

Report

Land to the North of The Drove Way, Istead Rise,
Gravesham

Bat Survey Report

For Ptarmigan Land A Ltd

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1 Introduction

1.1 Project Background

- 1.1.1 Logika Consultants Ltd. ('Logika') has been commissioned by Ptarmigan Land A Ltd to undertake a programme of bat survey across the Land to the North of The Drove Way, Istead Rise, Gravesham (hereafter referred to as 'the Site'). This survey has been undertaken to inform the assessment of the potential effects of the residential development on bats.
- 1.1.2 This baseline report provides the survey methodology and survey results of bat surveys undertaken between June 2025 and May 2026.

1.2 The Site

- 1.2.1 The Site, as defined by the red line boundary in **Figure 1-1**, is located within the village of Istead Rise, Gravesham, Kent and comprises of an area of land under agricultural production. It is bounded to the north and west by further agricultural fields, to the east by woodland, and the south by a residential estate. The central grid reference for the Site is TQ 63383 70439 and is approximately 5.7ha in extent.

1.3 The Proposed Development

- 1.3.1 The Proposed Development provides up to 100 residential dwellings (Class C3), including the formation of new accesses from The Drove Way, the provision of new areas of public open space and all other associated infrastructure and ancillary works (all detailed matters reserved other than means of access).



Figure 1-1: Site Location

2 Legislation

All bat species occurring in England are legally protected under domestic and retained European legislation, principally the Conservation of Habitats and Species Regulations 2017 (as amended) ("the Habitats Regulations")¹ and the Wildlife and Countryside Act 1981 (as amended) (WCA)².

Under Regulation 43 of the Habitats Regulations, it is an offence to deliberately capture, injure or kill a bat, deliberately disturb a bat, or to damage or destroy a bat breeding site or resting place, whether or not bats are present at the time. Additional offences include the possession, transport, sale or exchange of bats, alive or dead. Under Section 9 of the WCA, it is also an offence to intentionally or recklessly disturb bats occupying a place used for shelter or protection, or to intentionally or recklessly obstruct access to such places.

In the planning context, the National Planning Policy Framework (NPPF)³ requires that the impacts of development on biodiversity are assessed and that significant harm is avoided. Where this is not possible, impacts should be adequately mitigated, or as a last resort, compensated for.

In addition to the general legal protection afforded to all bat species, some species receive further recognition through national and international conservation frameworks. Several bat species are listed as Species of Principal Importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (as amended)⁴, reflecting their conservation status in England. Several bat species are also listed on Annex II of the Habitats Regulations, identifying species for which Special Areas of Conservation (SACs) may be designated. Under Section 41 (3) of the NERC Act, the Secretary of State has a duty, where reasonably practicable, to take steps to further the conservation of these species and to promote the taking of such steps by others.

To ensure compliance with relevant legislation and planning policy, it is necessary to understand how bats use habitats and features within the Site, so that the potential effects of the proposed development on bat populations can be appropriately assessed and, where necessary, mitigation measures identified

¹ The Conservation of Habitats and Species Regulations 2017.

Available at: <https://www.legislation.gov.uk/uksi/2017/1012/contents/made>

² Wildlife and Countryside Act 1981 c.69. Available at: <https://www.legislation.gov.uk/ukpga/1981/69>

³ Ministry of Housing, Communities, and Local Government. National Planning Policy Framework. Available at: [National Planning Policy Framework - GOV.UK](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/431394/NPPF_2017.pdf)

⁴ The Natural Environment and Rural Communities Act 2006 c.16.

Available at: <https://www.legislation.gov.uk/ukpga/2006/16/contents>

3 Methodology

3.1 Survey Design

3.1.1 The following survey guidance has been taken into account in the methodology design. Any deviation from standard industry practice is noted in the appropriate section.

- *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. Fourth Edition (Collins, 2023)⁵
- *Bat Workers' Manual*, Third Edition (Mitchell-Jones and McLeish, 2004)⁶
- *UK Bat Mitigation Guidelines* (CIEEM, 2023)⁷
- British Standards (BS) 8596:2015 *Surveying for Bats in Trees and Woodland* (British Standards Institution, 2016)⁸
- *Bat Tree Habitat Key* (Andrews et al., 2013)⁹

3.2 Desk Study

3.2.1 An environmental desk study was undertaken in April 2025 to identify records of bats within 5 kilometres (km) of the Order Limits. This included data collected from:

- Kent and Medway Biological Record Centre (KMBRC)
- Multi-Agency Geographic Information for the Countryside (MAGIC)¹⁰ for records of granted European Protected Species Licences (EPSL)

3.3 Survey Scope and Design

3.3.1 In line with Chartered Institute of Ecology and Environmental Management (CIEEM) guidance¹¹, surveys were focussed on those areas in which works associated with the Proposed Development could contribute to negative effects on bat populations or could result in contravention of the legislation protecting bats.

3.3.2 Initial scoping was undertaken on 4th April 2025 by a suitably experienced and qualified ecologist when weather conditions were clear and dry, with temperatures around 15°C to assess habitats within the Site for their potential suitability to support roosting and foraging and commuting bats. This

⁵ Collins, J. (ed) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (4th Ed.). The Bat Conservation Trust, London.

⁶ JNCC (2004) *Bat Workers' Manual*. Third Edition. Edited by A.J. Mitchell-Jones and A.P. McLeish. Joint Nature Conservation Committee, Peterborough.

⁷ Reason, P.F. and Wray, S. (2023). *UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats*. Version 1.1. Chartered Institute of Ecology and Environmental Management, Ampfield.

⁸ British Standards Institution, (2015). BS 8596-2015 *Surveying for bats in trees and woodland – guide*. BSI Standards Publication; London.

⁹ Andrews (2018) *Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-Care and Ecology Professionals*. Bat Tree Habitat Key.

¹⁰ An internet-based Geographic Information Systems database developed and maintained by the Department for Environment, Foods and Rural Affairs (DEFRA) (Defra, 2024). Located here: [MAGIC](#)

¹¹ CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland*. Terrestrial, Freshwater, Coastal and Marine. Version 1.3 updated September 2024. CIEEM, Winchester.

exercise was conducted using a combination of aerial imagery and walkover surveys across all habitat types.

3.4 Environmental Conditions

- 3.4.1 Active bat surveys were undertaken when there was little to no rain, no excessive wind and the temperature was above 10°C. In these weather conditions, bats are unlikely to be deterred from flying. Temperature, humidity, cloud cover and rainfall levels were recorded by surveyors during each survey visit. Any other environmental conditions that may affect bat activity, such as noise or artificial light levels, were also recorded.
- 3.4.2 Static acoustic monitoring was conducted over a period of five to ten days, for which the environmental conditions were recorded using timeanddate.com¹². This included levels of wind and rain, as well as moon phase which may increase ambient light levels. Environmental conditions are presented in **Appendix A1** for static monitoring.

3.5 Ground Level Tree Assessment for bats

- 3.5.1 The extended habitat survey also included a Ground Level Tree Assessment (GLTA) of trees within the Site accordance with the criteria set out in Bat Conservation Trust (BCT) guidance¹³ and with reference to both the British Standard¹⁴ and Bat Roosts in Trees¹⁵ guidance documents.
- 3.5.2 The GLTA included a visual inspection of trees on site, to assess their potential to support roosting bats. In assessing potential to support roosting bats, the external inspection considers the following factors:
- 3.5.3 Trees within the survey area, were assessed for their potential suitability to support roosting bats using close focussing binoculars to search for Potential Roost Features (PRFs). Suitable features include cracks in limbs and trunks, split branches, knot or woodpecker holes, rot holes, or areas of dense ivy forming plates.
- 3.5.4 Details of trees which supported PRFs were recorded, including:
- Grid reference;
 - Tree species; and
 - PRF number and type.
- 3.5.5 Trees were categorised as either:
- None – Either no PRFs in the tree or highly unlikely to be any;
 - FAR – Further assessment required to establish if PRFs are present in the tree; or
 - PRF – A tree with at least one PRF present.
- 3.5.6 Activity surveys were designed to incorporate the full extent of the Site area, incorporating the range of habitat types and quality present considering their connectivity to the wider landscape, as well as

¹² Available at timeanddate.com

¹³ Collins, J (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition) The Bat Conservation Trust, London.

¹⁴ British Standards Institution (2015) BS 8596:2015 *Surveying for bats in trees and woodland*.

¹⁵ Andrews (2018) *Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-Care and Ecology Professionals*. Bat Tree Habitat Key.

locations where effects of potential impacts of the Proposed Development may be realised. Survey types included:

- Static acoustic monitoring

3.5.7 Details of each static acoustic monitoring period are presented in **Table 3-1**.

3.6 Habitat Assessment

3.6.1 During the Preliminary Ecological Appraisal, habitats within the Site were assessed for their potential suitability to support foraging and commuting bats and were allocated to the following categories:

- **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).
- **Negligible:** No obvious habitat features on site likely to be used as flight-paths 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 flight-paths such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat; or suitable but isolated habitat that could be used by small numbers of foraging bats, such as a lone tree (not in a parkland situation) or a patch of scrub
- **Moderate:** Continuous habitat connected to the wider landscape that could be used by bats for flight-paths, such as lines of trees and scrub or linked back gardens; or, habitat that is connected to the wider landscape that could be used by bats for foraging, such as trees, scrub, grassland or water
- **High:** Continuous, high-quality habitat that is well connected to the wider landscape and is likely to be used regularly by bats for flight-paths, such as river valleys, streams, hedgerows, lines of trees and woodland edge; or, high-quality habitat that is well connected to the wider landscape and is likely to be used regularly by foraging bats, such as broadleaved woodland, tree-lined watercourses and grazed parkland; or, the site is close to and connected to known roosts.

3.7 Static Acoustic Monitoring

3.7.1 Following the assessment as having moderate potential for commuting and foraging bats, to monitor bat activity throughout the night, three full spectrum bat detectors (Anabat Rangers and Swifts) were deployed and set to record continuously from 30 minutes before sunset until 30 minutes after sunrise for a minimum period of five days at the same monitoring location in each month of the active bat period (April to October). Monitoring locations are presented in **Figure 3-1**.



Figure 3-1: Remote Static Locations

Table 3-1: Dates for Static Acoustic Monitoring 2025/26

Static Reference	April	May	June	July	August	September	October
1	9-13 th April 2026	9-13 th May 2026	4-8 th June 2025	22-26 th July 2025	13-17 th August 2025	4-8 th September 2025	20-24 th October 2025
2	9-13 th April 2026	9-13 th May 2026	4-8 th June 2025	22-26 th July 2025	13-17 th August 2025	4-8 th September 2025	20-24 th October 2025
3	9-13 th April 2026	9-13 th May 2026	4-8 th June 2025	22-26 th July 2025	13-17 th August 2025	4-8 th September 2025	20-24 th October 2025

- 3.7.2 Where recording continued for a longer period, the best five nights, in terms of environmental conditions, were selected for analysis. The same five nights of each month were recorded at each monitoring location to ensure that indicative activity levels were directly comparable. A summary of each static location is provided in **Table 3-2**.

Table 3-2: Summary of Static Locations

Static ID	Grid Reference	Habitat Description
1	TQ 63458 70359	Located towards the southeast of the Site, at the intersection of the arable field and mixed deciduous woodland, close to residential houses and gardens.
2	TQ 63519 70451	Located at the east of the Site at the interface of the mixed deciduous woodland to the east and arable field to the west.
3	TQ 63259 70479	Located at the northwest boundary of the Site, adjacent to the arable field and small woodland area to the north.

3.8 Data Analysis

- 3.8.1 Bat activity was recorded as 'passes', defined here as a series of echolocation calls emitted by a bat, getting louder as it comes towards the surveyor and quieter again as it flies away.
- 3.8.2 Acoustic data recorded during the survey visits and acoustic monitoring was analysed using British Trust for Ornithology (BTO) Acoustic Pipeline¹⁶ and BatExplorer Pro to identify to species level or species group or genus (where call parameters overlapped) with the aid of Russ (2021)¹⁷.

The BTO Pipeline was used to perform initial analysis of static acoustic monitoring data. This platform uses machine learning techniques and cloud computing to automate the processing of ultrasonic audio data. Each analysed file is assigned a level of probability, whereby those below 0.5 are considered 'low confidence'. Low confidence files and those which were considered questionable based on the geographic location and known range of species, were manually checked using BatExplorer Pro. The unit of measurement for static acoustic monitoring, for the purpose of this study is

¹⁶ <https://www.bto.org/our-science/products-and-technologies/bto-acoustic-pipeline>.

¹⁷ Russ, J. (2021) *British bat calls: a guide to species identification*. 3rd edn. Exeter: Pelagic Publishing

a 'file', this is a recording made when the device is triggered and continues recording for a maximum of five seconds.

3.9 Limitations

Static Monitoring

- 3.9.1 Static data collection failed on one occasion at Static 3 within October during the monitoring period. This was due to an unexpected hardware fault. Nine times during the static monitoring period less than five nights of data was collected. This was due to an unexpectedly high volume of bat activity filling the SD cards prematurely. A summary of the number of valid recording nights per static detector is presented in **Table 3-3**.

Table 3-3: Number of Valid Static Monitoring Nights Recorded per Detector

Static Reference	Total Nights Recorded			Dates Recorded		
	Location			Location		
	1	2	3	1	2	3
April	5	4	5	9-13th April	10-13th April	9-13th April
May	5	5	5	9-13th May	9-13th May	9-13th May
June	4	5	5	4-7th June	4-8th June	4-8th June
July	5	4	3	22-26th July	22-25th July	22-24th July
August	5	3	4	13-17th August	13-15th August	13-16th August
September	3	3	4	4-6th September	4-6th September	4-7th September
October	5	5	0	20-24th October	20-24th October	20-24th October

Data Analysis

- 3.9.2 Where acoustic records were not identified to species level due to overlapping call parameters, or where the BTO Pipeline attempted to identify bats of the genus *Myotis* to species level, records were grouped into the following categories:
- Big bat species (noctule, serotine or Leisler's bat); and
 - *Myotis* species (bat species within the genus *Myotis*).
- 3.9.3 Typically, *Plecotus* (brown and grey long-eared bats) calls are difficult to differentiate from one another, however, the known range for grey long-eared bats is restricted to the south coast and southwest of England and it is highly unlikely that this species would be recorded in the survey area. As such, all *Plecotus* calls have been identified as brown long-eared bat.
- 3.9.4 Acoustic records collected during activity surveys are intended to give an indication of relative levels of bat activity during each month or season, on each transect or monitoring location, and do not represent actual numbers of bats. A single bat may pass the surveyor or acoustic recording device several times, with each pass or file counted separately.

4 Results

4.1 Desk Study

The data search returned 115 records of at least 10 bat species, within 5km of the Site in the past 10 years. A summary of the data is provided in **Table 4-1**.

Table 4-1: Bat Species

Species	No. of Records	Nearest Distance from Site	Most recent record
<i>Pipistrellus</i> species	60	0.5km south	2021
Brown long-eared bat <i>Plecotus auritus</i>	17	1.9km southeast	2022
Daubenton's bat <i>Myotis daubentonii</i>	6	3km northwest	2021
Leisler's <i>Nyctalus leisleri</i>	4	3km northwest	2019
Natterer's bat <i>Myotis nattereri</i>	6	3km northwest	2020
Noctule <i>Nyctalus noctula</i>	6	3.05km northwest	2021
<i>Myotis</i> species	3	3.4km northwest	2021
Nathusius' pipistrelle <i>Pipistrellus nathusii</i>	2	3.5km northeast	2021
Whiskered bat <i>Myotis mystacinus</i>	1	1.96km southeast	2018
Brandt's bat <i>Myotis brandtii</i>	1	1.96km southeast	2018
Alcathoe bat <i>Myotis alcathoe</i>	1	1.96km southeast	2018
Serotine <i>Cnephaeus serotinus</i>	1	3.5km southeast	2019

- 4.1.1 The MAGIC website returned nine records of granted European Protected Species Licences (EPSL) within 5km which were active in the last 10 years. A summary of the bat data is provided in **Table 4-2**.

Table 4-2: Granted European Protected Species Licences within 5km

Species Affected	Licence Start	Licence End	Location	Breeding Site	Resting Site
Common pipistrelle	01/03/2016	18/02/2021	4.3km northwest	-	Destroyed
Common pipistrelle	14/04/2015	14/04/2020	3.7km southwest	-	Destroyed

Species Affected	Licence Start	Licence End	Location	Breeding Site	Resting Site
Brown long-eared bat	04/06/2018	04/06/2023	1.4km southwest	-	Destroyed

4.2 Ground Level Tree Assessment

- 4.2.1 The habitat survey recorded woodland habitat which offers potential shelter for commuting bats and is likely to support abundant invertebrate prey for foraging. A total of two mature trees (TN4 and 12) were noted with Further Assessment Required (FAR) which are located to the southeast of the Site within the woodland habitat, as shown on **Figure 4-1**. T4 is a multi-stemmed ash *Fraxinus excelsior* with two tear outs, approximately 3-4m high on the southern aspects, while T12 is a beech *Fagus sylvatica* with a woodpecker hole on the southern aspect, approximately 4-5m high.
- 4.2.2 A further seven trees were also noted as FAR within the nearby woodland, however they sit outside of the Site boundary. As the proposals will result in no impacts to these trees or the surrounding woodland habitat, which will be retained and enhanced, no further bat surveys are considered necessary.
- 4.2.3 No built structures with potential suitability to support roosting bats were identified within the Site.



Figure 4-1: Trees Recorded as Further Assessment Required

4.3 Static Acoustic Monitoring

- 4.3.1 A minimum of six species were recorded during the static acoustic monitoring:
- Common pipistrelle *Pipistrellus pipistrellus* (92.39%)
 - *Eptesicus/Nyctalus* spp. (2.95%)
 - Myotis species (2.09%)
 - Noctule *Nyctalus noctula* (1.00%)
 - Soprano pipistrelle *Pipistrellus pygmaeus* (0.90%)
 - Brown long-eared *Plecotus auritus* (0.61%)
 - Nathusius' pipistrelle *Pipistrellus nathusii* (0.07%)
- 4.3.2 During the monitoring period, approximately 49,295 minutes of recording was conducted, yielding 15,367 records of bats, with a clear peak observed during July, followed by September and then August.
- 4.3.3 **Figure 4-2** illustrates the timing of files recorded over the entire monitoring period and at all three monitoring locations. For spring (sunset 20:20, sunrise 05:30) the most rapid increase in activity was observed at sunset, with a second peak in activity observed 60 minutes after sunset. Activity decreased gradually from this point throughout the night until 45 minutes before sunrise when activity increased sharply before reaching close to zero, 15 minutes prior to sunrise.
- 4.3.4 In summer (sunset 21:05, sunrise 05:00), the activity increased sharply 15 minutes before sunset, with a second, larger peak 90 minutes after sunset. Activity decreased from this point throughout the night, increasing again 60-90 minutes prior to sunrise, reaching zero 15 minutes after sunrise.
- 4.3.5 In autumn (sunset 18:35, sunrise 07:00) activity increased 90 minutes after sunset, reaching a peak 120 minutes after sunset, before decreasing throughout the night. Activity reached a second higher peak 75 minutes before sunrise before reaching zero an hour before sunrise.
- 4.3.6 This activity pattern suggests that bats may be roosting nearby during spring and summer due to activity rapidly increasing within the first hour after sunset. Were bats roosting further afield and commuting to the Site, a greater delay in activity after sunset may be expected. Similarly, activity increased in the hour before sunrise, potentially representing bats returning from foraging afar to roost nearby.
- 4.3.7 The second peak in activity observed in all three seasons over 60 minutes after sunset may represent an additional cohort of bats that are not roosting nearby but commuting/ foraging through the Site in the hours after sunset.

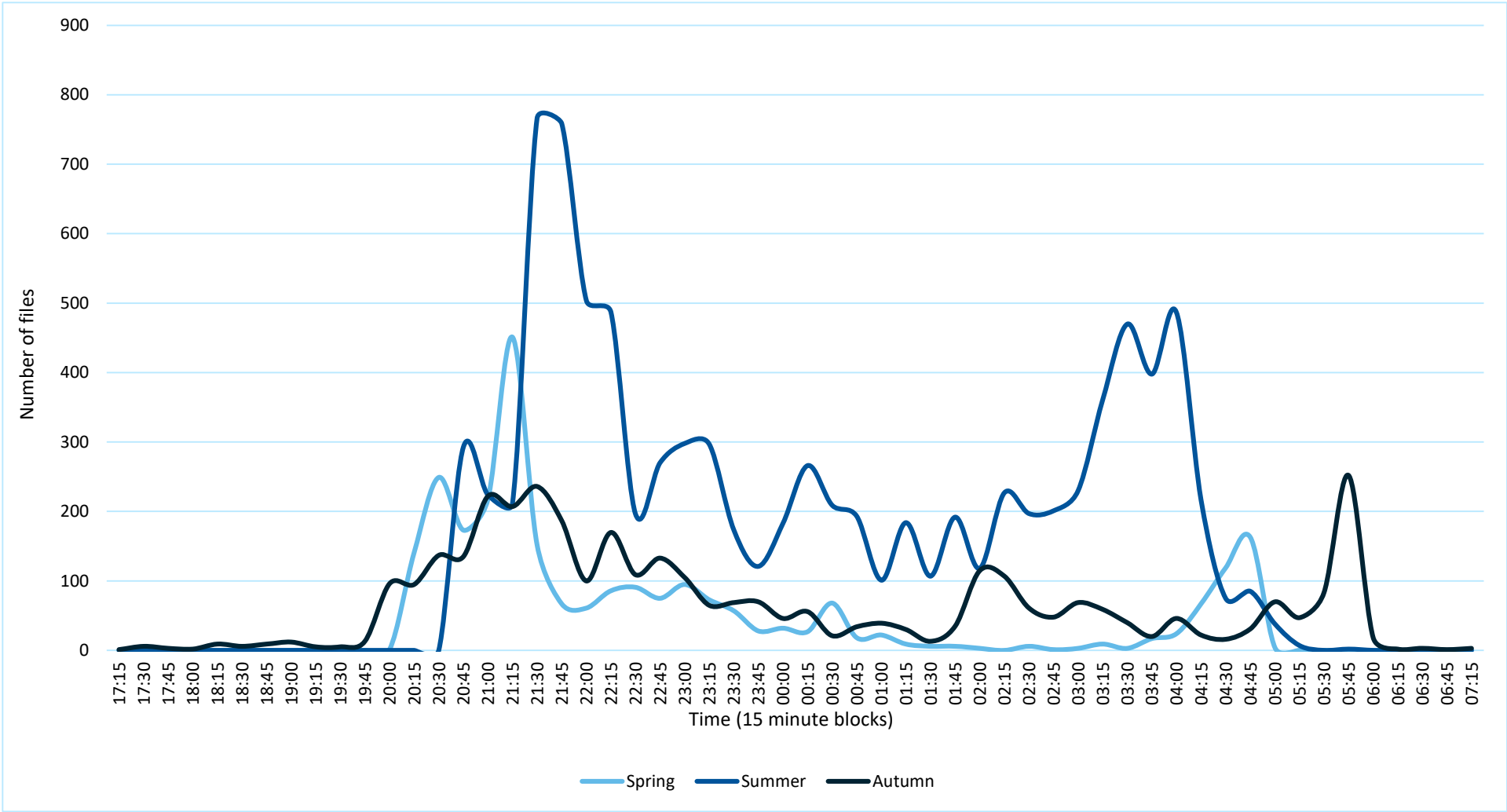


Figure 4-2: Temporal Changes in Bat Activity

- 4.3.8 **Figure 4-3** shows the levels of activity recorded across all locations during the monitoring period. Activity levels are presented as 'proportion of active minutes' shown as a percentage of the total recording time at each monitoring location. This method accounts for potential bias presented by individual bats which could otherwise produce multiple passes as they fly back and forth whilst foraging, triggering the device several times within the same minute.
- 4.3.9 Location 3 recorded the highest number of active minutes (11.3% active minutes). Location 3 was situated along the edge of the woodland, adjacent to a field margin, with similar linear features extending to the north, south and east. These features may provide well-defined linear corridors that facilitate bat commuting and foraging activity explaining the high proportion of active minutes.
- 4.3.10 Location 2 had a similarly high proportion of active minutes, (10.4% active minutes). This device was located within a larger mixed woodland area extending off-Site with abundant foraging habitat, connected linear features and occasional mature trees. Therefore, the higher levels of bat activity in this area likely reflect the favourable commuting and foraging opportunities associated with this habitat.
- 4.3.11 Location 1 exhibited the lowest active minutes (4.90% active minutes). This device was located closer to urban gardens with artificial lighting, which may explain the low activity levels.

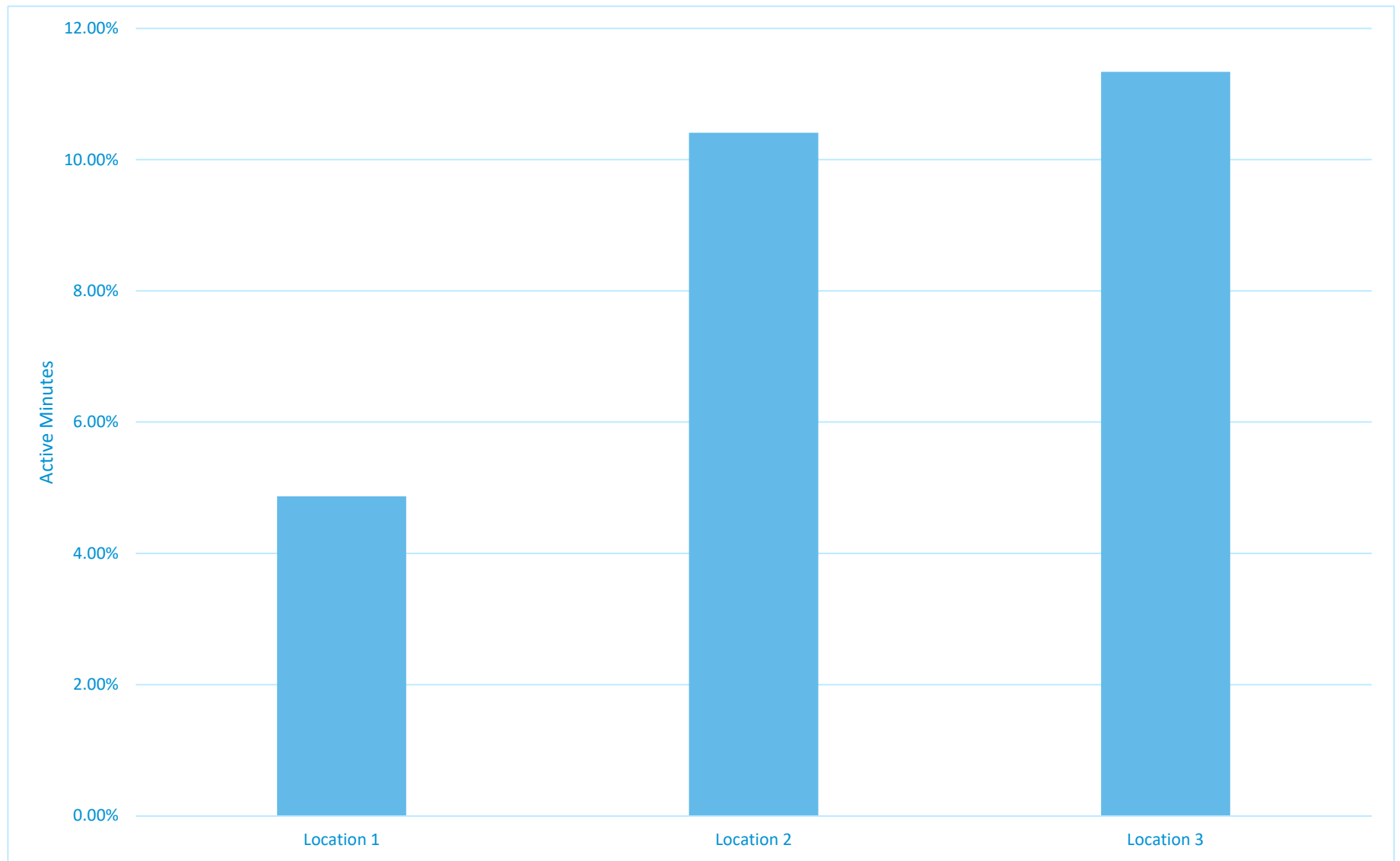


Figure 4-3: Proportion of Active Minutes at each Monitoring Location

4.3.12 A summary of the acoustic monitoring results is provided in **Table 4-3** showing the average number of files per night, for each species or species group, in each monitoring period and at each location.

Table 4-3: Average Number of Files per Night at Each Monitoring Location

Static Reference		CP	E/N	Myo	Noc	SP	BLE	NP
L1	Spring	21.4	1.6	5.3	0.1	0.2	0.1	0.2
	Summer	70.1	2.6	2.2	2.2	1.7	0.5	0.1
	Autumn	104.1	5.3	1.9	0.0	3.4	1.9	0.3
L2	Spring	117.9	1.7	0.7	0.3	0.3	0.1	0.1
	Summer	149.8	4.2	4.1	3.9	0.5	0.5	0.2
	Autumn	279.6	5.5	1.6	0.0	6.3	2.6	0.1
L3	Spring	109.8	0.4	1.7	0.4	0.0	0.2	0.0
	Summer	458.8	15.7	9.5	4.7	1.9	2.3	0.0
	Autumn	50.5	12.8	4.5	2.3	0.8	2.8	0.0

CP = Common pipistrelle; E/N = *Eptesicus/Nyctalus* spp.; Myo = *Myotis* species; Noc = Noctule; SP = Soprano pipistrelle; BLE = Brown long-eared; NP = Nathusius' pipistrelle

4.3.13 Spatial and temporal distribution is discussed for each species individually in **Table 4-4**.

Table 4-4: Spatial and Temporal Distribution of Bat Activity

Species/genus	Proportion (%)	Spatial distribution	Temporal distribution
Common pipistrelle	92.39	Recorded at all monitoring locations, with highest activity at Location 3 (262 files/night), followed by Location 2 (173 files/night), and lowest at Location 1 (63 files/night) adjacent to the residential area.	Activity was highest in summer, particularly July (420 files/night), and lowest in spring (45 files/night in April). Seasonal patterns varied slightly between locations, with Locations 1 and 2 peaking in autumn, whereas Location 3 showed lowest activity in autumn.
Big bat (<i>Eptesicus</i> / <i>Nyctalus</i> spp.)	2.95	Activity was highest at Location 3 (9.4 files/night), lower at Location 2 (3.7 files/night), and lowest at Location 1 (3.0 files/night).	Activity peaked in summer and autumn (7.0 and 6.8 files/night respectively) and was lower in spring (1.2 files/night). This pattern was consistent across locations, except at Locations 1 and 2 where activity peaked in autumn.
Myotis species	2.09	Most frequently recorded at Location 3 (5.7 files/night) and least at Location 2 (2.4 files/night).	Activity peaked in summer (5.1 files/night) and was lower in spring and autumn (~2.5 files/night). Activity in October was particularly low (0.7 files/night).
Noctule	1.00	Most frequently recorded at Location 3 (2.7 files per night), with the lowest activity at Location 1 (1.0 file per night)	Activity was primarily recorded in summer (3.5 files/night) and was much lower in spring and autumn (0.3 and 0.5 files/night respectively). No activity was recorded in autumn at Locations 1 and 2.
Soprano pipistrelle	0.90	Highest activity was recorded Location 2 (1.9 files per night) and lowest at Location 3 (1 file per night)	Activity peaked in autumn (4.0 files/night), with lower levels in summer (1.4 files/night) and spring (0.2 files/night). This pattern was consistent across locations, except at

Species/genus	Proportion (%)	Spatial distribution	Temporal distribution
			Location 3 where activity peaked in summer and no activity was recorded in spring.
Brown long-eared	0.61	Most frequently observed at Location 3 (1.6 files per night) and least at Location 1 (0.7 files per night)	Activity for this species was highest in autumn (2.4 files per night) and very low in spring (0.1 files per night). This effect was conserved across locations.
Nathusius' pipistrelle	0.07	Activity was low across the Site, with a peak at Location 1 with 0.2 files per night and not recorded at all at Location 3.	Activity was consistently low across seasons, with 0.1 files/night in spring and summer and 0.2 files/night in autumn.

5 Recommendations

5.1 Mitigation Hierarchy

Avoidance

- Retention and buffering of hedgerows, mature trees, woodland areas and field margins.
- No lighting along boundary features, especially along the north and eastern boundary of the Site.

Reduction/ Minimisation

Where lighting is required for operational safety, it will:

- Be less than 0.5 lux, warm spectrum.
- Be directional and fitted with cowls to prevent light spill.
- Operate on timers or motion sensors.

Mitigation and Enhancement

The Site provides opportunity to deliver ecological enhancement. Measures likely to benefit bats include:

- Creation of species-rich neutral grassland, wildflower areas and a traditional orchard within retained open space to provide foraging habitat and increase invertebrate prey availability.
- Enhancement of the existing poor condition lowland mixed deciduous woodland through targeted management to improve structural diversity and roost potential.
- Use of native species in residential landscaping and Sustainable Drainage Systems (SuDS) planting in the north and west of the Site to support invertebrates and provide commuting cover.
- New tree and scrub planting to reinforce connectivity between retained woodland and the wider landscape to the north and east.
- Installation of bat boxes within retained woodland as a precautionary enhancement measure.

6 Summary/Conclusion

- 6.1.1 Given the absence of confirmed roosts, the Site's function primarily as commuting and foraging habitat, the retention of key linear and woodland features, control of lighting, and substantial habitat enhancement proposed, it is concluded that the favourable conservation status of local bat populations can be maintained. No significant adverse effects are predicted.
- 6.1.2 With appropriate application of the mitigation hierarchy the Proposed Development has potential to enhance foraging resources and ecological connectivity within the local landscape over the long term.
- 6.1.3 Survey results confirm that a diverse assemblage of bat species occurs within the Site, representing a community typical of lowland arable and woodland habitats in southeast England. Activity was recorded across all active seasons, with highest levels during summer. Activity was primarily associated with linear features including field margins to the north and woodland habitats to the east of the Site. These areas provide important foraging and commuting corridors within the wider arable landscape. The lowest activity was recorded adjacent to the existing residential area associated with Istead Rise. Small populations of bats may be utilising mature trees within the woodland to the east of the Site to roost, especially in spring and summer. However, this area will not be affected by the proposed development. Parts of this woodland will be enhanced along with the provision of additional foraging habitat as part of the Proposed Development, and no impacts anticipated.
- 6.1.4 All species identified in the desk study were also recorded during the static acoustic monitoring including common, soprano and Nathusius' pipistrelles, *Myotis* species, noctule and brown long-eared, with the exception of serotine and Leisler's bats, which were not identified during the static monitoring. Common pipistrelle dominated activity and was recorded across multiple monitoring locations, indicating that the Site forms part of the wider landscape used by this species for commuting and foraging.

7 Appendices

A1 Weather Conditions

Season	Date	Wind (mph)	Cloud	Rain	Temp (*C)	Moon Phase
Spring	09/04/2026	6 SSW	Clear	Dry	13	Third quarter
	10/04/2026	12 WNW	Overcast	Dry	8	Waning crescent
	11/04/2026	10 SSE	Overcast	Dry	9	Waning crescent
	12/04/2026	12 SSW	Clear	Dry	8	Waning crescent
	13/04/2026	4 SSW	Clear	Dry	5	Waning crescent
	09/05/2026	6 E	Overcast	Dry	11	Third quarter
	10/05/2026	10 NE	Overcast	Dry	11	Waning crescent
	11/05/2026	10 NNE	Partly cloudy	Dry	6	Waning crescent
	12/05/2026	4 NNE	Clear	Dry	6	Waning crescent
	13/05/2026	7 WSW	Clear	Dry	10	Waning crescent
Summer	04/06/2025	8 SW	Clear	Dry	12	Waxing gibbous
	05/06/2025	10 SSW	Overcast	Dry	12	Waxing gibbous
	06/06/2025	10 WSW	Overcast	Dry	12	Waxing gibbous
	07/06/2025	8 SW	Overcast	Light rain	12	Waxing gibbous
	08/06/2025	11 WNW	Clear	Dry	10	Waxing gibbous
	22/07/2025	8 SW	Clear	Dry	15	Waning crescent
	23/07/2025	5 WSW	Partly cloudy	Dry	16	New moon
	24/07/2025	6 WNW	Overcast	Dry	15	New moon
	25/07/2025	7 NE	Overcast	Dry	16	Waxing crescent

Season	Date	Wind (mph)	Cloud	Rain	Temp (*C)	Moon Phase
	26/07/2025	6 WSW	Clear	Dry	16	Waxing crescent
	13/08/2025	1 ESE	Clear	Dry	19	Waning gibbous
	14/08/2025	8 SW	Overcast	Dry	18	Waning gibbous
	15/08/2025	6 WSW	Clear	Dry	19	Third quarter
	16/08/2025	6 NE	Clear	Dry	17	Third quarter
	17/08/2025	6 NE	Clear	Dry	15	Waning crescent
Autumn	04/09/2025	10 SW	Partly cloudy	Dry	15	Waxing gibbous
	05/09/2025	8 WSW	Clear	Dry	13	Waxing gibbous
	06/09/2025	6 SSW	Overcast	Dry	14	Full moon
	07/09/2025	8 SSE	Clear	Dry	17	Full moon
	08/09/2025	7 SW	Clear	Dry	15	Waning gibbous
	20/10/2025	13 SW	Cloudy	Dry	14	New moon
	21/10/2025	11 W	Clear	Dry	12	New moon
	22/10/2025	8 WSW	Overcast	Dry	11	Waxing crescent
	23/10/2025	7 ENE	Overcast	Dry	12	Waxing crescent
	24/10/2025	7 SE	Overcast	Dry	7	Waxing crescent



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