) surveys conducted	Other species[6] recorded as passes (not roosting) during all surveys	Emergence/re-entry survey result with roost classification and species[6] (peak count) – see Figure 8.17
B 20 (E 395191 N 305418)	87 W	Row of cottages with pitched slate roof.		Moderate - inferred from brief external observation only – no access	Potentially suitable	26/09/19 – E 08/10/19 – E	Nn, Myo, Pau, Pna, Ppi, Ppy, unidentified	No roosts found
B 21 (E 395162 N 305440)	71 W	Single-story outbuilding to B18		Low - inferred from external observation only – no access for internals	Potentially suitable	12/09/19 – E	Nn, Pau, Ppi, Ppy	Confirmed roost Day roost Ppi (1)
Br 22 (E 394746 N 305340)	Within Scheme boundary	Bridge over lake with multiple crevices in brick work		High	Suitable	10/09/19 – RE 24/09/19 – E Third survey cancelled	Ese, Mda, Myo, Nn, Pau, Ppi, Ppy	No roosts found

Roost identification - Trees

5.2.5 Survey results from the roost identification surveys of trees are provided in Table 5.3. These, and the information below should be read in conjunction with Figures 8.14 and 8.17 [TR010054/APP/6.2].

5.2.6 208 trees within the study area (within and up to 100 m from the Scheme boundary) were recorded as having low, moderate or high bat roosting potential, of which 95 (those with high or moderate potential) were subject to aerial inspections. 80 low potential trees were not subject to the further aerial inspections (in line with BCT guidance in respect of trees - Ref 9). Access was revoked preventing aerial inspection of 5 moderate/high potential trees and 28 moderate/high potential trees were unsafe or unsuitable to climb (see Table 4.1).

5.2.7 Of the 95 trees climbed, roosts have been confirmed in two trees, which fall within the Scheme boundary (see Figure 8.17 [TR010054/APP/6.2]), namely:

- A noctule (confirmed through DNA analysis of collected droppings – see Annex 2) likely day roost (no bats present but inferred from size of crevice and number of droppings present) within a mature pedunculate oak *Quercus robur* tree (T112) within Lower Pool SBI.
- A likely pipistrelle sp day roost. (inferred from size and shape of droppings present but unreachable in crevice – no bats present) within a rowan *Sorbus aucuparia* tree (T107) within Lower Pool SBI.

5.2.8 Both of these trees also have the potential to be used in the winter months by hibernating bats.

5.2.9 Although evidence was not found at the time of survey, some trees with moderate and high potential (based on the PBRA survey results) that were subject to aerial inspection surveys could still support roosts. In addition, low potential trees that were not subject to aerial inspection survey could also support roosts. On account of this, together with limitations due to lack of access or safety concerns for climbing some trees (as set out in Table 4.1), a precautionary approach is taken, with an assumption that it is likely that there are a small number of an additional roosts present.

5.2.10 Ground level assessments and aerial inspections have identified that moderate and high potential trees have features suitable for hibernation (see Table 5.3). Based on the known and assumed summer roosts in the survey area, a precautionary approach is taken with an assumption that it is likely that a small number of these trees support hibernating bats.

Table 5.3: Roost identification survey results of trees

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T1 (E 394283 N 305000)	Mature sycamore		High	25/03/19	Negligible	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T2 (E 394297 N 305027)	Mature pedunculate oak		Moderate	25/03/19	Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T3 (E 394273 N 305106)	Mature sycamore		Moderate	25/03/19	Low	None
T4 (E 394265 N 305129)	Mature sycamore		Moderate	25/03/19	Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T5 (E 394320 N 305240)	Mature sycamore		Moderate	25/03/19	Moderate	Suitable
T6 (E 394485 N 305084)	Mature pedunculate oak		High	15/08/18 25/03/19	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T7 (E 394387 N 305128)	Mature pedunculate oak		Moderate	15/08/18 25/03/19	Low	None
T8 (E 394375 N 305140)	Mature sycamore		Moderate	15/08/18 25/03/19	Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T9 (E 394358 N 305148)	Mature pedunculate oak		High	15/08/18 25/03/19	High	Suitable
T10 (E 394284 N 305232)	Mature pedunculate oak		Moderate	25/03/19	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T11 (E 394254 N 305132)	Mature common alder		Moderate	25/03/19	Negligible	None
T12 (E 394247 N 304922)	Mature pedunculate oak		Moderate	25/03/19	Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T13 (E 395597 N 306895)	Mature European ash		Moderate	10/09/18 25/03/19	Low	None
T14 (E 395387 N 306886)	Mature European ash		High	10/09/18 25/03/19	Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T15 (E 395451 N 306772)	Mature pedunculate oak		High	10/09/18 25/03/19	Low	None
T16 (E 395476 N 306756)	Mature common alder		High	10/09/18 25/03/19	Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T17 (E 395330 N 306652)	Mature common alder		High	10/09/18 25/03/19	Moderate	Suitable
T18 (E 395337 N 306644)	Mature pedunculate oak		Low	13/09/18 25/03/19	Negligible	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T19 (E 395443 N 306562)	Mature common alder		Low	25/03/19	Negligible	None
T20 (E 395463 N 306553)	Mature sycamore		Low	25/03/19	Negligible	None
T21	Deadwood	No photo	Low		Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
(E 394288 N 305249)					(unsafe to climb)	
T22 (E 395486 N 306499)	Mature sycamore	No photo	Low	26/03/19	Negligible	None
T23 (E 395486 N 306499)	Mature sycamore		Low	26/03/19	Negligible	None
T24 (E 394326 N 305309)	Deadwood	No photo	Low		Low (unsafe to climb)	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T25 (E 395488 N 306514)	Mature pedunculate oak		Low	26/03/19	Low	None
T26 (E 395451 N 306540)	Mature pedunculate oak		High	27/03/19	Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T27 (E 395464 N 306537)	Mature pedunculate oak		High	27/03/19	Low	None
T28 (E 395484 N 306529)	Mature pedunculate oak		High	27/03/19	Negligible	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T29 (E 395359 N 306627)	Mature common alder		Moderate	13/09/18 26/03/19	Low	None
T30 (E 395244 N 306573)	Mature common alder		Low	10/09/18 26/03/19	Negligible	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T31 (E 395270 N 306577)	Mature common alder		High	10/09/18 26/03/19	Negligible	None
T32 (E 395302 N 306244)	Mature common alder		Moderate	26/03/19	Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T33 (E 395005 N 305555)	Mature common alder		Moderate	26/03/19	Low	None
T34 (E 394643 N 305406)	Mature sycamore		Low	10/09/18 26/03/19	Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T35 (E 394585 N 305410)	Mature common alder		Low	10/09/18 26/03/19	Negligible	None
T36 (E 394489 N 305328)	Mature European ash		Moderate	10/09/18 26/03/19	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T37 (E 395507 N 306929)	Mature European ash		High	10/09/18 27/03/19	Low	None
T38 (E 395520 N 306941)	Mature horse chestnut		Moderate	10/09/18 26/03/19	Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T39 (E 395484 N 306960)	Mature sycamore		High	10/09/18 26/03/19	Low	None
T40 (E 395514 N 307087)	Mature pedunculate oak		Moderate	13/09/18 26/03/19	Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T41 (E 395517 N 307096)	Mature pedunculate oak		Low	13/09/18 26/03/19	Moderate	Suitable
T42 (E 395438 N 307120)	Mature pedunculate oak		Low	13/09/18 27/03/19	Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T43 (E 395576 N 306636)	Mature pedunculate oak		High	27/03/19	Low	None
T44 (E 395878 N 307111)	Mature common alder		Moderate	26/03/19	Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T45 (E 395808 N 307247)	Mix of species		Low	27/03/19	Negligible	None
T46 (E 395844 N 307299)	Mature pedunculate oak		High	26/03/19	Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T47 (E 395855 N 307667)	Mature pedunculate oak		Moderate	17/09/18 26/03/19	Moderate	Suitable
T48 (E 395898 N 307658)	Mature pedunculate oak		Moderate	17/09/18 26/03/19	Negligible	None

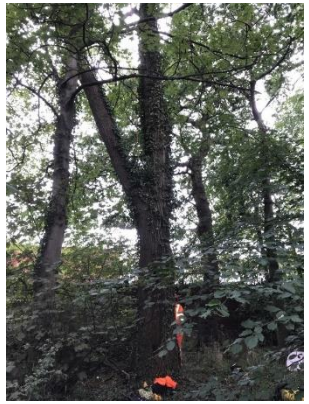
Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T49 (E 395924 N 307653)	Mature European ash		High	17/09/18 26/03/19	Negligible	None
T50 (E 395938 N 307646)	Mature pedunculate oak		High	17/09/18 26/03/19	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T51 (E 395964 N 307776)	Mature crack willow		High	17/09/18 27/03/19	Low	None
T52 (E 395937 N 307827)	Mature crack willow		Moderate	17/09/18 27/03/19	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T53 (E 395949 N 307827)	Mature crack willow		High	17/09/18 27/03/19	Low	None
T54 (E 395425 N 306572)	Mature common alder		High	27/03/19	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T55 (E 395378 N 306597)	Mature pedunculate oak		High	27/03/19	Low	None
T56 (E 395908 N 306903)	Mature common alder		High	27/03/19	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T57 (E 395908 N 307656)	Mature European ash		High	17/09/18 27/03/19	Negligible	None
T58 (E 394288 N 305247)	Deadwood		High	27/03/19	Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T59 (E 394245 N 305104)	Mature European ash with light ivy cover, two large trunk cavities and a callus roll	 	Moderate	29/08/19 18/09/19 02/10/19	High	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T60 (E 394337 N 305248)	Mature pedunculate oak with large split in west facing branch at 4m high		Moderate	29/08/19 18/09/19	Moderate (unsafe to climb)	Potentially suitable
T61 (E 394907 N 305821)	Semi-mature European ash with ivy cover and visible crevices		Moderate	29/08/19	Moderate (unsafe to climb)	Potentially suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T62 (E 395165 N 306283)	Mature pedunculate oak, some deadwood and raised bark. Crevice beneath bark on south side limb and hole in callus roll high in canopy on south west aspect		Moderate		Moderate (unsafe to climb)	Potentially suitable
T63 (E 395182 N 306268)	Semi-mature European ash with signs of die back, some dead wood and heavy ivy cover	No photo	Moderate		Moderate (unsafe to climb)	Potentially suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T64 (E 394637 N 305810)	Mature, multi-stemmed horse chestnut. One stem rotten, several holes and loose bark, woodpecker hole on eastern aspect, loose bark and splits on main trunk north and west	 	High	18/09/19	High (unsafe to climb)	Potentially suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T65 (E 394640 N 305799)	Mature horse chestnut with loose bark and splits on main trunk on all aspects, especially eastern		Moderate	18/09/19	Moderate (unsafe to climb)	Potentially suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T66 (E 394617 N 305790)	Mature, multi-stemmed sycamore with dense ivy cover and some deadwood		Moderate	18/09/19	Moderate (unsafe to climb)	Potentially suitable
T67 (E 394667 N 305226)	Mature pedunculate oak with deadwood, cavity and hole on south eastern aspect		High	09/09/19	High (unsafe to climb)	Potentially suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

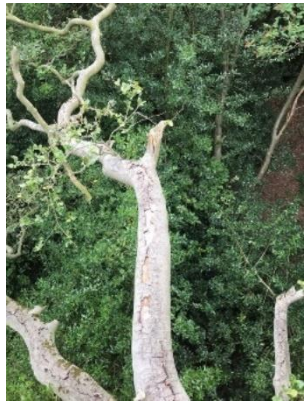
Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T68 (E 394929 N 305209)	Mature pedunculate oak with some deadwood and a split in south west facing limb high in the canopy	 	Moderate	10/09/19	Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T69 (E 394993 N 305129)	Mature pedunculate oak with small crevice in callus roll on south west aspect, deadwood and split limbs in canopy to east, south and west		Moderate	10/09/19	Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T70 (E 394912 N 305093)	Mature small leaved lime with dense epicormic growth		Moderate	10/09/19	Negligible	None

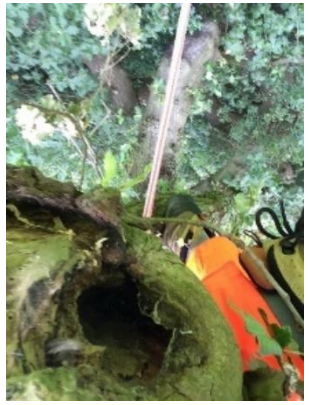
Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T71 (E 394963 N 305546)	Mature small leaved lime with dead limb and hollows on eastern limb		Moderate	22/08/19	Negligible	None
T72 (E 394987 N 305572)	Mature beech with a dead and split limb on south eastern side and dead limb and small hole on east side		Moderate	22/08/19	Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T73 (E 395007 N 305579)	Over-mature European ash with numerous knot holes and cavities on south and east side		High	22/08/19 12/09/19 01/10/19	High	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T74 (E 395051 N 305556)	Mature pedunculate oak with dense ivy cover on main trunk and deadwood in cavity		Moderate	21/08/19	Moderate (unsafe to climb)	Potentially suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T75 (E 395088 N 305550)	Mature pedunculate oak with cavity on southern aspect limit, split limb on eastern side and deadwood in canopy	 	Moderate	21/08/19 12/09/19	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T76 (E 395130 N 305543)	Mature sweet chestnut with loose bark, splits and crevices in main trunk and dead west-facing limb		Moderate	21/08/19 12/09/19	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T77 (E 395043 N 305570)	Dead tree with holes, crevices and loose bark		Moderate	21/08/19	Moderate (unsafe to climb)	Potentially suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T78 (E 395039 N 305575)	Mature sweet chestnut with lots of loose bark, deadwood in canopy and hole on north aspect		Moderate	21/08/19 13/09/19	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T79 (E 394963 N 305590)	Mature, multi-stemmed sycamore with large splits in several main stems		Moderate	22/08/19 12/09/19 01/10/19	High	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T80 (E 394795 N 305312)	Mature small leaved lime with dense epicormic growth and split limb on north aspect		Moderate	23/08/19	Moderate (unsafe to climb)	Potentially suitable
T81 (E 394797 N 305325)	Mature sycamore with two knot holes on eastern aspect and large cavity high in canopy on north eastern aspect		Moderate	23/08/19 No access for second visit	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T82 (E 394773 N 305299)	Mature pedunculate oak with split and hole on south western limb, knot hole on southern limb and knot hole and woodpecker hole on eastern aspect of main trunk	 	Moderate	10/09/19 19/09/19	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T83 (E 394747 N 305280)	Mature pedunculate oak with major cavity in trunk		Moderate	23/08/19	Moderate (unsafe to climb)	Potentially suitable
T84 (E 394732 N 305287)	Over-mature silver birch with 3 large cavities in trunk		Moderate	23/08/19	High (unsafe to climb but reassessed from ground as having higher potential than previously assumed)	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T85 (E 394758 N 305314)	Mature pedunculate oak with splits on main southern limb		Moderate	23/08/19	Low	None
T86 (E 394621 N 305279)	Dead tree with numerous cavities and loose bark		Moderate	09/09/19	Moderate (unsafe to climb)	Potentially suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T87 (E 394648 N 305347)	Mature silver birch with cavity in trunk	 	Moderate	19/09/19 01/10/19	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T88 (E 394886 N 304877)	Mature pedunculate oak with deadwood throughout canopy		Moderate	29/08/19	High (unsafe to climb)	Potentially suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				
T89 (E 395291	Mature European ash with knot hole		Moderate	No access	Moderate	Potentially suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
N 306248)	on north eastern aspect, deadwood in canopy on north western aspect, and knot hole in trunk and two rot holes in branches on western aspect					
T90 (E 395762 N 306325)	Mature pedunculate oak with dead wood, splits on north aspect and rot holes on western aspect		Moderate	28/08/19 13/09/19	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T91 (E 395762 N 306334)	Dead European ash with numerous holes and splits in trunk		Moderate	28/08/19	Moderate (unsafe to climb)	Potentially suitable
T92 (E 395723 N 306427)	Mature pedunculate oak with large split in trunk on north east aspect		Moderate	28/08/19 13/09/19	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				
T93 (E 395638 N 306493)	Mature European ash with dense ivy in canopy, deadwood and split branches on west and east aspects		Moderate	28/08/19 13/09/19	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T94 (E 395728 N 306004)	Over-mature European ash knot holes and crevices on western aspect		Moderate	28/08/19	Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T95 (E 395243 N 306000)	Mature European ash with 4 knot holes at 4m facing east, south and west	 	Moderate	28/08/19	Low	None

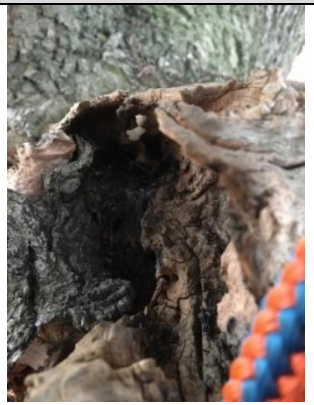
Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T96 (E 395289 N 305803)	Mature European ash with knot hole facing south east, crevices in east facing secondary limb and deadwood crevices in upper crown of stem	 	Moderate	29/08/19 No access for second visit	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T97 (E 395392 N 306055)	Mature pedunculate oak with two north facing crevices and crevices and deadwood on southern aspect		Moderate	28/09/18 No access for second visit	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

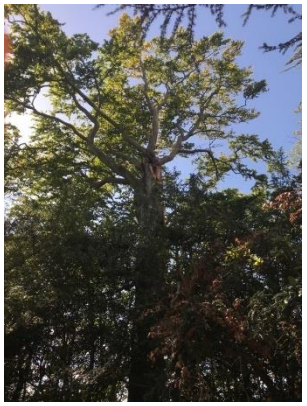
Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T98 (E 394546 N 305623)	Mature sycamore with two south facing rot holes, deadwood and flaking bark and small crevice in west growing branch		High	19/09/19	Negligible	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T99 (E 394831 N 305213)	Mature pedunculate oak with east facing rot hole	 	Moderate	09/09/19	Negligible	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T100 (E 395080 N 305323)	Dead pedunculate oak. Rot hole / cavity facing south-east at 4m, multiple crevices in main stem and deadwood.		Moderate	11/09/19	Low	None

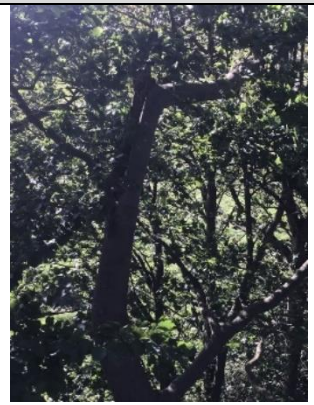
Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T101 (E 395105 N 305366)	Mature sweet chestnut with west facing woodpecker hole and split in secondary limb	 	Moderate	11/09/19 02/10/19	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T102 (E 395032 N 305451)	Mature small leaved lime with prolific epicormic growth around base of stem and in canopy, knot holes on east, north and south aspects		Moderate	09/09/19	Moderate (unsafe to climb)	Potentially suitable
T103 (E 395133 N 305517)	Mature beech with large south facing cavity in main stem		High	11/09/19 01/10/18	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T104 (E 395119 N 305529)	Mature sycamore with knot hole on south aspect and rot holes in secondary southern branch		Moderate	11/09/19	Negligible	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T105 (E 394954 N 305430)	Mature small leaved lime with prolific epicormic growth around base of stem and within canopy and rot hole, knot hole and fracture branch on north aspect		Moderate	09/09/19	Moderate (unsafe to climb)	Potentially suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T106 (E 394950 N 305578)	Mature beech with large, north east facing split in main stem		Moderate	22/08/19 19/09/19	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T107 (E 394936 N 305572)	Mature rowan with north east facing cavity in stem		Moderate	22/08/19 12/09/19 01/10/19	Confirmed roost	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T108 (E 394791 N 305446)	Mature sycamore with woodpecker hole on west aspect		Moderate	10/09/19	Moderate (unsafe to climb)	Potentially suitable
T109 (E 394764 N 305459)	Collapsed crack willow with rot hole and split on west facing branch	 	Moderate	23/08/19	Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T110 (E 394745 N 305446)	Mature silver birch with large cavity in stem on south-eastern aspect		High	23/08/19	High (unsafe to climb)	Potentially suitable
T111 (E 394754 N 305430)	Mature sycamore with small north west facing cavity		Moderate	23/08/19	Negligible	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T112 (E 394751 N 305357)	Mature pedunculate oak with large knot hole on west aspect		High	23/08/19 12/09/19 01/10/19	Confirmed roost	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T113 (E 394802 N 305400)	Mature sycamore with large cavity on dead western stem and woodpecker holes		High	23/08/19	High (unsafe to climb)	Potentially suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T114 (E 394657 N 304735)	Mature pedunculate oak with split in south facing beam and rot holes on south east and south west aspects		Moderate	29/08/19	Low	None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T115 (E 395211 N 306266)	Mature pedunculate oak with large cavity on stem on western aspect		High	No access	High	Potentially suitable

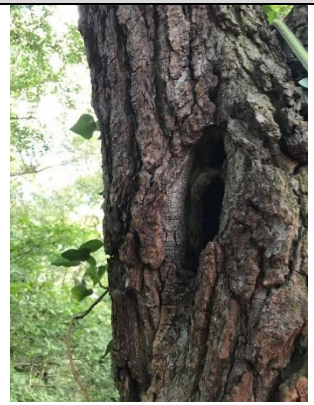
Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T116 (E 395269 N 306252)	Mature European ash with rot holes and crevices in upper south facing branches		Moderate	No access	Moderate	Potentially suitable
T117 (E 395453 N 306566)	Mature common alder with woodpecker hole on north aspect		Moderate	28/08/19	Moderate (unsafe to climb)	Potentially suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T118 (E 395463 N 306558)	Mature common alder with woodpecker hole on north facing dead limb		Moderate	27/08/19	Moderate (unsafe to climb)	Potentially suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T119 (E 395559 N 306490)	Mature common alder with knot hole on western aspect		Moderate	27/08/19	Moderate (unsafe to climb)	Potentially suitable
T120 (E 395573 N 306478)	Mature European ash with two knot holes and cavity on southern aspect		High	27/08/19 13/09/19	Moderate	Suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T121 (E 395576 N 306468)	Mature pedunculate oak with fracture in main stem		Moderate	27/08/19	Moderate (unsafe to climb)	Potentially suitable
T122 (E 395610 N 306435)	Mature common alder with cavity on main stem and knot hole on secondary stem on north aspect		High	27/08/19 13/09/19 02/10/19	High	Suitable

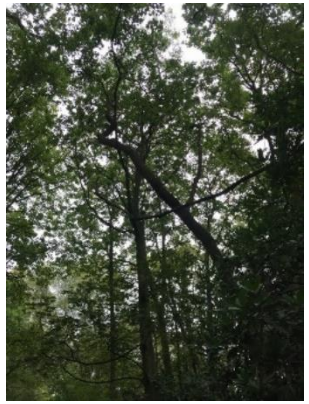
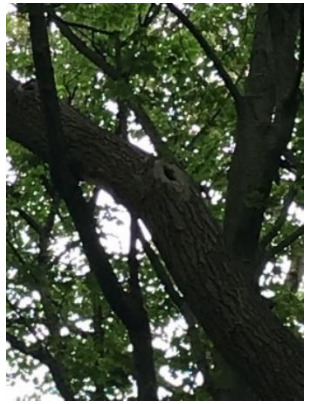
Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T123 (E 395614 N 306423)	Mature European ash with cavity on north aspect and heavy ivy coverage on main stem	 	Moderate	18/09/19	Moderate (unsafe to climb)	Potentially suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T124 (E 395039 N 305569)	Mature pedunculate oak. Knot hole facing east at 12m feature extends approximately 1m up the limb		High	21/08/19 12/09/19 19/09/19	High	Suitable

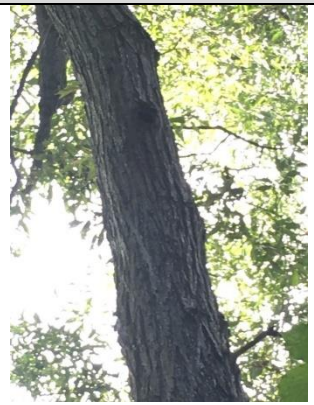
Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T125 (E 395066 N 305568)	Dead tree. Large basal cavities providing moderate suitability		Moderate	13/09/19	Moderate (unsafe to climb)	Potentially suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T126 (E 394839 N 305468)	Mature ash. Large knot hole 9m up the stem of the tree on the south	 	Moderate	13/09/19	Moderate (unsafe to climb)	Potentially suitable

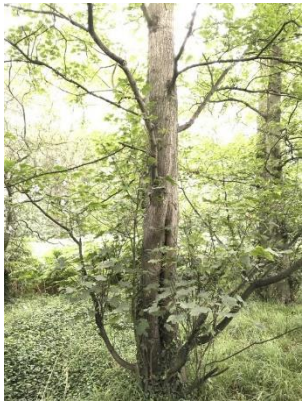
Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T127 (E 395647 N 306448)	Mature crack willow with woodpecker holes.	 	Moderate	13/09/19	Moderate (unsafe to climb)	Potentially suitable

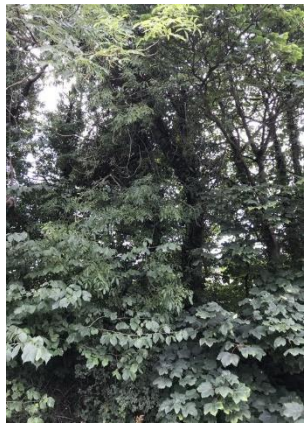
Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
		 				

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T128 (E 395654 N 306452)	Mature crack willow with woodpecker holes.		Moderate	13/09/19	Moderate (unsafe to climb)	Potentially suitable

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
						
T129 (E 394484 N 304725)	Mature crack willow, single hole at 3m on southern aspect – possibly shallow.		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T130 (E 394416 N 304767)	Mature crack willow, multi stemmed, with minor natural splits/callus rolls on eastern branches.		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T131 (E 394266 N 304967)	Dead stump with minor shallow crevices		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T132 (E 394289 N 305026)	Semi-mature sycamore with callus roll at 1m		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T133 (E 394265 N 305136)	Mature oak. Single split limb on western side of canopy.		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T134 (E 394895 N 305772)	Mature silver birch, dense ivy cover.		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T135 (E 394897 N 305832)	Mature ash x 3 with mature ivy cover.		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T136 (E 394866 N 305863)	Mature multi-stem sycamore, dense ivy cover.		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T137 (E 394805 N 305996)	Mature oak, split limb on north east side at 5m,		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T138 (E 394775 N 306106)	Mature oak, small hole on south west aspect – scar from broken branch		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T139 (E 395083 N 306308)	Semi-mature alder with ivy cover.		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T140 (E 395116 N 306284)	Semi-mature alder with ivy cover.		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T141 (E 395126 N 306281)	Semi-mature alder with ivy cover.		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T142 (E 395169 N 306218)	Semi-mature ash, signs of die back, minor holes on northern aspect.		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T143 (E 394645 N 305816)	Mature oak with minor deadwood.		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T144 (E 394638 N 305790)	Semi-mature ash x 2 with some ivy cover.	No photo	Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T145 (E 394621 N 305773)	Mature double stem oak – some loose bark.		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T146 (E 394867 N 305373)	Dead tree with small shallow hole on east side.		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T147 (E 394897 N 305458)	Multi-stem mature sycamore with crevice on callus roll on eastern limb.		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T148 (E 394941 N 305509)	Mature oak with loose bark and deadwood.		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T149 (E 394968 N 305553)	Mature holly with small cavity on north east side.		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T150 (E 395023 N 305573)	Mature oak with split branches on south and west side		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T151 (E 395117 N 305553)	Mature beech with knot hole and split limb on west side.		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T152 (E 395027 N 305583)	Mature sweet chestnut with loose bark.		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T153 (E 394982 N 305595)	Dead tree unknown species, mature at time of death. Single split in one main trunk - exposed.		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T154 (E 394984 N 305612)	Young sycamore with split in main stem at 0.5-2m		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T155 (E 394971 N 305560)	Semi-mature double stem sycamore with single woodpecker hole on west aspect.		Low			None

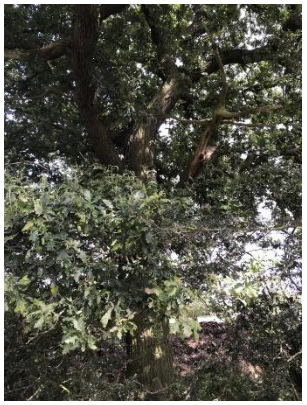
Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T156 (E 394903 N 305510)	Mature sycamore with ivy cover.		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T157 (E 394903 N 305501)	Mature multi-stem sycamore with split on southern limb		Low			None

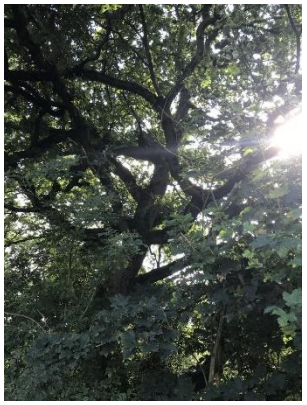
Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T158 (E 394881 N 305446)	Dead tree with small hole to north.		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T159 (E 394855 N 305415)	Multi stem semi-mature alder with a split on west side.		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T160 (E 394689 N 305260)	Mature oak with central exposed cavity.		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T161 (E 394668 N 305250)	Mature oak with cracked limb on west side		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T162 (E 394659 N 305216)	Mature beech with knot hole on western aspect		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T163 (E 394745 N 305295)	Mature oak with split on limb to south		Low			None

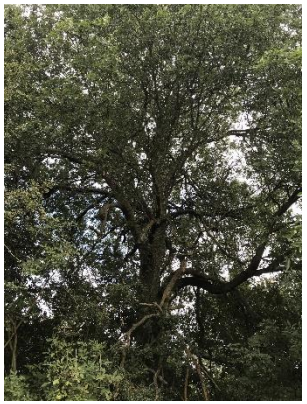
Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T164 (E 394620 N 305263)	Mature silver birch with small crevice on eastern side		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T165 (E 394640 N 305334)	Semi-mature sweet chestnut with single hole at 1.5m		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T166 (E 394777 N 304718)	Mature oak with minor crevice.		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T167 (E 395582 N 306640)	Mature oak with split on southern side		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T168 (E 395739 N 306400)	Mature alder with split on main branch on north side		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T169 (E 395736 N 306409)	Mature oak with split on south		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T170 (E 395731 N 306418)	Mature alder with split around broken branch to west		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T171 (E 395690 N 306486)	Mature ash with split in branch to south east and minor hole to west.		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T172 (E 395784 N 306099)	Mature sycamore with ivy cover.		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T173 (E 395770 N 306080)	Mature oak with single split limb to west.		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T174 (E 395767 N 306075)	Mature oak with split limb to north		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T175 (E 395684 N 306041)	Mature oak with splits on north side		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T176 (E 395768 N 305991)	Mature oak with single split on west side	No photo	Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T177 (E 395795 N 305992)	Group (x 6) of mature oaks with very minor splits in upper branches	No photo	Low			None
T178 (E 394460 N 304742)	Mature crack willow with loose bark on east aspect		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T179 (E 395240 N 305990)	Mature common alder with loose bark and crevices on west aspect		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T180 (E 395295 N 305813)	Mature pedunculate oak with knot holes and deadwood crevices on east aspect		Low			None

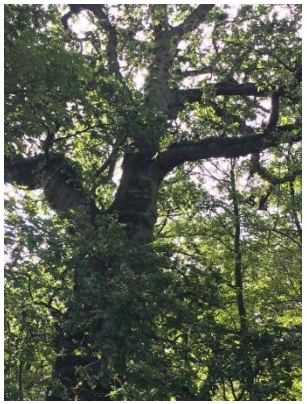
Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T181 (E 395131 N 305773)	Mature pedunculate oak with upper branches obscured by vegetation		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T182 (E 395202 N 305582)	Mature rowan with crevice in dead eastern limb		Low			None
T183 (E 395521 N 305907)	Mature pedunculate oak with knot hole on east aspect		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T184 (E 395341 N 305967)	Mature tree with potential tear in main stem		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T185 (E 394911 N 305630)	Mature sycamore with single rot hole and crevice on west aspect		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T186 (E 394544 N 305598)	Mature pedunculate oak with thick stemmed ivy and south facing rot hole		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T187 (E 394541 N 305609)	Mature sycamore with knot hole on south aspect		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T188 (E 394549 N 305650)	Mature pedunculate oak with split on west aspect		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T189 (E 394564 N 305655)	Mature pedunculate oak with thick stemmed ivy		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T190 (E 394563 N 305696)	Mature pedunculate oak with split facing west and crevice facing east		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T191 (E 394582 N 305701)	Mature sycamore with moderate ivy coverage and rot holes		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T192 (E 395095 N 305360)	Mature pedunculate oak with minor cracks and bark fissures and knot hole in upper crown		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T193 (E 395097 N 305353)	Mature pedunculate oak with minor bark fissures and knot holes		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T194 (E 395100 N 305363)	Mature pedunculate oak with bark fissures and rot holes in canopy		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T195 (E 395108 N 305388)	Mature walnut with loose bark and small fissures across stem and branches		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T196 (E 395131 N 305466)	Mature pedunculate oak. No visible potential roosting features from the ground, however tree is of sufficient size and maturity to contain such features.		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T197 (E 394934 N 305557)	Mature pedunculate oak with split on north west aspect		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T198 (E 394907 N 305504)	Mature silver birch with north facing rot hole in dead secondary stem		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T199 (E 394845 N 305488)	Mature pedunculate oak with heavy ivy cover		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T200 (E 394831 N 305495)	Mature pedunculate oak with loose bark and small deadwood crevice on west aspect		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T201 (E 394828 N 305494)	Mature pedunculate oak with heavy ivy cover and minor bark crevices		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T202 (E 394793 N 305458)	Mature silver birch with rot hole on south aspect		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T203 (E 394803 N 305447)	Mature silver birch with rot hole on east aspect		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T204 (E 394720 N 305405)	Mature sycamore with small cavity on south aspect		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T205 (E 394796 N 305360)	Mature silver birch with bark fold and split in stem on west aspect		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T206 (E 395578 N 306466)	Mature pedunculate oak with knot hole on south aspect		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None
T207 (E 395619 N 306428)	Mature European ash with heavy ivy cover on stem		Low			None

Tree number and location (co-ordinates) Figure 8.14	Tree species and maturity	Photographs of Tree	PBRA result (Negligible, Low, Moderate, High potential or Confirmed Roost) – see Figure 8.14	Date aerial survey(s) conducted	Roosting potential assessment following aerial inspection (Negligible, Low, High or Confirmed Roost) – see Figure 8.17	Hibernation potential
T208 (E 395780 N 306156)	Mature sycamore with minor knot holes and fractured deadwood on south aspect		Low	n/a – low potential trees not climbed in inspections conducted in August, September and October 2019 in line with BCT guidance (Ref 9).		None

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Activity surveys

Walked transect surveys

5.2.11 Walked transect survey results in the form of number of bat passes for each species recorded during each survey are provided in Annex 1, with the following tables providing a summary of the results. This should be read in conjunction with Figure 8.18 [TR010054/APP/6.2].

5.2.12 The species recorded in each month of survey for each walked transect are shown in Table 5.4. A minimum of seven species (common and soprano pipistrelle, whiskered/Brandt's bat, Daubenton's bat, unidentified Myotis, brown long-eared bat, noctule and Leisler's bat) were recorded across the transects. The most diversity was recorded in Transect 5, with seven species recorded. Common and soprano pipistrelle were the most commonly recorded species in most transects and across most months, although peak numbers of unidentified *Myotis* sp. and Daubenton's bat were also recorded in core survey months (May to August).

Table 5.4: Species recorded during each month for the 6 transects

Transect number	Species recorded[7] (species most commonly recorded underlined) during each month						
	April	May	June	July	August	September	October
Transect 1 (2018)	Nn, Pau, Ppi, Ppy	Myo, Nn, Ppi, Ppy	Myo, Nn, Ppi, Ppy	Pau, Ppi, Ppy	Myo, Nn, Ppi, Ppy	Myo, Nn, Ppi, Ppy	Nn, Ppi, Ppy
Transect 2 (2018)	Nn, Ppi, Ppy	Myo, Nn, Ppi, Ppy	Myo, Nn, Ppi, Ppy	Myo, Nn, Pau, Ppi, Ppy	Nn, Ppi, Ppy	Myo, Nn, Ppi, Ppy	Nn, Ppi, Ppy
Transect 3 (2018)	Mda, Myo, Nn, Ppi, Ppy	Mda, Nn, Ppi, Ppy	Myo, Mda, Nn, Ppi, Ppy	Mda, Myo, Nn, Ppi, Ppy	Myo, Nn, Pau, Ppi, Ppy	Myo, Nl, Nn, Ppi, Ppy,	Myo, Nn, Pau, Ppi, Ppy

[7] Ppi = common pipistrelle, Ppy = soprano pipistrelle, Nn = noctule, Nl = Nyctalus leislerii, Myo = unidentified Myotis sp., Mda Daubenton's, Mmy = Whiskered, Pau = brown long-eared,

Transect number	Species recorded[7] (species most commonly recorded underlined) during each month						
	April	May	June	July	August	September	October
Transect 4 (2018)	n/a	Myo, Nn, Ppi, Ppy	Myo, Nn, Ppi, Ppy	Nn, Pau, Ppi, Ppy	Nn, Ppi, Ppy	Ppy	Ppi, Ppy
Transect 5 (2019)	n/a	n/a	n/a	Mda, Mmy, Nl, Nn, Ppi, Ppy	Mda, Nn, Pau, Ppi, Ppy	Mda, Myo, Nn, Ppi, Ppy	Myo, Ppi, Ppy, Unidentified
Transect 6 (2019)	n/a	n/a	n/a	n/a	Mda, Nn, Ppy, Ppi	Ppy	Nn, Ppy

5.2.13 The peak number of bat passes of all bat species recorded in each month for each transect is shown in Table 5.5, with a graphical representation of this data shown in Plate 5.1. This clearly indicates Transect 5 had the highest numbers of bat passes, which peaked in the core survey month of August. The majority of this activity was by low numbers of bats (< 5) constantly foraging in areas of high suitability in this transect, namely the fishing lakes and woodland edge habitat within Lower Pool SBI.

5.2.14 Early season peaks of activity in Transect 3 were associated with the fishing lake and complex of buildings (B11, B12 and B14) with peaks in the core period in Transect 1 also largely associated with the areas around the buildings.

Table 5.5: Peak number of bat passes of all species per transect

Transect number	Peak number of bat passes (all species) recorded in each month for each transect						
	April	May	June	July	August	September	October
Transect 1 (2018)	58	24	91	10	21	25	3
Transect 2 (2018)	26	39	25	121	17	8	34

Transect number	Peak number of bat passes (all species) recorded in each month for each transect						
	April	May	June	July	August	September	October
Transect 3 (2018)	6	89	34	39	55	12	88
Transect 4 (2018)	n/a	22	37	81	34	4	11
Transect 5 (2019)	n/a	n/a	n/a	156	190	60	44
Transect 6 (2019)	n/a	n/a	n/a		20	9	6

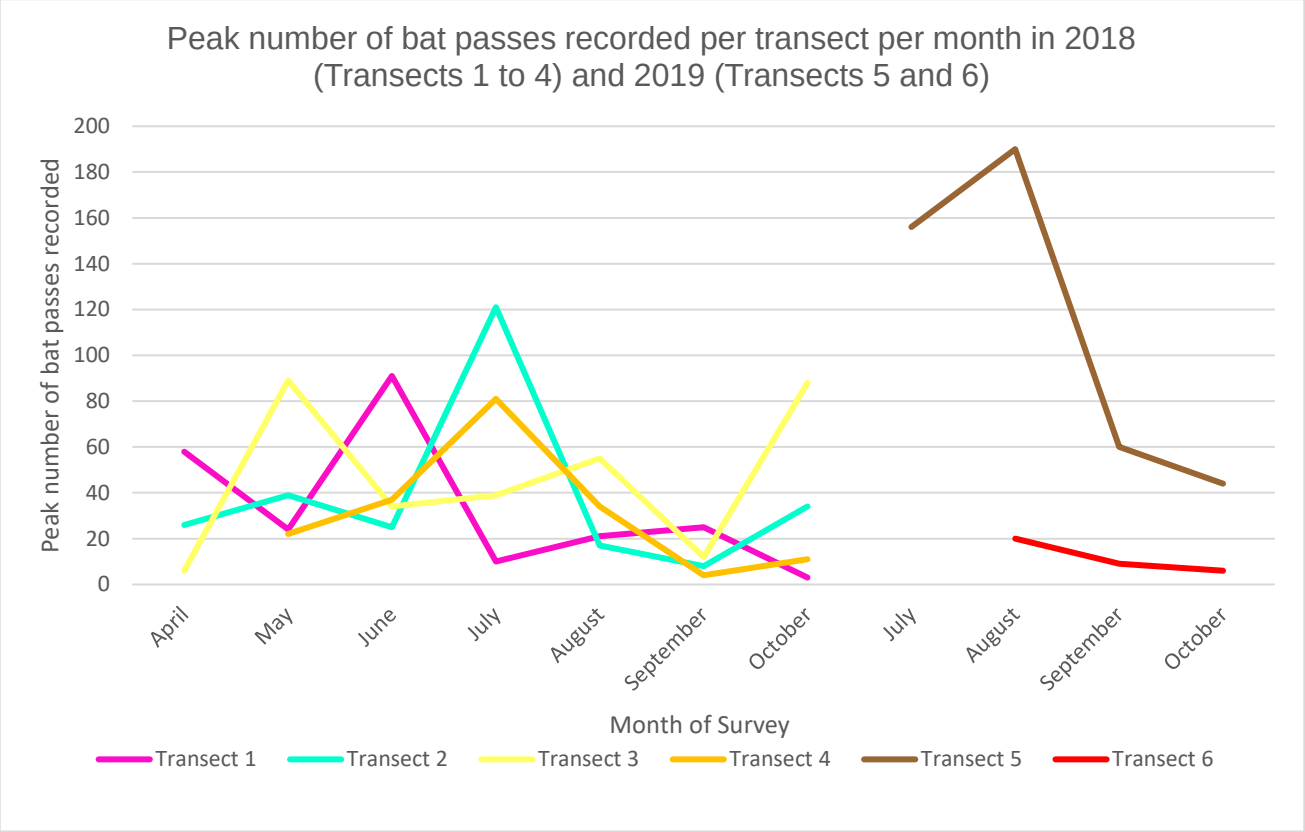

Plate 5.1: Peak number of bat passes for each transect

5.2.15 Figure 8.18 [TR010054/APP/6.2] indicates areas where most bat activity was recorded during the walked transect surveys with graphical representation of the mean number of passes per month per species shown in Plates 5.2 to 5.7.

5.2.16 Bat activity across the transects based on professional judgement was generally at low levels (single passes of < 5 passes) and by low numbers of foraging and commuting individuals. Areas of moderate levels of activity as indicated on Figure 8.18 [TR010054/APP/6.2] (5 - 20 passes by single or low numbers of less than 3 individual bats) were associated with woodland

edge habitat, aquatic habitats (notably ponds, fishing ponds and Latherford Brook - Watercourse 5) and around building complexes (east of B15/B14 and around B1-B8). Soprano pipistrelles, common pipistrelles and Daubenton's bats were most commonly recorded and largely associated with aquatic habitats. Noctules were also recorded foraging above grassland and arable fields across the Scheme boundary in low numbers and notably in fields to the immediate south of Lower Pool SBI.

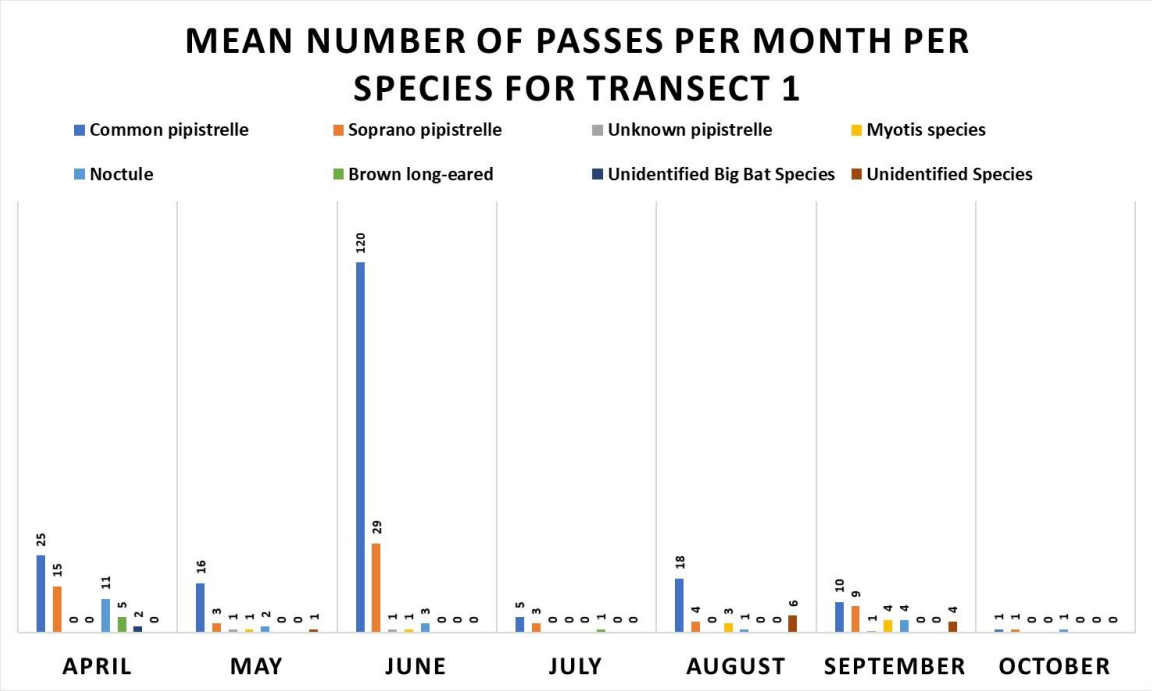

Plate 5.2: Peak number of bat passes per month per species for Transect 1

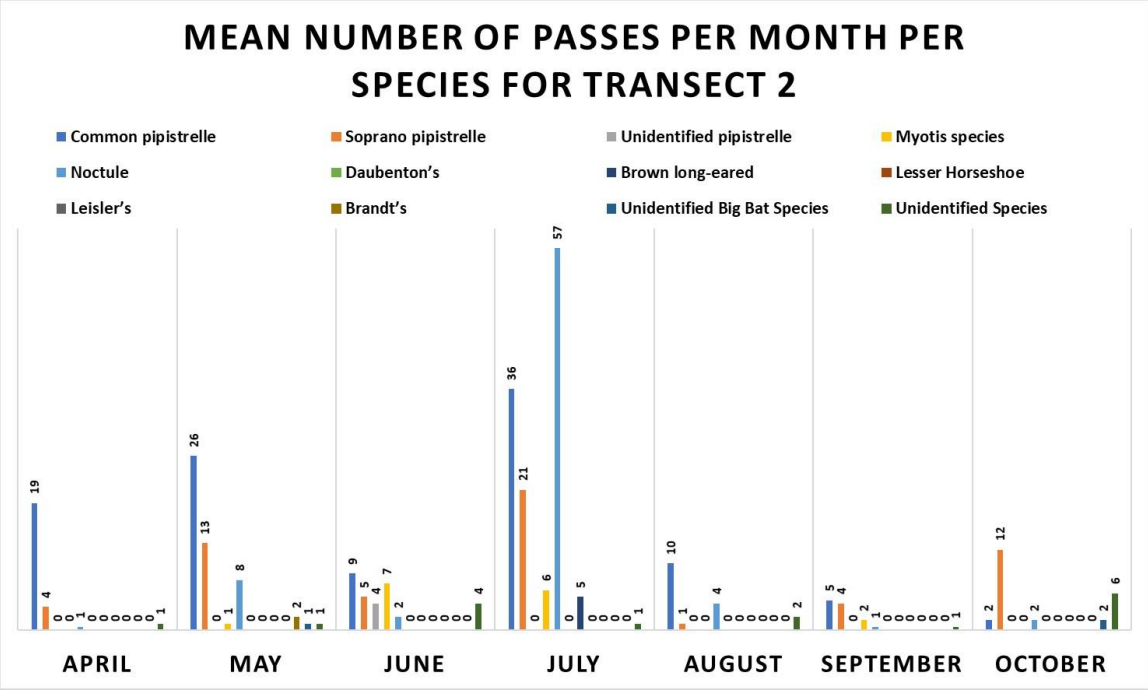

Plate 5.3: Peak number of bat passes per month per species for Transect 2

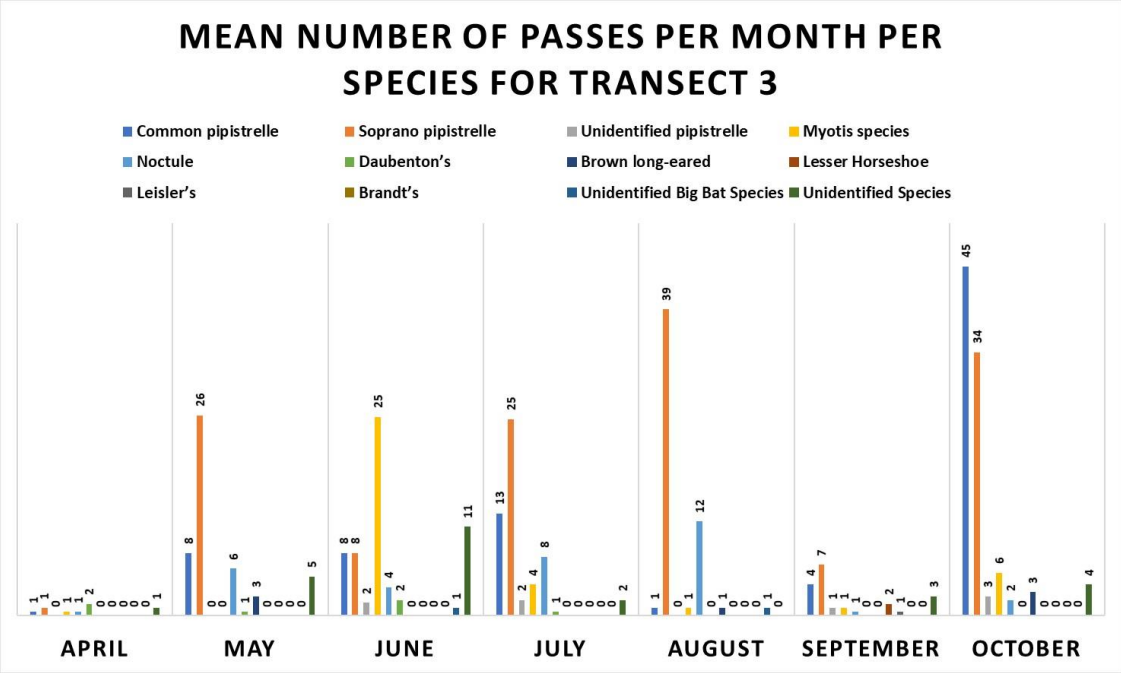

Plate 5.4: Peak number of bat passes per month per species for Transect 3

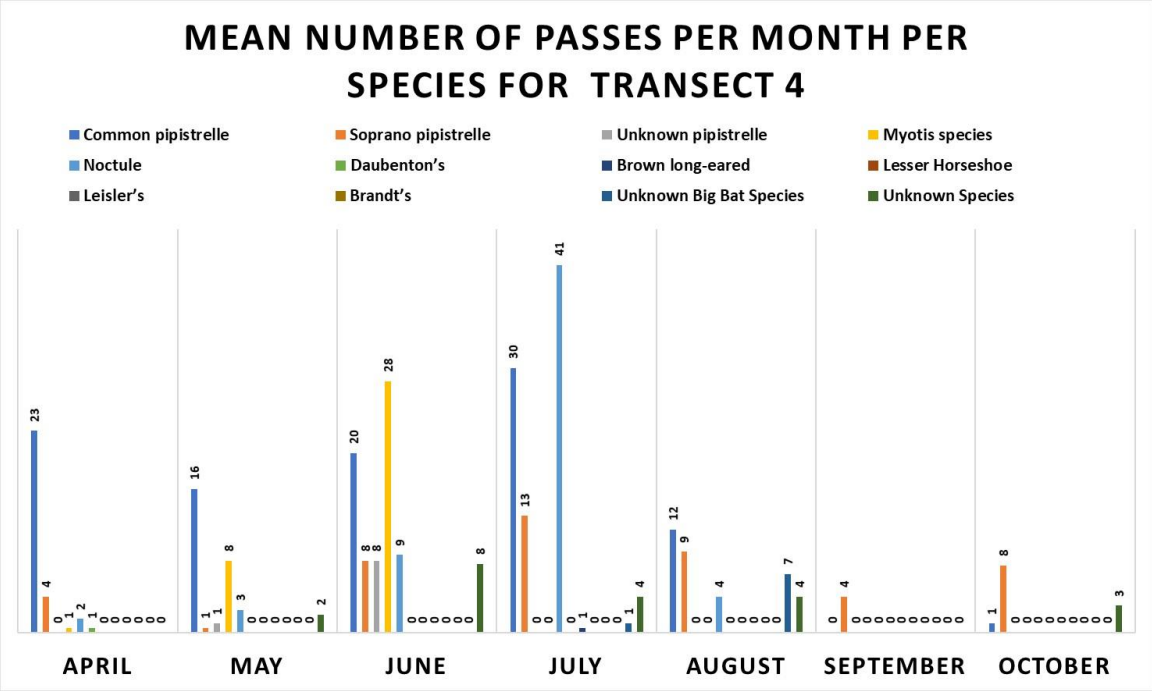

Plate 5.5: Peak number of bat passes per month per species for Transect 4

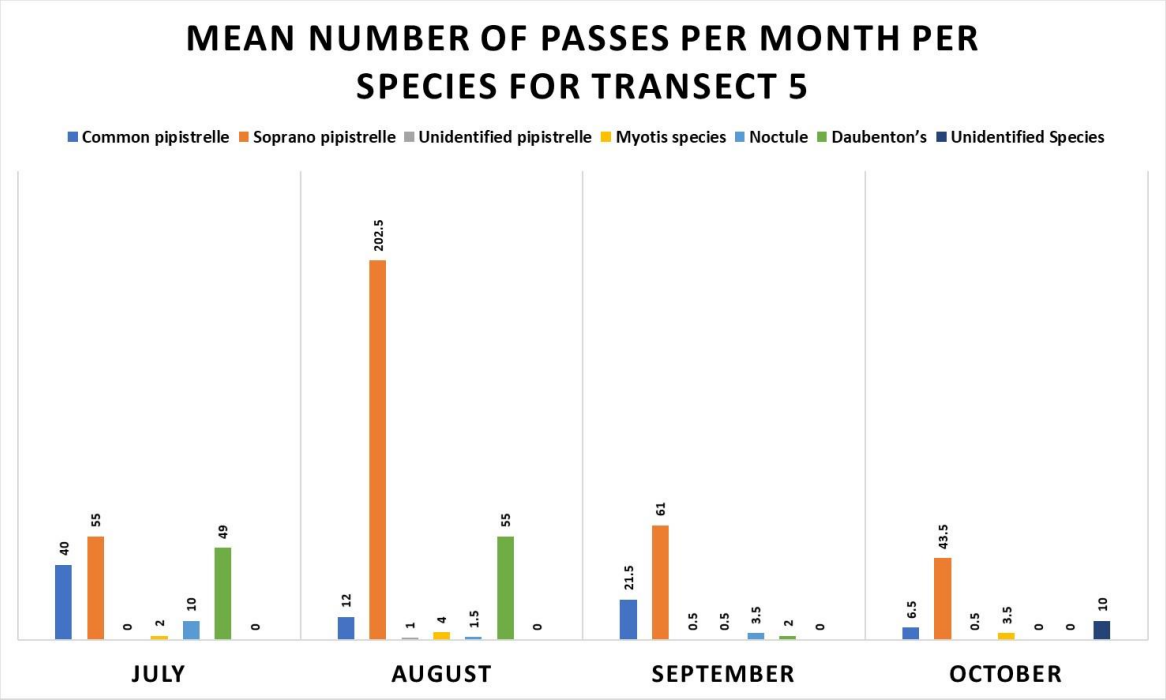

Plate 5.6: Peak number of bat passes per month per species for Transect 5

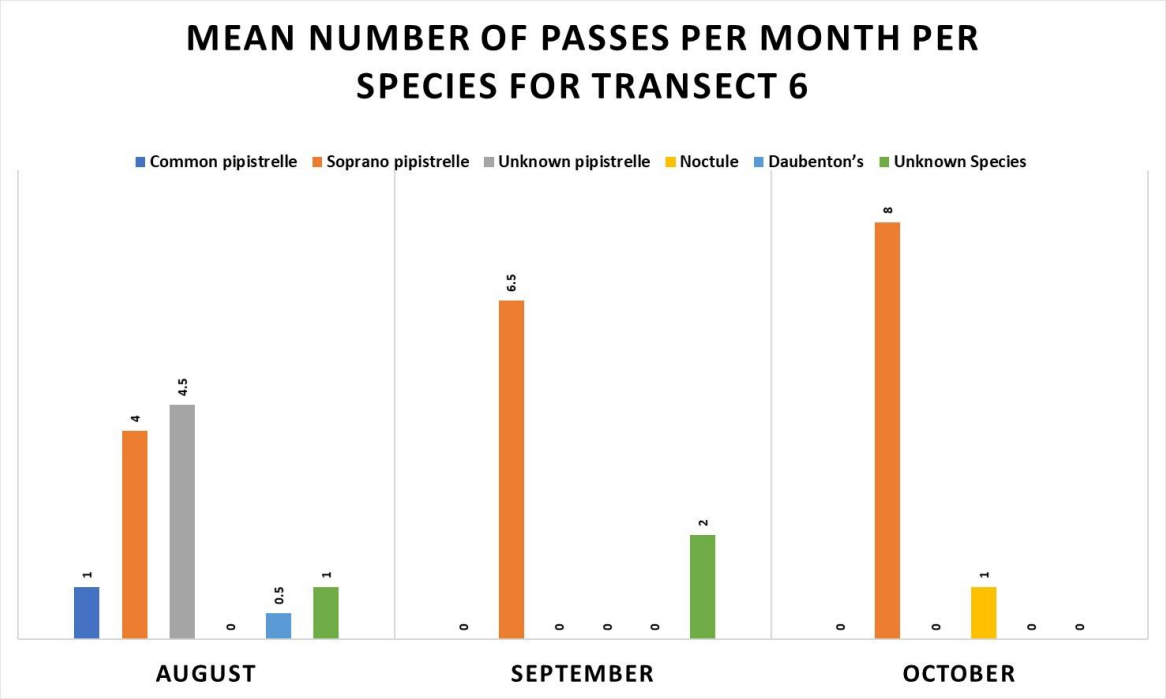

Plate 5.7: Peak number of bat passes per month per species for Transect 6

Static detector surveys

5.2.17 Detailed results of static detector surveys are provided in Annex 2 and should be read in conjunction with Figure 8.15 [TR010054/APP/6.2] which shows the locations of the static detectors that were deployed across the Scheme.

5.2.18 BAI values (Ref. 28) have been determined for each month and static location and are set out in Table 5.6 and Table 5.7. For the purpose of assigning a value to the BAI the following has been applied:

- Very Low Activity = less than 2 bat passes per hour.
- Low Activity = 2 to 25 bat passes per hour.

- Moderate Activity = 26 to 99 bat passes per hour.
- High Activity = over 100 bat passes per hour.

5.2.19 Static detector surveys recorded a minimum of seven bat species, namely common and soprano pipistrelle, noctule, Leisler's bat, Daubenton's bat, whiskered/Brandt's, unidentified Myotis and brown long-eared bat – the same species as recorded during walked transects.

5.2.20 Figure 8.18 [TR010054/APP/6.2] indicates the highest BAI level recorded in any one month across the static detector locations. Most activity recorded was low to moderate levels of foraging by common and soprano pipistrelles across the areas surveyed, with some areas supporting higher levels of foraging activity; predominantly those associated with wet mature woodland, tree lines and hedgerows and open water. Specifically, static locations at Latherford Brook (Watercourse 5) (S14) and associated with Lower Pool SBI (S18) were the areas of highest bat (specifically pipistrelle) activity. This is consistent with the observation and locations of peaks of activity recorded in walked transect surveys.

5.2.21 Low numbers of *Myotis* bats were recorded foraging and commuting throughout the Scheme with greater levels of foraging (largely by Daubenton's) recorded near areas of wet mature woodland, tree lines and open water (around static detectors S14, S15 and S18). Very low levels of Leisler's (commuting) and low levels of noctule (foraging and commuting) were recorded across all static locations.

5.2.22 Static locations S2/S3 to the south of Lower Pool SBI recorded foraging by noctule in open fields, with foraging activity also associated with areas of open water including adjacent to Latherford Brook (Watercourse 5) (S5) and along a woodland ride in Lower Pool SBI (S17).

5.2.23 Very low levels of foraging and commuting by brown long-eared bat, with Lower Pool SBI woodland (S17) again an area of higher activity, which is consistent with the observations in walked transects. Calculation of BAI values indicate that the majority of static locations recorded very low and low levels of bat activity across survey months. Moderate activity was recorded however in the following areas:

- at S6 in July 2018, S7 in June and August 2018 and S14 in 2019 – likely attributable to foraging/commuting activity along Latherford Brook (watercourse 5) and associated wet woodland;
- at S8 in May and June 2018 - likely to be attributable to foraging activity over the adjacent fishing lake;

- at S11 in June 2018 – likely attributable to foraging activity by low numbers of bats (as identified in transect surveys) over nearby lakes/ponds;
- at S12 in July 2018 – likely attributable to foraging/commuting along hedgerow;
- at S13 in July 2019 – likely attributable to foraging/commuting along hedgerow;
- S15 in July and August 2019 – likely attributable to foraging by low numbers of bats (as identified in transect surveys) over fishing lakes; and
- S17 in September 2019 – likely attributable to common and soprano pipistrelle and noctule foraging along woodland edge along the path through Lower Pool SBI woodland.

5.2.24 The only BAI indicating high activity was at S18 in July 2019 and is likely to be attributable to the high levels of foraging by a low number of soprano pipistrelle and Daubenton's bat over fishing lakes in Lower Pool SBI, which was also recorded in this area during the transect surveys.

Table 5.6: BAI values for static detectors S1 to S12 for each survey month in 2018

Survey month	Static location	Total number of bat passes	Hours between sunset and sunrise	Nights of survey	BAI (Total passes / Hours / Nights)	BAI Value
Apr-18	S1	33	11	5	0.60	Very Low activity
	S2	5	11	5	0.09	Very Low activity
	S3	1	11	5	0.02	Very Low activity
	S4	7	11	5	0.13	Very Low activity
	S5	7	11	5	0.13	Very Low activity

Survey month	Static location	Total number of bat passes	Hours between sunset and sunrise	Nights of survey	BAI (Total passes / Hours / Nights)	BAI Value
	S6	5	11	5	0.09	Very Low activity
	S7	48	11	5	0.87	Very Low activity
	S8	9	11	5	0.16	Very Low activity
	S9	1	11	5	0.02	Very Low activity
May-18	S1	138	10	5	2.76	Low activity
	S2	71	10	5	1.42	Very Low activity
	S3	10	10	5	0.20	Very Low activity
	S4	192	10	5	3.84	Low activity
	S5	53	10	5	1.06	Very Low activity
	S6	1001	10	5	20.02	Low activity
	S7	80	10	5	1.60	Very Low activity
	S8	1292	10	5	25.84	Moderate activity
	S9	195	10	5	3.90	Low activity

Survey month	Static location	Total number of bat passes	Hours between sunset and sunrise	Nights of survey	BAI (Total passes / Hours / Nights)	BAI Value
	S10	655	10	5	13.10	Low activity
	S11	439	10	5	8.78	Low activity
	S12	726	10	5	14.52	Low activity
Jun-18	S1	335	9	5	7.44	Low activity
	S2	87	9	5	1.93	Very Low activity
	S3	285	9	5	6.33	Low activity
	S4	75	9	5	1.67	Very Low activity
	S5	1068	9	5	23.73	Low activity
	S6	70	9	5	1.56	Very Low activity
	S7	2830	9	5	62.89	Moderate activity
	S8	1412	9	5	31.38	Moderate activity
	S9	91	9	5	2.02	Very Low activity
	S10	496	9	5	11.02	Low activity

Survey month	Static location	Total number of bat passes	Hours between sunset and sunrise	Nights of survey	BAI (Total passes / Hours / Nights)	BAI Value
	S11	1476	9	5	32.80	Moderate activity
	S12	0	9	5	0.00	n/a
Jul-18	S1	0	8	5	0.00	n/a
	S2	140	8	5	3.50	Low activity
	S3	140	8	5	3.50	Low activity
	S4	1	8	5	0.03	Very Low activity
	S5	157	8	5	3.93	Low activity
	S6	1477	8	5	36.93	Moderate activity
	S7	0	8	5	0.00	n/a
	S8	7	8	5	0.18	Very Low activity
	S9	3	8	5	0.08	Very Low activity
	S10	0	8	5	0.00	n/a
	S11	911	8	5	22.78	Low activity
	S12	1100	8	5	27.50	Moderate activity

Survey month	Static location	Total number of bat passes	Hours between sunset and sunrise	Nights of survey	BAI (Total passes / Hours / Nights)	BAI Value
Aug-18	S1	164	9	5	3.64	Low activity
	S2	67	9	5	1.49	Very Low activity
	S3	338	9	5	7.51	Low activity
	S4	248	9	5	5.51	Low activity
	S5	242	9	5	5.38	Low activity
	S6	88	9	5	1.96	Very Low activity
	S7	2063	9	5	45.84	Moderate activity
	S8	68	9	5	1.51	Very Low activity
	S9	0	9	5	0.00	n/a
	S10	508	9	5	11.29	Low activity
	S11	24	9	5	0.53	Very Low activity
	S12	377	9	5	8.38	Low activity
Sep-18	S1	94	12	5	1.57	Very Low activity

Survey month	Static location	Total number of bat passes	Hours between sunset and sunrise	Nights of survey	BAI (Total passes / Hours / Nights)	BAI Value
	S2	421	12	5	7.02	Low activity
	S3	615	12	5	10.25	Low activity
	S4	82	12	5	1.37	Very Low activity
	S5	3	12	5	0.05	Very Low activity
	S6	247	12	5	4.12	Low activity
	S7	526	12	5	8.77	Low activity
	S8	186	12	5	3.10	Low activity
	S9	0	12	5	0.00	n/a
	S10	4	12	5	0.07	Very Low activity
	S11	19	12	5	0.32	Very Low activity
	S12	0	12	5	0.00	n/a
Oct-18	S1	0	13	5	0.00	n/a
	S2	2	13	5	0.03	Very Low activity
	S3	9	13	5	0.14	Very Low activity

Survey month	Static location	Total number of bat passes	Hours between sunset and sunrise	Nights of survey	BAI (Total passes / Hours / Nights)	BAI Value
	S4	0	13	5	0.00	n/a
	S5	16	13	5	0.25	Very Low activity
	S6	3	13	5	0.05	Very Low activity
	S7	7	13	5	0.11	Very Low activity
	S8	1	13	5	0.02	Very Low activity
	S9	0	13	5	0.00	n/a
	S10	7	13	5	0.11	Very Low activity
	S11	0	13	5	0.00	n/a
	S12	38	13	5	0.58	Very Low activity

Table 5.7: BAI values for static detectors S13 to S19 for each survey month in 2019

Survey month	Static location	Total number of bat passes	Hours between sunset and sunrise	Nights of survey	BAI (Total passes / Hours / Nights)	BAI VALUE
July	S13	1490	8	7	26.61	Moderate Activity
	S14	1015	8	7	18.13	Low Activity
	S15	4228	8	7	75.50	Moderate Activity
	S16	230	8	7	4.11	Low Activity
	S17	775	8	8	12.11	Low Activity
	S18	5795	8	5	144.88	High Activity
	S19	35	8	7	0.63	Very Low Activity
August	S13	461	9	5	10.24	Low Activity
	S14	544	9	5	12.09	Low Activity
	S15	2832	9	5	62.93	Moderate Activity
	S16	132	9	5	2.93	Low Activity
	S17	No access – survey not conducted				
	S18					
	S19	87	9	5	1.93	Very Low Activity

Survey month	Static location	Total number of bat passes	Hours between sunset and sunrise	Nights of survey	BAI (Total passes / Hours / Nights)	BAI VALUE
September	S13	718	12	9	6.65	Low Activity
	S14	2453	12	9	22.71	Low Activity
	S15	No access – survey not conducted				
	S16					
	S17	3849	12	9	35.64	Moderate Activity
	S18	No data – static detector failure				
	S19	26	12	9	0.24	Very Low Activity
October	S13	70	13	5	1.08	Very Low Activity
	S14	2452	13	5	37.72	Moderate Activity
	S15	No access – survey not conducted				
	S16					
	S17	1640	13	5	25.23	Low Activity
	S18	565	13	5	8.69	Low Activity
	S19	2	13	5	0.03	Very Low Activity

Crossing point surveys

5.2.25 Detailed survey results from each crossing point survey location (see Figure 8.15 for locations [TR010054/APP/6.2]) are provided in Table 5.9 to Table 5.15, with a summary provided in Table 5.8.

5.2.26 Preliminary surveys indicated that points A, C and D did not require the further crossing point surveys (in line with published guidance (Ref 11), with less than 10 bats recorded passing at these points during any of these initial surveys. Further surveys were conducted at crossing points B and E, where more than 10 passes were recorded on one occasion each during the preliminary surveys. However none of the locations (A – D) were found to support significant numbers or indicate significant importance for commuting bats.

5.2.27 Table 5.8 provides a summary of mean total bat passes per survey, analysis of height of passes and species recorded at each crossing point location (see Figure 8.15 for locations [TR010054/APP/6.2]). Plate 5.8 shows the percentage of bat passes seen that were recorded at heights of < 5 m, 5 m and > 5 m.

5.2.28 This indicates that at most crossing points the majority of passes were at or below 5 m, with a higher proportion of passes at locations C and D being >5 m (these were associated with higher number of noctule bat passes).

The summary provided in Table 5.8 indicates that there are no significant commuting routes for bats within the Scheme boundary or that could be affected by the Scheme, with the mean number of passes at all crossing point survey locations being less than 10 passes. In addition, as shown in the description of direction of passes and activity in Table 5.9 to

5.2.29 Table 5.15, where higher numbers of passes were recorded (e.g. the maximum number of passes recorded at crossing point location E was 22 passes – see Table 5.8), these were usually associated with constant foraging activity by a low number of bats close to the feature, rather than indicating commuting in a specific direction along the feature by numerous bats.

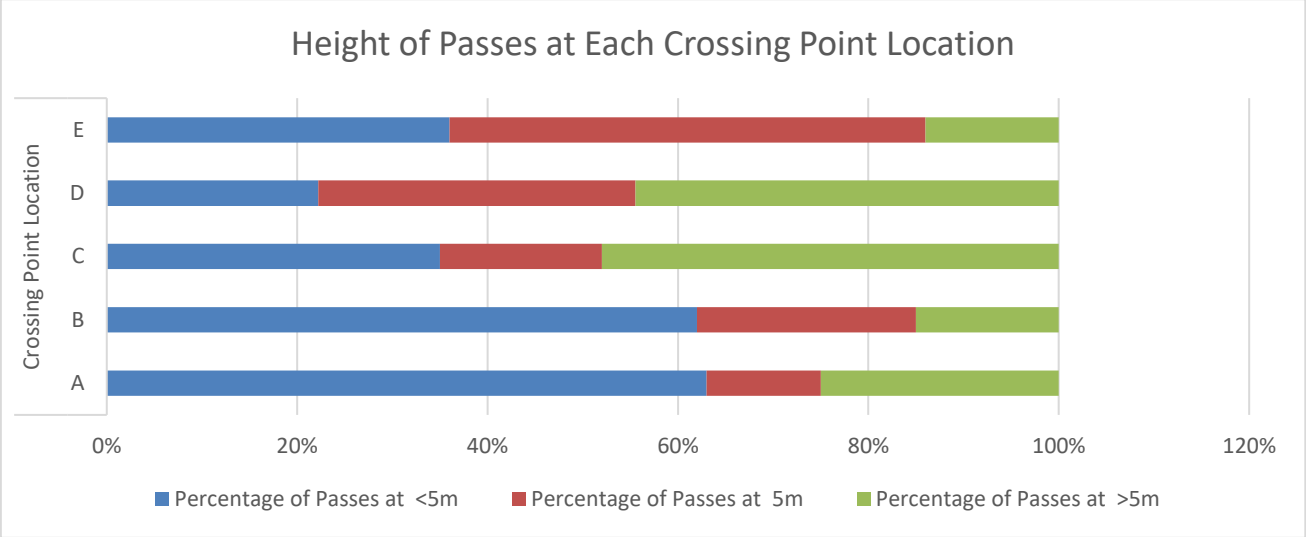

Plate 5.8: Height of passes at each crossing point location

Table 5.8: Summary of crossing point survey results

Crossing point location	Survey	Mean number of bat passes across all surveys	Maximum number of bat passes in a survey	% of bats seen flying <5 m	% of bats seen flying at 5 m	% of bats seen flying >5 m	Species recorded
A	Preliminary surveys only	4	8	63%	12%	25%	Daubenton's bat, common pipistrelle, soprano pipistrelle, noctule.
B	Preliminary and additional surveys	7.7	11	62%	23%	15%	Unidentified Myotis sp., Daubenton's bat, common pipistrelle, soprano pipistrelle, noctule.
C	Preliminary surveys only	5.25	9	35%	17%	48%	Common pipistrelle, soprano pipistrelle, noctule.

Crossing point location	Survey	Mean number of bat passes across all surveys	Maximum number of bat passes in a survey	% of bats seen flying <5 m	% of bats seen flying at 5 m	% of bats seen flying >5 m	Species recorded
D	Preliminary surveys only	5	9	22.22%	33.33%	44.44%	Unidentified Myotis sp., common pipistrelle, soprano pipistrelle, noctule.
E	Preliminary and additional surveys	9.3	22	36%	50%	14%	Common pipistrelle, soprano pipistrelle, noctule, brown long-eared bat.

Table 5.9: Location A - Crossing point survey results (preliminary surveys)

Survey	Species and data for each recorded pass											
	Daubenton's			Noctule			Common pipistrelle			Soprano pipistrelle		
	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature
Preliminary survey 1 dusk 17/07/19				30 m	East to west	0 m						
Preliminary survey 1 dawn 18/07/19	Survey cancelled due to rain											
Preliminary survey 2 dusk 15/08/19	0 m	West to east to west	30 m	20 m	West to east	3 0m	0.5 m	West to east	5m	Not seen		
							2 m	West to east	5m	2 m	West to east	5 m
										0.5 m	North to south	5 m
										5 m	East to west	5 m
Preliminary survey 2 dawn 16/08/19				Not seen								
				Not seen								
				Not seen								

Table 5.10: Location B - crossing point survey results - preliminary surveys

Survey	Species and data for each recorded pass														
	Daubenton's bat			Myotis sp.			Noctule			Common pipistrelle			Soprano pipistrelle		
	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature
Preliminary survey 1 dusk 23/07/19				5m	South to north	0m	30m	North to south	0m				Not seen		
							Not seen						Not seen		
Preliminary survey 1 dawn 24/07/19	Survey cancelled due to rain														
Preliminary survey 2 dusk 14/08/19	1m	North to south	10m				Not seen			3m	South to north	0m	Not seen		
	1m	North to south	10m				Not seen						1m	North to south	10m
													3m	North to south	0m
													5m	East to west	5m
													1m	South to north	0m
													1m	South to north	0m

Survey	Species and data for each recorded pass														
	Daubenton's bat			Myotis sp.			Noctule			Common pipistrelle			Soprano pipistrelle		
	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature
Preliminary survey 2 dawn 15/08/19													Not seen		

Table 5.11: Location B - Crossing point survey results - further surveys

Survey	Species and data for each recorded pass														
	Daubenton's bat			Noctule			Brown long-eared bat			Common pipistrelle			Soprano pipistrelle		
	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature
Additional survey 1 dusk (21/08/19)	Not seen									Not seen			5m	Foraging around feature	1m
										Not seen			2m	North to south	0m
Additional survey 2 dusk (29/08/19)				Not seen						Not seen			Not seen		
													Not seen		
													Not seen		
													7m	North to south	3m

Survey	Species and data for each recorded pass															
	Daubenton's bat			Noctule			Brown long-eared bat			Common pipistrelle			Soprano pipistrelle			
	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	
													5m	North to south	0m	
Additional survey 3 dusk (02/09/19)				Not seen						Not seen			Not seen			
										Not seen			Not seen			
										Not seen			1m	Foraging over feature	0m	
										2m	Foraging over feature	0m	1m	Foraging over feature	0m	
										Not seen			2m	Foraging over feature	0m	
										Not seen			1m	Foraging over feature	0m	
										Not seen			3m	Foraging over feature	0m	
										2m	Foraging over feature	0m	Not seen			

Survey	Species and data for each recorded pass														
	Daubenton's bat			Noctule			Brown long-eared bat			Common pipistrelle			Soprano pipistrelle		
	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature
										2m	Foraging over feature	0m			
Additional survey 4 dusk (11/09/19)				Not seen			Not seen			5m	West to east	2m	Not seen		
													5m	East to west	2m
													5m	East to west	2m
Additional survey 5	No access														
Additional survey 6															

Table 5.12: Location C - crossing point survey result (preliminary surveys)

Survey	Species and data for each recorded pass								
	Noctule			Common pipistrelle			Soprano pipistrelle		
	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature
	Not seen								

Survey	Species and data for each recorded pass								
	Noctule			Common pipistrelle			Soprano pipistrelle		
	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature
Preliminary survey 1 dusk (25/07/19)	30 m	North to south	10m						
	40 m	East to west	10m						
	40 m	East to west	15m						
	40 m	West to east	0						
	40 m	West to east to west	0						
	40 m	West to east (circling)	0 m						
	25 m	West to east	0 m						
	40m	East to west	0 m						
Preliminary survey 1 dawn (26/07/19)				12 m	West to east	0m			
Preliminary survey 2 dusk (14/08/19)	Not seen			Not seen					
	Not seen			Not seen					
	Not seen								
	Not seen			Not seen			Not seen		

Survey	Species and data for each recorded pass								
	Noctule			Common pipistrelle			Soprano pipistrelle		
	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature
Preliminary survey 2 dawn (15/08/19)	Not seen								
	20 m	North to south	0 m						
	30 m	North to south to north	0 m						

Table 5.13: Location D - crossing point survey results (preliminary surveys)

Survey	Species and data for each recorded pass											
	Myotis sp			Noctule			Common pipistrelle			Soprano pipistrelle		
	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature
Preliminary survey 1 dusk (25/07/19)				30m	East to west	0m	5m	West to east	0m			
				Not seen								
Preliminary survey 1				Not seen			10m	West to east	0m	10m	West to east	0m
				Not seen			Not seen					

Survey	Species and data for each recorded pass											
	Myotis sp			Noctule			Common pipistrelle			Soprano pipistrelle		
	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature
dawn (26/07/19)				Not seen			5m	North to south	0m			
				Not seen			5m	South to north	0m			
Preliminary survey 2 dusk (19/08/19)	Not seen						Not seen			15m	East to west to east	0m
										2m	North to south to north	0m
										Not seen		
										4m	West to east	0m
Preliminary survey 2 dawn (20/08/19)				Not seen			Not seen					

Table 5.14: Location E - crossing point survey results (preliminary surveys)

Survey	Species and data for each recorded pass											
	Noctule			Common pipistrelle			Soprano pipistrelle			Brown long-eared		
	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature
Preliminary survey 1 dusk (01/08/19)	Not seen			Not seen			Not seen					
	Not seen			Not seen			5m	West to east	2m			
	Not seen			5m	North to south	5m	5m	North to south	5m			
							Not seen					
							Not seen					
Preliminary survey 1 dawn (02/09/19)	Not seen											
Preliminary survey 2 dusk (19/08/19)	Not seen			4m	Erratic flight path	4m	Not seen					
	Not seen			3m	North to south	3m	Not seen					
	Not seen			Not seen			Not seen					
	Not seen			3m	West to north	0m	2m	North to south	2m			
				7m	West to north	3m	Not seen					

Survey	Species and data for each recorded pass											
	Noctule			Common pipistrelle			Soprano pipistrelle			Brown long-eared		
	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature
				Not seen			5m	South to north	2 m			
				Not seen			4m	Erratic flight path	4 m			
							4m	West to north	0 m			
							Not seen					
							Not seen					
							Not seen					
Preliminary survey 2 dawn (20/08/19)	Not seen						Not seen			Not seen		
	Not seen						Not seen					
	4 m	North to east	0 m				Not seen					
	4 m	North to east	0 m				Not seen					
	Not seen						Not seen					
							Not seen					
							Not seen					
							Not seen					
							Not seen					

Survey	Species and data for each recorded pass											
	Noctule			Common pipistrelle			Soprano pipistrelle			Brown long-eared		
	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature
							Not seen					

Table 5.15: Location E - crossing point survey results (further surveys)

Survey	Species and data for each recorded pass														
	Myotis sp.			Noctule			Common pipistrelle			Soprano pipistrelle			Unidentified		
	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature
Additional survey 1 dusk (10/09/19)				Not seen			5m	North to south	4m						
				Not seen			Not seen								
							5m	South to north	2m						
							Not seen								
							Not seen								
							5m	North to south	1m						
							5m	North to south	6m						
							5m	North to south	6m						
							Not seen								
							Not seen								
							Not seen								
							Not seen								
Additional survey 2 dawn (12/09/19)							Not seen								
							Not seen								
							Not seen								
Additional survey 3 dusk (18/09/19)				Not seen			Not seen			6m	Foraging around feature	0m	5m	North to east	0m
				Not seen			Not seen			Not seen			Not seen		
				Not seen			Not seen			Not seen					
							Not seen								
Additional survey 4 dusk (23/09/19)	Not seen			Not seen			Not seen			Not seen					
							5m	Foraging around feature	0m	Not seen					
							9m	North-west to south-east	0m	Not seen					

Survey	Species and data for each recorded pass														
	Myotis sp.			Noctule			Common pipistrelle			Soprano pipistrelle			Unidentified		
	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature	Height of pass	Direction of pass	Distance from feature
							10m	Foraging around feature	0m	Not seen					
										Not seen					
Additional survey 5 dawn (25/09/19)	Not seen									Not seen					
Additional survey 6 dawn (26/09/19)										Not seen					

6 Evaluation

6.1 Bat Roosts

6.1.1 As set out in Section 5 of this report (Tables 5.2 and 5.3) day roosts recorded include two roosts within trees (one likely pipistrelle and one noctule) and nine within seven separate structures (five common pipistrelle roosts, two brown long-eared roosts and two soprano pipistrelle roosts). An additional likely pipistrelle roost is suspected but not confirmed in B11 on account of the presence of droppings observed during an internal inspection.

6.1.2 The confirmed and assumed day roosts in structures and trees within the field study area are of low conservation status (status classified in line with Ref 9), being non-breeding roosts of low numbers of individuals of common and widespread species. As such the roosts are of no more than local ecological importance.

6.1.3 The presumed maternity roost of brown long-eared bat in Building B18 is of moderate conservation significance (in line with Ref 9) being a breeding roost of a common and widespread species. While some guidance (Ref 28) indicates maternity roosts even of common species may be valued at county importance, Staffordshire's qualifying criteria (Ref 15) for designation as a site of county importance (SBI) requires presence of a significant population of a notable species (one with five or less maternity roosts in the county). Consultation with Staffordshire Wildlife Trust (SWT) (*pers comm*, Rachel Fryer 15/10/19) indicates that there is no set definition of 'significant population' and there is no published list of 'notable' species for the county. However brown long-eared bat are a common and widespread species and the Staffordshire Mammal Atlas (Ref 14) indicates it is 'frequent' in the county, hence is unlikely to be considered 'notable'. As such, the assumed maternity roost is of no more than district ecological importance.

6.2 Bat Foraging and Commuting Habitat

6.2.1 The core areas of habitat of most importance to foraging bats within the study area are the woodland edge habitats associated with Lower Pool and Brookfield Farm SBI, intact and continuous hedgerows and tree lines and wetland habitats including watercourses and ponds (see Figure 8.18 [TR010054/APP/6.2]). These habitats support low to moderate numbers of largely common species, particularly common pipistrelle (a SBAP species), soprano pipistrelle (a SPI) and noctule (a SPI and SBAP species). However, an additional six species have been recorded using land within and up to 100 m from the Scheme boundary for commuting and low-level foraging in low numbers (including brown long-eared, a SPI).

6.2.2 Application of the S. Wray *et al* approach (Ref 28) to valuing bats in Ecological Impact Assessment applies a score based on species rarity, numbers of bats, roosts, and characteristics of foraging habitat.

6.2.3 In consideration of the data collected during bat activity transect surveys the calculations of importance for commuting and foraging is shown in Table 6.1 and Table 6.2.

Table 6.1 Commuting Values

Species	National rarity score[8]	Number of bats score[9]	Site/ nearby roost potential score[10]	Type and complexity of linear features score[11]	Total score (sum of all scores)	Value[12]
Common pipistrelle	2	10	3	3	18	**Local**
Soprano pipistrelle	2	10	3	3	18	**Local**
Noctule/*Nyctalus* sp.	5	10	3	3	21	**County**
Myotis sp	5	10	3	3	21	**County**
Plecotus sp.	2	5	3	3	14	**Local**
Leisler's bat	5	5	3	3	17	**Local**
Nyctalus/Etic	5	5	3	3	17	**Local**

Table 6.2 Foraging Values

Species	National Rarity score[10]	Number of bats score[11]	Site/Nearby Roost Potential score[12]	Foraging habitat characteristics Score[13]	Total score (sum of scores)	Value[14]
Common pipistrelle	2	10	4	3	19	**Local**
Soprano pipistrelle	2	20	4	3	29	**County**
Noctule/*Nyctalus* sp.	5	5	4	3	17	**Local**
Myotis sp	5	10	4	3	22	**County**

6.2.4 The analysis in Tables 6.1 and 6.2 above indicate local importance for most species when foraging or commuting but county importance for commuting

[8] Common speces = 2, rarer species = 5, rarest species = 20
[9] Individual = 5, small number = 10, large number = 20
[10] None = 1, small number = 3, moderate number/not known = 4, large number or close to SSSI = 5, close to or in SAC = 20
[11] Absence of other linear features = 1, unvegetated fences and large fields = 2, walls gappy/flailed hedges, isolated hedges and moderate field sizes = 3, well grown and connected hedgews small fields = 4, complex network of mature established hedges and small fields, river and streams = 5
[12] International = >50, national = 41-50, regional = 31-40, county = 21-30, district, local or parish = 11 – 20, not important = 1-10
[13] Industrial or without established vegetation = 1, suburban areas or intensive arable = 2, isolated woodland patches less intensive arable and small towns/villages = 3, larger connected woodland blocks, mixed agriculture and small villages/hamlets, = 4, mosaic of pasture, woodland and wetland = 5

noctule and Myotis sp. and county importance for foraging for soprano pipistrelle and Myotis sp. Although recorded passes during activity surveys may appear to be reflective of a large population, observations during transect surveys indicated that the times of higher levels of activity were as a result of constant foraging activity by low numbers of bats (usually one to five individuals) rather than being on account of moderate or high numbers of bats. This is likely to be contributed to by the limitations offered by the immediate triangle of landscape (on account of the barriers to dispersal from the M54, M6 and A460).

6.2.5 Other buildings beyond 100 m of the Scheme boundary, but within the triangle of land between the M54, M6 and A460, may support bats roosts. Although some areas of the Scheme boundary do appear to offer good foraging opportunities for bats (notably Lower Pool SBI and Brookfield Farm SBI woodland and aquatic habitats) survey results do not indicate that significant numbers of bats from the study area or beyond are solely reliant on them. There is also no indication that bats move east to west and this is likely to be on account of the barrier presented by the A460 beyond.

6.2.6 Results of static detector surveys (S14 and S15) and walked transect surveys (Transect 6) indicate that bats within roosts present within buildings to the west of the Scheme boundary may be utilising habitats within the Scheme boundary, notably fishing lakes (pond 54) and Latherford Brook (Watercourse 5) towards the northern end of the Scheme. However, again this is due to a low numbers of bats occasionally foraging constantly within a specific area, as opposed to the area being used by a large number of bats.

6.2.7 Consultation with SWT (*pers comm* Rachel Fryer 15/10/19) indicates that there is no strict definition for “significant population of a notable species (one with five or less maternity roosts in the county)”, which is the current trigger for identification of county importance ecological features for bats. On balance and in consideration of all the available data and in consideration of the limitations of the surveys as set out in Section 4, the assemblage of bats utilising the study area for roosting foraging and commuting as a whole is therefore considered to be of at least District ecological importance.

7 References

Ref 1: Convention on the Conservation of European Wildlife and Natural Habitats https://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/104

Ref 2: Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31992L0043

Ref 3: The Conservation of Habitats and Species Regulations 2017 http://www.legislation.gov.uk/uksi/2017/1012/contents/made

Ref 4: The Wildlife & Countryside Act 1981. HMSO (1981). https://www.legislation.gov.uk/ukpga/1981/69

Ref 5: The Natural Environment and Rural Communities Act 2006. HMSO (2006). https://www.legislation.gov.uk/ukpga/2006/16/contents

Ref 6: Staffordshire Biodiversity Action Plan 2001 http://www.sbap.org.uk/

Ref 7: Staffordshire Biodiversity Action Plan – Species Action Plans http://www.sbap.org.uk/actionplan/species/index.php

Ref 8: CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. CIEEM, Winchester.

Ref 9: Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.

Ref 10: Highways England (2019). *LA 118 Biodiversity design*. Available online at: http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol10/section4/LA%20118%20Biodiversity%20design-web.pdf

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Ref 12: Multi-Agency Geographic Information for the Countryside (MAGIC) Interactive maps https://magic.defra.gov.uk/

Ref 13: Google Maps imagery 2019 www.google.co.uk/maps

Ref 14: *Staffordshire Ecological Record Mammal Atlas* available online at: http://www.staffs-ecology.org.uk/html2015/index.php?title=Mammals:_Introduction

Ref 15: *Staffordshire SBI selection criteria*. http://www.staffs-ecology.org.uk/html2015/images/1/17/Staffordshire_SBI_Guid elines.pdf

Ref 16: Mitchell-Jones, A.J. and McLeish, A.P. (2004). *Bat Workers' Manual. 3rd Edition*. JNCC, Peterborough.

Ref 17: Bat Tree Habitat key. (2018). Bat Roosts in Trees: A guide to identification and assessment for tree-care and ecology professionals. Pelagic Publishing, Exeter.

Ref 18: Design Manual for Roads and Bridges DMRB 2001 Volume 10 Environmental design and management Section 4 Nature conservation Part 3 HA80/99 *Nature conservation advice in relation to bats*.

http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol10/section4/ha8099.pdf

Ref 19: Interim Advice Note 116/08 *Nature conservation in relation to bats* http://www.standardsforhighways.co.uk/ha/standards/ians/pdfs/ian116.pdf

Ref 20: White, E. & Gehrt, S. (2001). *Effects of recording media on echolocation data from broadband bat detectors*. Wildlife Society Bulletin, 29: 974-978.

Ref 21: Gannon, W., Sherwin, R. & Haymond, S. (2003). *On the importance of articulating assumptions when conducting acoustic studies of habitat use by bats*. Wildlife Society Bulletin, 31: 45-61.

Ref 22: Weller, T., Cryan, P. & O'Shea, T. (2009). *Broadening the focus of bat conservation and research in the USE for the 21st century*. Endangered Species Research, 8: 129-145.

Ref 23: Russ, J. 2012 *British Bat Calls, A guide to species identification*' Pelagic Publishing

Ref 24: Middleton *et al*., 2014, *Social Calls of the Bats of Britain and Ireland*. Pelagic Publishing

Ref 25: JNCC (2009) Selection criteria and guiding principles for selection of Special Areas of Conservation (SACs) for marine Annex I habitats and Annex II species in the UK. Version 1.0. JNCC, Peterborough. Available online from: http://www.jncc.gov.uk/page-4165

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Ref 27: Ratcliffe, D.A. (1977) *A Nature Conservation Review*. Cambridge University Press.

Ref 28: Wray, S. et al., (2010) V*aluing bats in Ecological Impact Assessment,* In Practice No. 70, CIEEM, Winchester

Ref 29: Mitchell-Jones, A.J. (2004) *Bat mitigation guidelines*. English Nature, Peterborough.

Ref 30: Bat Conservation Trust (2013) *Grey long-eared bat factsheet*: https://cdn.bats.org.uk/pdf/About%20Bats/greylongeared_11.02.13.pdf?mtime=20181101151300

Annex 1: Transect Survey Results

Transect Survey results are provided in the following tables for each transect indicating numbers of bat passes by each species in each month across the whole transect area.

Table A1.1: Bat passes for each species on each survey of Transect 1

Species	Number of bat passes per survey											
	19/04/2018	15/05/2018	04/06/2018	20/06/2018	21/06/2018	02/07/2018	27/07/2019	08/08/2018	29/08/2018	12/09/2018	28/09/2018	10/10/2018
Common pipistrelle	25	16	46	67	22	2	6	9	17	6	8	1
Soprano pipistrelle	15	3	8	21	0	2	2	3	1	8	1	1
Unknown pipistrelle	0	1	1	0	0	0	0	0	0	0	1	0
Myotis species	0	1	1	0	0	0	0	3	0	4	0	0
Noctule	11	2	0	3	0	0	0	1	0	4	0	1
Brown long-eared	5	0	0	0	0	0	2	0	0	0	0	0
Unidentified Big Bat Species	2	0	0	0	0	0	0	0	0	0	0	0
Unidentified Species	0	1	0	0	0	0	0	4	3	3	1	0
Total	58	24	56	91	22	4	10	20	21	25	11	3

Table A2.2: Bat passes for each species on each survey of Transect 2

Species recorded	Number of bat passes for each survey													
	19/04/2018	23/04/2018	10/05/2018	21/05/2018	04/06/2018	22/06/2018	04/07/2018	27/07/2018	08/08/2018	31/08/2018	14/09/2018	27/09/2018	10/10/2018	24/10/2018
Common pipistrelle	8	22	19	14	7	3	33	6	10	0	4	1	0	3
Soprano pipistrelle	2	3	10	6	5	0	20	2	1	0	2	4	5	14
Unidentified pipistrelle	0	0	0	0	3	2	0	0	0	0	0	0	0	0
Myotis species	0	0	0	2	6	2	6	0	0	0	1	1	0	0
Noctule	0	1	7	1	2	0	57	0	4	0	0	1	0	3
Brown long-eared	0	0	0	0	0	0	4	2	0	0	0	0	0	0
Brandt's	0	0	2	0	0	0	0	0	0	0	0	0	0	0

Species recorded	Number of bat passes for each survey													
	19/04/2018	23/04/2018	10/05/2018	21/05/2018	04/06/2018	22/06/2018	04/07/2018	27/07/2018	08/08/2018	31/08/2018	14/09/2018	27/09/2018	10/10/2018	24/10/2018
Unidentified Big Bat Species	0	0	1	0	0	0	0	0	0	0	0	0	0	3
Unidentified Species	1	0	0	2	2	4	1	0	2	0	0	1	0	11
Total	11	26	39	25	25	11	121	10	17	0	7	8	5	34

7.1.1

Table A1.3: Bat passes for each species on each survey of Transect 3

Species	Number of bat passes for each survey													
	29/04/2018	30/04/2018	15/05/2018	22/05/2018	14/06/2018	25/06/2018	26/06/2018	09/07/2018	30/07/2018	14/08/2018	10/09/2018	24/09/2018	16/10/2018	31/10/2018
Common pipistrelle	0	1	1	14	6	1	3	8	10	1	3	2	44	1
Soprano pipistrelle	0	2	1	49	6	2	0	18	14	39	5	3	31	5
Unidentified pipistrelle	0	0	0	0	0	1	2	1	2	0	1	0	0	5
Myotis species	0	1	0	0	17	5	10	4	0	1	1	0	5	1
Noctule	0	1	0	12	0	3	2	7	1	12	0	1	2	0
Daubenton's	1	1	0	1	0	2	0	0	1	0	0	0	0	0
Brown long-eared	0	0	0	5	0	0	0	0	0	1	0	0	3	0
Leisler's	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Unidentified Big Bat Species	0	0	0	0	1	0	0	0	0	1	0	0	0	0
Unidentified Species	1	0	1	8	4	6	4	1	2	0	2	1	3	2
Total	2	6	3	89	34	20	21	39	30	55	12	11	88	14

Table A1.4: Bat passes for each species on each survey of Transect 4

Species	Number of bat passes for each survey													
	23/04/2018	30/04/2018	16/05/2018	30/05/2018	26/06/2018	27/06/2018	28/06/2018	16/07/2018	30/07/2018	17/08/2018	31/08/2018	14/09/2018	17/10/2018	31/10/2018
Common pipistrelle	22	1	14	4	8	10	6	29	1	11	1	0	0	2
Soprano pipistrelle	3	2	0	1	7	1	0	8	10	3	12	4	6	3
Unidentified pipistrelle	0	0	0	2	3	5	0	0	0	0	0	0	0	0
Myotis species	0	1	4	8	13	11	12	0	0	0	0	0	0	0
Noctule	1	1	0	5	0	8	2	39	4	2	4	0	0	0
Daubenton's	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Brown long-eared	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Unidentified Big Bat Species	0	0	0	0	0	0	0	1	0	0	13	0	0	0
Unidentified Species	0	0	1	2	6	1	2	4	0	2	4	0	0	6
Total	26	6	19	22	37	36	22	81	16	18	34	4	6	11

Table A1.5: Bat passes for each species on each survey of Transect 5

Species	Number of bat passes for each survey						
	23/07/2019	01/08/2019	02/08/2019	10/09/2019	17/09/2019	02/10/2019	16/10/2019
Common pipistrelle	40	7	10	14	15	1	11
Soprano pipistrelle	55	118	169	45	32	33	21
Unidentified pipistrelle	0	1	0 0	0	1	0	1
Myotis species	2	2	4	0	1	0	7
Noctule	10	0	3	1	5	0	0
Daubenton's	49	53	4	0	4	0	0
Unidentified Species	0	0	0	0	0	10	0
Total	156	181	190	60	58	44	40

Table A1.6: Bat passes for each species on each survey of Transect 6

Species	Number of bat passes for each survey					
	02/08/2019	21/08/2019	09/09/2019	20/09/2019	23/10/2019	28/10/2019
Common pipistrelle	1	0	0	0	0	0
Soprano pipistrelle	0	8	2	9	5	6
Unknown pipistrelle	0	9	0	0	0	0
Noctule	0	0	0	0	1	0
Daubenton's	0	1	0	0	0	0
Unknown Species	0	2	2	0	0	0
Total	1	20	4	9	6	6

Annex 2: Static Detector Survey Results

Tables A2.1 to A2.16 detail the number of bat registered calls recorded by static detectors S1 to S12 between April and October 2018 and by S13 to S19 between July and October 2019.

Table A2.1: Static bat activity survey results for S1. Number of bat registered calls recorded each night between April and October 2018.

Survey Period	S1	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Total
26th April 2018 – 1st May 2018	Common pipistrelle	3	6	0	9	0	18
	Soprano pipistrelle	6	9	0	0	0	15
	Unknown Pipistrelle	3	0	0	0	0	3
	Unknown Species	0	1	0	0	0	1
	Total	12	16	0	9	0	37
18th May 2018 – 23rd May 2018	Common pipistrelle	20	20	21	23	21	105
	Soprano pipistrelle	0	4	1	1	1	7
	Unknown Pipistrelle	0	1	3	0	0	4
	Myotis species	0	0	0	1	0	1
	Brandt's	1	1	2	1	2	7
	Leisler's	0	1	1	0	0	2
	Noctule	5	1	0	1	1	8
	Daubenton's	0	0	1	0	0	1
	Brown long-eared	0	1	2	0	1	4
	Unknown Species	1	0	0	0	1	2
	Total	27	29	31	27	27	141
22nd June 2018 – 27th June 2018	Common pipistrelle	112	34	45	62	52	305
	Soprano pipistrelle	5	4	1	2	6	18
	Unknown Pipistrelle	0	0	1	1	5	7

Survey Period	S1	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Total
	Myotis species	2	5	1	0	0	8
	Noctule	1	1	1	0	1	4
	Total	120	44	49	65	64	342
July 2018	No data	No data – SD card failure					
	Total						
10th August 2018 – 15th August 2018	Common pipistrelle	4	4	49	13	22	92
	Soprano pipistrelle	7	2	8	3	3	23
	Myotis species	2	3	3	3	3	14
	Noctule	0	5	14	5	11	35
	Unknown Pipistrelle	1	0	0	0	0	1
	Unknown Species	1	0	0	0	0	1
	Total	15	14	74	24	39	166
14th September 2018 – 19th September 2018	Common pipistrelle	21	10	3	3	4	41
	Soprano pipistrelle	10	5	2	5	5	27
	Myotis species	2	1	0	0	0	3
	Noctule	2	3	8	2	1	16
	Unknown Pipistrelle	1	1	0	0	0	2
	Daubenton's	0	0	1	2	0	**3**
	Brandt's	0	0	0	0	3	**3**
	Unknown Big Bat	0	0	0	1	0	**1**
	Total	36	20	14	13	13	**96**
25th October 2018 – 30th October 2018	No bats Recorded	No bats Recorded	No bats Recorded	No bats Recorded	No bats Recorded	No bats Recorded	**No bats Recorded**
	Total	0	0	0	0	0	**0**

Table A2.2:Static bat activity survey results for S2. Number of bat registered calls recorded each night between April and October 2018.

Survey Period	S2	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Total
26th April 2018 – 1st May 2018	Common pipistrelle	0	1	0	0	0	1
	Brandt's	0	2	1	0	1	4
	Total	0	3	1	0	1	5
18th – 23rd May 2018	Common pipistrelle	8	6	9	3	0	26
	Soprano pipistrelle	7	7	2	4	2	22
	Brandt's	1	3	3	1	1	9
	Noctule	5	3	0	1	0	9
	Daubenton's	2	1	0	0	0	3
	Leisler's	0	0	1	0	1	2
	Unknown Pipistrelle	0	1	1	0	0	2
	Total	23	21	16	9	4	73
22nd – 27th June 2018	Common pipistrelle	10	2	7	17	18	54
	Soprano pipistrelle	3	2	2	0	4	11
	Myotis species	0	0	0	0	1	1
	Noctule	2	4	10	2	0	18
	Brandt's	1	0	0	0	1	2
	Unknown Big Bat Species	0	1	0	0	0	1
	Total	16	9	19	19	24	87
12th – 17th July 2018	Common pipistrelle	8	31	9	2	16	66
	Soprano pipistrelle	5	4	0	1	7	17
	Myotis species	0	3	1	0	1	5
	Noctule	11	20	12	6	3	52
	Unknown Pipistrelle	1	1	0	0	0	2
	Unknown Species	0	0	0	0	1	1
	Total	25	59	22	9	28	143

Survey Period	S2	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Total
10th – 15th August 2018	Common pipistrelle	5	1	18	10	5	39
	Soprano pipistrelle	3	0	6	1	3	13
	Myotis species	1	1	4	0	1	7
	Noctule	0	1	5	1	1	8
	Total	9	3	33	12	10	67
14th – 19th September 2018	Common pipistrelle	15	5	16	7	33	76
	Soprano pipistrelle	39	11	21	6	22	99
	Myotis species	0	0	1	0	0	1
	Noctule	44	48	49	31	66	238
	Daubenton's	0	0	0	0	1	1
	Brown long-eared	0	0	2	0	0	2
	Brandt's	0	0	0	0	4	4
	Unknown Species	0	1	9	1	9	20
	Total	98	65	98	45	135	441
25th – 30th October 2018	Soprano pipistrelle	1	0	0	0	0	1
	Noctule	1	0	0	0	0	1
	Total	2	0	0	0	0	2

Table A2.3: Static bat activity survey results for S3. Number of bat registered calls recorded each night between April and October 2018.

Survey Period	S3	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
26th April 2018 – 1st May 2018	Common pipistrelle	0	0	0	0	1	1
	Total	0	0	0	0	1	1
18th – 23rd May 2018	Common pipistrelle	0	6	0	0	0	6
	Soprano pipistrelle	0	3	0	0	0	3
	Noctule	0	0	0	1	0	1
	Total	0	9	0	1	0	10

Survey Period	S3	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
22nd – 27th June 2018	Common pipistrelle	5	18	11	60	121	215
	Soprano pipistrelle	1	4	18	4	14	41
	Brandt's	1	1	2	0	1	5
	Noctule	2	4	11	3	1	21
	Leisler's	0	0	0	0	1	1
	Brown long-eared	0	0	1	0	1	2
	Unknown Pipistrelle	2	1	0	4	4	11
	Unknown Species	0	0	0	0	2	2
	Total	11	28	43	71	145	298
12th – 17th July 2018	Common pipistrelle	35	24	9	39	10	117
	Soprano pipistrelle	7	8	5	9	4	33
	Myotis species	0	2	5	3	2	12
	Noctule	10	29	32	32	11	114
	Unknown Pipistrelle	1	0	1	2	0	4
	Unknown Species	1	0	2	0	0	3
	Unknown Big Bat	0	0	0	1	0	1
	Total	54	63	54	86	27	284
10th – 15th August 2018	Common pipistrelle	2	28	30	15	23	98
	Soprano pipistrelle	6	12	42	17	27	104
	Myotis species	0	4	1	4	5	14
	Noctule	33	4	22	5	57	121
	Unknown Big Bat	0	0	0	1	0	1
	Unknown Species	0	0	10	3	21	34
	Total	41	48	105	45	133	372

Survey Period	S3	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
14th – 19th September 2018	Common pipistrelle	240	11	13	41	0	305
	Soprano pipistrelle	132	39	19	70	0	260
	Myotis species	5	5	1	2	0	13
	Noctule	3	1	1	0	0	5
	Daubenton's	6	0	0	0	0	6
	Brown long-eared	1	0	1	0	0	2
	Whiskered	13	8	1	1	0	23
	Leisler's	0	1	0	0	0	1
	Unknown Species	7	4	3	7	0	21
	Unknown Pipistrelle	12	0	6	1	0	19
25th – 30th October 2018	Total	419	69	45	122	0	655
	Soprano pipistrelle	0	4	0	0	0	4
	Myotis species	0	0	2	0	2	4
	Brandt's	1	0	0	0	0	1
	Total	1	4	2	0	2	9

Table A2.4: Static bat activity survey results for S4. Number of bat registered calls recorded each night between April and October 2018.

Survey Period	S4	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Total
26th April 2018 – 1st May 2018	Common pipistrelle	0	5	0	0	0	5
	Soprano pipistrelle	0	0	1	0	0	1
	Brandt's	0	0	1	0	0	1
	Total	0	5	2	0	0	7
18th – 23rd May 2018	Common pipistrelle	22	54	24	17	15	132
	Soprano pipistrelle	9	14	11	4	2	40
	Myotis species	0	2	1	0	0	3
	Noctule	2	2	0	7	0	11

Survey Period	S4	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Total
	Daubenton's	0	1	0	0	0	1
	Brandt's	1	2	1	0	0	4
	Leisler's	0	1	0	0	0	1
	Total	34	76	37	28	17	193
22nd – 27th June 2018	Common pipistrelle	69	0	0	0	0	69
	Soprano pipistrelle	5	0	0	0	0	5
	Unknown Pipistrelle	5	0	0	0	0	5
	Noctule	1	0	0	0	0	1
	Total	80	0	0	0	0	80
12th – 17th July 2018	Common pipistrelle	1	0	0	0	0	1
	Total	1	0	0	0	0	1
10th – 15th August 2018	Common pipistrelle	13	6	64	57	57	197
	Soprano pipistrelle	4	3	6	18	6	37
	Myotis species	1	0	1	4	0	6
	Noctule	2	1	2	3	0	8
	Unknown Species	0	0	1	0	1	2
	Total	20	10	74	82	64	250
14th – 19th September 2018	Common pipistrelle	18	14	13	3	12	60
	Soprano pipistrelle	3	2	2	0	3	10
	Noctule	0	0	8	4	0	12
	Unknown Species	1	0	6	0	0	7
	Unknown Pipistrelle	1	3	7	1	6	18
	Total	23	19	36	8	21	107
25th – 30th October 2019	No bats recorded	No bats recorded	No bats recorded	No bats recorded	No bats recorded	No bats recorded	0
	Total	0	0	0	0	0	0

Table A2.5: Static detector bat activity survey results for S5. Number of bat registered calls recorded each night between April and October 2018.

Survey Period	S5	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
26th April 2018 – 1st May 2018	Common pipistrelle	0	5	0	0	0	5
	Soprano pipistrelle	0	0	1	0	0	1
	Brandt's	0	0	1	0	0	1
	Total	0	5	2	0	0	7
18th – 23rd May 2018	Common pipistrelle	0	3	2	1	0	6
	Soprano pipistrelle	9	4	2	2	1	18
	Myotis species	1	0	0	0	0	1
	Noctule	4	5	2	5	8	24
	Leisler's	0	0	0	0	1	1
	Unknown Big Bat	2	1	0	0	0	3
	Total	16	13	6	8	10	53
22nd – 27th June 2018	Common pipistrelle	52	91	85	73	86	387
	Soprano pipistrelle	43	58	78	67	90	336
	Myotis species	11	12	37	44	55	159
	Noctule	5	5	19	25	59	113
	Daubenton's	1	4	0	0	0	5
	Brandt's	28	18	3	0	0	49
	Whiskered	8	5	1	0	0	14
	Leisler's	0	1	0	0	0	1
	Unknown Big Bat	0	0	1	0	0	1
	Unknown Species	1	0	3	3	4	11
	Unknown Pipistrelle	19	25	49	29	26	148
	Natterer's	1	2	0	0	0	3
	Total	169	221	276	241	320	1227
12th – 17th July 2018	Common pipistrelle	1	8	9	6	4	28

Survey Period	S5	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
	Soprano pipistrelle	1	1	3	11	1	17
	Myotis species	1	1	0	2	0	4
	Noctule	18	24	12	33	21	108
	Unknown Species	0	0	0	0	1	1
	Unknown Pipistrelle	1	0	0	0	0	1
	Total	22	34	24	52	27	159
10th – 15th August 2018	Common pipistrelle	13	6	63	55	55	192
	Soprano pipistrelle	4	3	6	10	5	36
	Myotis species	1	0	1	4	0	6
	Noctule	2	1	2	3	0	8
	Unknown Species	0	0	1	0	0	1
	Unknown Pipistrelle	0	0	0	0	2	2
	Total	20	10	73	80	62	245
14th – 19th September 2018	Soprano pipistrelle	3	0	0	0	0	3
	Total	3	0	0	0	0	3
25th – 30th October 2018	Soprano pipistrelle	5	3	0	0	0	8
	Myotis species	2	1	1	0	1	5
	Daubenton's	0	0	1	0	1	2
	Brown long-eared	0	0	0	0	1	1
	Total	7	4	2	0	3	16

Table A2.6: Static detector bat activity survey results for S6. Number of bat registered calls recorded each night between April and October 2018.

Survey Period	S6	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
26th April 2018 – 1st May 2018	Common pipistrelle	1	2	0	0	0	3
	Soprano pipistrelle	0	2	0	0	0	2

Survey Period	S6	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
	Total	1	4	0	0	0	5
18th – 23rd May 2018	Common pipistrelle	36	47	37	21	22	163
	Soprano pipistrelle	86	150	128	102	117	583
	Myotis species	1	18	10	5	12	46
	Noctule	1	2	1	3	0	7
	Daubenton's	11	11	9	17	11	59
	Brown long-eared	0	1	0	1	0	2
	Brandt's	16	17	30	30	24	117
	Whiskered	3	4	1	4	5	17
	Leisler's	0	0	1	0	1	2
	Unknown Big Bat	0	2	0	0	3	5
	Unknown Species	1	2	2	0	1	6
	Unknown Pipistrelle	4	4	9	12	8	37
	Total	159	258	228	196	203	1044
22nd – 27th June 2018	Common pipistrelle	0	1	4	7	7	19
	Soprano pipistrelle	1	1	0	1	3	6
	Leisler's	0	1	0	1	0	2
	Noctule	0	2	9	20	12	43
	Unknown Pipistrelle	0	0	0	0	2	2
	Total	1	5	13	29	24	72
12th – 17th July 2018	Common pipistrelle	220	78	93	128	123	642
	Soprano pipistrelle	90	60	82	92	103	427
	Myotis species	74	53	60	57	48	292
	Noctule	6	15	14	55	26	116
	Unknown Species	9	2	14	13	7	45

Survey Period	S6	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
	Unknown Pipistrelle	91	10	5	12	4	122
	Total	490	218	268	357	311	1644
10th – 15th August 2018	Common pipistrelle	0	2	11	6	4	23
	Soprano pipistrelle	5	0	8	5	8	26
	Myotis species	0	0	1	0	0	1
	Noctule	5	4	21	3	5	38
	Unknown Species	0	1	0	0	0	1
	Total	10	7	41	14	17	89
14th – 19th September 2018	Common pipistrelle	29	6	18	3	36	92
	Soprano pipistrelle	31	30	12	15	28	116
	Myotis species	1	0	1	0	1	3
	Noctule	5	2	2	1	0	10
	Daubenton's	3	6	0	8	1	18
	Brown long-eared	1	1	0	0	0	2
	Brandt's	2	0	0	0	0	2
	Whiskered	0	1	0	2	1	4
	Unknown Species	11	10	9	5	8	43
	Unknown Pipistrelle	1	0	1	0	1	3
	Total	84	56	43	34	76	293
25th – 30th October 2018	Soprano pipistrelle	3	0	0	0	0	3
	Total	3	0	0	0	0	3

Table A2.7: Static detector bat activity survey results for S7. Number of bat registered calls recorded each night between April and October 2018.

Survey Period	S7	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
	Common pipistrelle	1	0	0	0	0	1

Survey Period	S7	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
26th April 2018 – 1st May 2018	Soprano pipistrelle	1	8	0	20	0	29
	Myotis species	1	0	1	2	0	4
	Brandt's	6	1	1	2	0	10
	Daubenton's	4	0	0	0	0	4
	Total	13	9	2	24	0	48
18th – 23rd May 2018	Common pipistrelle	4	7	5	5	0	21
	Soprano pipistrelle	5	2	2	2	10	21
	Brandt's	1	0	0	1	0	2
	Noctule	3	1	0	5	24	33
	Leisler's	0	0	1	0	1	2
	Brown long-eared	0	1	0	0	0	1
	Unknown Species	0	0	0	1	2	2
	Unknown Pipistrelle	0	2	0	0	0	2
	Total	13	13	8	14	37	84
22nd – 27th June 2018	Common pipistrelle	494	568	165	0	0	1227
	Soprano pipistrelle	325	469	111	0	0	905
	Myotis species	94	23	14	0	0	131
	Noctule	222	181	151	0	0	554
	Brown long-eared	13	0	0	0	0	13
	Unknown Species	0	5	1	0	0	6
	Unknown Pipistrelle	51	32	25	0	0	108
	Total	1199	1278	467	0	0	2944
July 2018	No data - – SD card failure						
	Total						
	Common pipistrelle	202	25	252	198	166	843

Survey Period	S7	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
10th – 15th August 2018	Soprano pipistrelle	119	33	305	296	150	903
	Myotis species	8	2	4	8	2	24
	Noctule	159	1	47	55	31	293
	Unknown Species	2	3	1	0	3	9
	Unknown Pipistrelle	0	0	0	0	13	13
	Total	490	64	609	557	365	2085
14th – 19th September 2018	Common pipistrelle	170	9	30	17	9	235
	Soprano pipistrelle	63	4	2	4	3	76
	Myotis species	146	0	3	0	2	151
	Noctule	0	0	2	0	0	2
	Daubenton's	1	0	0	0	0	1
	Whiskered	61	0	0	0	0	61
	Unknown Species	5	0	0	0	1	6
	Unknown Pipistrelle	3	0	0	0	0	3
	Total	449	13	37	21	15	535
25th – 30th October 2019	Common pipistrelle	1	0	0	0	0	1
	Myotis species	0	1	1	0	0	2
	Noctule	0	2	0	0	0	2
	Daubenton's	1	0	1	0	0	2
	Total	2	3	2	0	0	7

Table A2.8: Static detector bat activity survey results for S8. Number of bat registered calls recorded each night between April and October 2018.

Survey Period	S8	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
26th April 2018 – 1st May 2018	Common pipistrelle	1	1	0	1	0	3
	Soprano pipistrelle	0	1	0	0	0	1

Survey Period	S8	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
	Myotis species	0	0	1	1	0	2
	Brandt's	0	0	1	2	0	3
	Total	1	2	2	4	0	9
18th – 23rd May 2018	Common pipistrelle	25	37	6	42	192	302
	Soprano pipistrelle	68	50	64	217	455	854
	Myotis species	2	4	6	0	14	26
	Noctule	3	4	4	46	12	69
	Daubenton's	1	4	1	2	6	14
	Brandt's	0	1	1	0	12	14
	Leisler's	1	0	0	2	0	3
	Unknown Big Bat	1	1	0	3	5	10
	Unknown Species	1	0	0	0	1	2
	Unknown Pipistrelle	16	12	5	33	56	122
	Total	118	113	90	345	758	1424
22nd – 27th June 2018	Common pipistrelle	41	107	188	175	129	640
	Soprano pipistrelle	90	122	113	132	135	592
	Myotis species	0	1	2	2	0	5
	Noctule	19	24	71	39	22	175
	Unknown Species	0	1	1	3	3	8
	Unknown Pipistrelle	54	66	46	29	41	236
	Total	204	321	421	380	332	1658
12th – 17th July 2018	Common pipistrelle	1	0	0	1	0	2
	Soprano pipistrelle	0	1	0	1	0	2
	Noctule	1	0	2	0	0	3
	Total	2	1	2	2	0	7

Survey Period	S8	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
10th – 15th August 2018	Common pipistrelle	0	0	8	3	7	18
	Soprano pipistrelle	0	1	6	10	12	29
	Myotis species	1	0	0	0	0	1
	Noctule	1	1	8	6	4	20
	Total	2	2	22	19	23	68
14th – 19th September 2018	Common pipistrelle	37	4	0	1	0	42
	Soprano pipistrelle	26	28	25	37	10	126
	Myotis species	2	0	0	0	0	2
	Noctule	7	3	3	3	0	16
	Unknown Species	0	6	0	0	0	6
	Unknown Pipistrelle	8	1	0	0	0	9
	Total	80	42	28	41	10	201
25th 30th October 2019	Myotis species	0	0	0	0	1	1
	Total	0	0	0	0	1	1

Table A2.9: Static detector bat activity survey results for S9. Number of bat registered calls recorded each night between April and October 2018.

Survey Period	S9	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
26th April 2018 – 1st May 2018	Brandt's	0	0	0	0	1	1
	Total	0	0	0	0	1	1
18th – 23rd May 2018	Common pipistrelle	14	11	3	21	0	49
	Soprano pipistrelle	6	16	31	50	7	110
	Nathusius Pipistrelle	0	1	0	0	0	1
	Noctule	3	4	10	5	4	26
	Leisler's	0	1	0	0	1	2
	Unknown Big Bat	0	1	7	0	0	8

Survey Period	S9	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
	Unknown Pipistrelle	5	3	12	23	1	44
	Total	28	37	63	99	13	240
22nd – 27th June 2018	Common pipistrelle	1	14	7	9	7	38
	Soprano pipistrelle	2	0	2	1	1	6
	Myotis species	0	1	0	0	0	1
	Noctule	2	17	14	7	6	46
	Unknown Pipistrelle	0	1	3	2	1	7
	Total	5	33	26	19	15	98
12th – 17th July 2018	Noctule	0	0	0	1	2	3
	Total	0	0	0	1	2	3
August 2018	No data - – SD card failure						
	Total	0	0	0	0	0	0
14th – 17th September 2018	No bats recorded	No bats recorded	No bats recorded	No bats recorded	No bats recorded	No bats recorded	0
	Total	0	0	0	0	0	0
25th – 30th October 2019	No bats recorded	No bats recorded	No bats recorded	No bats recorded	No bats recorded	No bats recorded	0
	Total	0	0	0	0	0	0

Table A2.10: Static detector bat activity survey results for S10. Number of bat registered calls recorded each night between April and October 2018.

Survey Period	S10	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
18th – 23rd May 2018	Common pipistrelle	43	185	104	24	19	375
	Soprano pipistrelle	51	61	113	2	11	238
	Nathusius Pipistrelle	1	1	1	0	0	3
	Myotis species	4	2	1	1	2	10
	Noctule	3	4	4	1	3	15
	Daubenton's	0	2	0	0	0	2
	Brown long-eared	1	2	3	1	1	8

Survey Period	S10	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
	Brandt's	1	0	1	0	0	2
	Leisler's	1	0	0	0	0	1
	Unknown Big Bat	0	0	4	0	0	4
	Unknown Bat Species	0	0	1	0	0	1
	Unknown Pipistrelle	0	1	0	0	1	2
	Total	105	258	232	29	37	661
22nd – 27th June 2018	Common pipistrelle	19	24	102	45	175	365
	Soprano pipistrelle	5	4	33	23	46	111
	Myotis species	1	1	0	0	0	2
	Noctule	3	4	1	7	3	18
	Unknown Pipistrelle	1	0	0	0	2	3
	Unknown Species	0	0	1	0	0	1
	Total	29	33	137	75	226	500
12th – 17th July 2018	No bats recorded	No bats recorded	No bats recorded	No bats recorded	No bats recorded	No bats recorded	0
	Total	0	0	0	0	0	0
10th – 15th August 2018	Common pipistrelle	5	70	180	69	60	384
	Soprano pipistrelle	1	1	7	25	10	44
	Myotis species	0	1	2	4	4	11
	Noctule	1	3	17	9	39	69
	Unknown Species	0	0	0	1	0	1
	Unknown Pipistrelle	1	0	1	0	0	2
	Total	8	75	207	108	113	511
14th – 17th September 2018	Common pipistrelle	2	2	0	0	0	4
	Total	2	2	0	0	0	4

Survey Period	S10	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
25th – 30th October 2019	Common pipistrelle	1	0	0	0	0	1
	Myotis species	0	0	0	1	0	1
	Noctule	0	2	0	0	0	2
	Daubenton's	2	1	0	0	0	3
	Total	3	3	0	1	0	7

Table A2.11: Static detector bat activity survey results for S11. Number of bat registered calls recorded each night between April and October 2018.

Survey Period	S11	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
18th – 3rd May 2018	Common pipistrelle	19	65	62	114	80	340
	Soprano pipistrelle	6	8	12	17	7	50
	Myotis species	1	1	3	2	0	7
	Noctule	1	2	23	6	5	37
	Daubenton's	0	1	0	0	0	1
	Nathusius Pipistrelle	1	1	0	0	0	2
	Brandt's	0	1	0	1	0	2
	Whiskered	0	1	1	0	0	2
	Unknown Pipistrelle	0	2	0	1	0	3
	Total	28	82	101	141	92	444
22nd – 27th June 2018	Common pipistrelle	122	168	163	143	223	819
	Soprano pipistrelle	98	114	133	156	139	640
	Myotis species	0	0	0	1	0	1
	Noctule	1	0	7	7	1	16
	Unknown Species	0	1	1	5	2	9
	Unknown Pipistrelle	31	33	6	10	8	88
	Total	252	316	310	322	373	1573

Survey Period	S11	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
12th – 17th July 2018	Common pipistrelle	225	38	155	86	83	587
	Soprano pipistrelle	39	58	29	29	57	212
	Myotis species	2	4	1	2	0	9
	Noctule	8	30	24	21	20	103
	Unknown Species	7	0	3	0	1	13
	Unknown Pipistrelle	3	1	0	0	0	4
	Total	284	131	212	138	161	928
10th – 15th August 2018	Common pipistrelle	0	0	1	0	0	1
	Soprano pipistrelle	0	0	0	1	1	2
	Myotis species	1	0	0	0	0	1
	Noctule	3	1	10	2	4	20
	Unknown Species	0	1	0	0	0	1
	Total	4	2	11	3	5	25
14th – 19th September 2018	Common pipistrelle	0	4	0	0	0	4
	Soprano pipistrelle	0	6	1	0	0	7
	Myotis species	0	0	0	2	0	2
	Noctule	5	1	0	0	0	6
	Total	5	11	1	2	0	19
25th – 30th October 2019	No bats recorded	No bats recorded	No bats recorded	No bats recorded	No bats recorded	No bats recorded	0
	Total	0	0	0	0	0	0

Table A2.12: Static detector bat activity survey results for S12. Number of bat registered calls recorded each night between April and October 2018.

Survey Period	S12	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
18th – 23rd May 2018	Common pipistrelle	81	222	124	82	124	633

Survey Period	S12	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
	Soprano pipistrelle	12	20	13	11	21	77
	Myotis species	0	1	0	0	0	1
	Noctule	1	3	3	1	1	9
	Nathusius Pipistrelle	0	0	0	0	1	1
	Brown long-eared	0	0	1	0	0	1
	Brandt's	0	1	0	0	1	2
	Unknown Big Bat	0	1	0	0	0	1
	Unknown Species	1	1	0	2	0	4
	Unknown Pipistrelle	1	2	0	0	1	4
	Natterer's	1	1	0	0	0	2
	Total	97	252	141	96	149	735
June 2018	No Data - – SD card failure						
	Total	0	0	0	0	0	0
12th – 17th July 2018	Common pipistrelle	147	184	119	178	255	883
	Soprano pipistrelle	15	36	13	27	25	116
	Myotis species	0	1	0	2	0	3
	Noctule	0	4	18	50	26	98
	Unknown Species	1	4	2	1	1	9
	Unknown Pipistrelle	0	3	3	8	4	18
	Total	163	232	155	266	311	1127
10th – 15th August 2018	Common pipistrelle	24	49	107	52	103	335
	Soprano pipistrelle	3	0	5	4	8	20
	Myotis species	2	0	4	2	1	9
	Noctule	0	2	6	2	3	13

Survey Period	S12	Survey Night 1	Survey Night 2	Survey Night 3	Survey Night 4	Survey Night 5	Grand Total
	Unknown Species	66	3	5	3	34	51
	Unknown Pipistrelle	5	1	11	4	4	25
	Total	40	55	138	67	153	453
14th – 19th September 2018	No bats recorded	No bats recorded	No bats recorded	No bats recorded	No bats recorded	No bats recorded	0
	Total	0	0	0	0	0	0
25th – 30th October 2018	Common pipistrelle	0	11	0	0	0	11
	Soprano pipistrelle	9	18	0	0	0	27
	Total	9	29	0	0	0	38

Table A2.13: Static detector bat activity survey results for S13 to S19 in July 2019. Total number of bat registered calls recorded across all survey nights.

Static	Nights of survey	Pip45	Pip55	PipSp	LE	Noctule	Leisler's	Serotine	Nyctalus	Bigbat	Myotis spp	Social	Total
S13	7	760	527	1	0	142	4	0	0	0	55	1	1490
S14	7	461	170	1	7	190	5	29	1	0	151	0	1015
S15	7	1141	1414	0	27	130	13	3	4		1495	1	4228
S16	7	61	49	0	1	91	13	0	1	0	14	0	230
S17	8	140	380	0	16	207	15	5	0	0	11	1	775
S18	5	1087	4425	0	37	76	3	25	2	2	130	8	5795
S19	7	15	0	0	0	20	0	0	0	0	0	0	35

Table A2.14: Static detector bat activity survey results for S13 to S19 in August 2019. Total number of bat registered calls recorded across all survey nights.

Static	Nights of survey	Pip45	Pip55	PipSp	LE	Noctule	Liesler's	Serotine	Nyctalus	Bigbat	Myotis spp	Social	Total
S13	5	87	300	0	2	64	0	1	1	0	0	6	461
S14	5	356	80	0	1	88	1	0	11	0	7	0	544
S15	5	359	1994	2	7	15	1	0	0	0	454	0	2832
S16	5	22	82	2	0	16	2	1	1	0	6	0	132
S17	5	0	0	0	0	0	0	0	0	0	0	0	0
S18	5	0	0	0	0	0	0	0	0	0	0	0	0
S19	5	29	1	0	0	24	27	0	1	1	4	0	87

Table A2.15: Static detector bat activity survey results for S13 to S19 in September 2019. Total number of bat registered calls recorded across all survey nights.

Static	Nights of survey	Pip45	Pip55	PipSp	LE	Noctule	Liesler	Serotine	Nyctalus	Bigbat	Myotis spp	Social	Total
S13	9	222	453	0	10	29	0	1	1	0	1	1	718
S14	9	861	1548	0	3	8	0	1	7	0	22	3	2453
S15	No data												
S16													
S17	9	58	3150	0	61	59	0	0	2	0	487	32	3849
S18	9	0	0	0	0	0	0	0	0	0	0	0	0
S19	9	0	0	0	0	25	0	0	0	1	0	0	26

Table A2.16: Static detector bat activity survey results for S13 to S19 in October 2019. Total number of bat registered calls recorded across all survey nights.

Static	Nights of survey	Pip45	Pip55	PipSp	LE	Noctule	Liesler	Serotine	Nyctalus	Bigbat	Myotis spp	Social	Total
S13	5	14	44	2	2	5	0	0	1	0	1	1	70
S14	5	1808	591	0	0	4	0	0	3	0	46	0	2452
S15	No data												
S16													
S17	5	15	966	0	5	19	0	0	0	1	634	0	1640
S18	5	64	145	0	3	66	84	3	2	4	192	2	565

Static	Nights of survey	Pip45	Pip55	PipSp	LE	Noctule	Liesler	Serotine	Nyctalus	Bigbat	Myotis spp	Social	Total
S19	5	0	0	0	0	2	0	0	0	0	0	0	2