URBAN EDGE
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NATURAL PROGRESSION

Ashgrove Road, Sevenoaks, Kent

Protected Species Surveys

December 2022

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Protected Species Surveys

Client:	Sigma Strategic Land Ltd	
Report No.:	UE0441_AshgroveRd_PSR_3_221220	
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Revision No.:	**Status/Comment:**	**Date:**
0	First issue to client	27 July 2022
1	Amended layout	12 September 2022
2	Amended layout	16 September 2022
3	Finalised surveys	20 December 2022

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CIEEM REGISTERED PRACTICE 2022-2023

Contents

Abbreviations

ARS	Artificial Refuge Surveys
BCT	Bat Conservation Trust
BPPH	Bat passes per hour
CHS	Conservation of Habitats and Species Regulations 2017
DLL	District Level Licensing
ECoW	Ecological Clerk of Works
EPSML	European Protected Species Mitigation Licence
GLTA	Ground Level Tree Assessment
ILP	Institute of Lighting Professionals
PEA	Preliminary Ecological Appraisal
PRF	Potential Roost Features
TP	Transect Point
VES	Visual Encounter Surveys
WCA	Wildlife & Countryside Act 1981 (as amended)

List of Tables and Figures

0 Executive Summary

0.1 Introduction

0.1.1 A Preliminary Ecological Appraisal was carried out in March 2021 for the site of a proposed residential development at Ashgrove Road, Sevenoaks, Kent. It was recommended that further protected species surveys for great crested newt, badger, foraging and commuting bats, hazel dormouse and reptiles were undertaken. The study was undertaken to identify and evaluate the potential impacts of development on protected species, and make recommendations accordingly.

0.2 Results

0.2.1 None of the three ponds identified within 250m of the survey area boundary were subject to eDNA sampling for great crested newt. Pond P1 (on site) was dry during the 2022 breeding season and could not be sampled. Access to ponds P2 and P3 was denied by the landowner and sampling of these ponds could not be carried out.

0.2.2 Three suspected badger setts (S1-S3) were on or adjacent to the survey area during the initial site investigation. Subsequent camera trap monitoring of the on-site suspected setts (S1 and S2) was carried out. Over the monitored period of 35 nights, there were no observations of badger entering and exiting holes at S1 and footage revealed the holes formed part of an active fox den. Observations of badger entering and exiting holes, along with other behaviours, were recorded on 20 nights at camera location S2.1 and on 29 nights S2.2.

0.2.3 Species diversity recorded during the bat activity surveys completed to date included at least eight species. This shows that the majority (96.31%) of all bat calls recorded were from *Pipistrellus spp*. bats, with common pipistrelle registering 135.41 BPPH, soprano pipistrelle registering 4.62 BPPH and Nathusius' pipistrelle registering 0.08 BPPH. Of the remaining bat passes, those of *Nyctalus* spp. (1.42% or 2.02 BPPH) were the next most frequently recorded, followed *Myotis spp*. (1.04% or 1.34 BPPH), serotine (0.78% or 1.07 BPPH) and finally *Plecotus* spp. (0.45% or 0.52 BPPH). These results are consistent with those recorded during the transect surveys.

0.2.4 The nest tube survey recorded no observations of hazel dormouse, or signs of their presence such as nests or droppings, during the surveys completed in 2022.

0.2.5 The VES and ARS recorded no observations of reptiles, or signs of their presence such as skin sloughs, eggs or egg cases, during the course of the survey period.

0.3 Evaluation

0.3.1 Overall, habitats within the survey area provide a range of features which could support a population of great crested newt during the terrestrial phase of their lifecycle. Due to the lack of survey data obtainable from nearby ponds (P2 and P3), the risk of this species using the suitable terrestrial habitat within the developable area (grassland, woodland, hedgerows and scrub) cannot be ruled out. Accordingly, the survey area is considered unlikely to be more than of Local Importance for great crested newt. In the absence of mitigation, the proposed development is likely to result in destruction of great crested newt habitat or present a risk of killing, injury or disturbance for individuals if present during the works, which would constitute an offence under the WCA and the CHS.

0.3.2 One main sett (S2) and an outlier sett (S3) were identified on or adjacent to the site during monitoring in 2022. Badger is a legally protected species but is not of conservation significance, being common and widespread in the UK. As such, the survey area is considered to be of no more than Negligible Importance for its badger population. S3 which is located beyond the south-western boundary is well beyond the 30m buffer normally considered sufficient to avoid impacts relating to badgers within their setts. However, proposals for the site include encroachment into the buffer of S2, to create vehicular access. Despite the avoidance of direct impacts on badger setts, a pre-works survey should be undertaken and measures to avoid harming badger during the construction phase are recommended.

0.3.3 Due to the high proportion of common and widespread bat species and relatively low levels of activity recorded, given the perceived suitability of habitats on site, the survey area is considered to be of Negligible Importance for its bat population. The proposed development will result in a permanent loss of c.2.18ha of grazed pasture, as well as small losses of scrub and standing water. A narrow section of hedgerow H3 will also be lost for access. This will be replaced with 50 new dwellings, together with access, landscaping and other associated infrastructure. The woodland block in the south-east of site will be retained, albeit a temporary loss will occur to create informal pedestrian access. This loss is considered unlikely to result in a significant negative effect on the local abundance and distribution of the bat species recorded on site, as the majority of bat contacts were encountered along the site boundaries and activity was generally low across the site.

0.3.4 The impact of light on foraging and commuting bats is classified as low for serotine and individuals of the genera *Nyctalus* and *Pipistrellus* – which comprises 98.51% of all bats recorded during passive monitoring at the site. These species are unlikely to be significantly affected by proposals for the site. Light intolerant species recorded at the site, including individuals of the genera *Myotis* and *Plecotus*, together comprised 1.49% of activity recorded during passive monitoring. Use of the site by these species may be reduced by the proposals, but it is likely that the development can be accommodated without adverse effects on the conservation status of local bat populations within their natural range. These species are often associated with woodland habitats. The woodland habitat on site will be retained, albeit with small temporary losses, as part of proposals.

0.3.5 There were no observations of hazel dormouse, or signs of their presence such as nests, gnawed hazelnuts or droppings, during the course of the 2022 survey period. The survey findings provide a good level of confidence that hazel dormouse is likely to be absent from the site. The survey area is considered to be of Negligible Importance for its hazel dormouse population.

0.3.6 The survey area is considered to be of Negligible Importance for its reptile population. Reptiles are not considered to present a constraint to the development proposals and no further recommendations for these species are required.

0.4 Recommendations

0.4.1 Recommendations are made below for avoidance and / or mitigation of impacts to protected species to prevent an offence under the relevant legislation from occurring, and to reduce the risk of development proposals resulting in significant effects on the population and distribution of species recorded during the surveys; these are summarised in Table 6.1. The recommendations should be read alongside those contained in the PEA (UEEC, 2022) which continue to apply, including those for ecological enhancement.

Table 0.1: Summary of recommendations

#	Summary of recommendations
Avoidance and mitigation measures	
R1	Due to the lack of survey data obtained for ponds within 250m of the site boundary during the 2022 season, it is recommended that the proposed development joins the District Level Licensing scheme for Kent.
R2	Establish sett protection zones around badger setts S2 and S3 to avoid destruction / damage / obstruction of the sett or disturbance to badgers while occupying the sett.
R3	Works to fell low suitability trees (T6 & T7) within the woodland will be undertaken in accordance with a Non-licenced Method Statement to reduce the risk of killing / injury to roosting bats.
R4	Negative impacts on foraging and commuting bats and other nocturnal species will be avoided, during both construction and operation of the proposed development, by preparing a lighting strategy to avoid light spill falling onto retained and newly created woodland, ponds and hedgerows.
R5	Retained and created hedgerows will be enhanced through additional planting, particularly along the northern and eastern boundaries. Planting will comprise a species assemblage that benefits bats by providing additional food sources or roosting opportunities.
R6	Where fox dens are to be damaged or destroyed as part of the proposed works, this will be undertaken in accordance with the Mammals Act 1996 by a registered pest control company.

0.5 Conclusion

0.5.1 The proposed development will result in negative impacts of minor significance to great crested newt, roosting bats, and foraging/commuting bats in the absence of mitigation. Avoidance and mitigation measures are recommended to prevent an offence under the relevant legislation from

occurring, and to avoid/reduce the risk of development proposals resulting in significant effects on the populations of species recorded. These measures are securable by condition on a planning permission.

1 Introduction

1.1 Purpose of this Report

1.1.1 A Preliminary Ecological Appraisal (PEA) was carried out in March 2021 for the site of a proposed residential development at Ashgrove Road, Sevenoaks, Kent (Grid Reference: TQ 52160 53418). It was recommended that further surveys should be carried out for great crested newt *Triturus cristatus*, badger *Meles meles*, roosting / foraging / commuting bats, hazel dormouse *Muscardinus avellanarius* and reptiles due to the presence of favourable habitats.

1.2 Objectives and Approach of the Study

1.2.1 The study was commissioned to fulfil the following objectives:

- To determine the presence or likely absence of great crested newt, badger, roosting bats, hazel dormouse and reptiles, and if present record their distribution within the survey area;
- To provide sufficient data to inform a European Protected Species Mitigation Licence (EPSML) application for roosting bats or hazel dormouse, if required;
- To identify features of importance to foraging and commuting bats, record the species assemblage and assess the relative abundance of bats within the survey area;
- To identify and evaluate the potential impacts of development on great crested newt, badger, roosting bats, foraging and commuting bats, hazel dormouse and reptiles; and
- To outline the measures required for avoiding and mitigating negative impacts to protected species, and make recommendations for ecological enhancement.

1.2.2 To meet these objectives the survey approach involved field surveys using standard techniques to record the presence, distribution and relative abundance of target species within the survey area, with reference to current industry guidelines.

1.3 Survey Area

1.3.1 The site lies to the south of the town of Sevenoaks in Kent and measures c.2.36ha. It comprises a pastoral field, woodland, a pond and hedgerows along the site boundaries.

1.3.2 The site is bound by residential properties to the north; Ashgrove Road to the east; further pasture to the south; and Oak Lane to the west. To the north and east the wider landscape is a dominated by residential areas. South and west of the site lie large areas of woodland including Great Britain's Wood and Millbank Wood. Five ponds lie within 500m of the survey area.

1.3.3 The extent of the survey area is shown on Figure 1.1. The Phase 1 habitats plan for the site is included for reference at Appendix I.

1.4 Proposed Construction Activities

1.4.1 Outline planning consent is being sought for the erection of 50 dwellings with provision of an access on to Ashgrove Road providing affordable housing, landscaping, open space, new pedestrian accesses and car parking provision. The proposed site plan for the development is shown at Figure 1.2.

1.4.2 The planning application site boundary is expected to be the same as the survey area boundary.

Ashgrove Road, Sevenoaks, Kent

Site boundary

Figure 1.1: Site boundary

0 140 280 N

Meters

Scale: 1:5,000 **Created by:** MT

Date: Jul 2022 **Reviewed by:** NP

Drawing number:
UE0441ECO-Site220722

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Figure 1.2: Proposed site plan

CDM 2015 Health & Safety Information

This information relates only to 'Significant Hazards' identified on this drawing and is to be read in conjunction with the Designer's Hazard Register.

Indicative Accommodation Schedule

Social Rent Dwellings	**(14no. - 56%)**			**GIA**
4no.	1-Bedroom Maisonettes	Block	2 Person	50sqm
3no.	2-Bedroom Houses	Semi-Detached	4 Person	79sqm
6no.	3-Bedroom Houses	Semi-Detached	5 Person	93sqm
1no.	4-Bedroom House	Semi-Detached	6 Person	106sqm
Affordable Rented Dwellings	**(2no. - 8%)**			
1no.	2-Bedroom House	Semi-Detached	4 Person	79sqm
1no.	3-Bedroom Houses	Semi-Detached	5 Person	93sqm
First Home Dwellings	**(6no. - 24%)**			
4no.	1-Bedroom Maisonettes	Block	2 Person	50sqm
2no.	2-Bedroom Houses	Semi-Detached	4 Person	79sqm
Intermediate Tenure Dwellings	**(3no. - 12%)**			
2no.	2-Bedroom Houses	Semi-Detached	4 Person	79sqm
1no.	4-Bedroom House	Detached	6 Person	106sqm
Open Market Dwellings	**(25no. - 50%)**			
2no.	1-Bedroom Maisonettes	Block	2 Person	50sqm
3no.	2-Bedroom Houses	Semi-Detached	4 Person	79sqm
2no.	2-Bedroom Bungalows	Detached	4 Person	79sqm
9no.	3-Bedroom Houses	Semi-Detached	5 Person	93sqm
2no.	3-Bedroom Houses	Detached	6 Person	100sqm
2no.	3-Bedroom Houses	Detached	6 Person	120sqm
1no.	4-Bedroom House	Detached	6 Person	140sqm
2no.	4-Bedroom Houses	Detached	6 Person	150sqm
2no.	5-Bedroom Houses	Detached	8 Person	190sqm
Total;	**50 Dwellings**	**[2.33 Ha to Red Line - 21.4 Dw/Ha]**		

Car Parking Generally;
1 space per 1-Bedroom Flat
2 spaces per 2-Bedroom Dwelling
2-3 spaces per 3-Bedroom Dwelling
3 spaces per 4/5-Bedroom Dwelling
17 visitor spaces within lay-bys (c. 1 per 3 Dwellings)

Rev	Date	Revision Details	Dr	Ch
E	15.09.22	Roof plan updated	KT	LT
D	27.07.22	Accomodation schedule updated, boundary amended & southern path updated	LT	
C	27.07.22	Bin collection point added. Fence line and site boundary amended.	AX	LT
B	26.07.22	Schedule of accomodation updated & landscaping added	LT	AK
A	21.07.22	Site amendments	LT	AK

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Client's Name
Sigma Homes

Job Title
Land west of Ashgrove Road, Sevenoaks, Kent

Drawing Title
Proposed Site Plan 50 dwellings

Scale
1:500 @ A1 / 1:1000 @ A3
metres 10 20 30 40 50

Drawn	Checked	Date
BW	AK	09.06.21

Job No	Drawing No	Rev
7054	PL-02	E

Status
PRELIMINARY

CAD Plot date: 15/09/2022 - 14:58:12 7054 - site.dwg

2 Survey Methodology

2.1 Great Crested Newt Survey

eDNA survey

2.1.1 A total of five waterbodies were identified within 500m of the survey area during the PEA but only one of these could be accessed (P1). P4 and P5 were scoped out as they were poorly connected with the site, with large areas of comparable or superior habitat in closer proximity. P1 was assessed as providing poor suitability to support breeding great crested newts using the Habitat Suitability Index (Oldham et al, 2000); refer to the PEA (UEEC, 2022) for further details. Access to all ponds located within 250m of the survey area (P2 and P3) was requested to carry out an eDNA survey. See Appendix II for pond locations.

Limitations

2.1.2 P1 was dry at the time of survey and access to ponds P2 and P3 was denied by the landowner. As such the eDNA survey on these ponds could not be carried out.

2.2 Badger Survey

2.2.1 There is no formal guidance currently in existence for badger survey, particularly with regards to establishing whether a sett is active, however common practice is for surveys to focus on a search for signs of badger activity (after Harris, Creswell & Jeffries, 1989) with reference to Natural England's standing advice[1] on badgers. Surveys comprised detailed site walkovers coupled with monitoring of potential badger sett entrances using camera traps.

Field sign surveys

2.2.2 Field sign surveys comprised a detailed investigation of all suitable areas of habitat for foraging and sett creation (subject to safe access) to record badger activity within the site, including:

- Dung pits: badgers usually deposit faeces in characteristic excavated pits, concentrations of which (latrine sites) are typically found at home range boundaries;
- Setts: comprising either single isolated holes or a series of holes, likely to be interconnected underground. Sett searches included the entire site plus a minimum buffer of 30m, subject to safe access;
- Runs/trails: paths between setts or leading to feeding areas;

1 Natural England (2015): Badgers: surveys and mitigation for development projects. Accessed online at: https://www.gov.uk/guidance/badgers-surveys-and-mitigation-for-development-projects

- Scratching posts at the base of tree trunks;
- Snuffle holes: small scrapes where badgers have searched for insects, earthworms and plant tubers;
- Day nests: bundles of grass and other vegetation where badgers may sleep above ground;
- Hair traces; and
- Footprints.

2.2.3 The location, type and approximate extent of each sett or field sign was recorded using GPS coordinates and are shown on the Phase 1 habitat plan at Appendix I. The survey was initially undertaken on 31 March 2021 when a comprehensive site walkover was carried out to search for setts and field signs. Other observations were also noted during subsequent site surveys for other fauna. Weather conditions were noted during each survey (air temperature, wind speed, precipitation and cloud cover) and are reported in Table 2.1.

Table 2.1: Badger survey dates and weather conditions

Date	Weather conditions
31 March 2021	17°C, 50% cloud cover, light breeze (Beaufort 2), no precipitation
17 March 2022	13°C, 30% cloud cover, gentle breeze (Beaufort 3), no precipitation
21 April 2022	13°C, 10% cloud cover, moderate breeze (Beaufort 4), no precipitation
12 July 2022	19°C, 90% cloud cover, light breeze (Beaufort 2), no precipitation

Camera trap monitoring

2.2.4 Spypoint Force-20 movement-triggered infrared cameras were deployed on site, with the lens trained on individual or groups of potential sett entrances at setts S1 & S2. The cameras record still images and were set to operate day and night, capture three images per trigger event. The objective was to record animal activity to determine whether potential setts were actively used by badgers and to assess the level of use. Signs of recent activity at sett entrances (e.g. fresh excavations, footprints, badger hairs or bedding) were also noted.

Evaluation criteria

2.2.5 Badger setts are usually classified into four types as follows:

- Main Sett: Large well-established setts normally in continuous use. The main sett will form the most likely location for the raising of cubs.
- Annex Sett: It is common for annex setts to be found in close association with the main sett and will often be linked to it by a well-worn path. Annex setts are often used to raise a second litter of cubs should a clan produce two litters within a season.
- Subsidiary Sett: Subsidiary setts often have only a few holes and are usually at least 50m from a main sett. They are not continuously active.

- Outlier Sett: These setts are used on an occasional basis and usually consist of only one to three entrance holes. Spoil heaps will generally be smaller than those found associated with the other sett types, indicating a smaller underground structure.

2.2.6 However, sett use varies over time as badgers respond to environmental factors such as food availability, competition with other social groups or sources of disturbance. In practice it is often difficult to distinguish between annex, subsidiary and outlier setts without extensive monitoring.

Limitations

2.2.7 Access was not always possible to adjacent residential gardens to the north within 30m of the site boundary to search for evidence of badger. Where possible, attempts were made to visually assess neighbouring land from within the site itself.

2.3 Ground Level Tree Assessment

2.3.1 Trees which may be felled to facilitate a proposed pedestrian access route through the woodland on site were subject to an external inspection for potential bat roost features (subject to safe access). All observable features potentially suitable for bats were noted and the overall suitability of the tree for roosting bats was classified with reference to Table 2.2. The objective was to establish whether each feature was of negligible, low, moderate or high roosting bat suitability, or a confirmed roost based on the presence of bats or their droppings.

2.3.1 Trees were assessed for Potential Roost Features (PRF) such as woodpecker holes, cavities, cracks or splits in major limbs (e.g. hazard beams, rot holes, frost cracks, knot holes, occlusions, flush cuts, tear-outs, cankers or butt-rots), loose platey bark, aerial deadwood and dense ivy or epicormic growth. The tree inspection was carried out from ground level and utilised close-focusing binoculars and high-powered torch to view areas inaccessible on foot, and a digital camera with flash to record any evidence of bats or features suitable for use by bats.

Table 2.2: Potential suitability of structures/trees for roosting bats (after Collins, 2016)

Suitability	Roosting habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats
Low	A tree of sufficient size and age to contain PRFs but with none seen from the ground/using ladders or features seen with only very limited roosting potential
Moderate	A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (for roost type only)
High	A 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
Confirmed roost	Bats or unequivocal evidence of bats found, i.e. bat droppings

Limitations

2.3.2 There were no difficulties in gaining access to the site to carry out the Ground Level Tree Assessment (GLTA), but due to the presence of surrounding trees in close proximity, some angles of the trees were obscured. Where appropriate, a precautionary approach has applied.

2.4 Bat Activity Survey

2.4.1 Bat activity surveys were based on standard industry guidelines (Collins (ed.), 2016) and Natural England's standing advice[2] for bats, comprising:

- Transect surveys: walking through a representative sample of the survey area's habitats to a predetermined route, to listen for, observe and record bats in flight away from their roosts using handheld bat detectors, noting bat activity and behaviour; and
- Remote monitoring: installation of automated detectors for a five-night period per deployment to remotely monitor bat activity in fixed locations within the survey area, with locations changing over the course of the season.

2.4.2 Current guidelines (Collins (ed.), 2016) recommend reasonable levels of bat activity survey effort, based on overall habitat suitability; see Table 2.3. The PEA concluded that the mosaic of pasture, woodland, scrub and hedgerows was considered to be of moderate suitability for foraging habitat for bats.

Table 2.3: Recommended survey effort for bat activity surveys (Collins, 2016)

Low suitability habitat	Moderate suitability habitat	High suitability habitat
One survey visit per season (spring/summer/autumn), and One static detector location per transect, monitored for five consecutive nights per season (30mins before sunset (SS) to 30mins after sunrise (SR) each night)	One survey visit per month (April to October), including at least one dusk & pre-dawn survey, and Two static detector locations per transect, each monitored for five consecutive nights per month (SS-30mins to SR+30mins)	Up to two survey visits per month (April to October), including at least one dusk and pre-dawn survey, and Three static detector locations per transect, each monitored for five consecutive nights per month (SS-30mins to SR+30mins)

Transect surveys

2.4.3 A transect route representative of the survey area's habitats and transitional zones was plotted and walked once during each survey. Start points were randomised and the direction of travel alternated to avoid crepuscular bias. One surveyor undertook each transect survey, and walked at a slow, consistent speed along the transect route, stopping for approximately 5 minutes at each transect point (TP) to listen for bats and record activity and behaviour (spot counts). Bat

2 Natural England (2015): Bats: surveys and mitigation for development projects. Accessed online at: https://www.gov.uk/guidance/bats-surveys-and-mitigation-for-development-projects

activity between TPs was also recorded where possible. The locations of TPs are shown in Appendix IV, and these are referred to within the results.

2.4.4 Dusk activity surveys commenced at sunset and continued for approximately two hours. Two hours was considered to be a sufficient length of time in which to adequately cover the survey area and to account for the species likely to be present in these habitats in Kent.

2.4.5 An Elekon Batlogger M2 or Echo Meter Touch 2 Pro full spectrum detector was used during the transect surveys. Bat recordings were analysed using BatExplorer (v2.1.10.1) or Kaleidoscope Pro (v5.4.8) software which enables evaluation of a range of echolocation call parameters to identify bats to genus or species level. Weather conditions were noted during each survey (minimum/maximum air temperatures, wind speed/direction, precipitation and cloud cover) and are reported in Table 2.4 and alongside the results in Appendix V.

Table 2.4: Bat survey dates and weather conditions

Date	Dusk/Dawn	Weather conditions
21 April 2022	Dusk	11-9°C, 0% cloud cover, gentle breeze to calm (Beaufort 3-0), no precipitation
11 May 2022	Dusk	12-11°C, 0% cloud cover, gentle breeze to calm (Beaufort 3-0), no precipitation
13 June 2022	Dusk	16-14°C, 20-5% cloud cover, calm to light air (Beaufort 0-1), no precipitation
12 July 2022	Dusk	24-22°C, 90-100% cloud cover, light breeze to calm (Beaufort 2-0), very light intermittent showers towards the end of the survey
8 August 2022	Dusk	20-17°C, 0% cloud cover, light breeze (Beaufort 2), no precipitation
20 September 2022	Dusk	17-16°C, 80-85% cloud cover, calm (Beaufort 0), no precipitation
21 September 2022	Dawn	12°C, 95-60% cloud cover, calm (Beaufort 0), no precipitation
10 October	Dusk	11-10°C, 0% cloud cover, light breeze (Beaufort 2), no precipitation

Remote monitoring

2.4.6 Two Wildlife Acoustics SongMeter MiniBat full spectrum bat detectors were used for the automated monitoring. These were sited at a height of around 3–5m above ground level and left in-situ for at least 5 nights during each month of survey. Deployment locations were chosen systematically to achieve an even distribution across the survey area representative of its habitats where possible, and are shown in Appendix IV; these locations are referred to within the results.

2.4.7 The bat detector was set to record passes from 30 minutes before sunset to 30 minutes after sunrise to capture early emerging and late returning bats and this was standard for all surveys. Data from the recorder were analysed using Kaleidoscope Pro (v5.4.8) software.

2.4.8 Weather data for the survey period was obtained from the closest weather station using the timeanddate.com Website (https://www.timeanddate.com). Weather data is presented in Appendix VI.

Evaluation criteria

2.4.9 Within this report, the potential suitability of foraging / commuting habitats is classified as negligible, low, moderate or high with reference to Table 4.1 in the *Good Practice Guidelines* (Collins (ed.), 2016). Levels of bat activity are also noted as low, moderate or high, however, these should be taken as relative terms applicable within the survey area only. In other words, they are intended to indicate which parts of the survey area are used more frequently by bats, and which may therefore be of importance to the conservation status of local bat populations. Interpretation of these terms and the accompanying data on species assemblage and abundance is, where appropriate, used to indicate areas of high and moderate value to bats. These again are relative terms applicable within the survey area only.

2.4.10 It should be noted that bat passes recorded during automated static monitoring were split to a maximum duration of 60 seconds and do not equate to numbers of individual bats. Bats will often repeatedly pass a detector when hunting along a linear feature such as a hedgerow or tree line, and there is no way to determine numbers of individuals from this data. The number of bat passes should instead be taken as an index of relative bat activity at a particular location within the site.

Limitations

2.4.11 The surveys were completed with the assistance of bat detectors. All survey techniques are subject to bias, and bat detector surveys may under-record species with weak echolocation calls, such as long-eared bats *Plecotus* spp. However, these biases were considered when interpreting the results.

2.4.12 Any bats recorded were identified to species (where possible) and recorded on a field map. Many of the calls were heard without being seen due to the position of the bat and the lack of light.

2.4.13 Two of static deployments (SM7 and SM12) malfunctioned during the monitoring period, resulting in no data being recorded at these location. Given the relatively small size of the site, the coverage obtained by the remaining detectors is considered to be sufficient to inform the survey results.

2.4.14 The static monitoring device provides no indication as to the number of bats present on a site as recorded bat calls could be from one bat making repeated passes or multiple bats making fewer passes. Therefore it can only be used as an indicative assessment of the bat species that are present on site, but gives a longer snapshot of time than the activity surveys.

2.4.15 Some bat calls are variable and extremely similar between species. Where identification to species level was not possible (for example in the *Myotis* bat group), bats were identified to family level (e.g. *Myotis* sp.).

2.4.16 The surveys were undertaken in accordance with the Bat Conservation Trust's (BCT) recommended timings for activity surveys (Collins (ed.), 2016). There were no difficulties in gaining access to the site to carry out the surveys and weather conditions were within acceptable parameters.

2.5 Hazel Dormouse Survey

2.5.1 A presence/absence survey for hazel dormouse was carried out, based on standard industry guidelines (Bright *et al.*, 2006) and Natural England's standing advice[3] for dormouse, comprising:

- Nest tube surveys: installation of artificial nest tubes within areas of suitable habitat which were subsequently checked for occupancy; and
- Nut searches: ground searches for hazel nuts which have been opened/gnawed by dormice.

Nest tube survey

2.5.2 Nest tube surveys utilise a minimum of 50 tubes deployed at c.15-20m intervals in suitable habitat within and bordering the survey area, usually installed in spring and left in situ at least until September. Each tube is checked for dormice or their nests during the survey. The survey is required to achieve a minimum score of 20 against the index of detection probability outlined in Table 2.5.

Table 2.5: Index of detection probability for hazel dormice (if using 50 nest tubes)

Month	Index of probability
April	1
May	4
June	2
July	2
August	5
September	7
October	2
November	2

2.5.3 The index is based on a deployment of 50 nest tubes as standard. Where a survey deploys nest tubes in lesser numbers the weighting score is amended accordingly, because this will affect the detectability of dormice. The present survey used 50 nest tubes, installed within woodland, scrub and hedgerow habitat on 17 March 2022. Nest tube checks were carried out monthly between May and September thereby achieving a total score of 8 (4+2+2+5+7=20) and give a good degree of confidence in the survey findings.

3 Natural England (2015): Hazel or common dormice: surveys and mitigation for development projects. Accessed online at: https://www.gov.uk/guidance/hazel-or-common-dormice-surveys-and-mitigation-for-development-projects

2.5.4 Nest tubes were positioned in areas of suitable habitat within and adjacent to the survey area, as shown on the plan at Appendix VII. The location of each nest tube was marked with survey tape to ensure that all tubes could be re-located during subsequent survey visits. The location of occupied tubes containing hazel dormice or their nests was recorded using GPS coordinates, together with the number of individuals and sex, weight and maturity data. Weather conditions were noted during each survey (air temperature, wind speed, precipitation and cloud cover) and are reported in Table 2.6.

Table 2.6: Hazel dormouse survey dates and weather conditions

Date	Weather conditions
11 May 2022	14°C, 100% cloud cover, light breeze (Beaufort 2), light rain
16 June 2022	19°C, 10% cloud cover, calm (Beaufort 0), no precipitation
12 July 2022	19°C, 90% cloud cover, light breeze (Beaufort 2), no precipitation
8 August 2022	20°C, 0% cloud cover, light breeze (Beaufort 2), no precipitation
16 September 2022	16°C, 60% cloud cover, light breeze (Beaufort 2), no precipitation

Nut searches

2.5.5 The simplest way to establish dormouse presence at a site is to look for gnawed hazel nuts. Dormice leave a smooth round hole with few toothmarks on the surface; mice and voles may also leave a round hole, but with transverse toothmarks on the cut edge. Hazelnut searches comprise systematic surveys of five 10x10m quadrats for gnawed nuts. Searching is carried out for 20 minutes within each quadrat before moving on to the next. There is an 80% probability that, if dormice are present, gnawed nuts will be found by the time three such squares have been searched (Bright *et al.*, 1994, cited in Bright *et al.*, 2006). Alternatively for smaller areas at least 100 nuts are checked. However, due to the nature of the habitats on site i.e. linear hedgerows and woodland with a limited hazel understorey, nut searching was limited to the areas surrounding the nest tube deployment. Where present, fallen hazel nuts were checked for hazel dormouse toothmarks. Nut searching can only be used as a supplementary technique, and between September and December in areas dominated by fruiting hazel *Corylus avellana* trees.

Evaluation criteria

2.5.6 Population size is very difficult to evaluate as dormice live at low densities, even in the best habitats. In early summer there are typically only 3 to 5 (but sometimes up to 10) adults per hectare in deciduous and conifer woodland habitats. Results from the National Dormouse Monitoring Programme suggests an average of between 1.75 and 2.5 adults per hectare based on 83 sites in various habitats, with the lowest densities in the north of England (1993 to 2000 inclusive; Bright & Sanderson, pers. comm., cited in Bright *et al.*, 2006). Across the country, including sub-optimal habitats, the average population density is estimated to be around 2.2 adults per hectare.

Limitations

2.5.7 The surveys were hence undertaken in accordance with recommended survey timings (Bright *et al.*, 2006). There were no difficulties in gaining access to the site to carry out the surveys. As stated above, the nut search methodology was adapted to suit the nature of the survey area.

2.6 Reptile Survey

2.6.1 A presence/absence survey for reptiles was carried out, based on standard industry guidelines (Hill *et al.*, 2005; Froglife, 1999; Gent and Gibson (eds.), 2003) and Natural England's standing advice[4] for reptiles, combining habitat suitability assessments, Visual Encounter Surveys (VES) and Artificial Refuge Surveys (ARS). A minimum of seven survey visits during suitable weather (principally an air temperature between 9 and 18 ℃, and in the absence of rain and strong wind) are required to establish the presence or likely absence of reptiles within the survey area.

2.6.2 In total, 58 artificial refuges were used within the survey area distributed across approximately 2.36ha focusing on the areas of most suitable habitat as shown on the plan at Appendix VIII. Guidelines recommend that at least 10 refuges are used per hectare of land surveyed (refuge density during this survey = c.25/ha). To give reptiles time to locate and habituate to new refuges in their environment they were placed on 17 March 2022, 28 days prior to the start of the main survey period.

2.6.3 The location of reptiles (including sloughed skins or eggs) was recorded using GPS coordinates, together with species counts, sex (when distinguishable) and maturity data. Weather conditions were noted during each survey (air temperature, cloud cover wind speed, precipitation and ground conditions) and are reported in Table 2.7.

Table 2.7: Reptile survey dates and weather conditions

Date	Timings	Weather conditions
13 April 2022	10:30-11:00	15°C, 95% cloud cover, light breeze (Beaufort 2), no precipitation
21 April 2022	17:15-18:00	13°C, 0% cloud cover, moderate breeze (Beaufort 4), no precipitation
9 May 2022	17:15-17:45	15°C, 0% cloud cover, calm (Beaufort 0), no precipitation
12 May 2022	10:15-10:45	14°C, 50% cloud cover, light breeze (Beaufort 2), no precipitation
27 May 2022	10:20-10:50	15°C, 50% cloud cover, gentle breeze (Beaufort 3), no precipitation
16 June 2022	08:00-08:45	18-19°C, 10% cloud cover, no wind or precipitation
24 June 2022	09:30-11:00	19-20°C, 0% cloud cover, light breeze (Beaufort 2), no precipitation

4 Natural England (2015): Reptiles: surveys and mitigation for development projects. Accessed online at: https://www.gov.uk/guidance/reptiles-protection-surveys-and-licences

Evaluation criteria

2.6.4 Criteria for establishing a population size class assessment based on a refuge density of 10/ha are given in Froglife (1999), as shown in Table 2.8, but it should be noted that this is intended to be used in conjunction with a higher number of survey visits than normally undertaken for a presence/absence survey. Site scores can be compared to the Key Reptile Site selection criteria (Froglife, 1999) to establish the overall importance of a site for reptiles.

Table 2.8: Population size class assessment and Key Reptile Site criteria (Froglife, 1999)

Species	Low Population Score =1	Good Population Score =2	Exceptional Population Score =3
Adder *Vipera berus*	<5	5 - 10	>10
Grass snake *Natrix helvetica*	<5	5 - 10	>10
Common lizard *Zootoca vivipara*	<5	5 - 20	>20
Slow worm *Anguis fragilis*	<5	5 - 20	>20
To qualify as a Key Reptile Site, the survey site must meet at least one of the following criteria:			
1. Supports three or more reptile species 2. Supports two snake species 3. Supports an exceptional population of one species (see above) 4. Supports an assemblage of species with a combined score of at least 4 (see above) 5. Does not satisfy 1 - 4 but is of particular regional importance due to local rarity			

Limitations

2.6.5 During the survey visits on 16 and 24 June the air temperature increased beyond the upper limited specified (18°C) in 2.6.1. However, surveys remained within the peak air temperature specified by Froglife (2015), which considers the optimal range to be 9-20°C. As such, this divergence in methodology is not considered a limitation to the assessment.

2.6.6 There were no difficulties in gaining access to the site to carry out the surveys and the entire site was accessible throughout the survey. Refuge density within areas of favourable habitat exceeded that recommended by current guidelines. All survey visits were undertaken during suitable weather conditions and at an appropriate time of year.

2.7 General Limitations

2.7.1 See Appendix XI for general Legal and Technical Limitations which apply to this document.

2.7.2 The details of this report are valid until the dates shown in Table 2.9. Beyond these periods, if works have not yet been undertaken, the development proposals change or red line boundary changes, it is recommended that a review of the ecological conditions is undertaken.

Table 2.9: Validity of assessment

Species	Validity period (CIEEM, 2019)	Date of final survey	Expiry date
Badgers	6 months	12/07/2022	12/01/2023
Bats (GLTA)	12 months	12/07/2022	12/07/2023
Reptiles	18 months	24/06/2022	24/12/2023

2.8 Personnel

2.8.1 The personnel deployed on the surveys are listed in Table 2.10.

Table 2.10: Survey personnel and qualifications

Feature / Task	Personnel
Badger survey	Tim Lees, Dan Maude
Bat activity surveys	Tim Lees
Hazel dormouse survey	Tim Lees, Dan Maude
Reptile surveys	Tim Lees, Dan Maude, Hannah Goldenwalla, Richard Emerson
Personnel	**Qualifications**
Tim Lees BA (Hons) MSc MCIEEM	Principal Ecologist with nine years' experience leading survey and impact assessment teams for a wide range of ecology and environmental planning projects. Natural England Class Licences to survey for bats (WML-CL17) and great crested newt (WML-CL08).
Dan Maude BSc (Hons) MRes qCIEEM	Assistant with two seasons' survey experience.
Hannah Goldenwalla BSc qCIEEM	Assistant with two seasons' survey experience.
Rich Emerson BSc qCIEEM	Assistant with one seasons' survey experience.

3 Results

3.1 Great Crested Newt Survey

eDNA survey

3.1.1 P1 was dry at the time of survey and access to ponds P2 and P3 was denied by the landowners. As such the eDNA survey on these ponds could not be carried out.

3.2 Badger Survey

Field sign survey

3.2.1 A comprehensive site walkover was undertaken on 31 March 2021 to search for setts and field signs. One suspected badger sett was identified adjacent to the south-western corner of site, with the location shown on the Phase 1 Habitat plan at Appendix I (S3). Elsewhere, a badger latrine formed of three dung holes (with fresh droppings) and a mammal path were identified in the north-eastern corner of site (TN1).

3.2.2 A subsequent survey on 17 March 2022 identified two suspected badger setts on site with the locations shown on the Phase 1 Habitat plan at Appendix I (S1 & S2).

Camera trap monitoring

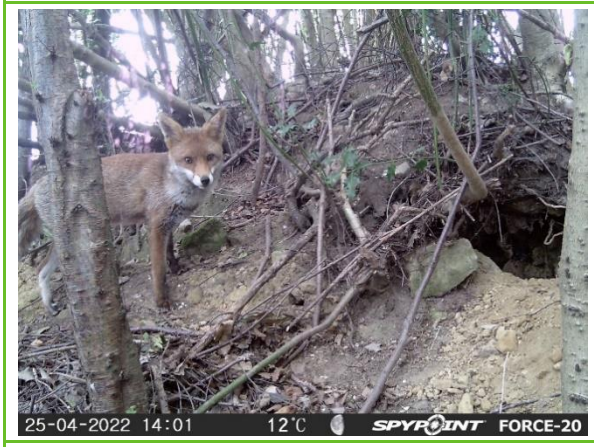
3.2.3 Three camera traps were deployed covering holes at setts S1 and S2 between 21 April and 27 May 2022 to confirm the status of each suspected sett and establish how actively used the holes were by badger. Over the monitored period of 35 nights, there were no observations of badger entering and exiting holes at S1 and footage revealed the holes formed part of an active fox *Vulpes vulpes* den. Observations of badger entering and exiting holes, along with other behaviours, were recorded on 20 nights at camera location S2.1 and on 29 nights S2.2. Full results are presented in Appendix III.

3.2.4 Sett S3, located beyond the south-western site boundary was not subject to camera trap monitoring due its distance from the developable area. However, the sett was checked during the survey period and its classification remains consistent with that reported in the PEA (UEEC, 2022). Table 3.2 provides a summary of the classification of each potential badger sett identified on site.

Table 3.1: Summary of badger survey results

Camera S1
Positioned in the south-eastern corner of site in an area of woodland, adjacent to two suspected entrances under a dead tree. Camera trap footage revealed the holes formed part of an active fox den

comprised of a mother and a single cub. Foxes were observed on 31/32 days. The camera was triggered once by a passing badger. Rabbit *Oryctolagus cuniculus* were also present, but infrequent, recorded five times. Other recordings included grey squirrel *Sciurus carolinensis*, birdlife such as wren *Troglodytes troglodytes*, robin *Erithacus rubecula* and pheasant *Phasianus colchicus*.

	
07/12/2022 14:01. Adult beside hole	05/05/2022 07:46. Cub displaying feeding behaviour.

Camera S2.1

Positioned in bramble scrub towards the south-west of site, opposite two or three apparently well-used entrances and bare earth. Badgers were observed on 20 out of 35 days. A fox was observed passing by on six occasions. Rabbits were observed on 16 occasions. Movement of foliage partially obstructed the view from the 10/05/2022.

	
08/05/2022 06:14. Multiple badgers passing by.	26/05/2022 14:46. Fox observed passing by.

Camera S2.2

Positioned towards the south-west of the site in close proximity to camera S2.1, beneath a young oak on the southern side of hedge. Signs of badger included footprints and large open holes. Review of camera footage revealed the holes were the site of an active sett, badgers being recorded on 29/32 days. A fox was recorded on one occasion. A high frequency of rabbit were recorded over 28/32 days. Other recordings included birdlife such as thrush *Turdus* sp. and blackcap *Sylvia atricapilla*, and a domestic cat *Felis catus*.

	
26/04/2022 05.56 Badger seen exiting hole	03/05/2022 19:27 Multiple badgers seen foraging around hole.

Table 3.2: Badger sett classification

Sett #	Entrances			Grid reference	Sett classification
	Well-used	Partially used	Disused		
S1	3	2	0	TQ 55199 29320	N/A – Fox den
S2	4*	0	0	TQ 55106 29323	Main
S3	1	0	0	TQ 55093 29314	Outlier

*Likely additional sett entrances were obscured by dense vegetation

3.3 Ground Level Tree Assessment

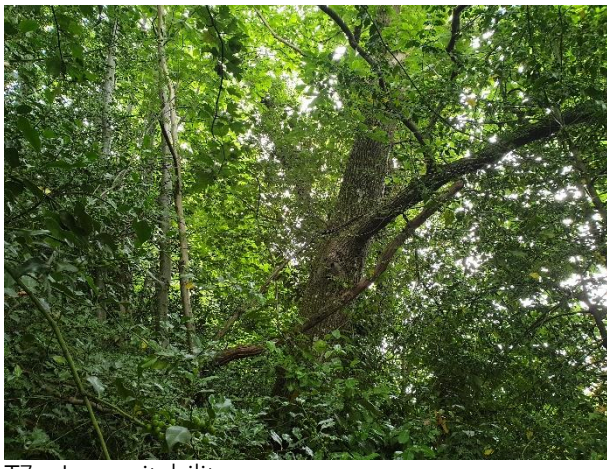
3.3.1 Five trees (T1-T5) were identified as providing moderate suitability for roosting. However, these are anticipated being retained as part of the proposed development and no further survey is necessary. However, tree losses are required within the woodland to enable the creation of pedestrian access into the site. The majority are young with negligible suitability, but two trees were of sufficient size and / or exhibited low suitability PRFs (see Table 3.3 for full details and Appendix I for locations).

Table 3.3: Classification of trees with bat roosting potential

Tree #	Suitability	Species	Grid reference	Potential roosting features
T6	Low	Ash *Fraxinus excelsior*	TQ 52285 53320	▸ No observable PRF's but tree is of age, height and species to be suitable for roosting bats and could not be inspected from all angles due to surrounding trees in close proximity; ▸ Ivy cover (potentially hiding PRF).
T7	Low	Sweet chestnut *Castanea sativa*	TQ 52283 53320	▸ No observable PRF's but tree is of age, height and species to be suitable for roosting

Tree #	Suitability	Species	Grid reference	Potential roosting features
				bats and could not be inspected from all angles due to surrounding trees in close proximity.


T6 – Low suitability


T7 – Low suitability

3.4 Bat Activity Survey

3.4.1 There are 15 SSSIs, but no SACs within 10km of the survey area. Bat populations are not listed amongst the notified features for any of these sites.

Transect surveys

3.4.2 Monthly bat activity surveys were carried out between April and July 2022; see Appendix IV for a plan showing survey transect and TPs. These consisted of dusk surveys. Full survey results are included at Appendix V and summarised in the tables and graphs below.

Transect data

3.4.3 Table 3.4 present a summary of all transect survey data collected during the 2022 bat active season.

Table 3.4: Monthly bat transect survey data

Date	Unknown bat	EPSE	NYsp	PIPI	PIPY	PLsp	*Total*
Apr-22	0	0	0	0	0	0	***0***
May-22	0	1	0	6	3	0	***10***
Jun-22	0	1	0	2	0	0	***3***
Jul-22	0	0	1	5	1	0	***7***
Aug-22	0	0	0	9	1	1	***11***
Sep-22 (Dusk)	1	0	0	8	0	1	***10***

Date	Unknown bat	EPSE	NYsp	PIPI	PIPY	PLsp	*Total*
Sep-22 (Dawn)	0	0	0	3	1	0	***4***
Oct-22	0	0	0	12	2	0	***14***
Total	***1***	***2***	***1***	***45***	***8***	***2***	***59***
%	***1.69***	***3.39***	***1.69***	***76.27***	***13.56***	***3.39***	***100***

3.4.4 The overall abundance of foraging and commuting bats was low, with no single transect recording more than 14 bat contacts. Only 59 bat contacts were made in total during the eight transect surveys, with common pipistrelle *Pipistrellus pipistrellus* the most encountered species (76.27%). The only other species registered during the surveys were soprano pipistrelle *Pipistrellus pygmaeus* (8); serotine *Eptesicus serotinus* and *Plecotus* species (both 2) and *Nyctalus* species and an unknown bat (both 1).

3.4.5 Bat activity was identified on all site boundaries, but in such low numbers that none were considered to be a key commuting route or foraging resource. Only one bat was recorded at the centre of the site during the surveys (a single common pipistrelle pass at TP5), but this was a non-visual and may have been some distance from where the surveyor was positioned.

Remote monitoring

3.4.6 Deployment of remote automated bat detectors coincided broadly with each transect survey; see Appendix IV for a plan showing the locations of remote detector deployments. Table 3.5 presents a summary of all bat passes recorded during remote monitoring at locations.

Table 3.5: Total number of bat passes during remote monitoring, all species

Month	Detector	EPSE	MYSP	NYLE	NYNO	NYsp	PINA	PIPI	PIPY	PLsp	Total
Apr	SM1	0	1	0	1	0	0	214	3	0	***219***
Apr	SM2	1	9	0	0	0	0	118	0	0	***128***
May	SM3	4	0	4	33	5	0	56	1	1	***104***
May	SM4	15	5	0	9	1	0	28	1	0	***59***
Jun	SM5	4	0	0	6	0	0	3227	5	0	***3242***
Jun	SM6	0	0	0	4	0	0	86	1	0	***91***
Jul	SM7	***N/A***									
Jul	SM8	10	20	3	2	7	0	221	10	9	***282***
Aug	SM9	5	17	0	3	0	0	1498	149	3	***1675***
Aug	SM10	10	10	2	4	4	0	182	51	1	***264***
Sep	SM11	0	1	0	0	1	4	37	2	6	***51***
Sep	SM12	***N/A***									
Oct	SM13	0	1	1	0	0	0	90	2	2	***96***
Oct	SM14	1	3	0	0	1	1	177	30	7	***220***
	Total	***50***	***67***	***10***	***62***	***19***	***5***	***5934***	***255***	***29***	***6431***
	%	***0.78***	***1.04***	***0.16***	***0.96***	***0.30***	***0.08***	***92.27***	***3.97***	***0.45***	***100***

3.4.7 The data show two clear outliers recorded at SM5 in June (3242) and SM9 in August (1675), both of which were located along H5, on the western boundary. The SM5 deployment recorded 83.66 bat passes per night-time hour over the course of five nights; the overwhelming majority (83.28 bat passes per hour (BPPH) or 99.54%) were common pipistrelle passes. This abundance of

common pipistrelle registrations lessened at SM9 to 89.43%, but still retained the overwhelming majority. These results are likely to reflect intensive periods of foraging rather than a navigation feature of particular importance, given the relative activity recorded during SM1 and SM14 (located along the same linear feature) and the activity transects. Beyond the outliers, the data show very low levels of bat activity were recorded, all registering less than 8 BPPH.

3.4.8 Figure 3.1 shows an index of relative bat activity recorded in the survey area, expressed as BPPH. The data are shown per detector deployment and by month. This again indicates that bat activity within the site was very low for the majority of the survey period, with a moderate level of activity recorded at SM5 and SM9.

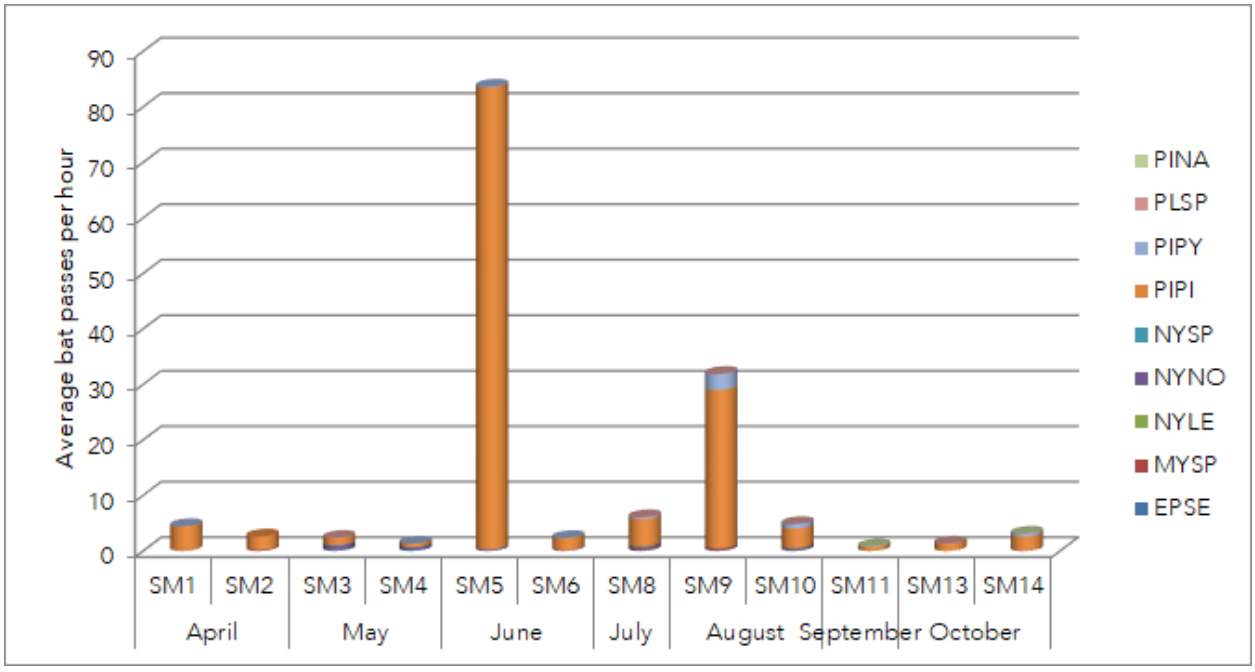


Figure 3.1: Bat passes per hour, by detector and month

3.5 Hazel Dormouse Survey

Nest tube survey

3.5.1 The nest tube survey recorded no observations of hazel dormouse, or signs of their presence such as nests or droppings, during the completed surveys to date.

3.6 Reptile Survey

3.6.1 No reptile species or signs of their presence (e.g. skin sloughs, eggs/egg-cases) were observed during the survey.

4 Evaluation

4.1 Introduction

4.1.1 This section evaluates the survey area in terms of the protected species present or potentially present on site or its immediate vicinity, in the context of relevant legislation and planning policy. See Appendix IX for a review of the legislation and planning context.

4.2 Great Crested Newt

Presence or absence of great crested newt

4.2.1 P1 was dry at the time of survey and access to ponds P2 and P3 was denied by the landowner. As such the eDNA survey on these ponds could not be carried out.

Site Evaluation

4.2.2 Overall, habitats within the survey area provide a range of features which could support a population of great crested newt during the terrestrial phase of their lifecycle. The composition of coarse grasses, with a variable sward height and structure is suitable for foraging great crested newt. The boundary hedgerows and scrub provide shelter and dispersal habitat, while the woodland on and adjacent to site offer hibernation potential. The site is linked to further areas of suitable terrestrial habitat which continue off site, particularly to the south. This connectivity will persist following completion of the development. In the absence of survey data for populations of great crested newt within ponds near to the site, it is difficult to assign precise importance. However, the survey area is considered unlikely to be more than of Local Importance for great crested newt due to the distance of desk study records from the site (UEEC, 2022) and sub-optimal connectivity with off-site ponds (commuting habitat separated by roads).

4.2.3 Pond P1 is considered unsuitable for great crested newt during their breeding phase as it did not hold water during this period in 2022. It was also classified as poor suitability during the HSI, was heavily shaded by surrounding trees and scrub, and contained no aquatic vegetation which would indicate that it held water in recent years. P2 and P3 are located c.70m north-east and 135m south-west of the site boundary, respectively. No access was provided to either pond.

Impact Assessment

4.2.4 The majority of great crested newts will remain within a core area of up to c.50–250m from the breeding pond (250m being the estimated maximum routine migratory range; Cresswell & Whitworth, 2004) if that area can fulfil their lifecycle requirements although, as with all amphibians, small numbers of individuals (often juveniles) will disperse as colonisers to distances of 1km or more (Langton *et al.*, 2001). Research on the efficiency of great crested newt capture techniques

within a range of habitats at various distances from a breeding pond concluded that (Cresswell & Whitworth, 2004):

> *"The most comprehensive mitigation, in relation to avoiding disturbance, killing or injury is appropriate within approximately 50m of a breeding pond. It will also almost always be necessary actively to capture newts 50-100m away. However, at distances greater than 100m, there should be careful consideration as to whether attempts to capture newts are necessary or the most effective option to avoid incidental mortality… At distances greater than 200-250m, capture operations with hardly ever be appropriate."*

4.2.5 P4 and P5 are located at least 300m from the developable area. These ponds are also separated by housing and a school, which contained large areas of playing field. As such, if great crested newt are present within these ponds, there is considered to be a very low risk of individuals commuting to the developable area.

4.2.6 No access was provided to P2 and P3 to confirm the presence or likely absence of great crested newt within these ponds. Although no great crested newt were recorded sheltering beneath artificial refuges on site during the reptile survey, there is potential for this species dispersing through the survey area at certain times of year when moving between ponds in the locality and to / from terrestrial habitats. Accordingly, it is concluded that the risk of great crested newt being present within the site is low. Without mitigation, the proposed development may lead to the following impacts on great crested newt and their habitats as a result of vegetation removal, site clearance, creation of access tracks and materials storage compounds, vehicle movements, groundworks and construction of buildings and hardstanding:

- Any great crested newt present during the proposed works would be at risk of killing, injury and disturbance, which would constitute an offence under the Wildlife & Countryside Act 1981 (as amended) (WCA) and the Conservation of Habitats and Species Regulations 2017 (as amended) (CHS);
- No negative impact is predicted for any of the aquatic habitats – although P1 will be removed (and replaced by two surface water drainage ponds) it was not considered suitable aquatic habitat for great crested newt;
- Negative impacts are predicted due to the partial destruction and temporary disturbance to up to c.2.27ha (depending on the final extent of development proposals) of optimal terrestrial habitats in proximity to potential great crested newt ponds; and
- No long-term impacts are predicted in relation to isolation because dispersal habitats within the site (hedgerows and woodland) will be retained, and because suitable terrestrial habitats will continue to exist close to each off-site pond.

4.2.7 However, a suitable mitigation and licensing strategy for the proposed development will reduce the likelihood of impacts upon this species. Due to the absence of survey data, the site should be registered under the District Level Licensing (DLL) scheme for Kent[5], as recommended at section 5.2.

[5] https://www.gov.uk/government/publications/great-crested-newts-district-level-licensing-schemes

4.3 Badger

Presence or absence of badger

4.3.1 The results show that badger was using sett S2 during the spring / summer survey season in 2022. This was confirmed by field evidence observed at the sett entrances and also camera monitoring. S3 was also considered to be actively used during the 2022 survey period, but this was based upon field sign surveys only. Sett S1 was identified as an active fox den.

Sett evaluation

4.3.2 The sett at S2 was formed of at least four entrances, all of which appeared to be active throughout the surveys on site. Activity in and around the sett was recorded almost daily during the camera trap monitoring. Accordingly, the assessment classifies S2 as a main sett.

4.3.3 Sett S3 was not monitored using camera traps during the survey period, but was confirmed as active during field signs surveys. As such, its evaluation is consistent with the assessment provided in the PEA (UEEC, 2022), whereby S3 is classified as an outlier sett.

4.3.4 Badger is a legally protected species but is not of conservation significance, being common and widespread in the UK. As such, the survey area is considered to be of no more than Negligible Importance for its badger population.

Impact assessment

4.3.5 S3 which is located beyond the south-western boundary of site is approximately 41m from the developed area i.e. access roads and dwellings. This is well beyond the 30m buffer normally considered sufficient to avoid impacts relating to badgers within their setts. However, proposals for the site include encroachment into the buffer of S2 (see Appendix I buffer zones for each sett), to create vehicular access c.15m from the sett at its nearest point. Construction works will involve ground clearance, creation of access tracks and materials storage compounds, vehicle movements and groundworks, which together could result in the following impacts to badgers using setts S2:

- Risk of killing or injury to badgers;
- Possible destruction, damage or obstruction to main sett S2; and
- Likely disturbance of badgers occupying setts S1, S2 and S3 during construction through increased noise, vibrations, light, fires or chemicals.

4.3.6 These impacts would be unlawful under the WCA and Protection of Badgers Act 1992.

4.3.7 Large areas of suitable foraging habitat will continue to exist in immediately adjacent areas during both construction and operation. Long term impacts are not predicted and it is likely that badgers would continue to use habitats within the site and wider area following construction.

4.3.8 The burrow at S1 is not currently used by badger, and it will not be necessary to obtain a mitigation licence for closing or otherwise interfering with this. However, any closure will need to be undertaken in accordance with the Mammals Act 1996.

4.3.9 Recommendations to avoid and mitigate predicted impacts are set out in Chapter 5.

4.4 Foraging and Commuting Bats

4.4.1 The following section provides a preliminary assessment of how foraging and commuting bats are utilising the application site. Surveys are due to conclude in October 2022, by which time a full seasons' survey data will be available for analysis. Once completed an addendum will be issued to this report with updated findings.

Species assemblage

4.4.2 Species diversity recorded during the bat activity surveys to date included at least eight species. Their national conservation status is listed in Table 4.1 (BCT, 2010; Mathews *et al.*, 2018; Kent Bat Group[6]). Noctule *Nyctalus noctula*, *Plecotus* spp. and common pipistrelle have previously been recorded within 2km of the site, as confirmed during the desk study stage of the PEA (UEEC, 2022).

4.4.3 The *Plecotus* bat calls recorded within the survey area could not be distinguished between brown long-eared *Plecotus auritus* and grey long-eared bat *Plecotus austriacus*. The recorded range of grey long-eared along the south coast is from Dorset to West Sussex. As such, the calls have been attributed to brown long-eared due to the inland location and absence of historical records identified during the PEA desk study.

4.4.4 *Myotis* bat call parameters overlap significantly and it is not normally possible to conclusively identify them to species level unless they are in the hand. The *Myotis* bat calls recorded within the survey area were most closely matched to the call parameters of Brandt's bat / whiskered *Myotis brandtii / mystacinus*, Daubenton's *M. daubentonii* and Bechstein's *M. bechsteinii* bats. The survey area falls broadly within the known distribution of all four species.

Table 4.1: Conservation status of recorded bat species (abundance and distribution)

Species	Kent abundance/distribution	UK abundance/distribution	UK status
Serotine	Widespread but declining	Uncommon, widespread, southern England	Vulnerable
Bechstein's bat	Very rare	Very rare, southern	Least concern
Brandt's bat/ whiskered	Rare and elusive / Scarce and elusive	Widespread, scarce in England & Wales / Scarce, widespread, absent in Scotland	Data deficient
Daubenton's bat	Common near water	Widespread, fairly abundant	Least concern

[6] Kent Bat Group website: Bats in Kent. Accessed online [07/12/22] at: http://www.kentbatgroup.org.uk/bats-in-kent/

Species	Kent abundance/distribution	UK abundance/distribution	UK status
Leisler's bat *Nyctalus leisleri*	Scarce, may be under-recorded	Scarce but widespread o southern Scotland	Near threatened
Noctule	Generally uncommon, declining	Uncommon, widespread, absent in Scotland	Least concern
Common pipistrelle	Common	Widespread, abundant	Least concern
Soprano pipistrelle	Common	Fairly common, widespread	Least concern
Nathusius' pipistrelle *Pipistrellus nathusii*	Scarce, often migrant	Scarce, widespread, includes migrants	Near threatened
Brown long-eared	Common	Widespread, relatively abundant	Least concern

Species abundance

4.4.5 Figure 4.1 summarises species composition recorded during passive monitoring within the survey area over the course of the survey period to date. The data are expressed as average BPPH and gives an index of relative bat activity within the site. It is important to note that BPPH is not the same as total number of bats, as a single bat might pass the detector on multiple occasions when foraging up and down a feature. This shows that the majority (96.31%) of all bat calls recorded were from *Pipistrellus spp*. bats, with common pipistrelle registering 135.41 BPPH, soprano pipistrelle registering 4.62 BPPH and Nathusius' pipistrelle registering 0.08 BPPH. Of the remaining bat passes, those of *Nyctalus* spp. (1.42% or 2.02 BPPH) were the next most frequently recorded, followed *Myotis spp*. (1.04% or 1.34 BPPH), serotine (0.78% or 1.07 BPPH) and finally *Plecotus* spp. (0.45% or 0.52 BPPH). These results are consistent with those recorded during the transect surveys.

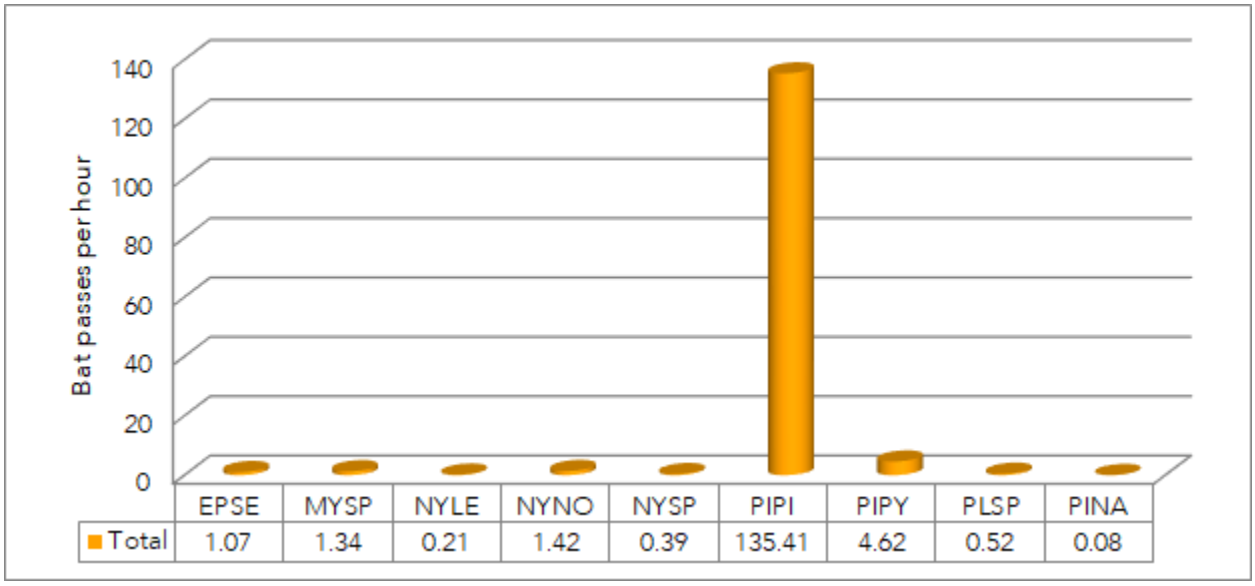


Figure 4.1: Bat pass species composition, all remote monitoring data

4.4.6 Due to the high proportion of common and widespread bat species and relatively low levels of activity recorded, given the perceived suitability of habitats on site, the survey area is considered to be of Negligible Importance for its bat population.

Impact assessment

Habitat losses and land use changes

4.4.7 The proposed development will result in a permanent loss of c.2.18ha of grazed pasture, as well as small losses of scrub and standing water. A narrow section of hedgerow H3 will also be lost for access. This will be replaced with 50 new dwellings, together with access, landscaping and other associated infrastructure. The woodland block in the south-east of site will be retained, albeit a temporary loss will occur to create informal pedestrian access. This loss is considered unlikely to result in a significant negative effect on the local abundance and distribution of the bat species recorded on site, as the majority of bat contacts were encountered along the site boundaries and activity was generally low across the site.

Increases in artificial light

4.4.8 Overall, although proposed habitat losses and changes in land use within the survey area are not predicted to result in significant impacts to foraging and commuting bats, the development is likely to result in a risk of increased artificial light levels. Stone (2013) presents a detailed summary of the potential impacts of artificial light on bat behaviour. Impacts differ between species, and complex interactions exist between potential beneficial effects (such as exploiting concentrations of invertebrate prey abundance) and adverse effects such increased exposure to predation, increased risk of mortality through collision with vehicles (when feeding around street lights), reduced invertebrate abundance in unlit areas reducing the availability of prey to light-intolerant bats, and fragmentation of habitats as a result of intolerant species avoiding light sources.

4.4.9 Details of the lighting proposals are not yet available; however, Stone (2013) presents a summary of the anticipated impact of artificial light on each UK species by behaviour. The impact of light on foraging and commuting bats is classified as low for serotine and individuals of the genera *Nyctalus* and *Pipistrellus* – which comprises 98.51% of all bats recorded during passive monitoring at the site. These species are unlikely to be significantly affected by proposals for the site. Light intolerant species recorded at the site, including individuals of the genera *Myotis* and *Plecotus*, together comprised 1.49% of activity recorded during passive monitoring. Use of the site by these species may be reduced by the proposals, but it is likely that the development can be accommodated without adverse effects on the conservation status of local bat populations within their natural range. These species are often associated with woodland habitats. The woodland habitat on site will be retained, albeit with small temporary losses, as part of proposals.

4.4.10 Recommendations including a sensitive lighting scheme and habitat creation to avoid and mitigate predicted impacts are set out in Chapter 5.

4.5 Hazel Dormouse

Presence or absence of hazel dormouse

4.5.1 There were no observations of hazel dormouse, or signs of their presence such as nests, gnawed nuts or droppings, during the course of the 2022 survey period. The survey findings provide a good level of confidence that hazel dormouse is likely to be absent from the site.

4.5.2 Surveys concluded in September 2022 and achieved a detection probability index score of 20 resulting in a good degree of confidence in the survey findings.

4.5.3 In conclusion the site is considered to be of Negligible Importance for hazel dormouse.

4.6 Reptiles

Presence or absence of reptiles

4.6.1 There were no observations of reptiles, or signs of their presence such as skin sloughs, eggs or egg cases, during the course of the survey period. The survey findings provide a good level of certainty that reptiles were absent from the site during the 2022 survey season.

4.6.2 Surveys were carried out in suitable weather conditions at an appropriate time of year for reptile surveys and the density of refuges exceeded the recommended level (58 refuges were used across approximately 2.36ha of suitable habitat). The survey results are therefore considered to provide an accurate account of the reptile presence on site. Accordingly, the survey area is considered to be of Negligible Importance for its reptile population.

4.6.3 Reptiles are not considered to present a constraint to the development proposals and no further recommendations for these species are required.

5 Recommendations

5.1 Introduction

5.1.1 Recommendations are made below for further for avoidance and/or mitigation of impacts to protected species, to prevent an offence under the relevant legislation from occurring, and to reduce the risk of development proposals resulting in significant effects on the population and distribution of species recorded during the existing surveys. The recommendations should be read alongside those contained in the PEA (UEEC, 2022) which continue to apply, including those for ecological enhancement.

5.2 Avoidance and Mitigation Measures

5.2.1 The following species / groups (Table 5.1) require specific measures to be adhered to prior to and during construction to ensure that an offence under the relevant legislation is avoided.

Table 5.1: Recommended mitigation, avoidance and enhancement measures

#	Recommended avoidance and mitigation measures
R1	Due to the lack of survey data obtained for ponds within 250m of the site boundary during the 2022 season, it is recommended that the proposed development joins the District Level Licensing scheme for Kent.
R2	Establish sett protection zones around badger setts S2 and S3 to avoid destruction / damage / obstruction of the sett or disturbance to badgers while occupying the sett.
R3	Works to fell low suitability trees (T6 & T7) within the woodland will be undertaken in accordance with a Non-licenced Method Statement to reduce the risk of killing / injury to roosting bats. The Method Statement will specify reasonable avoidance measures including timing restrictions (works to be carried out during March-April or September-October to avoid critical maternity and hibernation periods), 'soft felling' techniques to enable bats to disperse, and will be carried out under the supervision of a suitably qualified ecologist.
R4	Negative impacts on foraging and commuting bats and other nocturnal species will be avoided, during both construction and operation of the proposed development, by preparing a lighting strategy to avoid light spill falling onto retained and newly created woodland, ponds and hedgerows.
R5	Retained and created hedgerows will be enhanced through additional planting, particularly along the northern and eastern boundaries. Planting will comprise a species assemblage that benefits bats by providing additional food sources or roosting opportunities.
R6	Where fox dens are to be damaged or destroyed as part of the proposed works, this will be undertaken in accordance with the Mammals Act 1996 by a registered pest control company.

R1: Great crested newt

5.2.2 The District Level Licensing scheme for Kent is led by Natural England[7]. The licensing route removes the requirement for further survey and involves financial contributions based upon proposed development impacts. This method can be undertaken year-round and provides detailed costs and any mitigation requirements, which can be submitted in support of a planning application.

R2: Badger

5.2.3 Sett S2 is located outside of the development footprint and can therefore be retained, but any badgers using the sett could still be subject to disturbance during the construction phase. However, the sett is located c.15m from the nearest proposed hard surfacing (access road) and is in close proximity to a retained hedgerow (H1). Accordingly, a precautionary approach can be adopted to avoiding impacting S2 or disturbing the badgers within it:

- Works should be carried out between 1 July and 30 November (other than in exceptional circumstances) to avoid the breeding / rearing season;
- A pre-works inspection of the site for any newly excavated setts and to monitor the known setts is recommended to take place no more than three months prior to commencement of any clearance works as part of developing the site. This pre-works check will also inform the positioning of required exclusion buffers from sett entrances;
- A toolbox talk should be provided to contractors to highlight the possible presence of sett tunnels;
- Within the protection zone construction activity will be restricted as follows, to prevent damage or disturbance:
  - 0-10m: use of machinery will be prevented, and light work such as hand digging or scrub clearance will be avoided. An Ecological Clerk of Works (ECoW) will supervise any light works which cannot be avoided within this zone, to minimise any residual risk of damage or disturbance to badgers and their setts;
  - 10-20m: use of lighter machinery (i.e. wheeled vehicles) particularly for digging will be prevented. An Ecological Clerk of Works (ECoW) will supervise any excavations which cannot be avoided within this zone, to minimise any residual risk of damage or disturbance to badgers and their setts; and
  - 20-30m: use of heavy machinery (generally tracked vehicles) will be prevented.
- Fencing should be erected prior to works commencing, preferably including acoustic fencing panels to further absorb noise. It should be located around the development footprint and dug into a depth of 600mm to prevent badgers from burrowing underneath. This is to minimise disturbance to the sett during construction, to deter contractors from accessing the surrounding areas and to discourage badgers from accessing the construction site.

[7] https://www.gov.uk/government/publications/great-crested-newts-district-level-licensing-schemes

R3: Roosting bats

5.2.4 A precautionary approach should be employed for the removal of low suitability trees (T6 & T7) whereby soft felling measures are followed:

- Felling works should occur between mid-March and May or September-October to avoid periods when bats are particularly vulnerable – during maternity / hibernation;
- Areas of ivy and loose bark should be carefully removed to reveal the tree trunk / branch beneath, to identify any features or bats present. If evidence of bats is present, then works should stop and the advice of an ecologist sought immediately;
- Cuts to the trunk and branches should be positioned above and below cavities;
- Sections which support cavities should be carefully lowered to the ground using ropes;
- Sections which contain cavities should be left undisturbed on site for 24 hours, allowing any animals, including bats, time to vacate the cavity;
- If a bat is found and is injured the advice of an ecologist should be sought; and
- If a roost is discovered and no bats are harmed, no further works should be undertaken and the advice of an ecologist sought.

R4 & R6: Foraging and commuting bats

5.2.5 Negative impacts on foraging and commuting bats and other nocturnal species should be prevented, during both construction and operation of the proposed development, by avoiding light spill falling onto retained woodland and hedgerow habitats. The lighting design strategy should refer to guidance from the Institute of Lighting Professionals (ILP) on bats and artificial lighting, and take account of the following recommended specifications (ILP / BCT, 2018):

- All luminaires should lack UV elements when manufactured. Metal halide, 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 <2700Kelvin) should be adopted to reduce blue light component.
- Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).
- Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill.
- The use of specialist bollard or low-level downward directional luminaires to retain darkness above should be considered. However, this often comes at a cost of unacceptable glare, poor illumination efficiency, a high upward light component and poor facial recognition, and their use should only be as directed by the lighting professional.
- Column heights should be carefully considered to minimise light spill.

- Only luminaires with an upward light ratio of 0% and with good optical control should be used (refer to ILP guidance for the reduction of obtrusive light).
- Luminaires should always be mounted on the horizontal, i.e. no upward tilt.
- Any external security lighting should be set on motion-sensors and short (1min) timers.
- As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed.

5.2.6 The proposed severance of H3 is considered to have a negligible impact on foraging and commuting bats. The value of the site for bats will be increased by the enhancement of retained hedgerows and the creation of new hedgerow along the southern boundary, and the creation of two ponds within the eastern extent of site (UEEC, 2022). New botanical species planting at the site should aim to encourage a diverse range of invertebrate food sources and increased bat roost potential. The table at Appendix X lists suggested species of plants that can provide benefit for bats either by providing a food source for insects on which bats feed, or providing additional roosting opportunities (Gunnell et al., 2012). The plant species are predominantly native to Britain, but not all species will be suitable in all situations.

5.3 Other Protected Species Surveys and Ecological Protection Measures

5.3.1 The protected species surveys and protection measures recommended in sections 5.2 and 5.3 of the PEA (UEEC, 2022) including R3 in relation to tree roosting bats (T1-T5); and R7 to R17, continue to apply and will be carried out as part of the proposed scheme.

5.4 Ecological Enhancement

5.4.1 The measures recommended in section 5.5 of the PEA (UEEC, 2022) will be implemented to deliver ecological enhancements for a range of wildlife following construction.

6 Conclusions

6.1 Summary

6.1.1 Protected species surveys for great crested newt, badger, roosting / foraging / commuting bats, hazel dormouse and reptiles were undertaken at the site of a proposed residential development at Ashgrove Road, Sevenoaks, Kent. The study was undertaken to identify and evaluate the potential impacts of development on protected species, and make recommendations accordingly.

6.2 Results

6.2.1 None of the three ponds identified within 250m of the survey area boundary were subject to eDNA sampling for great crested newt. Pond P1 (on site) was dry during the 2022 breeding season and could not be sampled. Access to ponds P2 and P3 was denied by the landowner and sampling of these ponds could not be carried out.

6.2.2 Three suspected badger setts (S1-S3) were on or adjacent to the survey area during the initial site investigation. Subsequent camera trap monitoring of the on-site suspected setts (S1 and S2) was carried out. Over the monitored period of 35 nights, there were no observations of badger entering and exiting holes at S1 and footage revealed the holes formed part of an active fox den. Observations of badger entering and exiting holes, along with other behaviours, were recorded on 20 nights at camera location S2.1 and on 29 nights S2.2.

6.2.3 Species diversity recorded during the bat activity surveys completed to date included at least eight species. This shows that the majority (96.31%) of all bat calls recorded were from *Pipistrellus spp.* bats, with common pipistrelle registering 135.41 BPPH, soprano pipistrelle registering 4.62 BPPH and Nathusius' pipistrelle registering 0.08 BPPH. Of the remaining bat passes, those of *Nyctalus* spp. (1.42% or 2.02 BPPH) were the next most frequently recorded, followed *Myotis spp.* (1.04% or 1.34 BPPH), serotine (0.78% or 1.07 BPPH) and finally *Plecotus* spp. (0.45% or 0.52 BPPH). These results are consistent with those recorded during the transect surveys.

6.2.4 The nest tube survey recorded no observations of hazel dormouse, or signs of their presence such as nests or droppings, during the surveys completed in 2022.

6.2.5 The VES and ARS recorded no observations of reptiles, or signs of their presence such as skin sloughs, eggs or egg cases, during the course of the survey period.

6.3 Evaluation

6.3.1 Overall, habitats within the survey area provide a range of features which could support a population of great crested newt during the terrestrial phase of their lifecycle. Due to the lack of

survey data obtainable from nearby ponds (P2 and P3), the risk of this species using the suitable terrestrial habitat within the developable area (grassland, woodland, hedgerows and scrub) cannot be ruled out. Accordingly, the survey area is considered unlikely to be more than of Local Importance for great crested newt. In the absence of mitigation, the proposed development is likely to result in destruction of great crested newt habitat or present a risk of killing, injury or disturbance for individuals if present during the works, which would constitute an offence under the WCA and the CHS.

6.3.2 One main sett (S2) and an outlier sett (S3) were identified on or adjacent to the site during monitoring in 2022. Badger is a legally protected species but is not of conservation significance, being common and widespread in the UK. As such, the survey area is considered to be of no more than Negligible Importance for its badger population. S3 which is located beyond the south-western boundary is well beyond the 30m buffer normally considered sufficient to avoid impacts relating to badgers within their setts. However, proposals for the site include encroachment into the buffer of S2, to create vehicular access. Despite the avoidance of direct impacts on badger setts, a pre-works survey should be undertaken and measures to avoid harming badger during the construction phase are recommended.

6.3.3 Due to the high proportion of common and widespread bat species and relatively low levels of activity recorded, given the perceived suitability of habitats on site, the survey area is considered to be of Negligible Importance for its bat population. The proposed development will result in a permanent loss of c.2.18ha of grazed pasture, as well as small losses of scrub and standing water. A narrow section of hedgerow H3 will also be lost for access. This will be replaced with 50 new dwellings, together with access, landscaping and other associated infrastructure. The woodland block in the south-east of site will be retained, albeit a temporary loss will occur to create informal pedestrian access. This loss is considered unlikely to result in a significant negative effect on the local abundance and distribution of the bat species recorded on site, as the majority of bat contacts were encountered along the site boundaries and activity was generally low across the site.

6.3.4 The impact of light on foraging and commuting bats is classified as low for serotine and individuals of the genera *Nyctalus* and *Pipistrellus* – which comprises 98.51% of all bats recorded during passive monitoring at the site. These species are unlikely to be significantly affected by proposals for the site. Light intolerant species recorded at the site, including individuals of the genera *Myotis* and *Plecotus*, together comprised 1.49% of activity recorded during passive monitoring. Use of the site by these species may be reduced by the proposals, but it is likely that the development can be accommodated without adverse effects on the conservation status of local bat populations within their natural range. These species are often associated with woodland habitats. The woodland habitat on site will be retained, albeit with small temporary losses, as part of proposals.

6.3.5 There were no observations of hazel dormouse, or signs of their presence such as nests, gnawed hazelnuts or droppings, during the course of the 2022 survey period. The survey findings provide a good level of confidence that hazel dormouse is likely to be absent from the site. The survey area is considered to be of Negligible Importance for its hazel dormouse population.

6.3.6 The survey area is considered to be of Negligible Importance for its reptile population. Reptiles are not considered to present a constraint to the development proposals and no further recommendations for these species are required.

6.4 Recommendations

6.4.1 Recommendations are made below for avoidance and / or mitigation of impacts to protected species to prevent an offence under the relevant legislation from occurring, and to reduce the risk of development proposals resulting in significant effects on the population and distribution of species recorded during the surveys; these are summarised in Table 6.1. The recommendations should be read alongside those contained in the PEA (UEEC, 2022) which continue to apply, including those for ecological enhancement.

Table 6.1: Summary of recommendations

#	Summary of recommendations
Avoidance and mitigation measures	
R1	Due to the lack of survey data obtained for ponds within 250m of the site boundary during the 2022 season, it is recommended that the proposed development joins the District Level Licensing scheme for Kent.
R2	Establish sett protection zones around badger setts S2 and S3 to avoid destruction / damage / obstruction of the sett or disturbance to badgers while occupying the sett.
R3	Works to fell low suitability trees (T6 & T7) within the woodland will be undertaken in accordance with a Non-licenced Method Statement to reduce the risk of killing / injury to roosting bats.
R4	Negative impacts on foraging and commuting bats and other nocturnal species will be avoided, during both construction and operation of the proposed development, by preparing a lighting strategy to avoid light spill falling onto retained and newly created woodland, ponds and hedgerows.
R5	Retained and created hedgerows will be enhanced through additional planting, particularly along the northern and eastern boundaries. Planting will comprise a species assemblage that benefits bats by providing additional food sources or roosting opportunities.
R6	Where fox dens are to be damaged or destroyed as part of the proposed works, this will be undertaken in accordance with the Mammals Act 1996 by a registered pest control company.

6.5 Conclusion

6.5.1 The proposed development will result in negative impacts of minor significance to great crested newt, roosting bats, and foraging/commuting bats in the absence of mitigation. Avoidance and mitigation measures are recommended to prevent an offence under the relevant legislation from occurring, and to avoid/reduce the risk of development proposals resulting in significant effects on the populations of species recorded. These measures are securable by condition on a planning permission.

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Appendix I: Phase 1 Habitats Plan

Ashgrove Road, Sevenoaks, Kent

- Site boundary
- Broadleaved woodland - semi-natural
- Scrub - dense/continuous
- SI Neutral grassland - semi-improved
- Standing water
- Badger sett buffer (30m)
- Species-poor hedge
- Native species-rich hedge with trees
- Species-poor hedge with trees
- Pond
- Scattered scrub
- Tree with bat roost suitability
- Badger sett
- Fox den
- Target note

0 40 80 Meters

N

Scale: 1:1,500 **Created by:** MT
Date: Jul 2022 **Reviewed by:** NP
Drawing number:
UE0441ECO-Phase1_220722

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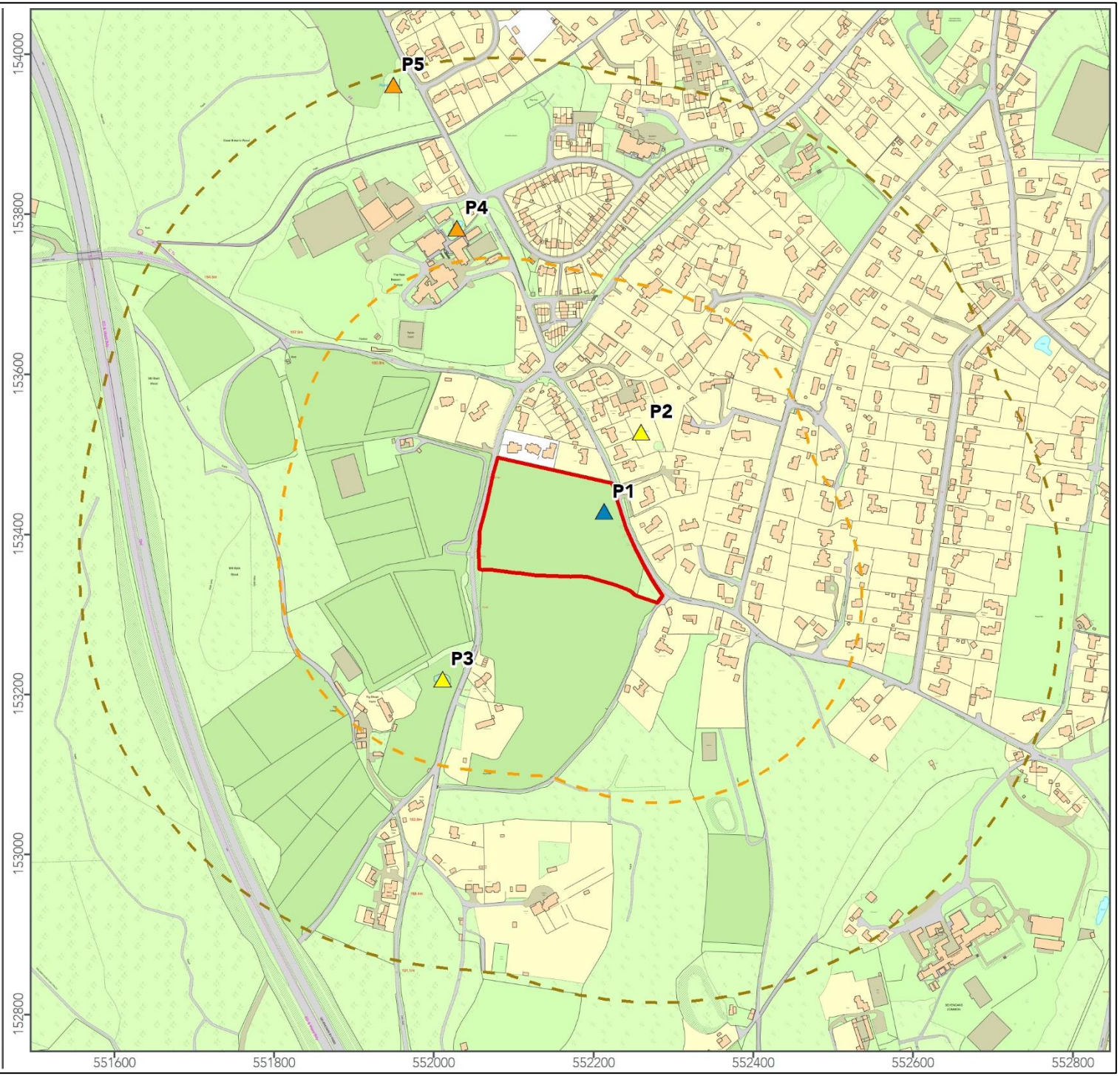
Appendix II: Pond Plan

Ashgrove Road, Sevenoaks, Kent

- Survey area
- 250m buffer from site
- 500m buffer from site
- Pond: dry
- Pond: no access
- Pond: scoped out



0 200 400 Meters

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Scale: 1:7,000 **Created by:** MT
Date: Jul 2022 **Reviewed by:** NP
Drawing number:
UE0441ECO-Ponds220721

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Appendix III: Badger Survey Results

Camera trap monitoring results for badger (only observations of badger are included in the table)

Date	Time	Activity
S1: 21/04/2022 to 27/05/2022		
05/05/2022	22:19	Foraging
S2.1: 21/04/2022 to 27/05/2022		
22/04/2022	20:38	Unknown activity
24/04/2022	02:08	Unknown activity
26/04/2022	02:20	Foraging
26/04/2022	04:39	Foraging
27/04/2022	00:03	Looking in hole
27/04/2022	00:21	Near hole
27/04/2022	03:02	Looking in hole
27/04/2022	03:12	Exiting hole
27/04/2022	03:13	Looking in hole
27/04/2022	20:40	Looking in hole
27/04/2022	21:00	Near hole
27/04/2022	21:04	Looking in hole
27/04/2022	21:11	Entering hole
27/04/2022	21:16	Entering hole
28/04/2022	03:44	Near hole
28/04/2022	03:46	Entering hole
28/04/2022	20:27	Looking in hole
28/04/2022	20:38	Near hole
28/04/2022	20:53	Near hole
29/04/2022	02:15	Near hole
29/04/2022	02:47	Near hole
29/04/2022	02:49	Looking in hole
29/04/2022	02:53	Entering hole
29/04/2022	20:31	Commuting
29/04/2022	20:53	Looking in hole
30/04/2022	01:10	Looking in hole

Date	Time	Activity
30/04/2022	01:11	Near hole
01/05/2022	03:42	Passing
01/05/2022	21:35	Passing
02/05/2022	02:06	Passing
03/05/2022	04:01	Sniffing
03/05/2022	19:23	Passing
03/05/2022	19:27	Passing
03/05/2022	19:27	Multiple seen
03/05/2022	19:30	Passing
03/05/2022	20:02	Passing
03/05/2022	20:05	Passing
03/05/2022	21:35	Passing
04/05/2022	03:59	Passing
04/05/2022	04:11	Passing
05/05/2022	01:50	Unknown activity
05/05/2022	20:08	Foraging
06/05/2022	02:12	Unknown activity
06/05/2022	23:01	Unknown activity
08/05/2022	06:14	Commuting
09/05/2022	06:49	Foraging
S2.2: 21/04/2022 to 27/05/2022		
24/04/2022	23:57	Entering hole
24/04/2022	23:59	Entering hole (looks like a second badger)
25/04/2022	03:51	Entering hole
25/04/2022	04:19	At entrance to hole
25/04/2022	04:59	Entering hole
25/04/2022	05:24	Enters and exits hole
25/04/2022	05:27	Digging. Exits hole in reverse and re-enters
25/04/2022	23:09	Exiting hole
25/04/2022	23:33	At entrance to hole
26/04/2022	02:19	Exiting hole
26/04/2022	02:41	Entering hole
26/04/2022	04:38	Entering hole
26/04/2022	04:40	Entering hole

Date	Time	Activity
26/04/2022	05:56	Exiting hole
26/04/2022	20:45	Two enter hole
26/04/2022	21:01	Enters and exits hole
26/04/2022	21:08	Exits hole
26/04/2022	21:12	Exits hole
26/04/2022	21:13	Enters hole
26/04/2022	21:21	Near camera (picking up bedding)
26/04/2022	21:26	Exiting hole
26/04/2022	21:27	Moving near hole
26/04/2022	21:29	Exiting hole
26/04/2022	21:38	Foraging near hole
26/04/2022	21:41	Entering hole
26/04/2022	23:52	Exiting hole
26/04/2022	03:03	taking bedding into hole
26/04/2022	03:12	Entering hole
26/04/2022	03:32	Entering hole
27/04/2022	21:00	At entrance to hole
27/04/2022	21:04	Entering hole
27/04/2022	21:05	Exiting hole
27/04/2022	21:08	Exiting hole
27/04/2022	21:26	Entering hole
27/04/2022	01:12	Exiting hole
28/04/2022	03:22	Unknown activity
28/04/2022	03:49	Unknown activity
28/04/2022	04:41	Unknown activity
28/04/2022	04:51	Unknown activity
28/04/2022	20:38	Exiting hole
28/04/2022	20:40	Entering hole
28/04/2022	20:43	Unknown activity
28/04/2022	20:48	Leaving hole
29/04/2022	00:05	Entering hole
29/04/2022	02:15	Passing
29/04/2022	02:54	Unknown activity
29/04/2022	04:53	Digging around hole

Date	Time	Activity
29/04/2022	20:23	Exiting hole
29/04/2022	20:24	Around hole
29/04/2022	20:31	Around hole
29/04/2022	20:54	Foraging behaviour
29/04/2022	21:12	Exiting hole
30/04/2022	00:51	Passing
30/04/2022	01:19	Sniffing around hole
30/04/2022	01:26	Unknown activity
30/04/2022	02:40	Passing
30/04/2022	03:54	Unknown activity
30/04/2022	04:11	Unknown activity
30/04/2022	05:43	Sniffing around hole
30/04/2022	20:22	Exiting hole
30/04/2022	20:55	Unknown activity
30/04/2022	21:43	Passing
30/04/2022	22:14	Unknown activity
01/05/2022	03:08	Leaving hole
01/05/2022	03:31	Unknown activity
01/05/2022	03:44	Unknown activity
01/05/2022	03:48	Unknown activity
01/05/2022	03:50	Sniffing around hole
01/05/2022	05:24	Activity around hole
01/05/2022	19:52	Exiting hole, multiple seen
01/05/2022	19:55	Entering hole
01/05/2022	21:34	Unknown activity
01/05/2022	21:46	Entering hole
02/05/2022	02:06	Entering hole
02/05/2022	02:25	Unknown activity
02/05/2022	03:11	Unknown activity
02/05/2022	03:17	Activity around hole
02/05/2022	03:18	Activity around hole
02/05/2022	03:25	Activity around hole
02/05/2022	04:35	Activity around hole
02/05/2022	11:05	Daylight exiting hole

Date	Time	Activity
02/05/2022	11:06	Daylight entering hole
02/05/2022	20:21	Activity around hole
02/05/2022	23:33	Activity around hole
02/05/2022	23:41	Activity around hole
02/05/2022	23:47	Activity around hole
02/05/2022	23:47	Activity around hole
03/05/2022	00:00	Unknown activity
03/05/2022	00:32	Unknown activity
03/05/2022	00:59	Activity around hole
03/05/2022	01:39	Unknown activity
03/05/2022	01:41	Activity around hole
03/05/2022	04:00	Exiting hole
03/05/2022	04:45	Multiple badgers entering hole
03/05/2022	04:47	Activity around hole
03/05/2022	05:07	Entering hole
03/05/2022	05:12	Activity around hole
03/05/2022	05:16	Activity around hole
03/05/2022	05:21	Entering hole
03/05/2022	05:24	Entering hole
03/05/2022	05:57	Daylight activity around hole
03/05/2022	06:01	Daylight view of exiting badger
03/05/2022	19:23	Daylight view of exiting badger
03/05/2022	19:27	Multiple badgers entering hole
03/05/2022	19:28	Exiting hole
03/05/2022	19:32	Multiple exiting hole
03/05/2022	19:59	Activity around hole
03/05/2022	20:01	Multiple badgers around hole
03/05/2022	20:02	Multiple badgers around hole
03/05/2022	20:43	Unknown activity
03/05/2022	20:44	Unknown activity
03/05/2022	21:00	Passing
03/05/2022	21:24	Passing
03/05/2022	21:32	Activity around hole
03/05/2022	21:42	Activity around hole

Date	Time	Activity
03/05/2022	22:48	Unknown activity
04/05/2022	00:32	Exiting hole
04/05/2022	04:06	Activity around hole
04/05/2022	04:09	Activity around hole
04/05/2022	04:17	Unknown activity
04/05/2022	04:23	Unknown activity
04/05/2022	04:26	Activity around hole
04/05/2022	20:25	Activity around hole
04/05/2022	20:31	Activity around hole
04/05/2022	21:13	Unknown activity
05/05/2022	00:27	Multiple badgers around hole
05/05/2022	03:07	Activity around hole
05/05/2022	04:12	Exiting hole
05/05/2022	04:54	Activity around hole
05/05/2022	19:41	Exiting hole
05/05/2022	19:42	Multiple badgers around hole
05/05/2022	19:43	Social behaviour around hole
05/05/2022	18:44	Foraging around hole
05/05/2022	20:31	Activity around hole
05/05/2022	20:59	Unknown activity
05/05/2022	21:02	Multiple badgers around hole
05/05/2022	21:04	Activity around hole
05/05/2022	21:20	Unknown activity
05/05/2022	21:56	Activity around hole
06/05/2022	00:04	Activity around hole
06/05/2022	00:08	Activity around hole
06/05/2022	00:11	Activity around hole
06/05/2022	00:17	Activity around hole
06/05/2022	02:01	Multiple badgers around hole
06/05/2022	02:12	Activity around hole
06/05/2022	04:32	Passing
06/05/2022	19:37	Exiting hole
06/05/2022	19:39	Multiple badgers around hole
06/05/2022	20:08	Activity around hole

Date	Time	Activity
06/05/2022	20:10	Multiple badgers around hole
06/05/2022	20:24	Leaving hole
06/05/2022	20:58	Entering hole
06/05/2022	21:08	Unknown activity
06/05/2022	21:10	Activity around hole
06/05/2022	22:29	Passing
06/05/2022	22:30	Unknown activity
06/05/2022	22:38	Unknown activity
06/05/2022	22:47	Entering hole
06/05/2022	23:03	Foraging behaviour
07/05/2022	00:17	Activity around hole
07/05/2022	00:19	Entering hole
07/05/2022	03:41	Activity around hole
07/05/2022	03:50	Activity around hole
07/05/2022	05:17	Activity around hole
07/05/2022	19:57	Exiting hole
07/05/2022	19:57	Multiple leaving hole
07/05/2022	21:11	Unknown activity
07/05/2022	21:19	Unknown activity
08/05/2022	03:05	Unknown activity
08/05/2022	03:24	Unknown activity
08/05/2022	03:56	Activity around hole
08/05/2022	04:54	Activity around hole
08/05/2022	06:13	Multiple around hole
08/05/2022	06:14	Multiple around hole
08/05/2022	06:31	Multiple around hole
08/05/2022	19:49	Leaving hole
08/05/2022	20:01	activity around hole
08/05/2022	20:04	Multiple around hole
08/05/2022	20:35	Unknown activity
08/05/2022	21:05	Unknown activity
09/05/2022	01:20	Activity around hole
09/05/2022	01:46	Activity around hole
09/05/2022	01:49	Activity around hole

Date	Time	Activity
09/05/2022	06:47	Leaving hole
09/05/2022	06:49	Multiple returning to hole
06/05/2022	20:08	Activity around hole
06/05/2022	20:10	Multiple badgers around hole
06/05/2022	20:24	Leaving hole
06/05/2022	20:58	Entering hole
06/05/2022	21:08	Unknown activity
06/05/2022	21:10	Activity around hole
06/05/2022	22:29	Passing
06/05/2022	22:30	Unknown activity
06/05/2022	22:38	Unknown activity
06/05/2022	22:47	Entering hole
06/05/2022	23:03	Foraging behaviour
07/05/2022	00:17	Activity around hole
07/05/2022	00:19	Entering hole
07/05/2022	03:41	Activity around hole
07/05/2022	03:50	Activity around hole
07/05/2022	05:17	Activity around hole
07/05/2022	19:57	Exiting hole
07/05/2022	19:57	Multiple leaving hole
07/05/2022	21:11	Unknown activity
07/05/2022	21:19	Unknown activity
08/05/2022	03:05	Unknown activity
08/05/2022	03:24	Unknown activity
08/05/2022	03:56	Activity around hole
08/05/2022	04:54	Activity around hole
08/05/2022	06:13	Multiple around hole
08/05/2022	06:14	Multiple around hole
08/05/2022	06:31	Multiple around hole
08/05/2022	19:49	Leaving hole
08/05/2022	20:01	Activity around hole
08/05/2022	20:04	Multiple around hole
08/05/2022	20:35	Unknown activity
08/05/2022	21:05	Unknown activity

Date	Time	Activity
09/05/2022	01:20	Activity around hole
09/05/2022	01:46	Activity around hole
09/05/2022	01:49	Activity around hole
09/05/2022	06:47	Leaving hole
09/05/2022	06:49	Multiple returning to hole
09/05/2022	20:19	Activity around hole
09/05/2022	20:34	Multiple badgers around hole
09/05/2022	20:37	Activity around hole
09/05/2022	20:42	Activity around hole
09/05/2022	20:45	Activity around hole
09/05/2022	20:49	Activity around hole
09/05/2022	22:41	Activity around hole
09/05/2022	23:16	Activity around hole
09/05/2022	23:22	Activity around hole
10/05/2022	00:52	Unknown activity
10/05/2022	02:07	Unknown activity
10/05/2022	06:24	Returning to hole
10/05/2022	05:46	Multiple leaving hole
12/05/2022	02:53	Returning to hole
12/05/2022	04:09	Activity around hole
13/05/2022	03:42	Unknown activity
13/05/2022	04:48	Unknown activity
13/05/2022	21:13	Multiple around hole
16/05/2022	20:55	Unknown activity
17/05/2022	23:48	Unknown activity
18/05/2022	03:02	Unknown activity
18/05/2022	05:04	Passing
18/05/2022	21:11	Unknown activity
19/05/2022	04:10	Activity around hole
21/05/2022	00:06	Unknown activity

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Appendix IV: Bat Activity Transect Route and Remote Detector Locations

Ashgrove Road, Sevenoaks, Kent

Site boundary

Transect route

Transect point

Bat detector

0 40 80

Meters

N

Scale: 1:1,500 **Created by:** MT

Date: Dec 2022 **Reviewed by:** NP

Drawing number:

UE0441ECO-BatActivityMap_221208

URBAN EDGE ENVIRONMENTAL CONSULTING

Tel: 01273 686 766
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Web: www.ueec.co.uk

Appendix V: Bat Activity Survey Results

Abbreviations:

EPSE	Serotine	NYsp	Nyctalus species	PIPI	Common pipistrelle
PIPY	Soprano pipistrelle				

Survey 1: Dusk, 21/04/2022			
Sunset/sunrise: 20:05	**Start time:** 20:05	**End time:** 22:05	**Precipitation:** None
Air temp start: 11°C	**Air temp end:** 9°C	**Wind:** 3-0	**Cloud cover:** 0%
Equipment: Elekon Batlogger M2 full spectrum detector			
Transect Point (TP)	**From**	**Time**	**Length (mins)**
1	20:05	20:10	5
1-2	20:10	20:17	7
2	20:17	20:22	5
2-3	20:22	20:27	5
3	20:27	20:32	5
3-4	20:32	20:37	5
4	20:37	20:42	5
4-5	20:42	20:45	3
5	20:45	20:50	5
5-6	20:50	20:57	7
6	20:57	21:02	5
6-7	21:02	21:08	6
7	21:08	21:13	5
7-8	21:13	21:18	5
8	21:18	21:23	5
8-9	21:23	21:25	2
9	21:25	21:30	5
9-10	21:30	21:32	2
10	21:32	21:37	5

10-11	21:37	21:38	1
11	21:38	21:43	5
11-12	21:43	21:44	1
12	21:44	21:49	5
12-13	21:49	21:53	2
13	21:53	21:58	5
13-14	21:58	22:00	2
14	22:00	22:05	5

TP: Transect point Time: of recording and/or time at transect point No.(I): Number of bats
No.(P): Number of passes E/R: emergence/re-entry F/C: Foraging/commuting Soc.: Social calls
S/NS/SNH: Seen / not seen / seen not heard Comment: e.g. location of roost, direction of flight, behaviour, frequency, call shape

Surveyor (TL): Start at transect point TP1 (Clockwise)									
TP	**Time**	**Spp.**	**No.(I)**	**No.(P)**	**E/R**	**F/C**	**Soc.**	**S/NS**	**Comment**
NO BATS									

Survey 2: Dusk, 11/05/2022			
Sunset/sunrise: 20:38	**Start time:** 20:38	**End time:** 22:38	**Precipitation:** Rain prior to survey
Air temp start: 12°C	**Air temp end:** 11°C	**Wind:** 3-0	**Cloud cover:** 0%
Equipment: Elekon Batlogger M2 full spectrum detector			
Transect Point (TP)	**From**	**Time**	**Length (mins)**
14	20:38	20:43	5
14-13	20:43	20:48	5
13	20:48	20:53	5
13-12	20:53	20:57	4
12	20:57	21:02	5
12-11	21:02	21:05	3
11	21:05	21:10	5
11-10	21:10	21:12	2
10	21:12	21:17	5
10-9	21:17	21:24	7
9	21:24	21:29	5
9-8	21:29	21:33	4
8	21:33	21:38	5
8-7	21:38	21:43	5

7	21:43	21:48	5
7-6	21:48	21:53	5
6	21:53	21:58	5
6-5	21:58	22:02	4
5	22:02	22:07	5
5-4	22:07	22:08	1
4	22:08	22:13	5
4-3	22:13	22:15	2
3	22:15	22:20	5
3-2	22:20	22:24	4
2	22:24	22:29	5
2-1	22:29	22:33	4
1	22:33	22:38	5

TP: Transect point Time: of recording and/or time at transect point No.(I): Number of bats
No.(P): Number of passes E/R: emergence/re-entry F/C: Foraging/commuting Soc.: Social calls
S/NS/SNH: Seen / not seen / seen not heard Comment: e.g. location of roost, direction of flight, behaviour, frequency, call shape

Surveyor (TL): Start at transect point TP14 (Anti-clockwise)									
TP	**Time**	**Spp.**	**No.(I)**	**No.(P)**	**E/R**	**F/C**	**Soc.**	**S/NS**	**Comment**
10-9	21:20	PIPI	1	1		C		S	Flying along hedge
9	21:25	PIPI	1	2		C		NS	
7	21:45	PIPY	1	1		C		NS	
	21:46	PIPI	1	1		C		NS	
6-5	22:00	PIPI	1	5		F		NS	
5	22:03	PIPI	1	1		C		NS	
5-4	22:07	PIPY	1	1		C		NS	
1	22:33	PIPY	2	4		F		NS	
	22:33	PIPI	2	Cont.				NS	Continuous until end of TP
	22:33	EPSE	1	1				NS	

Survey 3: Dusk, 13/06/2022			
Sunset/sunrise: 21:16	**Start time:** 21:16	**End time:** 23:16	**Precipitation:** None
Air temp start: 16°C	**Air temp end:** 14°C	**Wind:** 0-1	**Cloud cover:** 20-5%
Equipment: Elekon Batlogger M2 full spectrum detector			

Transect Point (TP)	From	Time	Length (mins)
8	21:16	21:21	5
8-9	21:21	21:23	2
9	21:23	21:28	5
9-10	21:28	21:32	4
10	21:32	21:37	5
10-11	21:37	21:40	3
11	21:40	21:45	5
11-12	21:45	21:50	5
12	21:50	21:55	5
12-13	21:55	22:00	5
13	22:00	22:05	5
13-14	22:05	22:10	5
14	22:10	22:15	5
14-1	22:15	22:23	8
1	22:23	22:28	5
1-2	22:28	22:34	6
2	22:34	22:39	5
2-3	22:39	22:42	3
3	22:42	22:47	5
3-4	22:47	22:49	2
4	22:49	22:54	5
4-5	22:54	22:56	2
5	22:56	23:01	5
5-6	23:01	23:04	3
6	23:04	23:09	5
6-7	23:09	23:11	2
7	23:11	23:16	5

TP: Transect point Time: of recording and/or time at transect point No.(I): Number of bats
No.(P): Number of passes E/R: emergence/re-entry F/C: Foraging/commuting Soc.: Social calls
S/NS/SNH: Seen / not seen / seen not heard Comment: e.g. location of roost, direction of flight, behaviour, frequency, call shape

Surveyor (TL): Start at transect point TP8 (Clockwise)

TP	Time	Spp.	No.(I)	No.(P)	E/R	F/C	Soc.	S/NS	Comment
11-12	21:45	NYsp	1	1		C		S	Flying along hedge
12-13	21:57	PIPI	1	1		C		NS	
13-14	22:06	PIPI	1	1		C		NS	

Survey 4: Dusk, 12/07/2022			
Sunset/sunrise: 21:12	**Start time:** 21:12	**End time:** 23:12	**Precipitation:** Very light intermittent rain towards end of survey
Air temp start: 16°C	**Air temp end:** 14°C	**Wind:** 0-1	**Cloud cover:** 20-5%
Equipment: Elekon Batlogger M2 full spectrum detector			
Transect Point (TP)	**From**	**Time**	**Length (mins)**
13	21:12	21:17	5
13-14	21:17	21:22	5
14	21:22	21:27	5
14-1	21:27	21:36	9
1	21:36	21:41	5
1-2	21:41	21:46	5
2	21:46	21:51	5
2-3	21:51	21:56	5
3	21:56	22:01	5
3-4	22:01	22:06	5
4	22:06	22:11	5
4-5	22:11	22:14	3
5	22:14	22:19	5
5-6	22:19	22:22	3
6	22:22	22:27	5
6-7	22:27	22:31	4
7	22:31	22:36	5
7-8	22:36	22:40	4
8	22:40	22:45	5
8-9	22:45	22:47	2
9	22:47	22:52	5
9-10	22:52	22:55	3
10	22:55	23:00	5
10-11	23:00	23:01	1
11	23:01	23:06	5
11-12	23:06	23:07	1
12	23:07	23:12	5

TP: Transect point Time: of recording and/or time at transect point No.(I): Number of bats
No.(P): Number of passes E/R: emergence/re-entry F/C: Foraging/commuting Soc.: Social calls
S/NS/SNH: Seen / not seen / seen not heard Comment: e.g. location of roost, direction of flight, behaviour, frequency, call shape

Surveyor (TL): Start at transect point TP13 (Clockwise)									
TP	**Time**	**Spp.**	**No.(I)**	**No.(P)**	**E/R**	**F/C**	**Soc.**	**S/NS**	**Comment**
2-3	21:53	PIPI	1	1		C		NS	
3	21:56	PIPI	1	1		C		NS	
3-4	22:02	PIPI	1	3		C		NS	
	22:05	PIPY	1	1		C		NS	
4	22:07	PIPI	1	1		C		NS	
6	22:25	PIPI	1	1		C		NS	
10	22:59	NYsp	1	1		C		NS	

Survey 5: Dusk, 08/08/2022			
Sunset/sunrise: 20:34	**Start time:** 20:34	**End time:** 22:40	**Precipitation:** None
Air temp start: 20°C	**Air temp end:** 17°C	**Wind:** 2	**Cloud cover:** 0%
Equipment: Echo Meter Touch 2 Pro full spectrum detector			
Transect Point (TP)	**From**	**Time**	**Length (mins)**
4	20:34	20:41	7
4-9	20:41	20:42	1
9	20:42	20.49	7
9-8	20:49	20:50	1
8	20:50	20:57	7
8-3	20:57	20:58	1
3	20:58	21:05	7
3-7	21:05	21:06	1
7	21:06	21:13	7
7-13	21:13	21:15	2
13	21:15	21:22	7
13-2	21:22	21:23	1
2	21:23	21:30	7
2-6	21:30	21:33	3
6	21:33	21:40	7
6-1	21:40	21:43	3

1	21:43	21:50	7
1-10	21:50	21:51	1
10	21:51	21:58	7
10-5	21:58	21:59	1
5	21:59	22:06	7
5-4	22:06	22:07	1
4	22:07	22:14	7
4-9	22:14	22:15	1
9	22:15	22:22	7
9-8	22:22	22:23	1
8	22:23	22:30	7
8-3	22:30	22:33	3
3	22:33	22:40	7

TP: Transect point Time: of recording and/or time at transect point No.(I): Number of bats
No.(P): Number of passes E/R: emergence/re-entry F/C: Foraging/commuting Soc.: Social calls
S/NS/SNH: Seen / not seen / seen not heard Comment: e.g. location of roost, direction of flight, behaviour, frequency, call shape

Surveyor (HG & RE): Start at transect point TP4 (Clockwise)

TP	Time	Spp.	No.(I)	No.(P)	E/R	F/C	Soc.	S/NS	Comment
13	21:17	PIPI	1	1		C		S	Flew along hedge
	21:19	PIPY	1	1		C		NS	
	21:22	PIPI	1	1		C		NS	
13-2	21:23	PIPI	1	1		C		NS	Faint
6	21:37	PIPI	1	1		C		NS	
1	21:46	PIPI	1	1		C		NS	
4	22:11	PIPI	1	1		C		NS	Faint
	22:14	PIPI	1	1		C		NS	Faint
9	22:22	PIPI	1	1		C		NS	
3	22:36	PLsp	1	1		C		NS	
	22:37	PIPI	1	1		C		NS	

Survey 6: Dusk, 20/09/2022			
Sunset/sunrise: 19:02	**Start time:** 19:02	**End time:** 21:02	**Precipitation:** None
Air temp start: 17°C	**Air temp end:** 16°C	**Wind:** 0	**Cloud cover:** 80-85%
Equipment: Elekon Batlogger M2 full spectrum detector			

Transect Point (TP)	From	Time	Length (mins)
11	19:02	19:07	5
11-12	19:07	19:11	4
12	19:11	19:16	5
12-13	19:16	19:20	4
13	19:20	19:25	5
13-14	19:25	19:30	5
14	19:30	19:35	5
14-1	19:35	19:44	9
1	19:44	19:49	5
1-2	19:49	19:56	7
2	19:56	20:01	5
2-3	20:01	20:06	5
3	20:06	20:11	5
3-4	20:11	20:15	4
4	20:15	20:20	5
4-5	20:20	20:22	2
5	20:22	20:27	5
5-6	20:27	20:29	2
6	20:29	20:34	5
6-7	20:34	20:37	3
7	20:37	20:42	5
7-8	20:42	20:44	2
8	20:44	20:49	5
8-9	20:49	20:50	1
9	20:50	20:55	5
9-10	20:55	20:57	2
10	20:57	21:02	5

TP: Transect point Time: of recording and/or time at transect point No.(I): Number of bats
No.(P): Number of passes E/R: emergence/re-entry F/C: Foraging/commuting Soc.: Social calls
S/NS/SNH: Seen / not seen / seen not heard Comment: e.g. location of roost, direction of flight, behaviour, frequency, call shape

Surveyor (TL): Start at transect point TP11 (Clockwise)

TP	Time	Spp.	No.(I)	No.(P)	E/R	F/C	Soc.	S/NS	Comment
11	19:03	PIPI	1	1		C		S	Flew west along southern hedge
13	19:22	PIPI	1	3		C		S	Along hedge / woodland edge

Surveyor (TL): Start at transect point TP11 (Clockwise)									
TP	**Time**	**Spp.**	**No.(I)**	**No.(P)**	**E/R**	**F/C**	**Soc.**	**S/NS**	**Comment**
	19:24	PIPI	1	2		F		S	Along hedge / woodland edge
14-1	19:39	PIPI	1	1		C		NS	
1-2	19:54	PIPI	1	1		C		NS	
2	19:58	PLsp	1	1		C		NS	
3-4	20:14	PIPI	1	1		C		NS	
8	20:48	Bat	1	2		?		NS	Echolocation heard by surveyor, but not detected
9-10	20:56	PIPI	1	1		C		NS	
10	21:00	PIPI	1	1		C		NS	

Survey 7: Dawn, 21/09/2022			
Sunset/sunrise: 06:44	**Start time:** 04:44	**End time:** 06:44	**Precipitation:** None
Air temp start: 12°C	**Air temp end:** 12°C	**Wind:** 0	**Cloud cover:** 95-60%
Equipment: Elekon Batlogger M2 full spectrum detector			
Transect Point (TP)	**From**	**Time**	**Length (mins)**
11	04:44	04:49	5
11-12	04:49	04:53	4
12	04:53	04:58	5
12-13	04:58	05:03	5
13	05:03	05:08	5
13-14	05:08	05:13	5
14	05:13	05:18	5
14-1	05:18	05:28	10
1	05:28	05:33	5
1-2	05:33	05:39	6
2	05:39	05:44	5
2-3	05:44	05:47	3
3	05:47	05:52	5
3-4	05:52	05:55	3
4	05:55	06:00	5

4-5	06:00	06:02	2
5	06:02	06:07	5
5-6	06:07	06:11	4
6	06:11	06:16	5
6-7	06:16	06:19	3
7	06:19	06:24	5
7-8	06:24	06:26	2
8	06:26	06:31	5
8-9	06:31	06:32	1
9	06:32	06:37	5
9-10	06:37	06:39	2
10	06:39	06:44	5

TP: Transect point Time: of recording and/or time at transect point No.(I): Number of bats
No.(P): Number of passes E/R: emergence/re-entry F/C: Foraging/commuting Soc.: Social calls
S/NS/SNH: Seen / not seen / seen not heard Comment: e.g. location of roost, direction of flight, behaviour, frequency, call shape

Surveyor (TL): Start at transect point TP11 (Clockwise)									
TP	**Time**	**Spp.**	**No.(I)**	**No.(P)**	**E/R**	**F/C**	**Soc.**	**S/NS**	**Comment**
14-1	05:26 - 05:33	PIPI	2+	Cont.	-	F	-	NS	Continued in to TP1
5-6	06:09	PIPY	1	3	-	F	-	S	Up & Down Hedge
	06:09	PIPI	1	2	-	C	-	NS	
6	06:12	PIPI	1	1	-	C	-	NS	

Survey 8: Dusk, 10/10/2022			
Sunset/sunrise: 18:18	**Start time:** 18:18	**End time:** 20:18	**Precipitation:** None
Air temp start: 11°C	**Air temp end:** 10°C	**Wind:** 2	**Cloud cover:** 0%
Equipment: Echo Meter Touch 2 Pro full spectrum detector			
Transect Point (TP)	**From**	**Time**	**Length (mins)**
7	18:18	18:23	5
7-8	18:23	18:25	2
8	18:25	18:30	5
8-9	18:30	18:31	1
9	18:31	18:36	5

9-10	18:36	18:39	3
10	18:39	18:44	5
10-11	18:44	18:46	2
11	18:46	18:51	5
11-12	18:51	18:55	4
12	18:55	19:00	5
12-13	19:00	19:02	2
13	19:02	19:07	5
13-14	19:07	19:10	3
14	19:10	19:15	5
14-1	19:15	19:21	6
1	19:21	19:26	5
1-2	19:26	19:31	5
2	19:31	19:37	5
2-3	19:37	19:40	3
3	19:40	19:45	5
3-4	19:45	19:49	4
4	19:49	19:54	5
4-5	19:54	19:57	3
5	19:57	20:02	5
5-6	20:02	20:06	4
6	20:06	20:11	5
6-13	20:11	20:13	2
13	20:13	20:19	5

TP: Transect point Time: of recording and/or time at transect point No.(I): Number of bats

No.(P): Number of passes E/R: emergence/re-entry F/C: Foraging/commuting Soc.: Social calls

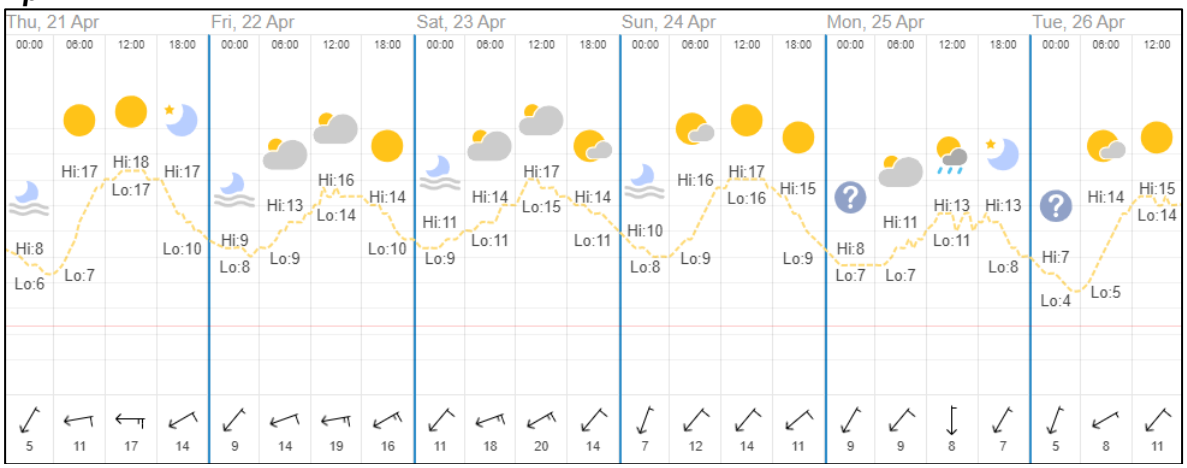
S/NS/SNH: Seen / not seen / seen not heard Comment: e.g. location of roost, direction of flight, behaviour, frequency, call shape

Surveyor (TL): Start at transect point TP11 (Clockwise)									
TP	**Time**	**Spp.**	**No.(I)**	**No.(P)**	**E/R**	**F/C**	**Soc.**	**S/NS**	**Comment**
10	18:41	PIPI	1	1		C		NS	Distant
	18:42	PIPI	1	1		C		NS	
	18:42	PIPI	1	1		C		S	Commuting North
11	18:47	PIPI	1	1		F		NS	
	18:48	PIPI	1	3		F		NS	
	18:49	PIPI	1	2		F		NS	
	18:50	PIPI	1	1		F			

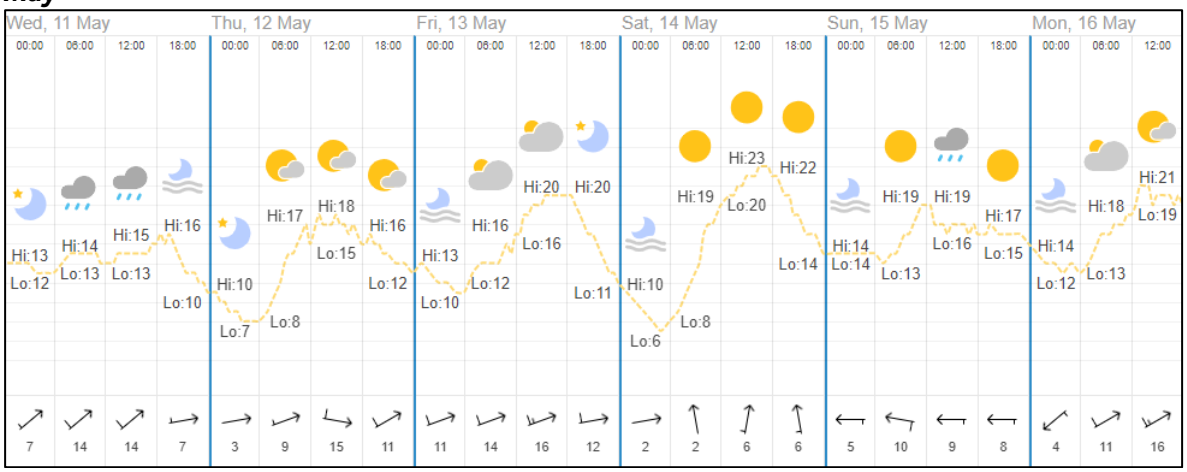
Surveyor (TL): Start at transect point TP11 (Clockwise)									
TP	**Time**	**Spp.**	**No.(I)**	**No.(P)**	**E/R**	**F/C**	**Soc.**	**S/NS**	**Comment**
	18:51	PIPI	1	1		F			
11-12	18:52	PIPI	1	2		F			
12	18:59	PIPY	1	1		C		NS	Very faint
12-13	19:00	PIPI	1	1		C		NS	Very faint
13	19:04	PIPI	1	1		C		NS	Very faint
	19:07	Bat	1	1		F		S	Around top of hedge – No echolocation
14	19:14	PIPY	1	2		-	Y	NS	
1-2	19:27	PIPI	1	1		F/C		NS	

Appendix VI: Bat Weather Data

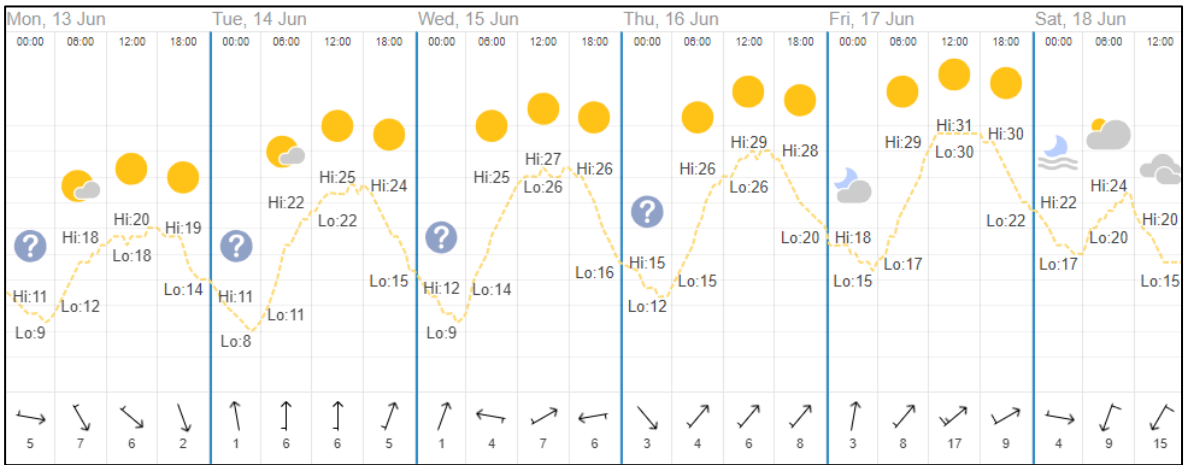
April



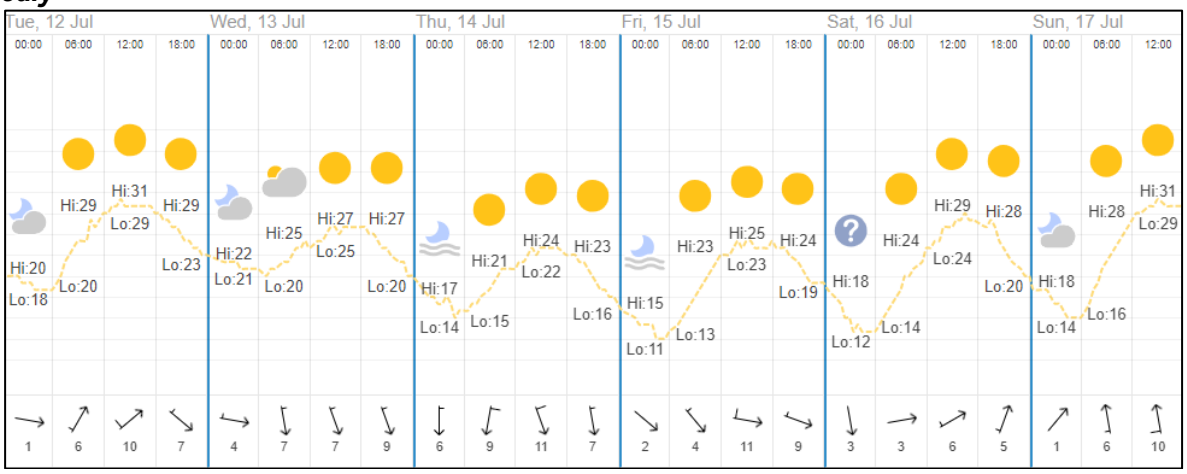
May



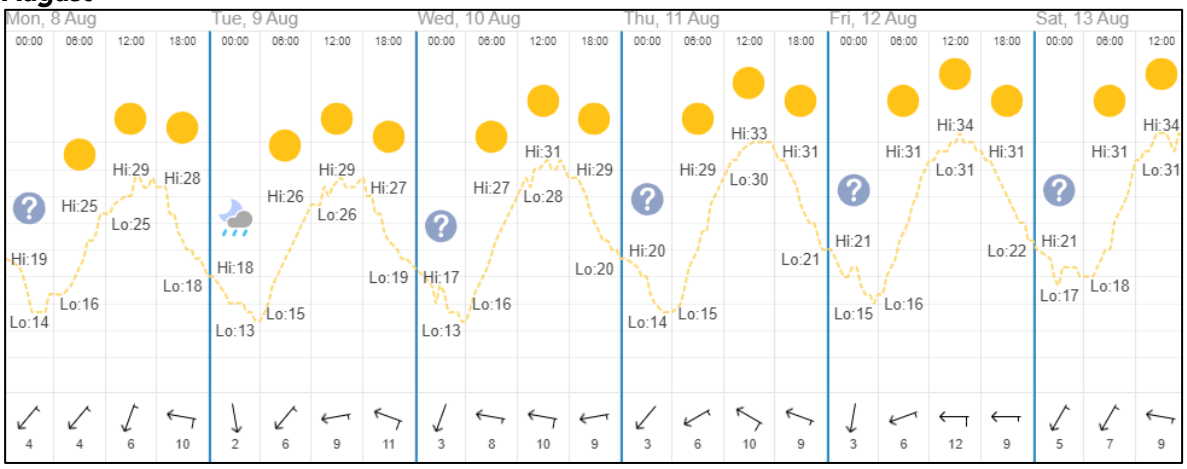
June



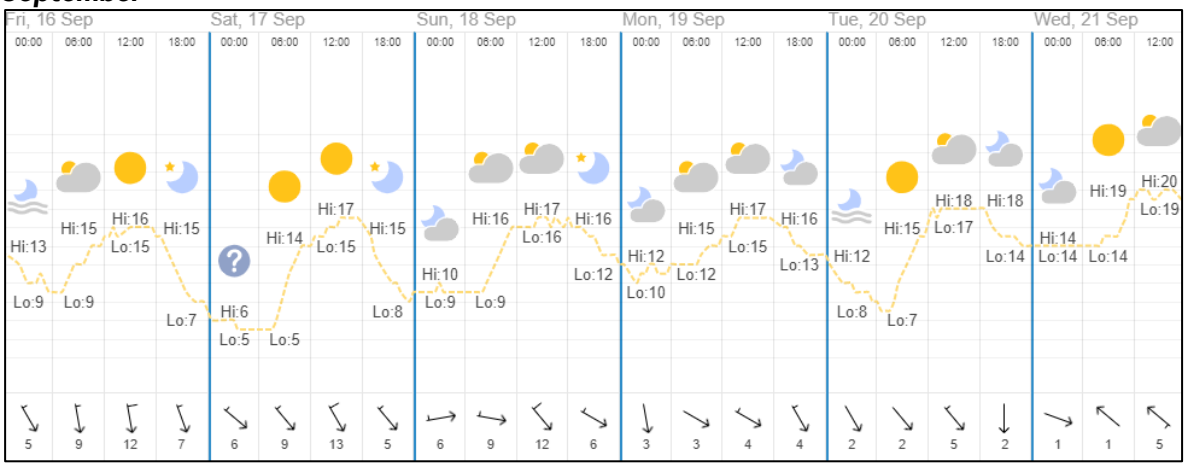
July



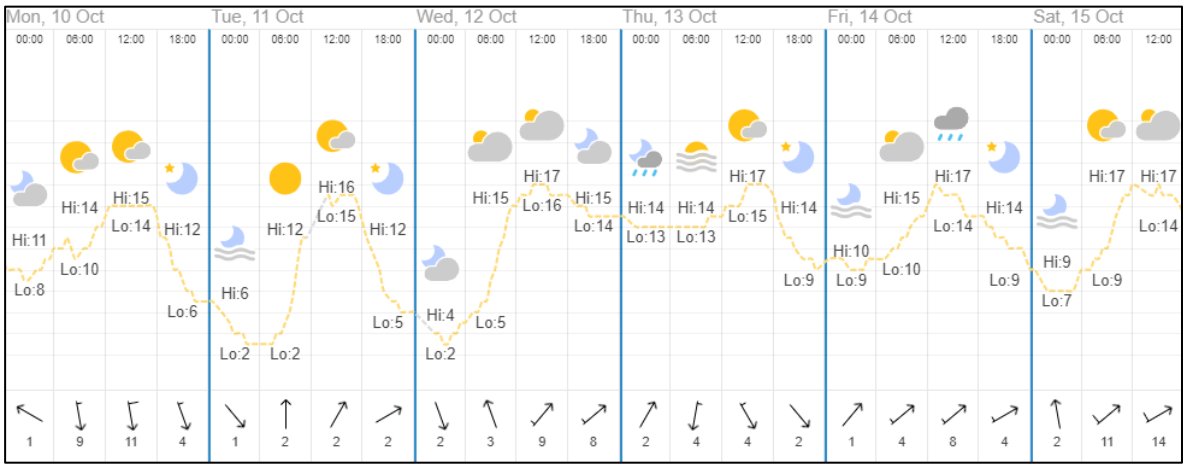
August



September



October


Mon, 10 Oct
Tue, 11 Oct
Wed, 12 Oct
Thu, 13 Oct
Fri, 14 Oct
Sat, 15 Oct
00:00 06:00 12:00 18:00
Hi:11 Lo:8
Hi:14 Lo:10
Hi:15 Lo:14
Hi:12 Lo:6
Hi:6 Lo:2
Hi:12 Lo:2
Hi:16 Lo:15
Hi:12 Lo:5
Hi:4 Lo:2
Hi:15 Lo:5
Hi:17 Lo:16
Hi:15 Lo:14
Hi:14 Lo:13
Hi:14 Lo:13
Hi:17 Lo:15
Hi:14 Lo:9
Hi:10 Lo:9
Hi:15 Lo:10
Hi:17 Lo:14
Hi:14 Lo:9
Hi:9 Lo:7
Hi:17 Lo:9
Hi:17 Lo:14
1 9 11 4 1 2 2 2 2 3 9 8 2 4 4 2 1 4 8 4 2 11 14

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Appendix VII: Hazel Dormouse Survey Plan

Ashgrove Road, Sevenoaks, Kent

Site boundary

Dormouse tubes

0 40 80

Meters

N

Scale: 1:1,500 **Created by:** MT

Date: Jul 2022 **Reviewed by:** NP

Drawing number:

UE0441ECO-DormouseMap_220722

URBAN EDGE ENVIRONMENTAL CONSULTING

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Appendix VIII: Reptile Survey Plan

Ashgrove Road, Sevenoaks, Kent

Site boundary

Reptile mats (number of mats)

Reptile mats (number of mats)

0 40 80

Meters

N

Scale: 1:1,500 **Created by:** MT

Date: Jul 2022 **Reviewed by:** NP

Drawing number:

UE0441ECO-ReptileMap_220722

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Appendix IX: Legislation and Planning Context

Legislation

General

The main legislative instruments for ecological protection in England and Wales are: the Wildlife and Countryside Act 1981 (WCA; as amended); Countryside and Rights of Way Act 2000 (CRoW; as amended); Natural Environment and Rural Communities Act 2006 (NERC; as amended); the Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations; as amended); and the Environment Act 2021.

WCA 1981 consolidated and amended pre-existing national wildlife legislation in order to implement the Bern Convention and the European Union Wild Birds Directive (Council Directive 2009/147/EC). It complements the Habitats Regulations, offering protection to a wider range of species than the latter. The Act also provided for the designation and protection of nationally important conservation sites of value for their floral, faunal or geological features, termed Sites of Special Scientific Interest (SSSI). Schedules of the act list protected species of flora and fauna, as well as invasive species, and detail the possible offences that apply to these species.

The CROW Act 2000 amended and strengthened existing wildlife legislation detailed in the WCA. It placed a duty on government departments & the National Assembly for Wales to have regard for biodiversity, provided increased powers for the protection and maintenance of SSSI, and created a right of access to parts of the countryside. The Act contained lists of habitats and species (Section 74) for which conservation measures should be promoted, in accordance with the recommendations of the Convention on Biological Diversity (Rio Earth Summit) 1992.

The NERC Act 2006 consolidated and replaced aspects of earlier legislation. Section 40 of the Act places a duty upon all local authorities and public bodies in England and Wales to have regard to the purpose of conserving biodiversity in exercising all of their functions, including by restoring or enhancing habitats and species populations. Sections 41 (England) and 42 (Wales) list habitats and species of principal importance to the conservation of biodiversity (otherwise known as priority habitats/species as listed in the now superseded UK Biodiversity Action Plan). These lists supersede Section 74 of the CRoW Act 2000. These species and habitats are a material consideration in the planning process.

The Habitats Regulations 2017 are the principal means by the European Union Habitats Directive (Council Directive 92/43/EEC) was transposed into English and Welsh law, and place a duty upon the relevant authority of government to identify sites which are of importance to the habitats and species listed in Annexes I and II of the Habitats Directive. Those sites which meet the criteria in Europe are designated as Sites of Community Importance by the European Commission, and subsequently identified as Special Areas of Conservation (SAC) by the European Union member states. Since the UK's departure from the European Union the European Commission no longer has a role in designating SACs in the UK. The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 establish a single stage designation process, where the appropriate authority is the decision maker. The selection and designation of SACs is based on the criteria set out in Annex III of the Habitats Directive insofar as it applies to the UK, and having regard to the advice of the appropriate nature conservation body.

The 2019 Amendment Regulations have created a new national site network on land and at sea, including both the inshore and offshore marine areas in the UK. The national site network includes existing SACs, existing Special Protection Areas (SPA) originally designated as a result of Council Directive 2009/147/EC on the Conservation of Wild Birds, and any new SACs and SPAs designated under the 2019 Regulations. SACs and SPAs in the UK therefore no longer form part of the EU's Natura 2000 ecological network.

The Habitats Regulations also provide for the protection of individual species of fauna and flora of European conservation concern listed in Schedules 2 and 5 respectively (European Protected Species (EPS)). Schedule 2 includes species such as otter and great crested newt for which the UK population represents a significant proportion of the total European population. It is an offence to deliberately kill, injure, disturb or trade in these species. Schedule 5 plant species are protected from unlawful destruction, uprooting or trade under the regulations. Under the Habitats Regulations disturbance includes any activity which is likely to: impair the ability of a EPS to survive, breed, reproduce, or rear/nurture its young; impair the ability of a EPS to migrate or hibernate; or significantly affect the local distribution or abundance of the species.

The Environment Act 2021, among other things: established an Office for Environmental Protection; introduced a mandatory requirement for all new development requiring planning permission to achieve a net gain for biodiversity of at least 10% (although implementation of this is transitionary); amended the NERC Act duty to conserve biodiversity by explicitly adding a duty to enhance; and requires local authorities to produce local nature recovery strategies.

Badgers (Meles meles)

Badgers are listed under Schedule 6 of the Wildlife and Countryside Act which grants them partial protection. This protection is extended by the Protection of Badgers Act 1992 (Badger Act) which makes it an offence to take, injure or kill a badger, interfere with a sett, sell or possess a live badger, or mark or ring a badger without a licence. Under the Act disturbance is illegal without a licence. Natural England has published guidelines to be adopted when determining whether an activity is 'disturbing' i.e. a licence is required when, for example, using heavy machinery (generally tracked vehicles) within 30m of any entrance to an active sett. Licences are not normally issued during the badger breeding season (December – June inclusive).

Bats (Chiroptera)

Bats and their roosts are fully protected by protected by the WCA and the Habitats Regulations, and seven species of bats are species of principal importance. The legislation makes it an offence, *inter alia*, to:

- Intentionally kill, injure or take a bat.
- Possess or control a live or dead bat, any part of a bat, or anything derived from a bat.
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place that a bat uses for shelter or protection. This is taken to mean all bat roosts whether bats are present or not.
- Intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection.
- Make a false statement in order to obtain a licence for bat work.

Dormouse (Muscardinus avellanarius)

Dormouse is fully protected by the WCA and the Habitats Regulations. The legislation makes it an offence, *inter alia*:

- Intentionally kill, injure or take a dormouse.
- Possess or control a live or dead dormouse, any part of, or anything derived from a dormouse.
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place that a dormouse uses for shelter or protection.
- Intentionally or recklessly disturb a dormouse while it is occupying a structure or place that it uses for shelter or protection.

Great crested newt (Triturus cristatus; GCN) (and natterjack toad Bufo calamita)

GCN is fully protected by the WCA and the Habitats Regulations. The legislation makes it an offence, *inter alia,* to:

- Intentionally kill, injure or take a GCN (including its eggs).
- Possess or control a live or dead GCN, any part of, or anything derived from a GCN.
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place that a GCN uses for shelter or protection.
- Intentionally or recklessly disturb a GCN while it is occupying a structure or place that it uses for shelter or protection.

Reptiles

The four common species (slow worm *Anguis fragilis*, common lizard *Zootoca vivipara*, adder *Vipera berus* and grass snake *Natrix helvetica*) are partially protected under the WCA. They are protected, *inter alia,* against intentional killing and injuring. The handling and translocation of these reptiles does not require a licence.

Smooth snake *Coronella austriaca* and sand lizard *Lacerta agilis* are fully protected by the WCA and the Habitats Regulations. The legislation makes it an offence, *inter alia,* to:

- Intentionally kill, injure or take a smooth snake or sand lizard.
- Possess or control a live or dead smooth snake or sand lizard, any part of, or anything derived from a smooth snake or sand lizard.
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place that a smooth snake or sand lizard uses for shelter or protection.
- Intentionally or recklessly disturb a smooth snake or sand lizard while it is occupying a structure or place that it uses for shelter or protection.

Planning context

National Planning Policy Framework (Section 15: Conserving and enhancing the natural environment)

The National Planning Policy Framework (NPPF), published in July 2021, outlines the Government's commitment to the conservation of wildlife and natural features. It is concerned with:

- Protecting and enhancing valued landscapes, sites of biodiversity or geological conservation value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

- Recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- Maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current & future pressures;
- Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

The NPPF requires that local plans should "distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value…; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scape across local authority boundaries".

To protect and enhance biodiversity and geodiversity, the NPPF states that planning policies should:

- Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
- Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

When determining planning applications, local planning authorities should aim to protect and enhance biodiversity by applying the following principles:

- if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- 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.

The following wildlife sites should be given the same protection as habitats sites:

- potential Special Protection Areas and possible Special Areas of Conservation;
- listed or proposed Ramsar sites; and
- sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects) unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site. The policies within the NPPF (and additional guidance contained within Circular 06/2005) are a material planning consideration.

UK/Local Biodiversity Action Plan Designations and Birds of Conservation Concern and Red Data Book Listings

Note that BAP designations and status as RSPB Birds of Conservation Concern or Red Data Book species does not offer any further legal protection, but planning authorities are required to prevent these species from being adversely affected by development in accordance with National Planning Policy and the CROW and NERC Acts. The United Kingdom Biodiversity Action Plan (UKBAP), first published in 1994 and updated in 2007, was a government initiative designed to implement the requirements of the Convention of Biological Diversity to conserve and enhance species and habitats. The UKBAP contained a list of priority habitats and species of conservation concern in the UK, and outlined biodiversity initiatives designed to enhance their conservation status.

However, as a result of devolution, and new country-level and international drivers and requirements, much of the work previously carried out by the UK BAP is now focussed at a country-level rather than a UK-level, and the UK BAP was succeeded by the 'UK Post-2010 Biodiversity Framework' in July 2012. The UK lists of priority habitats and species nonetheless remain an important reference source and were used to draw up statutory lists of priority habitats and species in England, Northern Ireland, Scotland and Wales. The priority habitats and species correlate with those listed on Section 41 and 42 of the NERC Act.

The UKBAP required that conservation of biodiversity be addressed at a County level through the production of Local BAPs. These are targeted towards species of conservation concern characteristic of each area. In addition, a number of local authorities and large organisations have produced their own BAPs. Where they exist, Local BAP targets with regard to species and habitats are a material consideration in the planning process.

Local Planning Policy

The following policy relating to wildlife and biodiversity is contained within the adopted Core Strategy for Sevenoaks (Sevenoaks District Council, 2011):

Policy SP 11

Biodiversity

The biodiversity of the District will be conserved and opportunities sought for enhancement to ensure no net loss of biodiversity.

Sites designated for biodiversity value will be protected with the highest level of protection given to nationally designated Sites of Special Scientific Interest, followed by Local Wildlife Sites and sites of local importance for biodiversity. Designated sites will be managed with the primary objective of promoting biodiversity whilst also providing for appropriate levels of public access.

Opportunities will be sought for the enhancement of biodiversity through the creation, protection, enhancement, extension and management of sites and through the maintenance and, where possible, enhancement of a green infrastructure network to improve connectivity between habitats.

Appendix X: Plant Species which encourage Bats

Please see following pages which are drawn from Gunnell *et al*. (2012).

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Plant Species	Common name	Native	Type	Benefit	Soil	Light	Extensive green roofs	Living walls	Rain Gardens	Hedges/trees	Beds/borders
Acer campestre	Field maple	N	T/S	C	Any	Sun / shade				Y	
Acer platanoides	Norway maple		T	S	Well drained / alkaline	Sun / shade				Y	
Acer saccharum	Sugar maple		T	S	Any	Sun / shade				Y	
Achillea millefolium	Yarrow	N	HP	C,F	Well drained	Sun	Y				
Ajuga reptans	Bugle	N	HP	C,F	Any	Sun / shade	Y				
Anthyllis vulneraria	Kidney vetch	N	HP	F	Well drained	Sun	Y				
Aubrieta deltoidea	Aubrieta		H	F	Well drained	Sun / shade		Y			
Betula pendula	Silver birch	N	T	C	Sandy / Acid	Sun				Y	
Cardamine pratensis	Cuckoo-flower	N	HP	F	Moist	Sun / shade					Y
Carpinus betulus	Hornbeam	N	T	C	Clay	Sun				Y	
Centaurea nigra	Common knapweed	N	HP	C,F	Dry, not acid	Sun	Y				Y
Centranthus ruber	Red valerian		HP	F	Well drained / alkaline	Sun	Y				Y
Clematis vitalba	Old man's beard	N	C	F	Well drained / alkaline	Sun				Y	
Corylus avellana	Hazel	N	S	C	Any dry	Sun / shade		Y		Y	
Crataegus monogyna	Hawthorn	N	S	S,C	Any	Sun / shade				Y	
Daucus carota	Wild carrot	N	Bi	S,C,F	Any	Sun	Y				Y
Dianthus spp.	Pinks	N	A-Bi	F	Well drained	Sun	Y	Y			Y
Digitalis purpurea	Foxglove	N	Bi	C	Well drained	Shade / partial shade				Y	Y
Erica cineria	Bell heather	N	S	F	Sandy	Full sun					Y
Erysimum cheiri	Wallflower		Bi-P	F	Well drained	Sun		Y			
Eupatorium cannabinum	Hemp agrinomy	N	H	F	Moist	Sun / shade					Y
Fagus sylvatica	Beech	N	T	C,R	Well drained / alkaline	Sun / shade				Y	
Foeniculum vulgare	Fennel		H	F	Well drained	Sun					Y
Fraxinus excelsior	Common ash	N	T	C,R	Any	Sun / shade				Y	
Hebe spp.	Hebe species		S	F	Well drained	Sun / shade				Y	Y
Hedera helix	Ivy	N	C	F,C	Any	Sun / shade		Y		Y	Y
Hesperis matrionalis	Sweet rocket		H	F	Well drained / dry	Sun / shade					Y
Hyacinhoides non-scripta	Bluebell	N	B	F	Loam	Shade / partial shade		Y		Y	Y
Ilex aquifolium	Holly	N	T	C	Any	Sun / shade				Y	
Jasminum officinale	Common jasmine		C	F	Well drained	Sun		Y			Y
Lavandula spp.	Lavander species		S	F	Well drained / sandy	Sun		Y			Y
Linaria vulgaris	Toadflax	N	HP	C	Well drained / alkaline	Sun	Y				Y
Lonicera periclymenum	Honeysuckle	N	C	F	Well drained	Sun		Y		Y	
Lotus corniculatus	Bird's foot trefoil	N	HP	F	Well drained / dry	Sun	Y				Y
Lunaria annua	Honesty		Bi	F	Any	Sun / partial shade	Y				
Malus spp.	Apple		T	C	Any	Sun				Y	
Matthiola longipetala	Night-scented stock		A	F	Well drained/ moist	Sun			Y		
Myosotis spp.	forget-me-not	N	A	F	Any	Sun	Y	Y			
Nicotiania alata	Ornamental tobacco		A	F	Well drained/ moist	Sun / partial shade			Y		
Oenothera spp.	Evening primrose species		Bi	F	Well drained/ dry	Sun	Y				
Origanum vulgare	Marjoram	N	HP	F	Well drianed/ dry	Sun	Y	Y			
Populus alba	White poplar	N	T	C	Clay loam	Sun				Y	
Primula veris	Cowslip	N	HP	F	Well drained/moist	Sun / partial shade	Y				
Primula vulgaris	Primrose	N	HP	F	Moist	Partil shade	Y	Y		Y	
Prunus avium	Wild cherry	N	T	C	Any	Sun				Y	

Plant Species	Common name	Native	Type	Benefit	Soil	Light	Extensive green roofs	Living walls	Rain Gardens	Hedges/trees	Beds/borders
Prunus domestica	Plum		T	C	Well drained/ moist	Sun				Y	
Prunus spinosa	Blackthorn	N	S	C	Any	Sun / partial shade				Y	
Quercus petraea	Sessile oak	N	T	C,R	Sandy loam	Sun / shade				Y	
Quercus robur	Common oak	N	T	C,R	Clay loam	Sun / shade				Y	
Rosa canina	Dog rose	N	S	C	Any	Sun			Y	Y	
Salix spp.	Willow species	N	S	S,C	Moist	Sun / shade			Y	Y	
Sambucus nigra	Elder	N	T	C	Clay loam	Sun				Y	
Saponaria officinalis	Soapwort	N	HP	F	Any	Sun					
Saxifraga oppositifolia	Saxifrage	N	HP	C	Well drained	Sun	Y	Y			
Scabiosa columbaria	Small scabious	N	HP	F	Well drained/ alkaline	Sun	Y				
Sedum spectabile	Ice plant		HP	F	Well drained/ dry	Sun	Y				
Silene dioecia	Red campion	N	HP	F	Any	Shade / partial shade		Y	Y	Y	
Sorbus aucuparia	Rowan	N	T	C	Well drained	Sun				Y	
Stachys lanata	Lamb's ears		HP	F	Well drained/dry	Sun	Y				
Symphotrichum spp.	Michaelmas daisies		HP	F	Any	Sun					
Tegetes patula	French marigold		A	F	Well drained/moist	Sun					
Thymus serpyllum	Creeping thyme	N	HP/S	F	Well drained/dry	Sun	Y	Y			
Tilia x europaea	Common lime		Type	C	Any	Sun / shade				Y	
Trifolium spp.	Clover species	N	HP	F	Any	Sun	Y				
Veleriana spp.	Valerian species	N	HP	F	Moist	Sun / partial shade			Y		
Verbascum spp	Mulleins	N	Bi,HP	C	Well drained	Sun	Y				
Verbena bonariensis	Verbena		HP	F	Well drained/moist	Sun					
Viburnum lantana	Wayfaring tree	N	S	C	Any	Sun / shade				Y	
Viburnum opulus	Guelder rose	N	S	C	Moist	Sun / shade			Y	Y	
Viola tricolor	Pansy	N	A	F	Well drained/moist		Y	Y			

The table above is derived from the BCT publication Landscape and Urban Design for Bats and Biodiversity (Gunnell et al., 2012) and lists suggested plant species that can provide benefit for bats either by providing a food source for insects or roost potential. The plants listed are predominately native to Britain. The small group of non-native plants is included for their documented value for wildlife. This list has been checked against Natural England's list of invasive non-native plants.

HP: Herbaceous perennial	T: Tree	A: Annual	**Benefit:**		
Bi: Biennial	S: Shrub	B: Bulb	C: Moth caterpillar food plant	F: Flowers attract adult moths	
BiP: Biennial perennial	H: Herb	C: Creeper/climber	S: Sap sucking insects (e.g. whiteflies)	R: Good roost potential	

Appendix XI: Legal and Technical Limitations

- This report has been prepared by Urban Edge Environmental Consulting Ltd (UEEC Ltd) with all reasonable skill, care and diligence within the terms of the contract made with the Client to undertake this work, and taking into account the information made available by the Client. No other warranty, expressed or implied, is made as to the professional advice included in this report or any other services provided by us.
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- Unless otherwise stated in this report, the assessments made assume that the sites and facilities that have been considered in this report will continue to be used for their current planned purpose without significant change.
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- Where this report presents or relies upon the findings of ecological field surveys (including habitat, botanical or protected/notable species surveys), its conclusions should not be relied upon for longer than a maximum period of two years from the date of the original field surveys. Ecological change (e.g. colonisation of a site by a protected species) can occur rapidly and this limitation is not intended to imply that a likely absence of, for instance, a protected species will persist for any period of time;
- This report has been prepared using factual information contained in maps and documents prepared by others. No responsibility can be accepted by UEEC Ltd for the accuracy of such information;
- Every effort has been made to accurately represent the location of mapped features, however, the precise locations of features should not be relied upon;
- Populations of animals and plants are often transient in nature and a single survey visit can only provide a general indication of species present on site. Time of year when the survey was carried out, weather conditions and other variables will influence the results of an ecological survey (e.g. it is possible that some flowering plant species which flower at other times of the year were not observed). Every effort has been made to accurately note indicators of presence of protected, rare and notable species within and adjacent to the site but the possibility nonetheless exists for other species to be present which were not recorded or otherwise indicated by the survey;
- Any works undertaken as a consequence of the recommendations provided within this report should be subjected to the necessary health & safety checks and full risk assessments.

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