OXFORDSHIRE
STRATEGIC RAIL FREIGHT INTERCHANGE

DCO Submission

Environmental Statement

Chapter 6: Ecology including Arboriculture
Appendix 6.3: Bat Survey Report

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On behalf of
Oxfordshire Railfreight Limited

Prepared by FPCR Ltd.
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ES6.3: Bat Survey Report

Client

Oxfordshire Railfreight Limited

Project

Ardley, Oxfordshire Strategic Rail Freight Interchange (OxSRFI)

Date

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1.0 INTRODUCTION

1.1 FPCR were commissioned by Oxfordshire Railfreight Ltd. to carry out a suite of bat surveys at the proposed Oxfordshire Strategic Rail Freight Interchange (OxSRFI) site, Ardley, Oxfordshire, hereafter referred to as the Application Site.

1.2 In brief the Proposed Development comprises the construction of a Strategic Rail Freight Interchange with industrial units, associated infrastructure and soft landscaping (referenced to herein as the 'Main Site') and associated road junction and road improvement works (referred to collectively herein as the Highway Works'). Full details of the Proposed Development are provided in in Chapter 2 of the Environmental Statement: Description of Development and Alternatives.

Site Location and Context

1.3 The Application Site, as defined by the Order Limits, comprises the Main Site area and adjacent Highway Works Areas, encompassing the M40 J10 Highway Improvement Works area, the Ardley Bypass and Principal Access, the Middleton Stoney Relief Road, Heyford Park Link and Secondary Access (Figure 1).

1.4 The Application Site is largely located south of Ardley and immediately south of the Chiltern Main Line Railway, between the B430 to the east and the former RAF Upper Heyford airfield to the west. The Viridor Ardley Energy Recovery Facility ('Viridor ERF'), Valencia Waste Management facility and Ardley Landfill Site are located east of the B4030, and an active minerals quarry (Ardley Quarry) lies to the south of these facilities.

1.5 Neighbouring woodland habitat within the local landscape includes a mix of ancient woodland and ancient replanted woodland (Stoke Wood Local Wildlife Site (LWS) and Stoke Little Wood LWS), other ancient/ancient, replanted woodland habitat incorporating the northern edge of Ardley Woods, Kennel Copse, and a narrow section of Burntwood Copse alongside Gagle Brook. Areas of established (non-ancient) deciduous woodland are also present locally, including the remainder of Ardley Wood, a section alongside the Gagle Brook, The Heath proposed Cherwell District Wildlife Site (pDWS), and Birch Spinney and parts of Holme Wood/Middleton Park.

Main Site

1.6 Habitats within the Main Site were dominated by arable field compartments and semi-improved grassland used for grazing, with hedgerows, trees, scrub and semi-improved grassland at the field margins. The Ashgrove farmstead comprising a number of farm buildings and dwellings is located to the north-east of the Main Site, and a Seven Trent Green Power 'In Vessel Compositing' facility towards the southeast. Other habitats present within the Main Site included small plantation woodlands, a section of Ashgrove Brook, wet ditches, four waterbodies, and areas of hardstanding and amenity/ornamental habitats associated with the farm buildings. Agricultural fields extend from the southern boundary and form much of the surrounding landscape.

Highway Works Area

1.7 The Highways Works component of the Application Site incorporates land to the east and west of Junction 10 of the M40. These areas largely comprised arable land with planted tree groups associated with screening functions of highways infrastructure. Other habitats included managed grassland road verges, scrub and ponds. The route of the proposed Ardley Bypass is located to the north-east of the Main Site and crosses the Chiltern Mainline and also arable fields bound by native hedgerows. The route of the proposed Middleton Stoney Relief Road to the south-east of

the Main Site crosses arable field compartments largely bound by and native hedgerows, a section of the Gagle Brook and associated woodland corridor, and road verges along the B4030.

1.8 The Application Site additionally encompasses a number of less significant highway sections, including habitat associated with J9 of the M40, an area of land off Middleton Road, and land bordering the B4030.

Report Overview

1.9 The primary aims of this document are to provide an evaluation of the likely impact of the Proposed Development on local bat populations, and on the basis of these to identify appropriate mitigation and enhancement measures for incorporation within the Proposed Development.

1.10 The extent and scope of the proposals were identified following numerous amendments prior to the fixed extent of the Application Site being confirmed in 2025.

1.11 This report is informed by field data recorded by FPCR across the Application Site during the 2025 field season. Surveys had also been conducted across the site, or sections thereof, over multiple field seasons between 2018 and 2022 however, therefore reference is also made within this document to the previously recorded field data where appropriate.

1.12 Relevant surveys undertaken across the site in 2025 comprised:

- Assessment of on-site and adjacent habitats for suitability to support commuting/foraging bats;
- Assessment of buildings for evidence of roost sites, or the potential to support roosting bats (visual inspection (including hibernation surveys) and nocturnal surveys);
- Assessment of trees for evidence of roost sites, or the potential to support roosting bats (visual inspection from ground level, detailed inspection (with canopy access) and/or nocturnal surveys);
- Monthly Nighttime Bat Walkover surveys;
- Monthly Static (automated) Detector surveys, and
- Trapping surveys using harp traps and mist nets to confirm the breeding status of barbastelle *Barbastella barbastellus* on site.

1.13 With the exception of the trapping surveys, the above methods (or closely similar methods, in line with industry guidance at the time) had also been undertaken during earlier field seasons.

Letter of No Impediment Agreement (LONI)

1.14 In order to ensure that the Favourable Conservation Status (FCS) of local bat species is maintained correspondence is underway with Natural England via their Discretionary Advice Service (DAS) with the aim of confirming appropriate mitigation, and agreement in principle from Natural England they will issue a Letter of No Impediment (LONI) that will accompany the planning application. The LONI will confirm that Natural England anticipate no impediment to issuing a bat licence based on the current survey data and subject to the granting of the DCO.

2.0 LEGISLATION

2.1 All bats and their roosts are afforded legal protection under the Wildlife & Countryside Act 1981 (as amended), and the Conservation of Habitats and Species Regulations 2017 (as amended) which implements the EC Directive 92/43/EEC (the Habitats Directive). The purpose of the legislation is to maintain and restore protected species to a situation where their populations are favourable.

2.2 Under Regulation 43 of the Conservation of Habitats and Species Regulations 2017 (as amended) it is an offence to deliberately capture, injure or kill; deliberately disturb (including intentionally or recklessly) all UK bat species. This includes disturbance which impairs their ability to: breed and rear young; migrate; and hibernate; or affects their local distribution and abundance.

2.3 Four bat species: barbastelle, greater horseshoe bat *Rhinolophus ferrumequinum*, lesser horseshoe bat *Rhinolophus hipposideros*, and Bechstein's bat *Myotis bechsteinii* are additionally listed in Annex II of the Habitats Directive, which requires sites to be designated in member states for their protection.

2.4 Under the Wildlife and Countryside Act 1981 (as amended) it is illegal to:

- Recklessly or intentionally kill, injure or take any wild animals included in Schedule 5;
- Recklessly or intentionally damage or destroy, or obstruct access to any structure or place which any wild animal included in Schedule 5 uses for shelter or protection; and/or
- Recklessly or intentionally disturb any such animal while it is occupying a structure or place which it uses for shelter or protection.

2.5 Foraging habitat and commuting routes used by bats are not protected as such, however impacts that could prevent bats from using a resource or commuting to or from a valued roosting site may be considered as an indirect impact on a roost or a significant disturbance effect and would therefore also need to be avoided or prevented.

2.6 Seven bat species are listed as species of principal importance for the purpose of conserving biodiversity under the Natural Environment and Rural Communities (NERC) Act 2006: barbastelle, greater horseshoe bat, lesser horseshoe bat, Bechstein's bat, noctule *Nyctalus noctula*, soprano pipistrelle *Pipistrellus pygmaeus* and brown long-eared bat *Plecotus auritus*.

2.7 Bats are recognised in the National Planning Policy Framework (NPPF)[1] which advises that when determining planning applications, Local Planning Authorities should aim to conserve and enhance biodiversity by applying a set of principles including:

- "*If significant harm resulting from a development cannot be avoided……, adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- *development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.*"

[1]Department for Communities and Local Government. 2019. National Planning Policy Framework. Available from: https://www.gov.uk/government/publications/national-planning-policy-framework--2 [Accessed 04.09.25].

2.8 If impacts to bats or their roosts cannot be avoided a licence is required from Natural England in order to allow proposals to derogate from the Legislation (licenses cannot be obtained to provide protection against offences under the Wildlife & Countryside Act 1981 (as amended)).

2.9 As part of the licence application process the following three tests must be met:

- Regulation 53(9)(a): the appropriate authority shall not grant a licence unless they are satisfied "that there is no satisfactory alternative" to the derogation.
- Regulation 53(9)(b): the appropriate authority shall not grant a licence unless they are satisfied "that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range", and
- Regulation 53(2)(e): a licence can be granted for the purposes of "preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment".

2.10 Conservation status is defined as "the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its population within its territory". Conservation status is considered to be favourable when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- There is, or will probably continue to be, a sufficiently large habitat to maintain populations on a long-term basis.

3.0 METHODOLOGY

Desk Study

3.1 A desk study was undertaken to collate existing information for the site and its surroundings in relation to bat species. This included a review of:

- Biological records requested from Thames Valley Environmental Records Centre (TVERC). Bat records were searched for at a resolution of 2km around the Site and were limited to records from within the last 20 years.
- Granted EPS licences for bats shown on the Multi Agency Geographic Information for the Countryside (MAGIC) website2;
- Statutory designated sites within 15km of the Application Site that include bat species as part of their designation from the MAGIC website, and
- Relevant documents submitted as part of a previous planning application for the site (planning ref: 08/01520/F, permission awarded 19/09/08).
- Publicly available aerial imagery showing connectivity across the site and to the wider landscape.

Previous Site Survey

[2] https://magic.defra.gov.uk

3.2 Extensive bat survey work was undertaken across the Site by FPCR between 2018 and 2023 inclusive, all in accordance with now superseded Bat Conservation Trust (BCT) guidelines (3rd edition, 2016)[3]. In the interests of brevity this earlier work has been summarised within relevant sections of this document, with the full data provided in Appendices C and D. Surveys included:

- Ground based assessment of trees (multiple occasions) February 2018 to August 2021.
- Aerial assessment of trees with potential roost features in January 2019 and August 2021
- Nocturnal surveys of trees with potential roost features from July 2019 to August 2022.
- Daytime (internal/external) assessments of buildings (multiple occasions) April 2018 to February 2023.
- Hibernation surveys of farm cellar in February 2023 (inspection and static detector).
- Nocturnal surveys of buildings (multiple seasons) July 2019 to September 2022.
- Transect activity surveys (multiple seasons) May 2018 to May 2022.
- Static bat detector surveys (multiple seasons) May 2018 to September 2022.

Field Survey 2025

Trees

Preliminary Roost Assessment (PRA) – ground level

3.3 All semi-mature and mature trees and any immature trees exhibiting suitable roost features such as cracks, splits, or loose bark were inspected from ground level by suitably experienced ecologists from FPCR on 03/02/25 and 04/02/25, using binoculars where appropriate. The majority of these trees had also been subject previously to ground-level inspection in February 2018, May/June 2020, July 2021, and August 2021, the exceptions being those incorporated within the Application Site by subsequent boundary alterations.

3.4 Potential Roosting Features (PRFs) (based on p.16, British Standard 8596:2015[4]) were sought on each occasion including:

- Natural holes (e.g. knot holes) arising from naturally shed branches or branches previously pruned back to a branch collar;
- Man-made holes (e.g. cavities that have developed from flush cuts) or cavities created by branches tearing out from parent stems;
- Woodpecker holes;
- Cracks/splits in stems or branches (horizontal and vertical);
- Partially detached, loose or platy bark;
- Cankers (caused by localised bark death) in which cavities have developed;
- Other hollows or cavities, including butt rots;
- Compression of forks with occluded bark, forming potential cavities;
- Crossing stems or branches with suitable roosting space between;

[3] Bat Conservation Trust 2016. *Bat Surveys for Professional Ecologists: Good Practice Guidelines*.
[4] British Standard 2015, BS 8596:2015. *Surveying For Bats in Trees and Woodland – Guide*, October 2015.

Suitability	Description
NONE	Either no potential roost features or highly unlikely to be any.
FAR	**F**urther **A**ssessment **R**equired to establish if Potential Roost Features are present.
PRF	A tree with at least one **P**otential **R**oost **F**eature.

- Ivy stems with diameters in excess of 50mm with suitable roosting space behind (or where roosting space can be seen where a mat of thinner stems has left a gap between the mat and the trunk); and
- Bat or bird boxes.

3.5 Certain factors such as the orientation of a feature, its height from the ground, habitats within the immediate vicinity, and the location of a feature in respect to other features may enhance or reduce the potential value as a roost resource.

3.6 Trees were then classified into general bat roost potential groups with reference to PRFs recorded and using professional judgement, as summarised in Table 1 (reproduced from Table 4.2 of the current (4th Edition) BCT Guidelines[5]).

Table 1: Suitability of Trees for Bats

Aerial Tree Inspection Surveys

3.7 Aerial inspections were subsequently completed on FAR and PRF category trees where such trees would likely to be impacted by the proposals and where these were considered safe to be climbed by a survey team (trees considered unsafe to climb were subject to nocturnal surveys, see below).

3.8 Aerial tree surveys included detailed inspection to identify PRFs and to assess the suitability of these to support roosting bats in order to further categorise trees in accordance with the table below. Trees were accessed using arborist tree climbing techniques, with all surveyors certified to Climb Trees (J/101/2449) and Perform Aerial Rescue (A/101/2450) – Level 2 (NPTC). The climbing methodology used followed that detailed within the Arboriculture and Forestry Advisory Group (AFAG) Tree Climbing Operations Leaflet (AFAG401) and included inspecting each PRF for suitability and evidence of current or past occupation by bats using endoscopes, mirrors, torches and cameras as necessary.

3.9 In accordance with Table 2[6] a series of three climbed assessments was completed across 13-14/05/25, 24/06/25 and 22/07/25 by a team of suitably experienced ecologists led by licensed surveyors (Natural England Class Licence Registration Numbers 2024-12510-CL18-BAT and 2024-12575-CL18-BAT) meeting the BCT competency requirements.

3.10 Climbing equipment was inspected following guidelines outlined in the Lifting Operations and Lifting Equipment Regulations 1998[7].

[5] Collins, J. (ed.) 2023. *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (4thedition). The Bat Conservation Trust.
[6] Based on Tables 7.1 and 7.2 of Collins (ed) 2023.
[7] https://www.legislation.gov.uk/uksi/1998/2307/contents

Table 2: Classification and Survey Requirements for Bats in Trees

Classification of Tree	Description of Category and Associated Features (based on PRFs listed above)	Likely Further Survey work / Actions
Negligible/ No potential	Negligible/no habitat features likely to be used by roosting bats	None.
PRF-I	A tree with one or more PRF suitable for no more than very small numbers of bats, either due to size or lack of suitable surrounding habitats. Examples include (but are not limited to): loose/lifted bark, shallow splits exposed to elements or upward facing holes.	No further survey is required but appropriate compensation must be provided in advance of impacts, and a precautionary working method statement must be applied.[A]
PRF-M	A tree with one or more PRF suitable to support multiple bats and may therefore be used by a maternity colony. Examples include (but are not limited to): woodpecker holes, larger cavities, hollow trunks, hazard beams, etc.	Three aerial assessments[B] of PRFs by appropriately licensed/accredited tree climbers to determine presence or likely absence of roosting bats. Surveys are to be undertaken between May and September, with at least two surveys between May and August, and at least three weeks apart.[C] After completion of survey work, where the presence of a bat roost is discounted a precautionary pre-felling survey or working method statement may still be appropriate. Alternatively if a roost site is confirmed present and will be impacted by the proposals a Natural England licence will likely be required.

[A] In circumstances where there are many trees grouped together with PRF-I then further surveys may still be appropriate.

[B] Nocturnal surveys using NVAs may be appropriate if a tree or PRF cannot be sufficiently accessed or fully assessed.

[C] If the initial aerial inspection was undertaken during the optimum survey period, this can count as one of the three surveys.

Nocturnal surveys of trees

3.11 Trees considered to exhibit PRFs on the basis of the ground-level survey (FAR and PRF category trees) and identified as likely to be impacted by the proposals were subject to nocturnal/ emergence surveys where these could not be safely inspected via aerial canopy access. Dusk emergence surveys of trees were undertaken on 03/06/25, 01/07/25 and 29/07/25 during appropriate conditions, as summarised in Table 3.

Table 3: Emergence Surveys of Trees 2025 Survey Conditions

Date	Tree Surveyed	Sunset	Wind (Beaufort 0-12)	Temperature °C	Cloud Cover %	Rain (0-5)	Start Time	End Time
03.06.25	TS1, TS5, T18, T33,	21:17	1	10-13	30	0	21:02	22:47
01.07.25	TS1, TS5, T15, T17, T18, T33	21:27	0-1	19-24	40-90	0	21:12	22:57
29.07.25	TS1, TS5, T15, T17, T18, T33	20:58	0	17-18	90	0 at start, light rain from 22:35	20:43	22:58

3.12 Surveyors were positioned during the nocturnal surveys such that suitable access points identified during the daytime survey could be monitored simultaneously. Emergence surveys commenced approximately 15 minutes prior to sunset and continued until at least 90 minutes following sunset.

If bats were identified emerging from or returning to a tree roost then the species and number of animals using the roost was recorded, together with the location of the roost entrance (if possible to confirm). Any notable bat activity patterns within the vicinity of the focal trees, including commuting and/or foraging was also recorded.

3.13 Echo Meter Touch® (Wildlife Acoustics, Inc.) bat detectors were utilised in conjunction with Echo Meter Touch® app to aid species identification. Where necessary to confirm species identification bat calls were analysed using the Kaleidoscope Viewer© (Wildlife Acoustics, Inc.) software package.

3.14 All surveyors were additionally equipped with night vision aids (NVAs) to enhance visibility of the survey area throughout surveys. NVAs were set to record for the duration of each nocturnal survey. Where roosting bats were observed or uncertain behaviours observed, footage was extracted, analysed and saved. A still shot of the darkest point of the survey was also extracted and saved (Appendix A). NVAs used were Nightfox Whisker night vision binoculars with an associated IR lighting for each unit.

3.15 Surveys were led by licensed bat workers from FPCR conforming to at least BCT level 2 competency (Licence Reference Numbers: 2024-12575-CL18-BAT and 2024-12510-CL18-BAT) and assisted by trainee bat workers.

Built structures

Preliminary Roost Assessment

3.16 An external and internal building assessment was carried out on Ashgrove Cottages and the buildings associated with Ashgrove Farm on 24/04/25 by an experienced and licenced ecologist from FPCR (Level 2 bat survey licence: CL18: 2015-11246-CLS-CLS). The assessment was completed considering the guidance provided in Chapters 4 and 5 of the 4th Edition BCT Guidelines.

External Building Assessment

3.17 The exterior building features of on-site buildings were visually assessed for potential bat access points and for evidence of bat activity. Features such as small gaps under barge/soffit/fascia boards, raised or missing ridge tiles and gaps at gable ends, which have potential to be used as access points, were sought. In addition, structural features were noted that could provide suitable hibernation roost sites. Evidence that bats actively used potential access points includes staining within gaps and bat droppings or urine staining under gaps. Where they could be safely accessed crevices were inspected for the presence of bats or their signs using torches, mirrors and endoscopes as appropriate.

Internal Assessment

3.18 The buildings on Site including all accessible roof voids and the farmhouse cellar were also visually assessed on the dates listed above using endoscopes, mirrors and/or torches where appropriate, to identify potential or actual bat access points and roosting places and for evidence of current or past bat roosts.

3.19 Definitive evidence of a bat roosts was determined by the presence of live or dead bats; and/or droppings. Other less definitive signs were also sought as indicators of potential roosting bats, including urine staining; fur-oil staining; feeding remains such as moth wing fragments; audible

calls; bat-fly (*Nycteribiid*) pupal cases, or odour. Indicators that potential access points/roost sites had not recently been used included the presence of cobwebs and general detritus within potential access points.

3.20 The absence of any of the above evidence was not considered to be definitive evidence that no roosts were present, as bats may leave no visible sign of their presence, particularly where they occupy inaccessible or hidden spaces within a building.

Hibernation Assessment of the Farmhouse Cellar

3.21 The farmhouse cellar was inspected in detail during the hibernation season (13/01/2025 and 19/02/2025) by a licenced bat worker from FPCR (Level 2 licence CL18:2015-11246-CLS-CLS). On each occasion a close and systematic inspection was undertaken of the structure for potential bat access points, and of all potentially suitable roost features for evidence of hibernating bats. An endoscope was used to fully inspect any deep crevices and gaps, and a torch was used to examine smaller gaps.

Potential Bat Roosting Suitability

3.22 Following the internal and external assessments, each building (or where relevant, sections of) was assigned a category according to its roosting suitability in accordance with Table 4 (this summarises details within Tables 4.1 and 7.1 of the BCT Guidelines). These categories inform the appropriate level of further survey required to determine the presence or likely absence of roosting bats.

Table 4: Building Bat Roost Habitat Classifications (based on Tables 4.1 & 7.1 of the BCT Guidelines)

Roost Suitability	Description of Roosting Habitats	Further Survey Requirements to Provide Confidence in the Likely Absence of Roosting Bats Within a Structure
None	No habitat features on site that are likely to be used by bats at any time of the year.	No further surveys or consideration of roosting bats is required.
Negligible	No obvious habitat features are present that are likely to be used by roosting bats. Features may be present where a bat could theoretically roost but it is considered very unlikely.	No further surveys are required, but some vigilance may be required if the feature is impacted.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. These potential roost sites do not however provide sufficient space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or classic hibernation roost).	Up to one single dusk emergence survey undertaken between May and August (requirement is based on professional judgment). Precautionary method statement if works are to be undertaken during the winter period (where non-classic hibernation potential exits).
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat. The structure is unlikely however to support a roost of high conservation status (with respect to roost type only the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Two separate dusk emergence surveys undertaken between May and September and at least one between May and August and spread at least three weeks apart. Precautionary method statement if works are to be undertaken during the winter period (where non classic hibernation potential exits).
High	A structure with one or more potential roost site that is confirmed suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to the size, shelter, protection, conditions and surrounding habitat. These structures have the potential to support high conservation status roosts such as maternity or hibernation roosts (classic site).	Three separate dusk emergence surveys undertaken between May and September and at least two between May and August and spread at least three weeks apart. Where classic hibernation potential is present hibernation surveys should be undertaken during the winter period.
A classic hibernation site is considered to provide stable climatic conditions including temperature humidity, and light level such as, but not exclusively limited to underground structures which are subject to low levels of disturbance or species-specific habitual requirements such as where brown long-eared bats may use the same roosts for maternity and hibernation purposes. A non-classic hibernation site is a location that does conform to the criteria above but could be used by individual hibernating bats. It not usually possible to identify non-classic hibernation sites via surveys.		

Building Nocturnal Surveys

3.23 Following the building inspection in April 2025 and taking into account the results of activity surveys undertaken during preceding field seasons, on-site buildings were categorised as having a confirmed roost or high to negligible bat potential, in accordance with the below classifications:

- Confirmed or suspected roost (including roosts identified pre-2025) – B1a, B1d, B5, and B10.
- High potential - None
- Moderate potential – B1b, B1c, B1f, B2a, B3e and B3f
- Low potential – B1e, B3a, B3c, B3d and B11
- Negligible – B2b, B3g, B3h, B4, B6, B7, B8, B12 and B13

3.24 Buildings with confirmed or suspected roosts and those considered to have Low/Moderate potential to support roosting bats were then subject to dusk emergence surveys across 09/06/25, 08/07/25 and 12/08/25 during appropriate conditions, i.e. ambient temperature exceeding 10˚C and little wind and no rain, as summarised in Table 5.

Table 5: Emergence Surveys of Buildings 2025 Survey Conditions

Date	Building Surveyed	No. of surveyor positions	Sunset	Wind (Beaufort 0-12)	Temperature °C	Cloud Cover %	Rain (0-5)	Start Time	End Time
09.06.25	B1, B2, B3, B5, B10 and B11	19	21:22	1-2	13-14	100	0	21:07	23:22
08.07.25	B1, B3 (partial), B5, B10 and B11	16	21:24	1	15-17	5	0	21:09	23:24
05.08.25	B1, B3 (partial), B5, B10 and B11	16	20:48	1	14-18	20	0	20:33	22:48

3.25 Nocturnal surveys of buildings were undertaken in a similar manner to those described for trees, with surveyors located such that suitable access points identified during the daytime survey could be monitored simultaneously (Figure 4). Emergence surveys commenced approximately 15 minutes prior to sunset and continued until at least 90 minutes following sunset.

3.26 If bats were identified emerging from or returning to roost then the species and number of animals using the roost was recorded, together with the location of the roost entrance, if possible to confirm at the time of survey. Any notable bat activity patterns within the vicinity of the buildings, including commuting and/or foraging activity was also recorded.

3.27 Echo Meter Touch® (Wildlife Acoustics, Inc.) bat detectors were utilised in conjunction with Echo Meter Touch® app to aid species identification. Where necessary to confirm species identification bat calls were analysed using the Kaleidoscope Viewer© (Wildlife Acoustics, Inc.) software package.

3.28 All surveyors were additionally equipped with night vision aids (NVAs) to enhance visibility of the survey area throughout the survey. NVAs were set to record for the duration of the survey, where roosting bats were observed or uncertain behaviours observed, footage was extracted, analysed and saved. A still shot of the darkest point of the survey was also extracted and saved (Appendix C). NVAs used were Nightfox Whisker night vision binoculars with an associated IR lighting for each unit.

3.29 These surveys were led by licensed bat workers from FPCR conforming to at least BCT level 2 competency (Licence Reference Numbers: 2024-12575-CL18-BAT and 2024-12510-CL18-BAT).

3.30 The Application Site encompasses the southeastern section of Ardley rail tunnel (c.375m of the c.1.05km tunnel) along the Chiltern Main Line to the northwest of the Main Site. This brick-built tunnel is in active use as part of the local rail network. The entrance and interior of the tunnel was inspected on 14/09/25 by a licenced bat worker (Licence Reference 2016-26978-CLS-CLS) using a high-powered torch to identify any potential roost sites or evidence of current or past bat roosts.

Habitat Assessment

3.31 The potential for the Site and immediate surrounds to support feeding and commuting bats was assessed to inform the necessary survey effort, with reference to Table 4.1 of the BCT Good Practice Guidelines (2023) and using professional judgement. Particular regard was given to the presence of continuous treelines, water courses and hedgerows providing good connectivity within the site and connecting to the local landscape, and the presence of varied habitat such as scrub, woodland, grassland and open water in the vicinity.

3.32 The BCT Guidance recommends sites are categorised as outlined in Table 6.

Table 6: Criteria for Assessing Habitat Suitability for Commuting and Foraging Bats - Based on Table 4.1 of the BCT Guidelines

Suitability	Potential Flight Paths and Foraging Habitat	Proposed Further Survey Requirements
None	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines or generate/shelter insect populations available to foraging bats).	No further surveys required
Negligible	No obvious habitat features on site likely to be used as flightpaths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.	
Low	Habitat that could be used by small numbers of bats as flightpaths such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.	Automated static detector monitoring and nighttime bat walkover surveys (flight path and transect) on a seasonal* basis.
Moderate	Continuous habitat connected to the wider landscape that could be used by bats for flightpaths such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.	Automated static detector monitoring on a monthly basis and nighttime bat walkover surveys (flight path and transect) on a seasonal* basis.
High	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.	
*Seasonal surveys should be increased to monthly where Annex II species are expected/ detected or if significant commuting routes are identified.		

Bat Activity Surveys

3.33 Activity surveys were subsequently undertaken to characterise the value of the Site to foraging and commuting bats and to identify any areas of potential importance to bats for the exhibition of various social behaviours such that the likely impacts of the proposals could be assessed.

3.34 In order to inform an assessment of likely impacts, bat activity surveys aimed where possible to identify:

- The presence of bats, relative abundance and species composition using the Site whilst away from the roost;
- The usage of habitats on the Site by bats, highlighting any strong habitat associations;
- The temporal (both seasonal and nightly) and spatial distribution of recorded bat activity on site and any associations in terms of timings or particular features;
- Any connectivity in terms of habitats within the Site and/or the surrounding area;
- The effect of any existing lighting on the existing bat population.

3.35 Bat activity surveys were overseen by FPCR ecologists with expertise meeting the BCT level 3 competency.

Nighttime Bat Walkover (Flightpath / Transects Surveys)

3.36 In line with the BCT guidance, nighttime bat walkovers undertaken throughout the 2025 survey season were completed in two parts. The first part was undertaken by stationary surveyors positioned at habitat features considered suitable to be utilised as commuting routes by bats. Once conditions become too dark to see, or once bat commuting activity had been observed and had largely ended, surveyors commenced the walked transect sampling of all representative habitats within the Site, noting any bat activity heard or observed along the way. If brown long-eared bat was recorded during the flightline survey, the walked route element of the transect would

Survey Date	Sunset	Survey Timings*	Temp °C	Rain (0-5)	Wind (0-5)	Cloud %
24.04.25	20:17	20:17 to 23:13	15 to 13	0	0	15-30
20.05.25	20:59	20:59 to 23:57	17 to 14	0	0-1	60-95
24.06.25	21:28	21:28 to 00:13	17 to 15	0	0-3 (gusts, not continuous)	10-35
22.07.25	21:10	21:10 to 23:50	18 to 16	0-1 (Very short rain shower)	0-1	80-100
20.08.25	20:19	20:19 to 22:47	14 to 16	0	0-3 (gusts, not continuous)	80-90
16.09.25	19:18	19:18 to 20:39	14 to 13	0	0-1	10-30

commence regardless of whether an hour had elapsed (as this is generally the final species to emerge).

3.37 With the above methodology each survey therefore encompasses two elements that together record information to provide further context to elements that static detectors cannot always identify, such as the direction of travel or presence of multiple bats.

3.38 The first part of the survey to observe flightpaths involved 18 surveyors being positioned simultaneously at predetermined locations as shown on Figure 5. The surveys each started shortly before sunset and lasted until 30 minutes to one hour after sunset. After this the walked transect was started and continued until two to three hours after sunset. The walked routes followed during each transect were repeated on each survey occasion, however the starting point was varied throughout the survey season (Figure 5).

3.39 Surveyors were equipped with Wildlife Acoustics Inc. Echo Meter Touch® bat detectors in conjunction with Echo Meter Touch® app and either a Samsung Galaxy Tab Active 3® tablet or an Apple Inc. iPad® to detect bats and aid species identification. A written note was also made of any bat activity observed during the survey.

3.40 Surveys were undertaken when conditions were representative of the season, and as far as possible during appropriate conditions, i.e. ambient temperatures above 10˚C and with little wind and no rain. A summary of the survey timings weather conditions is provided in Table 7.

Table 7: Nighttime Bat Walkover Survey Timings Weather Conditions and Timings 2025

**Note: The Survey Timings column includes the flightline survey, the walked route, and the time to walk between the two elements. The start time was the same for each of the nine routes walked simultaneously, however finish times varied, therefore the final finishing time is shown. All surveys (flightline plus transect) were of at least two hours in duration, in accordance with the BCT guidelines.*

3.41 The Kaleidoscope Viewer© (Wildlife Acoustics, Inc.) software package was used as soon as possible after the survey to assess the levels of bat activity recorded on site, as indicated by the number of bat registrations logged. Measurements including peak frequency, inter-pulse interval, call duration and end frequency were taken to aid in species identification. This analysis was completed by a suitably experienced ecologist as above.

Static Monitoring Surveys

3.42 In 2025, in accordance with the 4th Edition BCT Guidelines, static (passive) monitoring was undertaken using an automated logging system (Wildlife Acoustics Inc. Song Meter® SM4BAT FS

bat detectors with SMM-U2 microphones). A total of 25 static recording devices were deployed simultaneously within the Site for five consecutive nights each month to record bat registrations. These were primarily deployed along linear features considered to be of value to bats such as hedgerows, woodland, water courses and tree lines. The locations were subjectively predetermined using professional judgment, in consideration of likely impacts and also avoiding locations within 15m of any known or likely roost site. In order to provide rigorous analysis, static detectors were placed in the same location during each survey, as shown on Figure 7.

3.43 Static detectors were deployed during periods of suitable weather conditions (little no rain/wind and temperatures above 10°C) where possible. Where this could not be achieved (for example due to overnight temperatures dropping below 10°C during the spring and autumn survey windows) static detector surveys were timed to avoid periods of weather considered atypical for the season.

3.44 The detectors were programmed to activate 30 minutes before sunset and record continuously until 30 minutes following sunrise each night.

3.45 Static detectors were deployed during the following periods:

- 09.04.25 to 14.04.25
- 07.05.25 to 13.05.25
- 04.06.25 to 09.06.25
- 09.07.25 to 14.07.25
- 06.08.25 to 11.08.25
- 03.09.25 to 08.09.25

3.46 The following table summarises the static locations in each recorded period.

Table 8: Static Location Reference Table 2025

Deployment location	Static Unit Reference Number					
	April 2025	May 2025	June 2025	July 2025	August 2025	September 2025
A) Along the edge of woodland and cropland	U13	U31	U8	U24	U6	U26
B) Adjacent to pond P50 and scrub	U14	U30	U25	U22	U5	U15
C) Within woodland belt	U23	U29	U11	U28	U15	U25
D) Along hedgerow H88 adjacent to cropland	U25	U33	U10	U12	U4	U10
E) Adjacent to woodland and cropland	U22	U28	U24	U25	U8	U16
F) Along hedgerow H50 adjacent to cropland	U15	U20	U7	U23	U7	U14
G) Along hedgerow H48 adjacent to cropland	U12	U27	U13	U15	U3	U24
H) Along hedgerow H6 adjacent to cropland	U21	U38	U12	U13	U10	U19
I) Along scrub habitat adjacent to other neutral grassland	U11	U34	U15	U14	U12	U11
J) Along woodland edge and poor semi-improved grassland	U2	U35	U17	Unit Failed	U9	U27
K) Adjacent to pond P3 and woodland	U16	U36	U18	U17	U13	Unit Failed
L) Within tree belt along Ardley Road	U24	U32	U9	U16	U11	U21
M) Along hedgerow H16 adjacent to Woodland	U1	U37	U19	U19	U14	U3
N) Adjacent to tall ruderal habitat and grassland compartment	U5	U22	U6	U27	U21	U12
O) Along hedgerow H25 adjacent to poor semi-improved grassland	U19	U26	U5	U21	U22	U9
P) Along woodland edge	U4	U18	U21	U26	U23	U4
Q) Along brook and hedgerow H34	U20	U25	U26	U20	U24	U20
R) Along woodland edge and cropland	U3	U24	U28	U7	U25	U22
S) Along hedgerow H61 adjacent to other neutral grassland	U18	U19	U29	U8	U26	U17
T) Along hedgerow H62 adjacent to other neutral grassland	U17	U21	U30	U6	U27	U13
U) Along hedgerow H67 adjacent to area of bare ground	U7	U8	U23	U11	U20	U7
V) Along woodland edge and cropland	U8	U9	U14	U9	U19	U6
W) Along hedgerow H68 and cropland	U10	U16	U27	U10	U16	U15
X) Along woodland edge	U6	U23	U16	U5	U17	U5
Y) Along hedgerow H82 adjacent to poor semi-improved grassland	U9	U17	U22	U4	U18	U23

3.47 The data was analysed as soon as possible after retrieval of the static units using the SonoBat UK software package to assess the amount of bat activity recorded on site, as indicated by the number of bat registrations detected at each location. Auto-analysis using SonoBat Classifier was undertaken and subsequent manual vetting was then carried out as per the criteria described below. The vetting process took measurements including peak frequency, inter-pulse interval, call

duration and end frequency to aid bat species identification. This analysis was completed by a suitably experienced ecologist (Analysts are audited internally for quality control purposes and to maintain consistent results).

3.48 Results are not a definitive list of numbers of bats on-site or representative of a number of individuals. The usage of auto analysis software classifies registrations based on probabilities for the species of highest confidence. A degree of verification has been undertaken to provide continued confidence that the software has performed within the previously defined confidence threshold in terms of misclassified or false positive identifications. In accordance with advice taken from an independent professional statistician (who have reviewed the SonoBat UK analysis software package and parameters used by FPCR by using a significant dataset), a percentage of each species was manually verified where required. Percentages vary according to species detected. Standard deviation = ±8.3 and in accordance with Chapter 10 of the BCT Guidelines, the verification process adopted above is accepted by the Guidelines as the degree of error is known for the parameters used and appropriate error thresholds have been applied, above which a species identification is accepted.

3.49 For the purposes of analysis if a static detector was deployed for more than five nights the additional nights were only assessed for bat species listed on Annex II of the Habitats Directive.

Bat Trapping Survey

3.50 Advanced bat trapping surveys were undertaken within the Application Site across four nights: 28-29.05.25, 23-24.07.25, 28-29.07.25 and 26-27.08.25, with the specific aim of determining the occurrence of barbastelle bat, including the sex and age (adult/juvenile) of any individuals captured. Incidental records of other bat species trapped were also made.

3.51 The trapping surveys were led by licenced bat surveyors holding level 3 and 4 bat class licences (Natural England Survey Licence Numbers 2016-25412-CLS-CLS, 2017-32706-CLS-CLS and 2017-32707-CLS-CLS, 2015-14965-CLS-CLS, 2015-14966-CLS-CLS. The latter three surveys were undertaken under a project-specific licence number 2025-71383-SCI-SCI.

3.52 Several trapping locations were set up for each survey which included Austbat harp traps, and Avinet and Ecotone mist nets. Each mist net measured approximately 2.4m in height, which when doubled up would equal approximately 4.8m in height. Table 9 summarises trap use at each location.

Table 9: Trapping Survey Details – Traps Used

Date	Trap No.	Trap Details
28-29.05.25	1a	Harp Trap SP5390124082
	2a	6m Mist Net SP5388223865
	3a	Harp Trap SP5386624000
	4a	9m Mist Net SP5390124039
	1b	Harp Trap SP5302525545
	2b	9m Mist Net SP5304225616
	3b	Harp Trap SP5324125969
	4b	12m Mist Net SP5333725947
	5b	4m Mist Net SP5337225980
	6b	9m Mist Net SP5340526019
23-24.07.25	1a	Harp Trap SP5302325487
	2a	12m Mist Net SP5302225553

Date	Trap No.	Trap Details
	3a	Harp Trap SP5321825858
	4a	9m Mist Net SP5329725917
	1b	12m Mist Net SP5390824035
	2b	3m Mist Net SP5388824085
	3b	9m Mist Net SP5390724094
	4b	Harp Trap SP5398024147
	5b	Harp Trap SP5408424207
	6b	4m Mist Net SP5441824461
28-29.07.25	1a	9m Mist Net SP5404924175
	2a	Harp Trap SP5392524098
	3a	Harp Trap SP5387124024
	4a	3m Mist Net SP5399724126
	1b	Harp Trap SP5323225866
	2b	6m Mist Net SP5327125893
	3b	6m Mist Net SP5331725942
	4b	12m Mist Net SP5338225986
	5b	Harp Trap SP5348726125
26-27.08.25	1a	Harp Trap SP5348226124
	2a	Harp Trap SP5337725991
	3a	9m Mist Net SP5352926138
	4a	12m Mist Net SP5342626003
	1b	Harp Trap SP5389624072
	2b	12m Mist Net SP5392024054
	3b	4m Mist Net SP SP5405024145
	4b	12m Mist Net SP5411824187
	5b	Harp Trap & 9m Mist Net SP5409724207

3.53 Nets and traps were set simultaneously within three woodland blocks where it was considered in the surveyor's professional judgement that there was a good chance of catching commuting barbastelle bat. Nets were set at either right-angles to woodland edges or underneath overhanging tree branches where commuting bats would be forced to a lower flight height and where the mist net pole could be hidden or disguised by vegetation to maximise the chance of capture. Trapping locations also included rides and clearings within the woodlands with poles disguised by tree stems. Other nets were set running longitudinally along the hedgerows within existing hedgerow gaps. The use of nets of differing lengths afforded flexibility in net layout, with the shorter net size being favoured for smaller gaps.

Photographs 1 and 2 showing two example harp trap placements.

3.54 The traps were opened at dusk once the songbird activity had ceased to a level that was deemed safe to open the traps, based on professional judgement. The equipment was left in place and monitored continuously through the night.

3.55 Harp traps were used in conjunction with Peersonic acoustic lures with a range of barbastelle bat social calls being emitted throughout the trapping periods along with various other species known to be successful at attracting barbastelle8. The lure was set at one end of the trap rather than straight-on as this method is considered to have a higher success rate as bats find it more difficult to identify the location of the sound source. Nets were opened at sunset and trapping commenced until bat activity ceased in the early hours of the morning. If bat activity did not cease, then trapping continued through the night until dawn.

3.56 During the surveys, any bats caught were identified in the hand to species level according to Dietz et al.9,10 using biometric features, and each bat was examined to ascertain its breeding status before being released. Weather conditions are provided in Table 10.

Table 10- Trapping Survey Details – Survey Conditions

Date	Sunset	Traps Closed	Start Temp ˚C	End Temp ˚C	Moon Phase	Wind (Beaufort)	Rain
28-29.05.25	21:23	03.40	17	12.2	3%	2- Light	0
23-24.07.25	21:14	03:25	19	14	2%	2- Light	0
28-29.07.25	21:19	03:20	19	15	15%	2 - Light	0
26-27.08.25	20:06	04:00	20	16	11%	2- Light	0

Limitations

3.57 Full internal access was not available to some of the farm units due to unsafe sections including collapsing roof and walls, resulting in a health and safety constraint. These sections were instead subject to additional survey effort during nocturnal surveys to ensure the survey data collected was sufficient to determine the presence/ likely absence of bats.

3.58 On occasion there was an unavoidable minor delay between the end of a flightline activity survey and the start of the subsequent walked transect as the surveyors made their way to the start of the transect route. All surveys monitored bat activity across a minimum of two hours however, therefore it is considered that despite minor gaps the dataset encompasses an accurate representation of bat activity across the Site.

3.59 Owing to the difficulty of detecting brown long-eared bats due to the low volume of the calls of this species it is considered that the nocturnal data will represent an underestimation of brown long-eared bat activity levels and numbers present.

3.60 Where bat calls could not be identified to species level, for example due to lower recording quality or where there are close similarities between species' echolocation calls (particularly for *Myotis* sp. and *Nyctalus* sp. bats) making a definite identification difficult, contacts were identified to family only.

3.61 The SM4 BAT FS detector records sound files of up to 15 seconds in length before a new file is created (and the SM2BAT+ detector (used during surveys in 2018-2022) 12 seconds in length). The analysis of these files recorded can however highlight the presence of more than one bat if these are recorded simultaneously on the same sound file. It is not possible however to determine whether consecutive sound files have been recorded as the result of multiple bats passing the detector, or by one bat repeatedly triggering the detector as it forages in close proximately for an extended period. Therefore, each sound file is counted as a single bat registration, and the number

[8] Miller, H. (ed.) 2011. *Bechstein's Bat Survey Final Report* September 2007-September 2011. The Bat Conservation Trust, London.
[9] Dietz, C. & Kiefer, A. 2016. *Bats of Britain and Europe*. Bloomsbury.
[10] Dietz, C., von Helversen, O. & Nill, D. 2009. *Bats of Britain, Europe & Northwest Africa*. A&C Black.

of bat registrations recorded per unit time provides an indication of the relative importance of the location sampled by the detector, rather than a precise count.

3.62 Two instances of technical failure were noted, where the static detector at location J failed to record any activity data in July, and the static detector at location K failed during the September monitoring, representing a 2 in 150 failure rate (1.3%).

3.63 It is considered that the overall dataset is representative of the level of bat activity occurring within the site, that an appropriate level of detail has been recorded to enable an assessment of bat activity within the Application Site and immediate area, and that survey constraints have had no significant detrimental impact on the data quality or on the robustness of the conclusions informed by these.

4.0 RESULTS

Desk Study

4.1 No statutory designated sites of international importance for bats occur within 15km of the application area.

4.2 Bat records returned from within 2km of the Application Site included field records of common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle, Nathusius' pipistrelle *P. nathusii*, brown long-eared bat, Daubenton's bat *Myotis daubentonii*, *Myotis* sp., noctule, Leisler's bat *Nyctalus leisleri*, barbastelle, and serotine *Eptesicus serotinus* (see Figure 1b within the Ecological Appraisal Report, Appendix ES.6.1).

4.3 A review of documentation submitted for a previous planning application within the Main Site identified a brown long-eared bat roost (feeding remains and droppings) and a possible *Pipistrellus* sp. roost (droppings) at the western end of building B1d, both recorded in 2008. No bats were recorded emerging from on-site buildings during nocturnal surveys undertaken at the time.

Previous Site Survey (See Appendix B)

4.4 The following section provides a summary of the previous survey work undertaken across the Application Site between 2018 and 2023 and hence reflect the extent of the area under consideration for the OxSRFI and associated zones of influence at that time. For full results see Appendices D and E.

Trees

4.5 A total of 70 trees within the Site were assessed as having potential to support roosting bats on the basis of ground-based inspections. Subsequent aerial inspections and nocturnal surveys of trees likely to be impacted by the proposals identified 23 trees with 'low' suitability[11] to support bats, and 10 were assessed as having 'moderate' suitability. No trees with 'high' potential to support roosting bats were identified within the footprint of the proposed works. The remaining trees were either located outside of the works area or were downgraded to negligible roost potential following detailed survey.

Buildings

[11] In accordance with the terminology of the 3rd Edition of the BCT Guidance, current at the time of earlier surveys. These classification categories have since been superseded.

4.6 Twelve buildings (B1-B12) were identified within the Application Site, some of which had multiple sections (1a, 1b etc). [redacted].

4.7 Nocturnal surveys in 2019 and 2021 recorded small numbers of individual common pipistrelle bats entering and emerging from roosts associated with the third-floor dormer window and chimney base of building section B1a. Evidence of roosting bats was also recorded within building section B1d in the form of *Pipistrellus* sp. and brown long-eared bat droppings, feeding remains, and a single common pipistrelle returning to roost under the eaves during survey in 2021. Building B1 was therefore confirmed to support a brown long-eared bat feeding roost and a small number of occasional (non-maternity) common pipistrelle roosts, each used by individual, or small numbers of bats.

4.8 [redacted] Nocturnal surveys undertaken in summer 2022 recorded small numbers of individual common pipistrelle entering and emerging from the two-storey roof structure and the flashing/base of the eastern chimney of Building B10. This building was therefore confirmed to support occasional (non-maternity) common pipistrelle roosts, each used by individual, or small numbers of bats.

Activity Surveys

4.9 The Application Site was dominated by arable land and grazed neutral grassland considered to be of negligible value to foraging and commuting bats. Habitats providing foraging and commuting opportunities for bat species were less extensive within the Application Site and comprised woodlands, hedgerows, scrub, trees and ponds.

4.10 Site surveys recorded the following bat species using the on-site habitats: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle bat, *Myotis* sp., noctule/*Nyctalus* sp., barbastelle, brown long-eared bat, and serotine. This species assemblage is considered closely similar in composition to that described by the desk study data, with the exception that the desk study had additionally identified the presence of Daubenton's bat locally.

4.11 Common pipistrelle is a very common and widespread bat species within the UK and was the most frequently encountered across the Application Site during both the transect survey and static detectors surveys in 2018-2022. Soprano pipistrelle, noctule, *Nyctalus* sp. and *Myotis* bats also frequently utilised the habitats present. Barbastelle bats were recorded during only two of the 17 transect surveys, with activity comprising six registrations within the Main Site in September 2020 and two registrations along the Gagle Brook in May 2022.

4.12 Low numbers of barbastelle were similarly recorded by the static detector survey, together with very low numbers of Nathusius' pipistrelle (two registrations in July 2018 and two more in June 2021) and serotine (April 2020 and July 2021 only).

4.13 The highest levels of activity were associated with the woodland edges, mature hedgerow boundaries throughout the Application Site, treelines and wooded brook corridors. Notable foraging/flight lines recorded included the Gagle Brook corridor and other woodland edge habitats and mature hedgerows throughout the Application Site.

Field Survey 2025

Tree Assessment (Figure 3, Appendix C)

Ground-based and Aerial Tree Assessments

4.14 During this survey 28 trees were identified as having features which provided suitable bat roosting opportunities. Details and descriptions of trees and their potential to support a bat roost are provided in Table 10 and Appendix A.

Aerial Tree Assessment

4.15 A total of 28 trees were subjected to an aerial assessment in 2025. Of these, trees T7, T8, T13, T16, T3c, T50, T54, N4, D2 and ST1 were categorised as PRF-I and trees T2, T53 and T55 were categorised as PRF-M. Each feature was assessed and the tree category updated as detailed in Appendix A.

4.16 Table 11 summarises the results of the aerial tree surveys (see Appendix A for further details).

Table 11: Aerial Tree Assessment Survey Results

Tree Ref	Potential to support roosting bats during aerial inspection	Roost recorded
T2	PRF-M – 4 features were identified during this assessment 2x PRF-M on the eastern aspect, 1x PRF-I also on the eastern aspect and 1x PRF-I on the western aspect.	No
T7	PRF-I – A single PRF-I feature was identified on the southern aspect.	No
T8	PRF-I - 2 features were identified during this assessment 1x PRF-1 on the eastern aspect and the remaining feature on the northern aspect had negligible potential.	No
T13	PRF-I - 3 features were identified during this assessment 1x PRF-I on the western aspect and 2x features on the southern and southwestern aspect that had negligible potential.	No
T15	This tree was considered unsafe to climb and was subject to 3 nocturnal surveys.	N/A
T16	PRF-I - A single PRF-I feature was identified on the northern aspect.	No
T17	This tree was considered unsafe to climb and therefore was subject to 3 nocturnal surveys.	N/A
T18	This tree was considered unsafe to climb and therefore was subject to 3 nocturnal surveys.	N/A
T33	This tree was considered unsafe to climb and therefore was subject to 3 nocturnal surveys.	N/A
T3c	PRF-I - 4 features were identified during this assessment 1x PRF-I on the eastern aspect, 1x PRF-I on the southern aspect and 2x features on the southern aspect that had negligible potential. .	No
T50	PRF-I - A single PRF-I feature was identified on the western aspect.	No
T55	PRF-M - 4 features were identified during this assessment 2x PRF-M on the northern and western aspect, 2x PRF-I also on the northern aspect.	No
T51	This tree was considered unsafe to climb and therefore was subject to 3 nocturnal surveys.	N/A
T53	PRF-M - 3 features were identified during this assessment 1x PRF-M on the southern aspect 1x PRF-I on the northern aspect and the remaining feature on the western aspect had negligible potential.	No
T54	PRF-I - A single PRF-I feature was identified on the northern aspect.	No
Ts5	This tree was considered unsafe to climb and therefore was subject to 3 nocturnal surveys.	N/A
N4	PRF-I - A single PRF-I feature was identified on the southwestern aspect.	No
D2	PRF-I - A single PRF-I feature was identified on the northern aspect.	No
ST1	PRF-I - A single PRF-I feature was identified on the southern aspect.	No

4.17 Following completion of the aerial assessment, trees T3, T5, T14, T25, T32, T57, Ts2, N3 and REL1 were categorised as providing negligible/no habitat features suitable to support roosting bats.

4.18 Trees T15, T17, T18, T33, Ts1 and Ts5 were considered unsafe to climb and were therefore subject to nocturnal surveys as detailed in the section below.

Nocturnal Tree Surveys (Appendix A, Figure 2)

4.19 The results of the nocturnal surveys of T15, T17, T18, T33, T51 and Ts5 are summarised below.

- **Survey 1, 03/06/25 -** No evidence of bat roosts recorded in association with trees surveyed (T15, T17, T18, T33, T51 and Ts5). Other bat activity noted comprised common pipistrelle and noctule bats foraging along commuting routes adjacent to tree groups.
- **Survey 2, 01/07/25 -** No evidence of bat roosts recorded in association with trees surveyed (T15, T17, T18, T33, T51 and Ts5). Bat activity comprised mainly common pipistrelle and soprano pipistrelle foraging near the trees. A barn owl *Tyto alba* was observed nesting within tree T17 at 21:47.
- **Survey 3, 29/07/25 -** No evidence of bat roosts recorded in association with trees surveyed (T15, T17, T18, T33, T51 and Ts5). Other bat activity comprised small numbers of common pipistrelle, noctule, brown long-eared bat and *Myotis* sp. commuting and foraging in the vicinity of target trees.

Building Assessment (Figures 3 and 4, Appendices C and D)

Daytime Assessment (external/internal)

4.20 The 2025 building survey encompassed the thirteen buildings described within Table 12, with detailed results in Appendix C and site photos provided in Appendix D. Overall, the roost potential categories remained closely similar to those recorded during previous surveys.

Table 12 – Building description summary 2025.

Ref	Summary Description	Roost potential	Comments Including Previous Findings
B1a	[redacted]		
B1b	A single storey brick outhouse connected to B1a on the western aspect. A hipped slate tiled roof with a concrete ridge is present. Potential bat access points in walkway, brickwork and tiles. Contains inaccessible roof voids, known to be felt underlined.	Moderate	-
B1c	Two storey brick-built barn. Pitched slate tile roof present. Potential bat access points among tiles, missing mortar gaps in brickwork, flashing and eaves. Internally there is an inaccessible roof void.	Moderate	-

Ref	Summary Description	Roost potential	Comments Including Previous Findings
B1d	Single storey brick built stable with pitched tile roof. Potential bat access among tiles, windows/doors, eaves and at gable end. Internally no roof voids present, with exposed lined roof and timber beams.	Confirmed roost	Single common pipistrelle recorded roosting during nocturnal surveys in 2021. Brown long-eared bat feeding perch, 1 x fresh BLE dropping in 2018. No evidence in 2025.
B1e	Single storey lean-to with slate tiled roof. Potential bat access points in windows, flashing and doorways. Roof tiles well-sealed. Internally B1e had timber underlining and no roof void.	Low	-
B1f	Single storey lean-to with slate tiled roof. Potential bat access under roof tiles, though generally well-sealed. Internally there was a plaster ceiling flush to roof with no roof void.	Low	-
B2a	One-storey outhouse of brick construction with a hipped roof that is slate tiled with a concrete ridge. Potential bat access between roof tiles, doorways/ windows, eaves, gaps in brickwork. Internally no underlining or roof void with relatively light and open interior.	Low	-
B2b	A brick lean-to on the western aspect of building B2a. The roof is comprised of corrugated metal and Perspex panels. Potential bat access points noted along the walkway and around doorway. Light and open interior with no roof void or suitable bat features.	Negligible	-
B3a	A single-storey stone barn with a partially collapsed pitched roof comprising corrugated felt roofing panels. Potential bat access points between roof panels. Internally was light and open due to open windows and collapsed roof. Some limited gaps in internal stonework.	Low	-
B3c	A single-storey timber barn with a pitched corrugated metal roof. Potential bat access points due to missing wood panels. Internally no roof void present, with exposed roof beams and relatively light and open interior.	Negligible	-
B3d	A large stone barn in a state of disrepair. A pitched roof with corrugated panels was present, but much of this has or is about to collapse. Potential access points comprised open roof/doorways/windows. Internally the building was light and open with no enclosed roof void. Occasional gaps in timber roof beams and stonework provided very limited roost potential.	Low	-
B3e	A single-storey stone barn with a pitched slate tiled roof. Potential bat access under tiles, and eaves. No internal access possible but a roof void likely to be present.	Moderate	-
B3f	The building is a single storey stone barn with a pitched slate tiled roof. Potential bat access points via the tiles, missing mortar, in barge board, and eaves. Internally there was a plaster ceiling with an inaccessible roof void.	Moderate	-
B3g	A lean too on the northern aspect of B3d, with a corrugated metal roof and metal frame. Potential bat access limited to open sides. Light and open interior with no roof void or suitable bat features.	Negligible	-
B3h	A lean-to on the northern aspect of B3d, with a corrugated	Negligible	-

Ref	Summary Description	Roost potential	Comments Including Previous Findings
	metal roof and metal frame. Potential bat access limited to open sides. Light and open interior with no roof void or suitable bat features.		
B4	Aircraft hangar style building constructed from single sheets of metal corrugated panels and breeze block. Limited bat access points beneath facias and in panels and doorway. Light and open interior with no roof void or suitable bat features.	Negligible	-
B5	A two-storey barn of stone construction. A pitched corrugated metal roof is present. Potential bat access points around doorways, windows, eaves, doorways and gaps in roof panels. Internally no under-lining is present in most of the building, which has exposed roof sheets and roof beams. Western area had some plastic sheeting lining the roof and beams.	Confirmed roost	c.20 x BLE droppings of various ages on stairs and in top floor. c.10-15 x suspected common pipistrelle droppings within open 2nd floor area to west. Barn owl pellets inside northern open section. In 2018 single brown long-eared bat present on ridge at southeast corner of roof void and c.60 BLE droppings.
B6	Large metal frame barn with breeze block and timber construction. Stone and timber built lean-to present. Potential bat access points via the open sides. Light and open interior with no roof void or suitable bat features.	Negligible	-
B7	Single storey outbuilding of stone construction and a metal frame. A sloping metal corrugated roof is present with Perspex panels also present. Potential bat access points in open sides and via fascias. Light and open interior with no roof void or suitable bat features.	Negligible	-
B8	A large agricultural structure constructed from concrete and metal corrugated sheeting supported on a metal frame. Pitched corrugated metal roof with a metal facia and soffit box. Cement fibre barge boards are also present with large gaps beneath. Potential bat access points in open sides. Light and open interior with no roof void or suitable bat features.	Negligible	-
B10	Pair of semi-detached two-storey dwellings (Ashgrove Cottages) of brick and stone construction with a two-storey perpendicular section to the rear leading to an attached single storey brick outbuilding. The pitched roofs are slate tiled. Potential bat access points among the roof/ridge tiles, gaps in stonework and within missing mortar. Two main roof voids with lining and timber roof beams. No void within lean-to with exposed roof felt and beams.	Confirmed roost	5 x pipistrelle dropping scattered in small section of roof to north. 10 x pipistrelle droppings within roof void adjacent the party wall. Pre-2025 activity surveys recorded the presence of a common pipistrelle (non-breeding) day roost.
B11	Concrete garage with a corrugated composite panel flat roof. Solid timber frame to garage door. Potential bat access between concrete panels. No roof void internally. Roof lined with timber boarding.	Low	-
B12	Large metal agricultural style building on a concrete/ breeze block base. Corrugated sheet metal roof with multiple	Negligible	-

Ref	Summary Description	Roost potential	Comments Including Previous Findings
	skylights. Potential bat access points behind the fascias and barge boards though these don't appear to access deeper features. Light and open interior with no roof void or suitable bat features.		
B13	Single storey, prefabricated security/site office. No potential access points or internal roosting features of note.	Negligible	-
Ardley Tunnel	A c.1.05km long Victorian brick tunnel in active use along the Chiltern Main Line to the northwest of the Main Site. The southeastern section (to c.375m) is encompassed by the Application Site. Water ingress has over time resulted in significant calcium carbonate deposits, forming curtain-like structures over sections of the tunnel walls. These include linear crevices however these are considered unsuitable to support roosting bats due to the very high moisture levels and presence of running water over the features.	Negligible	-

Hibernation Survey

4.21 Several of the buildings present within the Main Site had some limited potential to support hibernating bats, primarily the units with thick stone walls or lined roofs, however the majority of the barns and industrial units had much more limited value.

4.22 No evidence of bat activity was recorded during the hibernation assessments undertaken in January and February 2025.

Nocturnal survey (Figure 4)

4.23 The nocturnal surveys of buildings identified the following roost sites:

- **Building B5** - Emergence (09/06/25 at 21:31, NVA 9) Common pipistrelle emerged from a hole in the eastern external wall at the top of a timber window frame.
- **Building B10** - Emergence (09/06/25 at 21:38, NVA IR2) Common pipistrelle emerged from the chimney brickwork.
- **Building B10** - Emergence (08/07/25 at 21:45, NVA 8) Common pipistrelle emerged from southeast eaves at the roof ridge. Emergence (08/07/25 at 22:17, NVA 7) Common pipistrelle emerged from the eastern chimney blockwork.
- **Building B1a** - Emergence (05/08/25 at 21:02-04, camera NVA IR2) Common pipistrelle from near the chimney on B1a where it connects to B1c.
- **Building B1d** - Emergence (05/08/25 at 21:46, NVA 3) Common pipistrelle emerged out of barn door on northern aspect.
- **Building B1f** - Emergence (05/08/25 at 21:04, NVA 13 no recording) 2x common pipistrelle emerged from under an area of lifted lead flashing where the roof of B1f joins the wall of B1a on the northern aspect.
- **Building B3f** - Emergence (05/08/25 at 21:11, NVA IR3) Common pipistrelle emerged from the eaves on the southern aspect.

4.24 The results of the nocturnal surveys are provided below and in Figure 4.

- **Survey 1, 09/06/25 –** The initial building survey in 2025 recorded two common pipistrelle emergences, once each from buildings B5 and B10. The first emergence was recorded at 21:31 by surveyor S6 from a hole within a timber window frame on the eastern aspect on

building B5. The second emergence was recorded at 21:38 from the chimney on building B10 by surveyor S3. A single common pipistrelle was also observed entering a crevice roost space behind guttering on building B1d at 22:47. Bat foraging and commuting activity in the immediate area mainly comprised common pipistrelle, but with soprano pipistrelle and noctule also regularly encountered, and brown long-eared bat and *Myotis* sp. recorded occasionally. Five barbastelle calls were recorded, at 22:00 and 22:36 at the eastern end of building B1d, and three more centrally within the farmstead, in the vicinity of B3e (at 22:37, 22:41 and 22:51).

- **Survey 2, 08/07/25 -** During the survey two common pipistrelle was observed emerging from building B10. The first emergence was recorded at 21:45 from surveyor S2 from a lifted ridge tile and the second emergence was recorded at 22:17 from surveyor S3 from a gap within the chimney brickwork. Each emergence was recorded as being a common pipistrelle day roost. Bat activity in the vicinity of the buildings again largely comprised foraging and commuting common pipistrelle, but also included occasional soprano pipistrelle, brown long-eared bat and *Myotis* sp. with multiple bats recorded foraging among trees and roadside hedgerow south and east of Ashgrove Cottages
- **Survey 3, 05/08/25 –** During the survey five common pipistrelle emergence were observed from buildings B1a, B1f, B3f and B1d. The first emergence was recorded at 21:02 by surveyor S15 from the side of the chimney on building B1a, the second emergence recorded two common pipistrelles emerging at 21:04 from under the lifted lead flashing on the northern aspect of building B1f. The third emergence was recorded at 21:11 by surveyor S10 from the eaves of building B3f on the southern aspect of the building. The final emergence was recorded at 21:46 by surveyor S18 from the open barn door of building B1d. Each emergence was recorded as being a common pipistrelle day roost. Bat foraging and commuting activity in the vicinity of surveyors largely comprised common pipistrelle, with occasional soprano pipistrelle and *Myotis* sp. and a single serotine pas at 22:12.

Activity Surveys

Flightline and Walked Transect Surveys

4.25 Each of the flightline and walked transect surveys undertaken is summarised below. To aid description of activity within a given area this data has been grouped by transect route (1-9). Species considered infrequent or rarely occurring within the county are highlighted in **bold.**

<u>Route 1</u>

4.26 Table 13 summarises those species recorded within the area encompassed by the northernmost flightline and transect route survey area (Route 1) including any areas of notable activity.

Table 13: Route 1 Transect Summary (see Figures 5a and 6a)

Survey	Number of contacts on flightline survey	Notable activity on flightline survey	Number of contacts on walked transect	Notable activity on walked transect survey	Species recorded
April	11	Only two visual bat contacts, common pipistrelle moving along woodland W10 to south. No visual contacts are summarised in the box to the right.	0	n/a – not bats	Common pipistrelle, soprano pipistrelle, *Pipistrellus* sp., *Myotis* sp., noctule and brown long-eared bat.
May	8	One visual contact of noctule in adjacent arable field east of woodland W8.	7	Bat activity was noted throughout the route with three common pipistrelle recorded along hedgerow H30 and the edge of woodland W8 to the northwest.	Common pipistrelle, soprano pipistrelle, *Pipistrellus* sp., *Myotis* sp. and noctule.
June	5	No visual activity. Common pipistrelle and noctule bats recorded close to both flightline locations.	9	Common pipistrelle, soprano pipistrelle and *Myotis* sp. recorded. Most bat activity occurred along H30 and the edge of W8 to the northwest. Single soprano pipistrelle along W10. No bat activity recorded within central areas.	Common pipistrelle, soprano pipistrelle, *Pipistrellus* sp., *Myotis* sp. and noctule.
July	2	Common pipistrelle and noctule observed in field to north of woodland W10. No other bat activity noted.	3	Limited bat activity noted along the transect route, with no discernible concentrations of activity.	Common pipistrelle, soprano pipistrelle and noctule.
August	1	Noctule observed commuting along field boundary.	6	Limited bat activity was noted throughout the survey with only common pipistrelle recorded. Contacts occurred along hedgerows H35 and H36 and the southern edge of woodland W8.	Common pipistrelle and noctule.
Sept	22	Common pipistrelle, soprano pipistrelle, and noctule observed commuting along the eastern edge of W8. Single noctule observed flying north of flightline location B. Non-visual bat activity comprised a mix of species including three **barbastelle** contacts near flightline location A.	16	Bat activity was noted centrally and to the west/northwest of the transect route, with concentrations along woodland edge W8. Species recorded mostly comprised common pipistrelle, noctule, and soprano pipistrelle. Single **barbastelle** contacts were recorded along each of woodland W8 and hedgerow H34.	Common pipistrelle, soprano pipistrelle, noctule, *Myotis* sp., and **barbastelle.**

4.27 Bat activity within the area encompassed by Route 1 was largely located towards the north western hedgerow H30, perimeter of woodland W8, and W10 to the south. Limited activity from foraging and commuting bats was also noted around field perimeters with very limited bat activity noted within field interiors. No notable species (barbastelle, serotine) were recorded in this area.

Barbastelle bat was recorded during the September survey both during the flightline section of the survey (alongside woodland W8) and the walked transect (alongside woodland W8 and adjoining hedgerow H34).

Route 2

4.28 Table 14 summarises the bat species recorded within the area encompassed by the flightline and transect of Route 2, including any areas of notable bat activity.

Table 14: Route 2 Transect Summary (see Figure 5b and 6b)

Survey	Number of contacts on flightline survey	Notable activity on flightline survey	Number of contacts on walked transect	Notable activity on walked transect survey	Species recorded
April	13	Single noctule observed from Location D commuting in field to east of offsite woodland. No other visual contacts but a mix of common pipistrelle, *Myotis* sp., and soprano pipistrelle heard.	4	Activity concentrated around woodland belts and block in south of site (W9 and W10) with common and soprano pipistrelle at this location. Single common pipistrelle contact in north of site along edge of offsite woodland block.	Common pipistrelle, soprano pipistrelle, *Myotis* sp. and noctule.
May	9	No visual contacts. Single noctule heard at Location C. Common and soprano pipistrelle and brown long-eared bat heard at Point D adjacent to offsite woodland.	12	Bat activity encountered along much of the walked route, including four pipistrelle contacts along W10. Single **barbastelle** contact on eastern edge of offsite woodland in south of route.	Common pipistrelle, soprano pipistrelle, *Myotis* sp., noctule, brown long-eared bat and **barbastelle.**
June	1	No bats seen, single noctule heard in southern field near Location D.	16	Bat activity largely along central hedgerows H34, and H59 and woodlands W9 and W10, comprising a mix of common and soprano pipistrelle and *Myotis* sp. Some limited activity noted in other areas.	Common pipistrelle, soprano pipistrelle, *Myotis* sp. and noctule.
July	15	Two noctules seen foraging/commuting near hedges and woodland edge near Location D. Non-visual contacts were a mix of common and soprano pipistrelle, noctule, and *Myotis* sp.	1	A single noctule noted along hedgerow H34 towards centre of area.	Common pipistrelle, soprano pipistrelle, *Myotis* sp. and noctule
August	4	Single common pipistrelle observed commuting/foraging along a row of individual trees near point location C. Common pipistrelle (1) and noctule (2) non-visual contacts.	19	Bat activity was noted throughout the transect route with higher concentrations along the western edge of woodland W8. Species recorded comprised common pipistrelle, soprano pipistrelle, noctule, and a	Common pipistrelle, soprano pipistrelle, noctule, and *Myotis* sp.

Survey	Number of contacts on flightline survey	Notable activity on flightline survey	Number of contacts on walked transect	Notable activity on walked transect survey	Species recorded
				single *Myotis* sp. registration.	
Sept	17	Single noctule, soprano pipistrelle, and *Myotis* sp. bats observed north of off-site woodland W9. Non-visual contacts comprised a noctule at point location C, and a mix of species near point location D including a single **barbastelle** registration, and two *Nyctalus* sp. calls.	2	Bat activity was limited, comprising single *Myotis* sp. and **barbastelle** registrations recorded north of off-site woodland W9.	Common pipistrelle, soprano pipistrelle, noctule, *Myotis* sp., brown long-eared bat, *Nyctalus* sp., and **barbastelle.**

4.29 Bat activity along Route 2 appeared largely concentred along the central hedgerow, treeline and woodland corridors, though bat activity was also noted along other hedgerows and treelines throughout the route. One instance of **barbastelle** was noted along the edge of an offsite woodland in the south during the June 2025 survey, and the species was noted as single registrations during the flightline and walked transect components of the September survey alongside off-site Birch Spinney (woodland W9).

Route 3

4.30 Table 15 summarises the bat species recorded within the area encompassed by the flightline and transect of Route 3, including any areas of notable bat activity.

Table 15: Route 3 Transect Summary (see Figure 5c and 6c)

Survey	Number of contacts on flightline survey	Notable activity on flightline survey	Number of contacts on walked transect	Notable activity on walked transect survey	Species recorded
April	6	No visual contacts. Activity concentred in Location E to southwest (on edge of W7) with common pipistrelle, *Myotis* and noctule. Only one common pipistrelle heard to east adjacent W5.	4	Activity concentred around two locations. Brown long-eared bat and *Myotis* species recorded along edge of W5 to east, and noctule and common pipistrelle along edge of W7 to south.	Common pipistrelle, soprano pipistrelle, *Myotis* species, noctule and brown long-eared.
May	14	Common and soprano pipistrelle seen flying within field edge near Location F with noctule along W7 near location E. Mix of species in non-visual data.	9	Activity spread throughout Site with a general trend towards W5 and H15 in east of area, and unnamed woodland edge/H23 in north/northwest. Activity dominated by common pipistrelle. **Barbastelle** recorded along southern edge of H27 in south.	Common pipistrelle, soprano pipistrelle, *Myotis* species, noctule and brown long-eared bat and **barbastelle.**
June	5	Common pipistrelle	5	Bat activity primarily noted	Common

Survey	Number of contacts on flightline survey	Notable activity on flightline survey	Number of contacts on walked transect	Notable activity on walked transect survey	Species recorded
		seen flying along field edge near Location F near W5. **Serotine** bat heard near same location (near W5). Other bat activity a mix of common pipistrelle and noctule.		in the southern half of the route, including multiple common pipistrelle contacts along edge of W7 in southwest.	pipistrelle, soprano pipistrelle, noctule, brown long-eared bat and **serotine.**
July	19	Common pipistrelle seen flying near W5/H15. Mix of common and soprano pipistrelle, noctule and brown long-eared bat between Locations E and F.	2	Limited bat activity noted. Two common pipistrelle contacts recorded near W5.	Common pipistrelle, soprano pipistrelle, noctule and brown long-eared bat.
August	7	Common and soprano pipistrelle observed flying along woodland edge habitat at W5 and along hedgerow H5. Non-visual activity comprised a single common pipistrelle and noctule registration near point location F, and a single soprano pipistrelle contact at point location E.	14	Bat activity was noted throughout the transect route and largely comprised common pipistrelle. Two *Myotis* sp. were recorded along the offsite section of hedgerow H23, and one alongside hedgerow H13. Two **barbastelle** contacts were detected, one within grassland G1 and one nearby along hedgerow H13.	Common pipistrelle, soprano pipistrelle, noctule, *Myotis* sp., and **barbastelle.**
Sept	20	Two noctule observed foraging/commuting north of woodland W7 near point location E, and one noctule close to point location F. Non-visual contacts included one **barbastelle** registration at flightline point location F adjacent woodland W5.	5	Bat activity was limited to the south of the transect route, along hedgerows H25a, H13, and offsite H23. A single **barbastelle** registration was recorded along hedgerow H25a, north of woodland W7.	Common pipistrelle, soprano pipistrelle, noctule, brown long-eared bat, and **barbastelle.**

4.31 Bat activity along Route 3 was generally located towards the woodland blocks W5, W7 and off-site to the northwest and along connecting hedgerows including H15, with limited activity noted in other areas. A **serotine** was recorded near W5 in the east in June. **Barbastelle** was recorded as single registrations along a H27 towards the centre of the route in May, within grassland G1 and along hedgerow H13 in August, and adjacent woodlands W5 and W7 in September.

Route 4

4.32 Table 16 summarises the bat species recorded within the area encompassed by the flightline and transect of Route 4, including any areas of notable bat activity.

Table 16: Route 4 Transect Summary (see Figure 5d and 6d)

Survey	Number of contacts on flightline survey	Notable activity on flightline survey	Number of contacts on walked transect	Notable activity on walked transect survey	Species recorded
April	20	Common and soprano pipistrelle seen flying in field south of Location G (hedgerow H20) and brown long-eared bat seen flying within treeline adjacent Location H.	2	Activity limited to single common pipistrelle along hedgerow H21 in southeast of transect route and G87 to the northwest.	Common pipistrelle, soprano pipistrelle, *Myotis* sp., noctule and brown long-eared bat.
May	9	Common pipistrelle seen flying in field south of Location G/H20. Other non-visual activity comprised foraging and commuting common pipistrelle and noctule. No bat activity recorded at Location H.	28	Bat activity spread throughout survey route particularly around Ashgrove Farm buildings and garden. This included common and soprano pipistrelle, noctule, *Myotis* sp., and brown long-eared bat along H8 and W1 northwest of the farm complex, and common pipistrelle, noctule, *Nyctalus* species and ***Nyctalus*/*Eptesicus*** species noted along tree group G80 to the northeast of farm.	Common pipistrelle, soprano pipistrelle, noctule, *Nyctalus* sp., *Myotis* sp. and ***Nyctalus*/*Eptesicus*** sp.
June	6	Common pipistrelle seen flying along field boundary / hedgerow H20 west of Location G.	22	Bat activity spread throughout survey route, with general trend towards the northern compartments including along H4, H5, H8 and G87.	Common pipistrelle, soprano pipistrelle, *Myotis* sp. noctule and *Nyctalus* sp.
July	4	Common and soprano pipistrelle seen flying along field boundary east of Location G. Noctule seen flying in field south of both Locations G and H.	3	Three contacts all in south of area, two adjacent to the farm structure to south and an additional bat along hedgerow H11 to south. All common or soprano pipistrelle.	Common pipistrelle, soprano pipistrelle, noctule.
August	6	Common and soprano pipistrelle seen flying along the field boundary east of Location G. Non-visual records comprised noctule and common pipistrelle.	15	Bat activity mainly located near Ashgrove Farm buildings and gardens, and alongside hedgerows H1 and H5. Species comprised common pipistrelle, soprano pipistrelle, *Myotis sp.* brown long-eared bat, and noctule.	Common pipistrelle, soprano pipistrelle, *Myotis* sp., noctule, and brown long-eared bat.
Sept	16	Common and soprano pipistrelle observed flying along field boundary east of Location G. Three noctule contacts observed commuting/foraging	9	Bat activity was limited to the central and western sections of the transect route, with the majority identified as common pipistrelle. Two **barbastelle** contacts were recorded at the edge of	Common pipistrelle, soprano pipistrelle, noctule, *Myotis* sp., brown long-eared bat, and **barbastelle.**

Survey	Number of contacts on flightline survey	Notable activity on flightline survey	Number of contacts on walked transect	Notable activity on walked transect survey	Species recorded
		within arable field near point location H.		woodland W6 and along hedgerow H6.	

4.33 Activity along Route 4 was generally distributed throughout the area, but with activity regularly recorded in association with the Ashgrove Farm buildings in the centre and with H8, W1, G80 and H5. Notably an unidentified *Nyctalus*/***Eptesicus*** species (single contact) was noted along tree group G80 northeast of the farm in May. This could be either the more common noctule bat or the less common serotine however species identification could not be confirmed from a single contact. Single **barbastelle** contacts were recorded during the September transect north of the farm buildings and along hedgerow H6 between the rail track and former airfield.

Route 5

4.34 Table 17 summarises the bat species recorded within the area encompassed by the flightline and transect of Route 5, including any areas of notable bat activity.

Table 17: Route 5 Transect Summary (see Figure 5e and 6e)

Survey	Number of contacts on flightline survey	Notable activity on flightline survey	Number of contacts on walked transect	Notable activity on walked transect survey	Species recorded
April	17	Multiple common and soprano pipistrelle seen flying along field boundary and the edges of woodlands W3 and W4 north of Location J.	8	Bat activity noted along the majority of the walked route, with a slight concentration noted towards the east near to H19 and W2 and the farm buildings. Mix of common pipistrelle, soprano pipistrelle and *Myotis* sp.	Common pipistrelle, soprano pipistrelle, *Myotis* sp., noctule and *Nyctalus* species.
May	31	Noctule, and pipistrelle bats seen flying along field boundary north of W2 at Location I, with common pipistrelle seen flying along field edge north of Location J (W3 and W4). Other activity comprised a mix of common pipistrelle, soprano pipistrelle, *Myotis* sp. and noctule at both positions.	9	Bat activity concentrated towards centre and north of route, particularly around central woodland blocks W3 and W4, with noctule, common pipistrelle and soprano pipistrelle along the southern woodland edge.	Common pipistrelle, soprano pipistrelle, *Myotis* sp. and noctule.
June	8	Noctule and common pipistrelle bats seen flying in field north of Location I and Location J. Other non-visual activity comprised common pipistrelle at both locations.	7	Bat activity concentrated towards centre and south of route, particularly around central woodland blocks W3 and W4, with noctule, common pipistrelle and soprano pipistrelle along the northern edge and along H17.	Common pipistrelle, soprano pipistrelle, *Myotis* sp. and noctule
July	4	Common pipistrelle	3	Limited bat activity	Common

Survey	Number of contacts on flightline survey	Notable activity on flightline survey	Number of contacts on walked transect	Notable activity on walked transect survey	Species recorded
		flying along field edge north of Position I and, common and soprano pipistrelle bats flying in field north/northeast of Location J		recorded, with two common pipistrelle contacts along H18 and another common pipistrelle along the southern boundary.	pipistrelle, soprano pipistrelle, and noctule.
August	14	A single *pipistrellus* sp. was seen flying along the edge of woodland W2 and Ashgrove Brook. Non-visual bat activity comprised common pipistrelle, soprano pipistrelle, noctule, and *Nyctalus* sp.	16	Bat activity was limited to the central and eastern areas of the transect route. Most contacts were centred around woodlands W3 and W4, and along hedgerow H19. Single **barbastelle** registration recorded along hedgerow H5.	Common pipistrelle, *pipistrellus* sp., soprano pipistrelle, *Nyctalus* sp., noctule, *Myotis* sp., brown long-eared bat, and **barbastelle**.
Sept	21	Common pipistrelle observed on four occasions commuting/foraging along the northern edge of woodlands W3/W4. A single soprano pipistrelle was observed commuting along the edge of W2. Non-visual contacts comprised a mix of species including *Nyctalus* sp. and *Myotis* sp. recorded near point J.	11	Bat activity was noted primarily within the central section of the transect route and along hedgerows H13 and H16. With the exception of one *Myotis* sp. registration along the northern edge of woodland W3 all contacts were identified as common pipistrelle.	Common pipistrelle, soprano pipistrelle, *Myotis* sp., brown long-eared bat, noctule, and *Nyctalus* sp.

4.35 Bat activity along Route 5 tended to be associated with the central woodland blocks W3 and W4, with multiple instances of bats foraging/commuting along the woodland edges and along the connected hedgerows H17-19. Some hedgerow and treeline habitats including W2, H8 and that connect to the farm buildings complex were also regularly used. A single **barbastelle** registration was recorded along hedgerow H5 during the August transect.

Route 6

4.36 Table 18 summarises the bat species recorded within the area encompassed by the flightline and transect of Route 6, including any areas of notable bat activity.

Table 18: Route 6 Transect Summary (see Figure 5f and 6f)

Survey	Number of contacts on flightline survey	Notable activity on flightline survey	Number of contacts on walked transect	Notable activity on walked transect survey	Species recorded
April	3	Brown long-eared bats flying in field south of Location L. Single common pipistrelle heard in at Locations L and K.	0	No bats recorded.	Common pipistrelle, noctule.
May	6	Common pipistrelle seen	8	Bat contacts scattered	Common

Survey	Number of contacts on flightline survey	Notable activity on flightline survey	Number of contacts on walked transect	Notable activity on walked transect survey	Species recorded
		flying along hedgerow H6 north of Location K, with noctule and brown long-eared bat also heard (but not seen) at this location. Common pipistrelle heard at Location J.		throughout the walked route with general trend towards edge of unnamed woodland block in northwest. Mix of common pipistrelle, soprano pipistrelle and noctule.	pipistrelle, soprano pipistrelle, brown long-eared bat and noctule.
June	8	Noctule seen flying from field towards south at Location K towards H6. Common pipistrelle, soprano pipistrelle, and noctule heard but not seen at Location L.	8	Bat contacts scattered throughout the route with general trend towards edge of unnamed woodland block in northwest. Mix of common pipistrelle, soprano pipistrelle and noctule.	Common pipistrelle, soprano pipistrelle, and noctule
July	16	Common pipistrelle seen flying in field southwest of Position L. Noctule and common pipistrelle heard at both surveyor locations.	0	No bats recorded.	Common pipistrelle and noctule.
August	10	One visual record of a common pipistrelle south of point location L. Non-visual contacts at both point locations comprised common pipistrelle, noctule, and one brown long-eared bat at point L.	3	Limited bat activity was noted throughout the transect route with only three contacts recorded, two common pipistrelle and a **barbastelle**, all located south of hedgerow H88 and H40.	Common pipistrelle, noctule, brown long-eared bat, and **barbastelle.**
Sept	9	One visual common pipistrelle record and non-visual records of common pipistrelle and brown long-eared bat near point L. No bats heard or seen at point location K.	6	Bat activity comprised common pipistrelle and noctule contacts that were primarily located around the edges of Kennel Copse woodland located offsite to the west.	Common pipistrelle and noctule**.**

4.37 Activity on Route 6 was generally limited with the highest activity levels noted in association with a woodland block to the northwest, and other activity distributed throughout the walked transect route. A single **barbastelle** registration was recorded along Padbury Brook east of Kennel Copse during the August transect.

Route 7

4.38 Table 19 summarises the bat species recorded within the area encompassed by the flightline and transect of Route 7, including any areas of notable bat activity.

Table 19: Route 7 Transect Summary (see Figure 5g and 6g)

Survey	Number of contacts on flightline survey	Notable activity on flightline survey	Number of contacts on walked transect	Notable activity on walked transect survey	Species recorded
April	20	Multiple pipistrelle species seen in edge of	5	Single noctule call at the start point and common pipistrelle	Common pipistrelle,

Survey	Number of contacts on flightline survey	Notable activity on flightline survey	Number of contacts on walked transect	Notable activity on walked transect survey	Species recorded
		W11 north of Location M adjacent the off-site woodland bordering the Gagle Brook corridor, with common pipistrelle and noctule seen flying in field north and east of position N further north alongside the brook corridor. Other non-visual activity comprised a mix of common/ soprano pipistrelle, noctule and *Nyctalus* species.		and soprano pipistrelle calls recorded towards the centre and northern side of the woodland W11 where the transect route cuts through the woodland. Single brown long-eared bat registration recorded along the northern edge of the woodland. Common pipistrelle along hedgerow H57 to the south of Ardley Quarry.	soprano pipistrelle, noctule, *Nyctalus* sp.
May	21	No visual contacts. Non-visual activity comprised a mix of common and soprano pipistrelle, noctule, *Nyctalus* sp. and *Myotis* sp. at both flightline locations.	21	Bat activity was noted throughout route with a peak in activity recorded around the woodland block in the south centre of the route (W11). 11 bat contacts recorded along one edge of W11 including common and soprano pipistrelle and brown long-eared bat. Hedgerows H67 and H105 were also well-used by common and soprano pipistrelle. Similar species and noctule recorded elsewhere along the route.	Common pipistrelle, soprano pipistrelle, noctule, *Nyctalus* sp. and *Myotis* sp.
June	7	Common pipistrelle seen flying within woodland and along woodland edge habitat north of Location M. Other pipistrelle and noctule bats heard but not seen. No activity noted at flightline Location N.	26	Bat activity noted throughout the walked route but with a concentration of activity recorded around W11 in the south centre of the route. 17 bat contacts were recorded in this area including common pipistrelle, soprano pipistrelle, *Myotis* sp., brown long-eared bat and one **barbastelle** contact. Common and soprano pipistrelle activity also noted to the north of the route.	Common pipistrelle, soprano pipistrelle, noctule, *Nyctalus* sp., *Myotis* sp., brown long-eared bat, **barbastelle.**
July	12	Common pipistrelle bat seen flying north through woodland at Location M, and noctule flying north in field to northeast of this location. Common pipistrelle and noctule seen flying in fields northeast and northwest of Location N. Noctule, common pipistrelle and *Myotis* sp. also heard at Location N but no other	19	Peaks in bat activity apparent towards the central woodland block W11 and along northern boundary hedgerows H67 and 105. Common pipistrelle, soprano pipistrelle and noctule.	Common pipistrelle, soprano pipistrelle, noctule, *Nyctalus* sp. and *Myotis* sp.

Survey	Number of contacts on flightline survey	Notable activity on flightline survey	Number of contacts on walked transect	Notable activity on walked transect survey	Species recorded
		bat activity recorded at Location M.			
August	12	No visual contacts were recorded at flightline point N. Two common pipistrelle were observed flying along the field margin and off-site woodland at point M. Non-visual records comprised soprano pipistrelle, *Myotis* sp., and brown long-eared bat.	26	Bat activity was recorded throughout the transect route with concentrations observed around woodland belt bordering Gagle Brook (W11) including offsite habitat. Bat activity mostly comprised common pipistrelle with less frequent soprano pipistrelle and noctule contacts. A single brown long-eared bat and *Myotis* sp. were noted along hedgerow H103.	Common pipistrelle, soprano pipistrelle, noctule, *Myotis* sp., and brown long-eared bat.
Sept	32	Common pipistrelle, soprano pipistrelle, and a noctule were seen commuting/ foraging alongside the offsite linear woodland north of position M. Non-visual recordings comprise a mix of species including three **barbastelle** contacts near position M.	25	Bat activity was mostly noted along the edge of woodland block W11 and the adjacent offsite woodland corridor. Bat species comprised common pipistrelle, soprano pipistrelle, *Myotis* sp., and two **barbastelle** contacts located on hedgerow H67 and along the offsite woodland corridor north of hedgerow H68.	Common pipistrelle, soprano pipistrelle, noctule, *Myotis* sp., brown long-eared bat, and **barbastelle**.

4.39 Bat activity recorded along Route 7 was primarily associated with the northern boundary hedgerows and the woodland corridor that borders the Gagle Brook at this location, including the onsite section W11. Bat species using this latter feature included **barbastelle** recorded during each of the transect surveys in June, and September. Another barbastelle registration was recorded along a neighbouring hedgerow (H67) during the September transect, prior to which three barbastelle registrations had been recorded near flight line position M, also along the Gagle Brook corridor**.**

Route 8

4.40 Table 20 summarises the bat species recorded within the area encompassed by the flightline and transect of Route 8, including any areas of notable bat activity.

Table 20: Route 8 Transect Summary (see Figure 5h and 5h)

Survey	Number of contacts on flightline survey	Notable activity on flightline survey	Number of contacts on walked transect	Notable activity on walked transect survey	Species recorded
April	23	Common pipistrelle, noctule and *Myotis* sp. seen flying in field and alongside the edge of woodland W15 to the north and south of Location O. Noctule and common pipistrelle observed flying along hedgerows to the west, north and east of Location P and alongside	0	No bat calls during the walkover	Common pipistrelle, soprano pipistrelle, noctule, and *Myotis* sp.

Survey	Number of contacts on flightline survey	Notable activity on flightline survey	Number of contacts on walked transect	Notable activity on walked transect survey	Species recorded
		woodland W14. Non-visual contacts of Common pipistrelle, soprano pipistrelle, noctule, and *Myotis* sp.			
May	7	Two common pipistrelle seen flying along field boundary east of Location P. No visual contacts at Location O but common pipistrelle heard at this location.	19	Bat activity was recorded along the route, particularly in the south along scrub bordering the railway line.	Common pipistrelle, soprano pipistrelle and *Myotis* sp.
June	3	Noctule seen flying along the treeline edge to the north and west over the W15 to south of Location O. Common pipistrelle activity also at location O. No bats at Location P.	17	Bat activity was recorded throughout the route, particularly along the southern hedgerow with multiple common pipistrelle contacts noted.	Common pipistrelle, soprano pipistrelle, *Myotis* sp. and noctule.
July	16	Pipistrelle bats seen flying in field to south and north of Location O. **Serotine** heard but not seen at Location O (W15), as well as common pipistrelle, *Myotis* species and noctule. No visual bat contacts at Location P. but common pipistrelle, soprano pipistrelle and noctule recorded.	2	Two common pipistrelle bats active along hedgerow habitat west of Location P.	Common pipistrelle, soprano pipistrelle, noctule, *Myotis* sp. and **serotine.**
August	17	A single common pipistrelle was observed flying near point location P. No other visual contacts were noted. Non-visual contacts mostly comprised common pipistrelle with noctule, and soprano pipistrelle also observed at point P.	5	Bat activity was limited along the transect route and mostly located along the western edge of woodland W40, with species comprising common pipistrelle, soprano pipistrelle, and *Myotis* sp.	Common pipistrelle, soprano pipistrelle, noctule, and *Myotis* sp.
Sept	20	Multiple visual contacts of foraging/commuting bats observed along field the perimeters at both point locations comprising a mix of common pipistrelle, soprano pipistrelle, *Myotis* sp., brown long-eared bat, *Nyctalus* sp., and noctule.	6	Bat activity was largely located along an offsite hedgerow near to pond habitats south of flight line point location P. Species comprised common pipistrelle, *Myotis* sp., and noctule.	Common pipistrelle, soprano pipistrelle, *Myotis* sp., brown long-eared bat, *Nyctalus* sp., and noctule.

4.41 Bat activity along Route 8 was generally noted along the linear features bordering the railway line and the hedgerows towards the south of the transect route. **Serotine** was recorded along the western treeline (W15) on one occasion during the July transect.

Route 9

4.42 Table 21 summarises the bat species recorded within the area encompassed by the flightline and transect of Route 9, including any areas of notable bat activity.

Table 21: Route 9 Transect Summary (see Figure 5i and 6i)

Survey	Number of contacts on flightline survey	Notable activity on flightline survey	Number of contacts on walked transect	Notable activity on walked transect survey	Species recorded
April	3	No bats observed. Common pipistrelle heard at Location Q along treeline TL10, and noctule heard at Location R, south of woodland W20.	4	Noctule and *Myotis* sp. calls recorded along the northern side of Ardley Road corresponding to TL8 and W18 *Myotis* sp. and common pipistrelle also active along hedgerow H50.	Common pipistrelle, *Myotis* sp. and noctule.
May	8	Noctule and common pipistrelle observed along field boundary at location R. Common pipistrelle, noctule and brown long-eared bat heard but not seen at Location Q, and a further common pipistrelle heard but seen at Location R.	6	Common pipistrelle and soprano pipistrelle activity noted alongside woodland W20/tree line TL9 at the northern edge of the transect.	Common pipistrelle, soprano pipistrelle, brown long-eared bat and noctule.
June	0	-	14	Bat activity noted throughout the route but primarily along the treelines on the north (TL8) and south (TL10) of the central road, with activity dominated by common pipistrelle.	Common pipistrelle.
July	3	Common pipistrelle seen flying west at Location Q and south - east at Location R. Brown long-eared bat also heard at Location Q.	3	Limited activity with common pipistrelle bats noted along and within woodland W20 and alongside the edge of W18.	Common pipistrelle, brown long-eared bat and soprano pipistrelle.
August	7	A single common pipistrelle was seen commuting/foraging south of point Location Q. Non-visual records included noctule and common pipistrelle contacts at both survey positions.	9	Activity was distributed throughout the transect route and mostly comprised common pipistrelle. A single *Myotis* sp. contact was recorded along tree line TL8 and a single **barbastelle** contact off-site further west along TL8.	Common pipistrelle, noctule, *Myotis* sp., and **barbastelle**.
Sept	9	No visual bat activity was noted. Non-visual activity comprised small numbers of noctule and common pipistrelle at both survey locations.	5	Bat activity was limited during the transect to common pipistrelle contacts along central transect route areas including tree line TL10, TL8, and woodland W18.	Common pipistrelle and noctule.

4.43 Bat activity along Route 9 tended to be located in association with woodland W20 to the north, tree line TL9 to the northwest, and TL8 and Tl10 towards the centre of the transect area. No notable bat species were recorded.

Overall summary

4.44 Overall the flightline and transect data was dominated by common and widespread bat species, notably common pipistrelle, but also including soprano pipistrelle, noctule/*Nyctalus* sp., brown long-eared bat and *Myotis* sp. As shown in Figure 8, the highest frequency of bat activity recorded during the transect surveys occurred alongside Gagle Brook. The following notable species were also recorded:

- Barbastelle was recorded at the following locations:
  - In May a single registration was recorded along the edge of offsite woodland to the south of the Route 2 walked transect, and another along hedgerow H27 along the Route 3 walked transect.
  - In June a single barbastelle registration was recorded adjacent to woodland block W11 along Route 7.
  - In August single barbastelle contacts were detected within grassland G1 and adjacent hedgerow H13 along Route 3; along Route 5 at hedgerow H5; south of hedgerows H88 and H40 along Route 6, and off-site along TL8 along Route 9.
  - In September single barbastelle contacts were recorded alongside woodland W8 and hedgerow H34 along Route 1, at flight line Location D and also north of off-site W9 on Route 2, and at flight line Location F and at hedgerow H25a along Route 3. Two barbastelle contacts were recorded at the edge of woodland W6 and adjacent hedgerow H6 along Route 4, and the species was recorded on three occasions near position M during the flight line survey along Route 7, with two barbastelle contacts subsequently recorded on hedgerow H67 and alongside offsite woodland during the Route 7 walked transect.
- Serotine was recorded at the following locations:
  - Alongside woodland W5 in June during the flightline survey of Route 3,
  - Along the western treeline W15 on Toute 8 during the July 2025 walked transect.
- *Nyctalus*/*Eptesicus* species (potential serotine) were recorded at the following locations:
  - A single registration alongside tree group G80 to the northeast of Ashgrove Farm in May during the Route 4 walked transect.

Static Detector Surveys (Figure 7 and Appendix B)

4.45 The following section provides an overview of the static detector data highlighting any key areas of activity, notable species and/or levels of bat activity recorded. 25 statics were deployed within the same location each month for 5 consecutive nights throughout the survey period (April to August with September still to be completed). Cumulatively these recorded across 19274 hours. Data recorded by individual detectors is provided in Appendix B.

<u>April</u>

4.46 A total of 7721 registrations were recorded across the five-night monitoring period in April 2025. Bat activity was dominated by common pipistrelle with (4806) registrations recorded (c.62.2% of total bat activity recorded). Other species included soprano pipistrelle (1329 registrations, 17.2%), noctule (500, 6.5%), barbastelle (469, 6.1%), unidentified *Myotis* sp. (466, 6.0%) and registrations

from unidentified *Nyctalus* sp.*,* brown long-eared bat, Nathusius' pipistrelle and unidentified *Pipistrellus* sp. all registering under 1% of total calls registered.

4.47 The static detector that registered the greatest number of calls was U16 at static point K which registered a total of 868 calls. Common pipistrelle represented the majority of the activity data recorded, with a total of 734 calls (84.6%). Annex II and notable species recorded were Nathusius' pipistrelle (3 registrations) and barbastelle (23 registrations).

4.48 Unit U20 recorded the second highest number of calls with a total of 849 registrations from static location point Q. The most common species recorded was common pipistrelle with 88.7% of total registrations and registrations. Barbastelle was confirmed present and accounted for c. 0.5% of the bat activity recorded by this detector (four registrations).

4.49 U8 located at static point V registered the third highest with 588 calls, with soprano pipistrelle the most frequently recorded species in April (233 calls, 39.6%). Ten barbastelle registrations were recorded (1.7%) and Nathusius' pipistrelle was recorded twice (0.3%).

4.50 Annex II and notable species recorded within the April dataset were barbastelle and Nathusius' pipistrelle, with barbastelle being registered present by 20 of the 25 statics, with static U24 located at position L, recording 153 of the 469 total barbastelle registrations. Nathusius' pipistrelle was recorded by 7 of the 25 statics and in in low numbers only, with a peak number of 3 registrations, recorded by static U16 located at position K.

May

4.51 The 25 static detectors cumulatively recorded a total of 13433 registrations across the five-night period in May. Bat activity was dominated by common pipistrelle (4806 registrations, 62.2%). Other species included soprano pipistrelle (1329, 17.2%), noctule (500, 6.5%), barbastelle (469, 6.1%), *Myotis* sp. (466, 6.0%) and registrations from unidentified *Nyctalus* sp.*,* brown long-eared bat, Nathusius' pipistrelle and unidentified *Pipistrellus* sp. all registering under 1% of total calls registered.

4.52 Detector U30 located at static point B recorded the highest number of registrations (1592), with 87.4% represented by common pipistrelle. This static recorded no notable or Annex II species.

4.53 Unit U7 recorded the second highest number of calls with a total of 1566 registrations. This static was deployed at located at static point V. The most common species recorded was common pipistrelle with 44.6% of total registrations with soprano pipistrelle calls registered second most, representing 37.0% of the bat activity recorded. Barbastelle was confirmed present at this static location, with 96 registrations (6.1%) noted. Nathusius' pipistrelle was recorded as two registrations (0.1%).

4.54 U20 at static point V registered the third highest activity levels, with 1264 calls registered, the majority of which were identified as common pipistrelle (90.4%). 26 barbastelle registrations were recorded, representing 2.1% of the bat activity recorded by this static.

4.55 The overall May dataset included registrations from the Annex II and otherwise notable species barbastelle, Nathusius' pipistrelle, serotine and Leisler's bat. Barbastelle was detected by 20 of the 25 statics, with static U7 located at static point V, registering 96 calls. Nathusius' pipistrelle was registered by two of the statics, with two registrations recorded by unit U7 (static point V) and three by U23 (static point X).

June

4.56 The static detectors recorded a total of 19052 registrations in June, of which 69.4% was identified as common pipistrelle (13220 registrations). Other species recorded were soprano pipistrelle (1846, 9.7%), noctule (1703, 6.5%), *Nyctalus* sp. (838, 4.4%), *Myotis* sp. (532, 2.8%), barbastelle (506, 2.7%), *Pipistrellus* sp. (230, 1.2%) and registrations from brown long-eared bat, Nathusius' pipistrelle and serotine all registering under 1% of total calls registered.

4.57 Detector U11 located at static point C recorded the highest number of registrations (5240), of which common pipistrelle represented c.96.4% of the activity recorded. No Annex II or notable species were registered by this detector in June.

4.58 Unit LU5 at static point N recorded the second highest number of calls (1881) of which 59.3% were identified as common pipistrelle. Four barbastelle registrations were recorded by this detector (0.1%).

4.59 U12 located at static point H recorded the third highest number of bat registrations (2299) the majority of which were identified as soprano pipistrelle (94.1%). 18 barbastelle registrations were recorded (0.8%).

4.60 Annex II and notable species recorded by the overall June static dataset included barbastelle, Nathusius' pipistrelle and serotine, with barbastelle being registered by 17 of the 25 statics, including static U19 located at static point M registering 124 barbastelle registrations. Serotine was recorded as a single registration (detector U26, static point Q), and Nathusius' pipistrelle was registered as two registrations by a single detector (U13 located at static location G).

July

4.61 The 25 static detectors recorded a total of 22698 registrations in July, including common pipistrelle (16044 registrations, 70.7%), soprano pipistrelle (2757, 12.1%), *Myotis* sp. (1873, 8.3%), noctule (856, 3.7%), *Pipistrellus* sp. (428, 1.9%), *Nyctalus* sp. (355, 1.6%), and registrations from brown long-eared bat, barbastelle, serotine, *Nyctalus/Eptesicus*, Leisler's bat, Nathusius' pipistrelle all registering under 1% of total calls registered.

4.62 The static detectors that recorded the greatest number of calls included U21 located at static point O which registered 3156, of which common pipistrelle was the most frequently recorded and represented c.87.4% of the data. This detector also recorded two barbastelle registrations.

4.63 Unit U5 at static point X recorded the second highest number of registrations (2655), of which common species accounted for 64.4%. This detector recorded a total of 23 barbastelle registrations in July (0.9%).

4.64 The third highest number of registrations was recorded by U17 at static point H which recorded 2092 registrations, mostly identified as soprano pipistrelle (79.1%). Barbastelle was detected 13 times (0.6%).

4.65 The overall July static detector dataset included the following Annex II and notable species: barbastelle and Nathusius' pipistrelle. Barbastelle was registered by 21 of the 25 statics with a total of 128 registrations recorded, with 25 of these recorded by static U9 at location V. A single Nathusius' pipistrelle registration was recorded in July, at location point G.

August

4.66 The static detectors recorded a total of 24331 registrations in August, of which c.57.3% was identified as common pipistrelle (13929 registrations). Other species recorded were noctule (3515, 14.5%), soprano pipistrelle (3130, 12.9%), *Nyctalus* sp. (1278, 5.3%), *Myotis* sp. (1178, 4.8%), barbastelle (742, 3.1%), brown long-eared bat (399, 1.6%) and registrations from serotine, *Pipistrellus* sp., Leisler's bat, Nathusius' pipistrelle, and *Nyctalus/Eptesicus* all registering under 1% of total calls registered.

4.67 Detector U23 located along woodland WG bordering the Ashgrove Brook corridor at static point P recorded the highest number of registrations (2758), of which common pipistrelle represented c.58.2% of the activity recorded followed by noctule with c.32.1%. This detector also recorded 36 barbastelle registrations, three serotine, and one Nathusius' pipistrelle registration.

4.68 Unit 15 at static point C recorded the second highest number of calls (2508) of which c.86.0% were identified as common pipistrelle. This detector recorded two barbastelle registrations (<0.1%) and three serotine registrations (0.12%) over the five-night monitoring period.

4.69 Unit 8 located at static point E recorded the third highest number of bat registrations (2238) the majority of which were identified as common pipistrelle (c.61.6%). This detector additionally recorded four barbastelle (0.18%), four serotine (0.18%), and two Leisler's bat (<0.1%) registrations.

4.70 Annex II and other notable bat species recorded by the static detectors in August comprised barbastelle, Nathusius' pipistrelle, *Nyctalus/Eptesicus*, Leisler's bat, and serotine. Barbastelle was registered by 24 of the 25 statics, including static U19 located at static point V registering 189 contacts. Serotine was recorded on 120 occasions by 19 of the 25 statics, including 56 registrations detected by unit U19 at static location V. Leisler's bat was recorded a total of 11 times across the five nights by six of the 25 statics*, Nyctalus/Eptesicus* was recorded on eight occasions and registered by five statics, and Nathusius' pipistrelle was registered on four occasions by two statics (three by U10 at location H and once by U23 at location P).

<u>September</u>

4.71 The static detectors recorded a total of 27454 registrations in September, of which c.49.0% was identified as common pipistrelle (13449 registrations). Other species recorded were noctule (6811, 24.8%), soprano pipistrelle (3960, 14.4%), barbastelle (1046, 3.8%), *Nyctalus* sp. (918, 3.3%), *Myotis* sp. (868, 3.2%), brown long-eared bat (365, 1.3%), with *Pipistrellus* sp., Nathusius' pipistrelle and serotine all registering under 1% of total calls registered.

4.72 Detector U9 located at static point O recorded the highest number of registrations (8217), of which noctule represented c.73.1% of the activity, recorded followed by common pipistrelle with c.19.3%. This detector also recorded four barbastelle registrations (<0.05%).

4.73 Unit 25 at static point C recorded the second highest number of calls (3663) of which c.96.0% were identified as common pipistrelle. Two barbastelle registrations and a single Nathusius' pipistrelle registration (both species <0.05%) were recorded by this detector.

4.74 Unit 6 located at static point V recorded the third highest number of bat registrations (3130) the majority of which were identified as common pipistrelle (60.2%). Annex II and notable bat species recorded include 136 barbastelle registrations (4.3%).

4.75 Annex II and notable species recorded by the overall September static dataset included barbastelle, Nathusius' pipistrelle and serotine. Barbastelle was recorded by 21 of the 25 statics, with the static units located at static points H, M, R and V all recording over 100 barbastelle

registrations. Overall barbastelle activity accounted for 3.1% of activity recorded in September. Serotine was recorded on just two occasions by two of the 25 statics and Nathusius' pipistrelle was registered on two occasions by two statics (both <0.01% of total dataset for the month).

Overall Summary of Static Data

4.76 The static units recorded a total of 114,689 registrations across the 2025 field season, encompassing the species/families listed below:

- Common pipistrelle – 60.4% of total registrations
- Soprano pipistrelle – 13.4%
- Noctule – 12.9%
- *Myotis* sp. – 5.1%
- *Nyctalus* sp. – 3.2%
- Barbastelle – 2.9%
- Brown long eared bat – 1.2%
- *Pipistrellus* sp. – 0.7%
- Serotine – 0.1%
- Nathusius' pipistrelle – 0.02%
- *Nyctalus/Eptesicus* sp. – 0.02%
- Leisler's bat - 0.02%

4.77 A total of 3302 barbastelle registrations were recorded across the static detector surveys undertaken in 2025 (c.7265 hours in total), with the species recorded most frequently at static locations H, L, M, R and V.

4.78 A summary breakdown of the numbers of registrations for each species recorded in Table 22.

Table 22: Summary of Static Bat Detector Survey Results

Month	Total registrations	Species & Registration Count	
April	7721	Common pipistrelle – 4806 Soprano pipistrelle – 1329 Barbastelle – 469 Noctule – 500 *Myotis* sp. – 466	*Pipistrellus* sp. – 9 Brown long-eared bat – 58 *Nyctalus* sp. – 74 Nathusius' pipistrelle – 10
May	13433	Common pipistrelle – 7796 Soprano pipistrelle – 2382 Barbastelle – 411 Noctule – 1432 *Myotis* sp. – 876 *Pipistrellus* sp. – 140	Brown long-eared bat – 177 *Nyctalus* sp. – 205 Nathusius' pipistrelle – 5 Serotine – 5 Leisler's bat - 4
June	19052	Common pipistrelle – 13220 Soprano pipistrelle – 1846 Barbastelle – 506 Noctule – 1703 *Myotis* sp. – 532 *Pipistrellus* sp. – 230	Brown long-eared bat – 158 *Nyctalus* sp. – 838 Nathusius' pipistrelle – 2 Serotine – 1
July	22698	Common pipistrelle – 16044 Soprano pipistrelle – 2757	Brown long-eared bat – 210 *Nyctalus* sp. – 355

Month	Total registrations	Species & Registration Count	
		Barbastelle – 128 Noctule – 856 *Myotis* sp. – 1873 *Pipistrellus* sp. – 428	*Nyctalus/Eptesicus* – 13 Nathusius' pipistrelle – 1 Natterer's bat- 3 Serotine – 26 Leisler's bat - 4
August	24331	Common pipistrelle – 13929 Soprano pipistrelle – 3130 Barbastelle – 742 Noctule – 3515 *Myotis* sp. – 1178 *Pipistrellus* sp. – 17	Brown long-eared bat – 399 *Nyctalus* sp. – 1278 *Nyctalus/Eptesicus* – 8 Serotine – 120 Leisler's bat - 11 Nathusius' pipistrelle - 4
September	27454	Common pipistrelle – 13449 Soprano pipistrelle – 3960 Barbastelle – 1046 Noctule – 6811 *Myotis* sp. – 868 *Pipistrellus* sp. – 33	Brown long-eared bat – 365 *Nyctalus* sp. – 918 Nathusius' pipistrelle – 2 Serotine – 2

Bat Trapping Survey

4.79 Bat species trapped across the four trapping surveys undertaken comprised common pipistrelle, soprano pipistrelle, noctule, whiskered bat, Natterer's bat, Daubenton's bat, barbastelle and brown long-eared bat, as summarised in Table 23.

Table 23: Trapping Survey Details – Bats Trapped

Date	Time	Species	Age	Sex	Trap Number	Notes
28.05.25	21:50	Soprano pipistrelle	Adult	Male	3a	
28.05.25	21:50	Soprano pipistrelle	Adult	Male	1a	
28.05.25	21:50	Soprano pipistrelle	Adult	Male	1a	
28.05.25	22:30	Barbastelle	Adult	Male	1a	
28.05.25	22:40	Soprano pipistrelle	Adult	Female	4a	
28.05.25	23:20	Soprano pipistrelle	Adult	Male	1a	
28.05.25	23:20	Brown long-eared bat	Adult	Female	4a	
28.05.25	23:20	Brown long-eared bat	Adult	Female	4a	
28.05.25	23:50	Soprano pipistrelle	Adult	Female	3a	
28.05.25	23:50	Daubenton's bat	Adult	Female	1a	
28.05.25	23:50	Soprano pipistrelle	Adult	Male	1a	
28.05.25	00:30	Soprano pipistrelle	Adult	Female	2a	
28.05.25	00:30	Soprano pipistrelle	Adult	Male	4a	
28.05.25	00:30	Noctule	Adult	Male	1a	
28.05.25	00:30	Daubenton's bat	Adult	Female	1a	
28.05.25	01:15	Soprano pipistrelle	Adult	Female	2a	
28.05.25	01:15	Soprano pipistrelle	Adult	Female	2a	
28.05.25	01:15	Soprano pipistrelle	Adult	Male	2a	
28.05.25	01:15	Daubenton's bat	Adult	Female	1a	
28.05.25	02:00	Soprano pipistrelle	Adult	Male	1a	

Date	Time	Species	Age	Sex	Trap Number	Notes
28.05.25	02:00	Daubenton's bat	Adult	Female	1a	
28.05.25	22:10	Whiskered bat	Adult	Female	2b	
28.05.25	23:10	Whiskered bat	Adult	Male	3b	
28.05.25	23:30	Natterer's bat	Adult	Female	4b	
28.05.25	01:00	Natterer's bat	Adult	Female	3b	
23.07.25	22:40	Natterer's bat	Adult	Male	2a	
23.07.25	23:40	Natterer's bat	Adult	Male	4a	
23.07.25	01:20	Common pipistrelle	Juvenile	Female	1a	
23.07.25	01:20	Common pipistrelle	Juvenile	Male	1a	
23.07.25	03:00	Common pipistrelle	Adult	Male	1a	
23.07.25	22:00	Natterer's bat	Juvenile	Male	1b	
23.07.25	22:00	Soprano pipistrelle	Adult	Male	1b	
23.07.25	22:35	Noctule	Juvenile	Female	1b	
23.07.25	22:35	Soprano pipistrelle	Adult	Male	1b	
23.07.25	22:45	Whiskered bat	Unknown	Unknown	5b	Escaped
23.07.25	22:55	Soprano pipistrelle	Adult	Male	6b	
23.07.25	00:30	Noctule	Adult	Male	5b	
23.07.25	04:40	Soprano pipistrelle	Adult	Male	5b	
28.07.25	21:50	Common pipistrelle	Adult	Female	4a	
28.07.25	21:50	Soprano pipistrelle	Adult	Male	4a	
28.07.25	22:20	Natterer's bat	Adult	Male	1a	
28.07.25	22:20	Daubenton's bat	Adult	Female	1a	
28.07.25	23:00	Natterer's bat	Adult	Female	4a	
28.07.25	23:45	Natterer's bat	Adult	Female	1a	
28.07.25	23:45	Natterer's bat	Adult	Male	1a	
28.07.25	00:50	Soprano pipistrelle	Juvenile	Male	1a	
28.07.25	00:50	Barbastelle	Adult	Male	4a	
28.07.25	02:45	Daubenton's bat	Adult	Male	3a	
28.07.25	02:45	Noctule	Adult	Female	2a	
28.07.25	03:40	Daubenton's bat	Juvenile	Male	1a	
28.07.25	03:40	Daubenton's bat	Juvenile	Female	1a	
28.07.25	22:30	Natterer's bat	Adult	Female	1b	
28.07.25	22:30	Natterer's bat	Adult	Male	1b	
28.07.25	22:30	Daubenton's bat	Adult	Male	2b	
28.07.25	23:30	Common pipistrelle	Adult	Male	5b	
28.07.25	23:30	Natterer's bat	Adult	Male	1b	
26.08.25	21:00	Common pipistrelle	Juvenile	Female	1a	
26.08.25	21:00	Soprano pipistrelle	Adult	Male	1a	
26.08.25	21:00	Soprano pipistrelle	Adult	Female	1a	
26.08.25	22:00	Brown long-eared bat	Juvenile	Female	4a	
26.08.25	22:00	Brown long-eared bat	Adult	Male	4a	
26.08.25	22:30	Natterer's bat	Adult	Female	2a	
26.08.25	22:30	Natterer's bat	Adult	Female	2a	
26.08.25	22:30	Brown long-eared bat	Juvenile	Male	2a	
26.08.25	22:30	Common pipistrelle	Juvenile	Male	2a	
26.08.25	22:30	Soprano pipistrelle	Adult	Female	2a	

Date	Time	Species	Age	Sex	Trap Number	Notes
26.08.25	22:30	Common pipistrelle	Juvenile	Female	1a	
26.08.25	22:30	Natterer's bat	Adult	Female	1a	
26.08.25	22:30	Common pipistrelle	Juvenile	Female	1a	
26.08.25	22:30	Soprano pipistrelle	Juvenile	Male	1a	
26.08.25	23:15	Brown long-eared bat	Juvenile	Male	3a	
26.08.25	23:15	Common pipistrelle	Juvenile	Female	4a	
26.08.25	23:15	Brown long-eared bat	Adult	Male	4a	
26.08.25	23:30	Soprano pipistrelle	Juvenile	Male	1a	
26.08.25	01:00	Brown long-eared bat	Adult	Male	2a	
26.08.25	01:00	Whiskered bat	Adult	Female	1a	
26.08.25	02:00	Common pipistrelle	Juvenile	Male	1a	
26.08.25	02:00	Brown long-eared bat	Adult	Male	2a	
26.08.25	02:00	Brown long-eared bat	Adult	Female	2a	
26.08.25	02:30	Whiskered bat	Unknown	Male	1a	Escaped
26.08.25	02:30	Common pipistrelle	Unknown	Male	2a	Escaped
26.08.25	21:10	Soprano pipistrelle	Adult	Female	4b	
26.08.25	21:10	Soprano pipistrelle	Adult	Female	5b	
26.08.25	21:10	Whiskered bat	Juvenile	Male	5b	
26.08.25	21:10	Daubenton's bat	Adult	Male	5b	
26.08.25	22:10	Soprano pipistrelle	Adult	Female	4b	
26.08.25	22:10	Whiskered bat	Juvenile	Male	4b	Recapture
26.08.25	22:10	Daubenton's bat	Adult	Male	4b	
26.08.25	22:10	Brown long-eared bat	Adult	Female	5b	
26.08.25	22:10	Brown long-eared bat	Adult	Male	5b	
26.08.25	22:10	Brown long-eared bat	Adult	Female	5b	
26.08.25	22:50	Soprano pipistrelle	Juvenile	Female	4b	
26.08.25	23:30	Noctule	Adult	Female	1b	
26.08.25	00:25	Soprano pipistrelle	Adult	Female	1b	
26.08.25	00:25	Natterer's bat	Adult	Female	4b	
26.08.25	00:25	Daubenton's bat	Adult	Male	5b	
26.08.25	00:25	Brown long-eared bat	Adult	Female	5b	
26.08.25	01:45	Common pipistrelle	Adult	Male	1b	
26.08.25	01:45	Common pipistrelle	Juvenile	Female	1b	
26.08.25	01:45	Common pipistrelle	Juvenile	Female	1b	
26.08.25	01:45	Common pipistrelle	Adult	Female	1b	
26.08.25	01:45	Common pipistrelle	Adult	Female	1b	
26.08.25	01:45	Soprano pipistrelle	Adult	Female	4b	
26.08.25	01:45	Natterer's bat	Adult	Female	5b	
26.08.25	01:45	Noctule	Juvenile	Male	5b	
26.08.25	01:45	Noctule	Adult	Male	5b	
26.08.25	02:30	Common pipistrelle	Adult	Male	5b	
26.08.25	03:00	Noctule	Adult	Male	1b	
26.08.25	03:00	Brown long-eared bat	Adult	Female	1b	

4.80 Across the four trapping surveys, two adult male barbastelle bats were captured within the Application Site. These were identified as two individual bats (i.e. not a recapture) owing to the different forearm measurements of each individual.

5.0 DISCUSSION, RECOMMENDATIONS AND CONCLUSIONS

Trees

5.1 The tree assessment undertaken was informed by updated ground-based tree assessments, detailed aerial inspection and nocturnal surveys and focused on those areas considered most likely to be impacted by the Proposed Development. Surveys were carried out in accordance with the updated tree classifications and follow current industry guidance (presently the BCT Bat Survey Guidance 4th Edition (2023)) with the aim of determining whether roosting bats represent a constraint to the proposed site clearance works.

5.2 No bat roosts were confirmed to be present within trees scheduled to be lost or otherwise impacted by the Proposed Development.

5.3 The Parameters Plan indicates the requirement to remove many of the semi-mature and mature trees from within the Application Site to facilitate the proposals. Given the dynamic nature of tree roosts, the potential for new roost features to develop as tree conditions deteriorate, and the significant build-out timescale of the Proposed Development, all semi-mature and mature trees scheduled for removal will be subject to updating aerial inspections and/or nocturnal surveys by a suitably qualified ecologist closer to the anticipated programme to fully inform the clearance works. If the presence of a roost is confirmed during these updating surveys a licence from Natural England will be obtained if appropriate prior to tree works commencing.

5.4 The removal of trees with PRF-I and PRF-M bat roosting potential but no confirmed roost site will be undertaken during the bat active season (May to September inclusive) in accordance with a precautionary method statement in order to ensure legal compliance. The statement will cover mitigation measures appropriate to ensure that bats are adequately protected during tree works. Providing that the checking surveys record no evidence of roosting bats each tree will be section felled by experienced arborists under the supervision of an appropriately licensed bat worker and avoiding cutting through potential roost features. Cut sections will be left in-situ for a period of at least 24 hours to allow any bats present to disperse.

5.5 Trees that will be retained but will be subject to arboricultural works such as crown lifting, or are likely to be indirectly impacted such as through street lighting/security lighting, will also be subject to further updating survey/s closer to the time of works in order to determine the presence/absence of roosting bats and to identify appropriate mitigation and/or licensing requirements. Such works can be timed in accordance with the phased development of the site.

5.6 Trees with potential bat roost features that can be retained within the scheme and will not be subject to significant indirect disturbance are trees Ts1, Ts2 and Ts5. The proposals indicate these can each be retained within areas of soft landscaping where they will be sufficiently buffered such that the development will not adversely affect a bat roost if present.

5.7 Relevant contractors will be briefed regarding the potential presence of roosting bats prior to the commencement of tree works and advised of the requirement for works to stop and the Ecologist contacted in such an event.

Buildings

5.8 Building inspection surveys and nocturnal fieldwork confirmed the presence of bat roosts within seven of the twelve buildings present within Ashgrove Farm, summarised in Table 24. Roosts recorded in 2025 were all non-maternity pipistrelle roosts, whereas a non-breeding brown long-eared bat summer roost and hibernation roost were identified via earlier surveys (single individual each occasion). It is considered likely that many of these roosts are used by the same bats and form part of a network of small roost sites within the local area.

Table 24: Confirmed Building Roosts

Building	Evidence Recorded During 2025 Field Season	Evidence Recorded During Preceding Field Seasons (Appendix E)
B1a	Peak count of 1 common pipistrelle bat	Peak count of 4 common pipistrelle bats
B1a cellar	None	Peak count of 1 brown long-eared bat
B1d	Peak count of 1 common pipistrelle bat	Peak count of 1 common pipistrelle bat
B1f	Peak count of 2 common pipistrelle bats	-
B3f	Peak count of 1 common pipistrelle bat	-
B5	Peak count of 1 common pipistrelle bat	Peak count of 1 brown long-eared bat
B10 chimney	Peak count of 1 common pipistrelle bat	Peak count of 3 common pipistrelle bats
B10 ridge tile	Peak count of 1 common pipistrelle bat	Peak count of 1 common pipistrelle bat

5.9 The Proposed Development will result in the demolition of several of the agricultural barns (B4, B6, B8 and B12, with B8 having been removed prior to 2025) but will encompass the refurbishment of the remaining buildings such as re-roofing, brickwork improvements and ceiling changes.

5.10 Such works could result in the loss of/or significant disturbance to the small, occasionally used roosts outlined above, therefore a Natural England European Protected Species licence will be required to legitimise works to these buildings. This will require a good practice method statement, timetable, supervised works, provision of replacement roost sites and monitoring of roosts to be agreed with the Natural England licencing team. Good practice lighting and habitat management will also be implemented to prevent light spill effects on retained trees during the operational phase.

5.11 Given the precautionary approach proposed it is considered that no additional mitigation with regard to roosting bats would be required beyond that outlined above.

Ardley Tunnel

5.12 Proposed upgrading works of the adjacent rail track would extend into Ardley Tunnel. Detailed inspection of the tunnel structure however confirmed the brickwork to be in very good condition, with no cracks or fissures noted with potential to support roosting bats. Calcium carbonate deposits have formed in areas that are subject to regular water ingress, with water covering and dripping from the entire structures at the time of survey. Given the significant moisture levels these features are considered unsuitable to support roosting bats and hence bats are not identified as a constraint to works within the tunnel.

Bat Activity

5.13 Fieldwork undertaken across multiple seasons has confirmed that the following bat species utilise habitats within the Application Site: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, *Myotis* sp., noctule/*Nyctalus* sp., barbastelle, brown long-eared bat, and serotine. This species assemblage is considered typical for a site of this size and nature within Oxfordshire, given the habitats present on site and the largely rural setting, albeit with adjacent transport infrastructure

and active quarry sites. Furthermore, the species assemblage within the site is similar in composition to that described by the desk study data.

5.14 Bat activity within the site was consistently dominated by common pipistrelle, a common and widespread species throughout the UK. Soprano pipistrelle, noctule/*Nyctalus* sp. and *Myotis* sp. bats were also regularly recorded during each survey period, though far less frequently than common pipistrelle. Brown long-eared bat, barbastelle, Nathusius' pipistrelle, serotine and Leisler's bat were recorded during several of the static detector survey periods but in fewer numbers.

5.15 Whilst individual bats were occasionally observed commuting across or over field compartments, the vast majority of bat activity comprised commuting and foraging behaviour closely associated with field boundary hedgerows, plantation/woodland edges, treelines and vegetated watercourses.

Common Pipistrelle

5.16 Common pipistrelle was consistently the most frequently recorded species each month. The highest overall levels of common pipistrelle activity were recorded by the static detector located at static point C among woodland between the M40 Junction 10 and Cherwell Valley service station (12,024 registrations), with the majority of this data recorded across June (5050 registrations), August (2156) and September (3515). The static detectors at locations at locations B, H, K, O, and V each recorded over 4,000 common pipistrelle registrations across the total recording season. The static detectors generally recorded lower levels of common pipistrelle activity in April, with fewer common pipistrelle passes (though static points K and Q recorded 734 and 753 registrations respectively).

5.17 An increase in common pipistrelle activity was apparent across April to July (from 4806 registrations rising to 16044 registrations in July that likely reflected the commencement of the maternity season and the Application Site being used for foraging behaviour during this time. Activity levels then dropped slightly to 13929 registrations in August and similar levels (13449 registrations) in September.

5.18 The Highway Works Areas will fragment several linear features including H48 (static location G) and H50 (static location F) in the northeast of the Application Site, and the Gagle Brook Corridor in the southeast (monitored at static locations V and X). Common pipistrelle activity recorded along H50 was highest in May (1142 registrations) and July (631 registrations), and that at Location G was generally low across all months (range 5 to 238 registrations, peaking in July).

5.19 Common pipistrelle activity levels within the vicinity of the Gagle Brook Corridor were broadly consistent between May and August at location V approximately at the location of the proposed Middleton Stoney Relief Road crossing (699, 671, 985 and 481 registrations) but with lower numbers registered in April (199) and rising to a peak in September (1883). The detector at location X recorded less than 400 registrations each month with the exception of a peak in July (1709 registrations), and a smaller peak in September (879).

5.20 The highest levels of common pipistrelle activity along H48 (static location G) and H50 (static location F) were between 21:00-23:00 in April and June, 21:00-22:00 and 2:00-3:00 in May, between 23:00-01:00 and 02:00-04:00 in July, between 21:00-22:00 in August and 20:00-21:00 in September.

5.21 The highest levels of common pipistrelle activity along the Gagle Brook corridor were noted between 20:00-22:00 in April, 21:00-23:00 in May 2025, 1:00-3:00 in June, 02:00-04:00 in July,

22:00-00:00 in August and 21:00-00:00 in September. Given the timings relative to sunset these patterns were more indicative of regular foraging behaviour rather than commuting behaviour and suggest these features represent regularly used foraging resources to the species. Both features are likely also used by commuting common pipistrelle bats though there is no evidence of a significant roost site in the close vicinity.

5.22 Linear features within the Main Site that will be impacted by the Proposed Development include hedgerows H6 (static location H), hedgerows H17/H18/H19 and associated woodland W3 and W4 (static location L)), hedgerows H13/H16 (static location M) and Ashgrove Brook (location K). Within the Main Site, the highest overall numbers of common pipistrelle registrations were recorded along the northern edge of The Heath (location O), along hedgerow H6 (location H), along Ashgrove Brook (location K).

5.23 Common pipistrelle activity levels across the Main Site (static locations D, and H to T) increased between spring and summer/autumn, however no individual static detector dataset showed clear dusk/post dusk and pre-dawn peaks in activity indicative of the presence of a significant roost nearby, with the timing of the activity primarily indicative of regular foraging behaviour.

Soprano Pipistrelle

5.24 Soprano pipistrelle was also regularly recorded across the site, though generally less frequently than common pipistrelle. This species is considered to be more closely associated with riparian habitat than other *Pipistrellus* species therefore the lower activity levels are likely a consequence of the absence of any significant water bodies on site other than at the Gagle Book crossing point at static location V.

5.25 The highest levels of soprano pipistrelle activity recorded by static detectors were regularly along the Gagle Brook corridor (static locations V and X) and along the neighbouring hedgerow H67 (location U). Peaks were apparent in the soprano pipistrelle activity levels at static location X in May (21:00-22:00 and 04:00-05:00), June (21:00-22:00 and 04:00-05:00), July (22:00-21:00 and at 03:00-05:00), August (20:00-22:00 and 05:00-06:00), and September (20:00-22:00 and 05:00-06:00), suggesting the presence of a regularly used commuting route. No such pattern was discernible from the activity data recorded at static location V.

5.26 Within the Main Site, soprano pipistrelle activity was highest overall at static locations J, L, O, and R, with the highest levels at L and O towards the centre and west of the Main Site recorded in July and September, at J adjacent to Ashgrove Farm in August (although this unit failed to record successfully in July), and in April at location R along woodland belt W10. No peaks in activity were recorded suggestive of a significant roost in the vicinity of these static locations except for slight peaks apparent at locations L and R in September. Habitat features within the Main Site are considered to comprise part of larger soprano pipistrelle commuting and foraging habitat roost ranges within the area.

Nathusius' Pipistrelle

5.27 The static detectors recorded low numbers of Nathusius' pipistrelle each month (maximum count of three registrations at any location in a single 5-night recording period)

5.28 Nathusius' pipistrelle is widespread but rare across the UK, and most commonly encountered on migration in late summer/autumn (although some individuals do remain all year and breed in the UK). The species is considered a seasonal migrant within Oxfordshire though is likely under

recorded. The very occasional presence of this species within the site is therefore not considered significant as the site is located within the species' natural range.

Myotis species

5.29 *Myotis* sp. bats were identified during most transects and each monthly static detector survey, accounting for 6.0% (April), 6.5% (May), 2.8% (June), 8.3% (July), 4.8% (August) and 3.2% (September) of the total static detector datasets. *Myotis* species were registered in low numbers throughout the northeastern Highways Works Area (maximum count of 38 registrations per detector each month). The highest levels of *Myotis* sp. activity (388 registrations) were noted in July by the static detector at location W along H68 (linking to the east of the Gagle Brook corridor). Only very low levels of *Myotis* sp. activity were recorded however at this location in April, May, August and September (2, 3, 20 and 8 registrations respectively), and a moderate number in June (77). Other areas regularly used by *Myotis* sp. were static locations U (H102 along the proposed route of the Middleton Stoney Relief Road), R (woodland belt W10 to the southeast of the Main Site) and N (tree line TL7 over Ashgrove Brook, also within the Main Site).

Noctule/*Nyctalus* species

5.30 Noctule and unidentified *Nyctalus* sp. were recorded during most transects and all static surveys, with noctule/*Nyctalus* sp. cumulatively accounting for 7.4% (April), 12.2% (May), 13.3% (June), 5.3% (July), 14.4% (August) and 24.8% (September) of the total static detector dataset.

5.31 The highest levels of noctule activity were recorded within the Main Site at static locations N and O. A total of 3515 calls were registered at location N in August, mostly between 23:00-03:00, and 6005 registrations were recorded at location O in September, with activity levels continuously high between 20:00 and 06:00, the activity timing in both instances indicating foraging rather than commuting behaviour. Elevated noctule/*Nyctalus* activity levels were also noted at static location B (M40 J10) in all months except August, at location E (edge of woodland W7) in May, June and August, at location O north of off-site woodland in all months, and location W east of Gagle Brook in August and September only. The seasonal variability in activity likely reflected a similar variability in the distribution of the available foraging resource.

Barbastelle

5.32 Barbastelle is an Annex II species that mostly occurs across southern and central England and Wales and is considered rare but widespread within Oxfordshire[8]. It shows a preference for pastoral landscapes with woodland and riparian habitat, though will forage over large territories of mixed habitats. Typically, barbastelles roost within old, established woodland, habitat that is poorly represented within the Application Site, but is present within the surrounding landscape.

5.33 Barbastelle bats are relatively light intolerant, and the species was most frequently recorded along dark/unlit habitat corridors such as the wooded watercourses, indicating these features are of particular value as foraging resources and as commuting routes across the site and wider landscape. For this reason barbastelle is considered more sensitive to the effects of habitat fragmentation where there are few alternative corridors of movement through landscapes, than to those resulting from the partial loss of foraging habitats from within relatively large home ranges, given the extent and continued availability of alternative foraging opportunities.

5.34 Barbastelle bats typically emerge from roost sites soon after sunset[12], and can commute significant distances from a roost, with flight lines up to 20km documented[10,13]. Core sustenance zones for barbastelle maternity roosts however typically extend to c.6km around roost locations[14]. These identify the typical distance around maternity roosts within which habitat availability and quality have significant influence on the resilience and favourable conservation status of a colony.

5.35 The overall bat activity data recorded by the static detectors comprised 6.1% (April), 3.1% (May), 2.7% (June), 0.6% (July), 3% (August) and 3.8% (September) barbastelle activity (range 128 (July) to 1046 (September) registrations per month). Within the Main Site cumulative barbastelle activity levels were highest across static locations H, L, M and R, and location V along the Gagle Brook corridor. Seasonal variability was apparent, with an autumn peak in barbastelle activity levels at locations H, M and R of more than double the number of registrations in any other month, and a peak at location L in April (153 registrations, but 120 of these during a single night) and then very low in May-July (range 0-9 registrations), and higher again in August (73) and September (19).

5.36 At static location V along Gagle Brook barbastelle was detected only 10, 0 and 25 times in April, June and July respectively, however 96 registrations were recorded in May (2 to 33 registrations per night), 189 in August (1 to 70), and 136 in September (0 to 57 per night, no barbastelle activity recorded on the initial and fifth nights of recording).

5.37 The lowest levels of barbastelle activity were recorded at static locations B and E within the northeastern Highways Works Area (monthly tally range 0-5 registrations), and static locations S, T, U, W and Y within and adjacent to the southeastern Highways Works Area (monthly tally range 0-13,).

5.38 No double peaks in activity were noted during the main barbastelle pre-dawn and post sunset commuting periods at any static detector location or in any month indicative of the nearby presence of a commuting route in the vicinity of a roost.

5.39 Given the low levels of barbastelle activity detected during the key commuting periods, with the majority of detectors recording no barbastelle activity during these times, no evidence has been identified to suggest the presence of a barbastelle maternity roost in the vicinity of the Application Site, or that the habitats present lie within the core sustenance zone of a significant barbastelle roost or represent key commuting corridors to such a roost.

5.40 The timing and distribution of barbastelle activity across the Application Site is indicative of occasional sustained foraging activity by individual bats, and at other times of single or small numbers of passes repeated at intervals throughout the night, consistent with foraging behaviour across relatively large foraging areas. Based upon the timing and frequency of barbastelle activity recorded, on-site habitats therefore likely form a proportion of larger home ranges, with features such as the Ashgrove Brook and Gagle Brook corridors used by small numbers of individuals, both as a foraging resource and as a means to access other parts of individual home ranges.

5.41 A proportional level of trapping was undertaken with thirty-nine trapping stations across the four trapping occasions, with a combination of mist nets and harp traps including double-high mist nets

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[12] Zeal, M. R, Davidson-Watts, I. & Jones, G. 2012. Home range use and habitat selection by Barbastelle bats (*Barbastella barbastellus*) implications for conservation. *Journal of Mammalogy* 93:110-118.

[13] Greenway 2004. English Nature Research Report 657 - *Advice for the management of flightlines and foraging habitat of the barbastelle bat Barbastella, barbastellus*

[14] Bat Conservation Trust. 2016. *Core Sustenance Zones: Determining zone size*. BCT London.
Bat Conservation Trust. 2020. *Core Sustenance Zones and habitats of importance for designing Biodiversity Net Gain for bats*.

being used, in conjunction with a number of acoustic lures used for barbastelle bat. The aim of the trapping surveys was to confirm the presence or absence of breeding female barbastelle bats within the Application Site, of which none were caught. The two barbastelle bats caught were adult males, both trapped in the woodland over Gagle Brook at locations SP 53997 24126 and SP 53901 24082.

5.42 Given the absence of female barbastelle among the bats caught during the trapping surveys and the typical scale of core sustenance zones for the species extending to c.6km from a roost the Application Site is considered very unlikely represent a significant resource for this species. The suitable habitats present (woodland and river corridors) provide some limited opportunity for barbastelle bats but are unlikely to provide an important resource other than for commuting through the site at the landscape scale.

5.43 There is therefore no indication the Application Site encompasses important commuting routes for barbastelle bat or forms a significant foraging resource, and it is considered the proposals will not have a detrimental impact on the favourable conservation status of this species.

Brown long-eared bat

5.44 Generally low levels of brown long-eared bat activity were detected during the static detector recording periods, with several detectors recording no evidence of this species in a given month (range 0-86, mean number 9.2 registrations per static/month).

5.45 Static locations H, K and N within the Main Site, locations L and S alongside the B430, and locations V and X alongside the Gagle Brook corridor consistently recorded brown long-eared bat most frequently overall, however activity was highly variable at each of these locations, with no overall consistent pattern of regular use other than an upward trend in August and September.

5.46 Brown long-eared bat is one of the most common and widespread bat species within the UK, however as its echolocation calls are very low amplitude the species is often difficult to detect. It is hence considered likely under recorded by transect and static detector survey methods.

Serotine and Leisler's Bat

5.47 Serotine and Leisler's bat are each a relatively uncommon bat species within the UK and are both considered widespread but infrequent within Oxfordshire[15].

5.48 Low levels of Leisler's bat activity were recorded throughout the recording period (range 0 to 11 total registrations across the site). Similarly low levels of serotine activity were noted in April, May, June and September (range 0 to 5 each month), however this rose to 26 registrations in July, of which 16 were recorded at location X at the southern end of the Gagle Brook woodland corridor (Burntclose Copse), and to 120 registrations in August, with over half these registrations recorded along the Gagle Brook (locations V (56 registrations) and X (14)).

5.49 The majority of serotine registrations at detector location X in July occurred during the initial night of recording, with only three each night thereafter, similarly at location V in August 53 of the 56 registrations were recorded during a single night, indicating occasional foraging behaviour by an individual bat or small numbers of individuals rather than consistent use. No confirmed serotine or Leisler's bat activity was recorded during the transect surveys.

Foraging / Commuting Overview

[15] Oxfordshire Mammal Group 2017. *Oxfordshire Mammal Guide.* Oxfordshire Mammal Group.

5.50 The arable land that comprises the majority of the site has very limited value to local bat populations due to the lack of floristic diversity resulting in limited numbers of invertebrates, as evidenced by the transect survey data which recorded very few instances of bats active within the open field habitats. The existing tree, hedgerow, scrub, woodland and brook habitats however provide a network of foraging and commuting opportunities for local bat species and link to similar and more extensive habitats within the wider landscape. The transect and static detector survey results indicate that the main areas of bat activity were closely associated with these habitats, and as such they are considered to be of Local level value for local bat populations.

5.51 The bat species assemblage recorded is considered typical of the largely arable and open grassland habitats present, and representative of the local area. Bat records provided by LERC highlighted the occasional presence of whiskered/Brandts bat, Daubenton's bat and Natterer's bat, species not specifically identified during on-site work, though if present would have been recorded within the *Myotis* genus. With the exception of barbastelle and Nathusius' pipistrelle all species recorded within the Application Site are common and/or widespread across the UK. Barbastelle was the only Annex II bat species confirmed present by site surveys.

5.52 The survey results indicate that on-site habitats, notably field perimeter hedgerows/treelines and connecting watercourses, ponds and woodland/plantation edge habitats are used by a range of bat species within their natural range. The Gagle Brook and Ashgrove Brook corridors were identified as important linear features for local bat populations (see Figure 8), providing both high quality foraging opportunities and valuable habitat connectivity to other high-quality habitats within the wider landscape including woodland, hedgerows and small watercourses.

5.53 Whilst bat activity noted along several habitat features indicated regular use of such features by bats, no recurring peaks in activity levels post-dusk and pre-dawn were evident that might signify important commuting routes to roost sites in the vicinity. The utilisation of on-site habitats by local bat species is regarded typical of the site composition and context, with the Application Site considered to represent a roosting/foraging/commuting resource for bat species of Local level importance.

5.54 The proposals will result in the partial removal of existing foraging and commuting habitat from within the site, including the removal of the majority of existing habitat corridors through the interior of the Main Site, though the main Ashgrove Brook corridor and associated habitats will be retained. The proposed B430 Ardley Bypass and the Middleton Stoney Relief Road will sever a number of linear features including hedgerows and also Burntclose Copse along Gagle Brook. Off-site habitats along the embankments of the adjacent Chiltern Main Line will be indirectly impacted by the construction of a road bridge to take the B430 Ardley Bypass across the rail tracks, and to a minor extent by the illumination of the new rail terminal once operational.

Mitigation and Enhancements for Local Bat Populations

5.55 The proposed scheme aims to retain habitats of greatest value to foraging and commuting bats where possible, particularly linear habitat corridors around and through the site to ensure that connectivity is maintained for local bat populations. Furthermore, the proposed screening bunds around the Main Site, Ardley Bypass and the Middleton Stoney Relief Road will be planted with native tree and shrub structural planting, therefore the creation of enhanced and alternative commuting routes is embedded within the scheme design.

5.56 The proposed Middleton Stoney Relief Road is required to cross the Gagle Brook corridor considered to be an important commuting and foraging habitat corridor for local bat populations including barbastelle. Construction of the road and associated embankments will create a c.25m wide break in the canopy at this location, fragmenting the otherwise continuous habitat feature. There is additionally an associated collision risk for bats flying over the embankments and road.

5.57 The details of the scheme design at this location draw upon recently published literature that demonstrates the collision risk for barbastelle increases in areas with dense or overlapping canopy as a result of bats reducing the height at which they fly across roads in the presence of canopy cover[16]. This is contrary to the general view that tall structural cover, such as that provided by hop-over trees with continuous/near continuous canopy cover, can be effective in encouraging bats in general to cross roads at safer heights out of the collision risk zone.

5.58 The road crossing has been designed accordingly to minimise the risk to foraging and commuting bats, specifically barbastelle. The strategy utilizes two complementary approaches. Firstly, structural vegetation will be established to each side of the road structure, designed to funnel bats towards an oversized box culvert underpass (internal dimensions 6m(w) x 3.5m(h) with an invert level set 0.3m below the existing bed) that will follow the course of the brook underneath the road and enable the watercourse bed to reestablish (see example below). Secondly, to encourage any bats that do fly over the carriageway to do so at a safe height, no structural planting will be established on the road embankments at the location of the brook corridor crossing, with the soft landscaping instead comprising grassland only.

5.59 The Proposed Development furthermore offers significant opportunities to provide enhancement for local bat populations through the creation of extensive and diverse new habitats throughout the on-site green infrastructure including species-rich grassland, wetland grassland, mixed species native woodland and scrub planting. Four new wildlife ponds are proposed towards the western boundary of the Main Site, and the large attenuation basins to the south will be landscaped and a proportion designed to hold areas of permanent water, providing further biodiversity benefits including foraging opportunities for bats.

Example culvert design

[16] Scientific Reports 2025. *Increasing canopy cover elevates vehicle collision risk for barbastelle bats* (*Barbastella barbastellus*) *at roads*.

5.60 To mitigate for hedgerow losses new species-rich hedgerow planting will be established that will result in an additional c1.8km hedgerow habitat across the Application Site. It is recommended that management of the hedgerows is undertaken in an ecologically sensitive manner to enhance their nature conservation value and improve the hedgerow network for use by foraging bats. Such management may include:

- Allowing the hedgerow to reach at least a height of 3m. Once this height is reached the hedgerow can be 'topped out' to maintain the height or to suit circumstances, with a width of at least 1-2m, increasing to 2-3m+ where possible.
- A proportion of trees within hedgerows should be allowed to mature into standard trees to provide nesting and foraging opportunities for local wildlife and a varied habitat structure; and
- Where possible grassland around the margins of waterbodies, and adjacent to tree/scrub planting and hedgerow bases should be subject to mowing no more than twice per year to allow the development of a longer, more tussocky sward.

5.61 Where possible preference will be given to the inclusion of hedgerow and tree species of local provenance and that are nectar and fruit producing to provide foraging opportunities for insects and therefore bats.

5.62 To mitigate for the loss of the day roosts alternative roosting habitat will be provided at a 1:1 ratio, this will comprise the installation of seven Schwegler 2FN or similar bat boxes on the retained trees within close proximity of the original roosts. Due to the nature of the development and lack of suitable points to erect bat boxes upon newly constructed buildings, bat boxes on retained trees are deemed to be most suitable and will the roosts to stay in close proximity to the destroyed buildings.

5.63 Additionally, provision of a minimum of 30 woodcrete/woodstone bat boxes such as Schwegler 2F, 2F with double front panel, 1FF and 1FW (hibernation box) boxes (or alternative, equivalent designs) is proposed throughout the site to provide an enhancement in terms of roosting opportunities for local bats. A mix of box designs will be used in order to provide suitable opportunities for a range of local bat species. These will be installed in groups of 2-4 at varying aspects at heights between 4–6m above ground on suitable retained mature and semi-mature trees in unlit and clutter-free environments but adjacent to continuous greenspace. The provision of such enhancement features would be in accordance with National and Local Planning Policy.

5.64 Implementation of the above, in conjunction with appropriate long-term habitat management will provide features of ecological value to bats and other species and increase habitat diversity within the site.

Artificial Lighting

5.65 Light spill onto sensitive bat habitat including retained and newly created habitats can adversely impact the commuting, foraging and roosting behaviour of bats.

5.66 Of the bat species recorded present on site, barbastelle, *Myotis* sp. and brown long-eared bat are considered sensitive to lighting. The proposals therefore incorporate unlit green corridors and habitat buffers around the Application Site, and the lighting scheme will be designed to avoid or otherwise minimise light-spill onto structural habitats and green corridors within and adjacent to the Proposed Development.

5.67 The design of lighting will follow industry guidelines[17] and will include sensitive design elements such as the following:

- The strategic use of landscaping and planting to avoid light spill onto sensitive habitats and corridors. New planting should aim to buffer retained boundary features and create dark corridors (<0.1 lux where possible) around the site.
- The avoidance of direct lighting of waterbodies and structural soft landscaping and potential roost sites including bat boxes.
- Unnecessary light spill will be controlled through a combination of directional lighting, low level lighting columns, hooded/shielded luminaires, dynamic lighting and strategic planting.
- Smart lighting should be considered for footpaths and areas of lighting around the edges of the development area to ensure lighting is only provided when necessary.
- All new column mounted luminaires shall be fitted with flat glass where appropriate to aid 0% upward light discharge to minimise light pollution for larger bat species found foraging over the site such as noctule.
- Where located adjacent to green corridors and retained habitats, lights should be installed facing away from the habitats and fitted with rear light baffles or cowls as appropriate to prevent light spill onto such habitats.

With the implementation of the mitigation proposed above, residual effects on potential bat commuting/foraging routes and roost sites as a result of lighting will be minimised to levels where these will not impact the favourable status of local bat populations.

[17] Bat Conservation Trust and Institution of Lighting Professionals 2023. *Bats and Artificial Lighting at Night*. Guidance Note 08/23.

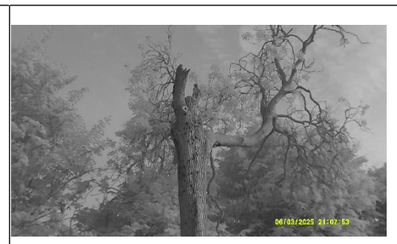
APPENDIX A: ASSESSMENT OF TREES WITH BAT POTENTIAL

Tree Ref.	Species	Feature Description	GBTA Results	AA Final Results	Roost Recorded During Nocturnal?
T2	English Oak *Quercus robur*	East, 4m Knot hole, extends back 12cm, bowl shape, slightly exposed: **PRF-I**	**PRF**	**PRF-M**	
		East, 4m small vertical split, crevice extends around branch 20cm, 8cm wide: **PRF-M**			
		East, 5m woodpecker hole and vertical crack, 20cm length, 6cm wide, 5cm deep: **PRF-M**			
		West, 4m bark plate with holes, crevices between bark and heartwood, exposed, flaky, extends down 20cm: **PRF-I**			
T3	English Oak *Quercus robur*	East, 6m knot hole on dead limb, no suitable cavity: **None**		**NONE**	
		West, 4m vertical split, no suitable cavity, exposed: **None**			
T5	English Oak *Quercus robur*	East, 5m tear outs x2, large cavity connected together but very exposed: **None**		**NONE**	
T7	Ash *Fraxinus excelsior*	South, 4m woodpecker hole, opening 10x10cm, cavity extends back 25cm and up 20cm, bowl shape, old nesting material at base: **PRF-I**		**PRF-I**	
T8	English Oak *Quercus robur*	North, 6m branch tear out, open cavity drops down 5cm into 25cm cavity, 12cm high, large open bowl shape, exposed: **NONE**		**PRF-I**	
		East, 8m woodpecker hole on leading branch, main cavity extends 5cm back and 20cm narrowly, tight squeeze: **PRF-I**			
T13	English Oak *Quercus robur*	Southwest, 8m knot hole, dry, extends back 5cm, domed, no upward or downward cavity, entrance 8x4cm: **NONE**		**PRF-I**	
		South, 5m dead branch tear out, too exposed, no suitable cavity: **NONE**			
		West, x3 rot holes in pruning cuts on main stem, middle hole cluttered entrance 5x5cm, extends back 25cm, dry, tube shape, tapers at end, right hole connects to the same chamber, rough: **PRF-I**			
T14	English Oak *Quercus robur*	Southwest, 5m hazard beam/branch split with rams horn, extends down into large cavity with birds nest, too exposed, extends up but open at top: **NONE**		**NONE**	
		South, 7m knot hole, no suitable cavity: **NONE**			
T15	English Oak *Quercus robur*	South, some platey bark, too exposed or small: **NONE**		**N/A – not safe to climb**	**No**
		North, 3m dead branch socket cavity, active Kestrel nest during first check: **NOCTURNAL**			
		All aspects, deadwood cracks and splits: **NOCTURNAL**			
T16	Ash *Fraxinus excelsior*	North, lightning split extending 7m along main stem and branch, open and upward facing at top, exposed, wet, some rough crevices throughout, rams horn, hole in main heartwood 1.5m from base, extends back 15cm and up 25cm, rough, dry, some cobwebbing: **PRF-I**		**PRF-I**	
T17	Ash *Fraxinus excelsior*	West, multiple branch tear outs and hazard beams, x2 barn owls nesting in end of lowest branch tear out: **NOCTURNAL**		**N/A – ecological constraints**	**No**
T18	Ash *Fraxinus excelsior*	South, x3 large knot holes at 3m, 4m and 5m: **NOCTURNAL**		**N/A – not safe to climb**	**No**
		East, butt rot, extends upwards: **NOCTURNAL**			
		East, 6m woodpecker hole: **NOCTURNAL**			
T25	Ash *Fraxinus excelsior*	South, 3m woodpecker hole, bee hive present during initial climb: **NONE**		**NONE**	
T32	Beech *Fagus sylvatica*	South, broken off limb, split and cracked end, no suitable cavity: **NONE**		**NONE**	
T33	Ash *Fraxinus excelsior*	Northeast, x2 woodpecker holes, very dead standing tree: **NOCTURNAL**		**N/A – not safe to climb**	**No**
T3C	Ash *Fraxinus excelsior*	South, 4m crack in bark, 4x6cm entrance, cavity extends 8cm horizontal: **NONE**		**PRF-I**	
		South, 10m knot hole on main stem, downward facing: **PRF-I**			
		South, 6m upward facing large tear out on main stem: **NONE**			
		East, 3m knothole: **PRF-I**			
T50	White Poplar *Populus alba*	West, 7m woodpecker hole on underside of dead limb, 8x8cm entrance, 10x10cm cavity, no upwards, extends down 5/10cm, rough, dry, woodlice present: **PRF-I**		**PRF-I**	
T55	Ash *Fraxinus excelsior*	Northeast, 6m woodpecker hole, extends 10cm deep: **PRF-I**		**PRF-M**	
		West, 6m branch tear out, healed rams horn, entrance 1mx15cm, extends in 30cm at top end, old birds nest and mammal hairs present, small crevices with woodlice and slugs: **PRF-M**			
		Northwest, 8m woodpecker hole on main stem, good cavity, extends into adjacent branch, old birds egg present: **PRF-M**			
		North, knot hole, upward facing on limb, extends in 20cm, rams horn present with small cavity behind, mostly exposed: **PRF-I**			
T57	Ash *Fraxinus excelsior*	West, collapsed limb with splits down trunk, hollowed out, completely open and exposed, no suitable crevices: **NONE**		**NONE**	
TS1	Ash *Fraxinus excelsior*	South, x2 woodpecker holes at 5m on mostly dead limb: **NOCTURNAL**		**N/A – not safe to climb**	**No**
TS2	Horse Chestnut *Aesculus hippocastanum*	West, 3m knot hole, small cavity open to elements, exposed: **NONE**		**NONE**	
TS3	Ash *Fraxinus excelsior*	South, 6m woodpecker holes, evidence of old inactive birds nest present. No upward cavity, extends back and down 30cm, cavity 20x10cm: **PRF-M**		**PRF-M**	
		West, 5m vertical split, 1m in length, cluttered by ivy at top, no suitable cavity: **NONE**			
		North, 5m knothole on underside of limb, extends in 20cm but narrow: **PRF-I**			
TS4	Ash *Fraxinus excelsior*	North, 1m significant ivy plating, cavity behind, extends up 40cm, cluttered access: **PRF-I**		**PRF-I**	

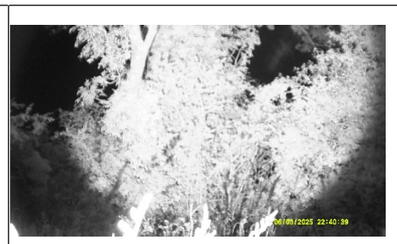
Tree Ref.	Species	Feature Description	GBTA Results	AA Final Results	Roost Recorded During Nocturnal?
TS5	Ash *Fraxinus excelsior*	Southeast, 5m branch tear out, cannot access without disturbing wasps: **NOCTURNAL**		**N/A – ecological constraints**	**No**
		South, 5m woodpecker hole, wasp nest present: **NOCTURNAL**			
N3	Field Maple *Acer campestre*	South, 2.5m knot hole: **NONE**		**NONE**	
N4	Horse Chestnut *Aesculus hippocastanum*	Southwest, 1m split in trunk, extends up 20cm, conical cavity, rough, slugs present, slightly cluttered entrance with ivy: **PRF-I**		**PRF-I**	
REL1	Ash *Fraxinus excelsior*	North, 6m knot hole, birds nest with chick's present, shallows out: **NONE**		**NONE**	
		South, woodpecker hole, large open cavity, exposed, old pellet present: **NONE**			
		East, 3m knot hole, healed opening 8x5cm, cavity extends up 15cm into small crevice, extends down 10cm to old birds nest, lots of clutter: **NONE**			
D2	Ash *Fraxinus excelsior*	North, 3m knot hole, entrance 10x10cm, slightly upward facing, extends up 10cm, old bees nest present, large dome shaped cavity, wet, extends down 15cm, some exposure, smooth: **PRF-I**		**PRF-I**	
ST1	Ash *Fraxinus excelsior*	South, butt rot at base of tree, opening 1.5m, large ants nest present: **PRF-I**		**PRF-I**	

DARKEST POINT OF EMERGENCE SURVEYS (TREES)

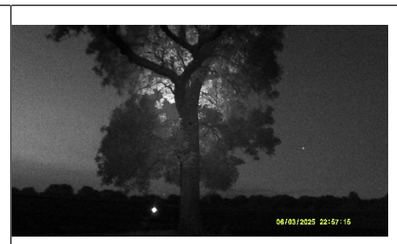
03.06.25 – Location TS1



03.06.25 – Location T3C



03.06.25 – Location TS1



03.06.25 – Location T18

01.07.25 – Location T17

01.07.25 – Location T18

01.07.25 – Location T15

01.07.25 – Location TS1

29.07.25 – Location T15

29.07.25 – Location T17

29.07.25 – Location TS1

29.07.25 – Location T18

APPENDIX B: STATIC DETECTOR SURVEY RESULTS SUMMARY – 2025

Survey Dates	Survey Hours	Total Registrations	Unit Position (Figure 7)	Unit No.	Common Pipistrelle			Soprano Pipistrelle			Noctule			Barbastelle			*Myotis* Species			*Nyctalus* Species			Brown Long-eared Bat			Nathusius' Pipistrelle			*Pipistrellus* Species			Serotine			Leisler's Bat			*Nyctalus* /*Eptesicus*		
					Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour
09/04/25-14/04/25	56.2	34	A	U13	21	9	0.37	1	1	0.02	6	4	0.11	1	1	0.02	2	1	0.04	1	1	0.02	1	1	0.02	1	1	0.02	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	453	B	U14	319	203	5.67	2	2	0.04	111	50	1.97	0	0	0.00	8	3	0.14	13	11	0.23	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	188	C	U23	137	101	2.44	2	1	0.04	36	10	0.64	0	0	0.00	12	3	0.21	1	1	0.02	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	157	D	U25	99	73	1.76	3	2	0.05	1	1	0.02	47	29	0.84	6	2	0.11	0	0	0.00	0	0	0.00	1	1	0.02	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	62	E	U22	35	28	0.62	3	2	0.05	11	7	0.20	5	3	0.09	8	4	0.14	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	261	F	U15	202	111	3.59	7	5	0.12	10	4	0.18	34	26	0.60	7	5	0.12	0	0	0.00	1	1	0.02	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	122	G	U12	89	42	1.58	15	7	0.27	11	5	0.20	3	2	0.05	2	2	0.04	1	1	0.02	1	1	0.02	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	61	H	U21	27	14	0.48	1	1	0.02	4	3	0.07	20	13	0.36	4	2	0.07	0	0	0.00	5	3	0.09	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	55	I	U11	25	15	0.44	5	3	0.09	3	1	0.05	11	5	0.20	5	3	0.09	1	1	0.02	5	4	0.09	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	257	J	U2	57	49	1.01	152	121	2.70	3	1	0.05	2	2	0.04	20	8	0.36	2	2	0.04	13	6	0.23	0	0	0.00	8	4	0.14	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	868	K	U16	734	450	13.05	64	31	1.14	4	2	0.07	23	14	0.41	27	11	0.48	2	1	0.04	11	7	0.20	3	2	0.05	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	473	L	U24	285	267	5.07	21	20	0.37	7	4	0.12	153	120	2.72	6	3	0.11	0	0	0.00	0	0	0.00	1	1	0.02	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	549	M	U1	495	435	8.80	17	13	0.30	3	2	0.05	22	22	0.39	12	4	0.21	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	252	N	U5	62	35	1.10	43	24	0.76	23	9	0.41	18	9	0.32	100	41	1.78	0	0	0.00	5	2	0.09	1	1	0.02	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	281	O	U19	130	90	2.31	56	31	1.00	57	31	1.01	14	7	0.25	4	2	0.07	17	17	0.30	2	1	0.04	1	1	0.02	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	716	P	U4	578	546	10.28	58	50	1.03	47	31	0.84	17	7	0.30	6	3	0.11	9	7	0.16	0	0	0.00	0	0	0.00	1	1	0.02	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	849	Q	U20	753	607	13.39	62	55	1.10	6	2	0.11	4	3	0.07	23	11	0.41	1	1	0.02	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	651	R	U3	274	154	4.87	259	129	4.61	3	2	0.05	69	32	1.23	42	18	0.75	1	1	0.02	3	2	0.05	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	100	S	U18	60	29	1.07	21	12	0.37	6	5	0.11	5	4	0.09	5	2	0.09	2	1	0.04	1	1	0.02	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	96	T	U17	36	16	0.64	38	11	0.68	12	4	0.21	0	0	0.00	7	3	0.12	1	1	0.02	2	1	0.04	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	349	U	U7	100	40	1.78	168	64	2.99	7	5	0.12	0	0	0.00	73	25	1.30	0	0	0.00	1	1	0.02	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	588	V	U8	199	106	3.54	233	92	4.14	54	22	0.96	10	5	0.18	64	20	1.14	20	8	0.36	6	2	0.11	2	2	0.04	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	82	W	U10	3	3	0.05	12	6	0.21	63	18	1.12	1	1	0.02	2	1	0.04	1	1	0.02	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	57	X	U6	10	4	0.18	46	17	0.82	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	1	1	0.02	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
09/04/25-14/04/25	56.2	160	Y	U9	76	42	1.35	40	20	0.71	12	5	0.21	10	10	0.18	21	5	0.37	1	1	0.02	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
07/05/25-12/05/25	47.4	158	A	U31	117	59	2.45	9	4	0.19	10	3	0.21	3	3	0.06	10	7	0.21	1	1	0.02	0	0	0	0	0	0	8	8	0.17	0	0	0	0	0	0	0	0	0
07/05/25-12/05/25	47.4	1592	B	U30	1391	795	29.14	13	11	0.27	142	107	2.97	0	0	0	14	10	0.29	11	6	0.23	0	0	0	0	0	0	21	14	0.44	0	0	0	0	0	0	0	0	0
07/05/25-12/05/25	47.4	1189	C	U29	1039	335	21.76	66	48	1.38	68	38	1.42	2	2	0.04	5	4	0.1	8	4	0.17	1	1	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07/05/25-12/05/25	47.4	130	D	U33	75	38	1.57	5	5	0.1	8	3	0.17	31	14	0.65	2	1	0.04	3	1	0.06	3	2	0.06	0	0	0	2	2	0.04	1	1	0.02	0	0	0	0	0	0
07/05/25-	47.4	245	E	U28	77	31	1.61	6	3	0.13	123	42	2.58	1	1	0.02	36	12	0.75	1	1	0.02	1	1	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Survey Dates	Survey Hours	Total Registrations	Unit Position (Figure 7)	Unit No.	Common Pipistrelle			Soprano Pipistrelle			Noctule			Barbastelle			*Myotis* Species			*Nyctalus* Species			Brown Long-eared Bat			Nathusius' Pipistrelle			*Pipistrellus* Species			Serotine			Leisler's Bat			*Nyctalus* /*Eptesicus*		
					Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour
12/05/25																																							
07/05/25-12/05/25	47.4	1264	F	U20	1142	652	23.92	21	12	0.44	48	14	1.01	26	20	0.54	23	6	0.48	1	1	0.02	2	1	0.04	0	0	0	0	0	0	0	0	0	1	1	0.02	0	0	0
07/05/25-12/05/25	47.4	218	G	U27	119	60	2.49	51	26	1.07	28	8	0.59	7	3	0.15	7	3	0.15	5	5	0.1	1	1	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07/05/25-12/05/25	47.4	347	H	U38	270	212	5.66	21	18	0.44	5	2	0.1	35	23	0.73	2	1	0.04	1	1	0.02	6	3	0.13	0	0	0	7	4	0.15	0	0	0	0	0	0	0	0	0
07/05/25-12/05/25	47.4	281	I	U34	57	30	1.19	11	6	0.23	42	19	0.88	9	3	0.19	153	43	3.2	3	3	0.06	5	2	0.1	0	0	0	1	1	0.02	0	0	0	0	0	0	0	0	0
07/05/25-12/05/25	47.4	689	J	U35	322	272	6.74	263	205	5.51	44	35	0.92	0	0	0	25	13	0.52	3	1	0.06	4	2	0.08	0	0	0	28	27	0.59	0	0	0	0	0	0	0	0	0
07/05/25-12/05/25	47.4	927	K	U36	462	239	9.68	71	40	1.49	300	144	6.28	14	4	0.29	28	11	0.59	15	8	0.31	28	12	0.59	0	0	0	8	5	0.17	1	1	0.02	0	0	0	0	0	0
07/05/25-12/05/25	47.4	91	L	U32	29	11	0.61	14	9	0.29	30	14	0.63	9	5	0.19	7	4	0.15	2	2	0.04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07/05/25-12/05/25	47.4	220	M	U37	122	115	2.56	36	33	0.75	31	20	0.65	13	13	0.27	9	3	0.19	0	0	0	1	1	0.02	0	0	0	8	7	0.17	0	0	0	0	0	0	0	0	0
07/05/25-12/05/25	47.4	388	N	U22	117	51	2.45	63	37	1.32	29	18	0.61	20	6	0.42	116	42	2.43	7	3	0.15	29	10	0.61	0	0	0	7	7	0.15	0	0	0	0	0	0	0	0	0
07/05/25-12/05/25	47.4	824	O	U26	429	193	8.99	63	35	1.32	245	158	5.13	13	4	0.27	10	3	0.21	50	35	1.05	7	3	0.15	0	0	0	7	7	0.15	0	0	0	0	0	0	0	0	0
07/05/25-12/05/25	47.4	58	P	U18	21	15	0.44	3	1	0.06	2	1	0.04	15	8	0.31	11	4	0.23	1	1	0.02	5	3	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07/05/25-12/05/25	47.4	221	Q	U25	102	63	2.14	54	49	1.13	12	3	0.25	2	2	0.04	35	8	0.73	4	4	0.08	4	2	0.08	0	0	0	7	6	0.15	0	0	0	1	1	0.02	0	0	0
07/05/25-12/05/25	47.4	679	R	U24	309	105	6.47	207	69	4.34	10	5	0.21	71	30	1.49	67	24	1.4	0	0	0	5	4	0.1	0	0	0	10	10	0.21	0	0	0	0	0	0	0	0	0
07/05/25-12/05/25	47.4	775	S	U19	431	139	9.03	210	105	4.4	28	13	0.59	4	2	0.08	60	22	1.26	2	2	0.04	40	18	0.84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07/05/25-12/05/25	47.4	264	T	U21	100	41	2.09	61	21	1.28	35	11	0.73	5	3	0.1	40	11	0.84	1	1	0.02	21	7	0.44	0	0	0	0	0	0	1	1	0.02	0	0	0	0	0	0
07/05/25-12/05/25	47.4	512	U	U8	149	73	3.12	254	66	5.32	17	8	0.36	0	0	0	86	29	1.8	0	0	0	4	1	0.08	0	0	0	2	2	0.04	0	0	0	0	0	0	0	0	0
07/05/25-12/05/25	47.4	1566	V	U7	699	306	14.64	579	269	12.13	52	26	1.09	96	33	2.01	56	12	1.17	58	26	1.21	0	0	0	2	1	0.04	24	19	0.5	0	0	0	0	0	0	0	0	0
07/05/25-12/05/25	47.4	33	W	U16	8	5	0.17	12	8	0.25	8	4	0.17	0	0	0	3	2	0.06	0	0	0	2	1	0.04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07/05/25-12/05/25	47.4	640	X	U23	166	51	3.48	272	83	5.7	64	23	1.34	35	15	0.73	70	26	1.47	24	10	0.5	4	2	0.08	3	1	0.06	0	0	0	2	2	0.04	0	0	0	0	0	0
07/05/25-12/05/25	47.4	122	Y	U17	43	21	0.9	17	11	0.36	51	29	1.07	0	0	0	1	1	0.02	4	4	0.08	4	3	0.08	0	0	0	0	0	0	0	0	0	2	2	0.04	0	0	0
03/06/25-08/06/25	42.2	36	A	U8	8	6	0.19	1	1	0.02	3	3	0.07	0	0	0	3	2	0.07	18	6	0.43	1	1	0.02	0	0	0	2	2	0.05	0	0	0	0	0	0	0	0	0
03/06/25-08/06/25	42.2	1152	B	U25	667	297	15.78	4	4	0.09	397	168	9.39	1	1	0.02	10	3	0.24	37	15	0.88	0	0	0	0	0	0	36	23	0.85	0	0	0	0	0	0	0	0	0
03/06/25-08/06/25	42.2	5240	C	U11	5050	1186	119.47	154	55	3.64	9	5	0.21	0	0	0	23	6	0.54	1	1	0.02	0	0	0	0	0	0	3	2	0.07	0	0	0	0	0	0	0	0	0
03/06/25-08/06/25	42.2	77	D	U10	49	24	1.16	0	0	0	2	2	0.05	18	16	0.43	5	2	0.12	2	2	0.05	1	1	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/06/25-08/06/25	42.2	1178	E	U24	532	268	12.59	61	24	1.44	114	83	2.7	115	51	2.72	8	4	0.19	320	106	7.57	20	9	0.47	0	0	0	8	4	0.19	0	0	0	0	0	0	0	0	0
03/06/25-08/06/25	42.2	49	F	U7	34	12	0.8	2	2	0.05	6	3	0.14	0	0	0	4	4	0.09	1	1	0.02	1	1	0.02	0	0	0	1	1	0.02	0	0	0	1	1	0.02	0	0	0
03/06/25-08/06/25	42.2	20	G	U13	5	3	0.12	1	1	0.02	10	8	0.24	0	0	0	3	2	0.07	0	0	0	1	1	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/06/25-08/06/25	42.2	2299	H	U12	2164	862	51.19	1	1	0.02	4	2	0.09	18	5	0.43	31	17	0.73	1	1	0.02	23	15	0.54	0	0	0	57	16	1.35	0	0	0	0	0	0	0	0	0
03/06/25-08/06/25	42.2	139	I	U15	19	9	0.45	9	3	0.21	81	32	1.92	2	1	0.05	20	7	0.47	1	1	0.02	4	3	0.09	0	0	0	3	1	0.07	0	0	0	0	0	0	0	0	0
03/06/25-08/06/25	42.2	287	J	U9	209	151	4.94	16	6	0.38	5	4	0.12	46	31	1.09	3	2	0.07	0	0	0	4	2	0.09	0	0	0	4	3	0.09	0	0	0	1	1	0.02	0	0	0
03/06/25-	42.2	655	K	U18	511	326	12.09	62	47	1.47	18	9	0.43	33	10	0.78	8	4	0.19	4	2	0.09	10	3	0.24	0	0	0	9	4	0.21	0	0	0	0	0	0	0	0	0

Survey Dates	Survey Hours	Total Registrations	Unit Position (Figure 7)	Unit No.	Common Pipistrelle			Soprano Pipistrelle			Noctule			Barbastelle			*Myotis* Species			*Nyctalus* Species			Brown Long-eared Bat			Nathusius' Pipistrelle			*Pipistrellus* Species			Serotine			Leisler's Bat			*Nyctalus /Eptesicus*		
					Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour
08/06/25																																							
03/06/25-08/06/25	42.2	321	L	U17	223	67	5.28	70	26	1.66	16	7	0.38	0	0	0	0	0	0	2	2	0.05	2	1	0.05	0	0	0	8	4	0.19	0	0	0	1	1	0.02	0	0	0
03/06/25-08/06/25	42.2	799	M	U19	589	301	13.93	28	12	0.66	16	10	0.38	124	71	2.93	3	2	0.07	16	9	0.38	4	2	0.09	0	0	0	19	16	0.45	0	0	0	0	0	0	0	0	0
03/06/25-08/06/25	42.2	146	N	U5	69	26	1.63	24	8	0.57	3	2	0.07	26	12	0.62	4	2	0.09	2	1	0.05	18	9	0.43	0	0	0	0	0	0	0	0	0	1	1	0.02	0	0	0
03/06/25-08/06/25	42.2	3171	O	LU5	1881	655	44.5	73	40	1.73	801	313	18.95	4	2	0.09	1	1	0.02	338	140	8	6	6	0.14	0	0	0	67	28	1.59	0	0	0	0	0	0	0	0	0
03/06/25-08/06/25	42.2	117	P	U22	48	27	1.14	10	4	0.24	12	4	0.28	8	6	0.19	15	7	0.35	15	8	0.35	9	3	0.21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/06/25-08/06/25	42.2	195	Q	U26	26	19	0.62	9	4	0.21	23	11	0.54	19	13	0.45	44	18	1.04	59	24	1.4	14	6	0.33	0	0	0	0	0	0	1	1	0.02	0	0	0	0	0	0
03/06/25-08/06/25	42.2	188	R	U28	88	53	2.08	69	18	1.63	9	3	0.21	0	0	0	16	4	0.38	2	1	0.05	4	3	0.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/06/25-08/06/25	42.2	133	S	U29	26	15	0.62	10	7	0.24	5	2	0.12	3	3	0.07	71	20	1.68	0	0	0	2	1	0.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/06/25-08/06/25	42.2	51	T	U6	18	9	0.43	9	5	0.21	5	3	0.12	0	0	0	9	7	0.21	0	0	0	10	4	0.24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/06/25-08/06/25	42.2	554	U	U23	118	46	2.79	300	137	7.1	16	4	0.38	4	2	0.09	108	29	2.55	0	0	0	2	1	0.05	0	0	0	6	5	0.14	0	0	0	0	0	0	0	0	0
03/06/25-08/06/25	42.2	1072	V	U14	671	427	15.87	218	72	5.16	45	14	1.06	71	33	1.68	41	17	0.97	14	9	0.33	8	4	0.19	0	0	0	4	3	0.09	0	0	0	0	0	0	0	0	0
03/06/25-08/06/25	42.2	223	W	U27	24	14	0.57	20	8	0.47	86	53	2.03	4	2	0.09	77	26	1.82	5	2	0.12	7	3	0.17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/06/25-08/06/25	42.2	909	X	U16	169	62	4	695	207	16.44	8	4	0.19	10	4	0.24	19	8	0.45	0	0	0	3	2	0.07	2	1	0.05	3	1	0.07	0	0	0	0	0	0	0	0	0
03/06/25-08/06/25	42.2	41	Y	U21	22	13	0.52	0	0	0	9	4	0.21	0	0	0	6	3	0.14	0	0	0	4	2	0.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09/07/25-14/07/25	43.2	308	A	U24	154	37	3.55	21	6	0.48	72	50	1.66	11	10	0.25	26	10	0.6	24	8	0.55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09/07/25-14/07/25	43.2	1430	B	U22	922	302	21.25	67	25	1.54	223	72	5.14	1	1	0.02	38	13	0.88	115	35	2.65	7	3	0.16	0	0	0	57	16	1.31	0	0	0	0	0	0	0	0	0
09/07/25-14/07/25	43.2	177	C	U25	127	29	2.93	9	5	0.21	8	4	0.18	2	1	0.05	21	6	0.48	8	5	0.18	2	1	0.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09/07/25-14/07/25	43.2	703	D	U12	608	177	14.02	21	10	0.48	28	21	0.65	2	2	0.05	24	7	0.55	10	3	0.23	7	2	0.16	0	0	0	0	0	0	3	3	0.07	0	0	0	0	0	0
09/07/25-14/07/25	43.2	1603	E	U28	1504	468	34.67	59	38	1.36	18	8	0.41	3	1	0.07	10	5	0.23	4	1	0.09	4	3	0.09	0	0	0	1	1	0.02	0	0	0	0	0	0	0	0	0
09/07/25-14/07/25	43.2	675	F	U23	631	222	14.55	8	3	0.18	12	5	0.28	5	5	0.12	19	6	0.44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09/07/25-14/07/25	43.2	327	G	U15	238	69	5.49	47	16	1.08	20	9	0.46	2	2	0.05	8	3	0.18	5	3	0.12	1	1	0.02	1	1	0.02	5	2	0.12	0	0	0	0	0	0	0	0	0
09/07/25-14/07/25	43.2	1332	H	U13	1239	456	28.56	45	21	1.04	1	1	0.02	5	2	0.12	29	11	0.67	2	2	0.05	11	5	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09/07/25-14/07/25	43.2	171	I	U14	67	17	1.54	13	4	0.3	11	6	0.25	0	0	0	76	21	1.75	0	0	0	1	1	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09/07/25-14/07/25	UNIT FAILED		J	U18																																			
09/07/25-14/07/25	43.2	2092	K	U17	1654	595	38.13	160	78	3.69	13	4	0.3	13	5	0.3	92	21	2.12	10	4	0.23	34	8	0.78	0	0	0	114	43	2.63	0	0	0	1	1	0.02	1	1	0.02
09/07/25-14/07/25	43.2	1761	L	U16	1106	390	25.5	424	126	9.77	15	5	0.35	3	3	0.07	36	12	0.83	7	5	0.16	6	4	0.14	0	0	0	164	49	3.78	0	0	0	0	0	0	0	0	0
09/07/25-14/07/25	43.2	397	M	U19	297	86	6.85	35	11	0.81	21	12	0.48	1	1	0.02	16	5	0.37	4	3	0.09	1	1	0.02	0	0	0	21	7	0.48	0	0	0	0	0	0	1	1	0.02
09/07/25-14/07/25	43.2	516	N	U27	301	87	6.94	47	13	1.08	13	4	0.3	16	5	0.37	117	36	2.7	7	2	0.16	10	5	0.23	0	0	0	4	2	0.09	1	1	0.02	0	0	0	0	0	0
09/07/25-14/07/25	43.2	3156	O	U21	2758	715	63.58	294	119	6.78	51	21	1.18	2	1	0.05	12	4	0.28	10	5	0.23	17	5	0.39	0	0	0	11	5	0.25	0	0	0	0	0	0	1	1	0.02
09/07/25-14/07/25	43.2	384	P	U26	264	121	6.09	9	3	0.21	37	21	0.85	2	2	0.05	65	30	1.5	4	2	0.09	3	1	0.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09/07/25-	43.2	368	Q	U20	87	31	2.01	19	7	0.44	92	35	2.12	0	0	0	159	50	3.67	9	3	0.21	1	1	0.02	0	0	0	1	1	0.02	0	0	0	0	0	0	0	0	0

Survey Dates	Survey Hours	Total Registrations	Unit Position (Figure 7)	Unit No.	Common Pipistrelle			Soprano Pipistrelle			Noctule			Barbastelle			*Myotis* Species			*Nyctalus* Species			Brown Long-eared Bat			Nathusius' Pipistrelle			*Pipistrellus* Species			Serotine			Leisler's Bat			*Nyctalus* /*Eptesicus*		
					Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour
14/07/25																																							
09/07/25-14/07/25	43.2	964	R	U7	549	301	12.66	155	97	3.57	6	2	0.14	7	4	0.16	214	70	4.93	4	2	0.09	9	3	0.21	0	0	0	18	15	0.41	0	0	0	1	1	0.02	1	1	0.02
09/07/25-14/07/25	43.2	294	S	U8	172	41	3.97	70	26	1.61	10	4	0.23	2	1	0.05	30	10	0.69	8	5	0.18	2	1	0.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09/07/25-14/07/25	43.2	276	T	U6	100	29	2.31	81	38	1.87	3	1	0.07	1	1	0.02	79	27	1.82	4	3	0.09	6	3	0.14	0	0	0	1	1	0.02	0	0	0	0	0	0	1	1	0.02
09/07/25-14/07/25	43.2	525	U	U11	221	77	5.09	200	58	4.61	17	10	0.39	0	0	0	77	21	1.78	4	2	0.09	1	1	0.02	0	0	0	4	2	0.09	0	0	0	0	0	0	1	1	0.02
09/07/25-14/07/25	43.2	1455	V	U9	985	521	22.71	262	86	6.04	68	24	1.57	25	12	0.58	57	18	1.31	23	8	0.53	18	7	0.41	0	0	0	11	6	0.25	3	3	0.07	1	1	0.02	2	2	0.05
09/07/25-14/07/25	43.2	750	W	U10	236	149	5.44	47	17	1.08	27	7	0.62	0	0	0	388	108	8.94	9	4	0.21	38	14	0.88	0	0	0	2	1	0.05	1	1	0.02	0	0	0	2	1	0.05
09/07/25-14/07/25	43.2	2655	X	U5	1709	494	39.4	649	173	14.96	34	13	0.78	23	6	0.53	158	57	3.64	30	13	0.69	25	9	0.58	0	0	0	7	5	0.16	16	4	0.37	1	1	0.02	3	1	0.07
09/07/25-14/07/25	43.2	379	Y	U4	115	31	2.65	15	7	0.35	56	18	1.29	2	1	0.05	122	31	2.81	54	30	1.24	6	2	0.14	0	0	0	7	5	0.16	2	1	0.05	0	0	0	0	0	0
06/08/25 - 11/08/25	40.0	60	A	U6	15	7	0.38	12	5	0.30	4	2	0.10	1	1	0.03	3	2	0.08	21	13	0.53	2	1	0.05	0	0	0.00	0	0	0.00	2	1	0.05	0	0	0.00	0	0	0.00
06/08/25 - 11/08/25	50.1	131	B	U5	51	21	1.02	5	5	0.10	41	16	0.82	2	1	0.04	13	4	0.26	2	2	0.04	17	6	0.34	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
06/08/25 - 11/08/25	50.1	2508	C	U15	2156	627	43.01	200	54	3.99	61	20	1.22	2	1	0.04	35	13	0.70	39	11	0.78	10	8	0.20	0	0	0.00	2	2	0.04	3	1	0.06	0	0	0.00	0	0	0.00
06/08/25 - 11/08/25	50.1	362	D	U4	202	75	4.03	9	4	0.18	48	13	0.96	30	10	0.60	16	6	0.32	29	9	0.58	28	10	0.56	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
06/08/25 - 11/08/25	50.1	2238	E	U8	1378	399	27.49	108	44	2.15	409	150	8.16	4	2	0.08	32	10	0.64	279	78	5.57	22	6	0.44	0	0	0.00	0	0	0.00	4	2	0.08	2	1	0.04	0	0	0.00
06/08/25 - 11/08/25	50.1	323	F	U7	289	78	5.77	5	3	0.10	25	7	0.50	0	0	0.00	4	2	0.08	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
06/08/25 - 11/08/25	50.1	113	G	U3	67	26	1.34	9	4	0.18	18	7	0.36	2	2	0.04	9	3	0.18	4	1	0.08	4	2	0.08	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
06/08/25 - 11/08/25	50.1	1179	H	U10	1047	468	20.89	16	6	0.32	13	4	0.26	39	9	0.78	12	5	0.24	3	3	0.06	43	13	0.86	3	2	0.06	0	0	0.00	1	1	0.02	2	2	0.04	0	0	0.00
06/08/25 - 11/08/25	50.1	144	I	U12	37	11	0.74	13	8	0.26	29	14	0.58	6	3	0.12	28	8	0.56	18	7	0.36	12	6	0.24	0	0	0.00	0	0	0.00	1	1	0.02	0	0	0.00	0	0	0.00
06/08/25 - 11/08/25	50.1	1919	J	U9	1072	501	21.39	774	270	15.46	12	5	0.24	4	1	0.08	32	8	0.64	13	5	0.26	11	8	0.22	0	0	0.00	0	0	0.00	1	1	0.02	0	0	0.00	0	0	0.00
06/08/25 - 11/08/25	50.1	1559	K	U13	1292	448	25.78	58	24	1.16	73	20	1.46	57	27	1.14	20	7	0.40	45	16	0.90	13	6	0.26	0	0	0.00	0	0	0.00	1	1	0.02	0	0	0.00	0	0	0.00
06/08/25 - 11/08/25	50.1	407	L	U11	157	47	3.13	61	24	1.22	28	8	0.56	73	25	1.46	19	6	0.38	56	45	1.12	13	7	0.26	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
06/08/25 - 11/08/25	50.1	1399	M	U14	1000	367	19.95	155	64	3.09	53	19	1.06	67	23	1.34	87	25	1.74	14	4	0.28	13	4	0.26	0	0	0.00	0	0	0.00	8	8	0.16	2	1	0.04	0	0	0.00
06/08/25 - 11/08/25	50.1	528	N	U21	138	50	2.75	149	54	2.97	91	28	1.82	36	11	0.72	87	28	1.74	14	5	0.28	11	3	0.22	0	0	0.00	0	0	0.00	2	1	0.04	0	0	0.00	0	0	0.00
06/08/25 - 11/08/25	50.1	1929	O	U22	890	327	17.76	222	97	4.43	438	230	8.74	31	12	0.62	36	18	0.72	293	109	5.85	12	5	0.24	0	0	0.00	0	0	0.00	7	3	0.14	0	0	0.00	0	0	0.00
06/08/25 - 11/08/25	50.1	2758	P	U23	1604	750	32.00	53	18	1.06	884	439	17.64	36	10	0.72	42	11	0.84	130	58	2.59	5	3	0.10	1	1	0.02	0	0	0.00	3	1	0.06	0	0	0.00	0	0	0.00
06/08/25 - 11/08/25	50.1	509	Q	U24	64	24	1.28	10	4	0.20	141	47	2.81	8	4	0.16	241	88	4.81	29	9	0.58	8	3	0.16	0	0	0.00	0	0	0.00	4	2	0.08	0	0	0.00	4	3	0.08
06/08/25 - 11/08/25	50.1	1203	R	U25	642	468	12.81	276	120	5.51	53	14	1.06	95	31	1.90	101	32	2.01	12	4	0.24	7	3	0.14	0	0	0.00	14	10	0.28	2	1	0.04	0	0	0.00	1	1	0.02
06/08/25 - 11/08/25	50.1	405	S	U26	208	82	4.15	40	22	0.80	61	27	1.22	8	4	0.16	21	10	0.42	4	2	0.08	61	35	1.22	0	0	0.00	0	0	0.00	1	1	0.02	0	0	0.00	1	1	0.02
06/08/25 - 11/08/25	50.1	190	T	U27	69	47	1.38	39	14	0.78	39	16	0.78	1	1	0.02	21	8	0.42	6	3	0.12	13	5	0.26	0	0	0.00	0	0	0.00	1	1	0.02	0	0	0.00	1	1	0.02
06/08/25 - 11/08/25	50.1	796	U	U20	479	273	9.56	214	87	4.27	22	9	0.44	7	5	0.14	68	24	1.36	2	1	0.04	4	2	0.08	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
06/08/25 - 11/08/25	50.1	1349	V	U19	481	227	9.60	264	112	5.27	216	92	4.31	189	70	3.77	50	18	1.00	59	27	1.18	33	9	0.66	0	0	0.00	0	0	0.00	56	53	1.12	0	0	0.00	1	1	0.02
06/08/25 -	50.1	771	W	U16	76	33	1.52	18	8	0.36	470	138	9.38	2	1	0.04	20	10	0.40	158	53	3.15	19	8	0.38	0	0	0.00	1	1	0.02	6	3	0.12	1	1	0.02	0	0	0.00

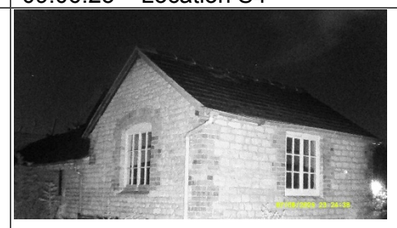
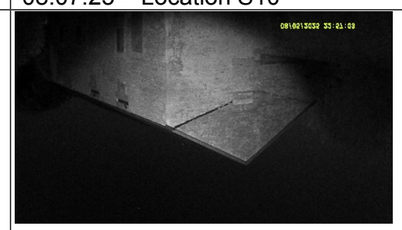
Survey Dates	Survey Hours	Total Registrations	Unit Position (Figure 7)	Unit No.	Common Pipistrelle			Soprano Pipistrelle			Noctule			Barbastelle			*Myotis* Species			*Nyctalus* Species			Brown Long-eared Bat			Nathusius' Pipistrelle			*Pipistrellus* Species			Serotine			Leisler's Bat			*Nyctalus* /*Eptesicus*		
					Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour
11/08/25																																							
06/08/25 - 11/08/25	50.1	1149	X	U17	364	124	7.26	410	142	8.18	107	32	2.13	31	15	0.62	167	66	3.33	20	7	0.40	33	15	0.66	0	0	0.00	0	0	0.00	14	5	0.28	3	2	0.06	0	0	0.00
06/08/25 - 11/08/25	50.1	402	U	U18	151	86	3.01	10	5	0.20	179	78	3.57	11	6	0.22	14	5	0.28	28	12	0.56	5	3	0.10	0	0	0.00	0	0	0.00	3	2	0.06	1	1	0.02	0	0	0.00
03/09/25 - 08/09/25	58.5	368	A	U26	37	20	0.63	15	9	0.25	53	18	0.90	13	9	0.22	118	32	2.00	125	31	2.12	7	3	0.12	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	58.5	1217	B	U15	733	332	12.45	180	56	3.06	161	82	2.73	4	2	0.07	33	10	0.56	99	27	1.68	3	2	0.05	0	0	0.00	4	2	0.07	0	0	0.00	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	58.5	3663	C	U25	3515	1180	59.69	56	18	0.95	11	4	0.19	2	1	0.03	52	21	0.88	4	1	0.07	12	6	0.20	1	1	0.02	10	6	0.17	0	0	0.00	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	58.5	59	D	U10	17	11	0.29	1	1	0.02	9	3	0.15	14	8	0.24	10	5	0.17	4	3	0.07	4	2	0.07	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	58.5	52	E	U16	13	6	0.22	5	3	0.08	11	6	0.19	3	2	0.05	2	1	0.03	8	5	0.14	10	4	0.17	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	58.5	92	F	U14	69	30	1.17	1	1	0.02	5	2	0.08	0	0	0.00	14	9	0.24	0	0	0.00	2	1	0.03	1	1	0.02	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	58.5	63	G	U24	33	16	0.56	6	3	0.10	7	2	0.12	6	2	0.10	3	3	0.05	4	2	0.07	3	1	0.05	0	0	0.00	1	1	0.02	0	0	0.00	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	47.0	1025	H	U19	806	386	17.16	1	1	0.02	12	6	0.26	159	50	3.38	15	5	0.32	6	5	0.13	25	11	0.53	0	0	0.00	1	1	0.02	0	0	0.00	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	58.5	176	I	U11	61	25	1.04	0	0	0.00	18	9	0.31	57	22	0.97	15	6	0.25	5	2	0.08	20	8	0.34	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	58.5	244	J	U27	78	27	1.32	50	16	0.85	15	9	0.25	72	39	1.22	16	5	0.27	2	1	0.03	11	5	0.19	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	UNIT FAILED		K	U18																																			
03/09/25 - 08/09/25	58.5	1566	L	U21	809	308	13.74	514	312	8.73	18	9	0.31	19	9	0.32	44	29	0.75	64	36	1.09	86	58	1.46	0	0	0.00	12	7	0.20	0	0	0.00	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	58.5	1626	M	U3	1396	722	23.71	15	5	0.25	16	5	0.27	151	61	2.56	19	6	0.32	11	4	0.19	13	4	0.22	0	0	0.00	4	2	0.07	1	1	0.02	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	58.5	309	N	U12	106	53	1.80	56	20	0.95	13	5	0.22	47	14	0.80	63	18	1.07	7	4	0.12	16	6	0.27	0	0	0.00	1	1	0.02	0	0	0.00	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	58.5	8217	O	U9	1582	560	26.86	274	107	4.65	6005	1582	103	4	2	0.07	1	1	0.02	343	144	5.82	8	2	0.14	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	11.4	5	P	U4	0	0	0.00	0	0	0.00	5	5	0.43	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	58.5	270	Q	U20	65	28	1.10	5	3	0.08	40	12	0.68	39	16	0.66	82	23	1.39	21	9	0.36	17	7	0.29	0	0	0.00	0	0	0.00	1	1	0.02	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	58.5	1266	R	U22	687	370	11.67	140	52	2.38	14	5	0.24	224	71	3.80	189	75	3.21	10	6	0.17	2	1	0.03	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	54.0	221	S	U17	85	38	1.57	79	38	1.46	34	13	0.63	0	0	0.00	10	4	0.18	8	3	0.15	5	2	0.09	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	58.5	1034	T	U13	422	216	8.98	561	305	11.94	10	5	0.21	13	5	0.28	17	11	0.36	0	0	0.00	11	5	0.23	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	58.5	414	U	U7	26	14	0.44	163	61	2.77	153	57	2.60	11	9	0.19	56	17	0.95	1	1	0.02	4	2	0.07	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	58.5	3130	V	U6	1883	1430	32.15	914	600	15.61	74	30	1.26	136	57	2.32	56	22	0.96	34	29	0.58	33	25	0.56	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	58.5	253	W	UHOL16	26	9	0.44	13	6	0.22	70	26	1.19	6	2	0.10	8	3	0.14	123	91	2.09	7	5	0.12	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	58.5	1971	X	U5	879	421	14.93	897	346	15.23	37	11	0.63	53	23	0.90	37	14	0.63	8	3	0.14	60	25	1.02	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
03/09/25 - 08/09/25	58.5	213	R	U23	121	36	2.05	14	6	0.24	20	6	0.34	13	4	0.22	8	3	0.14	31	8	0.53	6	2	0.10	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00

APPENDIX C: DETAILED BUILDING DESCRIPTION TABLE 2025

Building number	Building Description	Structural Features Present						Other Structural Features of Note	Potential Bat Access Points	Internal Features	Evidence recorded.	Bat Potential	Previous Surveys
		Gables	Barge Boards	Soffit Boards	Fascia Boards	Flashing	Roof Void						
B1a	A three storey 'L' shaped residential house of brick construction with a pitched slate roof. Cellar on the western aspect	Y	X	Y	X	Y	X	Six dormer windows. 4 brick chimneys Gutters along the eaves and climbers present. Cellar.	Gaps in lifted/loose or missing tiles. Gaps under the eaves on the southern aspect, gaps beneath lead flashing around the dormers on the eastern / north eastern aspect and cracks present in-between brickwork. Open door way on western aspect.	Plastered ceiling, rooms in the area where the void should be. Likely to be roosting potential behind tiles. Cellar has some limited gaps in the stone work. Dark, damp, cold environment. Gap between stonework and lintels in roof near stairs to main house.	None	Confirmed roost. Cellar has confirmed roost of BLE.	5x Common pipistrelle day roost. Old droppings and BLE recorded in cellar in 2023.
B1b	A single storey brick outhouse connected to B1a on the western aspect. A hipped slate tiled roof with a concrete ridge is present.	X	X	X	Y	X	Y	An open walkway is present running through the building from the south to the north.	Gaps in lifted/loose or missing tiles Open access of the walkway and gaps above the bricks in the walkway	2 x inaccessible roof voids due to plastered ceiling. Felt underlining is present beneath the tiles.	None	Moderate	Three fresh bat droppings (likely brown long-eared bat) and one bat dropping (likely *Pipistrellus* sp.) were identified along the open walkway on 30.04.18, and a further three bat droppings (unknown species) on 10.05.18. No further evidence recorded during the 2021 updating survey.
B1c	Two storey brick barn connected to B1a and B1d. A pitched slate tiled roof with a concrete ridge is present.	Y	X	X	X	X	Y		Gaps in lifted/loose or missing tiles. Gaps where mortar is missing on the eastern gable, gaps in the brickwork on the southern aspect, gaps beneath lead flashing on the northern aspect and gaps beneath the eaves.	Plastered ceiling no access to roof void.	None	Moderate	N/A
B1d	B1d is a single storey stable adjoining building B1c. A pitched slate tiled roof is present.	Y	X	X	X	X	X	None	Gaps in lifted/loose or missing tiles. Open doorways and windows, gaps beneath the eaves and north eastern gable.	Lined on southern aspect wool/ black membrane underlining. Beams present and gaps in stone walls.	Barn owl pellets scattered on floor in centre.	Confirmed	1x Common pipistrelle day roost Brown long-eared bat feeding perch & *Pipistrellus* sp. occasional roost. 1 x fresh BLE dropping in 2018. Single common pipistrelle recorded roosting during nocturnal surveys in 2021.
B1e	Building section B1e (adjoining B1a on the northern aspect) is a single storey lean too with a slate tiled roof.	Y	X	X	Y	Y	X	A gutter is present along the eaves	Broken window, gaps under lead flashing and gaps above the doorway on the eastern aspect.	Wooden underlining and no roof void.	None	Low	N/A
B1f	A lean too with a slate tiled roof in good condition.	Y	X	X	Y	Y	X	A brick chimney and gutter along the eaves.	Gaps beneath the tiles.	Plastered ceiling no roof void.	None	Moderate	N/A
B2a	One storey outhouse of brick construction with a hipped roof which is slate tiled with a concrete ridge.	X	X	X	Y	X	X	Wooden sarking is present on the southern aspect.	Gaps in lifted/loose or missing tiles. Gaps along the eaves though a gutter is present. Gaps around the doorways / windows, gaps beneath loose tiles or where there are missing roofing tiles and gaps created in missing brickwork	No underlining and no roof void. Gaps in brock work and wooden frame present. Relatively light and open inside.	None	Moderate	N/A
B2b	A brick lean-to on the western aspect of building B2a. The roof is comprised of corrugated metal and Perspex panels.	Y	X	X	Y	X	X		Gaps beneath the corrugated roofing panels and gaps around the doorway.	Light environment due to the Perspex panels and windows on the western aspect. No underlining is present.	None	Negligible	N/A
B3a	A single storey stone barn with a pitched roof comprising corrugated felt roofing panels.	Y	Y	X	X	X	X	None	Gaps beneath the roofing panels. Gaps in collapsed roof.	Unlined no roof void. Gaps in the stone work and wooden window frames.	None	Low	N/A
B3c	A single storey wooden barn with a pitched corrugated metal roof.	X	X	X	X	X	X	None	Open on the southern aspect due to missing wooden panels and various holes in the wood.	No roof void or underlining.	None	Low	N/A
B3d	A large stone barn in a state of disrepair. A pitched roof with corrugated panels are present.	Y	Y	X	X	X	X	Unsafe to access, near completely collapsed roof and sagging walls.	Open doorways, numerous gaps in the roof and at the eastern gable	No underling or roof void. Wooden beams with splits, gaps in wooden window frames and stone work.	None	Low	N/A
B3e	A single storey stone barn with a pitched slate	X	X	X	Y	Y	X	N/A	Gaps beneath the ridge, open aspects on	No access.	None	Moderate	N/A

	tiled roof. This building section is located on the south of B3d.								the eastern aspect and gaps beneath the eaves. Limited gaps in roof tiles.				
B3f	Located on the southern aspect of B3e. The building is a single storey stone barn with a pitched slate tiled roof.	Y	Y	X	Y	X	Y	N/A	Gaps where missing mortar occurs on the eastern gable, gaps beneath the barge board and along the eaves. Limited gaps in roof tiles.	Plastered ceiling no access to void.	None	Moderate	N/A
B3g	A lean too on the northern aspect of B3d, with a corrugated metal roof and metal frame.	Y	X	X	X	X	X	N/A	Open aspects	Yellow expanding foam sprayed on panels	None	Negligible	N/A
B3h	A lean too on the northern aspect of B3d, with a corrugated metal roof and metal frame.	Y	X	X	X	X	X	Wooden beams	Open aspects	Unlined panels	None	Negligible	N/A
B4	Aircraft hangar style building constructed from single sheets of metal corrugated panels and breeze block.	X	X	X	Y	X	X	Overhanging asbestos facia boards were also present	Beneath the facia, corrugated panels and doorway.	No underling occurs and a metal frame is present	None	Negligible	N/A
B5	A two-storey barn of stone construction. A pitched corrugated metal roof is present	Y	Y	X	Y	X	X	None	Gaps around doorways, windows, at the eaves and beneath the metal corrugated roofing panels. Open doorways on the northern aspect	No underling and no roof void. Wooden planks for support present. Very dark and cool inside no windows. Western area had some plastic sheeting lining the roof and beams.	c.20 x BLE droppings of various ages on stairs and in top floor. c.10-15 x suspected common pipistrelle droppings within open 2nd floor area to west. Barn owl pellets inside northern open section.	Confirmed roost	In 2018 single brown long-eared bat present on ridge at south east corner during internal survey in 2018, and c.60 droppings.
B6	A large agricultural structure utilised for lambing. The building is of a breeze block / wooden construction with metal frame and a pitched cement fibre corrugated roof.	Y	Y	X	X	X	X	A lean to is present on the western aspect of this building constructed from stone / wood again with a metal frame.	Open on the northern, southern and eastern aspect.	Corrugated Perspex panels occur throughout. No roof voids or underling is present.	None	Negligible	N/A
B7	Single storey outbuilding of stone construction and a metal frame. A sloping metal corrugated roof is present with Perspex panels also present.	Y	Y	X	X	X	X	None	Open on the northern aspect. Gaps in fascia but don't access any deeper features of note.	No underlining or roof void.	None	Negligible	N/A
B8	A large agricultural structure constructed from concrete and metal corrugated sheeting upon a metal frame. Pitched corrugated metal roof with a metal facia and soffit box. Cement fibre barge boards are also present with large gaps beneath.	Y	Y	Y	Y	X	X	None	Open on the southern aspect	No underlining of the corrugated metal roofing sheets and no roof void.	None	Negligible	N/A
B9	Not present, presumably demolished since previous inspection in 2021.												
B10	Pair of semi-detached two-storey dwellings (Ashgrove Cottages) of brick and stone construction with a two-storey perpendicular section to the rear leading to an attached single storey brick outbuilding. The pitched roofs are slate tiled.	Y	Y	X	X	X	Y	Chimneys, air vents, air gaps	Cracks in brick/stonework, at wall tops, around mortar and chimney, under slates and ridge tiles. Particular gap in stonework on extension to north east.	The main loft void is continuous between the two properties and this roof section is partially lined with modern plastic sheet backed insulation. The adjoining two-storey roof section is felt lined. Lean to in north has no void and degraded underfelt.	5 x pipistrelle bat dropping scattered in small section of roof to north. 10 x pipistrelle dropping within roof void centre	Confirmed	Common pipistrelle day roost within the 2-storey roof.
B11	Concrete garage with a corrugated composite panel flat roof. Solid timber frame to garage door.	Y	Y	X	X	X	X	None	Gaps between concrete panels and around the eaves.	No roof void. Roof is lined with boarding	None	Low	N/A
B12	Large metal agricultural style building on a concrete/breeze block base. Corrugated sheet metal roof with multiple skylights. No full access and behind locked gate.	Y	Y	X	Y	X	X	None	Gaps under fascia and barge boards	No underlining or roof void. Light environment due to the skylights.	None	Negligible	N/A
B13	Single storey, prefabricated security/site office.	X	X	X	X	X	X	None.	None.	No roof void or suitable bat features	None.	Negligible	N/a - new

DARKEST POINT OF EMERGENCE SURVEYS (BUILDINGS)

09.06.25 – Location S18	09.06.25 – Location S3	09.06.25 – Location S13	09.06.25 – Location S4
			
08.07.25 – Location S12	08.07.25 – Location S15	08.07.25 – Location S5	08.07.25 – Location S10
			
05.08.25 – Location S1	05.08.25 – Location S2	05.08.25 – Location S9	05.08.25 – Location S6

APPENDIX D: PHOTOS OF BUILT STRUCTURES

Courtyard between Buildings B1d and B5

Building B1

Cellar of Building B1a

Buildings B1a, B1e and B1f

Building B2a

Building B2a

Buildings B5 and B3d

Building B5 (left) and B3d/B3g/B3h

Building B4

Building B5

Building 6

Building 8

Building 10

Ardley Tunnel showing calcium carbonate deposits

Ardley Tunnel manhole

APPENDIX E: SUMMARY OF BAT SURVEY DATA 2018-2021

Building Assessment

1. Twelve buildings (B1 to B12) were identified within the Application Site, some of which were subdivided into section for the purpose of detailed description and assessment. The following summary descriptions are based on building inspection surveys undertaken in 2021 and 2022. Where appropriate the roost potential categories additionally reflect nocturnal survey data.

Negligible Bat Roost Potential: B2b, B3b, B3c, B3d, B3g, B3h, B4, B6, B7, B8, B9, and B12

2. B2b was a brick lean-to (previously utilised as a potting shed) on the western aspect of building B2a. The roof was comprised of corrugated metal and Perspex panels. Potential bat access points included gaps beneath the corrugated roofing panels and gaps around the doorway. Internal light levels were high through the day due to the presence of Perspex panels in the roof and windows on the western aspect. No roof underlining was present and no evidence of suitable roosting locations for bats were identified.

3. Building section B3b was a breeze block lean-to that adjoins building B3d on the western aspect. The sloping roof was constructed from cement fibre corrugated roof panels and there was no underlining or roof void present internally. No internal or external evidence of bats was observed in association with this building.

4. Building section B3c was a single storey timber barn with a pitched corrugated metal roof. The building was open on the southern aspect due to missing timber panels and various holes in the structure, and there was no roof void or underlining present internally. No internal or external evidence of bats was observed in association with this building.

5. Building section B3d was a large stone barn with a pitched roof with corrugated panels that were in a state of disrepair and had noticeably deteriorated since the original assessment in 2018. Potential access points for bats included open doorways and numerous gaps in the roof and at the eastern gable. There was no underling or roof void present. The original timber beams displayed splits, and there were gaps beneath the window frames and among stonework. No internal or external evidence of bats was observed in association with building B3d.

6. Building sections B3g and B3h comprised a lean-to with a corrugated metal roof on the northern aspect of B3d. Both were supported by a metal frame, with timber beams also present in B3h. The roofing panels of B3g had been sprayed with a yellow expanding foam. The panels beneath B3h were unlined. These building had numerous open aspects and therefore were partially open to the elements and as a result had high internal light levels. No evidence of suitable bat roosting locations was identified.

7. Building B4 was an aircraft hangar style building constructed from breeze block and corrugated sheet metal panels supported on a metal frame. Overhanging asbestos facia boards were also present. Potential access points for bats were identified throughout the building, including beneath the facia boards, corrugated panels and around the doorway. There was no underling present internally and no evidence of suitable roosting locations for bats were identified.

8. Building B6 was a large agricultural structure of breeze block and timber construction with a metal frame and pitched cement fibre roof, and with a stone and timber lean-to with a metal frame on the western aspect. The building was open on the northern, southern, and eastern aspects and had

no roof void or underling present internally. Corrugated Perspex panels were present throughout. No evidence or suitable roosting locations for bats were identified.

9. The original internal building assessment undertaken in 2018 recorded a barn owl *Tyto alba* nest box within the southern part of building B6, however the updated assessment in 2021 recorded no evidence of barn owl within this structure.

10. Building B7 was a single storey outbuilding of stone construction with a corrugated sheet metal sloping roof, with Perspex panels also present, and which was open on the northern aspect. No evidence or suitable roosting locations for bats were identified.

11. An inactive bird nest was identified within building B7 during the 2018 internal assessment. No further evidence of nesting birds was recorded however during surveys subsequently undertaken in 2021.

12. Building B8 was a large agricultural structure constructed from concrete and corrugated sheet metal supported on a metal frame. It had a pitched corrugated metal roof with a metal facia and soffit box. Cement fibre barge boards were also present, with large gaps noted beneath. The building was open on the southern aspect. Internally there was no roof underlining and no roof void. No evidence or suitable roosting locations for bats were identified.

13. Owl pellets were recorded in the northwest corner of building B8 during the original inspection in 2018, however no evidence of barn owl was recorded during the 2021 survey. Ledges suitable for barn owl nesting and roosting were noted present throughout the interior.

14. Building B9 comprised a series of metal corrugated outbuildings on a scaffold frame. A flat corrugated roof was present, and there were Perspex wall panels throughout. The building was open on all aspects. There were no roof voids and no underlining present, and no evidence or suitable roosting locations for bats were identified.

15. Building B12 was a large open building in active use by Severn Trent for compost processing. It was constructed primarily from sheet metal supported on a concrete/breeze block base. There were no roof voids or internal divisions, and internal light levels were high due to the presence of multiple skylights in the sheet metal roof.

Low Bat Roost Potential: B1e, B1f, B2a, B3a and B11

16. Building section B1e (adjoining B1a on the northern aspect) was a single storey lean-to with a slate tiled roof with a gutter present along the eaves. Potential bat access points included a broken window, gaps under lead flashing and gaps above the doorway on the eastern aspect. Internally there was timber sarking present but no enclosed roof void. No internal or external evidence of bats was observed in association with this building.

17. Building section B1f (adjoining B1a on the north eastern aspect) was also a lean-to with a slate tiled roof with a brick chimney and with a gutter along the eaves. The structure was generally in good condition, with potential bat access points limited to gaps beneath the tiles. There was a plastered ceiling present internally, but no roof void. No internal or external evidence of bats was documented in association with this building.

18. Building B2a was a one storey outhouse of brick construction and with a brick lean-to (B2b) on the western aspect. The building had a slate tiled hipped roof with a concrete ridge. Timber sarking was present on the southern aspect and there were gaps present along the eaves. Other potential bat access points included gaps around the doorways / windows, gaps beneath loose tiles or

where there were missing roofing tiles, and gaps created in missing brickwork. Internally there was no underlining or roof void present. Gaps were noted in the brick work and in the timber frame of the building. No access was possible for survey into the most eastern section of the building as the door was blocked. No internal or external evidence of bats was observed in association with this building.

19. Building section B3a was a single storey stone-built barn with a pitched roof comprising corrugated felt roofing panels. Potential bat access points included gaps beneath the roofing panels. There was no roof void or underlining present internally. Gaps were present in the stonework and timber window surrounds. No internal or external evidence of bats was observed in association with this building.

20. Building B11 was a garage adjacent to a residential property, constructed from concrete panels supported on a concrete frame and with a flat corrugated composite panel roof. The main garage door was supported by a solid timber frame. Internally the space was divided into two sections, with the larger boarded out, with evidence of previous use as a workroom. Potential access points for bats included gaps between the concrete panels and around the eaves.

Moderate Bat Roost Potential: B1b, B1c, B3e, and B3f

21. Building B1b was a single storey brick outhouse with a hipped slate tiled roof and concrete ridge connected to B1a on the western aspect. An open walkway with a tiled roof with felt underlining ran north-south through the building. Internally two roof voids were present, however access was not possible for inspection as the ceilings were plastered and there was no access hatch. Potential bat access points into these areas were via the open access of the walkway and gaps at the wall tops of the walkway. Bat droppings were identified along the open walkway during the 2018 assessment, but not during the 2021 update survey. Given the limitations to access for survey the building was considered to have moderate potential to support roosting bats.

22. Two swallow nests and a further bird nest (unknown species) were noted within building B1b.

23. Building B1c was a two-story brick barn linking B1a and B1d with a pitched slate tiled roof and a concrete ridge. Potential bat access points included gaps where mortar was missing from the eastern gable, gaps in the brickwork on the southern aspect, gaps beneath the lead flashing on the northern aspect, and gaps beneath the eaves. A plastered ceiling was present internally, with no access hatch to enable the inspection of the roof void. No external evidence of bats was observed in association with this building.

24. Building section B3e was a single storey stone barn with a pitched slate tiled roof, located to the south of B3d. Potential bat access points included gaps beneath the ridge, open aspects on the eastern aspect, and gaps beneath the eaves. No internal survey was possible due to the presence of dense vegetation surrounding the building preventing access. No external evidence of bats was observed in association with this building, which, given the restrictions to access is considered to have moderate potential to support roosting bats.

25. Building section B3f was located on the southern aspect of B3e. This was a single storey stone barn with a pitched slate tiled roof. Potential bat access points included gaps amongst the mortar on the eastern gable, gaps beneath the barge boards, and gaps along the eaves. Internally a plastered ceiling was present. No evidence of bats was observed in association with building B3f.

High Bat Roost Potential / Confirmed Roost: B1a, B1d, B5 and B10

26. Building B1a was a three storey 'L' shaped residential property of brick construction with a pitched slate roof. Six dormer windows were present, along with four brick chimneys. Gutters were present along the eaves and climbing plants had established up the exterior walls. Potential bat access points included gaps under the eaves on the southern aspect, gaps beneath the lead flashing around the dormers on the eastern/northeastern aspect, and cracks present among the brickwork. Internally the rooms extended into the apex and had plastered ceilings with no access hatch.

27. Nocturnal surveys subsequently conducted recorded small numbers of common pipistrelle entering and emerging from day roosts associated with the third-floor dormer window and chimney base of building B1a. Building B1a therefore supports a confirmed roost.

28. Building B1d was a single storey stable with a pitched slate tiled roof adjoining building B1c. Potential bat access points included open doorways and windows, and gaps beneath the eaves and beneath the northeastern gable. Internally the majority of the structure was accessible for survey, however two sections were inaccessible due to their dilapidated condition. No roof voids were present. There was partial underlining present on the southern roof aspect (wool and/or bituminous membrane), whereas the northern aspect was unlined. Gaps were present within the stone walls and between timber beam joints. Bat droppings and evidence of recent bat foraging activity were noted during the internal building survey. Several bird nests including swallow nests were also identified throughout the building interior.

29. Nocturnal surveys in 2021 recorded a single common pipistrelle returning to roost under the eaves of B1d. Building B1d therefore supports a confirmed roost.

30. Building B5 was a two-storey stone barn with a pitched corrugated metal roof. Potential bat access points comprised gaps around doorways, windows, at the eaves and beneath the metal corrugated roofing panels. There were also open doorways on the northern aspect. There were no roof voids or underlining present internally. During the 2018 assessment a single brown long-eared bat was recorded on the timber ridge in the southeast corner and brown long-eared bat and *Pipistrellus* species droppings were recorded on the ground floor. No evidence of bat activity was recorded however during the updating assessment in 2021. Given the previous presence of droppings building B5 is considered to have high potential to support roosting bats.

31. Building B10 comprised a pair of adjoining semi-detached two-storey residential properties (Ashgrove Cottages). These were of stone and brick construction with a shared main roof void and a perpendicular section with a separate void. Potential access points included cracks in brick and stonework and at wall tops, around the chimneys and sections of mortar, and under slates and ridge tiles. A small number of bat droppings (probable *Pipistrellus* sp. and brown long-eared bat) of indeterminate age were recorded within the roof voids.

32. Nocturnal surveys undertaken in summer 2022 recorded small numbers of individual common pipistrelle entering and emerging from the two-storey roof structure and the flashings/base of the eastern chimney of building B10. This building if therefore considered to support a confirmed roost.

Hibernation Assessment of the Cellar (B1a)

33. An unused cellar on the western aspect of building B1a was accessible to bats via an open external doorway. Internally, the cellar was c.6m (L) x 5m (W) x 1.8m (H) at the widest point with a small alcove with stairs at the back of the cellar. The cellar had large timber trusses with whitewashed brick, a decrepit timber door and timber struts along plasterboard above the stairs in the alcove (See Appendix D). Gaps were present in the walls and between the timber lintel and brickwork, and the alcove additionally had gaps between the floorboards leading to a cavity beneath. Potential bat access points were observed via the external door as this did not close flush to the frame.

34. Inspection in 2021 recorded historic/degraded bat droppings on a shelf in the alcove and on the floor, but no internal or external evidence of recent occupation by bats. The internal conditions were noted to be dark, cool and stable.

35. A brown long-eared bat was subsequently recorded in early February 2023 within a gap between a timber strut and the brick wall of the alcove. The beam extends c.2.5m with a cavity/crevice between it and the wall measuring c.7cm (D) x 3cm (W) and narrowing. A return visit in late February 2023 recorded no bats. Hibernating tortoiseshell butterflies and herald moths were noted present.

Emergence / Re-entry Nocturnal Surveys Summary

36. All buildings identified with low, moderate or high potential to support roosting bats were subject to nocturnal surveys in 2019 and again in 2021. A small number of individual common pipistrelle (maximum count: 3) were recorded returning to roost within building sections B1a and B1d on four occasions over the 2019 and 2021 survey periods, and individual common pipistrelle were recorded emerging from building B10 during surveys in 2022 (Table A). No bats were recorded emerging from or returning to roost within any other building surveyed.

Table A: Bat Roost Summary

Date	Time	Building	Species	Roost Entrance/Exit Details
Ashgrove Farm Buildings (B1-B6, Figure 2)				
02.08.19	04.27	B1a	Common pipistrelle	Single individual returning under lifted tile at base of chimney.
16.08.19	05.17	B1a	Common pipistrelle	Two individuals entered overhanging eaves of eastern 3rd floor dormer window.
16.08.19	05.25	B1a	Common pipistrelle	One common pipistrelle entered overhanging eaves of eastern 3rd floor dormer window.
16.08.19	05.30	B1a B1d	Common pipistrelle	Single individual entered overhanging eaves of western 3rd floor dormer window.
11.06.21	04:30	B1a B1d	Common pipistrelle	Single individual entered under eaves of building on southern elevation.
23.07.21	03:35	B1a	Common pipistrelle	Single individual emerged from lifted flashing on 3rd floor dormer window.
Ashgrove Cottages (B10 and B11, Figure 2)				
27.07.22	21:29	B10	Common pipistrelle	Emergence of single individual from under a roof tile on the south aspect of the south-eastern gable.
10.08.22	05:02	B10	Common pipistrelle	Single individual entered under a tile half way up the north-facing aspect of the eastern roof section.
10.08.22	05:02	B10	Common pipistrelle	Single common pipistrelle investigated areas of the 2-storey and single-storey roof sections before flying off.
10.08.22	05:04	B10	Common pipistrelle	Single pipistrelle entered the roof via tiles on the western gable
10.08.22	05:12	B10	Common pipistrelle	Single individual roosted at base of eastern chimney

Tree Assessment

37. The tree assessments undertaken from ground level identified 70 trees across the total survey area that exhibited features with potential to support roosting bats, each of which was categorised as having Low, Moderate or High roost potential. Of these 8 were located outside of the finalised works area, and as such are considered 'off-site retained'. A further 21 to 25 (dependent on the final highways layout) are located on or immediately adjacent to the site or within areas of proposed green infrastructure and such are to be retained and buffered within the scheme.

38. The detailed aerial inspection surveys undertaken in 2019 and 2021 recategorized a number of trees originally classed as having Moderate potential down to Low or Negligible potential.

Confirmed Roosts

39. No bat roosts in tree features were confirmed during the ground-based or aerial inspection assessments.

High Roost Potential Trees

40. From the completed assessments, no trees were identified within the works area as having a high potential to support roosting bats.

Moderate Roost Potential Trees

41. From the completed assessments, 10 trees within the works area were identified as having moderate bat roosting potential (T7, T10, T15, T16, T18, T25, T28, T30, T33, T57 (Figure 3)). Two further trees T51 and T52 may additionally be lost, dependent on the final scheme details.

Low Roost Potential Trees

42. 23 tees were categorised as having low potential to support roosting bats: T1, T3, T4, T8, T9, T12, T13, T14, T17, T19, T21, T22, T23, T24, T27, T29, T31, T32, T38, T45, T49, T50 and T56. An additional two trees: T54 and T63 may additionally be lost, dependent on the final scheme details.

Nocturnal Surveys

43. Nocturnal surveys undertaken in 2019 and 2021 on all moderate risk trees within the works area listed above identified no evidence of occupation/use by roosting bats within any tree. Surveys did however note small numbers of common pipistrelle, soprano pipistrelle, *Myotis* sp., and *Nyctalus* sp. bats active within the local vicinity.

Foraging / Commuting

44. The following section summarises the results of bat transect surveys undertaken across the 2018, 2020, 2021 and 2022 field seasons.

Activity Transects

Main Site

29th May 2018 – Original Main Site

45. In total 17 bat registrations were recorded during the May bat transect, the majority of which (11) were identified as common pipistrelle. Other bat species recorded during this transect included occasional unidentified *Myotis* species (3), noctule *Nyctalus Noctula* (2) and a single soprano pipistrelle *Pipistrellus* pygmaeus registration. Bat activity was largely associated with internal field hedgerows (H6, H11, H13 and H20) and the central mixed plantation adjacent to H18, which

included foraging activity. In addition, four passes were recorded at the western site boundary. The initial record, a common pipistrelle, was recorded at 22:05, nearly an hour after sunset.

25th July 2018 – Original Main Site

46. A total of 12 bat registrations were recorded at 11 locations over the course of the transect survey. Common pipistrelle represented half the contacts recorded, with the remainder comprising noctule/*Nyctalus* sp. (3), and single registrations of soprano pipistrelle, *Myotis* sp. and brown long-eared bat. Bat activity was largely recorded within the south east of the site, associated with the plantation woodland and hedgerow H11. Bat activity largely comprised commuting behaviour, though foraging common pipistrelle were recorded at the southern boundary along woodland edge habitat. No bat activity was recorded along the main hedgerows within the site interior. No bat activity was noted during the initial hour of survey following sunset.

18th September 2018 – Original Main Site

47. The September transect recorded 7 bat contacts at 8 locations, comprising common pipistrelle (6) and single soprano pipistrelle and noctule contacts. Bat activity was largely associated with the habitats towards the centre of the site including Ashgrove Brook and hedgerow H10 to the south and neighbouring woodland. Again there was an absence of bat activity recorded along the main internal hedgerows. Bat activity was predominantly identified as foraging behaviour, with the initial contact recorded at 19:54, 41 minutes after sunset.

6th July 2020 – Original Main Site

48. The July 2020 transect recorded a total of 22 bat contacts, 19 of which were common pipistrelle, with two *Myotis* sp. contacts and a single brown long-eared bat contact. Common pipistrelle activity was recorded at regular intervals along the route, and was largely associated with hedgerow and brook habitats towards the centre, north and west of the site including along hedgerows H6, H5 and H18 and neighbouring woodland. Bat activity was predominantly identified as commuting behaviour. The initial bat contact, a common pipistrelle, was recorded 30 minutes after sunset.

27th April 2020 – Main Site Southern Extension

49. The spring transect of the southern extension area to the south of the Main Site recorded a total of 16 bat contacts, of which 13 were common pipistrelle and the remainder single contacts each of soprano pipistrelle, *Myotis* sp. and noctule. Bat activity was closely associated with the hedgerow network and the lower reaches of Ashgrove Brook within the site. The earliest bat activity recorded was a common pipistrelle at 20::49, 25 minutes after sunset.

6th July 2020 – Main Site Southern Extension

50. 25 bat contacts were recorded during the July transect of the southern extension area, again predominantly common pipistrelle (14), with soprano pipistrelle (5), *Myotis* sp. (3) and noctule (3) also present. 13 of the contacts were located along the same stretch of the Ashgrove Brook and adjacent woodland between hedges H31 and H33, west of the composting facility, where all four species were recorded. The initial contact was a common pipistrelle at 21:59, 24 minutes after sunset.

29th September 2020 – Main Site Southern Extension

51. The September transect recorded a higher level of bat activity throughout the southern extension area (62 contacts) and a greater diversity of species, comprising common pipistrelle (20), soprano pipistrelles (11), unidentified *Pipistrellus* sp. (7), noctule/*Nyctalus* sp. (11), brown long-eared bat (3), *Myotis* sp. (4) and barbastelle (6) Barbastella barbastellus, an Annex II species. The majority of bat activity recorded was located in the west and southwest, associated with the hedgerows and woodland edge habitats. The earliest bat contacts noted were a noctule at 19:04 and a common pipistrelle at 19:10, 18 and 24 minutes after sunset respectively. The barbastelle activity was recorded along the western site boundary and hedgerow and brook habitats towards the southern boundary. Each barbastelle contact was a single pass (at 19:48, 19:58, 20:32, 20:39, 20:53 and 21:05).

17th May 2021 – Main Site (North)

52. The May 2021 transect of the northern half of the Main Site recorded only 10 bat contacts, comprising common pipistrelle (6), noctule (3) and *Myotis* sp. (1). Bat activity was largely associated with the habitats towards the centre of the area covered by the transect route, along Ashgrove Brook and hedgerow H5. The earliest activity was a common pipistrelle recorded at 21:17, 22 minutes after sunset.

17th May 2021 – Main Site (South)

53. The simultaneous transect undertaken across the south of the Main Site recorded 15 bat contacts in total, mostly common pipistrelle (7) and noctule (6), with two commuting *Myotis* sp. also recorded. Bat activity was mostly recorded towards the site perimeter to the west, south and east, with all three species recorded in the vicinity of off-site woodland to the southwest ('The Heath') including along the parallel hedgerows H25 and H32. The initial bat contact was a foraging noctule at 21:17, 22 minutes after sunset.

17th August 2022 – Main Site (North)

5.68 The updating transect across the northern half of the Main Site in August 2022 recorded 10 bat contacts. The initial was a commuting noctule at 20:49, 24 minutes after sunset, following which nine common pipistrelle contacts were recorded, a mix of foraging and commuting behaviour dispersed throughout the transect route, closely associated with the hedgerow network and woodland edge habitats.

17th August 2022 – Main Site (South)

54. The simultaneous transect undertaken across the southern half of the Main Site recorded a total of 12 bat contacts, an initial commuting noctule at 20:45 in the vicinity of the Ashgrove Farm buildings, then foraging and commuting common pipistrelle (9) and soprano pipistrelle (2). Pipistrelle activity was dispersed along the transect route, with five contacts recorded along the southern section of Ashgrove brook and adjoining treeline linking to the eastern site boundary.

Highway Works Area (North-east)

6th July 2021 – Highways Works Area (North)

55. The summer transect of the northern Highway Works Area recorded 27 bat contacts at 21 locations though this included land outside of the Proposed Development. Most activity was identified as common pipistrelle (22 contacts), with the remainder comprising soprano pipistrelle (3), *Pipistrellus* sp. (1) and brown long-eared bat (1). The initial activity was a common pipistrelle recorded at 21:47, 22 minutes after sunset. Bat activity was noted throughout the transect route in association with hedgerows, treelines and including a tributary to Padbury Brook at the far north of the transect route and hedgerows H49 and H50 within/adjacent to the proposed working area.

8th September 2021 – Highways Works Area (North)

56. The September transect across the northern Highway Works Area and adjacent land recorded 30 bat contacts. Most frequently recorded were noctule/*Nyctalus* sp. (11), with common pipistrelle (9) and soprano pipistrelle (7), and *Myotis* sp. also recorded. Much of the noctule/*Nyctalus* sp. activity was recorded within the fields to the immediate west and south of J10, whereas the pipistrelle activity was mostly associated with the field boundaries further south. The earliest bat activity recorded was a common pipistrelle commuting west of J10 at 20:04, 32 minutes after sunset.

25th May 2022 – Highways Works Area (North)

57. A total of 24 bat contacts were recorded during the transect, comprising 16 common pipistrelle, four soprano pipistrelle, two *Myotis* sp., and two noctule/*Nyctalus* sp. The pipistrelle activity was largely dispersed, associated with hedgerow and woodland edge habitats, with no concentrations of activity apparent. Both the noctule/*Nyctalus* records were recorded along Ardley Road between Ardley and the M40 at 21:49 and 21:50 and potentially were both from the same individual bat. Both *Myotis* sp. records were recorded along the neighbouring hedgerow to the south (at 22:42 and 22:53). The earliest bat activity recorded was a single common pipistrelle recorded along plantation woodland bordering J10 and the B430 at 21:13, two minutes after sunset, indicating the probable existence of a nearby roost site. The next bat activity, another common pipistrelle, was not noted until 21:25.

Highway Works Area (South-east / Gagle Brook Corridor)

6th July 2021 – Highways Works Area (South)

58. The July 2021 transect across the southern Highway Works Area additionally encompassed the southernmost section of the Main Site. This transect recorded 18 bat contacts at 14 locations. These were mostly identified as common pipistrelle (13), with the remainder being soprano pipistrelle (4) and *Myotis* sp. (1). Bat activity was closely associated with hedgerows, treelines, the Gagle Brook corridor and an area of off-site woodland (Birch Spinney). The initial bat activity recorded was a foraging common pipistrelle at 21:47 east of Ashgrove Brook and Birch Spinney.

8th September 2021 – Highways Works Area (South)

59. Bat activity levels were lower across the southern Highway Works Area and southern extent of the Main Site, with only eight bat contacts recorded. These were predominantly soprano pipistrelle (5), with common pipistrelle (2) and noctule (1) also recorded. The initial bat contacts were the noctule, commuting over hedgerows H69 and H71 at 19:54, 18 minutes after sunset, and a commuting soprano pipistrelle at 20:01. Bat activity was dispersed, but with five pipistrelle contacts located along the Gagle Brook corridor. No bat activity was recorded within the southern extent of the Main Site on this occasion.

25th May 2022 – Highways Works Area (South)

60. This transect recorded a total of 28 bat contacts, identified as common pipistrelle (11), soprano pipistrelle (7), noctule/*Nyctalus* (7), barbastelle (2) and *Myotis* sp. (1). The initial bat contact was a noctule recorded at 21:31, 22 minutes after sunset, followed by a soprano pipistrelle at 21:42. The majority of bat activity was recorded in association with the wooded corridor bordering Gagle Brook, with common pipistrelle, soprano pipistrelle and a *Nyctalus* sp. contact recorded in association with a tree line and hedgerows surrounding Dewars farm, beyond the Order Limits to the south. Both barbastelle contacts were recorded along Gagle Brook (22:42 and 23:03). The transect extended along the southern boundary of the Main Site, where small numbers of foraging and commuting common and soprano pipistrelle were recorded.

Activity Transects Surveys Summary

61. Overall, results of the monthly activity surveys undertaken up to and including 2022 indicated that the Site is primarily used by foraging and commuting common and soprano pipistrelles, with both noctule, *Nyctalus* sp. and *Myotis* sp. bats also frequently utilising habitats present. Brown long-eared bats were noted only infrequently, but were likely under recorded given the typical very low volume of their calls. Barbastelle was recorded during two of the 17 transect routes, initially on 29/09/20 within the southern extension area of the Main Site (six single passes along the western site boundary and southern hedgerow and brook habitats), and subsequently on 25/05/22 (two contacts along the Gagle Brook corridor).

62. The distribution of bat activity highlighted that mature hedgerow boundaries, tree lines, woodland edges and wooded brook corridors represented key habitat resources for both foraging and commuting individuals. Notable foraging areas/flight lines recorded include those associated with woodland edge and hedgerow habitats, Gagle Brook and other vegetated brook corridors.

Automated Static Detector Surveys

63. Static SM2BAT+ detectors were deployed within the Main Site area in spring, summer and autumn in 2018 and 2020, spring 2021, and summer 2022. Cumulatively these recorded across 757 hours.

64. Two detectors were installed within the Highway Works Area in summer and autumn 2021 and in spring 2022, with an additional static detector deployed along Gagle Brook in September 2022. Cumulatively the Highways Works Area detectors were operational for a total of 354 hours.

65. A summary of the automated static detector survey results is set out below.

Main Site

May 2018

66. The static detector was located towards the south-eastern end of hedgerow H5, north of the farm buildings and recorded a total of 3346 registrations over the five-night recording period. Bat activity was dominated by common pipistrelle activity (c.65.5 registrations per hour and c.97% of total registrations recorded), the majority of which was recorded during the second and third nights of the survey (c.48% and 39% respectively). Soprano pipistrelle was also most frequently recorded during the second night (c.78% of 80 registrations). Other species recorded in May included unidentified *Myotis* sp. (10 registrations, noctule (4 registrations) and single unidentified *Pipistrellus* sp. and brown long-eared bat registrations.

July 2018

67. The static detector was located at the northern boundary of the Main Site, adjacent the railway embankment and recorded comparatively low levels of bat activity with a total of 247 registrations. Common pipistrelle accounted for c.62% of the activity data. Other species recorded included occasional noctule (69 registrations, c.28%) and rarely occurring soprano pipistrelle (8 registrations) and brown long-eared bat (8 registrations), an unidentified *Nyctalus*/*Eptesicus* sp. (3 registrations), unidentified *Myotis* sp. (3 registrations), and two Nathusius' pipistrelle *Pipistrellus* nathusuii registrations. Most common pipistrelle activity occurred during the initial two nights of recording (c.42% and 36% respectively), whereas most noctule behaviour was recorded during the 2nd and 3rd nights (c.48% and 35%).

September 2018

68. The static detector was located on the northern edge of plantation W3 and recorded a total of 242 registrations over the five-night period. Bat activity was dominated by common pipistrelle (c..3.4 registrations per hour, c.81%). Other species rarely recorded species included soprano pipistrelle (22 registrations), noctule (21 registrations) and unidentified *Myotis* sp. (2 registrations). Most common pipistrelle activity occurred during the initial two nights (c.45% and 42%), and most soprano pipistrelle activity occurred during the second night (c.91%). All the noctule recorded occurred during the fourth night.

April-May 2020

69. The static detector was deployed along the edge of plantation W5 and logged a total of 1446 registrations across the five-night recording period, of which the majority were common pipistrelle (962 registrations, c.66%), with most activity occurring during the first and third nights. 26 of the 27 soprano pipistrelle registrations occurred during the initial night, whereas most *Myotis* sp. activity (429 of 452 registrations) occurred during nights 1 to 3. Less frequently encountered species comprised noctule (3 registrations) and single registrations each of brown long-eared bat and serotine *Eptesicus* serotinus (not previously recorded).

June 2020

70. Two static detectors were deployed in June 2020, one along a tree line located to the south of Severn Trent Composting Facility, and the second located along hedgerow H5, adjacent a small plantation woodland stand, north of the farm buildings.

71. The first detector recorded 3645 bat registrations in total. These comprised common pipistrelle (1996 registrations), soprano pipistrelle (1056), noctule (57), *Myotis* sp. (422), brown long-eared bat (9), unidentified *Nyctalus* / *Eptesicus* (5), *Nyctalus* (7) and *Pipistrellus* sp. (13). Also recorded were 80 barbastelle registrations, this species is listed on Annex II of the Habitats Directive. Most barbastelle activity was recorded during the final night of the survey (46 registrations); however this species was recorded by the detector during each of the other nights (range 3-18 registrations).

72. The detector located along hedgerow H5 recorded a total of 1012 bat registrations. These comprised common pipistrelle (486), *Myotis* species (246), soprano pipistrelle (186), noctule (56), barbastelle (21), brown long-eared bat (9), *Nyctalus* / *Eptesicus* sp. (5), and *Nyctalus* sp. (3). Most of the barbastelle activity recorded by this unit occurred during the initial night of the survey (13 registrations), with 1 to 4 registrations recorded across the remaining nights. Soprano pipistrelle and *Myotis* sp. activity was also highest during the first night (83 and 106 registrations respectively),

however common pipistrelle activity has highest during the final night (172). The highest activity levels in the overall dataset were recorded between 22:00 and 00:00.

September 2020

73. In September 2020 one static detector was located at the base of a mature sycamore (tree T158 in the Arboriculture Report), west of Ashgrove Brook and a small area of broadleaved plantation woodland. This recorded 233 bat registrations, comprising common pipistrelle (42), soprano pipistrelle (59), noctule (37), *Myotis* sp. (84), barbastelle (5), *Nyctalus* sp. (4) and single registrations brown long-eared bat and *Pipistrellus* sp. Most activity occurred between 19:00 and 21:00 (c.65%), with very little activity recorded after midnight (c.12.4%).

74. The second detector was located at hedgerow H37 within the main site but close to the B430. This recorded a total of 73 bat registrations, comprising common pipistrelle (53), soprano pipistrelle (7), *Myotis* sp., (11) and single noctule and barbastelle registrations. Most of the common pipistrelle activity was recorded during the initial night (c.77%). Only two registrations were recorded after midnight (one *Myotis* sp. and one noctule registration).

May 2021

75. One static detector was located along hedgerow H28, east of Ashgrove Brook and west of the composting facility. This recorded 232 registrations, the majority of which were identified as common pipistrelle (177 registrations c.76%), with the remainder composed of soprano pipistrelle (18), noctule (12) and *Myotis* sp. (25). Bat activity levels were broadly consistent across the four-hour period 21:00 to 01:00 (21%, 22%, 29% and 22%), and with no bat activity noted after 02:25.

76. The second detector was located within plantation near to hedgerow H18, west of the farmstead. This recorded 255 registrations over the same period. Common pipistrelle was the most frequently recorded species (128 registrations), followed by noctule (68), *Myotis* sp. (37), soprano pipistrelle (12) brown long-eared bat (6) and barbastelle (4). The highest common and soprano pipistrelle and *Myotis* sp. activity levels all occurred on the third night, however most of the noctule activity occurred on the final night. There were peaks in the overall data set between 22:00-23:00, 00:00-01:00 and 03:00-04:00, mostly attributable to pipistrelle species on each occasion. The peak between 03:00 and 04:00 was the only instance of a potential pre-dawn activity peak noted.

June-July 2021

77. One detector was located along the edge of the linear plantation along Ashgrove Brook south of the farm buildings. This recorded a total of 432 registrations, of which c.81% of activity (351 registrations) was identified as common pipistrelle. Other species were detected infrequently, comprising noctule (30), soprano pipistrelle (23), *Myotis* sp. (16), barbastelle (11), and *Pipistrellus* sp. (1). Much of the pipistrelle activity occurred during the initial night of recording (common 190 registrations, c.54.1%, soprano pipistrelle 10 registrations, 43.5%). Small numbers of barbastelle registrations were recorded during four of the five nights (range 1-5), all between 01:00 and 04:00. Common pipistrelle activity levels were highest between 22:00 and 00:00 (53%), and most noctule behaviour was noted between 2:00-23:00 (63%).

78. The second detector was located at hedgerow H37 close to the B430. This recorded a total of 415 registrations across the five nights. Activity was again dominated by common pipistrelle (243, 58.36%), with less frequently occurring *Myotis* sp. (79),soprano pipistrelle (49), noctule (24), brown long-eared bat (14), barbastelle (4), and Nathusius' pipistrelle (2). Pipistrelle and noctule activity

was highest between 22:00-23:00 (common pipistrelle 107, c.44%, soprano pipistrelle 22, c.45%, noctule 15, 62.5%), whereas *Myotis* activity was broadly consistent between 22:00-03:00. The two Nathusius' pipistrelle registrations were both recorded during the fourth night, one 22:00-23:00 and one 23:00-00:00. Most brown long-eared bat activity (seven of eight registrations) and all barbastelle activity occurred 00:00-03:00.

August 2022

79. One static detector was deployed along hedgerow H6 towards the northwest of the Main Site. This recorded a total of 295 registrations, again mostly common pipistrelle (c.65.4%, 193 registrations). Other species recorded comprised noctule (25), soprano pipistrelle (23), *Myotis* sp. (22), *Nyctalus* sp. (11), brown long-eared bat (10), barbastelle (8), and *Pipistrellus* sp. (3). Activity levels for most species were relatively consistent throughout the night, but with late evening peaks in the noctule (60% 21:00-22:00) and brown long-eared bat (70% 22:00-23:00) data sets.

80. The second static detector was located towards the west of the Main Site, along hedgerow H16. This recorded a total of 2011 registrations across the five-night period, comprising common pipistrelle (1864), soprano pipistrelle (73), *Myotis* sp. (18), barbastelle (17), *Nyctalus* sp. (15), brown long-eared bat (11), noctule (10), *Pipistrellus* sp. (2) and a single unidentified *Nyctalus* / *Eptesicus* sp. Common pipistrelle activity was strongly skewed to the fourth night of recording (913 registrations, c.49%). Other species were recorded in low numbers across most nights. No barbastelle activity was noted during the initial night of recording however 3 to 6 registrations were recorded across each of the remaining nights (mostly between 00:30-02:30).

81. The third static detector was deployed along hedgerow H30 close to Ashgrove Brook, northwest of the composting facility. This recorded a total of 3380 registrations across the recording period. Common pipistrelle represented less than half the dataset (1434 registrations, c.45.05%), with *Myotis* sp. (972), soprano pipistrelle (391), brown long-eared bat (277), noctule (135), barbastelle (91), and *Nyctalus* sp. (71) all recorded across each of the five nights, and with occasional unidentified *Pipistrellus* and *Nyctalus*/*Eptesicus* species also recorded. Activity levels were broadly consistent across all five nights for each species.

Highway Works Area (North-east)

July 2021

82. The static was detector deployed along hedgerow H50 within the north-eastern highways works area in early July recorded a total of 891 registrations, the majority of which were again identified as common pipistrelle (844, c.95%). The remainder was made up of infrequently recorded soprano pipistrelle (9), noctule (10). *Myotis* sp. (14), brown long-eared bat (5), barbastelle (6), *Nyctalus* / *Eptesicus* sp. (2) and *Pipistrellus* sp. (1). Most of the common pipistrelle activity occurred between 22:00 and 01:00 (c.64%), with a second, smaller peak in activity between 03:00 and 05:00 (c.24%).

September 2021

83. The static detector was located at hedgerow H50 within the north-eastern highways works area recorded 5261 registrations in early September, again predominantly common pipistrelle (c.58%). *Myotis* sp. were the next most frequently encountered (1291), followed by soprano pipistrelle (712) and noctule (165). Lower numbers of barbastelle (24), brown long-eared bat (9) and *Pipistrellus* sp. (1) were also recorded. Common pipistrelle activity was broadly constant between 20:00 and

03:00, and similarly for soprano pipistrelle between 21:00 and 04:00. Barbastelle were recorded across all nights, but with single registrations only recorded on the initial and final night of recording.

May 2022

84. The static detector was located along hedgerow H50 within the J10 Highway Works Area. This recorded 2765 bat registrations in total. Common pipistrelle comprised over 97% of the activity (2684 registrations). Less frequently registered were *Myotis* sp. (23), soprano pipistrelle (14), noctule (12), *Pipistrellus* sp. (11), Nathusius' pipistrelle (7), barbastelle (7), brown long-eared bat (5), and *Nyctalus* sp. (2). A single Nathusius' pipistrelle registration was recorded at 22:25 during the initial night, with the others all occurring during the second night between 23:17 and 23:20. Barbastelle was also only recorded during the initial two nights of the five-night recording period. Most common pipistrelle activity occurred between 22:00 and 00:00 (c.59.2%), with no pre-dawn peak noted in the activity of any species.

Highway Works Area (South-east / Gagle Brook Corridor)

July 2021

85. The static detector was located in the region of the proposed Middleton Stoney Relief Road crossing point of the brook corridor. This recorded a total of 6445 registrations , across the five-night period, 4848 of which (c.75%) were identified as common pipistrelle. The remainder of the bat activity comprised soprano pipistrelle (617), noctule (581), *Myotis* sp. (156), brown long-eared bat (10), barbastelle (27) and serotine (206). Most of the common pipistrelle activity occurred during the first two nights (c.61%), whereas soprano pipistrelle activity mostly occurred during the first, second and final nights (c.79%), with broadly consistent, high levels of activity noted between 23:00 and 04:00. Soprano pipistrelle activity was highest between 00:00 and 04:00, whereas noctule mostly occurred 22:00-01:00, with a second small peak in activity 04:00-05:00. Almost all of the serotine activity occurred between 00:45 and 02:00 on 8th July, with the remainder all occurring between 00:30 and 00:40 on the final night. Low levels of barbastelle activity were recorded across all nights except the third (range 0-10).

September 2021

86. The second detector was again located at the proposed crossing point of the Middleton Stoney Relief Road. This recorded 4206 registrations, of which 2177 (c.52%) were identified as common pipistrelle, and 1450 (c.34%) as soprano pipistrelle. The remainder comprised noctule (110), *Myotis* sp. (383), barbastelle (50), brown long-eared bat (29) and *Nyctalus* sp. (7). Common pipistrelle and soprano pipistrelle activity levels were highest during the second night of recording (c.62% and c40.5% respectively), whereas *Myotis* sp. were recorded more frequently during the third night (c30.5%). Common pipistrelles were most active between 20:00 and 21:00, and soprano pipistrelle between 21:00 - 22:00 and between 02:00 - 04:00. Barbastelle calls were recorded across all nights (range 3-24 registrations).

May 2022

87. The static detector was located at a closely similar location as surveyed previously. This recorded a total of 1812 bat registrations, the majority of which were identified as common pipistrelle (1226, c.67.7%). The remainder of the bat activity comprised soprano pipistrelle (316), noctule (110), barbastelle (87), *Myotis* sp. (27), *Pipistrellus* sp. (22), brown long-eared bat (16), and *Nyctalus* sp. (8). Approximately one third of all activity recorded occurred between 21:00 and 22:00, mostly

attributable to a peak in common pipistrelle activity, and to a lesser extent, noctule and *Myotis* sp. activity. Soprano pipistrelles were most active 00:00-02:00 (c.58.5%), whereas elevated barbastelle activity was noted 01:00-02:00 (c.39.1%). Barbastelle calls were recorded during each of the five nights (range 4 to 31 registrations).

September 2022

88. The static detector was deployed as previously along the Gagle Brook corridor and recorded a total of 1207 registrations. Common pipistrelle accounted for approximately half (653 registrations, 54.1%). Soprano pipistrelle was also regularly encountered (243), with the remainder comprising *Myotis* sp. (88), noctule (78), barbastelle (59), brown long-eared bat (50), *Nyctalus* sp. (30), and *Pipistrellus* sp. (8). Activity levels were generally highest on the night of 11-12/09/22, with over half the total number of registrations recorded then. Most barbastelle activity occurred between 22:00-04:00 during this one night (50 registrations, c.84.7%) with 0-4 registrations recorded each of the remaining nights. Most common pipistrelle activity occurred 20:00-22:00 (402 registrations, c.61.6%), and most noctule activity between 19:00-21:00 (51, 65.4%). A small peak in soprano activity at 05:00-07:00 indicated a possible roost in the near vicinity.

Appendix F: Static Detector Survey Results Summary for 2018 to 2022

Survey Dates	Survey Hours	Total Avg. per hour	Total Registrations	Common Pipistrelle			Soprano Pipistrelle			Noctule			*Myotis* Species			Brown long-eared bat			*Nyctalus / Eptesicus*			Nathusius' Pipistrelle			*Pipistrellus* Species			Barbastelle			Serotine			*Nyctalus* Species		
				Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total
Main Site																																				
10/05 - 15/05/18	49	67.49	3342	65.55	1556	3246	1.62	62	80	0.08	3	4	0.20	3	10	0.02	1	1	0.00	0	0	0.00	0	0	0.02	1	1	0.00	0	0	0.00	0	0	0.00	0	0
25/07 - 31/07/18	57	4.30	247	2.68	65	154	0.14	6	8	1.20	33	69	0.03	3	3	0.14	7	8	0.05	2	3	0.03	2	2	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
18/09 - 23/09/18	58.3	4.15	242	3.38	88	197	0.38	20	22	0.36	21	21	0.03	2	2	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
27/04 - 02/05/20	50	28.92	1446	19.04	546	962	0.53	26	27	0.06	2	3	8.95	171	452	0.02	1	1	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.02	1	1	0.00	0	0
22/06 - 27/06/20	41.5	87.83	3645	48.1	1118	1996	25.5	766	1056	1.37	23	57	10.2	177	422	0.22	2	9	0.12	4	5	0.00	0	0	0.31	5	13	1.93	46	80	0.00	0	0	0.17	2	7
22/06 - 27/06/20	41.5	24.39	1012	11.7	172	486	4.48	73	186	1.35	25	56	5.93	106	246	0.22	4	9	0.12	3	5	0.00	0	0	0.00	0	0	0.51	13	21	0.00	0	0	0.07	2	3
23/09 - 28/09/20	65.5	3.56	233	0.64	19	42	0.90	47	59	0.56	18	37	1.28	57	84	0.02	1	1	0.00	0	0	0.00	0	0	0.02	1	1	0.08	4	5	0.00	0	0	0.06	3	4
23/09 - 28/09/20	65.5	1.11	73	0.81	41	53	0.11	4	7	0.02	1	1	0.17	5	11	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.02	1	1	0.00	0	0	0.00	0	0
14/05 - 19/05/21	46	5.04	232	3.85	114	177	0.39	17	18	0.26	8	12	0.54	9	25	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
14/05 - 19/05/21	46	5.54	255	2.78	121	128	0.26	8	12	1.48	41	68	0.80	25	37	0.13	4	6	0.00	0	0	0.00	0	0	0.00	0	0	0.09	4	4	0.00	0	0	0.00	0	0
29/06-04/07/21	42	10.29	432	8.36	190	351	0.55	10	23	0.71	11	30	0.38	6	16	0	0	0	0.00	0	0	0.00	0	0	0.02	1	1	0.26	5	11	0.00	0	0	0.00	0	0
29/06-04/07/21	42	9.88	415	5.79	72	243	1.17	17	49	0.57	10	24	1.88	37	79	0.33	6	14	0.00	0	0	0.05	2	2	0.00	0	0	0.10	3	4	0.00	0	0	0.00	0	0
09/08-14/08/22	51	5.78	295	3.79	56	193	0.45	8	23	0.49	13	25	0.43	8	22	0.20	3	10	0.00	0	0	0.00	0	0	0.06	2	3	0.16	4	8	0.00	0	0	0.22	8	11
09/08-14/08/22	51	39.43	2011	36.60	913	1864	1.43	28	73	0.20	4	10	0.35	6	18	0.22	3	11	0.02	1	1	0.00	0	0	0.04	1	2	0.33	6	17	0.00	0	0	0.29	5	15
10/08-15/08/22	51	66.27	3380	28.12	401	1434	7.67	125	391	2.65	45	135	19.06	301	972	5.43	100	277	0.12	4	6	0.00	0	0	0.04	1	2	1.78	32	91	0.02	1	1	1.39	21	71
Highway Works Area NE																																				
06/07 - 11/07/21	43	20.72	891	19.63	319	844	0.21	7	9	0.23	5	10	0.33	6	14	0.12	3	5	0.05	2	2	0.00	0	0	0.02	1	1	0.14	3	6	0.00	0	0	0.00	0	0

Survey Dates	Survey Hours	Total Avg. per hour	Total Registrations	Common Pipistrelle			Soprano Pipistrelle			Noctule			*Myotis* Species			Brown long-eared bat			*Nyctalus / Eptesicus*			Nathusius' Pipistrelle			*Pipistrellus* Species			Barbastelle			Serotine			*Nyctalus* Species		
				Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total
08/09-13/09/21	60.5	86.96	5261	50.6	1442	3059	11.8	398	712	2.73	78	165	21.3	349	1291	0.15	7	9	0.00	0	0	0.00	0	0	0.02	1	1	0.40	9	24	0.00	0	0	0.00	0	0
25/05-30/05/22	43.6	63.33	2765	61.48	1160	2684	0.32	6	14	0.28	6	12	0.53	11	23	0.11	4	5	0.00	0	0	0.16	6	7	0.25	7	11	0.16	5	7	0.00	0	0	0.05	2	2
Highway Works Area SE / Gagle Brook																																				
06/07 - 11/07/21	43	149.9	6445	112.7	1535	4848	14.4	208	617	13.5	179	581	3.63	56	156	0.23	3	10	0.00	0	0	0.00	0	0	0.00	0	0	0.63	10	27	4.79	192	206	0.00	0	0
08/09-13/09/21	60.5	69.52	4206	36.0	1350	2177	24.0	588	1450	1.82	51	110	6.33	117	383	0.48	11	29	0.00	0	0	0.00	0	0	0.00	0	0	0.83	24	50	0.00	0	0	0.12	7	7
25/05-30/05/22	43.6	41.56	1812	28.09	528	1226	7.24	196	316	2.52	40	110	0.62	21	27	0.37	6	16	0.00	0	0	0.00	0	0	0.50	10	22	2.00	31	87	0.00	0	0	0.18	3	8
08/09-13/09/22	60	20.12	1207	10.88	318	653	4.05	150	243	1.3	37	78	1.47	29	88	0.83	17	50	0	0	0	0	0	0	0.6	4	6	0.98	50	59	0	0	0	0.5	29	30

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N

0 100 200 m

Site Boundary

Aerial Assessment Tree Results

- Nocturnal
- NONE
- PRF-I
- PRF-M

date 04/02/26

drwn/chkd SE / RAG

client
Oxfordshire Railfreight Ltd.

project
Oxfordshire Strategic Railfreight Interchange, Oxfordshire

title
TREE RESULTS PLAN

scale 1:15,000 @ A3

number
FIGURE 1

rev -

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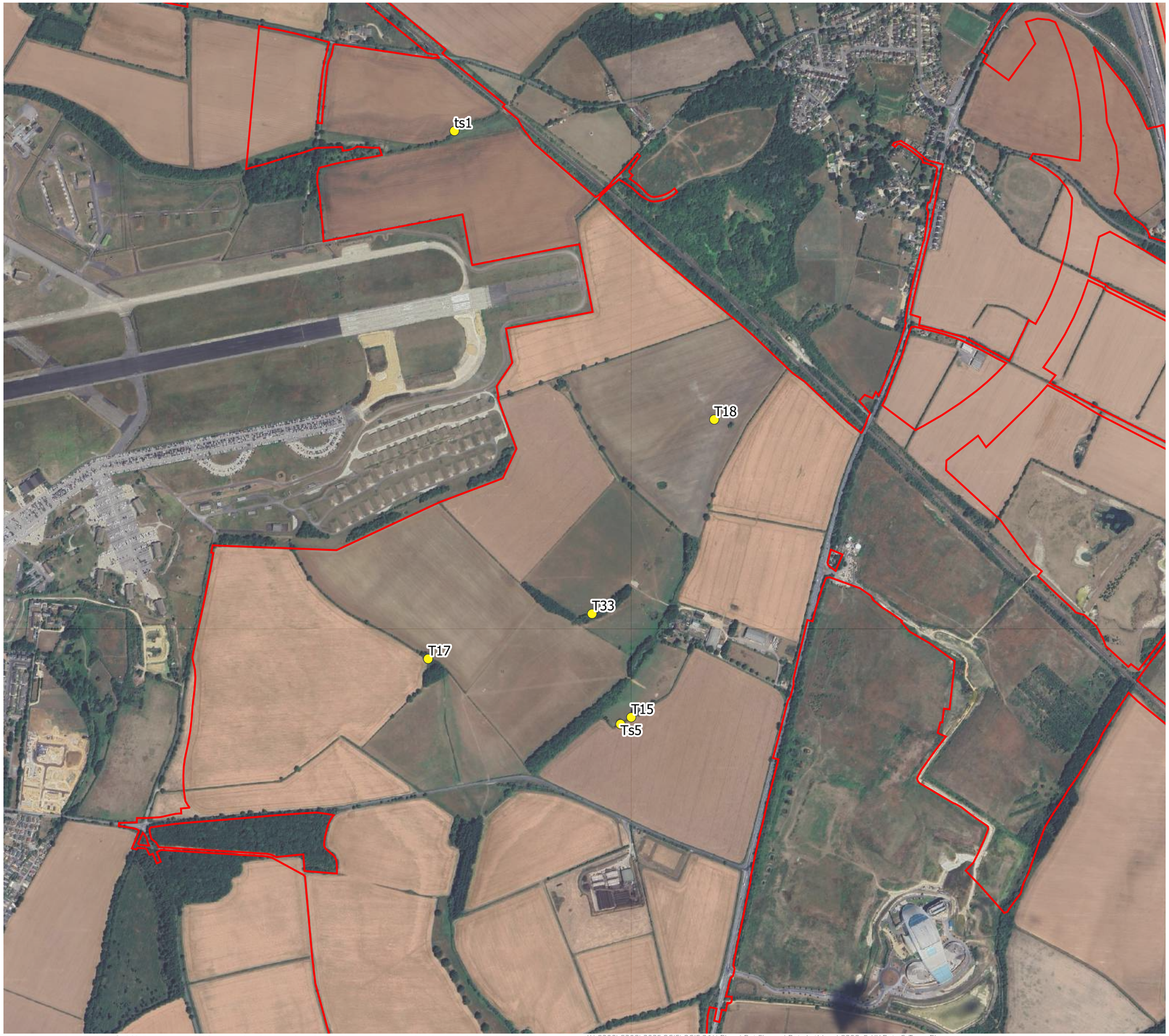

N

0 100 200 m

Site Boundary

Locations of Trees Surveyed via Nocturnals

No Emergences were recorded during these surveys

date 04/02/26

drwn/chkd DPL / RAG

client
Oxfordshire Railfreight Ltd.

project
Oxfordshire Strategic Railfreight Interchange, Oxfordshire

title
Tree Emergence Surveys

scale 1:10,000 @ A3

number
FIGURE 2

rev -

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N

0 25 50 m

- High Bat Potential Building
- Moderate Bat Potential Building
- Low Bat Potential Building
- Negligible Bat Potential Building

date 04/02/26

drwn/chkd EH / RAG

client
Oxfordshire Railfreight Ltd.

project
Oxfordshire Strategic Railfreight Interchange, Oxfordshire

title
BUILDING LOCATION PLAN

scale 1:1,500 @ A3

number
FIGURE 3

rev
-

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N

0 10 20 m

- High Bat Potential Building
- Moderate Bat Potential Building
- Low Bat Potential Building
- Negligible Bat Potential Building
- Survey Positions
- Sight Lines
- Common Pipistrelle
- Flight Lines

Ref.	Time	Species	Number	Building	Description
1	21:31	Common pipistrelle	1	B5	Hole in wall at the top left of wooden window
2	21:38	Common pipistrelle	1	B10	Chimney brickwork

date 04/02/26

drwn/chkd SE / RAG

client
Oxfordshire Railfreight Ltd.

project
Oxfordshire Strategic Railfreight Interchange, Oxfordshire

title
BUILDING EMERGENCE PLAN 09.06.25

scale 1:500 @ A3

number
FIGURE 4a

rev
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N

0 10 20 m

- High Bat Potential Building
- Moderate Bat Potential Building
- Low Bat Potential Building
- Negligible Bat Potential Building
- Surveyor Position
- Surveyor Sight Lines
- Common Pipistrelle
- Flight Lines

Ref.	Time	Species	Number	Building	Description
1	21:45	Common pipistrelle	1	B10	Top left roof ridge tile
2	22:17	Common pipistrelle	1	B10	Right chimney brickwork

date 04/02/26

drwn/chkd SE / RAG

client
Oxfordshire Railfreight Ltd.

project
Oxfordshire Strategic Railfreight Interchange, Oxfordshire

title
BUILDING EMERGENCE PLAN 08.07.25

scale 1:500 @ A3

number
FIGURE 4b

rev -

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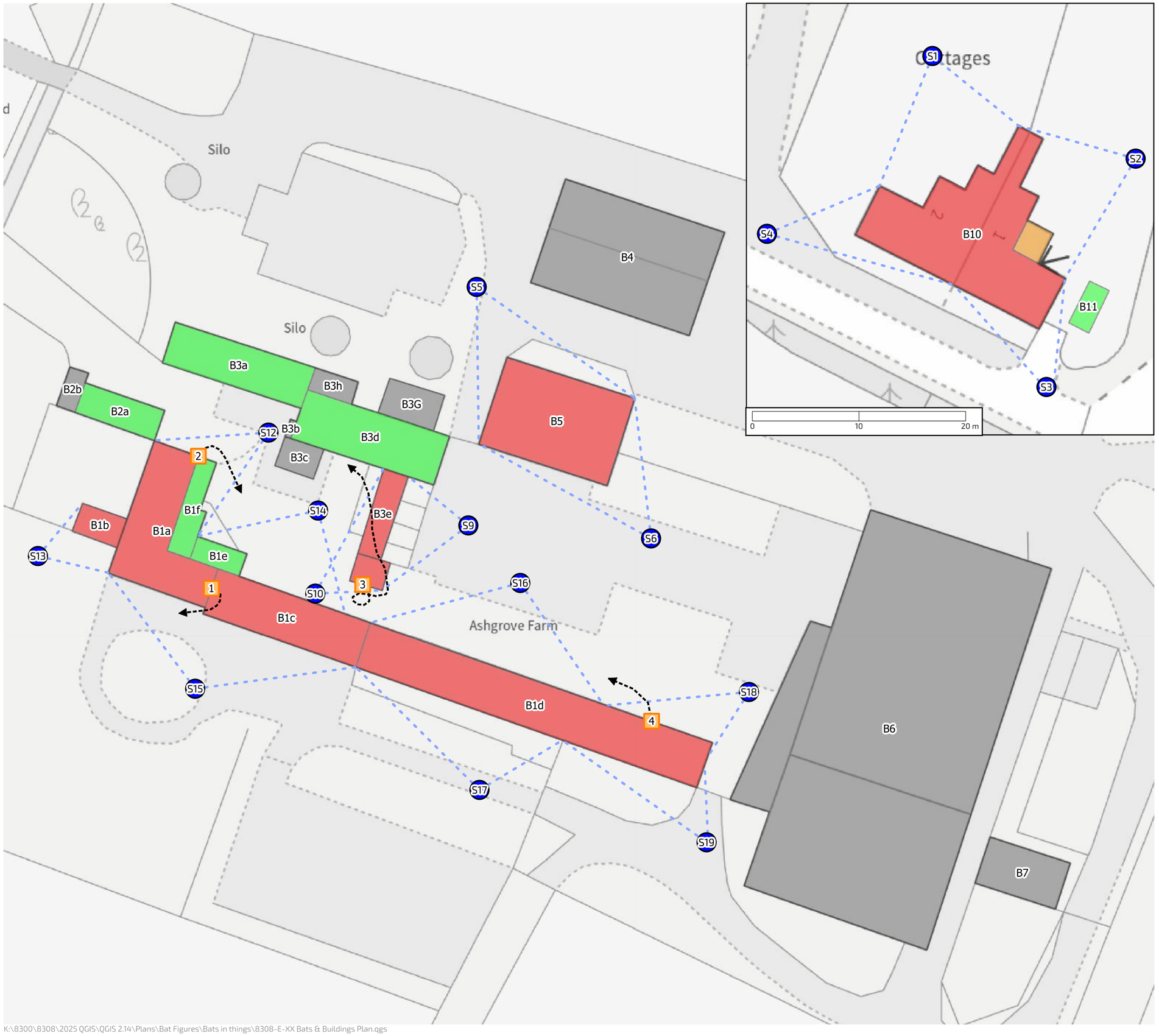

N

0 10 20 m

- High Bat Potential Building
- Moderate Bat Potential Building
- Low Bat Potential Building
- Negligible Bat Potential Building
- Surveyor Position
- Surveyor Sight Lines
- Common Pipistrelle
- Flight Lines

Ref.	Time	Species	Number	Building	Description
1	21:02	Common Pipistrelle	1	B1a	Side of chimney on B1a
2	21:04	Common Pipistrelle	2	B1a/B1f	Under lifted lead flashing where the roof of B1f joins the wall of B1a
3	21:11	Common Pipistrelle	1	B3f	Eaves along side of building
4	21:46	Common Pipistrelle	1	B1d	Second open barn door from the left

date
04/02/26

drwn/chkd
SE / RAG

client
Oxfordshire Railfreight Ltd.

project
Oxfordshire Strategic Railfreight Interchange, Oxfordshire

title
BUILDING EMERGENCE PLAN 05.08.25

scale
1:500 @ A3

number
FIGURE 4c

rev
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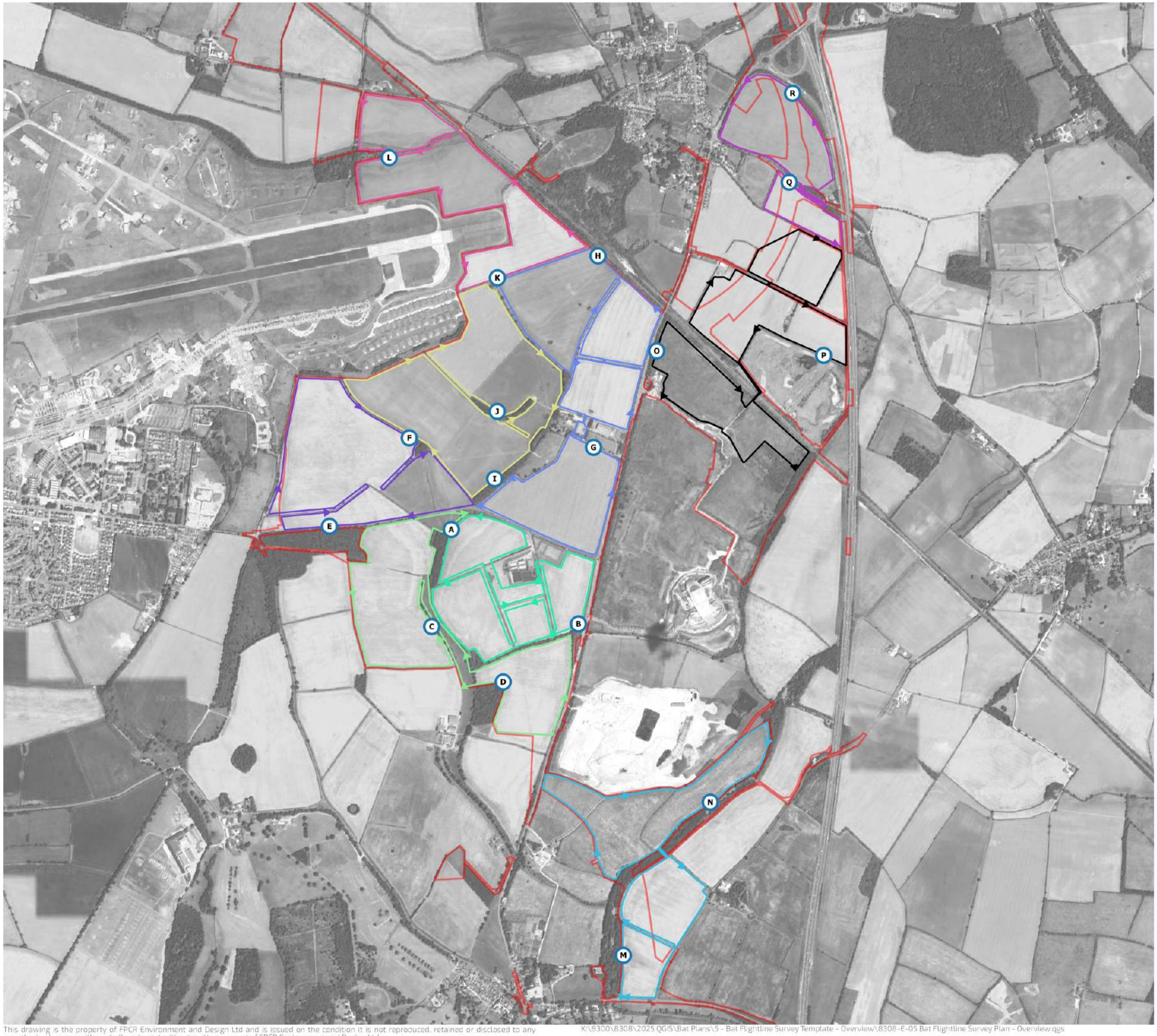

N

0 250 500 m

Site Boundary

Surveyor Locations (with reference)

Transect Routes

- Route One
- Route Two
- Route Three
- Route Four
- Route Five
- Route Six
- Route Seven
- Route Eight
- Route Nine

date: 04/02/26

drwn/chkd: LG / RAG

client: **Oxfordshire Railfreight Ltd.**

project: **Oxfordshire Strategic Rail Freight Interchange, Oxfordshire**

title: **BAT FLIGHT LINE SURVEY REFERENCE PLAN**

scale: 1:17,500 @ A3

number: **FIGURE 5**

rev: -

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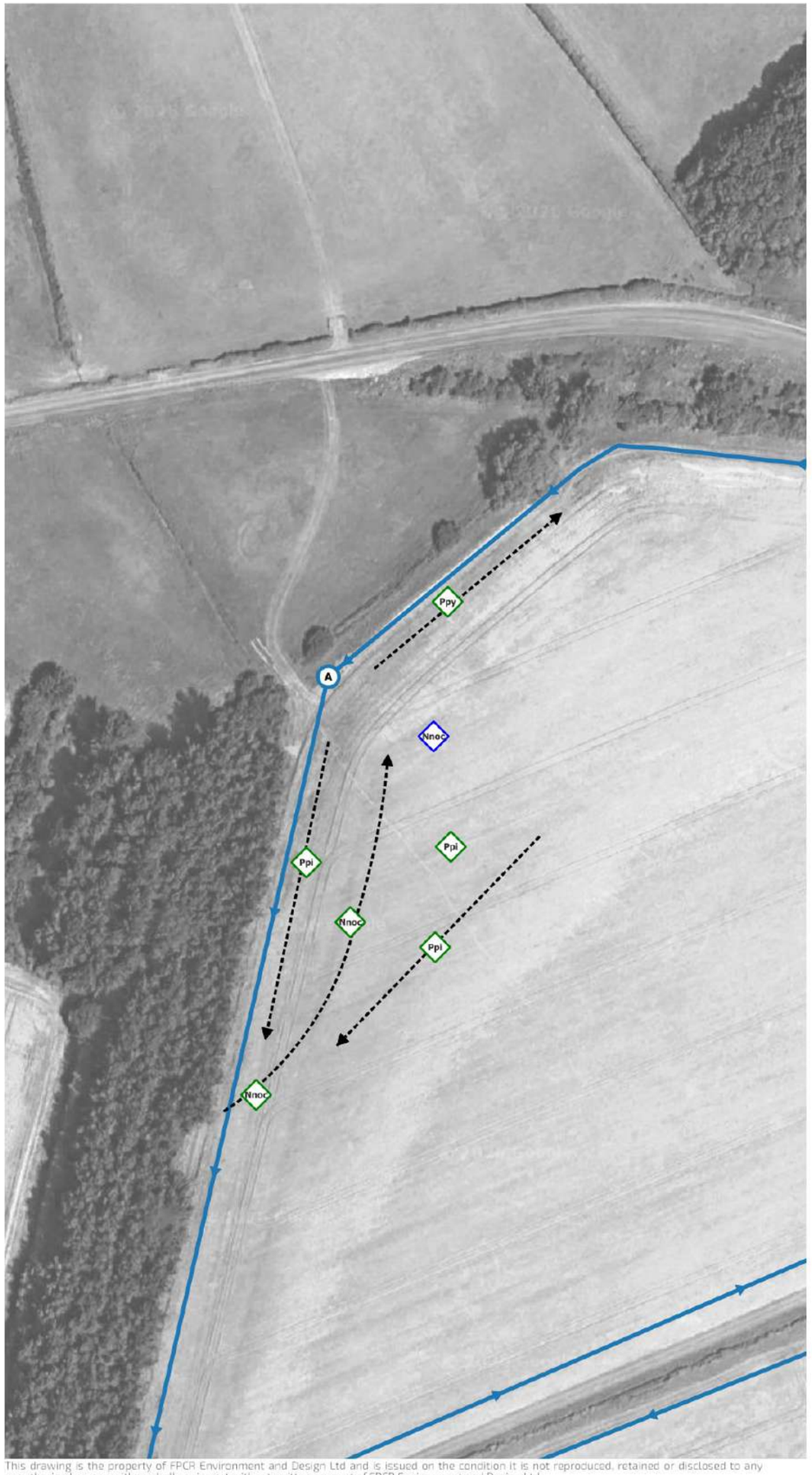

N

0 25 50 m

Site Boundary

Surveyor Locations (with reference)

Transect Route

Bat Contacts

April
May
July
August
September

Behavioural Observation Arrows

Commuting

Species

Ppi Common pipistrelle
Ppy Soprano pipistrelle
Nnoc Noctule

Non-visual Bat Contacts - Surveyor A

Species	Apr	May	Jun	Jul	Aug	Sep
Brown Long-eared	1					
Common Pipistrelle	2	4	1			4
Noctule	2	2	2			5
Soprano Pipistrelle	2	1				
Barbastelle						3
Myotis sp.						1

Non-visual Bat Contacts - Surveyor B

Species	Apr	May	Jun	Jul	Aug	Sep
Noctule			2	2		
Common Pipistrelle				2		
Soprano Pipistrelle				3		2

date: 04/02/26

drwn/chkd: LG / RAG

client: **Oxfordshire Railfreight Ltd.**

project: **Oxfordshire Strategic Railfreight Interchange, Oxfordshire**

title: **BAT FLIGHT LINE SURVEY RESULTS PLAN - ROUTE ONE**

scale: 1:1,500 @ A3

number: **FIGURE 5a**

rev: -

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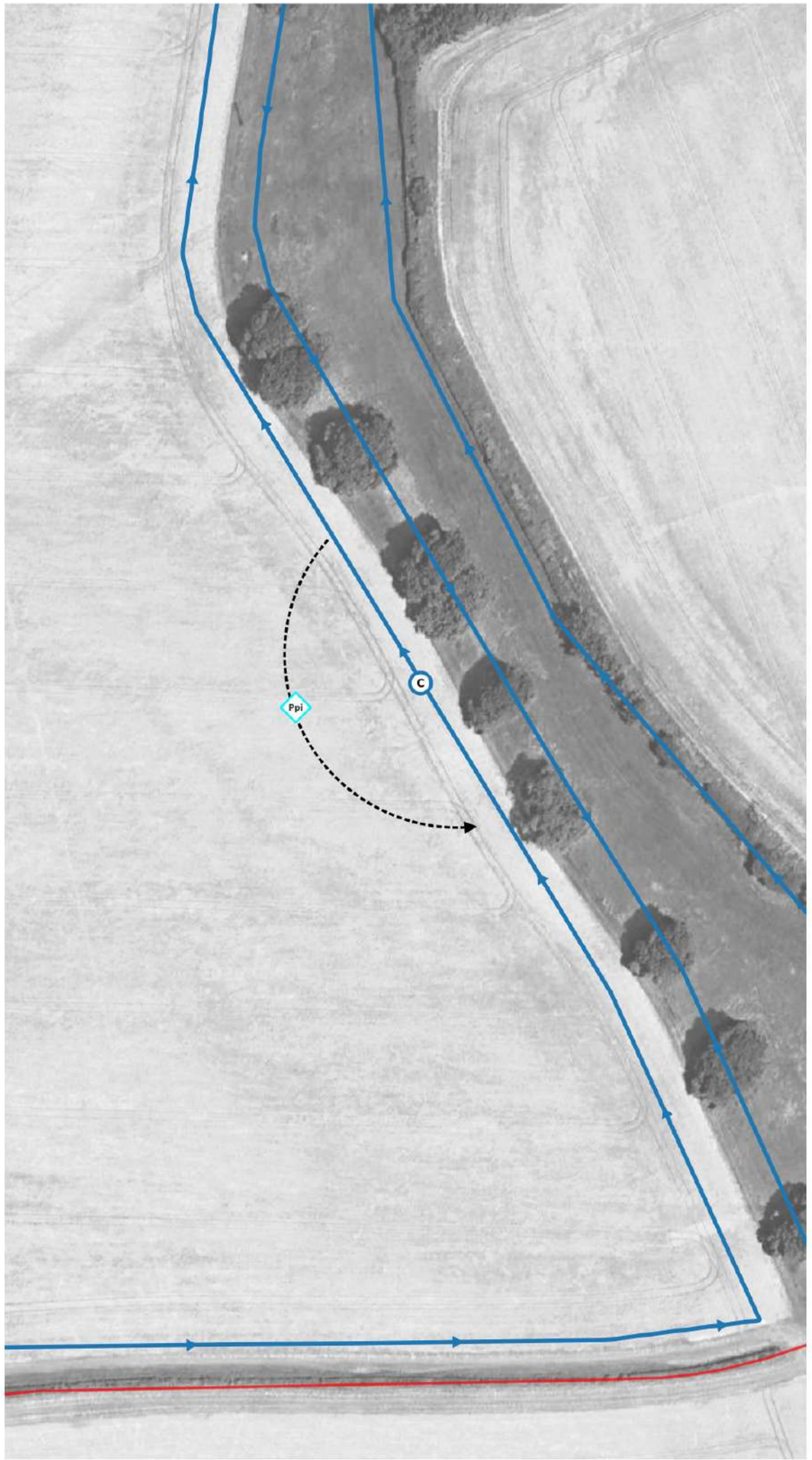

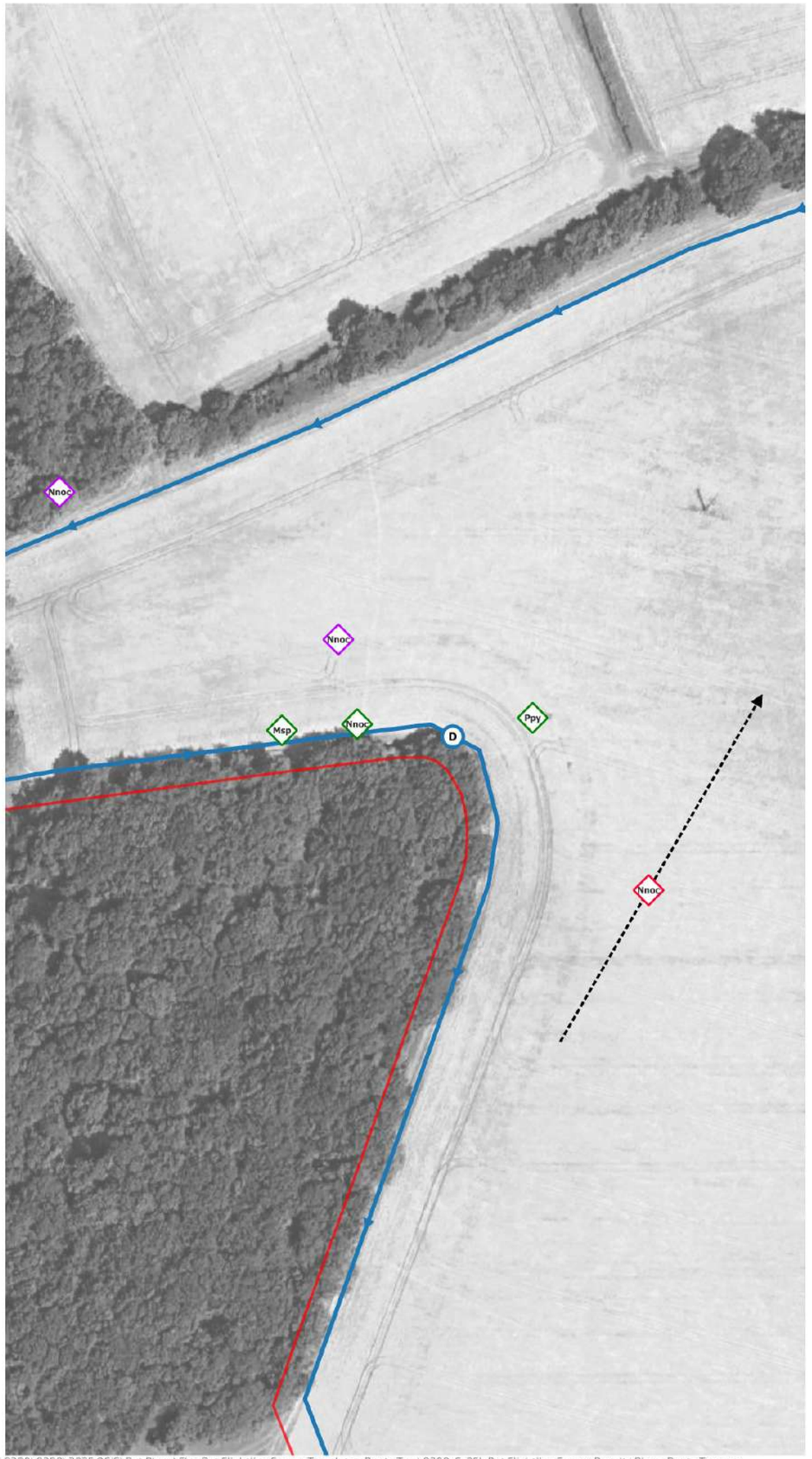

N

0 25 50 m

Site Boundary

Surveyor Locations (with reference)

Transect Route

Bat Contacts

April

August

July

September

Behavioural Observation Arrows

Commuting

Species

Ppi	Common pipistrelle	Ppy	Soprano pipistrelle
Nnoc	Noctule	Msp	Myotis sp.

Non-visual Bat Contacts - Surveyor C

Species	Apr	May	Jun	Jul	Aug	Sep
Common Pipistrelle	1	2		5	1	
Myotis sp.	2	2		1		
Soprano Pipistrelle	2	2		1		
Noctule		1		3	2	1

Non-visual Bat Contacts - Surveyor D

Species	Apr	May	Jun	Jul	Aug	Sep
Common Pipistrelle	4	3				3
Myotis sp.	1	1		1		2
Soprano Pipistrelle	3	4		1		3
Brown Long-eared		1				2
Noctule		1	1	1		
Barbastelle						1
Nyctalus sp.						2

date: 04/02/26

drwn/chkd: LG / RAG

client: **Oxfordshire Railfreight Ltd**

project: **Oxfordshire Strategic Railfreight Interchange, Oxfordshire**

title: **BAT FLIGHT LINE SURVEY RESULTS PLAN - ROUTE TWO**

scale: 1:1,500 @ A3

number: **FIGURE 5b**

rev: -

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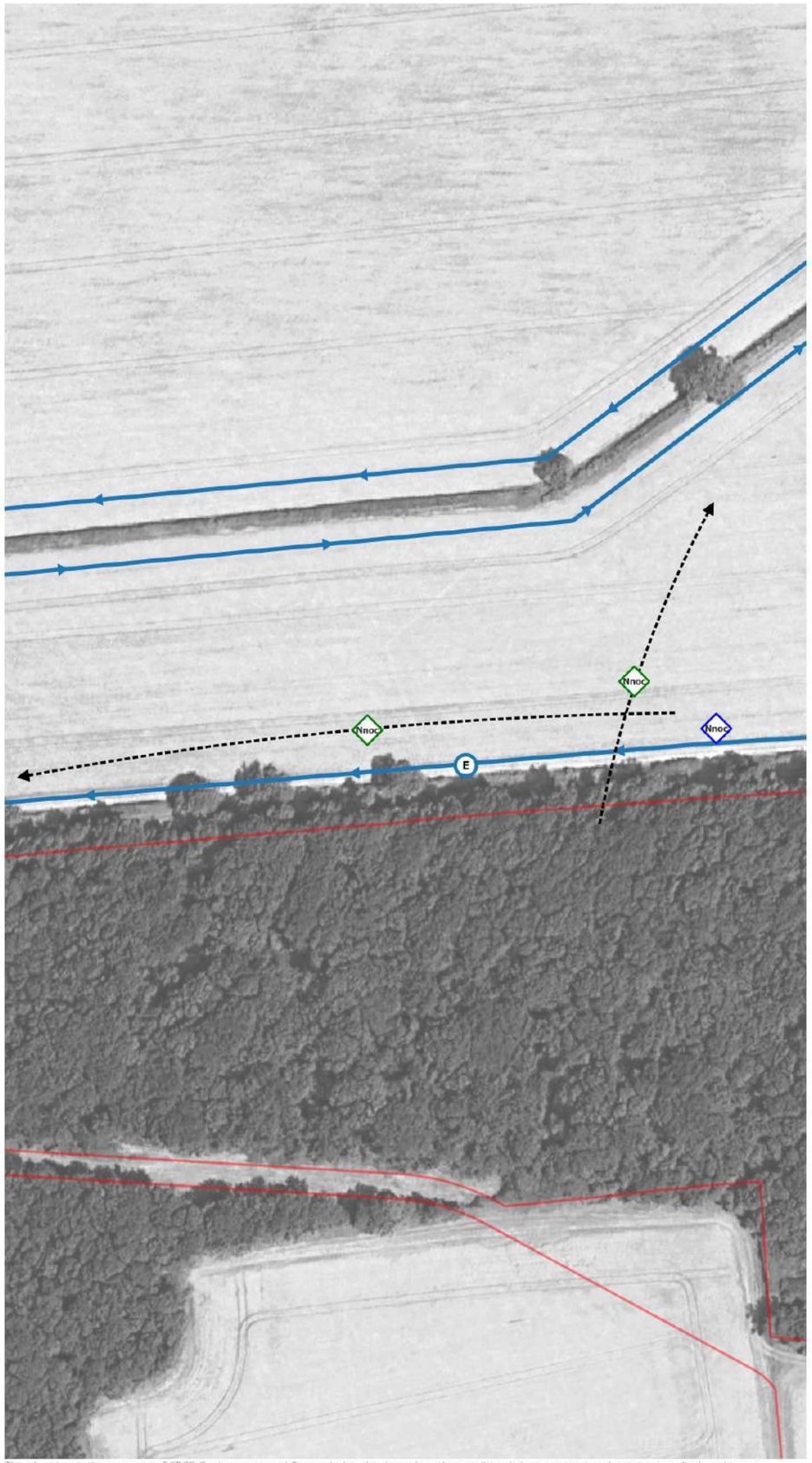

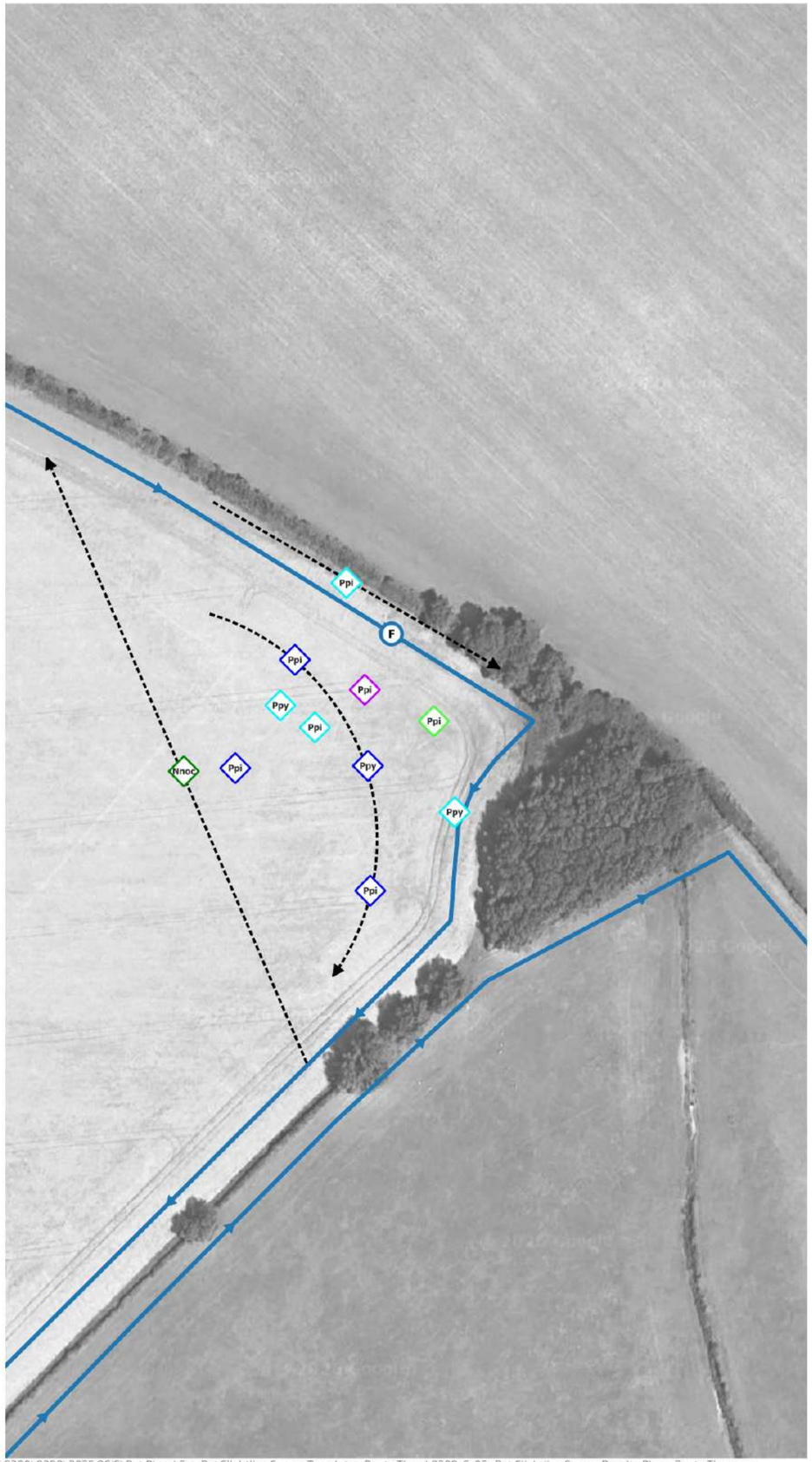

N

0 25 50 m

Site Boundary

Surveyor Locations (with reference)

Transect Route

Bat Contacts

May
June
July
August
September

Behavioural Observation Arrows

Commuting

Species

Ppi Common pipistrelle
Ppy Soprano pipistrelle
Nnoc Noctule

Non-visual Bat Contacts - Surveyor E

Species	Apr	May	Jun	Jul	Aug	Sep
Common Pipistrelle	2	2	2	5	1	4
Myotis sp.	1					
Noctule	2	3	3		1	2
Soprano Pipistrelle		2	1	3		
Brown Long-eared						1

Non-visual Bat Contacts - Surveyor F

Species	Apr	May	Jun	Jul	Aug	Sep
Common Pipistrelle	1	1	3	7		8
Noctule		1	1	2		
Brown Long-eared				1		
Soprano Pipistrelle					1	1
Barbastelle						1

date: 04/02/26

drwn/chkd: LG / RAG

client: **Oxfordshire Railfreight Ltd.**

project: **Oxfordshire Strategic Railfreight Interchange, Oxfordshire**

title: **BAT FLIGHT LINE SURVEY RESULTS PLAN - ROUTE THREE**

scale: 1:1,500 @ A3

number: **FIGURE 5c**

rev: -

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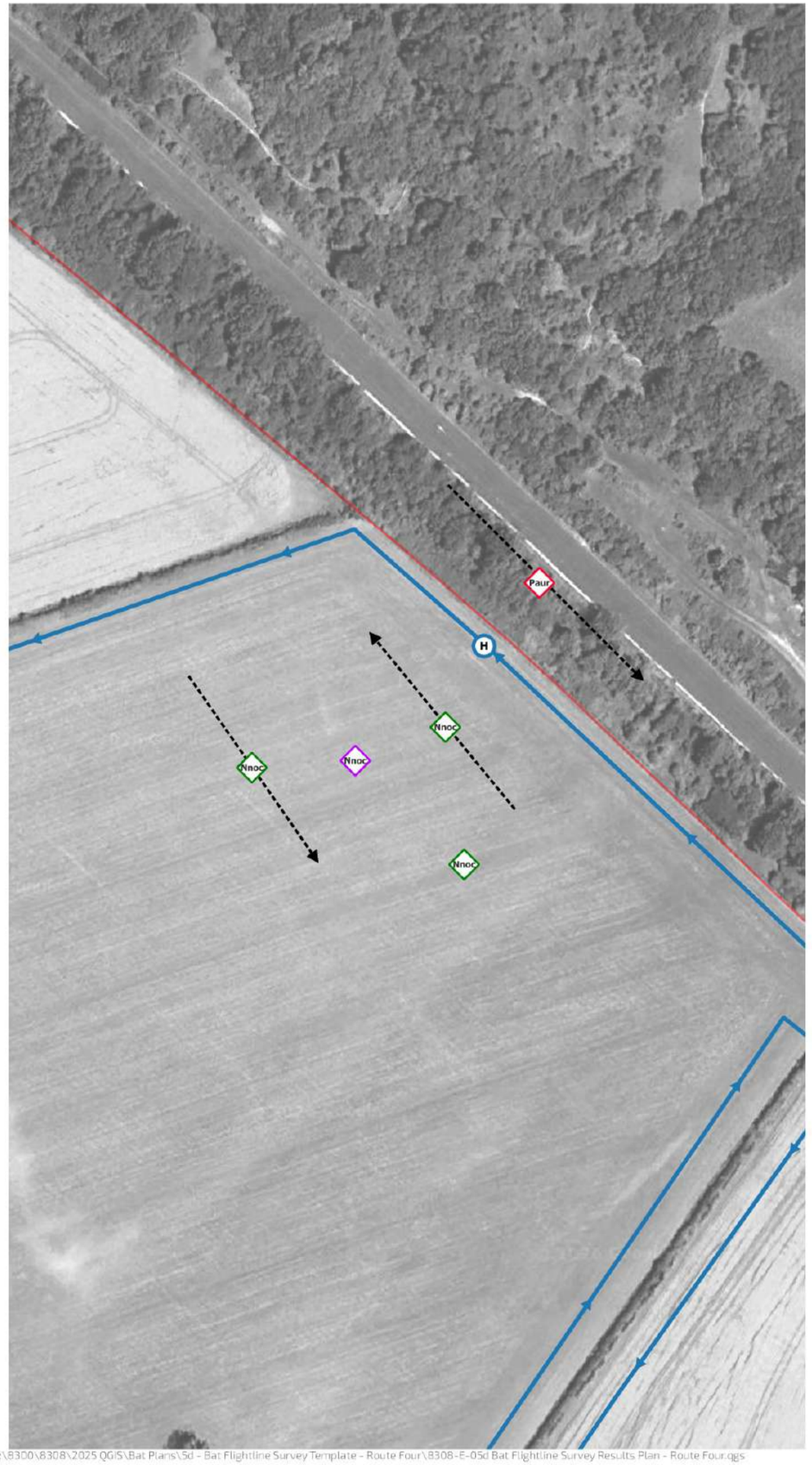

N

0 25 50 m

Site Boundary

Surveyor Locations (with reference)

Transect Route

Bat Contacts

April
May
June
July
August
September

Behavioural Observation Arrows

Commuting

Species

Paur Brown long-eared
Nnoc Noctule
Ppi Common pipistrelle
Ppy Soprano pipistrelle

Non-visual Bat Contacts - Surveyor G

Species	Apr	May	Jun	Jul	Aug	Sep
Brown Long-eared	2		1			
Common Pipistrelle	6	3	2			2
Myotis sp.	1					1
Noctule	1	1	2		2	1
Soprano Pipistrelle	4	3	3			

Non-visual Bat Contacts - Surveyor H

Species	Apr	May	Jun	Jul	Aug	Sep
Common Pipistrelle	1				1	2
Myotis sp.	1					
Noctule	1		3		1	3
Myotis sp.						1
Brown Long-eared						1

date
04/02/26

drwn/chkd
LG / RAG

client
Oxfordshire Railfreight Ltd.

project
Oxfordshire Strategic Railfreight Interchange, Oxfordshire

title
BAT FLIGHT LINE SURVEY RESULTS PLAN - ROUTE FOUR

scale
1:1,500 @ A3

number
FIGURE 5d

rev
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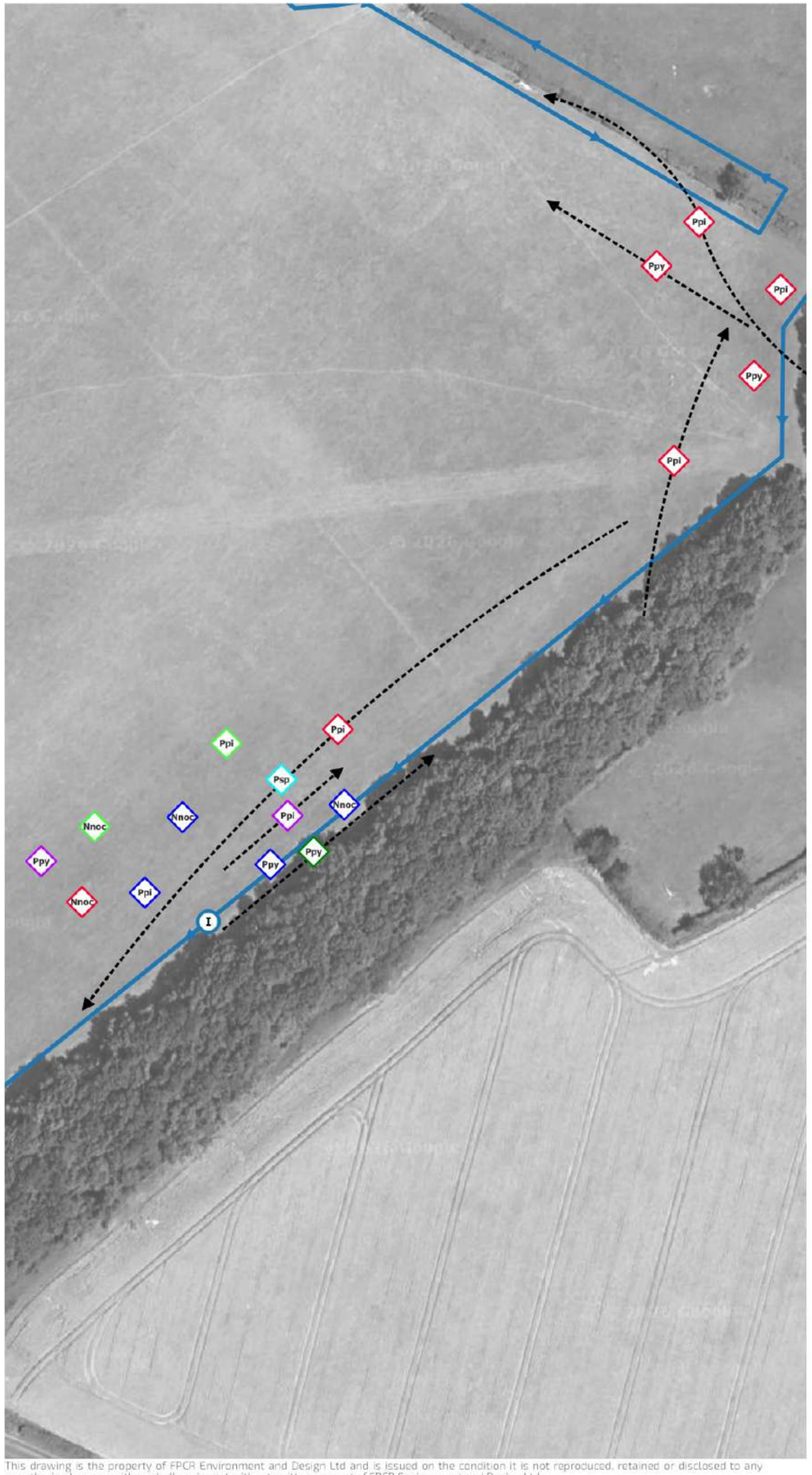

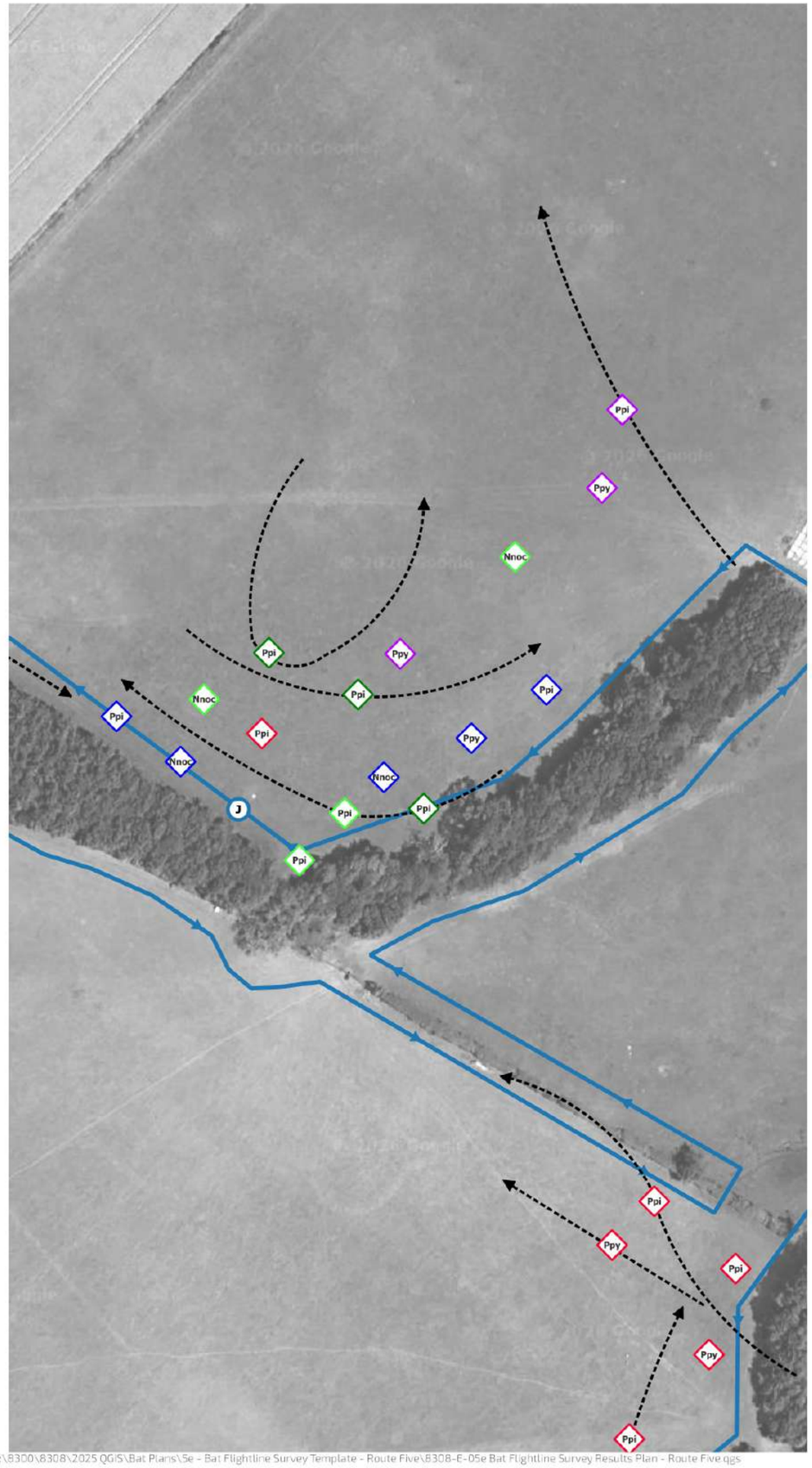

N

0 25 50 m

Site Boundary

Surveyor Locations (with reference)

Transect Route

Bat Contacts

April
May
June
July
August
September

Behavioural Observation Arrows

Commuting

Species

Ppi	Common pipistrelle	Ppy	Soprano pipistrelle
Nnoc	Noctule	Psp	Pipistrellus sp.

Non-visual Bat Contacts - Surveyor I

Species	Apr	May	Jun	Jul	Aug	Sep
Common Pipistrelle	4	5	2		2	4
Myotis sp.	1					
Noctule	1	4	4	2		
Nyctalus sp.	1					
Soprano Pipistrelle	2	2	2	1	3	
Brown Long-eared						1

Non-visual Bat Contacts - Surveyor J

Species	Apr	May	Jun	Jul	Aug	Sep
Common Pipistrelle	2	4	5	3	3	4
Noctule		3	2		2	3
Soprano Pipistrelle		4	4		2	2
Nyctalus sp.					2	1
Myotis sp.						1

date: 04/02/26

drwn/chkd: LG / RAG

client: **Oxfordshire Railfreight Ltd.**

project: **Oxfordshire Strategic Railfreight Interchange, Oxfordshire**

title: **BAT FLIGHT LINE SURVEY RESULTS PLAN - ROUTE FIVE**

scale: 1:1,500 @ A3

number: **FIGURE 5e**

rev: -

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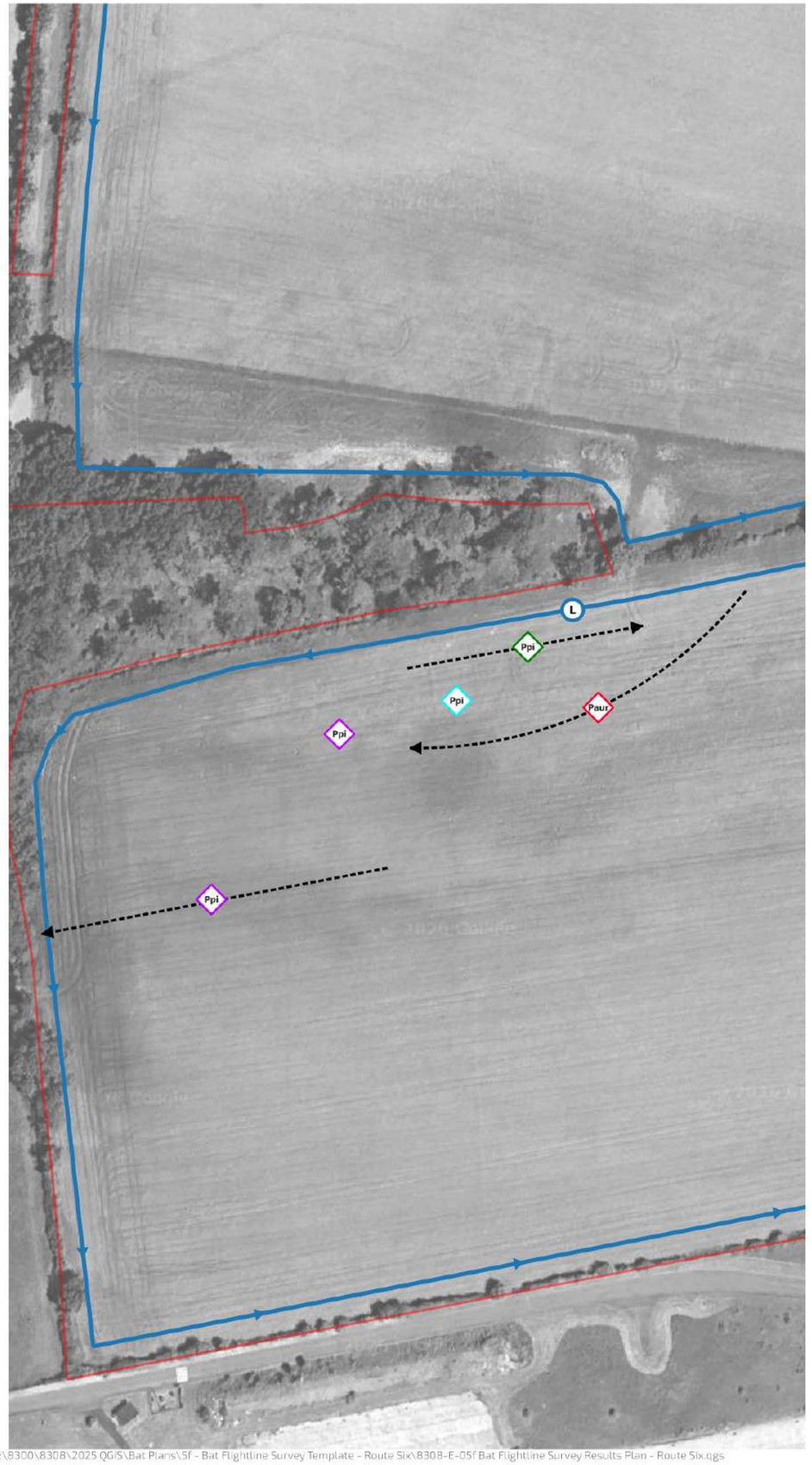

N

0 25 50 m

Site Boundary

Surveyor Locations (with reference)

Transect Route

Bat Contacts

April
May
June
July
August
September

Behavioural Observation Arrows

Commuting

Species

Paur Brown long-eared
Nnoc Noctule
Ppi Common pipistrelle

Non-visual Bat Contacts - Surveyor K

Species	Apr	May	Jun	Jul	Aug	Sep
Common Pipistrelle	1	1		4	2	
Noctule		2		1	1	
Brown Long-eared		1				

Non-visual Bat Contacts - Surveyor L

Species	Apr	May	Jun	Jul	Aug	Sep
Common Pipistrelle	1	1	4	5	4	3
Noctule			2	5	1	
Myotis sp.				1		
Brown Long-eared					1	4
Barbastelle						1

date: 04/02/26

drwn/chkd: LG / RAG

client: **Oxfordshire Railfreight Ltd.**

project: **Oxfordshire Strategic Railfreight Interchange, Oxfordshire**

title: **BAT FLIGHT LINE SURVEY RESULTS PLAN - ROUTE SIX**

scale: 1:1,500 @ A3

number: **FIGURE 5F**

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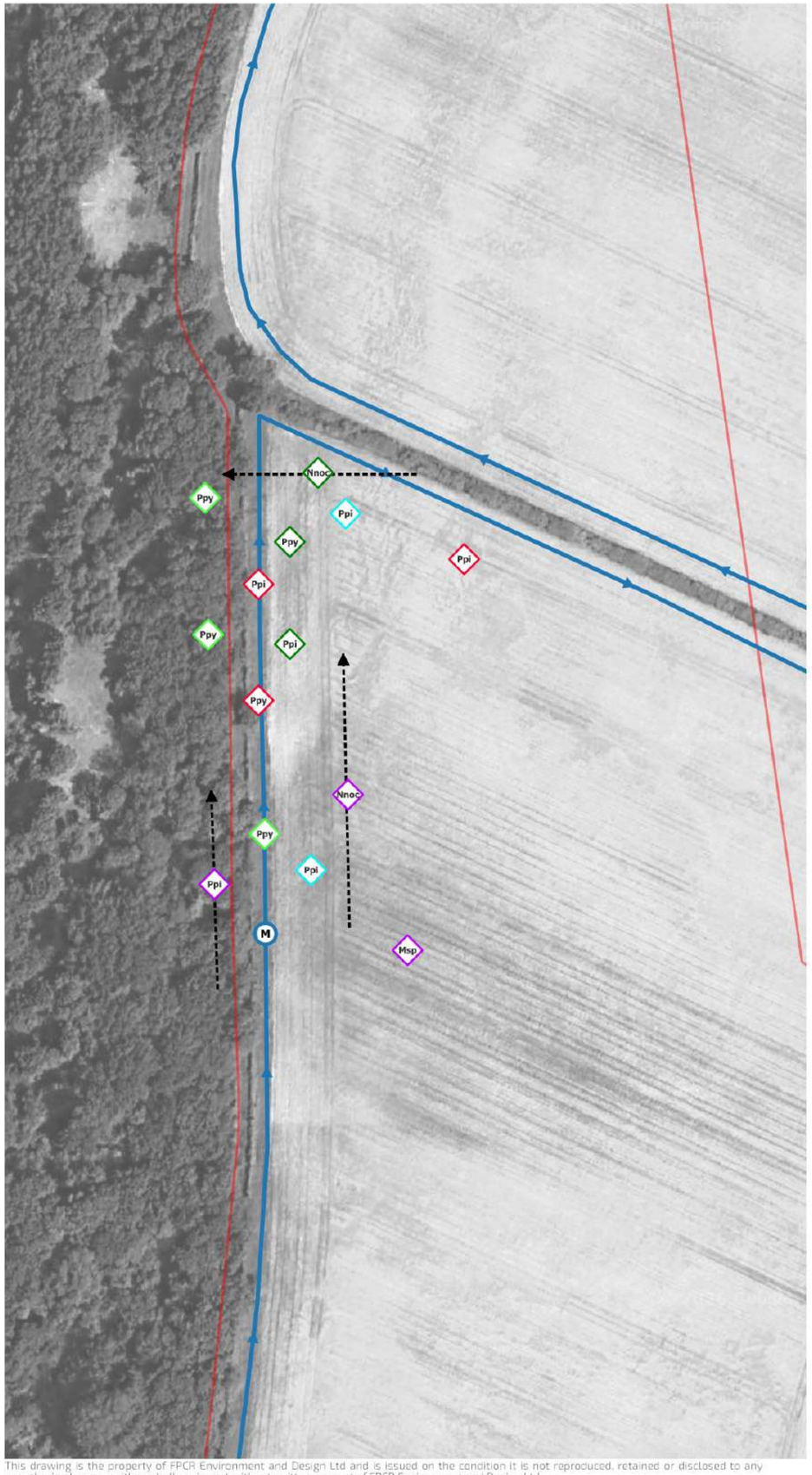

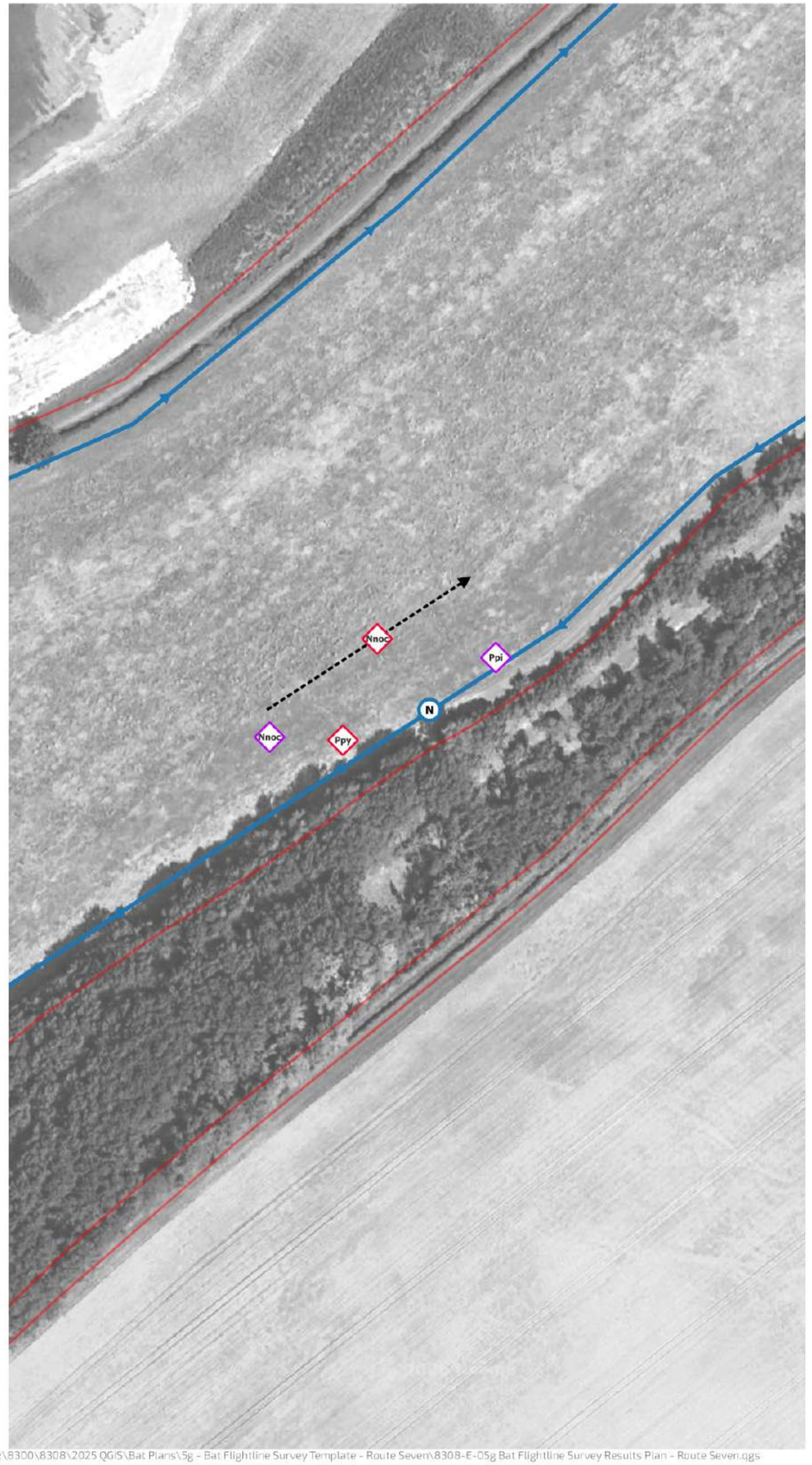

N

0 25 50 m

Site Boundary

Surveyor Locations (with reference)

Transect Route

Bat Contacts

April
August
June
September
July

Behavioural Observation Arrows

Commuting

Species

Ppi	Common pipistrelle	Ppy	Soprano pipistrelle
Nnoc	Noctule	Msp	Myotis sp.

Non-visual Bat Contacts - Surveyor M

Species	Apr	May	Jun	Jul	Aug	Sep
Common Pipistrelle	2	6	1			7
Nyctalus sp.	1					
Soprano Pipistrelle	3	5	3			7
Noctule		1	1			3
Myotis sp.		2			1	
Barbastelle		1				3
Brown Long-eared					2	1

Non-visual Bat Contacts - Surveyor N

Species	Apr	May	Jun	Jul	Aug	Sep
Noctule	3	1		3		2
Soprano Pipistrelle	2	3			4	1
Common Pipistrelle		3		3		4
Myotis sp.		1		1	3	1

date: 04/02/26

drwn/chkd: LG / RAG

client: **Oxfordshire Railfreight Ltd.**

project: **Oxfordshire Strategic Railfreight Interchange, Oxfordshire**

title: **BAT FLIGHT LINE SURVEY RESULTS PLAN - ROUTE SEVEN**

scale: 1:1,500 @ A3

number: **FIGURE 5G**

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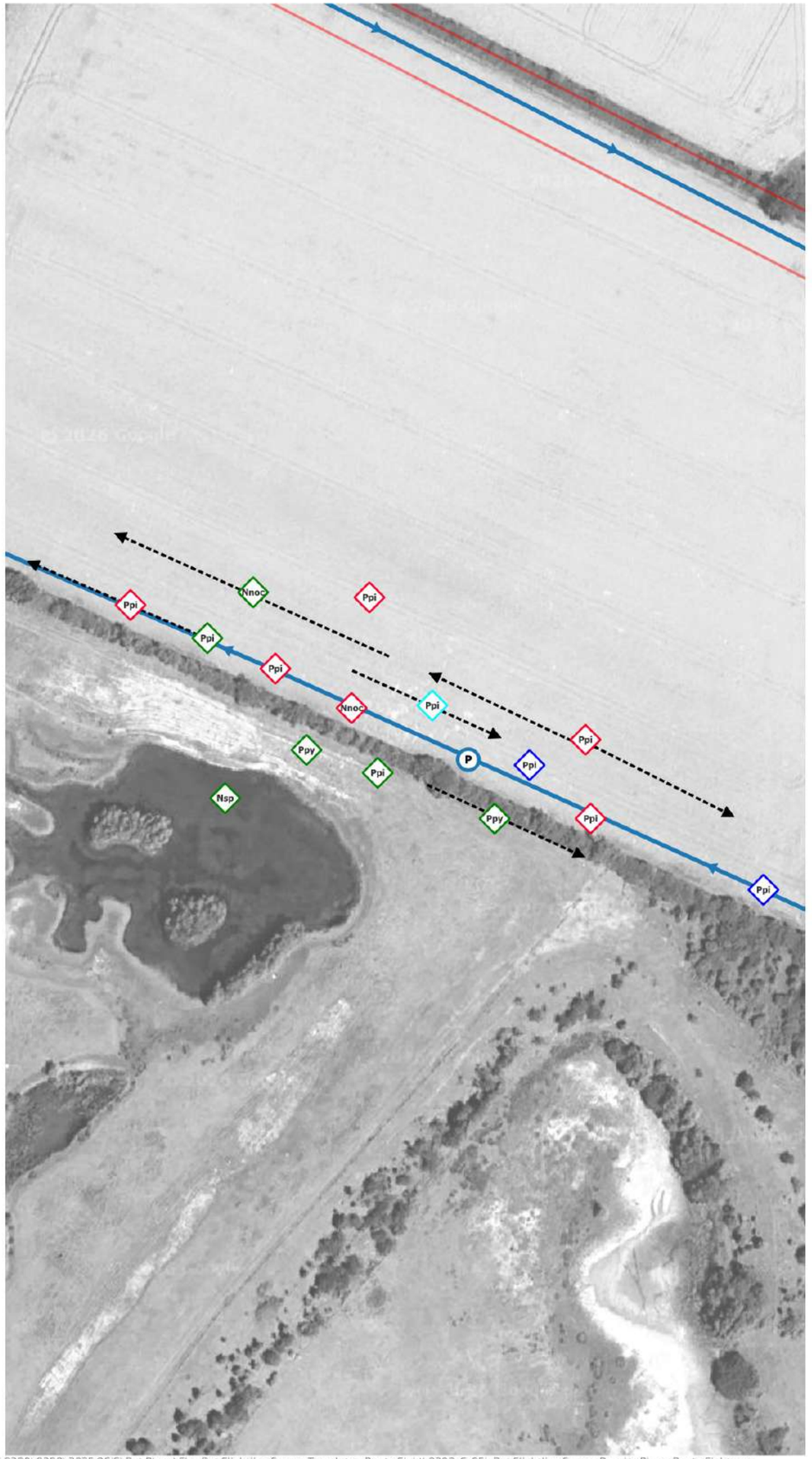

N

0 25 50 m

Site Boundary

Surveyor Locations (with reference)

Transect Route

Bat Contacts

April
May
June
July
August
September

Behavioural Observation Arrows

Commuting

Species

Paur	Brown long-eared	Ppy	Soprano pipistrelle
Ppi	Common pipistrelle	Nsp	Nyctalus sp.
Nnoc	Noctule	Msp	Myotis sp.

Non-visual Bat Contacts - Surveyor O

Species	Apr	May	Jun	Jul	Aug	Sep
Common Pipistrelle	1	5	5	9	3	3
Myotis sp.				1		
Noctule			2	1		
Serotine				1		
Soprano Pipistrelle	1		2			1
Brown Long-eared			1			1
Nyctalus sp.						1

Non-visual Bat Contacts - Surveyor P

Species	Apr	May	Jun	Jul	Aug	Sep
Common Pipistrelle	5			2	6	1
Noctule	7		2	1	3	1
Soprano Pipistrelle				1	4	2
Myotis sp.			1			

date: 04/02/26

drwn/chkd: LG / RAG

client: **Oxfordshire Railfreight Ltd.**

project: **Oxfordshire Strategic Railfreight Interchange, Oxfordshire**

title: **BAT FLIGHT LINE SURVEY RESULTS PLAN - ROUTE EIGHT**

scale: 1:1,500 @ A3

number: **FIGURE 5h**

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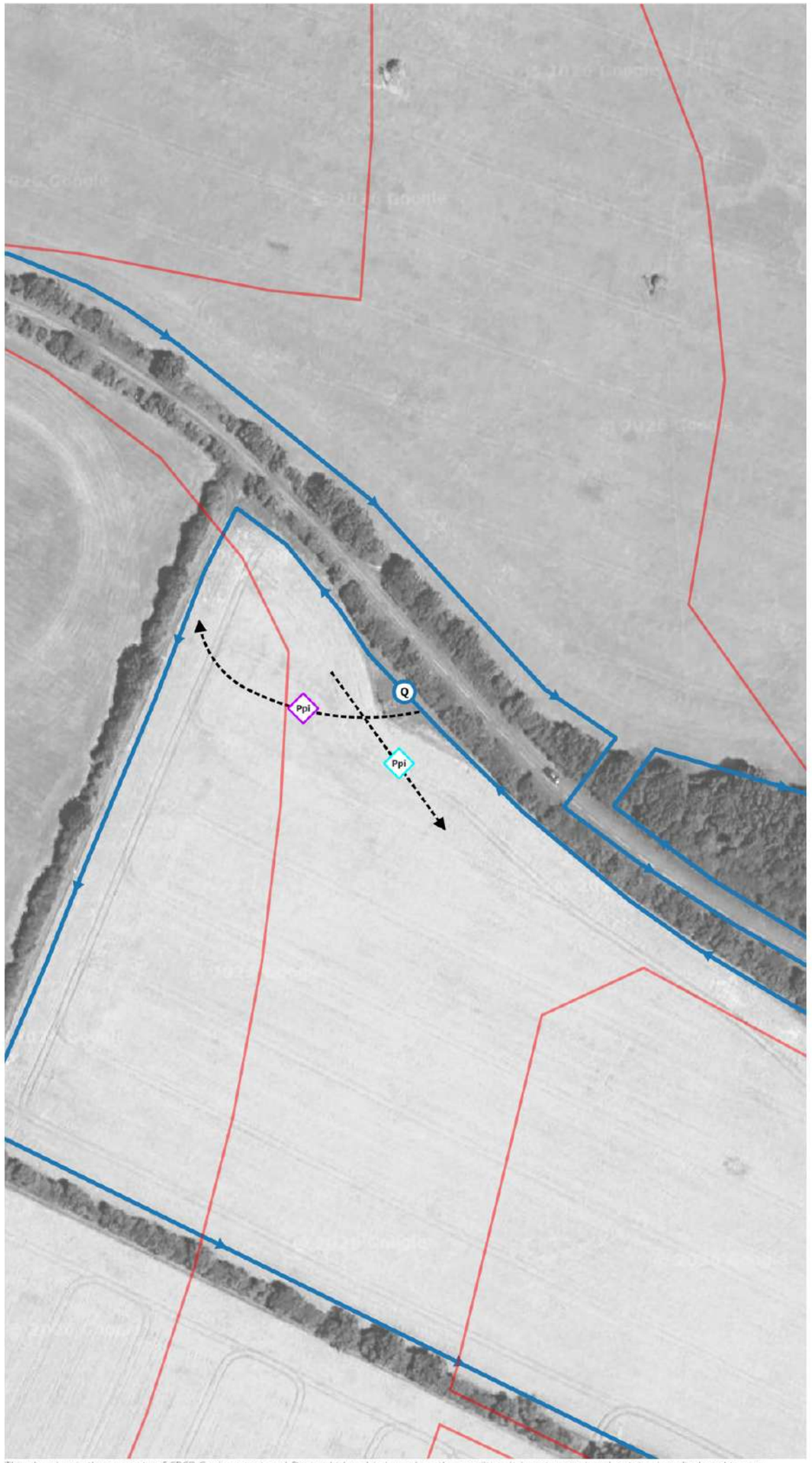

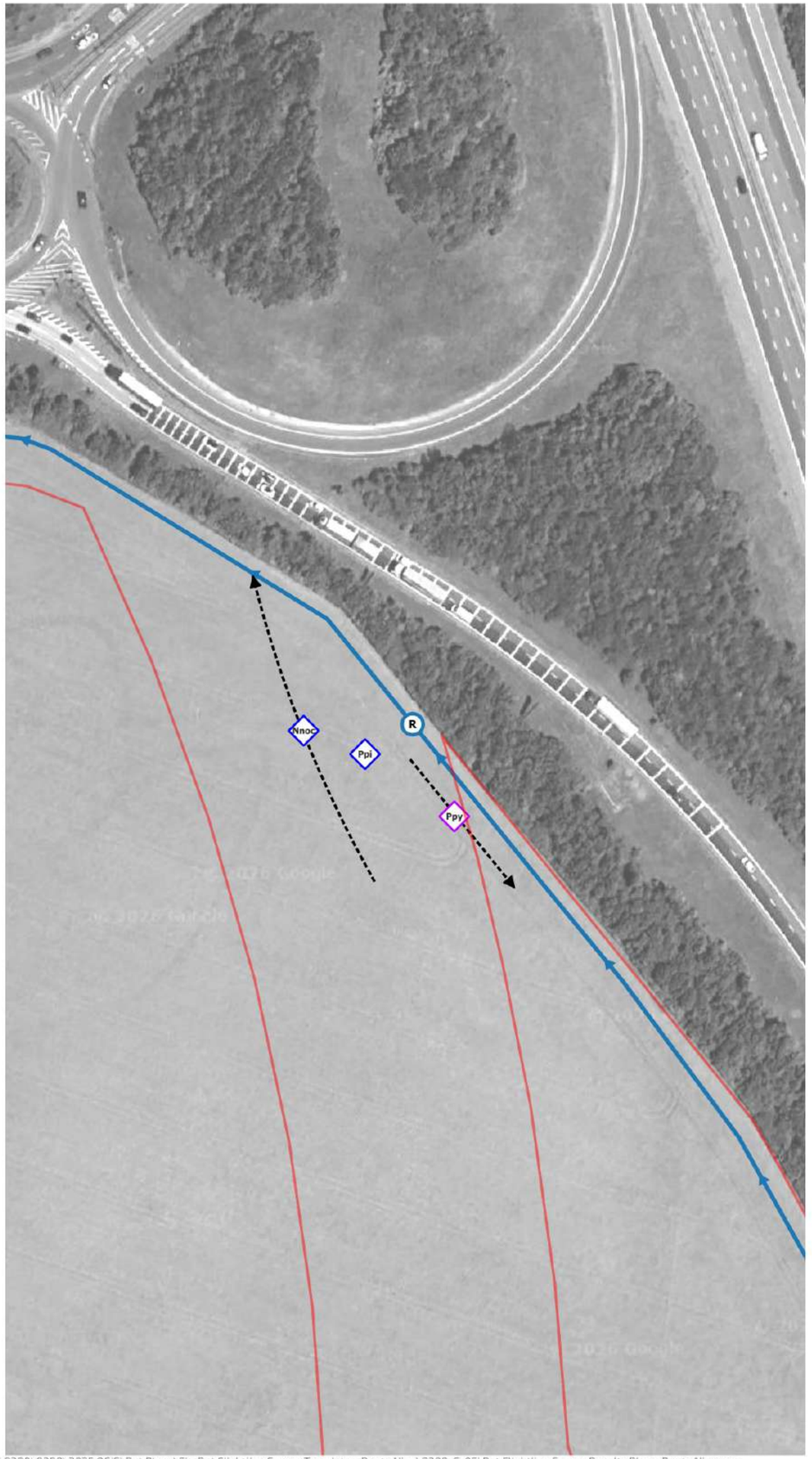

N

0 25 50 m

Site Boundary

Surveyor Locations (with reference)

Transect Route

Bat Contacts

May

August

July

Behavioural Observation Arrows

Commuting

Species

Ppi Common pipistrelle

Ppy Soprano pipistrelle

Nnoc Noctule

Non-visual Bat Contacts - Surveyor Q

Species	Apr	May	Jun	Jul	Aug	Sep
Common Pipistrelle	2	3		1	1	2
Brown Long-eared				1		
Noctule		4			1	1
Nyctalus sp.		4				
Myotis sp.						

Non-visual Bat Contacts - Surveyor R

Species	Apr	May	Jun	Jul	Aug	Sep
Noctule	1	1			1	1
Common Pipistrelle					3	5

date: 04/02/26

drwn/chkd: LG / RAG

client: **Oxfordshire Railfreight Ltd.**

project: **Oxfordshire Strategic Railfreight Interchange, Oxfordshire**

title: **BAT FLIGHT LINE SURVEY RESULTS PLAN - ROUTE NINE**

scale: 1:1,500 @ A3

number: **FIGURE 5i**

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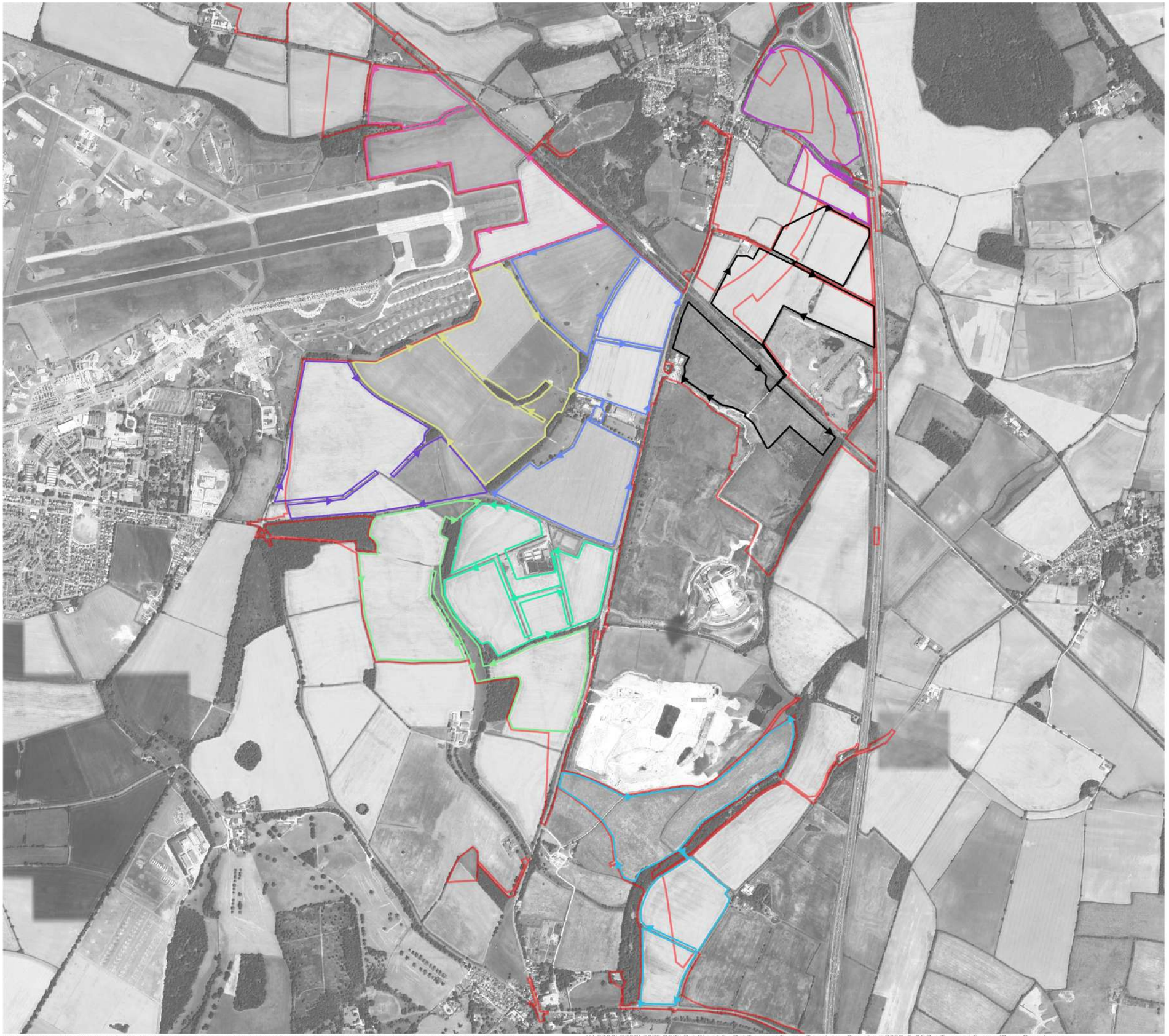

N

0 250 500 m

Site Boundary

Transect Routes

- Route One
- Route Two
- Route Three
- Route Four
- Route Five
- Route Six
- Route Seven
- Route Eight
- Route Nine

date: 04/02/26

drwn/chkd: LG / RAG

client: **Oxfordshire Railfreight Ltd.**

project: **Oxfordshire Strategic Railfreight Interchange, Oxfordshire**

title: **BAT TRANSECT SURVEY REFERENCE PLAN**

scale: 1:17,000 @ A3

number: **FIGURE 6**

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N

0 50 100 m

Site Boundary

Transect Route

Start and Finish Points

- April
- May
- June
- July
- August
- September

Bat Contacts

- May
- June
- July
- August
- September

Species

Bbar	Barbastelle	Ppy	Soprano pipistrelle
Ppi	Common pipistrelle	Psp	Pipistrellus sp.
Nnoc	Noctule	Msp	Myotis sp.

date 04/02/26

drwn/chkd LG / RAG

client
Oxfordshire Railfreight Ltd.

project
Oxfordshire Strategic Railfreight Interchange, Oxfordshire

title
BAT TRANSECT SURVEY RESULTS PLAN - ROUTE ONE

scale 1:2,750 @ A3

number
FIGURE 6a

rev -

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date 04/02/26

drwn/chkd LG / RAG

client
Oxfordshire Railfreight Ltd.

project
Oxfordshire Strategic Railfreight Interchange, Oxfordshire

title
BAT TRANSECT SURVEY RESULTS PLAN - ROUTE TWO

scale 1:4,250 @ A3

number
FIGURE 6b

rev -

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client
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project
Oxfordshire Strategic Railfreight Interchange, Oxfordshire

title
BAT TRANSECT SURVEY RESULTS PLAN - ROUTE THREE

scale
1:3,500 @ A3

number
FIGURE 6c

rev
-

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date
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drwn/chkd
LG / RAG

client
Oxfordshire Railfreight Ltd

project
Oxfordshire Strategic Railfreight Interchange, Oxfordshire

title
BAT TRANSECT SURVEY RESULTS PLAN - ROUTE FOUR

scale
1:5,500 @ A3

number
FIGURE 6d

rev
-

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date
04/02/26

drwn/chkd
LG / RAG

client
Oxfordshire Railfreight Ltd.

project
Oxfordshire Strategic Railfreight Interchange, Oxfordshire

title
BAT TRANSECT SURVEY RESULTS PLAN - ROUTE FIVE

scale
1:4,000 @ A3

number
FIGURE 6e

rev
-

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N

0 100 200 m

Site Boundary

Transect Route

Start and Finish Points

- April
- May
- June
- July
- August
- September

Bat Contacts

- May
- June
- August
- September

Species

- Bbar Barbastelle
- Nnoc Noctule
- Ppi Common pipistrelle
- Ppy Soprano pipistrelle

date 04/02/26

drwn/chkd LG / RAG

client
Oxfordshire Railfreight Ltd.

project
Oxfordshire Strategic Railfreight Interchange, Oxfordshire

title
BAT TRANSECT SURVEY RESULTS PLAN - ROUTE SIX

scale 1:3,750 @ A3

number
FIGURE 6f

rev -

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date 04/02/26

drwn/chkd LG / RAG

client
Oxfordshire Railfreight Ltd.

project
Oxfordshire Strategic Railfreight Interchange, Oxfordshire

title
BAT TRANSECT SURVEY RESULTS PLAN - ROUTE SEVEN

scale 1:5,000 @ A3

number
FIGURE 6g(i)

rev -

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N

0 100 200 m

Site Boundary

Transect Route

Start and Finish Points

July

August

September

Bat Contacts

July

August

September

Behavioural Observation Arrows

Commuting

Species

Bbar	Barbastelle	Ppy	Soprano pipistrelle
Paur	Brown long-eared	Nsp	Nyctalus sp.
Ppi	Common pipistrelle	Msp	Myotis sp.
Nnoc	Noctule		

date: 04/02/26

drwn/chkd: LG / RAG

client: **Oxfordshire Railfreight Ltd.**

project: **Oxfordshire Strategic Railfreight Interchange, Oxfordshire**

title: **BAT TRANSECT SURVEY RESULTS PLAN - ROUTE SEVEN**

scale: 1:5,000 @ A3

number: **FIGURE 6g(ii)**

rev: -

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N

0 100 200 m

Site Boundary

Transect Route

Start and Finish Points

- April
- May
- June
- July
- August
- September

Bat Contacts

- April
- May
- June
- July
- August
- September

Species

- Ppi Common pipistrelle
- Ppy Soprano pipistrelle
- Nnoc Noctule
- Msp Myotis sp.

date 04/02/26

drwn/chkd LG / RAG

client
Oxfordshire Railfreight Ltd.

project
Oxfordshire Strategic Railfreight Interchange, Oxfordshire

title
BAT TRANSECT SURVEY RESULTS PLAN - ROUTE EIGHT

scale 1:4,500 @ A3

number
FIGURE 6h

rev -

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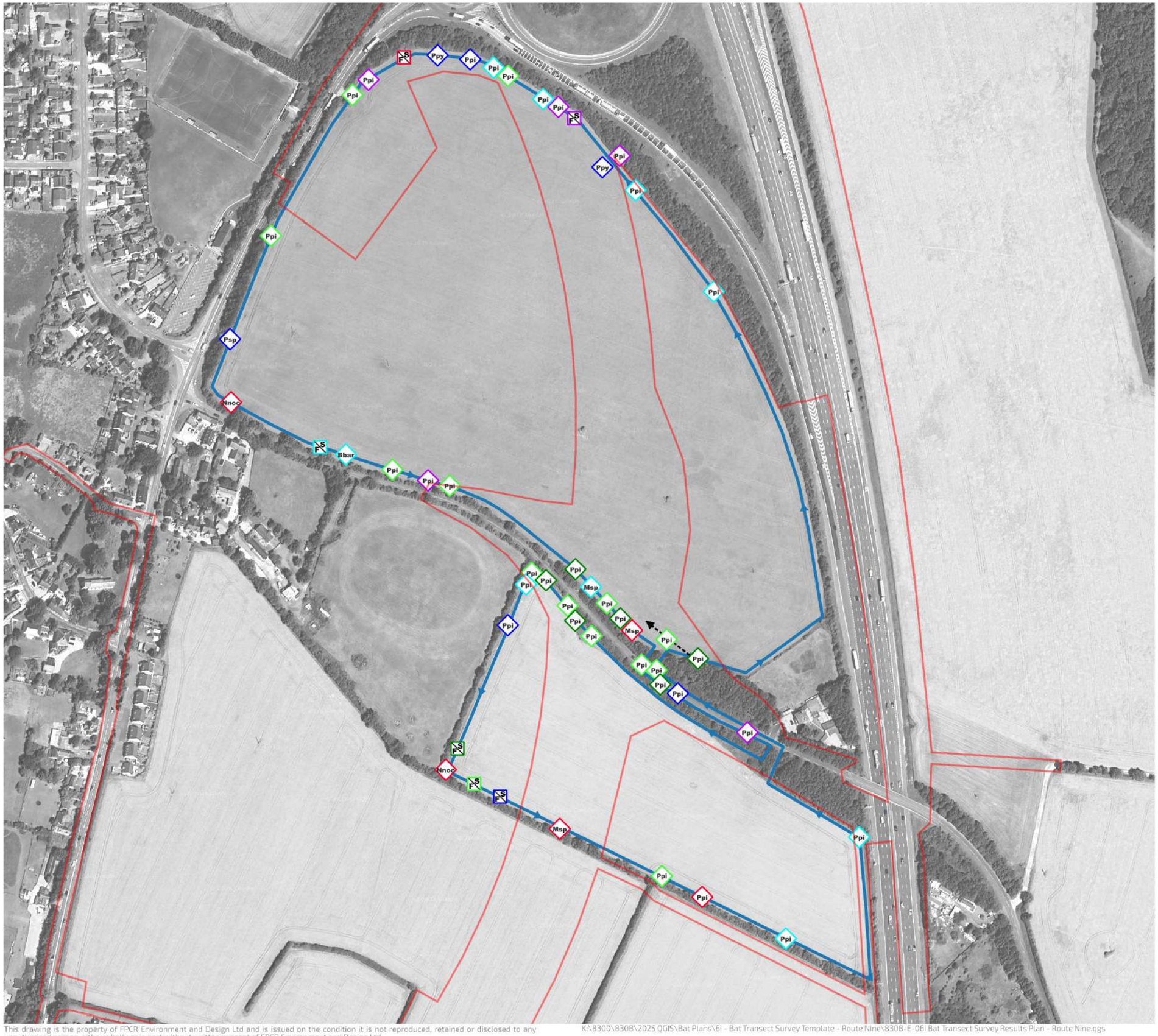

N

0 100 200 m

Site Boundary

Transect Route

Start and Finish Points

- April
- May
- June
- July
- August
- September

Bat Contacts

- April
- May
- June
- July
- August
- September

Behavioural Observation Arrows

- Commuting

Species

Bbar	Barbastelle	Ppy	Soprano pipistrelle
Ppi	Common pipistrelle	Psp	Pipistrellus sp.
Nnoc	Noctule	Msp	Myotis sp.

date: 04/02/26

drwn/chkd: LG / RAG

client: **Oxfordshire Railfreight Ltd.**

project: **Oxfordshire Strategic Railfreight Interchange, Oxfordshire**

title: **BAT TRANSECT SURVEY RESULTS PLAN - ROUTE NINE**

scale: 1:3,250 @ A3

number: **FIGURE 6i**

rev: -

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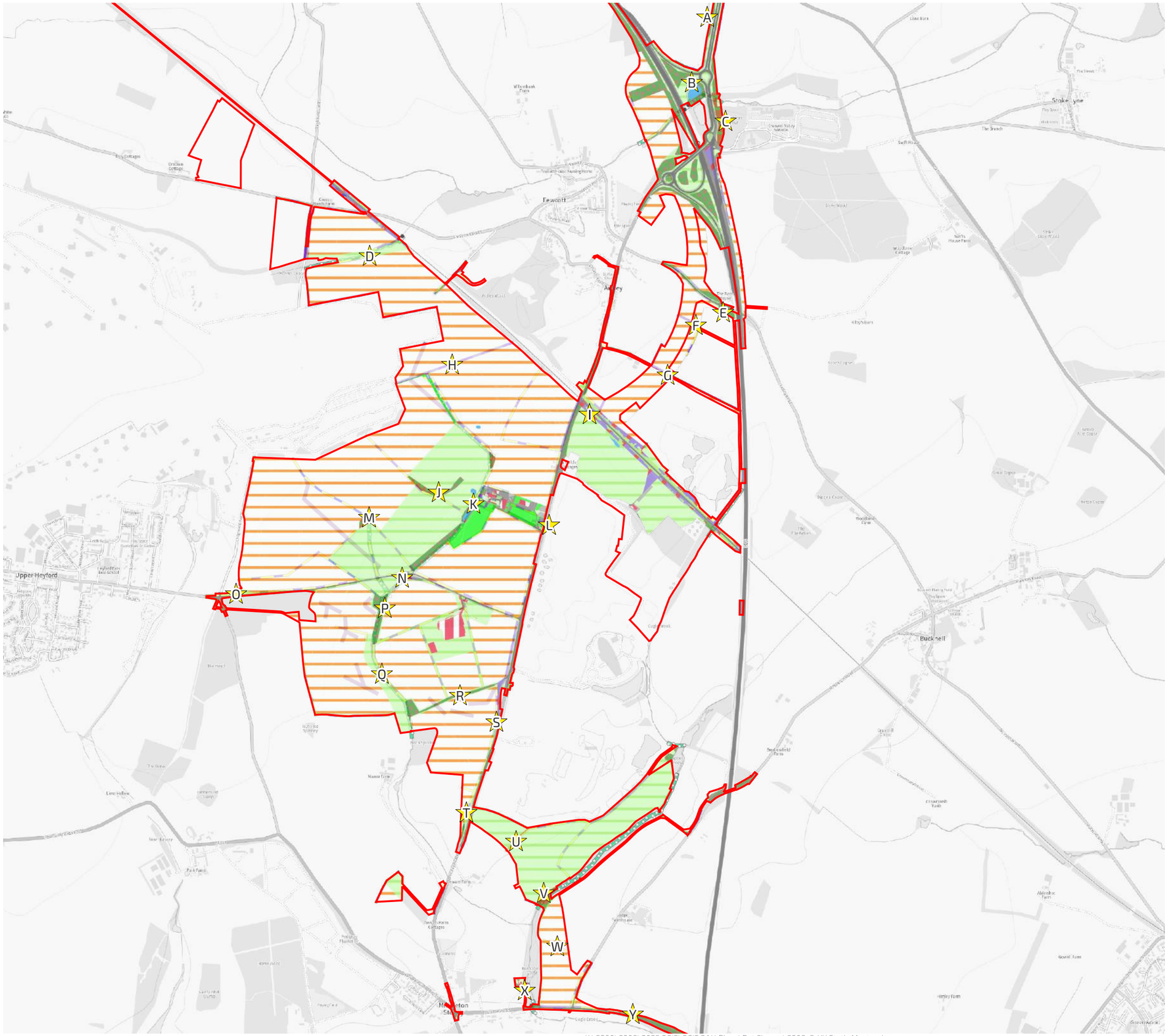

N

0 0.5 1 km

Key

Site Boundary

Static Detector Location

date: 04/02/26

drwn/chkd: FH / RAG

client: **Oxfordshire Railfreight Ltd.**

project: **Oxfordshire Strategic Railfreight Interchange, Oxfordshire**

title: **STATIC DETECTOR LOCATION PLAN**

scale: 1:20,000 @ A3

number: **FIGURE 7**

rev: -

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N

0 100 200 m

Site Boundary

Transect Routes

1
2
3
4
5
6
7
8
9

Transect Bat Activity

1

50

date
13/02/26

drwn/chkd
SE / RG

client
Oxfordshire Railfreight Ltd.

project
Oxfordshire Strategic Railfreight Interchange, Oxfordshire

title
TRANSECT BAT ACTIVITY PLAN - HEAT MAP SUMMARY

scale
1:20,000 @ A3

number
FIGURE 8

rev
-

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