KINGSMEADOWS ESTATE, PEEBLES

Bat Survey Report

For

Granton Homes

September 2019

ITPENERGISED
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Quality Management

	Version 1	Version 2	Version 3	Version 4
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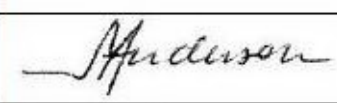
Prepared by	Mingaile Anderson			
Signature				
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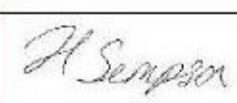
Signature				
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1 Executive Summary

1.1 Summary

1.1.1 The Kingsmeadows Estate in Peebles is earmarked for a housing development. A number of trees and two buildings within the proposed development envelope were identified as having bat roost potential during Ecological Baseline Surveys of the site by ITPEnergised (ITPEnergised, 2019). Twenty trees were assessed as requiring aerial inspection, with an additional tree and two buildings requiring activity surveys.

1.1.2 Echoes Ecology Ltd were appointed by ITPEnergised on behalf of Granton Homes Ltd to carry out aerial assessment of the trees and activity surveys of the wo buildings and one tree (No. 28).

1.1.3 The aerial assessment was carried out on 12.08.19 and 26.08.19 by two surveyors, at least one of whom was an SNH bat licence holder. Out of 20 trees, eleven were assessed as requiring further surveys if the proposed works are carried out within 30m. Six of the eleven trees had moderate and high suitability for roosting bats and required activity surveys as they could not be fully inspected. Five of the trees had low suitability for roosting bats and required a re-inspection; in summer (April to September) reinspection should occur within 24 hours of felling and in winter (October to March) within 48 hours of felling.

1.1.4 A total of seven summer non-breeding roosts were identified within two of the buildings, with one roost recorded within the shed and six roosts within the Kingsmeadows House. The roosting bats recorded included common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle *(P. pygmaeus*), and unidentified bats. The highest number of bats utilising one roost was five. No roosting *Myotis* species bats or brown long-eared bats (*Plecotus auritus*) were recorded.

1.1.5 Tree No. 28 was subject to three activity surveys as is had been assessed as having high suitability for roosting bats. No bat roosts were identified within the tree during the survey programme. However, if felling of the tree is required, as a precaution it is recommended that works are carried out under the supervision of a licensed bat worker and felling should not take place during the peak hibernation period (December to February).

1.1.6 If the proposed works fall within 30m of the roosts, and there is likelihood of disturbance to the roosting bats, a European Protected Species (EPS) licence granted by Scottish Natural Heritage (SNH) and an accompanying Species Protection Plan will have to be in place prior to works commencing.

2 Introduction

2.1 Contract Overview

2.1.1 Kingsmeadows Estate is located off Kingsmeadows Road in Peebles, EH45 9AS, OS grid reference NT 259 399. The Estate comprises parkland with mature broad-leaved trees, Kingsmeadows House with residential flats, gardens, a decorated shed, paths and a car park. In addition to this, a derelict building was located within the north-eastern buffer. The River Tweed borders the Estate to the north.

2.1.2 It is the intention of Granton Homes, subject to planning permission being approved, to develop nine residential buildings within the Kingsmeadows Estate (for the proposed development plan please refer to Appendix II)..

2.1.3 Echoes Ecology Ltd were appointed by ITPEnergised on behalf of Granton Homes to carry out an assessment of the site.

2.1.4 The following documents have been provided to Echoes Ecology Ltd in order to assist in carrying out this contract:

- Architects Drawings

2.1.5 The aims of the survey were:

- To carry out aerial tree surveys of 20 trees with potential roosting features;
- To carry out activity surveys of one tree and two buildings on site;
- To identify any bat roosts on site;
- To assess the impacts of the proposed development on bats;
- To determine if a European Protected Species (EPS) licence is required from Scottish Natural Heritage (SNH) to permit the works to proceed; and
- If necessary, to suggest mitigation and compensation to minimise any predicted impacts and maintain favourable conservation status of the species in question.

3 Legislation

3.1 Legal Considerations

3.1.1 Bats and their roosts are protected under UK and European Legislation. In Scotland, this is mainly provided by the Conservation (Natural Habitats, &c.) Regulations 1994, as amended (known as the Habitats Regulations). Under this legislation, bats are regarded as European Protected Species (EPS).

3.1.2 It is an offence to deliberately or recklessly:

- capture, injure or kill a bat;
- harass a bat;
- disturb a bat while it is occupying a roost (any place of shelter or protection);
- disturb a bat while it is rearing or otherwise caring for its young;
- obstruct access to a roost or deny a bat use of a roost;
- disturb a bat in a way which is likely to significantly affect the local distribution or abundance of the species;
- disturb a bat in a way that is likely to impair its ability to survive, breed or reproduce, or rear or care for its young; and
- disturb a bat while it is migrating or hibernating.

3.1.3 It is a strict liability offence to damage or destroy a bat roost. A bat roost is protected at all times irrespective as to whether any bats are using the roost at a given time.

3.1.4 If the work proposed is to affect bats or their roosts, an EPS licence, issued by the licensing authority SNH under Regulation 44 of the Habitats Regulations will be required in order to permit an otherwise illegal activity. There are three tests that must be satisfied before a licence will be granted, in addition to which mitigation and/or compensation will almost certainly be required. The three tests are:

- The activity must fall within one of the licensable purposes listed in Regulation 44 (including 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);
- There must be no satisfactory alternative; and
- The action authorised will not be detrimental to the maintenance of the population of the species at a favourable conservation status in their natural range.

4 Methodology

4.1 Preliminary Roost Assessment (PRA) Methodology

4.1.1 The survey methods employed were taken from 'Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd Edition' (Collins, 2016) and 'Bats in the Context of Tree Work Operations' (Stileman, 2011).

4.1.2 A Preliminary Roost Assessment (PRA) of the trees and the structures within the Estate and a 30m buffer was carried out in July 2019 by ITPEnergised. The PRA consisted of a ground-level inspection of the trees and an external inspection of the structures. Twenty-five trees were identified as having potential roost features. Four trees and the ruin fell outwith the revised site boundary, thus no further surveys were undertaken on these.

4.1.3 Of the remaining 21 trees, 20 were assessed as requiring an aerial inspection, with one tree (Tree 28) being deemed as having high suitability for roosting bats and requiring activity surveys. The Kingsmeadows House was assessed as having high suitability for roosting bats, whereas the shed was deemed to have low suitability. No internal access was gained to either structure during the initial PRA.

4.1.4 One loft space was accessed and inspected on 26.08.19 by Heather Campbell ACIEEM (SNH Licence No.104080).

4.1.5 Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features, are given below:

- Negligible – Negligible habitat features on site, not suitable for roosting bats.
- Low – A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by large numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). Could also be a tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.
- Moderate – A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat bat unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
- High – A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

4.2 Aerial Tree Survey Methodology

4.2.1 Aerial tree surveys were carried out on 12.08.19 and 26.08.19 by Laura Carter-Davis MCIEEM (SNH Licence No. 88465), Heather Campbell ACIEEM, Russell Keen ACIEEM and Rosanna Hignett GradCIEEM.

4.2.2 Features found during the PRA were inspected for signs of bat usage, including bats, droppings and feeding remains, using torch, endoscope and a camera on a pole. Where this did not allow for full inspection, an aerial inspection by tree climbers was completed.

4.2.3 During aerial inspections, two tree climbers (at least one of whom was also a licensed bat worker) were present. Where features were found they were examined for signs of bat usage, including bats, droppings and feeding remains, using a torch and endoscope.

4.2.4 Following the aerial inspection, the trees were then regraded as to whether they contained negligible, low, moderate or high roost suitability.

4.2.5 A torch and endoscope (Ridgid Micro CA-100) were used where needed. Binoculars (magnification 10x42) and a camera on a pole (PoleKam PRO Night Vision) were used to inspect features higher above the ground.

4.3 Activity Survey Methodology

4.3.1 Due to the construction and location of the Kingsmeadows House within the landscape, it was assessed as having high suitability for roosting bats. For a high suitability structure or tree, the guidelines state that three activity surveys should be carried out between May and September, with at least two of these occurring between May and August. Of the three surveys, at least one should be a dawn re-entry survey (Collins, 2016).

4.3.2 The shed was assessed as having low suitability for roosting bats. However, the assessment was updated to moderate suitability after the first activity survey was completed. For a moderate suitability structure, the guidelines state that two activity surveys should be carried out between May and September, with at least one of these occurring between May and August. Of the two surveys, at least one should be a dawn re-entry survey (Collins, 2016).

4.3.3 Tree 28 was assessed as having high suitability for roosting bats and thus required three activity surveys to be carried out between May and September.

4.3.4 Four dawn and two dusk activity surveys were carried out between 14.08.19 and 24.09.19. The following surveyors were used:

- Laura Carter-Davis MCIEEM (SNH Licence No. 88465)
- Heather Campbell ACIEEM (SNH Licence No. 104080)
- Mingaile Anderson ACIEEM (SNH Licence No. 104717)
- Rosanna Hignett
- Russell Keen
- Triana Throp
- Simon Bowers
- Rory McLeod
- Lauren Graham
- Sarah Neilly.

4.3.5 On each survey, two surveyors were positioned around the shed, two surveyors on Tree 28 and four surveyors on the Kingsmeadows House, watching all Potential Roost Features (PRFs). The dusk survey commenced 20 minutes prior to sunset and lasted until 90 minutes after sunset. The dawn survey commenced 90 minutes prior to sunrise and ended 15 minutes after sunrise. If any bats were observed around sunrise time or after, the dawn survey was extended accordingly, to ensure that no late bat re-entries are missed.

4.3.6 Bat activity was recorded using Batbox Duet frequency division bat detectors and digital recorders (Roland R-05) to allow for analysis of calls and subsequent species identification using BatSound version 4.4.0 software.

4.4 Limitations

4.4.1 The Kingsmeadows House and the shed could not be fully inspected internally during the PRA and as such, some evidence of roosting bats may have been missed.

4.4.2 The multiple obscured internal pitches could not be seen by the surveyors during the activity surveys, which may have resulted in possible unrecorded roosts. However, the bat movements over the roofs were communicated between the surveyors and notes were made if bats were suspected to be roosting within obscured areas.

5 Results

5.1 Results of the PRA

5.1.1 One loft space was accessed and inspected; the loft space was split in two with a fabricated wall, with no access into the part of the loft that was blocked off by this. The section that could be inspected was constructed of wooden rafters and boards, with a layer of thick insulation covering the floor of the loft. Two vents were present, and gaps were evident around these that would allow bats access to within the building from outside. No other gaps were observed, and the loft was clean inside with no evidence of bats identified.

5.2 Results of the Aerial Tree Surveys

5.2.1 Out of 20 trees that were aerially inspected, two were assessed as having high roost suitability, four as moderate, and five as low. Nine trees had negligible features that were deemed unsuitable to be used by roosting bats. All the trees with high and moderate suitability had features that could not be fully inspected, and thus require activity surveys. No evidence of bats or their roosts were found during the aerial assessment. All of the trees that were assessed as having moderate and high roost suitability also have winter roost potential.

5.2.2 All the details of the assessment are provided in Table 1 below.

5.2.3 The map showing trees with low, moderate and high suitability are shown in Appendix I.

Table 1. Tree Aerial Assessment Results

ID/Tag No	Species	Grid Reference		Description	Suitability after aerial inspection	Further surveys required
		X	Y			
3 3164/4712	Oak (*Quercus sp.*)	325995	639844	Mature oak - knot hole split beam, N side, 10m	Low	Re-inspection prior to felling
4 3165/4716	Oak	326010	639847	Small knot hole, 12m, N	Negligible	No further surveys recommended
5 3169	Oak	326019	639841	Split dead branch – potentially hollow, 10-12m, SE	Negligible	No further surveys recommended
6 1702/4741	Oak	326043	639785	Oak on path side. – knothole, 25m, SE, smaller trunk. Feature could not be reached for full inspection.	Moderate	Activity surveys
9 1753/4751	Birch (*Betula sp.*)	326080	639772	Lifting bark, 0-8m, W	Negligible	No further surveys recommended
10 1701/1767	Beech (*Fagus sylvatica*)	326038	639802	Caving in top of N/NW trunk (thinner trunk), 7/8m	Negligible	No further surveys recommended
11 1682/3153	Spruce (*Picea sp.*)	326027	639828	Hollows, cavities, lifting bark, 0-1.5m, E & N	Negligible	No further surveys recommended
12 1683/3151	Beech	326032	639824	Hollow dead branch, W of main trunk, 8-10m	Low	Re-inspection prior to felling
15 1773/4846	Oak	326125	639794	Knot hole – E, 1m. Feature could not be fully inspected.	Moderate	Activity surveys
16	Oak	326036	639828		Low	

1684/4726				Dead branch, W, split and holes, 8-15m		Re-inspection prior to felling
17 1679/4716	Beech	326031	639844	Hollows and holes in trunk, 0-1m.	Negligible	No further surveys recommended
18 1790/4909	Beech	326132	639827	SE trunk hollow, 6-25m, SE. Could not be fully inspected.	High	Activity surveys
19 1795	Oak	326144	639849	Shallow snapped limb, knot hole, 20m, NE	Low	Re-inspection prior to felling
20 1804/4917	Sycamore (*Acer pseudoplatanus*)	326140	639860	Large hollow NW facing main trunk, 12m Hollow branch, N, 4m (holes at end)	Negligible	No further surveys recommended
22 1847/4974	Beech	326128	639892	Knot holes, S facing, 2.5m and 5m W facing, 2m	Negligible	No further surveys recommended
23 1845/4985	Beech	326112	639892	Two knotholes at 12-14m, E and N	Low	Re-inspection prior to felling
24 1835/4990	Beech	326085	639891	Knot holes, W facing main trunk, 8m	Negligible	No further surveys recommended
25 1827/3009	Beech	326055	639898	Split trunk, 8-20m, SE. Some features could not be fully inspected	Moderate	Activity surveys
26 1824/3139	Beech	326049	639902	Woodpecker hole, 12m, E (woodpecker alarm calling close by so may be occupied)	Moderate	Activity surveys
27 1873/1873	Beech	326073	639927	Knot holes: - 4m, SW - 6m, S - 6m, E Hollow branch, N, 6m – could not be fully inspected. Small cavity, N, 2m	High	Activity surveys

5.3 Results of the Activity Surveys

5.3.1 A single soprano pipistrelle (*Pipistrellus pygmaeus*) was observed roosting in Roost 1 (R1) within the shed during dawn on 14.08.19 and dusk on 29.08.19 (Figure 1 and Figure 6).

5.3.2 The Kingsmeadows House was surveyed on 15.08.19, 29.08.19 and 12.09.19. During the dawn survey on 15.08.19 one common pipistrelle and one non-echolocating bat were observed roosting in two locations on the eastern elevation (R2 and R3 in Figure 2 and Figure 6). In addition to this, two soprano pipistrelles and three unidentified bats (likely soprano pipistrelles) were recorded roosting under the guttering on the south-east corner of the building (R4 in Figure 3 and Figure 6). During the dusk survey on 29.08.19 one unidentified bat was seen emerging from R2 on the eastern elevation, with two unidentified bats roosting within the north-west corner of the building (R5 in Figure 4 and Figure 6). One soprano pipistrelle was recorded roosting underneath the slate of the pitched roof on the eastern elevation (R6 in Figure 5 and Figure 6), with another soprano pipistrelle entering (R7 in Figure 3 and Figure 6). Two soprano pipistrelles were potentially roosting underneath some roof slates within the north-facing pitch of the north-west corner of the building (area highlighted in Figure 6); the bats were seen flying south/south-west over the roof but were not observed by the surveyors covering the western and southern elevations.

5.3.3 Table 2 below summarises the roosting bats within the two structures on site.

Table 2. Summary of roosting bats

Roost No.	Roost location	Roost recorded	Number and species of roosting bats
R1	Shed. Western corner.	14.08.19 29.08.19	Soprano pipistrelle x1
R2	Kingsmeadows House. Eastern elevation	15.08.19 29.08.19	Common pipistrelle x1 Unidentified bat x1
R3	Kingsmeadows House. Eastern elevation	15.08.19	Unidentified bat x1
R4	Kingsmeadows House. South-western corner.	15.08.19	Soprano pipistrelle x2 Unidentified pipistrelle x1 Unidentified bat x2
R5	Kingsmeadows House. North-western corner.	29.08.19	Unidentified bat x2
R6	Kingsmeadows House. Eastern elevation	12.09.19	Soprano pipistrelle x1
R7	Kingsmeadows House. Southern elevation	12.09.19	Soprano pipistrelle x1

5.3.4 The tree No. 28 was surveyed on 14.08.19, 26.08.19 and 24.09.19. No roosting bats were observed during the surveys.

5.3.5 During the activity surveys soprano and common pipistrelles (*P. pipistrellus*), *Myotis* species bats and probable brown long-eared bats (*Plecotus auritus*) were recorded commuting and foraging throughout the site.

5.3.6 Appendix III provides the survey forms and surveyor positions.

Figure 1. View of Roost 1 (R1), western corner

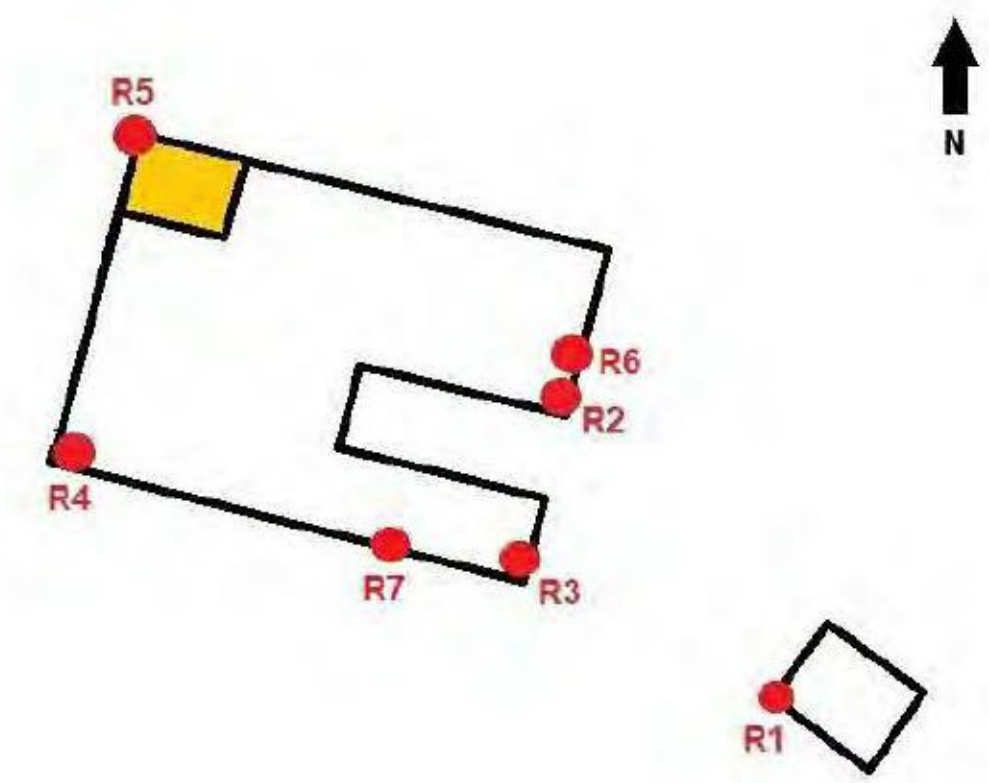
Figure 2. View of R2 and R3, eastern elevation

Figure 3. View of R4 and R7, southern elevation

Figure 4. View of R5, western elevation

Figure 5. View of R6, eastern elevation

Figure 6. Plan showing all roosts recorded within the site. The area in amber indicates potentiall roost location during dawn on 12.09.19.



6 Discussion

6.1 Bats in Trees

6.1.1 During the aerial assessment of 20 trees, nine trees were re-graded as having negligible suitability, five as low, four as moderate and two as high suitability. Any tree within 30m of the proposed works may require further surveys. The trees that fall within or near the proposed development envelope are No. 12, 16, 25 and 26. All the trees with high and moderate suitability will require activity surveys, as they contained features that could not be fully inspected. The five trees with low suitability are recommended to be re-inspected; in summer (April to September), reinspection should occur within 24 hours of felling and in winter (October to March) within 48 hours of felling. Trees with negligible features do not require further surveys.

6.1.2 No roosting bats were observed in Tree No. 28 during the three activity surveys. However, if felling of the tree is required, as a precaution it is recommended that works are carried out under the supervision of a licensed bat worker and felling should not take place during the peak hibernation period (December to February).

6.2 Bats in Structures

6.2.1 A total of six summer non-breeding roosts were recorded within the Kingsmeadows House, with one roost within the shed. The bats recorded roosting within the structures were soprano pipistrelles, common pipistrelles, unidentified pipistrelles and unidentified bats (bat could not be narrowed down to species due to no echolocation or several bats echolocating at the same time). The highest number of roosting bats was recorded in R4, with a total of five bats. Although only two of the five bats could be identified to species level (soprano pipistrelle), the other three bats utilising the same roost are most likely to be soprano pipistrelles as well. The other solitary roosting bats that couldn't be identified were also likely to be pipistrelles due to their early emergence or late re-entry times, as pipistrelles will fly during the lighter conditions experienced at these times, unlike *Myotis* species of bat which tend to enter roosts while it is still dark.

6.2.2 Although *Myotis sp*. bats and possible brown long-eared bats were recorded commuting and foraging throughout the site, no roosting was confirmed for these species.

6.2.3 Kingsmeadows House and the shed both contain bat roosts and as such are protected at all times from disturbance, alteration, and destruction. Both buildings fall within the proposed development envelope. If any works that may cause disturbance to these roosts are to be carried out within 30m of roost access points, an EPS licence granted by SNH and an accompanying Species Protection Plan will have to be in place prior to works commencing.

6.3 Commuting and Foraging

6.3.1 All bats within the UK require large amounts of insect food in order to survive and they require linear features (e.g. woodland edge, tree lines, waterways etc.) in order to orientate themselves in the dark and to act as commuting corridors between their roosts and their foraging areas. This is especially true for smaller species and a gap in a linear feature as little as 10m may act as a barrier to movement (Entwistle et al., 2001). Such linear features can also provide a degree of protection from potential predators and from adverse weather

6.3.2 Bats were found foraging over the area, along the tree lines and the river. With regards to the potential foraging areas and insect abundance within the vicinity of the site it is concluded that the proposed tree removal for the development will not significantly impact on the local bat population as the river corridor and majority of the trees within the Kingsmeadows estate will be retained, thus providing suitable commuting corridors and foraging areas for bats.

6.3.3 The survey information has a shelf life of 18 months. The survey at Kingsmeadows was completed on 24 September 2019. Therefore, if works have not commenced by 24 March 2021 it is recommended that further surveys are carried out in order to confirm that the situation regarding roosting bats has not changed in the interim period.

7 References

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

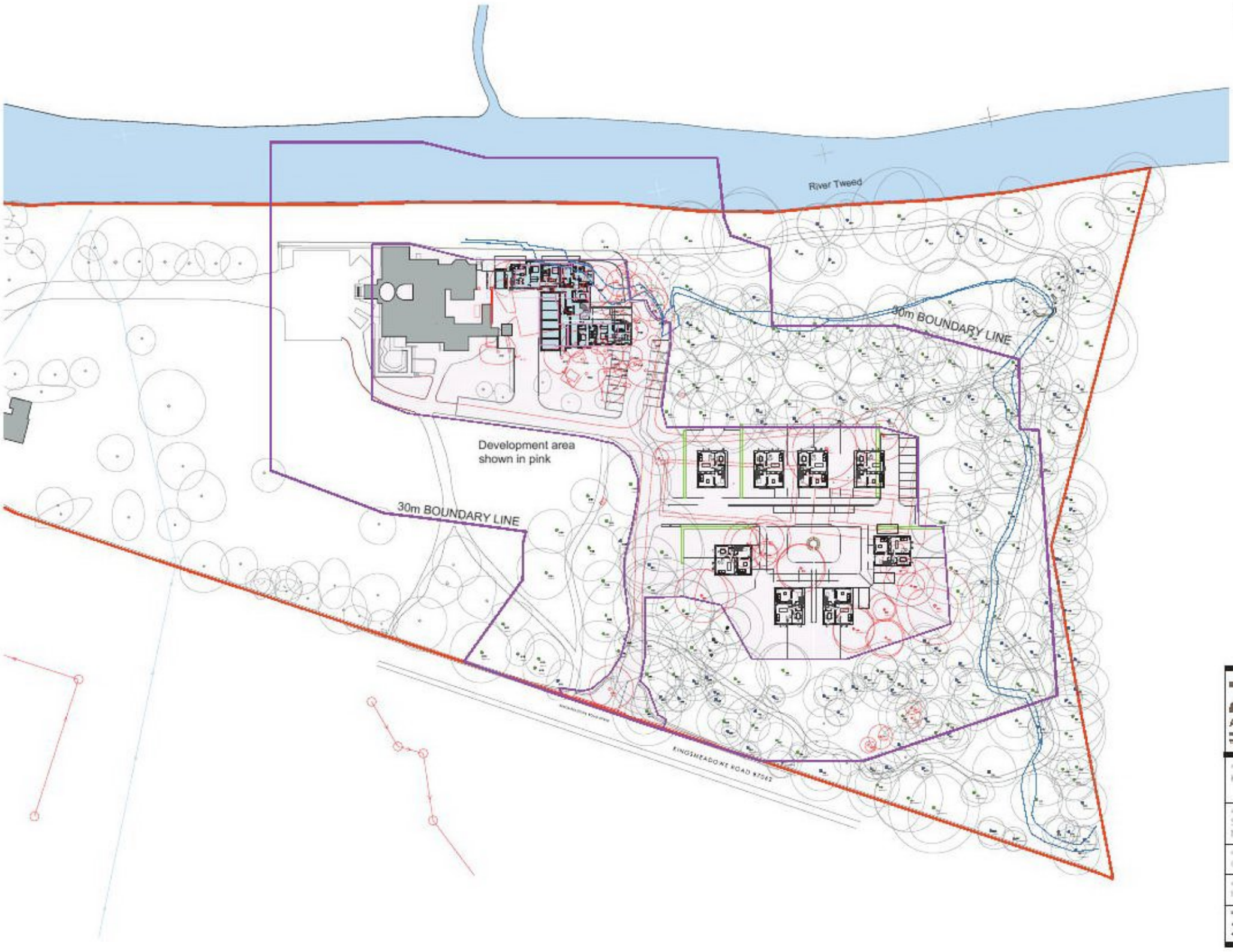
Entwistle, A. C., Harris, S., Hutson, A. M., Racey, P. A., Walsh, A., Gibson, S. D., Hepburn, I. and Johnston, J. (2001). Habitat Management for Bats - A Guide for Land Managers, Landowners and their Advisors. JNCC, Peterborough.

ITPEnergised (2019). Kingsmeadows House, Peebles. Ecological Baseline Report.

Stileman, P. (2011). Bats in the Context of Tree Work Operations. Arboricultural Association, Cheltenham.

8 Appendix I – Map Showing Trees with Potential Roost Features

9 Appendix II – Proposed Development Plan



ZONE ARCHITECTS

Kingsmeadows Estate

Site Plan for
Nature study

Granton Homes

1:500 at A1

July 2019

329-037

10 Appendix III – Activity Survey Data

Table 2 – Survey form 1 (dawn of 14.08.19).

Site Name	Date	Survey Type	Sunrise	OS Grid Ref	Temperature °C	Surveyor(s) (Location Ref)
Kingsmeadows	14/08/2019	Dawn	05:42	NT 260 399	8	L. Graham (S1)
Survey Timespan		**Precipitation**	**Cloud Cover**	**Moon Phase**	**Wind (F)**	T. Thrap (S2)
90mins before sunrise until 35mins after sunrise		Dry	0%	Waxing Gibbous	0	R. Hignett (S7)
Surveyor	**Time**	**Species**	**Max Number of Individual Bats Present**	**Bat Passes** (Max of 5 per single bat)	**Behaviour**	**Additional Notes**
Survey Start Time	**04:12**					
S1		Same bat was observed roosting as from position S2.				
S2	06:02	Soprano pipistrelle	1	2	Roosting	A single bat was observed entering the roost under the gutter and edge tiles on the western corner of the shed (Roost 1).
S7		No bats were seen entering the tree from this surveyor position.				
Survey End Time	**06:17**					
Total Survey Time (mins)	**125**	**Overall Roosting Totals**	**1**	**2**		
Results Summary and Conclusions: One roosting soprano pipistrelle was recorded during the survey. Low numbers of commuting and foraging soprano pipistrelles and a probable brown long-eared bat pass were recorded during the survey.						

Table 3 – Survey form 2 (dawn of 15.08.19).

Site Name	Date	Survey Type	Sunrise	OS Grid Ref	Temperature °C	Surveyor(s) (Location Ref)
Kingsmeadows	15/08/2019	Dawn	05:44	NT 260 399	13	S. Bowers (S3)
Survey Timespan		**Precipitation**	**Cloud Cover**	**Moon Phase**	**Wind (F)**	L. Carter-Davis (S4)
90mins before sunrise until 15mins after sunrise		Intermittent light shower	100-75%	Full	0-1	L. Graham (S5), R. Keen (S6)
Surveyor	**Time**	**Species**	**Max Number of Individual Bats Present**	**Bat Passes** (Max of 5 per single bat)	**Behaviour**	**Additional Notes**
Survey Start Time	**04:14**					
S3	05:24	Common pipistrelle	1	1	Roosting	One bat entered the roost at wall-head of the suspended first-floor extension on the eastern elevation (Roost 2).
	05:45	Unidentified bat	1	0	Roosting	One non-echolocating bat entered the roost at wall-head at the southern-most section on the eastern elevation (Roost 3).
S4	05:32	Unidentified bat	1	0	Roosting	One non-echolocating bat entered a roost under the guttering on the south-west corner (Roost 4).
	05:32	Soprano pipistrelle	2	4	Roosting	Two bats entered Roost 4. The second bat was not echolocating.
	05:34	Unidentified bat	1	0	Roosting	One non-echolocating bat entered Roost 4.
	05:35	Unidentified pipistrelle	1	1	Roosting	One bat entered Roost 4.
S5		No bats were seen entering the building from this surveyor position.				
S6		No bats were seen entering the building from this surveyor position.				
Survey End Time	**05:59**					
Total Survey Time (mins)	**105**	**Overall Roosting Totals**	**7**	**6**		
Results Summary and Conclusions: Seven pipistrelles were recorded entering three roosts during the survey (three bats were not echolocating, but they were most likely to be pipistrelles, based on other confirmed bat roosts). Commuting and foraging pipistrelles and probable brown long-eared bats were recorded during the survey. Bats were observed flying over the Kingsmeadow House but no roost could be confirmed due to a number of obscured internal pitches.						

Table 4 – Survey form 3 (dusk of 26.08.19)

Site Name	Date	Survey Type	Sunset	OS Grid Ref	Temperature °C	Surveyor(s) (Location Ref)
Kingsmeadows	26/08/2019	Dusk	20:23	NT 260 399	19-15	H. Campbell (S7)
Survey Timespan		**Precipitation**	**Cloud Cover**	**Moon Phase**	**Wind (F)**	R. Keen (S8)
20mins before sunset until 90mins after sunset		Dry	0%	Waning Crescent	0	
Surveyor	**Time**	**Species**	**Max Number of Individual Bats Present**	**Bat Passes** (Max of 5 per single bat)	**Behaviour**	**Additional Notes**
Survey Start Time	**20:03**					
S7		No bats were seen emerging from the tree from this surveyor position.				
S8		No bats were seen emerging from the tree from this surveyor position.				
Survey End Time	**21:53**					
Total Survey Time (mins)	**110**	**Overall Roosting Totals**	**0**	**0**		
Results Summary and Conclusions: No roosting bats were observed. High levels of commuting and foraging activity were recorded during the survey, with *Myotis* sp. bats, soprano and common pipistrelles encountered within the site.						

Table 5 – Survey form 4 (dusk of 29.08.19)

Site Name	Date	Survey Type	Sunset	OS Grid Ref	Temperature °C	Surveyor(s) (Location Ref)
Kingsmeadows	29/08/2019	Dusk	20:15	NT 260 399	18	S. Neilly (S1), T. Throp (S2)
Survey Timespan		**Precipitation**	**Cloud Cover**	**Moon Phase**	**Wind (F)**	S. Bowers (S3)
20mins before sunset until 90mins after sunset		Dry	80%	Waning Crescent	3	L. Carter-Davis (S4)
						R. Hignett (S5), R. McLeod (S6)
Surveyor	**Time**	**Species**	**Max Number of Individual Bats Present**	**Bat Passes** (Max of 5 per single bat)	**Behaviour**	**Additional Notes**
Survey Start Time	**19:55**					
S1		Same bat was observed roosting as from position S2.				
S2	20:17	Soprano pipistrelle	1	1	Roosting	One bat emerged from Roost 1.
S3	20:35	Unidentified bat	1	0	Roosting	One bat emerged from Roost 2. Species could not be identified due to several bats echolocating at the same time whilst foraging in thethe vicinity.
S4		No bats were seen emerging from the building from this surveyor position.				
S5	20:21	Unidentified bat	2	0	Roosting	Two bats emerged from the north-western corner of the building (Roost 5).
S6		No bats were seen emerging from the building from this surveyor position.				
Survey End Time	**21:45**					
Total Survey Time (mins)	**110**	**Overall Roosting Totals**	**4**	**1**		
Results Summary and Conclusions: Four roosting bats were observed in three locations during the survey. High levels of commuting and foraging activity were recorded during the survey, with pipistrelles encountered within the site.						

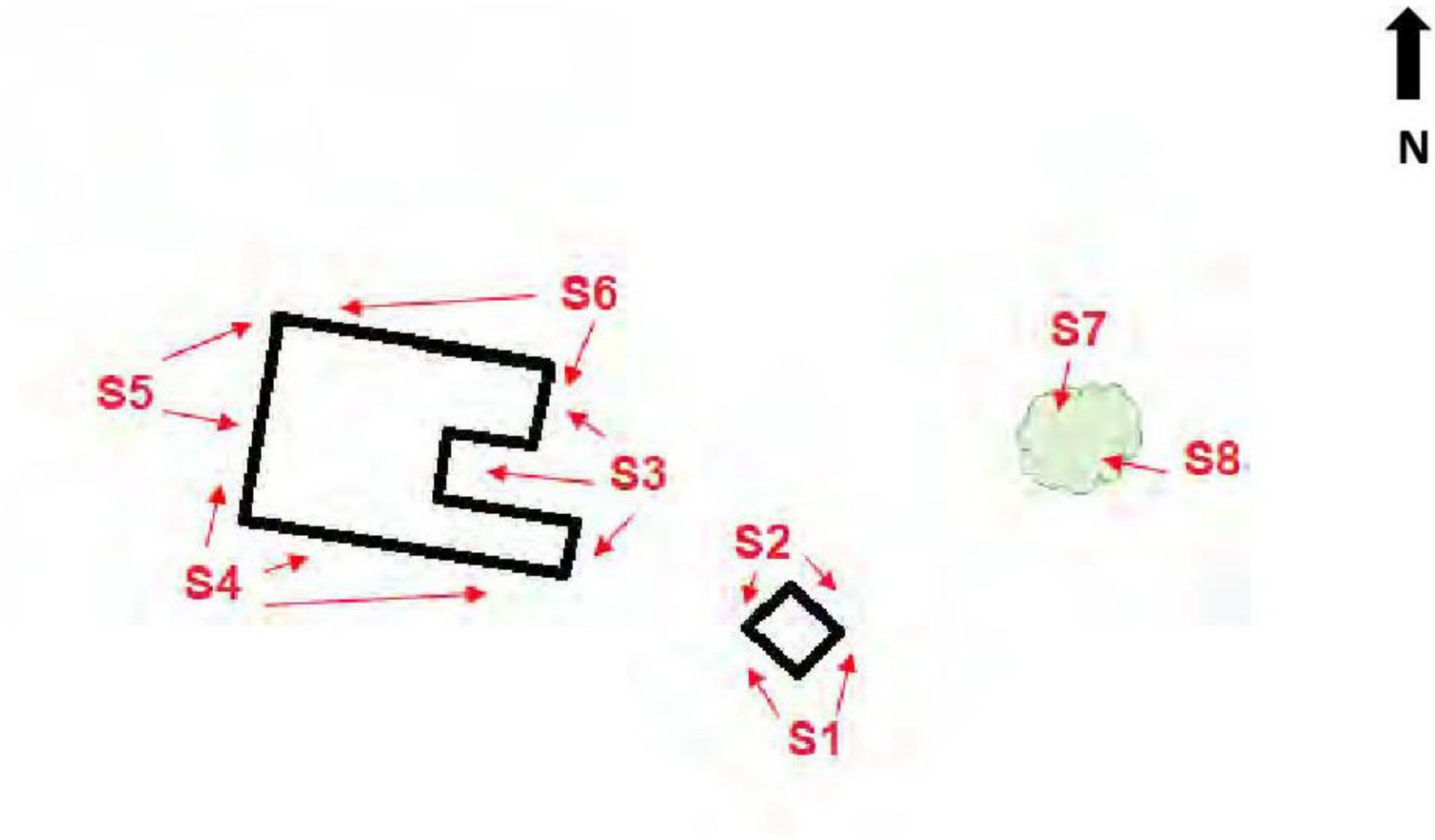
Table 6 – Survey form 5 (dawn of 12.09.19)

Site Name	Date	Survey Type	Sunrise	OS Grid Ref	Temperature °C	Surveyor(s) (Location Ref)
Kingsmeadows	12/09/2019	Dawn	06:38	NT 260 399	11	H. Campbell (S3)
Survey Timespan		**Precipitation**	**Cloud Cover**	**Moon Phase**	**Wind (F)**	T. Throp (S4)
90mins before sunrise until 25mins after sunrise		Dry	80-100%	Waxing Gibbous	2	R. Hignett (S5)
						M. Anderson (S6)
Surveyor	**Time**	**Species**	**Max Number of Individual Bats Present**	**Bat Passes** (Max of 5 per single bat)	**Behaviour**	**Additional Notes**
Survey Start Time	**05:08**					
S3	06:19	Soprano pipistrelle	1	5	Roosting	Entered a roost under the slate on the south facing pitched roof on the eastern elevation (Roost 6).
S4	06:17	Soprano pipistrelle	1	1	Roosting	A single bat was observed entering the roost under the gutter and edge tiles on the south-west corner of the south-facing gable end (Roost 7).
S5		No bats were seen entering the building from this surveyor position.				
S6	06:20	Soprano pipistrelle	2	6	Possible roosting	Two bats were seen flying south/south-west over the roof pitch on the north-western corner but were not observed by surveyors on other elevations.
Survey End Time	**07:03**					
Total Survey Time (mins)	**115**	**Overall Roosting Totals**	**4**	**12**		
Results Summary and Conclusions: Two roosting soprano pipistrelles were recorded during the survey in two locations, with another potential roost that could not be confirmed. Low numbers of commuting and foraging soprano pipistrelles and a probable brown long-eared bat pass were recorded during the survey. Bats were observed flying over the Kingsmeadow House but no roost could be confirmed due to a number of obscured internal pitches.						

Table 7 – Survey form 6 (dawn of 24.09.19)

Site Name	Date	Survey Type	Sunrise	OS Grid Ref	Temperature °C	Surveyor(s) (Location Ref)
Kingsmeadows	24/09/2019	Dawn	07:03	NT 260 399	13	M. Anderson (S7)
Survey Timespan		**Precipitation**	**Cloud Cover**	**Moon Phase**	**Wind (F)**	R. Keen (S8)
90mins before sunrise until 15mins after sunrise		Intermittent light shower	95-100%	Waning Crescent	1	
Surveyor	**Time**	**Species**	**Max Number of Individual Bats Present**	**Bat Passes** (Max of 5 per single bat)	**Behaviour**	**Additional Notes**
Survey Start Time	**05:33**					
S7		No bats were seen emerging from the tree from this surveyor position.				
S8		No bats were seen emerging from the tree from this surveyor position.				
Survey End Time	**07:18**					
Total Survey Time (mins)	**110**	**Overall Roosting Totals**	**0**	**0**		
Results Summary and Conclusions: No roosting bats were observed. Commuting and foraging pipistrelles were recorded within the site.						

Figure 8. Surveyor Positions



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