



URBAN EDGE
ENVIRONMENTAL
CONSULTING

NATURAL PROGRESSION

Land at Hanlye Lane, Cuckfield, West Sussex

Protected Species Report

June 2024

Land at Hanlye Lane, Cuckfield, West Sussex

Protected Species Report

Client:	Sigma Homes Ltd	
Report No.:	UE0566_HanlyeLn_PSR_2_240619	
Author: Dan Maude BSc (Hons) MRes qCIEEM	Proofed: Tim Lees BA (Hons) MSc MCIEEM	Approved: Nick Pincombe BA(Hons) MSc CEnv MIEMA MCIEEM
Revision No.:	Status/Comment:	Date:
0	First issue to client	17 November2023
1	Updated proposals	06 June 2024
2	Minor corrections	19 June 2024

Urban Edge Environmental Consulting Ltd is a Registered Practice of the Chartered Institute of Ecology and Environmental Management. The information, advice and opinions provided in this report are true and were prepared and provided in accordance with CIEEM's [Code of Professional Conduct](#). We confirm that the opinions expressed are our true and professional bona fide opinions.



Contents

0	Executive Summary	i
0.1	Introduction	i
0.2	Results	i
0.3	Evaluation	ii
0.4	Recommendations	iii
0.5	Conclusion	iv
1	Introduction	1
1.1	Purpose of this Report	1
1.2	Objectives and Approach of the Study	1
1.3	Survey Area	1
1.4	Proposed Construction Activities	2
2	Survey Methodology	5
2.1	Great Crested Newt	5
2.2	Breeding Birds	7
2.3	Invertebrates	8
2.4	Roosting Bats	9
2.5	Foraging and Commuting Bats	11
2.6	Hazel Dormouse	14
2.7	Reptiles	15
2.8	General Limitations	17
2.9	Personnel	18
3	Results	19
3.1	Great Crested Newt	19
3.2	Breeding Birds	19
3.3	Invertebrates	23
3.4	Roosting Bats	23
3.5	Foraging and Commuting Bats	24
3.6	Hazel Dormouse	27

3.7	Reptiles	29
4	Evaluation	31
4.1	Introduction	31
4.2	Great Crested Newt	31
4.3	Breeding Birds	32
4.4	Invertebrates	34
4.5	Roosting Bats	35
4.6	Foraging and Commuting Bats	36
4.7	Hazel Dormouse	40
4.8	Reptiles	42
5	Recommendations and Conclusion	45
5.1	Introduction	45
5.2	Avoidance and Mitigation Measures	45
5.3	Other Ecological Protection Measures	50
5.4	Ecological Enhancement	50
5.5	Conclusions	50
	References and Bibliography	51
	Appendix I: Phase 1 Habitat Plan	A
	Appendix II: Pond Plan	C
	Appendix III: eDNA Results for Ponds	E
	Appendix IV: Breeding Bird Survey Plans	F
	Appendix V: Bat Presence/Absence Surveyor Positions:	Q
	Appendix VI: Infrared Camera Field of View	S
	Appendix VII: Bat Activity Transect Route and Static Detector Locations	U
	Appendix VIII: Bat Activity Survey Results	W
	Appendix IX: Bat Weather Data	FF
	Appendix X: Hazel Dormouse Survey Plan	II
	Appendix XI: Reptile Survey Plan	KK
	Appendix XII: Legislation and Planning Context	MM

Legislation MM

Planning context PP

Appendix XIII: Legal and Technical Limitations SS

List of Tables and Figures

Table 0.1: Summary of recommendations	iv
Table 2.1: Breeding bird survey dates and weather conditions	7
Table 2.2: Invertebrate survey dates and weather conditions	9
Table 2.3: Recommended minimum survey effort for presence/absence surveys	9
Table 2.4: Roosting bats survey dates and weather conditions	10
Table 2.5: Recommended survey effort for bat activity surveys	11
Table 2.6: Bat activity survey dates and weather conditions	12
Table 2.7: Index of detection probability for hazel dormice (if using 50 nest tubes)	14
Table 2.8: Hazel dormouse survey dates and weather conditions	15
Table 2.9: Reptile survey dates and weather conditions	16
Table 2.10: Population size class assessment and Key Reptile Site criteria (Froglife, 1999)	17
Table 2.11: Validity of assessment	17
Table 2.12: Survey personnel and qualifications	18
Table 3.1: Summary of eDNA analysis results	19
Table 3.2: Summary invertebrate survey results	23
Table 3.3: Monthly bat transect survey data	24
Table 3.4: Total number of bat passes during remote monitoring, all species	25
Table 3.5: Summary of hazel dormouse survey results	28
Table 3.6: Summary of reptile survey results	29
Table 4.1: Summary of breeding bird survey results	32
Table 4.2: Conservation status of recorded bat species (abundance and distribution)	36
Table 4.3.: Importance of bat assemblage (Southern England)	38
Table 5.1: Recommended mitigation, avoidance and enhancement measures	45

<i>Figure 1.1: Survey area</i>	3
<i>Figure 1.2: Proposed site plan</i>	4
<i>Figure 3.1: Bat passes per hour, by detector and month</i>	27
<i>Figure 4.1: Bat pass species composition, all remote monitoring data</i>	37

Abbreviations

ARS	Artificial Refuge Surveys
BCT	Bat Conservation Trust
BoCC	Birds of Conservation Concern
BPPH	Bat Passes per Hour
CBC	Common Bird Consensus
ECOW	Ecological Clerk of Works
GCN	Great Crested Newt
GLTA	Ground-level Tree Assessment
NERC	Natural Environment and Rural Communities Act 2006
PCR	Polymerase Chain Reaction
PEA	Preliminary Ecological Appraisal
PRF	Potential Roost Features
SAC	Special Area of Conservation
SSSI	Site of Special Scientific Interest
TN	Target Note
TP	Transect Point
WCA	Wildlife and Countryside Act 1981 (as amended)
VES	Visual Encounter Surveys

0 Executive Summary

0.1 Introduction

- 0.1.1 Protected species surveys for great crested newt, breeding birds, invertebrates, roosting bats, foraging and commuting bats, hazel dormouse and reptiles were undertaken for the site of a proposed residential development at Land at Hanlye Lane, Cuckfield, West Sussex. 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 Four ponds identified within 250m of the survey area boundary were subject to eDNA sampling for great crested newts. Ponds P1, P3 and P10 returned a negative survey result. Pond P2 was dry at the time of survey and likely remains dry for most of the year.
- 0.2.2 A total of 28 bird species were recorded, of which three species are considered confirmed breeding species, 19 probable breeding species and four possible breeding species. Of the confirmed, probable and possible breeding species four are included on the Birds of Conservation Concern 5 (2021) Red List (Red List species), and six are on the Amber List (Amber List species), and five are s41 Species of Principal Importance.
- 0.2.3 The invertebrate survey recorded no evidence of adult brown hairstreak butterflies (the target species).
- 0.2.4 Tree TN1 was identified as providing high suitability for roosting bats and is likely to be removed to accommodate the Proposed Development. Three presence / likely absence surveys of tree TN1 recorded no evidence of roosting bats and provide a good level of confidence that roosting bats were absent from tree T1 during the 2023 season.
- 0.2.5 Species diversity recorded during the bat activity surveys included at least nine species. The data show that the majority (293.16 BPPH or 91.81%) of all bat calls recorded on the static detectors were from pipistrelle bats, with the sum of bat passes per hour registered at each location being 205.40 BPPH or 93.55% for common pipistrelle, 9.49 BPPH or 4.33% for soprano pipistrelle, and 0.08 BPPH or 0.03% for Nathusius' pipistrelle. Of the remaining bat passes, Myotis species (1.79 BPPH or 0.82%) were the next most frequently recorded, followed by serotine (0.98 BPPH or 0.44%), long-eared species (0.76 BPPH or 0.35%), noctule (0.47 BPPH or 0.21%), Nyctalus species (0.29 BPPH or 0.12%), Leisler's bat (0.24 BPPH or 0.11%), and finally barbastelle (0.06 BPPH or 0.03%). These results are broadly consistent with those recorded during the transect surveys.
- 0.2.6 The nest tube survey recorded seven unoccupied hazel dormouse nests during the survey period and one live hazel dormouse. Six nests were recorded within the southern field and one nest within the eastern boundary of the northern field.

- 0.2.7 The Visual Encounter Surveys and Artificial Refuge Surveys recorded a total of six grass snakes across the survey period with a peak count of two adults and one sub-adult during survey 7. The records were mostly scattered through the northern portion of survey area, including the eastern boundary, central mature tree line between the two fields, central linear scrub of the northern field, and north-western corner close to P1.

0.3 Evaluation

- 0.3.1 It is considered likely that great crested newts are absent from the survey area. This is due to the negative result for great crested newt eDNA in ponds located within 250m of the survey area, and the distance or isolation from the survey area of ponds located more than 250m away. The survey area is considered to be of Negligible Importance for great crested newt and no impacts to this species are anticipated.
- 0.3.2 The survey area supported a moderately rich breeding bird assemblage, including at least eight species of conservation concern (two are not of concern as a result of rarity or declines in the UK). The survey area is considered to be of Local Importance for its breeding bird species. The majority of development would be located in the northern field, although three attenuation basins would be located in the southern field. This would result in the loss of scrub and trees across the survey area, and a risk of killing, injury and nest/egg loss during the works which would constitute an offence under the Wildlife and Countryside Act 1981 (as amended). Construction and operation phases are likely to increase disturbance across the survey area that would have a moderate negative impact on the breeding bird assemblage; however, no breeding Schedule 1 species were recorded. Measures to avoid and mitigate predicted impacts upon breeding birds are recommended.
- 0.3.3 No brown hairstreak butterflies were recorded; however, the survey area provides all the necessary features to support this species. As a result, the survey area is classified as being of Local Importance for invertebrates. As the survey area possesses all the requirements for brown hairstreak and falls within a core area for this species, it is not possible to conclusively confirm this species is absent. Suitable mitigations are provided to safeguard a potential small colony within the survey area and to encourage the use of the survey area by brown hairstreak butterflies.
- 0.3.4 No roosting bats were recorded using tree TN1 during the 2023 active season. There were however numerous other trees within the survey area that would likely be classified as high suitability for roosting bats had a full ground level tree assessment survey been carried out. Accordingly, the survey area is provisionally assessed as Local-District Importance on a precautionary basis due to the absence of survey data for these additional trees. The majority of these trees will be retained but there is potential for bats roosting within trees which were not surveyed to be displaced by increased lighting during the construction and operational phase.
- 0.3.5 The site is predominately used by a high proportion of common and widespread bat species with variable levels of activity recorded and is considered to be of Local Importance for its bat population. The Proposed Development will be restricted within the northern field but a permanent loss of c.2.15ha of grassland, 0.98ha of scrub and five medium sized trees will occur

across the survey area. Boundary habitats will be retained, excluding a section of scrub at the north-western corner. Lost habitats within the northern field will be replaced with 50 new dwellings, together with access, landscaping and other associated infrastructure. The southern field will remain unchanged, excluding the loss of bramble scrub for the new attenuation basins. 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 existing suitable habitat will remain. Bat activity was dominated by common pipistrelle bats, which are habituated to semi-urban environments and are therefore unlikely to be displaced following construction of the Proposed Development.

- 0.3.6 The impact of light on foraging and commuting bats is classified as low for serotine and individuals of the genera *Nyctalus* and *Pipistrellus* – which comprise 98.81% 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 *barbastelle*, *Myotis* and *Plecotus*, together comprised 1.19% 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, which are located offsite and will be protected as part of proposals.
- 0.3.1 Hazel dormouse presence, in the form of one live hazel dormouse and seven nests characteristic of the species, were located across the survey area. The survey area is considered to be of Local-District Importance for its hazel dormouse population. A significant proportion of potential habitat for hazel dormouse within the north of the survey area will be removed to accommodate the Proposed Development. The majority of boundary habitats across will be retained but a section scrub will be removed at the north-western corner to create a new vehicle access. Without mitigation, the Proposed Development is likely to result in a risk of killing, injury or disturbance to hazel dormouse which would constitute an offence under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended). Measures to avoid and mitigate predicted impacts upon this species are recommended.
- 0.3.2 The survey findings indicate that a low population of grass snake was present within the survey area during the 2023 survey season. The survey area achieves a site score of 1 and does not meet the criteria for a Key Reptile Site (as detailed in Table 2.10). The Proposed Development is not anticipated to impact the local status of grass snake and therefore the survey area is considered to be of Negligible Importance for its reptile population. Without mitigation, the Proposed Development is likely to result in a risk of killing / injury of individual reptiles if present during the works, which would constitute an offence under the Wildlife and Countryside Act 1981 (as amended). Measures to avoid and mitigate predicted impacts upon reptiles are recommended.

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 0.1. The recommendations should be read alongside those contained in the Preliminary Ecological Appraisal which continue to apply, including those for ecological enhancement.

Table 0.1: Summary of recommendations

#	Recommended mitigation, avoidance and enhancement measures
R1	Removal of nesting bird habitats (including vegetation and buildings) will be undertaken outside of the bird nesting season, which runs from 1 March to 31 August. It will therefore be carried out between September and February, but should be planned and implemented in accordance with the findings of the further ecological surveys recommended above.
R2	Native tree and shrub planting will be incorporated into the Proposed Development, which will provide bird nesting sites and a range of food resources.
R3	The value of the survey area will be enhanced for birds by installing a range of artificial nest boxes onto new buildings and retained trees.
R4	Negative impacts to brown hairstreak butterflies will be avoided by retaining areas of mature blackthorn scrub, planting new blackthorn hedges that are connected to suitable habitat within the wider landscape, and employing appropriate management.
R5	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 habitats.
R6	A European Protected Species Mitigation Licence for hazel dormouse will need to be obtained following the granting of planning consent. The licence application will include a detailed method statement setting out how killing or injury will be avoided, alongside measures to compensate for habitat connectivity losses.
R7	A translocation of reptiles from the construction zone to a suitable receptor site will be undertaken prior to site preparation and commencement of works, to avoid the risk of killing/injury to reptiles.

0.5 Conclusion

- 0.5.1 In the absence of mitigation, the Proposed Development will result in negative impacts to breeding birds, invertebrates, foraging and commuting bats, hazel dormouse and reptiles. However, 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.

1 Introduction

1.1 Purpose of this Report

- 1.1.1 A Preliminary Ecological Appraisal (PEA) was carried out in March 2023 for the site of a proposed residential development at Land at Hanlye Lane, Cuckfield, West Sussex (Grid Reference: 531093, 125522). It was recommended that further surveys should be carried out for great crested newt (GCN) *Triturus cristatus*, breeding birds, invertebrates, badger *Meles meles*, roosting bats in trees, foraging / commuting bats, hazel dormouse *Muscardinus avellanarius* and reptiles due to the presence of favourable habitats.
- 1.1.2 As badgers and their setts can suffer from persecution, all information relating to badger at the survey area is contained within a separate confidential report (UEEC, 2023c).

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 GCN, roosting bats, hazel dormouse, and reptiles, and if present record their distribution within the survey area;
 - ▶ To identify features of importance for breeding birds, invertebrates and foraging and commuting bats, record the species assemblage, their conservation status, and assess the relative abundance of these species within the survey area;
 - ▶ To provide sufficient data to inform a European Protected Species Mitigation Licence applications for GCN, roosting bats and hazel dormouse, if required;
 - ▶ To identify and evaluate the potential impacts of development on GCN, breeding birds, invertebrates, 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 Application Site boundary (5.60ha) is marginally smaller than the overall survey area, with two small sections excluded on the eastern and western boundaries.

- 1.3.2 The survey area lies c.2.5km north-west of Haywards Heath on the outskirts of Cuckfield in the Mid Sussex District of West Sussex. The survey area comprises c.5.62ha of undeveloped land, currently dominated by neutral semi-improved grassland (horse grazed pasture) with scattered trees and scrub.
- 1.3.3 The survey area is bounded to the north by Hanlye Lane, to the east by residential housing and lines of mature trees and scrub, to the south by mature trees and scrub and to the west by residential housing, trees, scrub and a pond. The extent of the Application Site and survey area are outlined on Figure 1.1.
- 1.3.4 The wider landscape is characterised by a patchwork of arable land and pasture with a network of drainage ditches and scattered ponds, hedgerows with trees and woodland blocks. The nearby settlement of Cuckfield lies to the west and Haywards Heath lies to the south-east. Ten ponds are present within 500m of the survey area.

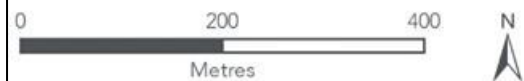
1.4 Proposed Construction Activities

- 1.4.1 Planning consent is being sought for a residential development of 50 dwellings with vehicular and pedestrian; car parking; open space, play space; landscaping and all other associated works. The proposed site layout is shown in Figure 1.2.

Hanlye Lane, Cuckfield, West Sussex

-  Survey area
-  Application site boundary

Figure 1.1: Survey area



© Crown copyright and database rights 2023
Ordnance Survey 0100031673

Scale (at A4): 1:7,500 Created by: MT

Date: Sep 2023 Reviewed by: NP

Drawing number:

UE0566ECO-HanlyeLane_LocationMap_230911





2 Survey Methodology

2.1 Great Crested Newt

eDNA survey

- 2.1.1 Access to all ponds located within 250m of the survey area (P1, P2, P3, and P10) was requested to carry out an eDNA survey. See Appendix II for pond locations.
- 2.1.2 The objective of the survey was to establish the presence or likely absence of GCN from potentially suitable breeding ponds. The eDNA water sampling followed the methodology set out in Natural England's '*Technical advice note for field and laboratory sampling of GCN environmental DNA*' (Biggs et al., 2014), which is provided as an appendix of the research report published by Defra into environmental DNA testing for GCN. This is the only methodology currently accepted by Natural England for this technique.
- 2.1.3 A single visit to each pond was made on 22 May 2023. At the time of the survey, the following information was collected for the pond:
- ▶ Site name;
 - ▶ Nearest settlement;
 - ▶ County;
 - ▶ Time between receipt of sampling kit and date of sampling;
 - ▶ Date of sampling;
 - ▶ Personnel collecting sample;
 - ▶ Ordnance Survey grid reference (12 figures);
 - ▶ Percentage of pond perimeter that is accessible for survey;
 - ▶ Data on inflows, and whether these were wet or dry at the time of survey;
 - ▶ Data on presence and number of GCNs recorded during the survey (if any); and
 - ▶ Information on any difficulties experienced during sample collection.
- 2.1.4 The following methodology for the sampling procedure for eDNA analysis was applied in the field in accordance with the survey protocol (Biggs et al., 2014):
- ▶ During the survey, 20 samples of 30ml each were taken from around the perimeter of the pond, as equally spaced as possible. The locations of the samples were chosen to sample the entire margin with specific effort made to target areas where there may be newt egg laying and / or displaying activities.

- ▶ The sample ladle was stirred gently in the pond before the sample was retrieved in order to mix the water column, with care being taken not to stir up the sediment.
- ▶ All 20 samples were emptied as they were collected into a Whirl-Pack bag, which was then sealed and shaken for 10 seconds to mix the samples.
- ▶ Upon mixing, and using a sterile pipette, exactly 15ml of the sample was transferred from the Whirl-Pack bag into each of the six sterile tubes, which contained 35ml of ethanol. The sample was stirred between filling each tube to homogenize the water.
- ▶ Once filled to 50ml, each tube was mixed for 10 seconds to mix the sample and preservative. Date of sampling.
- ▶ Samples were returned to the office and either dispatched at ambient temperature immediately for analysis or stored at 2-4°C in a refrigerator dedicated for this purpose.

2.1.5 The following precautions were adhered to, which ensured that no cross-contamination of samples occurred:

- ▶ Sterile gloves were worn by all surveyors at all times during the sampling process; and
- ▶ Samples were collected without the surveyor entering the water (i.e. the surveyors stood on the pond bank or edge).

2.1.6 The laboratory used for analysis of the samples was NatureMetrics, 1 Occam Court, Surrey Research Park, Guildford, GU2 7HJ, United Kingdom, which is participating in Natural England's proficiency testing scheme. Water samples were stored in refrigerated conditions and returned to the laboratory on 25 May 2023 via a 24hr courier service.

Evaluation criteria

2.1.7 A positive result means that GCNs are present in the water or have been present in the water in the recent past (eDNA degrades over around 7-21 days).

2.1.8 A negative result means that GCN DNA was not detected and GCN are likely to be absent from the waterbody.

2.1.9 On rare occasions an inconclusive result is issued. This occurs where GCN DNA has not been detected but the controls have indicated that the sample has been degraded or the polymerase chain reaction (PCR) inhibited in some way. This may be due to undefined components in the water chemistry or may be due to the presence of high levels of sediment or algae in the sample. A re-test could be performed but a fresh sample would need to be obtained, and if water chemistry was the cause of the indeterminate then a re-test would most likely also return an inconclusive result.

2.1.10 Sediment content of each sample is visually recorded in the lab and reported on the results document. Inhibition and degradation results are also noted. If the result is recorded as evidence of decay (meaning that the degradation control was outside of accepted limits) or evidence of residual inhibition (meaning that the PCR reaction was inhibited) any negative result is recorded as indeterminate.

Limitations

- 2.1.11 The banks of pond P1 were steep and densely vegetated meaning accessibility to the pond was reduced to 20%.
- 2.1.12 Pond P2 was dry at the time of survey therefore the eDNA survey on this pond could not be carried out. However, as P2 was also found dry during the PEA it is likely that it runs dry for most of the year and is therefore not suitable for breeding GCN.

2.2 Breeding Birds

- 2.2.1 An adapted Common Bird Census (CBC; Gilbert et al., 1998) methodology was used, with reference to Natural England's standing advice on wild birds¹. Four survey visits were undertaken between April and June. Surveys began within 30 minutes of sunrise and continued for approximately 2.5hrs.
- 2.2.2 The entire survey area, as well as some immediately adjoining areas, were covered on each visit using a repeatable transect covering the whole survey area, as illustrated in Appendix IV. The direction walked was varied to limit early morning bias. The whole survey area lay within c.50m of the transect route. During the surveys the transect was walked slowly and methodically and all bird activity observed by sight and sound, with a particular focus on behaviour indicative of breeding (nests, song, display, carrying food or nest material, recently fledged young, etc.) was recorded on maps using standard British Trust for Ornithology species codes and behavioural annotations. Weather conditions were noted during the survey (air temperature, wind speed, cloud cover and precipitation) and are reported in Table 2.1.

Table 2.1: Breeding bird survey dates and weather conditions

Date (2023)	Weather conditions
21 April	6-7°C; 100% cloud cover; light breeze (Beaufort: 2), no precipitation
8 May	9-13°C, 100% cloud cover; light air to light breeze (Beaufort: 2), no precipitation – mist lifting toward survey end
25 May	10-12°C, 70-100% cloud cover, light air to light breeze (Beaufort 1-2), no precipitation
16 June	13-17°C, 0% cloud cover, light air to light breeze (Beaufort 1-2), no precipitation

Evaluation criteria

- 2.2.3 At the end of the surveys, the field maps were analysed and collated to assess the number of territories for each species present. Identification of territories was normally based on a minimum of two registrations for each territory, although for late flying migrants, such as spotted flycatcher *Muscicapa striata*, for which fewer potential contacts are possible, only one registration was required to confirm a territory, an approach which was also applied to inconspicuous species.

¹ Natural England (2015): *Wild birds: surveys and mitigation for development projects*. Accessed online at: <https://www.gov.uk/guidance/wild-birds-surveys-and-mitigation-for-development-projects>

- 2.2.4 Full CBC surveys normally comprise ten survey visits. Consequently, using a modified CBC method comprising four survey visits the number of territories identified should be considered a minimum. Additional territories may have been present but not identified.
- 2.2.5 The significance of the results was evaluated, with the importance of breeding bird populations and the assemblage considered in relation to:
- ▶ Annex I of EC Directive 2009/147/EC on the Conservation of Wild Birds (2009) ("Annex 1 species");
 - ▶ Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) ("Schedule 1 species");
 - ▶ Birds of Conservation Concern Red, Amber and Green lists (Stanbury et al., 2021) ("BoCC Red, Amber and Green List species");
 - ▶ Species of Principal Importance in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 ("Section 41 species"); and
 - ▶ Guidelines for the selection of biological Sites of Special Scientific Interest (SSSI) in relation to birds (Drewitt et al., 2015).
 - ▶ Sussex Local Wildlife Site Selection Criteria (Sussex Local Wildlife Sites Initiative, 2017); and
 - ▶ Birds of Sussex 2014 (Sussex Ornithological Society and British Trust for Ornithology, 2014).

Limitations

- 2.2.6 The bird surveys were carried out during April to June 2023. The surveys were hence undertaken in accordance with the recommended timings for such surveys (Gilbert et al., 1998). Weather conditions were generally good and within acceptable parameters. Notwithstanding the observations at 2.2.4, there were no other limitations of relevance to the methods applied.

2.3 Invertebrates

- 2.3.1 The survey area was considered suitable for brown hairstreak butterfly (*Thecla betulae*) as it contained a high proportion of unmanaged blackthorn *Prunus spinosa* scrub within an open, mosaic habitat structure, therefore providing a significant area of egg laying habitat for this species.
- 2.3.2 Suitable habitats within the survey area, including all hedgerows and patches of scrub that contained unmanaged or young, suckering blackthorn were searched for signs of brown hairstreak butterfly on 21 July and 23 August 2023. Weather conditions during the surveys are detailed in Table 2.2.
- 2.3.3 A search for adult butterflies was conducted within areas that were rich with native flowering plants, therefore providing a high nectar resource. Plants such as bramble *Rubus fruticosus* agg. and common fleabane *Pulicaria dysenterica* are considered as a valuable nectar resource for a wide range of species, including the brown hairstreak butterfly. The survey effort was consequently focused on such species.

Table 2.2: Invertebrate survey dates and weather conditions

Date (2023)	Weather conditions
21 July	20-21°C, 20% cloud cover, light breeze (Beaufort 2), no precipitation
23 August	22-26°C, 30% cloud cover, light breeze (Beaufort 2), no precipitation

Limitations

- 2.3.4 There were no difficulties in gaining access to the survey area to carry out the invertebrate surveys.

2.4 Roosting Bats

Bat Presence / Absence Survey

- 2.4.1 Where a tree is found to contain evidence of roosting bats, or judged to be potentially suitable as a roost, then further surveys are required prior to undertaking works in order to confirm whether bats are currently present or are likely to be absent. These surveys typically take the form of emergence surveys (carried out as the bats leave the roost at dusk) and re-entry surveys (as bats return to the roost at dawn) and can be carried out between May and September (May to August being the optimal period).
- 2.4.2 Guidelines followed during 2023 survey season (Collins (ed.), 2016) recommend the minimum levels of presence / likely absence survey effort for structures, based on their overall suitability for roosting bats; see Table 2.3.. The PEA concluded that tree TN1 was of high suitability for roosting bats.

Table 2.3: Recommended minimum survey effort for presence/absence surveys

Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit: One dusk emergence or one dawn re-entry survey	Two survey visits: One dusk emergence and a separate dawn re-entry survey	Three survey visits: At least one dusk emergence & at least one separate dawn re-entry survey

- 2.4.3 The emergence surveys commenced at least 15 minutes before dusk and continued for up to 2 hours after sunset, while return-to-roost surveys (where applicable) began 1.5 to 2 hours before dawn and continued until 15 minutes after sunrise. The objective was to establish the presence or likely absence of bats within each feature, determine the assemblage and relative abundance of bat species using the features, and identify the type(s) of roost (e.g., day roost or maternity roost). Surveyor positions are shown at Appendix V.
- 2.4.4 Detection equipment included Wildlife Acoustics Echo Meter Touch 2 Pro full spectrum detectors, Canon XA11 infrared cameras, illuminated by infrared flood and spot lighting, and Guide IR510 Nano thermal imaging scopes.
- 2.4.5 An infrared camera was used in place of a surveyor at the southern survey position during the third survey. The unmanned camera footage was reviewed manually by a suitably qualified

ecologist, at a maximum of 2x speed, using BORIS (Behavioural Observation Research Interactive Software; v8.17.1) which allows the user to set the playback speed and does not skip frames. Where infrared cameras were used in place of a surveyor, they were paired with a Wildlife Acoustics Echo Meter Touch 2 Pro full spectrum detector to correlate audio recordings to the infrared camera footage. A screen shot from the camera at the darkest point of the final survey is provided at Appendix VI to demonstrate the field of view and level of illumination.

- 2.4.6 Recordings of bat calls were analysed using Kaleidoscope Pro (v5.6.3) software. The number of bats leaving / entering the tree were noted, together with observations regarding point of emergence / re-entry, type of behaviour and areas of particularly high activity. Survey covariates were also noted (minimum / maximum air temperatures, wind speed / direction, precipitation and cloud cover). Table 2.4 shows the dates and weather conditions for each survey visit.

Table 2.4: Roosting bats survey dates and weather conditions

Date (2023)	Time	Weather conditions
1 June	Dusk	13-12°C, 95-100% cloud cover, moderate to fresh breeze (Beaufort 4-5), no precipitation
22 June	Dusk	19-18°C, 20% cloud cover, light air (Beaufort 1), no precipitation
22 September	Dawn	9°C, 0-80% cloud cover, light air (Beaufort 1), no precipitation but thick mist

Evaluation

- 2.4.7 The importance of bat roosts is classified as Site, Local, District, County or Regional with reference to Table 3.2 in the *Bat Mitigation Guidelines* (Reason, P.F. and Wray, S. (2023). However, these are relative terms which require an interpretation of the rarity of different species and regional variations therein. The terms are hence applicable within the survey area only and are intended to indicate which features of the survey area may be of importance to the conservation status of local bat populations. Evaluation of the potential impacts on bats was undertaken with reference to Reason, P.F. and Wray, S. (2023) and Natural England Standing Advice, with predicted impacts to each Important Ecological Feature noted as of Site, Local, District, County or Regional significance.

Limitations

- 2.4.8 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.
- 2.4.9 Only one infrared camera was used on the final bat survey of tree TN1 where two surveyors had been used on the previous surveys. This is because the view of the tree from the northern survey position had become completely obscured by scrub growth and could no longer be seen.

2.5 Foraging and Commuting Bats

- 2.5.1 Bat activity surveys were based on standard industry guidelines (Collins (ed.), 2016) and Natural England's standing advice² 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.
- 2.5.2 Current guidelines (Collins (ed.), 2016) recommend reasonable levels of bat activity survey effort, based on overall habitat suitability; see Table 2.5. The PEA concluded that the mosaic of scattered trees, scrub and grassland, in combination with adjacent woodland and ponds, were of moderate suitability for foraging and commuting bats.

Table 2.5: Recommended survey effort for bat activity surveys

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

- 2.5.3 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 / two surveyors undertook each transect survey, and walked at a slow, consistent speed along the transect route, stopping for approximately 5-7 minutes at each transect point (TP) to listen for bats and record activity and behaviour (spot counts). Bat activity between TPs was also recorded where possible. The locations of TPs are shown in Appendix VII, and these are referred to within the results.
- 2.5.4 Dusk activity surveys commenced at sunset and continued for approximately two hours, while dawn activity surveys commenced two hours prior to sunrise. 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 Sussex.

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>

- 2.5.5 Anabat Scout and Batlogger M2 full spectrum detectors were used during the transect surveys. Bat recordings were analysed using Kaleidoscope Pro (v5.6.3) 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 2.6 and alongside the results in Appendix VIII.

Table 2.6: Bat activity survey dates and weather conditions

Date (2023)	Time	Weather conditions
24 April	Dusk	7-6°C, 100% cloud cover, light breeze (Beaufort 2), light rain throughout survey with heavy rain at 21:30 survey abandoned at 21:45.
22 May	Dusk	16°C, 20-0% cloud cover, light breeze (Beaufort 2), no precipitation
19 June	Dusk	15-13°C, 60-90% cloud cover, calm (Beaufort 0), no precipitation
31 July	Dusk	16-15°C, 90% cloud cover, light breeze (Beaufort 2), no precipitation
21 September	Dusk	14-15°C, 90%-100 cloud cover, light air (Beaufort 1), heavy thunderstorm at start and end
22 September	Dawn	9°C, 0-80% cloud cover, light air (Beaufort 1), no precipitation
9 October	Dusk	18-16°C, 15-5% cloud cover, light air (Beaufort 1), no precipitation

Remote monitoring

- 2.5.6 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 VII; these locations are referred to within the results.
- 2.5.7 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 (v5.6.3) software.
- 2.5.8 Weather data for the survey period was obtained from the closest weather station using the timeanddate.com website (<https://www.timeanddate.com>) and is presented in Appendix XI.

Evaluation criteria

- 2.5.9 The importance of commuting routes and foraging areas are evaluated as Negligible, Local, County, Regional or National, with reference to Table 3.3 in the *Bat Mitigation Guidelines* (Reason, P.F. and Wray, S. (2023)). This method takes into account relative levels of bat activity; landscape context of the survey area; the species assemblage using a feature, their conservation status⁴ and habitat preferences; and the importance of identified roosts. This process analyses the overall importance of the survey area, but also serves to identify which parts of the survey

⁴ With reference to Table 3.1: Rarity Category in *Bat Mitigation Guidelines* (Reason, P.F. and Wray, S. (2023)).

area are Important Ecological Features (IEF), and which may therefore be of importance to the conservation status of local bat populations. Interpretation of these terms and the accompanying data is, where appropriate, informed by professional judgement.

- 2.5.10 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

- 2.5.11 The survey conducted in April 2023 had to be aborted after one hour and 35 minutes due to prolonged heavy rain and temperature levels were below that specified as suitable for bat activity surveys. The July transect was abandoned at 21:40 (52 minutes into the survey) due to safety concerns following aggressive behaviour from a local resident and the following survey in August was cancelled due to safety concerns following this incident. The September dusk transect had to be abandoned at 20:50 (12 minutes early) due to heavy thunderstorms. As two static monitoring detectors were successfully deployed each month and the remaining surveys took place without interruption, the curtailment of the April, July and September transect, and cancellation of the August transect are not considered to be significant.
- 2.5.12 To avoid future confrontation, TP6 was passed but not stopped at on the September and October transect surveys as TP6 was located next to the yard of the confrontational resident.
- 2.5.13 The May and June transect surveys finished slightly earlier than the two hours scheduled, 7 and 8 minutes respectively, as the transect route had been completed faster than anticipated.
- 2.5.14 Static detectors SM6, SM9 and SM12 stopped recording after four nights, and SM10 stopped recording after three nights, instead of the scheduled 5 nights. This may be due to several factors including the number of recordings exceeding the memory space available, battery life expiring, or internal malfunctions. To compensate for this, the data are also shown as bat passes per hour which provides an average number of bat passes across the nights of recording. Bat passes per hour did not significantly deviate from the total bat passes recorded at each location and therefore this potential limitation is not considered to be significant.
- 2.5.15 The surveys were undertaken in accordance with the Bat Conservation Trust's (BCT) recommended timings for activity surveys (Collins (ed.), 2016). There were no further difficulties in gaining access to the site to carry out the surveys. Weather conditions were generally good during the surveys and within acceptable parameters.
- 2.5.16 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.

- 2.5.17 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. 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 spp.*).

2.6 Hazel Dormouse

- 2.6.1 A presence / absence survey for hazel dormouse was carried out, based on standard industry guidelines (Bright *et al.*, 2006) and Natural England's standing advice⁵ for dormouse, comprising:
- ▶ Nest tube surveys: installation of artificial nest tubes within areas of suitable habitat which were subsequently checked for occupancy.

Nest tube survey

- 2.6.2 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 2.7.

Table 2.7: 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

- 2.6.3 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 70 nest tubes, installed within scrub, hedgerow and woodland habitat on 18 April 2023. Nest tube checks were carried out monthly between May and September thereby achieving a total score of 28 (4+2+2+5+7*1.4) and gives a good degree of confidence in the survey findings.

⁵ 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>

- 2.6.4 Nest tubes were positioned in areas of suitable habitat within and adjacent to the survey area, as shown on the plan at Appendix X. 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 2.8.

Table 2.8: Hazel dormouse survey dates and weather conditions

Date (2023)	Weather conditions
16 May	18-20°C, 40% cloud cover, light air (Beaufort 1), no precipitation
16 June	21°C, 5% cloud cover, fresh breeze (Beaufort 5), no precipitation
12 July	20°C, 90% cloud cover, moderate breeze (Beaufort 4), light rain
16 August	20-21°C, 25% cloud cover, light breeze (Beaufort 1), no precipitation
29 September	16-18°C, 40% cloud cover, moderate breeze (Beaufort 4), no precipitation

Evaluation criteria

- 2.6.5 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

- 2.6.6 Hedgerow growth during the months of June and July reduced the efficacy of nest tube relocation. As a result, a number of tubes were not checked during these months as they could not be found. June and July score the lowest in the index of detection probability for hazel dormice. The ability to relocate tubes was greater in May and increased substantially during August and September, when vegetation began to die back. In contrast to June and July, August and September score the highest in the index of detection probability for hazel dormice. As nest tube relocation was higher during the higher scoring months, this potential limitation is not considered significant.
- 2.6.7 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.

2.7 Reptiles

- 2.7.1 A presence / likely 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 advice⁶ for reptiles, combining 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°C, and in the absence of rain and strong wind) are required to establish the presence or likely absence of reptiles within the survey area.

- 2.7.2 In total, 87 artificial refuges were used within the survey area distributed across approximately 5.6ha focusing on the areas of most suitable habitat as shown on the plan at Appendix XI. Guidelines recommend that at least 10 refuges are used per hectare of land surveyed (refuge density during this survey = c.15.5/ha). To give reptiles time to locate and habituate to new refuges in their environment all mats were placed on 18 April 2023, 22 days prior to the start of the main survey period.
- 2.7.3 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 2.9.

Table 2.9: Reptile survey dates and weather conditions

Date (2023)	Timings	Weather conditions
10 May	16:20-15:20	15°C, 40% cloud cover, light air (Beaufort 1), no precipitation
17 May	16:15-17:30	17-16°C, 30% cloud cover, light breeze (Beaufort 2), no precipitation
22 May	09:15-10:15	15°C, 50% cloud cover, light breeze (Beaufort 2), no precipitation
5 June	09:30-10:30	14-15°C, 0% cloud cover, calm (Beaufort 0), no precipitation
16 June	07:30-09:00	18-23°C, 50% cloud cover, light air (Beaufort 1), no precipitation
26 June	08:15-09:15	17°C, 15% cloud cover, light breeze (Beaufort 2), no precipitation
28 June	08:00-09:00	19°C, 90% cloud cover, light breeze (Beaufort 2), no precipitation

Evaluation criteria

- 2.7.4 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 2.10, 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.

Limitations

- 2.7.5 During the survey visit on 28 June 2023 the air temperature was beyond the upper limited specified (18°C) in 2.7.1. However, the survey remained within the peak air temperature specified by Froglife (2015), which considers the optimal range to be 9-20°C. In addition, the air temperature on 16 June had increased beyond 20°C by the end of the survey. As the remaining

⁶ Natural England (2015): Reptiles: surveys and mitigation for development projects. Accessed online at: <https://www.gov.uk/guidance/reptiles-protection-surveys-and-licences>

survey visits took place during suitable conditions, these potential limitations are not considered to be significant.

- 2.7.6 Approximately half of the reptile mats were found to be removed between the deployment date and first survey, particularly where they were positioned close to the public right of way. A total of 40 additional mats were deployed on the morning of 17 May 2023 before the second survey was carried out in the afternoon. Redeployed mats were labelled with an explanation of their intended purpose. No further mats were found to be removed following this intervention. Given that refuge density within the survey area exceeded that recommended by the guidelines by 5.5 refuges per hectare, this temporary limitation is not considered to be significant.

Table 2.10: 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 <i>Vipera berus</i>	<5	5 – 10	>10
Grass snake <i>Natrix helvetica</i>	<5	5 – 10	>10
Common lizard <i>Zootoca vivipara</i>	<5	5 – 20	>20
Slow worm <i>Anguis fragilis</i>	<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			

2.8 General Limitations

- 2.8.1 See Appendix XIII for general Legal and Technical Limitations which apply to this document.
- 2.8.2 The details of this report are valid until the dates shown in Table 2.11. 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 2.11: Validity of assessment

Survey Type	Validity period (CIEEM, 2019)	Date of final survey	Expiry date
GCN	18 months	22/05/2023	22/11/2024
Breeding birds	18 months	16/06/2023	16/12/2024
Invertebrates	18 months	23/08/2023	23/02/2025
Roosting bats	12 months	22/09/2023	22/09/2024

Survey Type	Validity period (CIEEM, 2019)	Date of final survey	Expiry date
Foraging and commuting bats	18 months	09/10/2023	09/04/2025
Hazel dormouse	18 months	29/09/2023	29/09/2025
Reptiles	18 months	28/06/2023	28/12/2024

2.9 Personnel

2.9.1 The personnel deployed on the surveys are listed in Table 2.12.

Table 2.12: Survey personnel and qualifications

Feature / Task	Personnel
Breeding birds survey	Richard Bickers
Invertebrate survey	Andy Jukes
Bat presence / absence	Dan Maude, Christina Pullan, Richard Emerson
Foraging and commuting bats	Nick Pincombe, Richard Emerson, Dan Maude, Christina Pullan, Joe Dale
Hazel dormouse	Becci Bond, Dan Maude, Christina Pullan, Richard Emerson
Reptile surveys	Richard Bickers, Dan Maude, Richard Emerson, Christina Pullan
Personnel	Qualifications
Nick Pincombe BA(Hons) MSc Cenv MIEMA MCIEEM	Managing Director with eighteen 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-CL18) and GCN (WML-CL08).
Dr Richard Bickers BSc (Hons) PhD MCIEEM	Principal Ecologist with sixteen years' professional consultancy experience. Botanical specialist in plant and vegetation surveys, including National Vegetation Classification, and keen birder with a licence to survey for GCN (WML-CL09).
Becci Bond BSc (Hons) MCIEEM	Principal Ecologist with twelve years' professional consultancy experience. Licences to survey for bats (WML-CL17), great crested newt (WML-CL09) and hazel dormouse (WML-CL10a).
Andy Jukes BSc (Hons) MCIEEM FRES	Invertebrate Ecologist with over 20 years' professional consultancy experience.
Dan Maude BSc (Hons) MRes qCIEEM	Consultant Ecologist with three years' survey experience.
Christina Pullan BSc (Hons) MSc	Consultant Ecologist with seven years' survey experience.
Rich Emerson BSc qCIEEM	Assistant with two seasons' survey experience.
Joe Dale BSc MSc	Assistant with two seasons' survey experience.

3 Results

3.1 Great Crested Newt

eDNA survey

- 3.1.1 The GCN eDNA analysis results letters are presented at Appendix III and summarised in Table 3.1.

Table 3.1: Summary of eDNA analysis results

Pond	Result
P1	<u>Negative</u> for GCN DNA
P2	Dry at the time of survey
P3	<u>Negative</u> for GCN DNA
P10	<u>Negative</u> for GCN DNA

3.2 Breeding Birds

Common Bird Census survey

- 3.2.1 A total of 28 species were recorded, of which 27 were native species and one a non-native species. Three species are considered confirmed breeding species, 19 probable breeding species and four possible breeding species. One species was considered unlikely to be breeding in the survey area. The non-native species pheasant *Phasianus colchicus* is not discussed further.
- 3.2.2 Of the confirmed, probable and possible breeding species four are included on the BoCC (2021) Red List (Red List species), and six are on the Amber List (Amber List species), and five are s41 Species of Principal Importance. Records of the species and their use of the survey area are discussed below, along with accounts of status nationally and within Sussex for Red and Amber species. Plans showing the location of records for the four surveys are shown in Appendix IV, together with the approximate location of territories of confirmed and probable breeding species.

Confirmed breeding species

BoCC Green List species

- 3.2.3 Robin *Erithacus rubecula*: A minimum of five territories were identified, located in scrub, hedgerows, and woodland across the survey area. Breeding was confirmed by the presence of a family of adult(s) with juveniles in the centre of the survey area and juvenile birds in the north of the survey area during the June survey.

- 3.2.4 Blackbird *Turdus merula*: A minimum of six territories were identified, located in scrub, hedgerows, and woodland across the survey area. A particularly high density of records was noted generally. Breeding was confirmed by the presence of a juvenile bird in the east of the survey area during the 25 May survey.
- 3.2.5 Blue tit *Cyanistes caeruleus*: A minimum of five territories were identified, located in scrub, hedgerows, particularly with trees, and woodland across the survey area. Breeding was confirmed by the presence of families of adult(s) with juveniles in the south of the survey area during the June survey.
- 3.2.6 Long tailed tit *Aegithalos caudatus*: One territory was identified, probably centred on scrub just to the south of the centre of the survey area. Breeding was confirmed by the presence of a family of adult(s) with juveniles in the centre of the survey area during the last survey.

Probable breeding species

BoCC Red List species

- 3.2.7 Linnet *Linaria cannabina* (Section 41 species): A minimum of five territories were identified in scrub and hedgerows in the south of the survey area.
- 3.2.8 There were steep declines in linnet during the 1960s and between the mid-1970s and mid-1980s. Numbers have declined more slowly subsequently, but there has been a 23% decline in England from 1995 to 2018. In Sussex linnet appears to have been relatively stable between 1988-92 and 2008-11.
- 3.2.9 Greenfinch *Chloris chloris*: Three territories were identified across the centre and north of the survey area.
- 3.2.10 Greenfinch has experienced a significant decline since the late 2000s, for example more than 65% between 2008 and 2018, largely because of a severe outbreak of trichomonosis disease. Recording for the Birds of Sussex coincided with the early part of the trichomonosis outbreak and the longer-term effect of this was not captured.

BoCC Amber List species

- 3.2.11 Song thrush *Turdus philomelos* (Section 41 species): A minimum of five territories were identified in scrub, hedgerows and woodland across the survey area, a relatively high density of territories for this species.
- 3.2.12 There was a significant decline of c.50% in the national song thrush population, mainly during the 1970s and 80s, but numbers have been relatively stable subsequently. Song thrush was moved from the red to the amber list in the most recent iteration of BoCC. A similar pattern was repeated within Sussex, where numbers appeared to have remained relatively stable between 1988-92 and 2008-11.

- 3.2.13 Wren *Troglodytes troglodytes*: A minimum of 13 territories were identified, in scrub, hedgerows, and woodland across the survey area.
- 3.2.14 Wren has increased steadily in recent decades. Amber listing of wren is based on the UK supporting >20% of the European breeding population.
- 3.2.15 Dunnock *Prunella modularis* (Section 41 species): A minimum of ten territories were identified, located in scrub, hedgerows, and woodland across the survey area.
- 3.2.16 Nationally dunnock experienced a significant population decline of c.40% during the 1970s and 80s. However, since the late 1990s numbers have increased slightly, though they have not recovered to their previous levels. In line with this, in Sussex there was a modest increase in the number of occupied tetrads between 1988-92 and 2008-11.
- 3.2.17 Whitethroat *Sylvia communis*: One territory was identified in scrub in the south of the survey area.
- 3.2.18 Following a significant decline in the 1960s and early 1970s whitethroat increased slowly but steadily till the late 2000s. However, there has been a modest decline in the population subsequently, for example of c.14% in England between 2013 and 2018. In Sussex whitethroat increased between 1988-92 and 2008-11 but the second recording period coincided with the start of the recent decline.
- 3.2.19 Woodpigeon *Columba palumbus*: One territory was located in trees/hedgerow in the west of the survey area. Birds were also recorded foraging in the grassland.
- 3.2.20 Woodpigeon increased steadily until the late 2000s, since which it has been relatively stable. Amber listing of woodpigeon is based on the UK supporting >20% of the European breeding population.
- 3.2.21 Stock dove *Columba oenas*: Two territories were identified in woodland in the east of the survey area, although a singing/calling male was also recorded in the south-west of the survey area during the second survey.
- 3.2.22 Stock dove has increased steadily in recent decades following a decline caused by pesticides in the late 50s and early 60s and, consistent with the national picture, in Sussex stock dove increased between 1988-92 and 2008-11. Amber listing of stock dove is based on the UK supporting c.20-30% of the European breeding population.

BoCC Green List species

- 3.2.23 Great tit *Parus major*: A minimum of five territories were identified in scrub, hedgerows, and woodland across the survey area.
- 3.2.24 Chiffchaff *Phylloscopus collybita*: A minimum of six territories were identified in woodland, and scrub and hedgerows with trees across the survey area.
- 3.2.25 Blackcap *Sylvia atricapilla*: A minimum of four territories were identified in woodland, and scrub and hedgerows with trees across the survey area.
-

- 3.2.26 Goldcrest *Regulus regulus*: A single territory was identified in scrub / hedgerow / trees in the north of the survey area.
- 3.2.27 Goldfinch *Carduelis carduelis*: A single territory was identified in scrub / hedgerow / trees in the west of the survey area.
- 3.2.28 Nuthatch *Sitta europaea*: A minimum of four territories were identified in woodland, and scrub and hedgerows with trees across mainly the southern half of the survey area.
- 3.2.29 Great spotted woodpecker *Dendrocopos major*: At least one territory appeared to be centred on the woodland in the east of the survey area, although birds were also recorded elsewhere.
- 3.2.30 Green woodpecker *Picus viridis*: There was at least one territory, possibly centred on the trees and scrub near the centre of the survey area, although birds were recorded elsewhere.
- 3.2.31 Carrion crow *Corvus corone*: A single probable territory was located among trees in the south-west of the survey area.
- 3.2.32 Jackdaw *Coloeus monedula*: Birds were recorded across the survey area, including foraging in the grassland but at least one nest site appeared to be located in a tree near the centre of the survey area, although this was not confirmed.

Possible breeding species

- 3.2.33 Suitable breeding habitat for all the following species is present within the survey area.

BoCC Red List species

- 3.2.34 Starling *Sturnus vulgaris* (Section 41 species): Small numbers of birds were recorded foraging on the grassland, for example during the second survey. However, relatively large numbers of both adults and juveniles (c.50-60) were recorded across especially the southern half of the survey area during the third survey. Starlings nest in cavities, for example in buildings and trees. It is most likely that nesting took place in residential areas surrounding the survey area, but nesting within the survey area was possible.
- 3.2.35 Starlings have declined significantly in recent decades, especially since the 1980s. For example, there was a c.68% decline in England between 1995 and 2018. In Sussex it is estimated that starling numbers declined by nearly a quarter between 1988-92 and 2008-11.
- 3.2.36 House sparrow *Passer domesticus*: A single male bird was recorded on the edge of the north-east of the survey during the second May survey. Although nesting was possible within the survey area it is considered more likely that this occurred in nearby buildings.
- 3.2.37 House sparrow declined by 69% in England between 1977 and 2018, and by 12% between 1995 to 2018. In Sussex house sparrow appears to have been relatively stable between 1988-92 and 2008-11.

Green List species

- 3.2.38 Jay *Garrulus glandarius*: Single birds were recorded in the northern half of the survey area during the second and third surveys.
- 3.2.39 Magpie *Pica pica*: A single bird was recorded in grassland in the north of the survey during the second survey and two birds were recorded in the woodland on the eastern edge of the survey area during the last survey.

Other species

Red list species

- 3.2.40 Red listed swift *Apus apus* were recorded flying over the survey area but as there were no buildings within the survey area it is highly probable they were nesting elsewhere.

3.3 Invertebrates

- 3.3.1 The results of the invertebrate survey are summarised in Table 3.1.

Table 3.2: Summary invertebrate survey results

Date (2023)	Target species	Adult count
21 July	Brown hairstreak	None
23 August	Brown hairstreak	None

3.4 Roosting Bats

Bat Presence / Absence Survey

Survey 1: 1 June 2023 – Dusk (Sunset 21:05; survey start 20:50; survey end 22:35)

- 3.4.1 No bats were seen emerging from tree TN1.
- 3.4.2 Moderate levels of activity were recorded throughout the survey, with regular common pipistrelle *Pipistrellus pipistrellus* foraging recorded from 21:34 (first bat; 29 minutes after sunset) until around 22:20 when activity levels reduced to low. Common pipistrelles were recorded foraging north to south along the scrub in which TN1 was located, as well as east to west along the tree line to the south of the survey positions. Other species of note recorded included a single pass from an unseen *Myotis* bat at 22:25. No other species of bat was recorded.

Survey 2: 22 June 2023 – Dusk (Sunset 21:19; survey start 21:04; survey end 22:49)

- 3.4.3 No bats were recorded emerging from tree TN1.

- 3.4.4 Moderate levels of bat activity were recorded during the survey, which predominantly comprised one species of bat: common pipistrelle. Occasional foraging / commuting by soprano pipistrelle *Pipistrellus pygmaeus* was also recorded. The first bat recorded was a common pipistrelle at 21:41 (22 minutes after sunset). Similar to survey 1, bats were recorded foraging above the dense scrub in which tree TN1 is located as well as mature trees to the south. No other species of bat was recorded.

Survey 3: 22 September 2023 – Dawn (Sunrise 06:46; survey start 04:46; survey end 07:01)

- 3.4.5 No bats were recorded re-entering tree TN1, and no bats were recorded foraging or commuting within this part of the survey area.

3.5 Foraging and Commuting Bats

- 3.5.1 There are ten SSSI and no SAC within 10km of the survey area. Bat populations are not listed amongst the notified features for any of these sites.

Transect surveys

- 3.5.2 Monthly bat activity surveys were carried out between April and October 2023; see Appendix VII for a plan showing survey transect and TPs. These mostly consisted of dusk surveys, but in September a dusk and dawn survey was carried out in the same 24hr period. Full survey results are included at Appendix VIII and summarised in the tables and graphs below.

Transect data

- 3.5.3 Table 3.3 present a summary of all transect survey data collected during the 2023 bat active season.

Table 3.3: Monthly bat transect survey data

Date (2023)	Time	EPSE	Mysp	PIPI	PIPY	PLsp	Total
April	Dusk	0	0	0	0	0	0
May	Dusk	0	1	117	9	1	128
June	Dusk	0	0	24	0	0	24
July*	Dusk	1	0	50	4	0	55
September	Dusk	0	3	25	56	0	84
September	Dawn	0	1	4	0	0	5
October	Dusk	0	2	99	21	6	128
Total		1	7	319	90	7	424
%		0	2	75	21	2	100

*The July transect was abandoned 52 minutes into the survey

- 3.5.4 The overall abundance of foraging and commuting bats was low to high, with peak of 128 bat passes recorded during the May and October transects. This was in contrast to the absence of bat passes during the April survey, and five passes during the September dawn survey. However,

both the April and September dawn survey were impacted by poor weather conditions which likely reduced bat activity.

- 3.5.5 In total 424 bat passes were made across the seven transect surveys. This is despite the July transect being curtailed 68 minutes early and the August transect not taking place due to safety concerns. Common pipistrelle bats were significantly more common than any other species, with 319 passes in total (75%). Soprano pipistrelle made up a considerable proportion of other bat passes (90 passes; 21%), followed by long-eared bats *Plecotus spp.* (7 passes; <2%), *Myotis* bats *Myotis spp.* (7 passes; <2%) and serotine *Eptesicus serotinus* (1 pass; <1% each).
- 3.5.6 Bat activity was identified at all transect points, however the level of activity varied significantly across the survey area. Particularly high activity was consistently recorded toward the eastern boundary and south-eastern corner of the survey area at TP7, TP8, TP9 and TP10. These transect points were located among the most established patches of scrub within the survey area and were also close to offsite Deciduous and Ancient Woodland. Relatively high levels of activity were recorded at TP5, located at the northern boundary, although the majority of bat passes at this transect point were recorded during the May survey and were not consistent across the monthly visits.
- 3.5.7 Regular but low levels of activity were recorded at TP1, TP2, TP3, TP4 and TP11. TP1-TP4 were located along the scrub boundary at the west and centre of the northern field. TP11 was located at the centre of the southern field. Very low levels of activity were recorded at TP6, TP6a and TP12. TP6 was located at the north-eastern corner of the survey area and was passed but not stopped at during the July, September and October surveys due to safety concerns. Stops were made at TP6 in April, May and June, where activity levels were still very low. TP12 was located at the centre of the western boundary between the two fields. This transect point was close to residential buildings and public site access which potentially reduced the level of bat activity. TP6a recorded the lowest level of activity across the surveys and was located within relatively open habitat toward the centre of the eastern half of the northern field.

Remote monitoring

- 3.5.8 Deployment of remote automated bat detectors coincided broadly with each transect survey; see Appendix VII for a plan showing the locations of remote detector deployments. Table 3.4 presents a summary of all bat passes recorded during remote monitoring.

Table 3.4: Total number of bat passes during remote monitoring, all species

Month (2023)	Detector	BABA	EPSE	MYsp	NYLE	NYNO	NYSP	PINA	PIPI	PIPY	PLsp	Total
April	SM1	0	1	0	0	1	0	0	43	4	1	50
	SM2	0	0	3	0	0	0	0	1519	105	1	1628
May	SM3	0	3	3	2	4	0	0	659	11	0	682
	SM4	0	5	9	1	0	0	0	274	12	8	309
June	SM5	2	16	3	5	1	4	0	548	29	4	612

Month (2023)	Detector	BABA	EPSE	MYsp	NYLE	NYNO	NYSP	PINA	PIPI	PIPY	PLsp	Total
	SM6	0	7	3	1	0	6	2	785	15	4	823
July	SM7	0	5	11	0	4	0		1873	18	6	1917
	SM8	0	0	7	0	3	0	0	1085	13	0	1108
August	SM9	0	4	25	1	3	1	0	1725	83	0	1842
	SM10	0	0	4	0	3	0	0	43	9	0	59
September	SM11	0	0	1	0	0	0	1	30	11	2	45
	SM12	0	0	9	0	0	0	0	742	131	7	889
October	SM13	0	0	0	0	1	0	0	48	4	0	53
	SM14	1	0	3	0	1	0	0	77	10	3	95
Total		3	41	81	10	21	11	3	9451	455	36	10112
%		0.03	0.41	0.80	0.10	0.21	0.11	0.03	93.46	4.50	0.36	100

- 3.5.9 The data show that total bat passes per detector and mean bat passes per hour (BPPH) were variable across the survey area. Detectors SM2, SM7, SM8 and SM9 recorded high levels of bat activity with over 1000 bat passes recorded on each detector over the five-night monitoring period. SM7 recorded the highest number of total bat passes (1917) and second highest BPPH (39.32). SM7 was located along the southern boundary of the southern field, and was deployed in close proximity to TP9, where high levels of bat activity were also recorded during the transects. SM9 recorded a similarly high number of total bat passes (1842) and the highest BPPH (42.84). SM9 was located at the centre of the eastern boundary, close to nearby Deciduous and Ancient Woodland. SM2 was located at the northern boundary close to TP5 and SM8 was located at the western boundary along the central tree line.
- 3.5.10 High to moderate levels of bat activity generally correlated with higher quality habitat for foraging and commuting bats. Similar to the transect surveys, detectors deployed along the eastern and southern boundaries all recorded high to moderate levels of activity. These locations had more established patches of scrub with mature trees and were close to offsite Deciduous and Ancient Woodland.
- 3.5.11 Low levels of activity were recorded at SM1, SM10, SM11, SM13 and SM14, which all recorded less than 100 total bat passes and less than 2 BPPH. SM1 and SM10 were deployed along the central mature treeline that's runs east to west between the northern and southern fields. This was considered to be relatively good foraging and commuting habitats for bats, with SM12 (which was deployed at the western end of the same treeline) recording high levels of activity. It is unlikely that poor weather conditions affected bat activity at SM1 and SM10 as high levels of activity were recorded on the second detector deployed in each of these months (SM2 and SM9). SM11 and SM14 were deployed within the linear belt of scrub that runs north to south within the northern field and SM13 was deployed towards the north-west of the southern field.

- 3.5.12 The overwhelming majority of bat passes across the survey area were from pipistrelle bats; common pipistrelle 9,451 passes or 93.46%%, soprano pipistrelle 455 passes or 4.50%, and Nathusius’ pipistrelle 3 passes or 0.03%.
- 3.5.13 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 survey area varied from low to high across the survey period, with particularly high levels of activity recorded at SM2, SM7 and SM9.

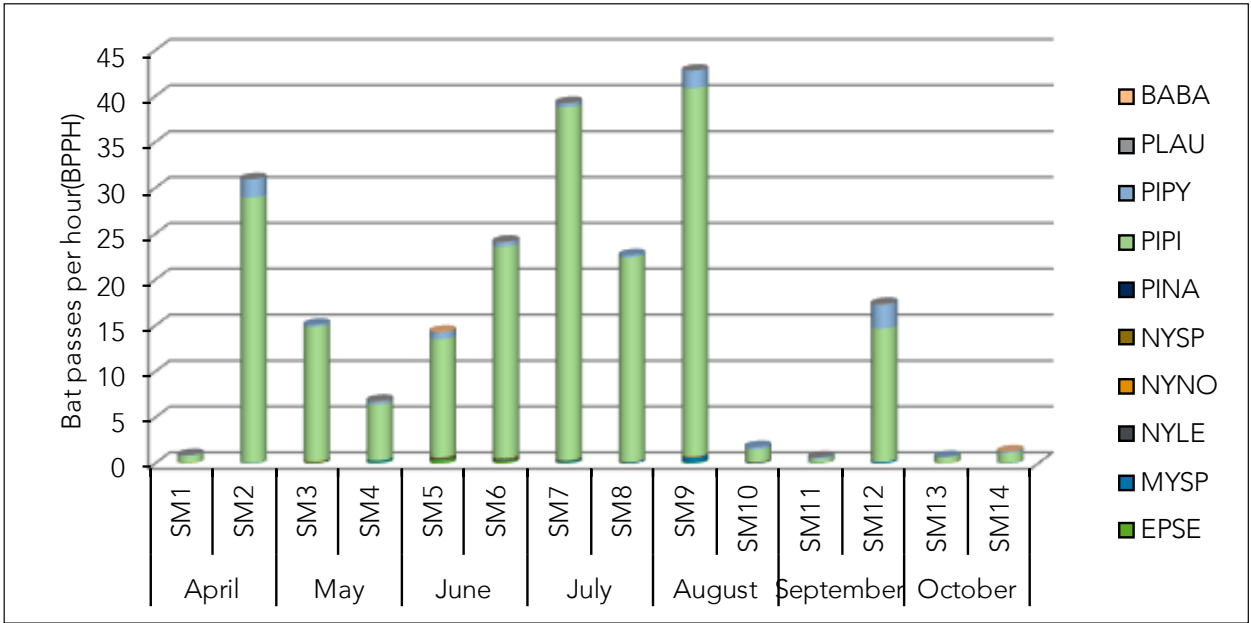


Figure 3.1: Bat passes per hour, by detector and month

3.6 Hazel Dormouse

Nest tube survey

- 3.6.1 The nest tube survey recorded six unoccupied hazel dormouse nests during the survey period and one nest with a live hazel dormouse. Six nests were recorded within the southern field and one nest within the eastern boundary of the northern field. A summary of the survey results is displayed in Table 3.5 with locations of hazel dormouse and other species shown at Appendix X.

Table 3.5: Summary of hazel dormouse survey results

Survey	1	2	3	4	5
Date 2023	16 May	16 June	12 July	16 August	29 September
Hazel dormouse	1 live dormouse; 5 nests;	4 nest (1 not previously recorded)	0	2 nest (1 not previously recorded)	0
Other species	2 part built nests	2 wood mouse nests; 1 unidentified mouse nest	0	2 wood mouse nests; 1 unidentified mouse nest	1 live wood mouse in old dormouse nest, 1 wood mouse nest



Unoccupied hazel dormouse nest located within bramble scrub at the eastern boundary of the northern field during May



Unoccupied hazel dormouse nest located toward the centre of the southern field during the May.



Unoccupied hazel dormouse nest located within bramble scrub at the south-eastern corner of the southern field during May



Unoccupied hazel dormouse nest located within bramble scrub at the south-eastern corner of the southern field during May



Live dormouse recorded exiting nest tube located within bramble scrub at the south-western corner of the southern field during May.



Disused dormouse nest located within bramble scrub at the south-western corner of the southern field during August.

3.7 Reptiles

Visual encounter / artificial refuge survey

- 3.7.1 The VES and ARS (including natural / pre-existing refuges) recorded a total of six grass snakes across the survey period with a peak count of two adults and one sub-adult during survey 7. The records were mostly scattered through the northern portion of survey area, including the eastern boundary, central mature tree line between the two fields, central linear scrub of the northern field, and north-western corner close to P1.
- 3.7.2 No other reptile species or signs of their presence (e.g., skin sloughs, eggs / egg-cases) were observed during the survey, however other herpetofauna species recorded included two common toads *Bufo bufo*. A summary of the survey results is displayed in Table 3.6. Peak count is highlighted in bold.

Table 3.6: Summary of reptile survey results

Survey	1	2	3	4	5	6	7
Grass snake	0	1U	0	0	1J	1SA	2U; 1SA

SA = sub-adult, U = adult unsexed

This page is intentionally blank.

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 XII for a review of the legislation and planning context.

4.2 Great Crested Newt

Presence or absence of GCN

- 4.2.1 All ponds within 250m of the survey area boundary that were potentially suitable for GCN, were subject to eDNA testing. Ponds P1, P3, and P10 returned a negative result for GCN DNA. Pond P2 was dry at the time of eDNA and PEA survey and is likely to run dry for most of the year making it unsuitable for breeding GCN. The surveys were carried out during the peak sampling season and are considered to provide a good level of confidence in the presence or likely absence of GCN within surveyed ponds.
- 4.2.2 No GCN were recorded under reptile refugia during the reptile survey.

Site Evaluation

- 4.2.3 Overall, habitats within the survey area provide a range of features which could support a population of GCN during the terrestrial phase of their lifecycle. The composition of intermittently grazed grassland, with a variable sward height and structure is suitable for foraging GCN. The dense and scattered scrub provide shelter and dispersal habitat, while the adjacent woodlands offer hibernation potential. The site is linked to further areas of suitable terrestrial habitat which continue off site, particularly to the south and east. This connectivity will persist following completion of the development.
- 4.2.4 There were an additional six ponds (P4-P9) located between 250m and 500 from the survey area. The majority of GCN 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 GCN 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 For this reason, ponds located greater 250m from the survey area were not subject to an eDNA survey because if any GCN were present within these ponds they were unlikely to disperse the distance required to reach the survey area. This likelihood is reduced further where significant barrier to dispersal is present, such as the main road and large house development to the west of the survey area which isolate P4 and P5. Habitats surrounding P6-P9 appear to be of a similar or greater quality for GCN than those within the survey area. It is unlikely that GCN, if present within P6-P9, would attempt a significant dispersal distance to reach the survey area when good quality habitat exists surrounding these ponds.
- 4.2.6 It is considered likely that GCN are absent from the survey area. This is due to the negative result for GCN eDNA in ponds located within 250m of the survey area, and the distance or isolation from the survey area of ponds located more than 250m away. The survey area is considered to be of Negligible Importance for GCN.

Impact assessment

- 4.2.7 Despite the availability of suitable terrestrial habitat for GCN within the site, all suitable breeding habitat within 500m has been scoped out for GCN presence. In conclusion, GCN are likely absent from the survey area and the impact to GCN from the Proposed Development is considered negligible.

4.3 Breeding Birds

Species assemblage

- 4.3.1 The breeding bird assemblage comprised 26 native confirmed, probable or possible breeding species. The most notable species from a nature conservation perspective are considered to be the ten BoCC Red and Amber Listed probable/possible breeding species, which includes five are s41 Species of Principal Importance. It should be noted that some of these species (wren and woodpigeon) have stable or increasing populations in the UK and are listed due to the international importance of the UK populations. Table 4.1 provides a summary of the survey results.

Table 4.1: Summary of breeding bird survey results

Species	BoCC list	Section 41	Minimum no. of territories
Confirmed breeding species			
Robin	Green	No	5
Blackbird	Green	No	6
Blue tit	Green	No	5
Long tailed tit	Green	No	1

Species	BoCC list	Section 41	Minimum no. of territories
Probable breeding species			
Linnet	Red	Yes	5
Greenfinch	Red	No	3
Song thrush	Amber	Yes	5
Wren	Amber	No	13
Dunnock	Amber	Yes	10
Whitethroat	Amber	No	1
Woodpigeon	Amber	No	1
Stock dove	Amber	No	2
Great tit	Green	No	5
Chiffchaff	Green	No	6
Blackcap	Green	No	4
Goldcrest	Green	No	1
Goldfinch	Green	No	1
Nuthatch	Green	No	4
Great spotted woodpecker	Green	No	1
Green woodpecker	Green	No	1
Carrion crow	Green	No	1
Jackdaw	Green	No	1
Possible breeding species			
Starling	Red	Yes	?
House sparrow	Red	Yes	?
Jay	Green	No	?
Magpie	Green	No	?

Section 41 Natural Environment & Rural Communities Act 2006 Section 41 Species of Principal Importance
BoCC list Red / Amber / Green, Birds of Conservation Concern 4 (Stanbury et al., 2021)

Site evaluation

- 4.3.2 The survey area supported a moderately rich breeding bird assemblage, including at least eight species of conservation concern (though two of these are not of concern as a result of rarity or declines in a UK context). The survey area is considered to be of Local Importance for its breeding bird species. Scrub, hedgerows and woodland were the most important nesting habitats, but the grassland was an important foraging area for several species, especially thrushes (Amber list song thrush and Green list blackbird).

Impact assessment

- 4.3.3 It is currently understood that the majority of development would be located in the north of the survey area, although three attenuation basins would also be located in the south as part of an

area of public open space. This would result in the loss of scrub and trees within both the north and south of the survey area. Both construction and operation of the development are also likely to increase levels of disturbance across the survey area. It is considered that these would have a moderate negative impact on the breeding bird assemblage with, for example, species such as Red listed linnet and Amber listed song thrush and whitethroat most likely to be negatively impacted, due to the combination of habitat loss and increased disturbance. However, no breeding Schedule 1 species (which are protected against disturbance while nesting) were recorded.

4.3.4 Without mitigation, the Proposed Development is likely to lead to the following impacts on breeding birds 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:

- ▶ Temporary risk of killing, injury and nest loss, which would constitute an offence under the Wildlife and Countryside Act 1981 (as amended; WCA);
- ▶ Direct loss of grassland, comprising foraging habitat for species such as starling (both Red List and Section 41 species);
- ▶ Probable disturbance effects, both during and post construction, of birds in retained habitats within the development site and in areas immediately adjoining it. However, no Schedule 1 species were recorded; and
- ▶ Both habitat loss and disturbance effects could lead to the loss of territories or species from the site and adjoining habitats / areas.

4.3.5 Recommendations including pre-works checks of vegetation and habitat creation to avoid and mitigate predicted impacts are set out in Chapter 5.

4.4 Invertebrates

4.4.1 The targeted invertebrate survey for brown hairstreak recorded no adult butterflies.

Site evaluation

4.4.2 The blackthorn scrub within the survey area was unmanaged and included young, suckering plants, though these were limited, possibly owing to the browsing presence of horses and rabbits. Blackthorn was not extensive across the whole survey area but dominated the boundaries of the north-western field. Elsewhere, blackthorn was intermittent and shaded by trees or bramble in most places.

4.4.3 The field interiors had ample adult nectaring opportunities in the form of bramble, common fleabane and ragwort *Jacobaea vulgaris*. The presence of mature ash *Fraxinus excelsior* trees within the survey area boundaries was also an important feature, as this tree species and age class is the preferred lekking location for adult brown hairstreaks.

- 4.4.4 The survey area therefore provides all the necessary features to support brown hairstreak butterflies, although some of the features, particularly regeneration of blackthorn through suckering and new growth, were limited. As a result, the survey area is classified as being of Local Importance for invertebrates.

Impact assessment

- 4.4.5 Upon initial inspection, the survey area appears to be suitable for brown hairstreak butterflies. However, given that new growth (young shoots) and suckering blackthorn below 1.5m in height are the preferred egg-laying location, and were limited in extent, the survey area is considered to be sub-optimal for this species. If the presence of horses was reduced or removed from the survey area, the habitat could become more favourable for brown hairstreak.
- 4.4.6 Nevertheless, as the survey area possesses all the requirements for brown hairstreak it is not possible to conclusively confirm this species is absent, but if it is present, any colony is likely to be at a low level and evading detection.
- 4.4.7 Although no brown hairstreak butterflies were recorded, the survey area falls within a core area for this species. Suitable mitigations are provided in Chapter 5 to safeguard a potential small colony within the survey area and promote the current set of features to encourage the use of the survey area by brown hairstreak butterflies.

4.5 Roosting Bats

Presence or absence of roosting bats

- 4.5.1 The survey results provide a good level of confidence that bats were absent from tree TN1 during the 2023 season. Surveys were carried out at an appropriate time of year and weather conditions were within acceptable parameters. The results are therefore considered to provide an accurate account of the bat roost status of tree TN1.

Site evaluation

- 4.5.2 In addition to tree TN1, there were numerous other trees within the survey area that would likely be classified as high suitability for roosting bats had a full ground level tree assessment survey been carried out. Accordingly, the survey area is provisionally assessed as Local-District Importance on a precautionary basis due to the absence of survey data for these additional trees.

Impact Assessment

- 4.5.3 A number of mature trees across the survey exhibited PRFs for bats. Felling or arboricultural works to these trees could result in destruction of a bat roost or present a risk of killing, injury or disturbance if bats are present during the works, which would constitute an offence under the WCA.
- 4.5.4 The majority of these trees will be retained and therefore were not subject to a ground level tree assessment or presence / absence survey. Tree TN1 will be felled and presence / absence surveys

in 2023 identified the likely absence of roosting bats within this tree. However, bats' usage of tree roost habitats is dynamic and changeable throughout the year and between years, which may render the survey data out of date by the time the application is determined.

- 4.5.5 There is also potential for bats roosting within trees which were not surveyed to be displaced by increased lighting during the construction and operational phase. Recommendations including a sensitive lighting scheme and habitat creation to avoid and mitigate predicted impacts are set out in Chapter 5.

4.6 Foraging and Commuting Bats

Species assemblage

- 4.6.1 Species diversity recorded during the bat activity surveys to date included at least nine species. Their national conservation status is listed in Table 4.2 (BCT, 2010; Mathews *et al.*, 2018; Sussex Bat Group⁷). Common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule *Nyctalus noctula*, and serotine have previously been recorded within 2km of the site, as have *Myotis* and *Plecotus* species, as confirmed during the desk study stage of the PEA (UEEC, 2023a).
- 4.6.2 *Plecotus* spp. and *Myotis* spp. call parameters overlap significantly within genus, and it is not normally possible to conclusively identify them to species level unless they are in the hand. Brown long-eared bats are widespread and relatively abundant both in Sussex and nationally. Grey long-eared bats are rare, and their restricted national distribution is focused on southern coastal areas. As such, the low numbers of long-eared bats recorded during the surveys cannot be confidently attributed to species level. The *Myotis* spp. calls recorded within the survey area were most closely matched to the call parameters of Brandt's *M. brandtii*, Daubenton's *M. daubentonii*, whiskered *M. mystacinus* bats and Natterer's *M. nattereri* bats. The survey area falls broadly within the known distribution of all four species. As *Myotis* spp. and *Plecotus* spp. cannot be confidently identified they are not listed in Table 4.2.

Table 4.2: Conservation status of recorded bat species (abundance and distribution)

Species	Sussex abundance/distribution	UK abundance/distribution	UK status
Barbastelle <i>Barbastella barbastellus</i>	Very rare, widespread	Very rare, widespread in England and Wales	Vulnerable
Serotine	Uncommon, widespread	Uncommon, widespread, southern England	Vulnerable
Leisler's bat <i>Nyctalus leisleri</i>	Rarely recorded	Scarce but widespread to southern Scotland	Near threatened
Noctule	Uncommon, widespread	Uncommon, widespread, absent in Scotland	Least concern

⁷ Sussex Bat Group website: Bats in Sussex. Accessed online [25/10/23] at: <https://www.sussexbatgroup.org.uk/batsinsussex>

Species	Sussex abundance/distribution	UK abundance/distribution	UK status
Nathusius' pipistrelle	Scarce, widespread	Scarce, widespread, includes migrants	Least concern
Common pipistrelle	Abundant, widespread	Widespread, abundant	Least concern
Soprano pipistrelle	Fairly common, widespread	Fairly common, widespread	Least concern

Species abundance

4.6.3 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 BPPH and give 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 (293.16 BPPH or 91.81%) of all bat calls recorded were from *Pipistrellus spp.* bats, with the sum of BPPH registered at each location being 205.40 BPPH or 93.55% for common pipistrelle, 9.49 BPPH or 4.33% for soprano pipistrelle, and 0.08 BPPH or 0.03% for Nathusius' pipistrelle.

4.6.4 Of the remaining bat passes, *Myotis spp.* (1.79 BPPH or 0.82%) were the next most frequently recorded, followed by serotine (0.98 BPPH or 0.44%), *Plecotus spp.* (0.76 BPPH or 0.35%), noctule (0.47 BPPH or 0.21%), *Nyctalus spp.* (0.29 BPPH or 0.12%), Leisler's bat (0.24 BPPH or 0.11%), and finally barbastelle (0.06 BPPH or 0.03%). These results are broadly consistent with those recorded during the transect surveys.

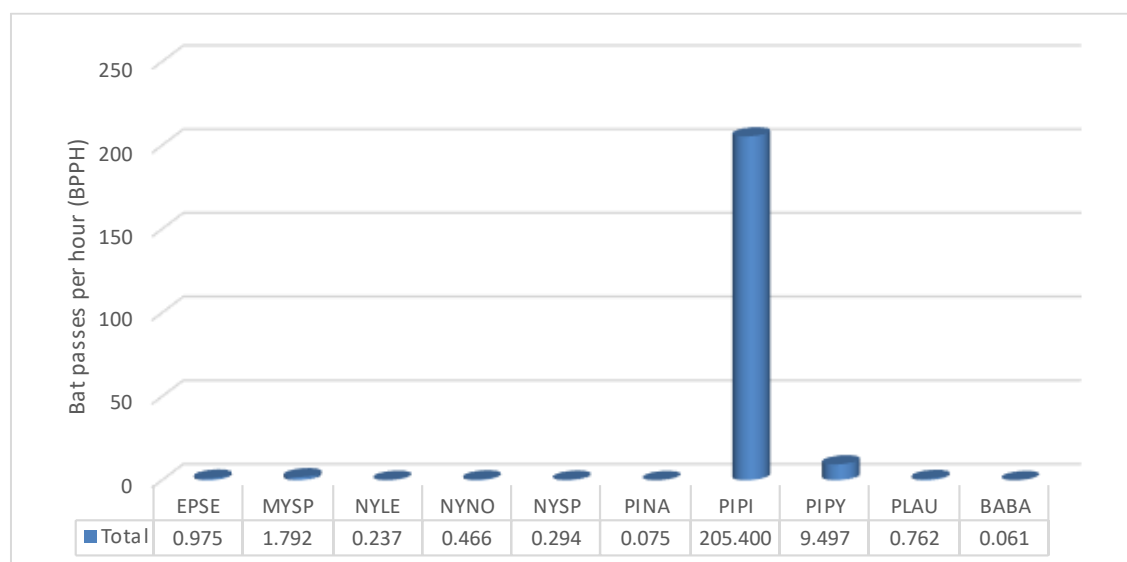


Figure 4.1: Bat pass species composition, all remote monitoring data

Site evaluation

4.6.5 Due to the high proportion of common and widespread bat species and variable levels of activity recorded, the survey area is considered to be of Local Importance for its bat population.

Table 4.3:: Importance of bat assemblage (Southern England)

Species	Importance of roosts	Importance of commuting and foraging habitat	Importance of assemblage
Widespread Common pipistrelle Soprano pipistrelle Brown long-eared	No roosts have been identified within the survey area for species in this category. Various unspecified roosts within 2km. One maternity roost for common pipistrelle identified c.1.5km east. It is anticipated that smaller roosts may exist within the survey area. Negligible (Site) importance	The habitats within the survey area are assessed as providing moderate suitability, comprising neutral grassland, scrub and mature scattered trees. ▶ Adjacent woodland and ponds provide further opportunities and connectivity into the wider area.	3 (of a maximum 3)
Widespread but not as abundant in all geographies Noctule Myotis sp.	No roosts have been identified within the survey area for species in this category. No Myotis species roost within 2km, but one maternity roost for noctule identified c.1.23km north-east. It is anticipated that smaller roosts may exist within the survey area. Negligible (Site) importance	▶ Low-moderate relative levels of bat activity in many areas. Higher levels recorded along the northern, eastern and southern boundaries. ▶ Bat activity dominated by common / soprano pipistrelle (97.88%). All other species registering less than 1.79 BPPH. ▶ Myotis sp. calls resembled Brandt's bats, Daubenton's bats, whiskered and Natterer's bat. All four species are assumed as present.	10 (of a maximum 10)
Rare or restricted distribution Serotine Leisler's bat Nathusius pipistrelle	No roosts have been identified within the survey area for species in this category. One unspecified roost for Leisler's identified c.1.42km south-east. Negligible (Site) importance		9 (of a maximum 12)
Rarest Annex II species and very rare Barbastelle	No records of roosts Negligible (Site) importance		4 (of a maximum 20)
Overall score 26 / 45 = 49%; meets threshold for <u>County Importance</u> However, due to the relatively low abundance of Myotis species bats recorded during the surveys, and uncertainty over species recorded, it is considered proportionate to reduce the importance of assemblage to <u>Local Importance</u> .			

Impact assessment

Habitat losses and land use changes

- 4.6.6 The Proposed Development will be restricted to the northern field but will result in a permanent loss of c.2.15ha of grassland and 0.98ha of scrub across the survey area. This includes the loss of bramble scrub at the northern end of the southern field which will be cleared to create three attenuation basins. In addition, five medium sized rural trees situated within areas of cleared scrub will be lost. Boundary habitats within the northern field will be retained, but a section of scrub at the north-western corner will be removed to create a new vehicle access route from Hanlye Lane. Lost habitats within the northern field will be replaced with 50 new dwellings, together with access, landscaping and other associated infrastructure. The southern field will remain unchanged, excluding the loss of bramble scrub for the new attenuation basins.
- 4.6.7 This loss of habitat across the survey area 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 existing suitable habitat will remain. The highest levels of bat activity were recorded at the southern and eastern boundary habitats which will be retained and protected. In addition, bat activity within the survey was dominated by common pipistrelle bats, which are habituated to semi-urban environments and are therefore unlikely to be displaced following construction of the Proposed Development. Other species which prefer to forage along woodland edge and open habitats, or are more tolerant to semi-urban conditions, including noctule (Species of Principal Importance) and serotine are unlikely to be significantly affected by the proposed development beyond the construction stage.

Increases in artificial light

- 4.6.8 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. 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.
- 4.6.9 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 comprised 98.81% of all bats recorded during passive monitoring at the survey area. These species are unlikely to be significantly affected by the Proposed Development. Light intolerant species recorded at the site, including individuals of the genera *barbastelle*, *Myotis* and *Plecotus*, together comprised 1.19% 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, which are located offsite and will be protected as part of the Proposed Development.

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

4.7 Hazel Dormouse

Presence or absence of hazel dormouse

- 4.7.1 The survey findings confirm that hazel dormouse is present on site.
- 4.7.2 Hazel dormouse presence, in the form of one live hazel dormouse and seven nests characteristic of the species, were located across the survey area. Six nests were recorded within the southern field and one nest within the eastern boundary of the northern field. Four unoccupied nests were recorded along with one live dormouse in a nest in April, one new unoccupied nest was recorded in each of June and August.

Population assessment

- 4.7.3 Nest tubes are intended to detect the presence of hazel dormice and do not permit an estimation of density unless detailed work to calibrate the method has been carried out. Seven hazel dormouse nests were identified within patches of scrub across the survey area, but records were concentrated within the southern field. Despite this, hazel dormouse is considered to be present within all suitable habitat onsite. The boundary habitats in particular may form important commuting routes that connect populations of hazel dormouse between woodland blocks within the local landscape, as well as providing a foraging and nesting resource in their own right.
- 4.7.4 The survey area is considered to be of Local-District Importance for its hazel dormouse population.

Impact assessment

- 4.7.5 A proportion of potential habitat for hazel dormouse will be lost within the survey area to accommodate the Proposed Development. The majority of boundary habitat will be retained but a section of dense scrub and scrub with young trees will be removed at the north-western corner to create a new vehicle access road.
- 4.7.6 In total, 0.98ha of scrub will be lost across the survey area. The northern field will lose all suitable habitat that exists inside the field boundaries, but the field boundaries themselves will be retained. The southern field will lose a significant proportion of potential habitat toward the north of the field which will be removed to create three attenuation basins and to restore and improve the surrounding grassland, as set out in the Biodiversity Net Gain Report (UEEC, 2023b). The majority of lost habitat is considered to be sub-optimal for dormouse as it consists of primarily of bramble which is unlikely to provide a suitable year-round food source. Higher quality habitat for dormouse is concentrated at the survey area boundaries, particularly to the east and south where

the scrub was more established and species richness was greater. These higher quality habitats will be retained.

- 4.7.7 One hazel dormouse nest was recorded within the northern field and was located at the eastern boundary. This habitat is expected to be retained but will likely be disturbed during construction and operation. Six hazel dormouse nests were recorded within the southern field. All of these nests were located within habitat that is expected to be retained. However, hazel dormouse is considered to be present within all suitable habitat within the survey area.
- 4.7.8 The new vehicle access to the north-west will sever a small area of suitable dormouse habitat that exists offsite to the west around pond P1. This habitat is partially connected to suitable habitat to the south by residential curtilage hedgerows. However, these hedgerows are patchy and poorly maintained. Therefore, based on the current proposals, any hazel dormouse occupying the suitable habitat surrounding P1 could become isolated following the creation of the new access route.
- 4.7.9 In conclusion, the Proposed Development is not expected to disrupt or sever important commuting / dispersal routes across the local landscape as the majority of the boundary habitats will remain intact. This is excluding the new vehicle route that has the potential to isolate dormice to the west of the survey area. Significant habitat loss will occur within the northern field, and northern portion of the southern field. The majority of lost habitat is considered to be sub-optimal for dormouse as it lacks the species diversity required for a year-round food resource but will still be used for foraging and nest building during the dormouse nesting season. Habitats of greater suitability are widely available within the local landscape, especially to the east and south, and habitat connectivity from the Application Site to these habitats will be maintained and protected as part of the Proposed Development. Nevertheless, without mitigation the Proposed Development is likely to lead to the following impacts on hazel dormouse and their habitats as a result of vegetation removal, site clearance, creation of access tracks and materials storage compounds, vehicle movements, groundworks and construction:
- ▶ Risk of killing, injury or disturbance to hazel dormouse, and of intentional or reckless damage, destruction or obstruction of any place used for shelter or protection by a dormouse, which would constitute an offence under the WCA and Conservation of Habitats and Species Regulations 2017 (as amended); and
 - ▶ Increased lighting during and following construction is likely to impact hazel dormouse, and increased predation from cats may also occur as a result of the proposed housing development. This is likely to result in negative impacts on the conservation status of the local hazel dormice population.
- 4.7.10 Recommendations including phased vegetation removal, a sensitive lighting scheme and habitat creation to avoid and mitigate predicted impacts are set out in Chapter 5.

4.8 Reptiles

Presence or absence of reptiles

- 4.8.1 The survey findings indicate that a low population of grass snake was present within the survey area during the 2023 survey season. 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 (87 refuges were used across approximately 5.6ha of suitable habitat). The survey results are therefore considered to provide an accurate account of the reptile assemblage on site. However, the aim of this survey was to establish presence or likely absence and a greater level of survey effort would be required in order to obtain a reliable population estimate.

Site evaluation

- 4.8.2 The survey area contains good quality habitats for reptiles, dominated by a mosaic of semi-improved neutral grassland and scattered to dense scrub surrounded by scattered trees which provide shelter, foraging and dispersal opportunities. Rubbish, rubble and brash piles at TN2, TN4 and TN5 (locations provided at Appendix I) may provide additional shelter and hibernation habitat. The areas of woodland adjacent to the boundaries provide additional suitable sheltering, hibernation, and dispersal habitat.
- 4.8.3 Site location (in relation to the species' range), vegetation structure, insolation, aspect, topography and surface geology, prey abundance, refuge opportunity and hibernation potential are all favourable for reptiles. In addition, the site benefits from good connectivity to further extensive areas of good quality reptile habitat in the local landscape, including grassland, woodland, scrub and mature hedgerow to the east and south. Additional suitable habitat is present to the north, but this is somewhat isolated from the survey area by Hanlye Lane. Taken together, the habitats within the survey area provide the necessary lifecycle requirements of common reptile species such as grass snake, slow worm and common lizard.
- 4.8.4 A total of three adult grass snakes were recorded throughout the survey period. One was located along the eastern boundary of the northern field, one at the north-western boundary of the northern field close to pond P1, and one at northern end of the southern field close to the Public Right of Way. Two sub-adults were recorded, the first at the north-eastern boundary close to P1 and the second at the southern boundary of the northern field. There was also one juvenile recorded long the central belt of linear scrub that runs north to south within the northern field. A peak count of two adults and one sub-adult on survey 7 indicates that the survey area supports a low population of this species.
- 4.8.5 No other species of reptile or signs of their presence were recorded during the survey. It is likely that adder is absent from the site, but it would not be unexpected to occasionally encounter common lizard or slow worm. Indeed, both species have been recorded locally as confirmed during the desk study (UEECa, 2023).
- 4.8.6 Overall, the survey area achieves a site score of 1 and does not meet the criteria for a Key Reptile Site (Froglife, 1999; see Table 2.10). The Proposed Development is not anticipated to impact the

local status of grass snake and therefore the survey area is considered to be of Negligible Importance for its reptile population.

Impact assessment

- 4.8.7 The recorded distribution of reptiles (shown at Appendix XI) was located toward the north of the survey area within the majority recorded within the northern field. Given the suitability of other habitats in the remainder of the survey area for hibernation, shelter and potentially egg-laying, it is concluded that grass snakes are likely to be present throughout the survey area at low densities, though their distribution within the survey area may shift over the course of the year.
- 4.8.8 Five of the six grass snake recordings lie within the developable area. These locations are likely to be providing opportunities for basking, foraging, shelter and dispersal. Without mitigation, it is considered that the proposed construction activities are likely to result in the following impacts to reptiles:
- ▶ Temporary risk of killing and injury to individual reptiles resulting from ground clearance, creation of access tracks and materials storage compounds, vehicle movements and groundworks, which would be an offence under the WCA; and
 - ▶ A significant area of suitable habitat (c.2.81ha) supporting a low population of grass snake will be removed, including semi-improved neutral grassland and scrub. This impact will be offset to a degree by replacement with garden habitats which, in the medium to long-term, may regain some suitability for reptiles.
- 4.8.9 Recommendations to avoid and mitigate predicted impacts are set out in Chapter 5.

This page is intentionally blank.

5 Recommendations and Conclusion

5.1 Introduction

- 5.1.1 Recommendations are made below for avoidance and 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. The recommendations should be read alongside those contained in the PEA (UEEC, 2023a) 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 mitigation, avoidance and enhancement measures
R1	Removal of nesting bird habitats (including vegetation and buildings) will be undertaken outside of the bird nesting season, which runs from 1 March to 31 August. It will therefore be carried out between September and February, but should be planned and implemented in accordance with the findings of the further ecological surveys recommended above.
R2	Native tree and shrub planting will be incorporated into the Proposed Development, which will provide bird nesting sites and a range of food resources.
R3	The value of the survey area will be enhanced for birds by installing a range of artificial nest boxes onto new buildings and retained trees.
R4	Negative impacts to brown hairstreak butterflies will be avoided by retaining areas of mature blackthorn scrub, planting new blackthorn hedges that are connected to suitable habitat within the wider landscape, and employing appropriate management.
R5	Negative impacts on roosting bats in trees and 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 habitats.
R6	A European Protected Species Mitigation Licence for hazel dormouse will need to be obtained following the granting of planning consent. The licence application will include a detailed method statement setting out how killing or injury will be avoided, alongside measures to compensate for habitat connectivity losses.
R7	A translocation of reptiles from the construction zone to a suitable receptor site will be undertaken prior to site preparation and commencement of works, to avoid the risk of killing/injury to reptiles.

R1 to R3: Breeding birds

- 5.2.2 Recommended mitigation measures for breeding birds focus on retaining suitable habitat and avoiding works during the breeding season.
- 5.2.3 Suitable bird nesting habitat occurs throughout the developable area in the form of scrub and scattered trees. Negative impacts on breeding birds will be avoided by undertaking clearance works which would result in removal of potential nesting habitats outside of the bird breeding season, which runs from 1 March to 30 September. Removal of nesting bird habitat will therefore be carried out between October and February, but should be planned and implemented in accordance with recommendations relating to other protected species which may still be present outside of the bird breeding season.
- 5.2.4 Any construction works undertaken within the bird breeding season where suitable bird breeding habitat exists will require a site check for nesting birds by a suitably qualified ecologist. This will take place no more than two days prior to works commencing. This is to ensure that no disturbance to active bird nests occurs. If a nest is found it must be cordoned off and works adjacent to the nest must be delayed until such time that the chicks have fledged from the nest. This will be supervised by a suitably qualified ecologist.
- 5.2.5 New greenspaces will incorporate tree and shrub planting of appropriate native species, which will provide nesting sites for birds and food resources for a range of other species. Plant stock will be sourced from a local supplier and be of local provenance.
- 5.2.6 The value of the survey area for breeding birds will also be enhanced by installing a range of artificial nest boxes. It is recommended that these are placed on retained trees within the development and / or incorporated within building facades including:
- ▶ New buildings: nest boxes will be installed under the eaves for birds that utilise buildings for nesting, e.g. starling, house sparrow, and swift. These species are of principal importance, of conservation concern and / or are notable in Sussex. The following nest boxes are suitable:
 - Schwegler Brick Box 25 (or other manufacturer's equivalent) for swifts and other small cavity nesting bird species including house sparrows;
 - Schwegler 1B Nest Box, with 32mm hole (or other manufacturer's equivalent), for a range of bird species including tits; and
 - Schwegler 3S Starling Box (or other manufacturer's equivalent).
 - ▶ Trees: nest boxes with entrance holes suitable for tit species, woodpeckers and nuthatches, and open-fronted boxes suitable for spotted flycatcher or song thrush, and treecreeper *Certhia familiaris* boxes.
- 5.2.7 One nest box will be installed for each new dwelling (50 in total) and will be split so that 40 are installed on new buildings and 10 on retained trees.

- 5.2.8 An artificial nest box for tawny owl *Strix aluco* will be erected in the undeveloped areas within the southern field.

R4: Invertebrates

- 5.2.9 Brown hairstreaks require young shoots and new suckering blackthorn on which to lay their eggs. The retention of mature blackthorn as part of the Proposed Development is therefore important and will require a sensitive management plan. The management plan will maintain some uncut areas which will generate new shoots and allow other areas to sucker.
- 5.2.10 New areas of blackthorn hedging will be planted as part of any boundary features being incorporated into the Proposed Development. These hedges will be able to grow unmanaged for several years and then brought into a sensitive rotational management regime (if at all), alongside the retained blackthorn hedges and thickets.
- 5.2.11 New blackthorn hedging will be planted in a sunny and sheltered location (not hindered from shading by housing) to be most optimal, and these will be part of a network that includes ample tall flowery swards and areas of bramble adjacent to the blackthorn for adult foraging. Common fleabane and ragwort are good nectar plants for the adult butterflies, as their flowering season coincides with the adult butterfly's flight period. Other later summer flowering plants with flat and open flowers will also be utilised.
- 5.2.12 The mitigation of brown hairstreak butterflies will work best when retained and newly planted hedges are connected and continuous around and through the Proposed Development. It is also important to connect these habitats to the wider landscape, especially where other suitable offsite locations are present.

R5: Bats

- 5.2.13 Negative impacts on roosting bats in trees, foraging and commuting bats and other nocturnal species will be prevented, during both construction and operation of the Proposed Development, by avoiding light spill falling onto retained and newly created habitat features, particularly the retained scrub and trees at the survey area boundaries. 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, 2023):
- ▶ 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.

R6: Hazel dormouse

- 5.2.14 A European Protected Species Mitigation Licence for hazel dormouse will need to be obtained following the granting of planning consent. The licence application will include a detailed method statement setting out how killing or injury will be avoided, alongside measures to compensate for connectivity losses.
- 5.2.15 The method statement will be developed to ensure that no hazel dormice are disturbed or harmed due to the proposed works and that an adequate mitigation strategy is provided. The mitigation strategy will ensure the ecological continuity of hazel dormice at the Application Site through the provision of new individual trees planted across the southern field that will link retained habitat to suitable habitats in the wider landscape. The method statement will include but not be limited to the following key points:
- ▶ Any vegetation removal on site will be carried out in two stages. The first stage will involve hand checking areas of scrub and vegetation before cutting vegetation and felling trees using chainsaws and hand saws to a height of 15-30 cm between November and March inclusive when hazel dormice are in hibernation.
 - ▶ The second stage of vegetation clearance will involve excavating tree and shrub roots including the root balls between May and September inclusive under the supervision of a licensed ecologist.
 - ▶ Alternatively, vegetation clearance could be undertaken as a single stage cut if it is carried out and completed between April and May (inclusive) or mid-September to October (inclusive). The single stage clearance works will be preceded by a hand check of suitable dormouse habitat.
 - ▶ In order to maintain connectivity of the retained habitats within the Application Site, to habitats of higher quality in the wider landscape, individual native trees will be planted across the southern field. These will connect with suitable habitat at the site boundaries, particularly to the east and south. Planted trees will include hazel *Corylus avellana*,

pedunculate oak *Quercus robur*, ash, hornbeam *Carpinus betulus* and sweet chestnut *Castanea sativa*, which will enhance the suitability of the Application Site for dormouse post-development.

- ▶ The loss of habitat connectivity to the north-west of the Application Site, from the creation of the new access route, will be mitigated by planting a native species hedgerow along the western boundary. The new hedgerow will link the existing habitat surrounding pond P1 with the line of mature pedunculate oak trees that run east to west. In addition, two pedunculate oak tree will be planted at either side of the new access route. As these trees mature the canopies will be allowed to merge over the road to create additional habitat continuity along the northern boundary.
- ▶ A total of ten dormouse nest boxes will be installed within retained suitable habitat. These will be concentrated along the eastern and southern boundaries, where higher quality habitat is present.

- 5.2.16 Increased lighting during the development and post development is likely to affect hazel dormice. Therefore, any night lighting during the development will be kept to a minimum and an appropriate post-development lighting scheme will be devised with reference to the recommendations listed under R5 (foraging and commuting bats).

R7: Reptiles

- 5.2.17 The population of grass snake in the survey area is at risk of killing or injury during construction. A translocation of reptiles from the construction zone to a suitable receptor site will be carried out prior to site preparation and commencement of works, to avoid the risk of killing / injury. The translocation will be implemented in accordance with a Method Statement which has been agreed with the Local Planning Authority and is likely to include the following:

- ▶ **Appointment of Ecological Clerk of Works:** An Ecological Clerk of Works (ECoW) will be appointed to oversee operations which could negatively affect reptiles and other ecological features of value.
- ▶ **Selection and enhancement of a receptor site:** This receptor site will be located within the southern boundary field. Habitat within this field is considered to be suitable for grass snake as it is consistent with habitats recorded within the northern field. However, the creation of hibernacula can enhance the suitability of the southern field further.
- ▶ **Erection of reptile exclusion fencing:** The translocation area will be fenced-off from surrounding habitats using reptile exclusion fencing. This will be left in-situ following the completion of the translocation, to ensure that reptiles do not re-colonise the site during construction.
- ▶ **Capture and translocation:** Capture of reptiles will be undertaken by hand, facilitated by the laying of artificial refuges to help concentrate capture effort. A capture period of at least 30 and up to 60 days is likely to be required.
- ▶ **Habitat manipulation:** Once the translocation is underway, if captures begin being to diminish it is often helpful to undertake habitat manipulation to reduce the amount of suitable vegetation cover and render any remaining reptiles easier to catch. This will

include strimming the grassland and brush-cutting bramble and scrub into progressively smaller patches within the construction zone.

- ▶ **Destructive search:** Following completion of the translocation, sites of potential refuge/hibernation (e.g. log/rubble piles or compost heaps) will be deconstructed using hand tools. Remaining areas of vegetation will be progressively reduced in height. Finally, the top soil will be carefully and systematically excavated and removed from site. Clearance will be carried out slowly and methodically under the direction of the ECoW.
- ▶ **Toolbox talks:** All site operatives will receive a briefing from the ECoW to explain the legal protection for reptiles, the methods to be followed, tips on identifying reptiles, and the procedure to be followed should a reptile be found at any stage during the works.
- ▶ **Timing of the works:** The translocation, destructive search and site clearance works will be programmed to take place during the active season for reptiles, broadly late March to October.
- ▶ **Nesting birds:** As a result of the precautionary timing outlined above, it is possible that the work will be carried out during the nesting bird season which runs from early March to late September. If vegetation clearance is required during the nesting season, a survey for active bird nests will be carried out by the ECoW immediately prior to the works. If an active nest is found, the nest must be cordoned off and works adjacent to this nest must be delayed until such time that the chicks have fledged.
- ▶ **Procedure if reptiles are encountered:** If reptiles are found within the construction zone during the works, site operatives will be advised to cease activity in its vicinity while advice from the ECoW is sought. The ECoW will then assess the most appropriate course of action which may include removing the individual(s) from the site and moving it to an area of suitable habitat outside of the construction zone.

5.3 Other Ecological Protection Measures

- 5.3.1 The protection measures recommended in sections 5.1 and 5.3 of the PEA (UEEC, 2023a) continue to apply and should 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, 2023a) should be implemented to deliver ecological enhancements for a range of wildlife following construction.

5.5 Conclusions

- 5.5.1 In the absence of mitigation, the Proposed Development will result in negative impacts to breeding birds, invertebrates, foraging and commuting bats, hazel dormouse and reptiles. However, 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.

References and Bibliography

Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F (2014): *Analytical and methodological development for improved surveillance of the GCN. Appendix 5. Technical advice note for field and laboratory sampling of GCN (Triturus cristatus) environmental DNA*. Freshwater Habitats Trust, Oxford.

Bright P., Morris P. and Mitchell-Jones T. (2006): *The Dormouse conservation handbook*; Second Edition. English Nature, Peterborough.

British Standards Institution (BSI; 2013): *BS42020:2013 Biodiversity – Code of practice for planning and development*. BSI Standards Limited, London.

Chartered Institute of Ecology and Environmental Management (CIEEM, 2017): *Guidelines for Ecological Report Writing*. 2nd Edition, CIEEM, Winchester.

CIEEM (2018): *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. CIEEM, Winchester.

CIEEM (2019): *Advice Note on the Lifespan of Ecological Reports & Surveys*. Available online at: <https://cieem.net/resource/advice-note-on-the-lifespan-of-ecological-reports-and-surveys/>.

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

Cresswell W. & Whitworth R. (2004): *An assessment of the efficiency of capture techniques and the value of different habitats for the GCN Triturus cristatus*. English Nature Research Report No. 576. English Nature, Peterborough.

Dean M., Strachan R., Gow D. and Andrews R. (2016): *The Water Vole Mitigation Handbook* (The Mammal Society Mitigation Guidance Series). Eds. Fiona Matthews and Paul Chanin. The Mammal Society, London

Drewitt, A.L., Whitehead, S. and Cohen, S. (2015). *Guidelines for the Selection of Biological SSSIs, Part 2: Detailed Guidelines for Habitats and Species Groups, Chapter 17 Birds*. JNCC

English Nature (2004): *Bat Mitigation Guidelines*. Peterborough.

Froglife (1999): *Reptile Survey: An Introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife Advice Sheet 10, Froglife, Halesworth.

Froglife (2015): *Surveying for Reptiles Tips, techniques and skills to help you survey for reptiles*. Froglife.

Gent, A.H. and Gibson, S.D., eds. (2003): *Herpetofauna Workers' Manual*. Joint Nature Conservation Committee, Peterborough.

Gilbert G., Gibbons D.W. and Evans J. (1998): *Bird Monitoring Methods*. RSPB, Sandy, Beds.

Gunnel K., Grant, G. and Williams, C. (2012): *Landscape and Urban Design for Bats and Biodiversity*. Bat Conservation Trust.

Hill, D., Fasham, M., Tucker, G., Shrewry, M. and Shaw, P(eds) (2005): *Handbook of Biodiversity Methods: Survey, Evaluation and Monitoring* (4th edition). Cambridge University Press, Cambridge.

Institute of Lighting of Professionals (2023): Guidance Note 08/23: Bats and artificial lighting at Night. Coauthored by the Bat Conservation Trust, August 2023.

Langton, T.E.S., Beckett, C.L., and Foster, J.P. (2001): *GCN Conservation Handbook*, Froglife, Halesworth.

Mathews F, Kubasiewicz LM, Gurnell J, Harrower CA, McDonald RA, Shore RF. (2018): A Review of the Population and Conservation Status of British Mammals. A report by the Mammal Society under contract to Natural England, Natural Resources Wales and Scottish Natural Heritage. Natural England, Peterborough. ISBN 978-1-78354-494-3.

MDJ (2023): *Arboricultural Impact Assessment & Preliminary Method Statement: Land at Hanlye Lane, Cuckfield*. MDJ Arboricultural Consultancy Ltd.

Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000): Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10(4), 143-155. Stone, E. L. (2013): Bats and lighting: overview of current evidence and mitigation. University of Bristol.

Reason, P.F. and Wray, S. (2023). *UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats*. CIEEM, Ampfield.

Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021): *The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain*. *British Birds* 114: 723-747. ["BoCC5"] Available online at: <https://britishbirds.co.uk/content/status-our-bird-populations>

Stone, E. L. (2013): *Bats and lighting: overview of current evidence and mitigation*. University of Bristol.

Sussex Ornithological Society, ed. James, P. (1996). *Birds of Sussex*.

Sussex Ornithological Society & Thomas ALR (ed.) (2014): *The Birds of Sussex*. British Trust for Ornithology, Thetford.

Urban Edge Environmental Consulting Ltd (UEEC; 2023a): *Land at Hanlye Lane, Cuckfield, West Sussex: Preliminary Ecological Appraisal*.

Urban Edge Environmental Consulting Ltd (UEEC; 2023b): *Land at Hanlye Lane, Cuckfield, West Sussex: Biodiversity Net Gain Assessment*.

Urban Edge Environmental Consulting Ltd (UEEC; 2023c): *Land at Hanlye Lane, Cuckfield, West Sussex: Confidential Technical Note (Badger Survey)*.

Appendix I: Phase 1 Habitat Plan

Hanlye Lane, Cuckfield, West Sussex

- Survey area
- Scrub - dense/continuous
- Scrub - scattered
- Neutral grassland - semi-improved
- Standing water
- A Amenity grassland
- Bare ground
- Scrub with young trees
- Ancient woodland
- Ancient woodland 15m buffer
- Target note
- Scattered tree
- High suitability tree



© Crown copyright and database rights 2023
Ordnance Survey 0100031673

Scale (at A4): 1:2,250 Created by: MT

Date: Mar 2023 Reviewed by: NP

Drawing number:

UE0566ECO-HanlyeLane_HabitatMap_230310



Appendix II: Pond Plan

Hanlye Road, Cuckfield, West Sussex

-  Site boundary
-  250m buffer
-  500m buffer
-  Pond: Dry
-  Pond: Negative for GCN eDNA
-  Pond: Scoped out

0 200 400
Metres



© Crown copyright and database rights 2023
Ordnance Survey 0100031673

Scale (at A4): 1:7,500 Created by: MT

Date: Oct 2023 Reviewed by: NP

Drawing number:

UE0566ECO-HanlyeLane_231018



URBAN EDGE
ENVIRONMENTAL
CONSULTING

Tel: 01273 686 766
Email: hello@ueec.co.uk
Web: www.ueec.co.uk



Appendix III: eDNA Results for Ponds



Thank you for choosing NatureMetrics

Welcome to your report. We are the leading provider of powerful, scalable biodiversity data delivered using environmental DNA.

Your sample(s) have been processed in accordance with the protocol set out in Appendix 5 of Biggs et al. (2014). Results are based on the samples as supplied by the client to the laboratory. Incorrect sampling methodology may affect the results. Note that a negative result does not preclude the presence of GCN at a level below the [limits of detection](#).

A results interpretation guide and a glossary of terms highlighted throughout this report can be found at the end of the report.

GCN Detection Results

Pond ID	Inhibition	Degradation	GCN Score	Result
UE0566-P1	No	No	0	Negative
UE0566-P3	No	No	0	Negative
UE0566-P10	No	No	0	Negative

Sample Information

Pond ID	Kit ID	Sampling Date	Received Date
UE0566-P1	GCN-23-00065	2023/05/22	2023/05/25
UE0566-P3	GCN-23-00064	2023/05/22	2023/05/25
UE0566-P10	GCN-23-00063	2023/05/22	2023/05/25

Methods

eDNA was precipitated via centrifugation at 14,000 x g and then extracted using Qiagen DNeasy Blood and Tissue extraction kits. **qPCR** amplification was carried out in 12 replicates per sample, using GCN specific **primers** and **probe** (developed by Thomsen et al. (2012) and adopted by Biggs et al. (2014)), in the presence of **extraction negative controls**, **qPCR positive controls**, and **qPCR negative controls**. A score is given for the number of positive replicates out of 12.

The **qPCR** method follows the recommendations set out by NatureMetrics for Natural England in the qPCR validation project and helps improve the reliability of the interpretation of the data.

Appendix IV: Breeding Bird Survey Plans

Conservation status and British Trust for Ornithology code for birds recorded the surveys

Common name	Scientific name	BTO code	Status
House sparrow	<i>Passer domesticus</i>	HS	Red, s41
Starling	<i>Sturnus vulgaris</i>	SG	Red, s41
Linnet	<i>Linaria cannabina</i>	LI	Red, s41
Greenfinch	<i>Chloris chloris</i>	GR	Red
Dunnock	<i>Prunella modularis</i>	D.	Amber, s41
Song thrush	<i>Turdus philomelos</i>	ST	Amber, s41
Stock dove	<i>Columba Oenas</i>	SD	Amber
Whitethroat	<i>Sylvia communis</i>	WT	Amber
Woodpigeon	<i>Columba palumbus</i>	WP	Amber
Wren	<i>Troglodytes troglodytes</i>	WR	Amber
Blackcap	<i>Sylvia atricapilla</i>	BC	Green
Blackbird	<i>Turdus merula</i>	B.	Green
Blue tit	<i>Cyanistes caeruleus</i>	BT	Green
Carrion crow	<i>Corvus corone</i>	C.	Green
Chaffinch	<i>Fringilla coelebs</i>	CH	Green
Goldcrest	<i>Regulus regulus</i>	GC	Green
Goldfinch	<i>Carduelis carduelis</i>	GO	Green
Great spotted woodpecker	<i>Dendrocopos major</i>	GS	Green
Great tit	<i>Parus major</i>	GT	Green
Green woodpecker	<i>Picus viridis</i>	G.	Green
Jackdaw	<i>Corvus monedula</i>	JD	Green
Jay	<i>Garrulus glandarius</i>	J.	Green
Long tailed tit	<i>Aegithalos caudatus</i>	LT	Green
Magpie	<i>Pica pica</i>	MG	Green
Nuthatch	<i>Sitta europaea</i>	NH	Green
Robin	<i>Erithacus rubecula</i>	R.	Green

s41 Natural Environment & Rural Communities Act 2006 Section 41 Species of Principal Importance
Red/Amber/Green Birds of Conservation Concern 4 (Stanbury et al., 2021))

Hanlye Lane, Cuckfield, West Sussex

 Site
 Transect

0 40 80
Metres



© Crown copyright and database rights 2023
Ordnance Survey 0100031673

Scale (at A4): 1:1,800 Created by: EM

Date: Oct 2023 Reviewed by: NP

Drawing number:

UE0566ECO-HanlyeLane_BBS_231003

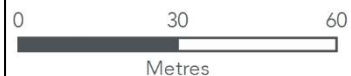
 **URBAN EDGE** Tel: 01273 686 766
ENVIRONMENTAL Email: hello@ueec.co.uk
CONSULTING Web: www.ueec.co.uk



Hanlye Lane, Cuckfield, West Sussex

- Site boundary
- Sp. Sp. Sp. Sp. Sp. Species (red/amber/green list, Schedule 1, non-native)
- Sp. Calling bird
- Sp. Bird repeatedly alarm calling
- Sp. Bird in song
- *Sp. Nest
- *Sp. on Nest with adult sitting
- Sp. fam Juvenile with parent(s) in attendance
- Sp. mat Sp. carrying nest material
- Sp. food Sp. carrying food
- ♀ Female
- ♂ Male
- ♀♂ Pair
- Bird movement
- Different bird
- ? - Probable same bird
- ✱ Aggressive encounter

Breeding Bird Survey 1: 21/04/2023



© Crown copyright and database rights 2023
Ordnance Survey 0100031673

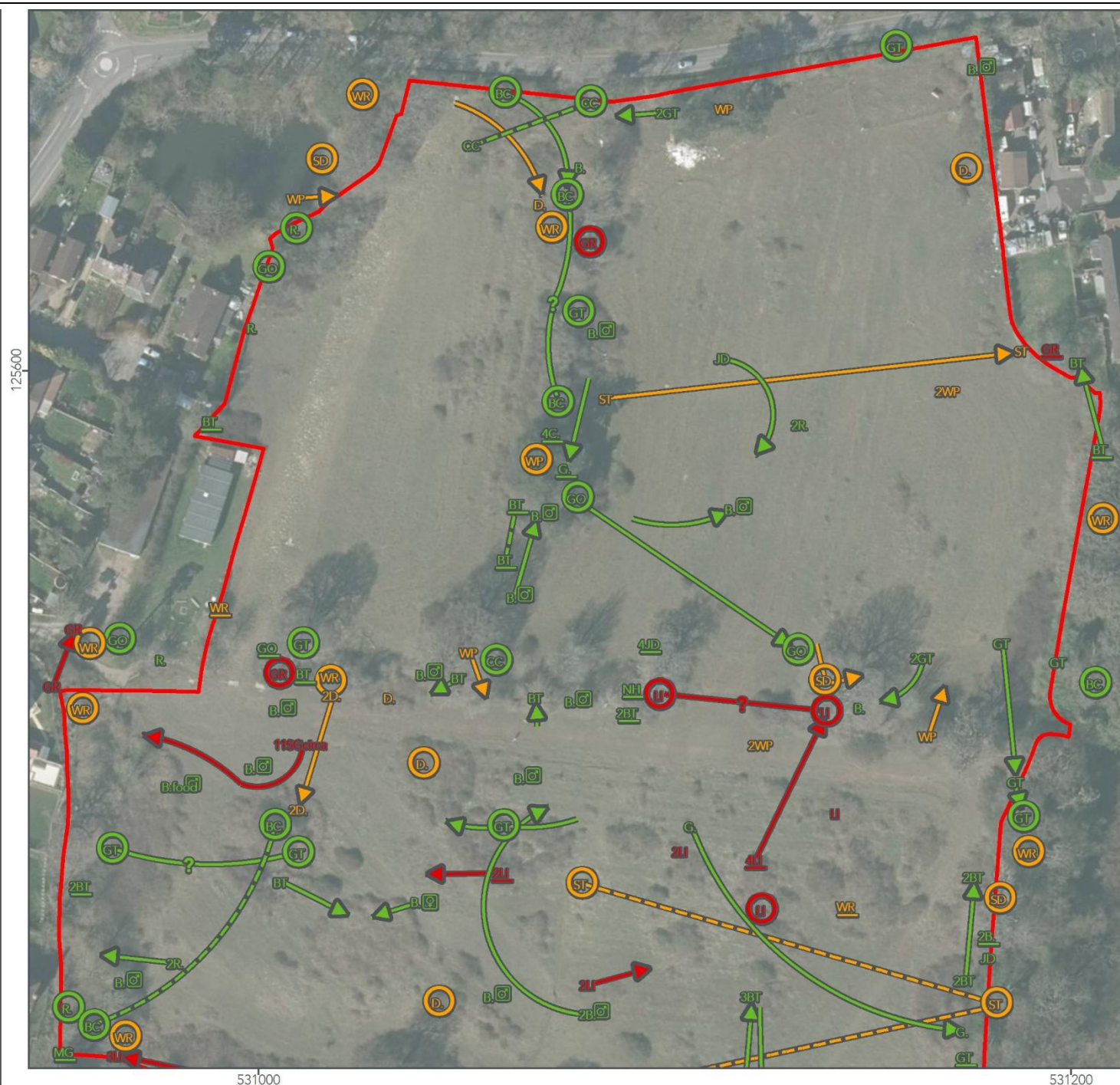
Scale (at A4): 1:1,400 Created by: EM

Date: Oct 2023 Reviewed by: NP

Drawing number:

UE0566ECO-HanlyeLane_BBS_231003

URBAN EDGE Tel: 01273 686 766
ENVIRONMENTAL Email: hello@ueec.co.uk
CONSULTING Web: www.ueec.co.uk



 Site boundary

Sp.	Calling bird
-----	--------------

Sp. Bird in song

*Sp. on Nest with adult sitting

Sp. mat Sp. carrying nest material

Female

Male

 Pair

→ Bird movement

-- Different bird

-?- Probable same bird

 Aggressive encounter

A horizontal number line is shown with tick marks at 0, 30, and 60. The word "Metres" is written below the line. The segment from 0 to 30 is shaded dark grey, representing the distance from the start to the first point.

Scale (at A4): 1:1,400 Created by: EM

Date: Oct 2023 **Reviewed by:** NP

Drawing number:

UE0566ECO-HanlyeLane_BBS_231003



URBAN EDGE Tel: 01273 686 766
ENVIRONMENTAL Email: hello@ueec.co.uk
CONSULTING Web: www.ueec.co.uk



Hanlye Lane, Cuckfield, West Sussex

- Site boundary
- Sp. Sp. Sp. Sp. Sp. Species (red/amber/green list, Schedule 1, non-native)
- Sp. Calling bird
- Sp. Bird repeatedly alarm calling
- Sp. Bird in song
- *Sp. Nest
- *Sp. on Nest with adult sitting
- Sp. fam Juvenile with parent(s) in attendance
- Sp. mat Sp. carrying nest material
- Sp. food Sp. carrying food
- ♀ Female
- ♂ Male
- ♀♂ Pair
- Bird movement
- Different bird
- ? - Probable same bird
- ✱ Aggressive encounter

Breeding Bird Survey 2: 08/05/2023

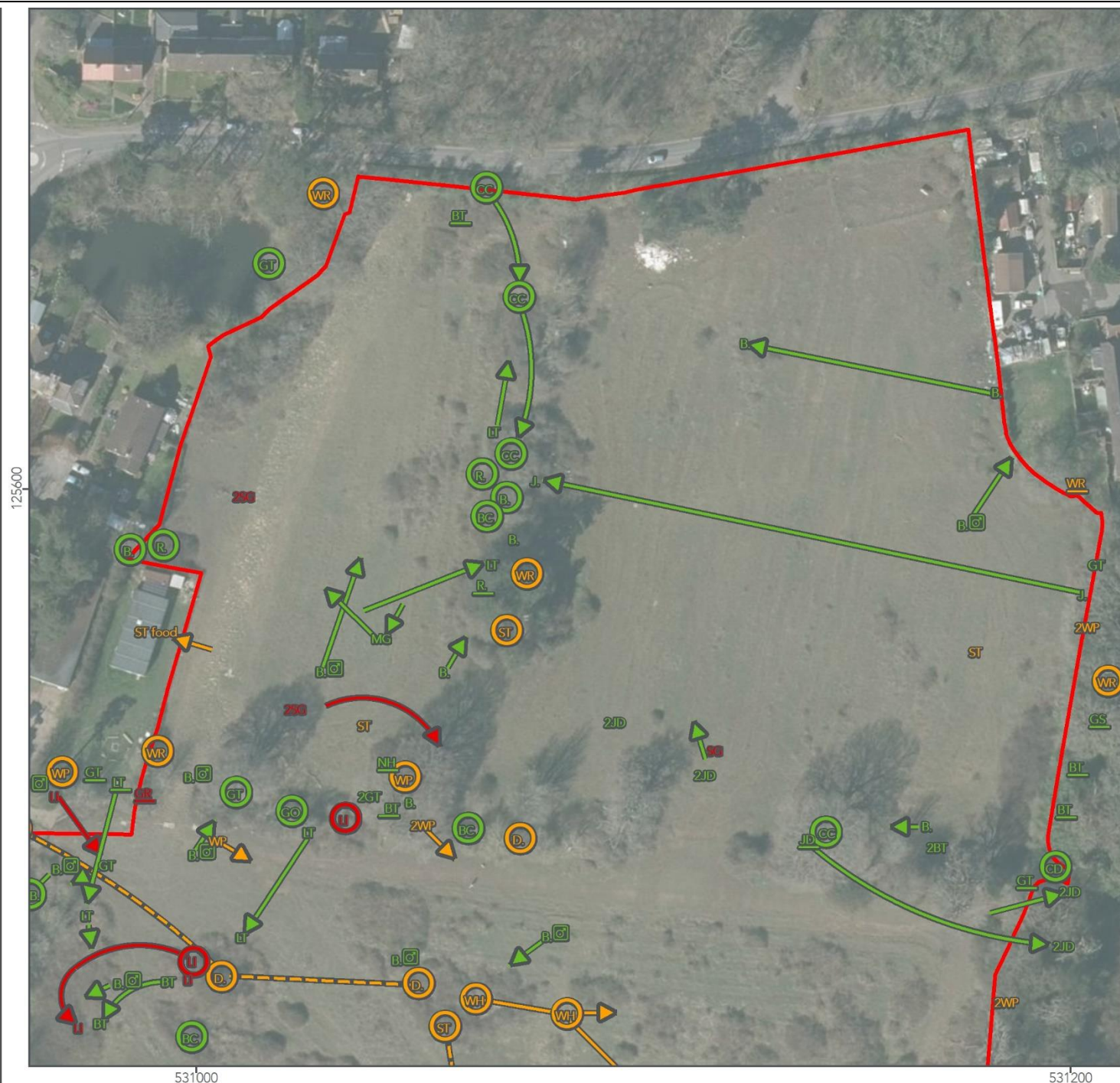


© Crown copyright and database rights 2023
Ordnance Survey 0100031673

Scale (at A4): 1:1,300 Created by: EM
Date: Oct 2023 Reviewed by: NP

Drawing number:
UE0566ECO-HanlyeLane_BBS_231003

URBAN EDGE Tel: 01273 686 766
ENVIRONMENTAL Email: hello@ueec.co.uk
CONSULTING Web: www.ueec.co.uk



Hanlye Lane, Cuckfield, West Sussex

- Site boundary
- Sp. Sp. Sp. Species (red/amber/green list, Schedule 1, non-native)
- Sp. Calling bird
- Sp. Bird repeatedly alarm calling
- Sp. Bird in song
- *Sp. Nest
- *Sp. on Nest with adult sitting
- Sp. fam Juvenile with parent(s) in attendance
- Sp. mat Sp. carrying nest material
- Sp. food Sp. carrying food
- ♀ Female
- ♂ Male
- ♀♂ Pair
- Bird movement
- Different bird
- ? - Probable same bird
- ✱ Aggressive encounter

Breeding Bird Survey 2: 08/05/2023



© Crown copyright and database rights 2023
Ordnance Survey 0100031673

Scale (at A4): 1:1,400 Created by: EM

Date: Oct 2023 Reviewed by: NP

Drawing number:

UE0566ECO-HanlyeLane_BBS_231003



	Site boundary
	Species (red/amber/green list, Schedule 1, non-native)
<u>Sp.</u>	Calling bird
<u><u>Sp.</u></u>	Bird repeatedly alarm calling
	Bird in song
*Sp.	Nest
*Sp. on	Nest with adult sitting
Sp. fam	Juvenile with parent(s) in attendance
Sp. mat	Sp. carrying nest material
Sp. food	Sp. carrying food
	Female
	Male
	Pair
	Bird movement
--	Different bird
-? -	Probable same bird
	Aggressive encounter

Scale (at A4): 1:1,400	Created by: EM
Date: Oct 2023	Reviewed by: NP

URBAN EDGE
ENVIRONMENTAL
CONSULTING

Tel: 01273 686 766
Email: hello@ueec.co.uk
Web: www.ueec.co.uk



Hanlye Lane, Cuckfield, West Sussex

- Site boundary
- Sp. Sp. Sp. Species (red/amber/green list, Schedule 1, non-native)
- Sp. Calling bird
- Sp. Bird repeatedly alarm calling
- Sp. Bird in song
- *Sp. Nest
- *Sp. on Nest with adult sitting
- Sp. fam Juvenile with parent(s) in attendance
- Sp. mat Sp. carrying nest material
- Sp. food Sp. carrying food
- ♀ Female
- ♂ Male
- ♀♂ Pair
- Bird movement
- Different bird
- ? - Probable same bird
- ✱ Aggressive encounter

Breeding Bird Survey 3: 25/05/2023



© Crown copyright and database rights 2023
Ordnance Survey 0100031673

Scale (at A4): 1:1,400 Created by: EM

Date: Oct 2023 Reviewed by: NP

Drawing number:

UE0566ECO-HanlyeLane_BBS_231003



Hanlye Lane, Cuckfield, West Sussex

-  Site boundary
-    Species (red/amber/green list, Schedule 1, non-native)
-  Calling bird
-  Bird repeatedly alarm calling
-  Bird in song
-  Nest
-  Nest with adult sitting
-  Juvenile with parent(s) in attendance
-  Sp. carrying nest material
-  Sp. carrying food
-  Female
-  Male
-  Pair
-  Bird movement
-  Different bird
-  Probable same bird
-  Aggressive encounter

Breeding Bird Survey 4: 16/06/2023



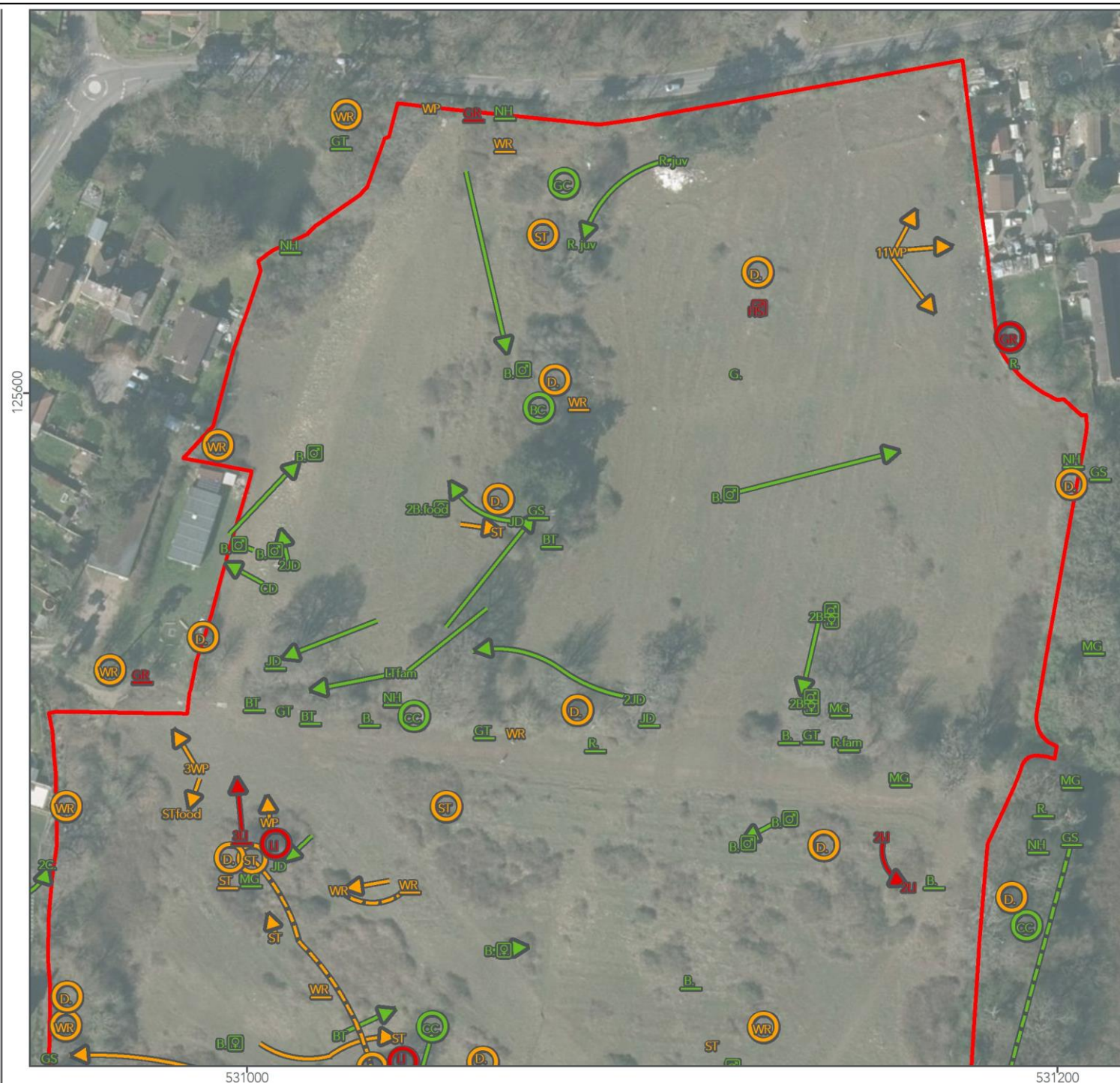
© Crown copyright and database rights 2023
Ordnance Survey 0100031673

Scale (at A4): 1:1,400 Created by: EM

Date: Oct 2023 Reviewed by: NP

Drawing number:

UE0566ECO-HanlyeLane_BBS_231003



Hanlye Lane, Cuckfield, West Sussex

 Site boundary

   Species (red/amber/green list, Schedule 1, non-native)

 Sp. Calling bird

 Sp. Bird repeatedly alarm calling

 Sp. Bird in song

 *Sp. Nest

 *Sp. on Nest with adult sitting

 Sp. fam Juvenile with parent(s) in attendance

 Sp. mat Sp. carrying nest material

 Sp. food Sp. carrying food

 Female

 Male

 Pair

 Bird movement

 Different bird

 -?- Probable same bird

 Aggressive encounter

Breeding Bird Survey 4: 16/06/2023

0 30 60
Metres



© Crown copyright and database rights 2023
Ordnance Survey 0100031673

Scale (at A4): 1:1,400 Created by: EM

Date: Oct 2023 Reviewed by: NP

Drawing number:

UE0566ECO-HanlyeLane_BBS_231003

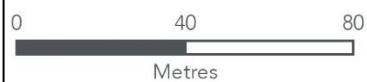
 **URBAN EDGE** Tel: 01273 686 766
ENVIRONMENTAL Email: hello@ueec.co.uk
CONSULTING Web: www.ueec.co.uk



 Site boundary

 Species(red/amber/green list)

Breeding Bird Territories



© Crown copyright and database rights 2023
Ordnance Survey 0100031673

Scale (at A4): 1:1,800 Created by: EM

Date: Nov 2023 **Reviewed by:** NP

Drawing number:

UE0566ECO-HanlyeLane_BBS_231003



Appendix V: Bat Presence/Absence Surveyor Positions:

Hanlye Road, Cuckfield, West Sussex

-  Site boundary
-  Surveyor
-  Survey tree

0 25 50
Metres



© Crown copyright and database rights 2023
Ordnance Survey 0100031673

Scale (at A4): 1:1,000 Created by: MT

Date: Oct 2023 Reviewed by: NP

Drawing number:

UE0566ECO-HanlyeLane_231018



URBAN EDGE
ENVIRONMENTAL
CONSULTING

Tel: 01273 686 766

Email: hello@ueec.co.uk

Web: www.ueec.co.uk



Appendix VI: Infrared Camera Field of View



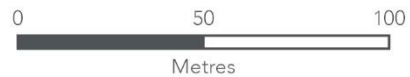
View from Canon XA11 infrared camera on 22 September 2023, illuminated by infrared flood and spot lighting that replaced a surveyor at position 1.

This page is intentionally blank.

Appendix VII: Bat Activity Transect Route and Static Detector Locations

Hanlye Road, Cuckfield, West Sussex

- Site boundary
- Transect line
- Bat detector
- Bat Survey Points: transect



© Crown copyright and database rights 2023
Ordnance Survey 0100031673

Scale (at A4): 1:2,000 Created by: MT

Date: Oct 2023 Reviewed by: NP

Drawing number:

UE0566ECO-HanlyeLane_231018



Appendix VIII: Bat Activity Survey Results

Abbreviations:

EPSE Serotine MYsp Myotis sp. PIPi Common pipistrelle
PIPY Soprano pipistrelle PLAU Brown long-eared

Survey 1: Dusk, 24/04/2023, Surveyor: DM RE

Sunset/sunrise:	Start time:	End time:	Precipitation:	Moon Phase:	
20:10	20:10	21:40	Rain at finish	Waxing crescent	
Air temp start:	Air temp end:	Wind Start:	Wind Finish	Cloud start:	Cloud finish:
7°C	6°C	2	2	100%	100%
Equipment:					
Anabat Scout full spectrum detector					
Transect Point (TP)		From	Time	Length (mins)	
1		20:10	20:15	5	
2		20:17	20:22	5	
3		20:24	20:29	5	
4		20:32	20:37	5	
5		20:40	20:45	5	
6		20:47	20:52	5	
7		20:54	20:59	5	
8		21:03	21:08	5	
9		21:11	21:16	5	
10		21:20	21:25	5	
11		21:28	21:33	5	
12		21:35	21:40	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

Bat activity. Start at: TP1

TP	Time	Spp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
12	21:40							Survey called off due to heavy rain. No bats recorded during transect.

Survey 2: Dusk, 22/05/2023, Surveyor: NP

Sunset/sunrise:	Start time:	End time:	Precipitation:	Moon Phase:
20:53	20:53	22:45	None	Waxing crescent

Survey 2: Dusk, 22/05/2023, Surveyor: NP					
Air temp start:	Air temp end:	Wind Start:	Wind Finish	Cloud start:	Cloud finish:
15°C	13°C	2	2	20%	0%
Equipment: Elekon Batlogger M2 full spectrum detector					
Transect Point (TP)	From	Time	Length (mins)		
12	20:53	21:00	7		
11	21:02	21:09	7		
10	21:11	21:18	7		
9	21:20	21:27	7		
8	21:29	21:36	7		
7	21:38	21:45	7		
6	21:47	21:54	7		
5	21:55	22:02	7		
3	22:12	22:19	7		
4	22:21	22:28	7		
2	22:31	22:37	7		
1	22:38	22:45	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

Bat activity. Start at: TP 12								
TP	Time	Spp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
9	21:24-21:27	PIPI	1	15+	F		S	Constant circling
8	21:29-21:30	PIPY	1	3	F		NS	
	21:30	PIPI	1	3	F		S	Flying over scrub
	21:32	PIPI	1	1	C		NS	
	21:32-21:33	PIPI	1	3	F		S	Tawny Owl
	21:33	PIPY	1	1	C		NS	
	21:35-21:36	PIPI	1?	3	F		NS	
8-7	21:37	PIPI	1?	3	F		NS	
7	21:39	PIPI	1	1	F		NS	
	21:44	PIPI	1	1	F		S	Up and down scrub
	21:45	PIPY	1	1	F		S	Up and down scrub

Bat activity. Start at: TP 12								
TP	Time	Spp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
6a	21:53	PIPY	1	1	F		NS	Distant
6	21:57	PIPI	1	1	C		NS	
	22:00	PIPI	1	1	C		NS	
5	22:03-22:10	PIPI	1+	c.30	F		NS	Around street lights beyond hedge?
	22:03-22:10	PIPY	1+	c.30	F		NS	Around street lights beyond hedge?
3	22:13	PIPI	1	1	F		NS	
	22:15	PIPI	1	1	C		NS	
	22:19	MYsp	1	1	C?		NS	
4	22:22	PIPI	1	1	C		NS	
	22:23	PLAU	1	1	C		NS	
	22:24	PIPI	1	1	F		NS	
2	22:30	PIPY	1	1	C		NS	Brief
	22:31	PIPI	1	1	C		NS	Brief
	22:32	PIPY	1	1	C		NS	Brief
	22:33	PIPI	1	1	C		NS	Brief

Survey 3: Dusk, 19/06/2023, Surveyor: NP

Sunset/sunrise:	Start time:	End time:	Precipitation:	Moon Phase:	
21:18	21:18	23:11	None	Waxing crescent	
Air temp start:	Air temp end:	Wind Start:	Wind Finish	Cloud start:	Cloud finish:
16°C	16°C	0	0	60%	90%
Equipment: Elekon Batlogger M2 full spectrum detector					
Transect Point (TP)	From	Time	Length (mins)		
6	21:18	21:25	7		
7	21:27	21:34	7		
8	21:36	21:43	7		
9	21:45	21:51	6		
10	21:54	22:01	7		
11	22:03	22:10	7		
12	22:11	22:18	7		
1	22:20	22:27	7		
2	22:29	22:36	7		

Survey 3: Dusk, 19/06/2023, Surveyor: NP

3	22:38	22:45	7
4	22:47	22:54	7
5	22:56	23:03	7
6b	23:04	23:11	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

Bat activity. Start at: TP6

TP	Time	Spp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
7	21:31	PIPI	1	1	C	-	NS	Brief
7-8	21:35	PIPY	1	1	C	-	NS	-
	21:35	PIPI	1	1	C	-	NS	-
9	21:48	PIPI	1	3	F	-	S	Circling
10 -11	22:02	PIPI	1	1	F	-	NS	-
11	22:03	PIPI	1	1	F	-	NS	-
	22:03	PIPI	1	1	F	-	NS	
	22:04	PIPY	1	1	F	-	NS	-
	22:05	PIPI	1	1	F	-	NS	-
	22:08	PIPI	1	1	C	-	NS	-
	22:09	PIPY	1	2	F	-	NS	-
	22:10	PIPI	1	1	F	-	NS	-
12	22:16	PIPI	1	1	C	-	S	West-east along treeline
	22:17	PIPI	1	1	C	-	NS	Brief
12-1	22:19	PIPI	2	2	F	-	S	South-west
1	22:21	PIPI	1	1	C	-	NS	-
3	22:49	PIPI	1	2	F	-	NS	-

Survey 4: Dusk, 31/07/2023, Surveyor: RE, JD

Sunset/sunrise:	Start time:	End time:	Precipitation:	Moon Phase:	
20:48	20:48	21:40	None	Full moon	
Air temp start:	Air temp end:	Wind Start:	Wind Finish	Cloud start:	Cloud finish:
16	15	2	2	90%	90%
Equipment: Anabat Scout full spectrum detector					
Transect Point (TP)	From	Time	Length (mins)		
12	20:48	20:53	5		

Survey 4: Dusk, 31/07/2023, Surveyor: RE, JD

11	20:56	21:01	5
10	21:05	21:10	5
9	21:16	21:21	5
8	21:22	21:27	5
7	21:34	21:39	5
6	21:40	21:45	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

Bat activity. Start at: TP 12

TP	Time	Spp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
8	21:22	PIPI	1	2	F	-	NS	
	21:23	EPSE	1	1	C	-	NS	Brief
	21:24	PIPI	1	2	F	-	NS	
	21:25	PIPI	1	2	F	-	NS	
	21:27	PIPI	1	2	F	-	NS	
8-7	21:29	PIPI	1	2	F	-	S	Foraging along treeline
	21:31	PIPI	3+	5+	F	-	S	Many, flying around
	21:31	PIPY	"	"	"	-	S	Many, flying around
7	21:34	PIPI	2+	Cont.	F	-	S	Multiple continuously foraging, looping around heads.
7-6	21:39	-						Tawny Owl heard in area
6	21:45	-						Survey abandoned for safety reasons – Aggressive dog and owner

Survey 5: Dusk, 21/09/2023, Surveyor: RE, DM

Sunset/sunrise:	Start time:	End time:	Precipitation:	Moon Phase:	
19:02	19:02	20:50	Light at start, heavy and finish	First quarter	
Air temp start:	Air temp end:	Wind Start:	Wind Finish	Cloud start:	Cloud finish:
15°C	14°C	1	1	80%	100%

Equipment:

Anabat Scout full spectrum detector

Transect Point (TP)	From	Time	Length (mins)
7	19:02	19:08	6
4	19:18	19:24	6

Survey 5: Dusk, 21/09/2023, Surveyor: RE, DM

6a	19:25	19:31	6
5	19:32	19:38	6
3	19:42	19:48	6
2	19:49	19:55	6
1	19:56	20:02	6
12	20:03	20:09	6
11	20:11	20:17	6
10	20:19	20:25	6
9	20:32	20:38	6
8	20:40	20:46	6
7	20:47	20:50	3

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

Bat activity. Start at: TP7

TP	Time	Spp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
4	-							Paused under tree during heavy rain spell – Scattered showers
5-3	19:41	PIPI	1	2	F		NS	
3	19:47	PIPI	1	1	C		NS	Faint
	19:47	PIPY	1	1	C		NS	
1	19:56	PIPI	1	4	F		NS	
	20:00	PIPI	1	1	C		NS	Short
10-9	20:26	PIPY	1	Cont.	F		NS	
9	20:32	PIPY	2	Cont.	F		S	Foraging along boundary
	20:34	PIPI	1	2	F		NS	Foraging with PIPY briefly
8	20:40	PIPI	1	2	F		NS	
	20:41	PIPI	1	2	F		NS	
	20:42	PIPI	2	4	F		NS	
7	-							Very heavy rain – Survey finished 12 mins early at 20:50

Survey 6: Dawn, 22/09/2023, Surveyor: RE, DM

Sunset/sunrise:	Start time:	End time:	Precipitation:	Moon Phase:	
04:46	04:46	06:46	None	First quarter	
Air temp start:	Air temp end:	Wind Start:	Wind Finish	Cloud start:	Cloud finish:
9	9	1	1	0%	80%

Survey 6: Dawn, 22/09/2023, Surveyor: RE, DM

Equipment:

Anabat Scout full spectrum detector

Transect Point (TP)	From	Time	Length (mins)
4	04:46	04:52	6
3	04:54	05:01	6
2	05:02	05:09	6
1	05:11	05:18	7
12	05:20	05:27	7
11	05:29	05:36	7
10	05:40	05:47	7
9	05:56	06:03	7
8	06:05	06:12	7
4	06:16	06:23	7
6a	06:25	06:32	7
5	06:35	06:42	7
4	06:45	06:46	1

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

Bat activity. Start at: TP 4

TP	Time	Spp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
11	05:36	PIPI	1	1	C		NS	Very faint
8	06:09	PIPI	1	2			S	Flying south-east to woodland
	06:11	PIPI	1	2			S	Foraging in corner

Survey 7: Dusk, 09/10/2023, Surveyor: CP, JD

Sunset/sunrise:	Start time:	End time:	Precipitation:	Moon Phase:	
18:22	18:23	20:24	None	Waning crescent	
Air temp start:	Air temp end:	Wind Start:	Wind Finish	Cloud start:	Cloud finish:
18	16	1	1	15%	5%
Equipment: Anabat Scout full spectrum detector					
Transect Point (TP)	From	Time	Length (mins)		
6a	18:23	18:30	7		
5	18:31	18:38	7		
3	18:41	18:48	7		

Survey 7: Dusk, 09/10/2023, Surveyor: CP, JD

4	18:49	18:56	7
2	18:58	19:05	7
1	19:06	19:13	7
12	19:14	19:21	7
11	19:22	19:29	7
10	19:32	19:39	7
9	19:47	19:54	7
8	19:57	20:04	7
7	20:07	20:14	7
3	20:17	20:24	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

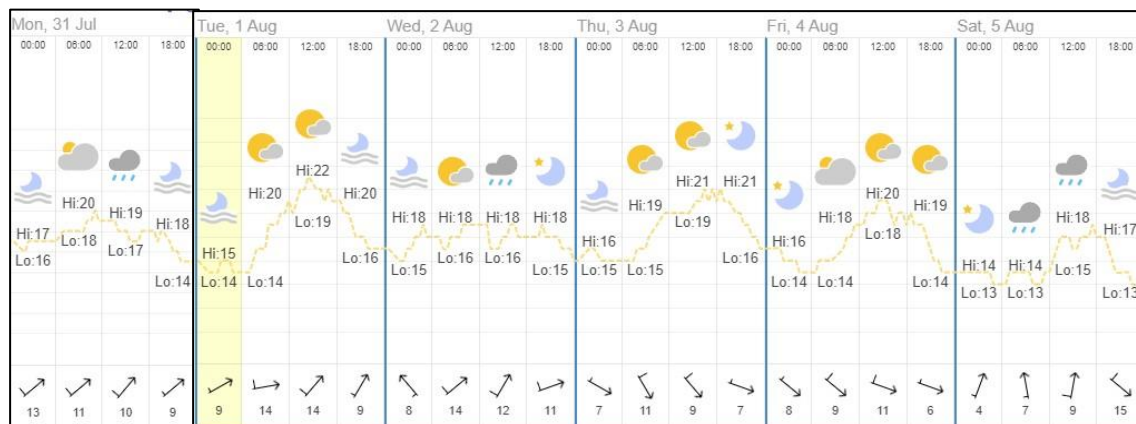
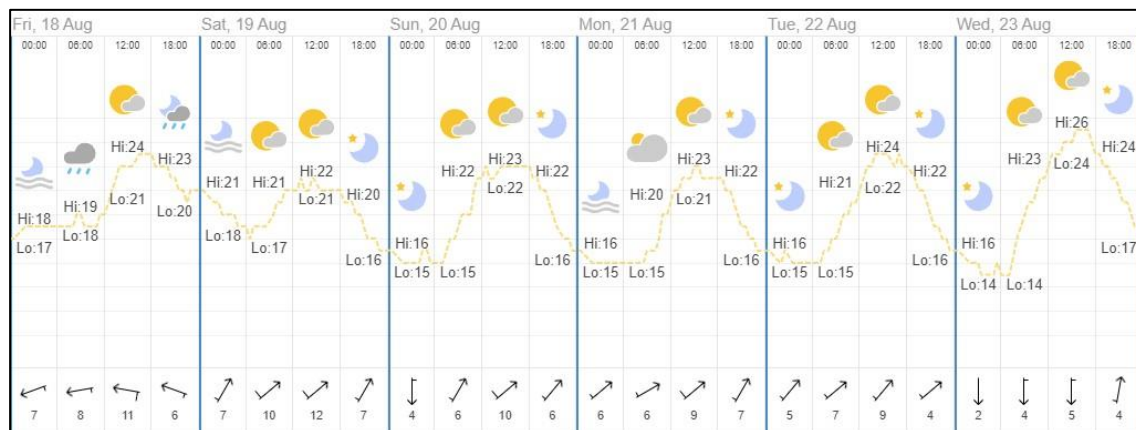
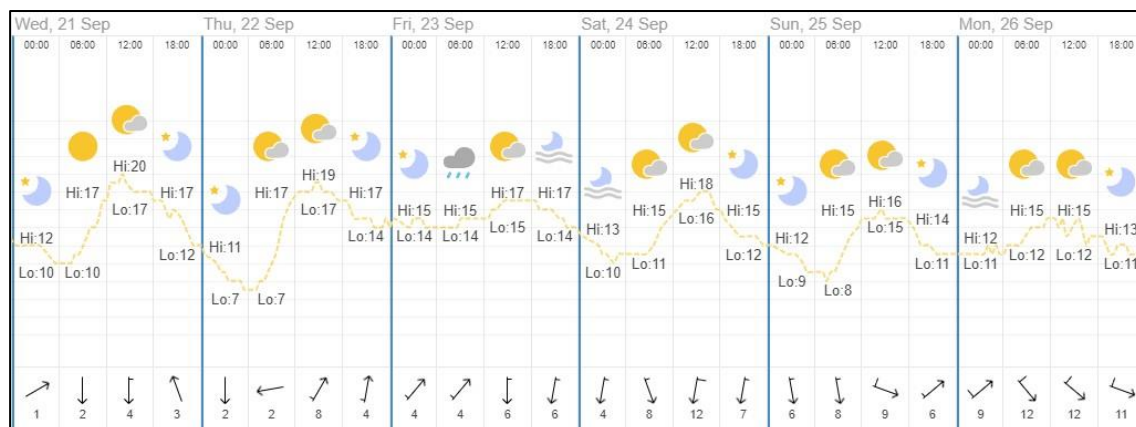
S/NS/SNH: Seen / not seen / seen not heard Comment: e.g. location of roost, direction of flight, behaviour, frequency, call shape

Bat activity. Start at: TP6a

TP	Time	Spp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
3	18:45	PIPI	1	4	F			Foraging along tree line
4	18:49	PIPI	1	1	-		NS	
	18:50	PIPI	1	1	-		NS	
	18:51	PIPI	1	1	-		S	Flying north-east toward compound
	18:52	PIPY	1	2	C		S	Flying north along treeline
	18:54	PIPY	1	5	F		S	Flying along treeline
	18:55	PIPY	1	3	-		S	Flying along treeline
	18:57	PIPI	1	5	F		S	Foraging around scrub
2	19:04	PIPI	1	1	C		S	Flying east-west
1	19:07	PIPI	1	2	C		S	Flying south-east to north-west
	19:08	PIPI	1	3	F		NS	
	19:11	PIPI	1	2	C		NS	
12	19:13	PIPI	1	1	-		NS	
	19:14	PIPY	1	1	-		NS	
11	19:21	PIPI	1	1	-		NS	
	19:21							Owl sp. north of TP11
9	19:41	PIPI	1	5	-		NS	
	19:47	PIPI	1	1	-		NS	
	19:47	PIPY	1	2	-		NS	
	19:48	PPI	1	10	F		NS	Continuous PIPI activity.
	19:51	PIPY	1	3	-		NS	
9-8	19:56	PIPI	1	1	C		NS	

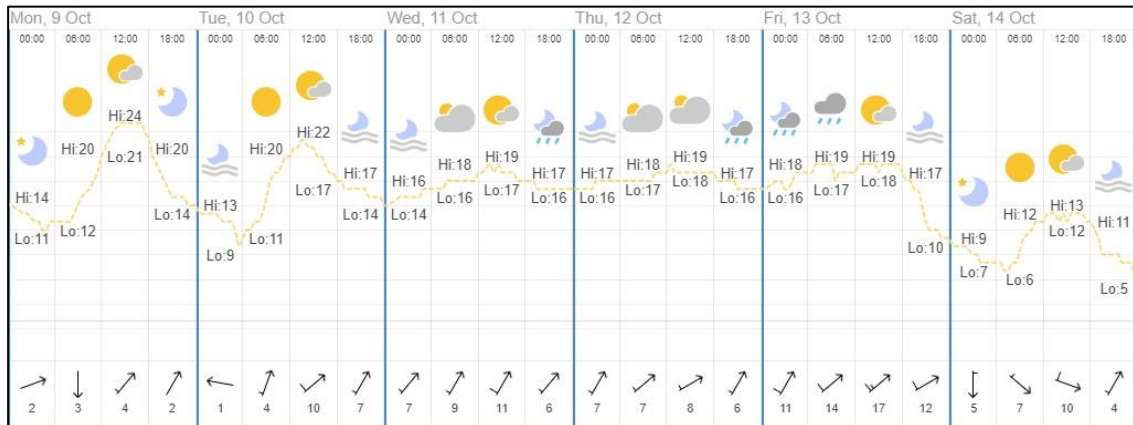
Bat activity. Start at: TP6a								
TP	Time	Spp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
8	19:57	PIPI	1	Cont.	-		NS	Continuous activity for entirety of transect stop.
	20:00	PIPY	1	2	-		NS	
	20:01	PIPY	1	2	-		NS	
7	20:07	PIPI	1	1			NS	
3	20:15	PIPI	1	1			NS	
	20:22	PIPI	1	1			NS	

UE0566_HanlyeLn_PSR_2_240619

July**August****September**

UE0566_HanlyeLn_PSR_2_240619

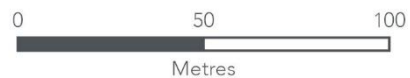
October



Appendix X: Hazel Dormouse Survey Plan

Hanlye Road, Cuckfield, West Sussex

- Dormouse: Nest tube
- + Dormouse
- + Other mouse species
- Dormouse tubes
- Site boundary



© Crown copyright and database rights 2023
Ordnance Survey 0100031673

Scale (at A4): 1:2,000 Created by: MT

Date: Oct 2023 Reviewed by: NP

Drawing number:

UE0566ECO-HanlyeLane_231019



URBAN EDGE
ENVIRONMENTAL
CONSULTING

Tel: 01273 686 766

Email: hello@ueec.co.uk

Web: www.ueec.co.uk



Appendix XI: Reptile Survey Plan

Hanlye Road, Cuckfield, West Sussex

- Site boundary
- Reptile refugia
- Reptile refugia
- Grass snake: Adult
- Grass snake: Sub-adult
- Grass snake: Juvenile

0 50 100
Metres



© Crown copyright and database rights 2023
Ordnance Survey 0100031673

Scale (at A4): 1:2,000 Created by: MT

Date: Oct 2023 Reviewed by: NP

Drawing number:

UE0566ECO-HanlyeLane_231019



URBAN EDGE
ENVIRONMENTAL
CONSULTING
Tel: 01273 686 766
Email: hello@ueec.co.uk
Web: www.ueec.co.uk



Appendix XII: 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 GCN 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 transitional); 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.

Birds

Birds are protected by the Wildlife and Countryside Act, 1981 (as amended). This legislation makes it an offence to intentionally kill, injure or take away any wild bird. It is also an offence to take, damage or destroy the nest of any wild bird while it is in use or being built or to take or destroy the egg of any wild bird. In addition, certain species are listed on Schedule 1 of the WCA (such as kingfisher *Alcedo atthis*). This makes it an additional offence to intentionally or recklessly disturb the adults while they are in and around their nest or intentionally or recklessly disturb their dependent young. Such species are considered to be in greater need of legal protection or of high nature conservation priority.

Birds of Conservation Concern ("BoCC5) are included on Red and Amber lists (Stanbury *et al.*, 2021). Birds on the Red list are those of highest conservation priority due significant and sustained population decreases and/or range contractions (e.g. house sparrow *Passer domesticus* and starling *Sturnus vulgaris*). Birds on the Amber list are the next most critical group and include species whose population/range have shown moderate declines, or which have recovered to some extent from historical decline, such as dunnoek *Prunella modularis*.

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.

Under the Habitats Regulations disturbance includes any activity which is likely to:

- ▶ Impair the ability of a bat to survive, breed, reproduce, or rear/nurture its young.
- ▶ Impair the ability of a bat to migrate or hibernate.
- ▶ Significantly affect the local distribution or abundance of the species.

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.
- ▶

GCN (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 September 2023, 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 scale 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 Mid Sussex District Plan 2014-2031 (Mid Sussex District Council, March 2018) contains the following policy relating to wildlife and biodiversity:

DP38 – Biodiversity

“Biodiversity will be protected and enhanced by ensuring development:

- Contributes and takes opportunities to improve, enhance, manage and restore biodiversity and green infrastructure, so that there is a net gain in biodiversity, including through creating new designated sites and locally relevant habitats, and incorporating biodiversity features within developments; and*
- Protects existing biodiversity, so that there is no net loss of biodiversity. Appropriate measures should be taken to avoid and reduce disturbance to sensitive habitats and species. Unavoidable damage to biodiversity must be offset through ecological enhancements and mitigation measures (or compensation measures in exceptional circumstances); and*
- Minimises habitat and species fragmentation and maximises opportunities to enhance and restore ecological corridors to connect natural habitats and increase coherence and resilience; and*
- Promotes the restoration, management and expansion of priority habitats in the District; and*
- Avoids damage to, protects and enhances the special characteristics of internationally designated Special Protection Areas, Special Areas of Conservation; nationally designated Sites of Special Scientific Interest, Areas of Outstanding Natural Beauty; and locally designated Sites of Nature Conservation Importance, Local Nature Reserves and Ancient Woodland or to other areas identified as being of nature conservation or geological interest, including wildlife corridors, aged or veteran trees, Biodiversity Opportunity Areas, and Nature Improvement Areas”*

Appendix XIII: 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.
- UEEC Ltd disclaims any responsibility to the Client and others in respect of any matters outside the scope of this contract. This report is confidential to the Client and is not to be disclosed to third parties. If disclosed to third parties, UEEC Ltd accepts no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any third party relies upon the contents of this report at their own risk and the report is not to be relied upon by any party, other than the Client without the prior and express written agreement of UEEC Ltd.
- The advice provided in this report does not constitute legal advice. As such, the services of lawyers may also be considered to be warranted.
- 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.
- All work carried out in preparing this report has utilised and is based upon UEEC Ltd's current professional knowledge and understanding of current relevant UK standards and codes, technology and legislation. Changes in this legislation and guidance may occur at any time in the future and may cause any conclusions to become inappropriate or incorrect. UEEC Ltd does not accept responsibility for advising the Client or other interested parties of the facts or implications of any such changes;
- 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.

This page is intentionally blank.

Urban Edge Environmental Consulting Ltd

Unit 5 | Westergate Business Centre | Brighton | BN2 4QN

T: 01273 68 67 66 | E: enquiries@ueec.co.uk

www.ueec.co.uk |  [@UrbanEdgeEnviro](https://twitter.com/UrbanEdgeEnviro) | **ITEMA**

© Urban Edge Environmental Consulting Ltd 2024



Urban Edge Environmental Consulting Ltd

Unit 5 | Westergate Business Centre | Brighton | BN2 4QN

T: 01273 68 67 66 | E: enquiries@ueec.co.uk

www.ueec.co.uk |  @UrbanEdgeEnviro

© Urban Edge Environmental Consulting Ltd 2023



NATURAL PROGRESSION



IEMA Transforming the world
to sustainability