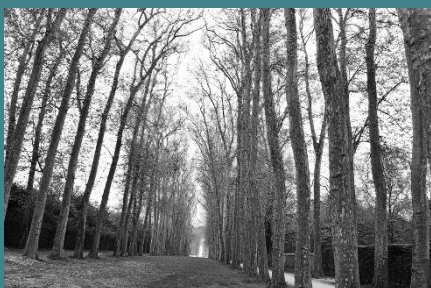


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Appendix A: Bat Report

Client

Bellway Homes

Project

**Cronton Road,
Cronton**

Date

December 2025

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Appendix A1: Bat Static Survey Registrations by Hour

Rev	Issue Status	Prepared/Date	Approved/Date
-	Final	ER/13.11.2025	AJB / 24.11.25

1.0 INTRODUCTION

1.1 The following bat report has been prepared by FPCR Environment and Design Ltd on behalf of Bellway Homes. It provides the results of bat activity surveys at land north of Cronton Road, Cronton (Central OS grid reference: SJ 49041 88316), herein referred to as 'the Site'.

1.2 This document is provided as an Appendix to the Ecological Impact Assessment (FPCR, 2025).

Site Context

1.3 The site is 4.32ha in extent and comprising a single field of intensively managed grassland, bound by native and non-native hedgerows, tree lines individual trees and a small area of wet woodland. To the north the Site is bordered by a small brook, which features rough grassland, scrub and individual trees on its margins.

1.4 The landscape beyond the site to the north and west is predominantly rural, consisting of arable and pasture. The built-up area of Cronton is located to the east of the site and a Public Right of Way (PRoW) runs through the site.

2.0 LEGISLATION, POLICY AND STATUS

Legislation

2.1 All bats and their roosts are afforded legal protection under the Conservation of Habitats and Species Regulations 2017 (as amended) (CHSR) and the Wildlife & Countryside Act 1981 (as amended) (WCA).

2.2 The purpose of the legislation is to maintain and restore protected species to a situation where their population status is favourable.

2.3 Schedule 2 of the CHSR lists all bats belonging to the families Vespertilionidae and Rhinolophidae as European Protected Species (EPS) of animals. This includes all known UK bat species.

2.4 Under Regulation 43 of the CHSR it is an offence to:

- deliberately capture, injure or kill a bat;
- deliberately disturb a bat; and
- damage or destroy a breeding site or resting place of a bat.

2.5 The definition of disturbance in CHSR is an act that is likely to impair the ability of an EPS to survive, breed, rear, and nurture young, hibernate or migrate, or to significantly affect the local distribution or abundance of the species.

2.6 It is also an offence under Regulation 43 to be in possession or to control or to transport and live or dead or part of a bat.

2.7 Schedule 5 of the WCA lists all bats belonging to the families Vespertilionidae and Rhinolophidae as animals which are protected by sections 9(4)(b) 9(4)(c). This includes all known UK bat species.

2.8 Under the above sections it is an offence to intentionally or recklessly:

- disturbs any bat while it is occupying a structure or place which it uses for shelter or protection;
- or

- obstruct access to any structure or place which a bat uses for shelter or protection.

2.9 Foraging habitat and commuting routes used by bats are not directly protected as such but 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.

2.10 Several 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. These species are barbastelle bat, Bechstein's bat, brown long-eared bat, greater horseshoe bat, lesser horseshoe bat, noctule and soprano pipistrelle.

Policy

National

2.11 The government planning policies for England and how these are utilised is set out in the National Planning Policy Framework (revised in 2024). Species of Principal importance under the NERC Act 2006 are recognised in the National Planning Policy Framework (NPPF) which advises that when determining planning applications, Local Planning Authorities should aim to conserve and enhance biodiversity by applying a set of principles including:

Para 193(a): '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;'

Para 193(d): 'development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.'

Local

2.12 The North Merseyside Biodiversity Action Plan for bats (2008) covers the following species:

- Common pipistrelle *Pipistrellus pipistrellus*;
- Soprano pipistrelle *Pipistrellus pygmaeus*;
- Brown long-eared bat *Plecotus auritus*;
- Whiskered bat *Myotis mystacinus*;
- Brandt's bat *Myotis brandtii*;
- Natterer's bat *Myotis nattereri*;
- Daubenton's bat *Myotis daubentonii*; and
- Noctule *Nyctalus noctula*.

2.13 The document lists proposed actions for the protection of bats, including:

- *Section 6.1 Site safeguard*
 - 'Promote the expansion of biodiverse urban green infrastructure within the Local Development Frameworks.
- *Section 6.3 Land management*
 - 'Encourage landowners to retain old and dead trees suitable as bat roosts.'

- *'Promote creation and suitable management of linear features (such as hedgerows, streams, ditches, canals etc) to increase linkage between feeding sites.'*
- *'Promote suitable management of field margins to increase availability of insect prey.'*
- **Section 6.4 Species management and protection**
 - *'Provision of artificial roost sites can be beneficial but should not be considered as an easy option to retaining suitable natural roost sites for breeding or hibernation. All bat roosts should be considered equally important and essential to the species survival.'*

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 the Local Environmental Records Centre for Cheshire, Halton, Warrington and Wirral (RECORD)
- biological records requested from the Merseyside BioBank;
- granted EPS licences for bats from <https://magic.defra.gov.uk/magicmap.aspx>;
- statutory designated sites that include bat species as part of their designation from <https://magic.defra.gov.uk/magicmap.aspx>; and
- publicly available aerial imagery showing connectivity across the site and to the wider landscape.

3.2 Bat records were searched for at a resolution of 2km around the Site.

Preliminary Roost Assessment

3.3 Preliminary Roost Assessments (PRA) of trees were undertaken from ground level, with the aid of binoculars by a suitably experienced ecologist from FPCR on 26th May 2025. Potential Roosting Features (PRFs) (based on p.16, British Standard 8596:2015 Surveying for bats in trees and woodland, October 2015) which were sought included:

- 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;
- 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.

3.4 Certain factors such as orientation of the feature, its height from the ground, the direct surroundings, and its location in respect to other features may enhance or reduce the potential value.

3.5 Using professional judgement, the ground-based PRA assessment classified any trees identified based upon the presence of suitable features as set out in Bat Surveys for Professional Ecologists: Good Practice Guidelines (BCT, 2023) in which the general bat roost potential groups are defined (refer Table 4.2 of the guidelines) and provided in Table 1 below.

Table 1: Suitability of Trees for Bats

Suitability	Description
NONE	Either no potential roost features or highly unlikely to be any
FAR	Further Assessment Required to establish if Potential Roost Features are present.
PRF	A tree with at least one Potential Roost Feature

Potential roost feature (PRF) inspection surveys

3.6 Trees that were categorised as 'Further Inspection Required' (FAR) or Potential Roost Feature (PRF) were subject to further inspection, via aerial assessment, where it was considered they may be impacted the scheme.

3.7 This survey included a detailed inspection of trees for the presence of further PRFs and also for the level of roosting suitability provided by PRFs (Table 2).

3.8 An assessment by pole-mounted endoscope was undertaken on 20th November 2025 by a suitably experienced ecologist meeting the BCT competency requirements and acting as an accredited agent under Natural England Class Licence Registration Number: 2025-85007-CL18-BAT.

Table 2: Bat Classification and Survey Requirements for Bats in Trees

Classification of Tree	Description of Category and Associated Features	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 Potential Roosting Features that are suitable for only individual bats or very small numbers of bats either due to	No further survey is required but appropriate compensation must be provided in advance of impacts and a precautionary working method statement must be applied

Classification of Tree	Description of Category and Associated Features	Likely Further Survey work / Actions
	size or lack of suitable surrounding habitats.	
PRF-M	A tree with PRFs which could 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 of PRFs by appropriately licensed/ accredited tree climbers to determine presence or likely absence of roosting bats. Three surveys should be undertaken between May and September (with at least two surveys between May and August and spread at least three weeks apart). If roost sites are confirmed and the roost is affected by proposals, a licence from Natural England will likely be required. After completion of survey work (and the presence of a bat roost is discounted), a precautionary pre-felling survey or working method statement may still be appropriate.

Bat Activity

Habitat Assessment

- 3.9 The habitat suitability was determined to inform the necessary bat activity survey effort, using guidance from 'Bat Surveys for Professional Ecologists: Good Practice Guidelines' (Bat Conservation Trust, 4th Edition, 2023). Table 4.1 of those guidelines provides an outline for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape. This should be applied using professional judgement. This groups a site into five categories based on habitat suitability for foraging and commuting bats which has been further summarised in Table 3 below.
- 3.10 This assessment aimed to identify the suitability of the Site to foraging and commuting bats or areas which may be important for exhibiting various social behaviours. This was informed by the results of the initial UKHab survey and also from information gathered in the desk study to ensure that potential effects are considered in the context of the onsite habitats within the wider area.

Table 3: Criteria for Assessing Habitat Suitability for Commuting and Foraging Bats - Based on table 4.1 (Collins, 2023)

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.	

Suitability	Potential Flight Paths and Foraging Habitat	Proposed Further Survey Requirements
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 <u>seasonal*</u> 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 <u>monthly</u> basis and nighttime bat walkover surveys (flight path and transect) on a <u>seasonal*</u> 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

- 3.11 Bat activity surveys were undertaken because the Site was considered to provide Low suitability for bats. These surveys were undertaken to identify the value of the Site to foraging and commuting bats or areas which may be important for exhibiting various social behaviours so that the effects of the proposals can be assessed.
- 3.12 In order to inform an impact assessment, where possible the bat activity surveys aim to identify:
- The presence or absence of bats, abundance and species using the Site whilst away from the roost;
 - The usage of the habitats on the Site by bats;
 - The temporal (both seasonally 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.
- 3.13 Bat activity surveys were designed and lead by an ecologist with expertise meeting the BCT level 3 competency.

Static Monitoring

- 3.14 Static (passive) monitoring was undertaken using an automated logging system (Wildlife Acoustics Inc. Song Meter® SM4BAT FS bat detectors with SMM-U2 microphones). During the survey period May to September 2025 static recording devices were positioned within the Site to record bat registrations for at least five consecutive nights per season.
- 3.15 The number of static detectors to be used and location of deployment was determined so that a representative sample of all habitats within the Site could be monitored. The locations were subjectively predetermined using professional judgment to be positioned at least 15m away from any known or likely roosts and also in consideration of likely impacts. In order to provide rigorous analysis, static detectors were placed in the same location during each survey, and these are shown on Figure 1.
- 3.16 The devices were deployed for 5 consecutive nights during suitable weather conditions that were typical for the season of deployment and were programmed to activate 30 minutes before sunset and record continuously until 30 minutes following sunrise.
- 3.17 Static detectors were deployed during the following periods;
- 23rd to 28th May 2025
 - 5th to 10th August 2025
 - 22nd to 27th September 2025
- 3.18 The data were analysed as soon as possible after retrieval of the static units using the Sonobat™ 30.1 (SonoBat™ Inc.) software package. Data were initially run through the auto-analysis function of the software and then were subject to moderated vetting by a bat call specialist, informed by guidance from an independent statistician. Analysts are audited internally for quality control purposes and to maintain consistent results. Measurements including peak frequency, inter-pulse interval, call duration and end frequency were taken to aid in species identification.

Night-time Bat Walkover (Flightpath / Transect Surveys)

- 3.19 In line with current guidance (Collins, 2024) night-time bat walkovers are undertaken in two parts. The first part is undertaken by stationary surveyors positioned on habitat features most likely to be utilised as commuting routes by bats. Once conditions become too dark to see or once commuting activity has been observed and has largely ended, surveyors begin a walked transect sampling all areas and habitats within the Site noting any bat activity that is heard or observed along the way. Whilst this includes two elements it is one survey designed to record information to provide further context to elements that static detectors cannot always identify such as bat behaviour or abundance of bats.
- 3.20 The first part of the survey to observe flightpaths involved two surveyors being positioned at pre-determined locations as shown on Figure 2. The survey started just before sunset and lasted for between 30 minutes and one hour after sunset. After this the walked transect was started and continued until two to three hours after sunset. The route followed during each transect was repeated on each survey occasion, however the starting point was varied throughout the season.
- 3.21 The NBW surveys were undertaken on 23rd May 2025, 5th August 2025 and 22nd September 2025. Surveyors were equipped with Wildlife Acoustics Inc. Echo Meter Touch® bat detectors in conjunction with Echo Meter Touch® app and Samsung Galaxy Tab Active 3® during the transect

surveys to detect bats and aid species identification. During the survey, any observed bat activity and behaviour was recorded.

Table 4: Nighttime Bat Walkover Timings

Survey Date	Sunset Time	Start Flightlines	Start Transect	End Transect
22/05/2025	21:15	21:15	22:15	23:15
07/08/2025	20:55	20:55	21:55	22:55
18/09/2025	19:19	19:21	20:23	21:19

Table 5: Nighttime Bat Walkover Conditions

Survey Date	Start Temp (°C)	Wind Beaufort Scale	Rain	Cloud Cover (%)
22/05/2025	13	1	Dry	10
07/08/2025	18	3	Dry	50
18/09/2025	19	3-4	Dry	50

Survey Limitations

- 3.22 No survey limitations were identified.

4.0 RESULTS

Desk Study

- 4.1 The biological record search provided no bat records directly referring to the Site. A total of 35 bat records were returned for the 2km search area. Most of the records were common pipistrelle, with five other species also recorded; soprano pipistrelle, brown long-eared bat, noctule, Leisler's bat and a Whiskered/Brandt's bat.
- 4.2 The records included five roosts, in three locations. The closest, and most recent roost record was located 915m to the northwest of the Site boundary in a line of oak trees, and noted as likely *Pipistrellus* species. No maternity roosts were reported.
- 4.3 The LERC results are displayed in Figure 2 of the EclA Report (FPCR, 2025).
- 4.4 MAGIC showed no statutory sites designated for bats within 2km of the Site, and no granted bat licences recorded withing 2km of the Site.

Bat Roosting

- 4.5 Tree T-25, a mature oak located on the south boundary, was deemed to require further investigation during the ground level preliminary roost assessment on 26th May 2025.
- 4.6 A survey by endoscope on 20th November 2025 determined that the tree has one knothole feature with PRF-I suitability for bat roosting.
- 4.7 Other trees at the Site boundaries did not contain potential roosting features, or are not subject to direct impacts and will be buffered within the landscape plan, therefore they were scoped out of further assessment. There are no buildings or structures on Site.

Bat Activity

Habitat Suitability Assessment

- 4.8 The application Site is largely comprised of modified grassland, which is of low suitability for foraging bats and provides little commuting value. Small areas of scrub and wet woodland at the periphery will support more invertebrates and therefore provide higher foraging value. There are no vegetated linear features through the centre of the Site, but hedgerows and lines of trees at the boundaries will provide foraging and commuting habitat for bats. Full habitat descriptions are provided in the EcIA (FPCR, 2025).
- 4.9 Overall, the habitats covering the majority of the Site may provide some very limited foraging value to bat species that feed in open environments, with higher suitability for foraging and commuting for a variety of species at the boundaries.

Static Monitoring

- 4.10 The following paragraphs detail the findings of the automated activity surveys. In this context, the term 'registration' refers to a unique sound file created over the course of several seconds. Based on this, numerous 'registrations' does not necessarily refer to multiple bats (unlike the transect activity survey section above where the number of bats can often be visually identified), as one bat can create a number of registrations, for example a bat which is foraging in the area surrounding the microphone for a sustained period.
- 4.11 During each survey period two static detectors were deployed on site for five nights. The static detector positions were as follows:
- Location A – On the west boundary, sampling a hedgerow with trees near to wet woodland
 - Location B – In the northeast corner of the Site, sampling the scrub and along the stream to the north
 - Location C – On the east boundary near tree T29, sampling the open grassland onsite and urban edge offsite
- 4.12 The same locations, presented in Figure 1, were used for the spring, summer and autumn static surveys.

Spring Survey

- 4.13 During the spring survey, bat activity levels were highest at Location A, with an average of 45.5 registrations per hour (r/hr). Locations B and C had much lower relative activity, registering 5.1 r/hr and 3.8 r/hr respectively.
- 4.14 Common pipistrelle was the most frequently recorded species at all three locations, ranging from 84% to 96% of the deployment totals. The species diversity was highest at Location B, where at least six species were identified in the data. Four species were recorded at Location A and two at Location C. Sporadic passes by Nathusius' pipistrelle, which is rare but generally considered underreported, were registered at Locations A and B.
- 4.15 Bat activity by hour, presented in Appendix A1, showed constant activity by common pipistrelle at Location A throughout the night, indicating foraging activity here. Activity at both B and C peaked during commuting time at dusk and dawn.

Table 6: Spring Static Detector Survey Results

Static Location	Avg. registrations/hour	Total registrations	Most registered species (% of total registrations)	Other species recorded (% of total registrations)
Location A	45.5	1953	Common pipistrelle (93.09%)	<i>Pipistrellus</i> species (3.38%) Soprano pipistrelle (2.51%) Nathusius' pipistrelle (0.92%) Noctule (0.87%)
Location B	5.1	220	Common pipistrelle (84.09%)	Soprano pipistrelle (4.55%) <i>Pipistrellus</i> species (4.09%) Noctule (4.09%) Nathusius' pipistrelle (1.36%) <i>Myotis</i> species (1.36%) Brown long-eared bat (0.46%)
Location C	3.8	163	Common pipistrelle (96.93%)	<i>Pipistrellus</i> species (2.45%) Soprano pipistrelle (0.61%)

Summer Survey

- 4.16 Bat activity was higher throughout the Site during the summer than the spring. The highest level of activity, by a significant margin, was recorded again at Location A, with an average of 56.1 r/hr.
- 4.17 The species diversity recorded was lower in the summer than the spring, with at least four species identified. Common pipistrelle was again the most registered species at each static, accounting for over 99% of the registrations at Location A, 96% at Location C and 65% at Location B.
- 4.18 Soprano pipistrelle, noctule and *Myotis* species were also present in very low proportions, except for at Location B, where a third of the recordings were soprano pipistrelle.
- 4.19 Hourly activity trends were similar to the spring, whereby Location A showed constant foraging activity by common pipistrelle. Locations B and C again had peaks around the commuting period. Soprano pipistrelle registrations in particular at Location B showed distinct dusk and dawn peaks with very little activity between these times.

Table 7: Summer Static Detector Survey Results

Static Location	Avg. registrations/hour	Total registrations	Most registered species (% of total registrations)	Other species recorded (% of total registrations)
Location A	56.1	2679	Common pipistrelle (99.07%)	Soprano pipistrelle (0.60%) <i>Myotis</i> species (0.26%) Noctule (0.08%)
Location B	13.1	626	Common pipistrelle (65.82%)	Soprano pipistrelle (33.55%) Noctule (0.32%) <i>Pipistrellus</i> species (0.16%) <i>Myotis</i> species (0.16%)
Location C	7.7	368	Common pipistrelle (96.74%)	Soprano pipistrelle (2.45%) <i>Myotis</i> species (0.54%) <i>Pipistrellus</i> species (0.27%)

Autumn Survey

- 4.20 Bat activity was very low across the Site in autumn, with less than 4 registrations per hour at all three survey locations. Common pipistrelle was the most frequently recorded species again across the Site, accounting for approximately 90% of the registrations at all three locations. Occasional registrations of *Myotis* species, noctule, brown long-eared bat and soprano pipistrelle were also recorded in low proportions.

- 4.21 Hourly activity trends showed a peak around dusk at all three static locations, likely showing commuting behaviour but not significant foraging behaviour.

Table 8: Autumn Static Detector Survey Results

Static Location	Avg. registrations/hour	Total registrations	Most registered species (% of total registrations)	Other species recorded (% of total registrations)
Location A	3.7	237	Common pipistrelle (90.30%)	Soprano pipistrelle (5.06%) <i>Pipistrellus</i> species (3.38%) Noctule (1.27%)
Location B	2.1	134	Common pipistrelle (88.06%)	Soprano pipistrelle (5.22%) <i>Myotis</i> species (2.99%) Brown long-eared bat (2.24%) <i>Pipistrellus</i> species (0.75%) Noctule (0.75%)
Location C	1.6	100	Common pipistrelle (89.00%)	Noctule (7.00%) Soprano pipistrelle (3.00%) Brown long-eared bat (1.00%)

Night-time Bat Walkover

- 4.22 The night-time bat walkover surveys took place at dusk on 23rd May 2025, 5th August 2025 and 22nd September 2025. The surveys started with a stationary observation of potential bat commuting flightlines, followed by a walked transect of the Site.
- 4.23 The results of these surveys are summarised in the paragraphs below and in Figures 2 and 3.

Flightlines

- 4.24 Surveyors were positioned in two observation Locations, 1 and 2 (Figure 2). Location 1 was situated at the meeting of H-1 and D-1, observing hedgerow, ditch and grassland habitats. Observation Location 2 was at the northeastern corner of the Site, surveying the urban edge, tree-lined stream and onsite grassland.

Spring

- 4.25 At Location 1, two common pipistrelle were observed commuting northwards along H-1, one of which was also noted foraging. A soprano pipistrelle was recorded foraging westwards along D-1.
- 4.26 At Location 2, the only species encountered was common pipistrelle. Eleven commuting passes were noted along the tree-lined stream to the north of the surveyor, travelling in the westerly direction.

Summer

- 4.27 At Location 1, a common pipistrelle was observed commuting over the field from the urban area in a north-westerly flight. A noctule commuting pass was also noted, but the bat was not seen. A common pipistrelle and a soprano pipistrelle were recorded foraging along D-1 briefly and shortly after, a common pipistrelle was seen foraging over the open field to the east of the surveyor.
- 4.28 At Location 2, three common pipistrelle and two soprano pipistrelle were noted flying westwards along the stream to the north of the surveyor. One bat of each species was noted foraging, while the others were commuting. A soprano pipistrelle was also noted commuting along the stream in an eastwards direction. A total of three common pipistrelle were seen commuting northwards

from across the field, two of which were flying in tandem. A noctule was heard but not observed several times.

Autumn

- 4.29 At Location 1, two common pipistrelle were observed flying across the grassland and towards the surveyor's location. One was commuting from the east, and the other was foraging from the southeast. Noctule were heard commuting and foraging nearby.
- 4.30 At Location 2, two common pipistrelle were noted commuting east to west along the stream, one of which was also observed foraging around the trees on the Site boundary. Later in the survey, one common pipistrelle was observed flying back in the opposite direction. A noctule and a common pipistrelle were recorded commuting northwards over the grassland. Passes by common pipistrelle, soprano pipistrelle and noctule were heard but not observed in the second half of the flightlines.

Transect

- 4.31 A walked survey route followed each flightlines survey. The start /end point was changed each month to ensure different areas of the Site was sampled at varied times. The transect results are shown in Figure 3.

Spring

- 4.32 Bat activity was low during the spring transect, with four bat contacts noted during this part of the survey. Common pipistrelle was the only species encountered. Single commuting passes of this species were recorded along H-1 and over scrub and urban edge at the south of the Site. Four bats were noted commuting along the stream at the north of the Site.

Summer

- 4.33 Common pipistrelle was again the only species recorded during the summer survey. Commuting activity was observed near the trees at the southwest corner, along the urban edge outside the southern boundary and along the stream at the north of the Site. Six contacts with foraging bats were made along H-1 and D-1.

Autumn

- 4.34 Foraging common pipistrelle were recorded in the southwest and southeast corners of the Site, around trees and urban edge habitats. They were also encountered at the northern and southern ends of H-1. A foraging noctule was heard near the wet woodland along D-1.

5.0 DISCUSSION

Bat Roosting

- 5.1 Tree T-25 (see location on Figure 1) has one knothole feature determined to provide PRF-I suitability for bat roosting in the summer or transitional periods. The feature has negligible potential for winter roosting as it will not provide a suitably stable environment for hibernation. This tree is situated where the proposed vehicular access to the Site will be created.

Bat Activity

Species Diversity

- 5.2 The species assemblage recorded on Site is typical for the north of England and for the grassland, scrub, hedgerow and woodland edge habitats on Site. The species diversity of the bats shown to be using the Site consistently is moderate, with at least six species recorded (multiple species of the genus *Myotis* may be present.) The Site supports common and widespread species with sporadic passes of rarer bats.
- 5.3 The most frequently recorded species on Site during the static, flightlines and transect surveys was the common pipistrelle. Both commuting and foraging behaviour by this species was observed. Common pipistrelle are the most common bat species in the UK.
- 5.4 Consistent, but low-level use of the Site was recorded by soprano pipistrelle, with sporadic passes by noctule, *Myotis* species and brown long-eared bat.
- 5.5 A low number of registrations by Nathusius' pipistrelle were recorded during the spring static surveys. 18 passes were recorded at Location A and three at Location B, mostly in the hours just after sunset, and before sunrise indicating sporadic commuting by low numbers of bats. Significant use of the Site by this species has been ruled out. Nathusius' pipistrelle are considered rare in the UK, but have long been deemed under-reported.

Habitat Use and Activity Levels

- 5.6 The bat activity levels were varied across the Site. Seasonal trends from the static data showed lower levels of activity in the spring and autumn, and an increased level of activity during the summer at all locations. This is explained by an upsurge in insect availability over the warmer months, which leads to more foraging behaviour. The summer is also the peak of the breeding season for bats, so activity can increase around the time that young bats start to fly and hunt.
- 5.7 Average registrations per hour were highest at static Location A during all three survey seasons, indicating that this part of the Site may have more value to bats than Locations B and C. The timing of the registrations at Location A during the spring and summer deployments indicated foraging activity, explaining the higher numbers of registrations (due to multiple passes by the same bat/s). Hourly trends were consistent with commuting activity at A during the autumn, and B and C during all three seasons.
- 5.8 The flightlines and transect surveys also highlighted elevated levels of commuting and foraging by common pipistrelle along the tree-lined stream at the north boundary of the Site.

6.0 IMPACTS AND MITIGATION

Proposals

- 6.1 The proposals for the site are to seek outline planning permission for up to 120 dwellings, with public open space, landscaping, sustainable drainage system (SuDs) and associated infrastructure. New vehicular access is proposed on the southern boundary, where T-25 is currently located.

Impacts

- 6.2 Tree T-25, which has PRF-I bat roosting suitability, with the potential to support small numbers or individual roosting bats during the summer or transitional periods, will be removed to facilitate a vehicular access road. This will result in minor negative impact on the roosting habitats available onsite for bats. Other trees at the Site boundaries will be retained, as well as all of the existing hedgerows.
- 6.3 The modified grassland across the Site will be lost. The surveys found no evidence that the grassland provided a valuable resource for bat foraging or commuting, and therefore the impact of this loss will not be significant.
- 6.4 The brook to the north of the Site will be retained and buffered from built development and 'other neutral grassland', scrub and a SuDS basin will be created. Trees will also be planted around the drainage system. This area will act as a buffer to the treelined stream outside the north boundary of the Site, protecting the commuting route observed here during the surveys. This will also enhance the foraging value of this area by creating habitats that will support a higher number of invertebrates for bats to feed on. The effect of this new landscaping will provide some positive effects as the habitat establishes in the long-term.
- 6.5 Increased light levels during the construction and operational phase of the proposed development have the potential to result in disturbance to commuting and foraging bats using the peripheral habitats, particularly along the tree-lined habitats and woodland edge on the west boundary.
- 6.6 The most abundant species on Site were common pipistrelle, which is not a particularly light-averse species. Other, less light tolerant species, *Myotis* and brown long-eared bats were recorded but much less frequently. In total over all the surveys, there were 17 recordings of *Myotis* and five recordings of brown long-eared bats. No observations of these species were made during the NBW surveys. Therefore, the impacts on *Myotis* and brown long-eared bats are unlikely to be significant.
- 6.7 Near static Location A, which recorded the highest levels of bat activity over the course of the surveys, the proposals include residential houses at their closest within 5m of the treeline, extending to 12m at its northern extent. The houses are likely to increase artificial light levels on the edge habitat during the operational phase of the development. Furthermore, the baseline light levels at the treeline were low in comparison to the urban edge to the east and south. Therefore changes in lighting are likely to have a greater impact here than in other areas of the Site.
- 6.8 As such in the absence of mitigation the proposal will likely result in a negative impact from degradation of foraging and commuting habitat by increased light levels. The limited extent of this this is unlikely to affect any species at a local population level and therefore the impact is not likely to be significant.

Mitigation

- 6.9 The PRF-I knothole on T-25 should be checked by a suitably qualified ecologist immediately prior to the removal of the tree to ensure no bats are roosting at this time.
- 6.10 At least one bat box should be installed on Site prior to the removal of T-25, to compensate for the loss of suitable roosting habitat provided by the tree. Long-lasting features, made of weather resistant materials, such as the Schweidler 2F or similar, are suitable. This could be installed on a retained tree elsewhere on the Site boundary.
- 6.11 A Construction Environmental Management Plan (CEMP) will detail lighting restrictions during the construction phase of the development. This will include a requirement to minimise light-spill onto habitats both within and adjacent to it that are suitable for bat foraging and/or commuting. In particular, the stream at the north of the Site, and tree-lined hedgerows on the west boundary, where elevated levels of bat activity were noted during the surveys, and where baseline light levels are generally low;
- 6.12 Similarly, the lighting scheme for the Site will be designed to minimise light-spill onto habitats both within and adjacent to it that are suitable for bat foraging and/or commuting. In particular, woodland edge, hedgerows and lines of trees.
- 6.13 It is recommended that the lighting design strategy is reviewed (and if necessary updated) for any new development proposals as part of future applications, to ensure there are no negative impacts to wildlife from lighting.
- 6.14 Lighting strategies should consider the best practice guidance¹ as set out below:
- The avoidance of direct lighting of woodland edge, scrub, hedgerow, retained trees and proposed areas of habitat creation / landscape planting;
 - All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used;
 - LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability;
 - A warm white spectrum (ideally <2700 Kelvin) should be adopted to reduce the blue light component;
 - Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats;
 - Column heights should be carefully considered to minimise light spill and glare visibility;
 - Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered - See ILP GN01;
 - Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt; and
 - Where appropriate, external security lighting should be set on motion sensors and set to as short a possible a timer as the risk assessment will allow.

¹ Op cit.

- 6.15 With mitigation in place is predicted that impacts will be reduced as far as possible and no significant negative impacts will arise on account of the proposals.

Enhancement

- 6.16 To provide additional biodiversity enhancement, as encouraged in the NPPF, the provision of new potential roost sites would result in a net roosting habitat gain. It is recommended that additional bat boxes are affixed to retained trees in areas away from artificial lighting and close to greenspace and potential foraging habitat

APPENDIX A1: BAT STATIC SURVEY REGISTRATIONS BY HOUR

Table A.1: Static Location A, spring survey bat registrations by hour

Species	20:00 - 21:00	21:00 - 22:00	22:00 - 23:00	23:00 - 0:00	0:00 - 1:00	1:00 - 2:00	2:00 - 3:00	3:00 - 4:00	4:00 - 5:00	5:00 - 6:00
Common pipistrelle	0	106	198	80	195	269	302	476	192	0
<i>Pipistrellus</i> species	0	5	0	7	1	4	3	41	5	0
Soprano pipistrelle	0	0	2	2	2	0	11	28	4	0
Nathusius' pipistrelle	0	1	2	1	0	1	0	9	4	0
Noctule	0	0	1	0	0	0	0	0	0	1

Table A.2: Static Location B, spring survey bat registrations by hour

Species	20:00 - 21:00	21:00 - 22:00	22:00 - 23:00	23:00 - 0:00	0:00 - 1:00	1:00 - 2:00	2:00 - 3:00	3:00 - 4:00	4:00 - 5:00	5:00 - 6:00
Common pipistrelle	0	50	37	21	15	14	17	17	14	0
Soprano pipistrelle	0	0	4	1	1	1	0	2	1	0
<i>Pipistrellus</i> species	0	1	2	0	1	2	0	3	0	0
Noctule	0	0	0	0	0	0	0	0	9	0
Nathusius' pipistrelle	0	0	0	0	1	1	0	0	1	0
<i>Myotis</i> species	0	0	2	0	0	0	0	1	0	0
Brown long-eared bat	0	0	0	0	0	1	0	0	0	0

Table A.3: Static Location C, spring survey bat registrations by hour

Species	20:00 - 21:00	21:00 - 22:00	22:00 - 23:00	23:00 - 0:00	0:00 - 1:00	1:00 - 2:00	2:00 - 3:00	3:00 - 4:00	4:00 - 5:00	5:00 - 6:00
Common pipistrelle	0	49	31	6	8	12	4	29	19	0
<i>Pipistrellus</i> species	0	1	0	0	0	0	0	3	0	0
Soprano pipistrelle	0	0	1	0	0	0	0	0	0	0

Table A.4: Static Location A, summer survey bat registrations by hour

Species	20:00 - 21:00	21:00 - 22:00	22:00 - 23:00	23:00 - 0:00	0:00 - 1:00	1:00 - 2:00	2:00 - 3:00	3:00 - 4:00	4:00 - 5:00	5:00 - 6:00	6:00 - 7:00
Common pipistrelle	0	169	367	416	333	333	311	416	292	17	0
Soprano pipistrelle	0	5	5	1	2	1	1	1	0	0	0
<i>Myotis</i> species	0	0	0	5	1	1	0	0	0	0	0
Noctule	0	2	0	0	0	0	0	0	0	0	0

Table A.5: Static Location B summer survey bat registrations by hour

Species	20:00 - 21:00	21:00 - 22:00	22:00 - 23:00	23:00 - 0:00	0:00 - 1:00	1:00 - 2:00	2:00 - 3:00	3:00 - 4:00	4:00 - 5:00	5:00 - 6:00	6:00 - 7:00
Common pipistrelle	0	136	90	40	24	22	22	24	54	0	0
Soprano pipistrelle	0	67	6	2	0	1	0	1	78	55	0
Noctule	0	2	0	0	0	0	0	0	0	0	0
<i>Pipistrellus</i> species	0	0	1	0	0	0	0	0	0	0	0
<i>Myotis</i> species	0	1	0	0	0	0	0	0	0	0	0

Table A.6: Static Location C summer survey bat registrations by hour

Species	20:00 - 21:00	21:00 - 22:00	22:00 - 23:00	23:00 - 0:00	0:00 - 1:00	1:00 - 2:00	2:00 - 3:00	3:00 - 4:00	4:00 - 5:00	5:00 - 6:00	6:00 - 7:00
Common pipistrelle	0	135	71	19	13	9	11	10	47	41	0
Soprano pipistrelle	0	1	5	0	1	1	1	0	0	0	0
<i>Myotis</i> species	0	0	1	0	0	0	1	0	0	0	0
<i>Pipistrellus</i> species	0	0	0	0	0	0	0	0	1	0	0

Table A.7: Static Location A, autumn survey bat registrations by hour

Species	18:00-19:00	19:00-20:00	20:00-21:00	21:00-22:00	22:00-23:00	23:00-00:00	00:00-1:00	1:00-2:00	2:00-3:00	3:00-4:00	4:00-5:00	5:00-6:00	6:00-7:00	7:00-8:00
Common pipistrelle	0	87	64	27	9	3	3	8	7	5	0	0	1	0
Soprano pipistrelle	0	5	6	0	0	0	0	0	0	0	0	0	1	0
<i>Pipistrellus</i> species	0	1	6	0	0	0	0	1	0	0	0	0	0	0
Noctule	0	2	1	0	0	0	0	0	0	0	0	0	0	0

Table A.7: Static Location B, autumn survey bat registrations by hour

Species	18:00-19:00	19:00-20:00	20:00-21:00	21:00-22:00	22:00-23:00	23:00-00:00	00:00-1:00	1:00-2:00	2:00-3:00	3:00-4:00	4:00-5:00	5:00-6:00	6:00-7:00	7:00-8:00
Common pipistrelle	0	39	11	6	6	7	3	8	10	3	6	15	4	0
Soprano pipistrelle	0	2	0	0	1	0	1	1	1	0	0	0	1	0
<i>Myotis</i> species	0	0	3	0	0	0	0	0	0	0	1	0	0	0
Brown long-eared bat	0	0	0	0	0	0	0	0	0	0	2	1	0	0
<i>Pipistrellus</i> species	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Noctule	0	1	0	0	0	0	0	0	0	0	0	0	0	0

Table A.7: Static Location B, autumn survey bat registrations by hour

Species	18:00-19:00	19:00-20:00	20:00-21:00	21:00-22:00	22:00-23:00	23:00-00:00	00:00-1:00	1:00-2:00	2:00-3:00	3:00-4:00	4:00-5:00	5:00-6:00	6:00-7:00	7:00-8:00
Common pipistrelle	0	28	18	12	4	6	4	7	2	3	2	2	1	0
Noctule	0	3	2	1	0	0	0	0	0	0	0	0	0	1
Soprano pipistrelle	0	1	0	2	0	0	0	0	0	0	0	0	0	0
Brown long-eared bat	0	0	0	0	1	0	0	0	0	0	0	0	0	0

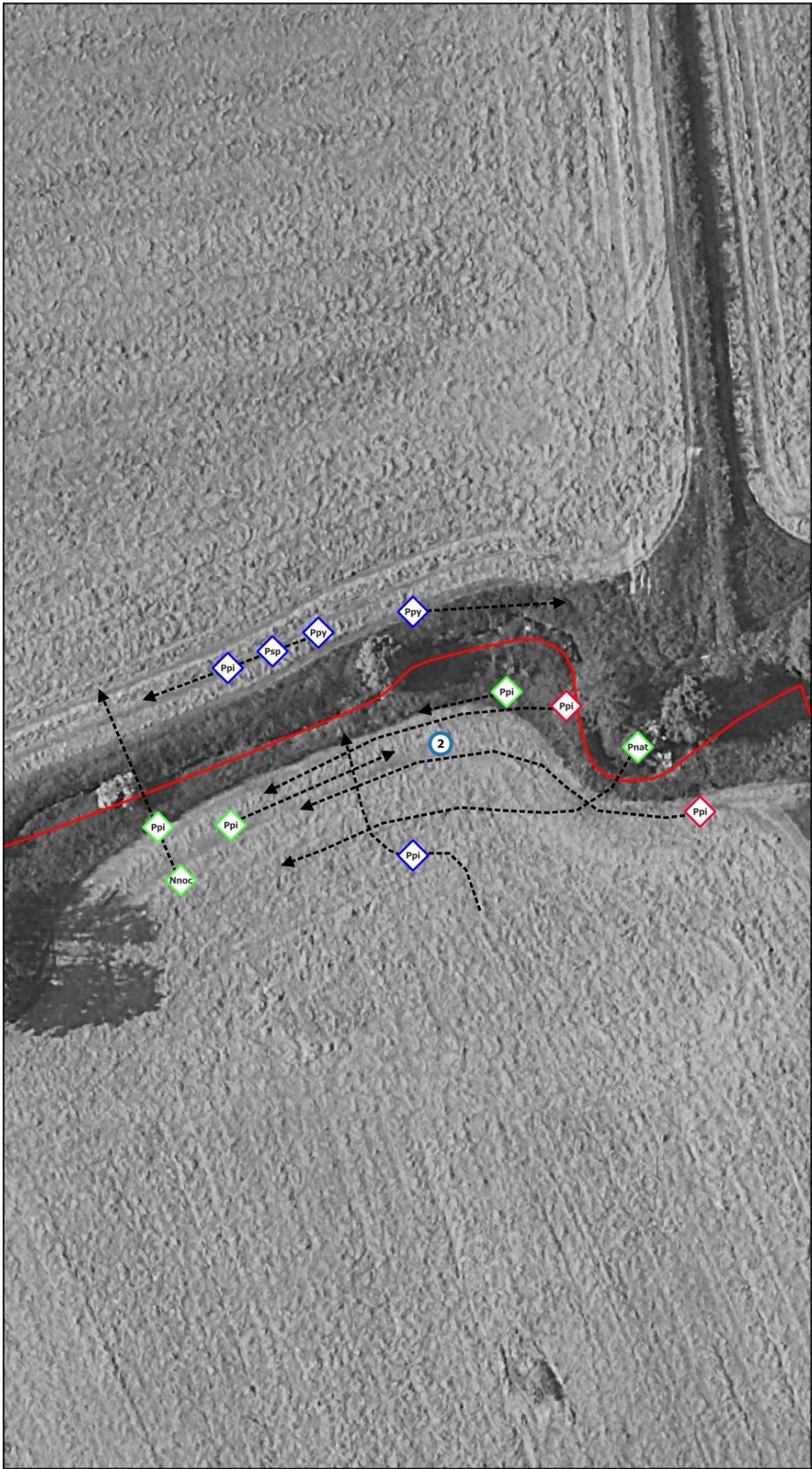


- Site Boundary
- Static Bat Detector Location (with reference)
- Trees with bat potential
- PRF-I

drawn date	19/11/25	drwn/chkd	HK / ER
client	Bellway Home Limited		
project	Cronton Road, Knowsley		
title	STATIC BAT DETECTOR LOCATION PLAN	scale	1:1,194 @ A3
number	FIGURE 1	rev	-



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L:\13100\13119\GIS\C - Bats\Flightlines\13119-E-01 Bat Flightline Survey Results Plan.qgs
t: 01509 672772 e: mail@fpcr.co.uk w: www.fpcr.co.uk

N

0

25

50 m

Site Boundary

Surveyor Locations
(with reference)

Bat Contacts

Spring

Summer

Autumn

Behavioural Observation Arrows

Flight paths

Species

Ppi

Common pipistrelle

Ppy

Soprano pipistrelle

Pnat

Nathusius' pipistrelle

Psp

Pipistrellus sp.

Nnoc

Noctule

Non-visual Bat Contacts - SP1

Species	Spring	Summer	August
Pippip	1	4	3
Nycnoc	0	2	5

Non-visual Bat Contacts - SP2

Species	Spring	Summer	Autumn
Pippip	0	7	8
Pippyg	0	2	2
Nycnoc	0	3	1

date

05/12/25

drwn/chkd

HK / ER

client

Bellway Home Limited

project

Cronton Road,
Knowsley

title

BAT FLIGHT LINE SURVEY
RESULTS PLAN - SP1 & SP2

scale

1:933 @ A3

number

FIGURE 2

rev

A

FPCR | environment & design



Site Boundary

Transect Route

Start and Finish Points

FS Spring

FS Summer

FX Autumn

Bat Contacts

Spring

Summer

Autumn

Species

Ppi Common pipistrelle

Nnoc Noctule

date
20/11/25

drwn/chkd
HK / ER

client
Bellway Home Limited

project
**Cronton Road,
Knowsley**

title
**BAT TRANSECT SURVEY RESULTS
PLAN**

number

scale
1:1,200 @ A3

rev
-

FIGURE 3

FPCR | environment
& design