
Ansty Garden Community

Environmental Statement

Volume 4

November 2023



APPENDIX G: ECOLOGY AND BIODIVERSITY

Appendix G1: Ansty Garden Community EclA



Building B, Lords Wood Barns, Petworth, West Sussex, GU28 9BS

Tel: 01798 861 800 - E-Mail: info@ecologyco-op.co.uk - Website: www.ecologyco-op.co.uk

Ecological Impact Assessment

Ansty, Haywards Heath

Author: Kate Lewis, MSc, ACIEEM

Reviewed by: Paul Whitby BSc, MCIEEM, CEcol

20th October 2023

Project No: P2831

The Ecology Co-operation Ltd
Registered Office: Greens Court, West Street, Midhurst, West Sussex, GU29 9NQ
Company number: 8905527



Ansty, Haywards Heath – ECOLOGICAL IMPACT ASSESSMENT

Issue No	Author	Reviewer	Issue Date	Additions/alterations	Notes
Draft	KL	KP	N/A	N/A	
Rev 01	KL	PW	20.10.2023	Final masterplan	

This report has been prepared by The Ecology Co-operation Ltd, with all reasonable skill, care and diligence within the terms of the Contract with the client. This report only becomes the property of the client once payment for it has been received in full.

We disclaim responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client, and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.



Report Summary

1. The Ecology Co-op has been commissioned by Fairfax Acquisitions Ltd to undertake an Ecological Impact Assessment of a proposed development on land east of Ansty, Haywards Heath. Following a Preliminary Ecological Appraisal, including UKHab mapping, of the site by The Ecology Co-op in 2019, further ecological surveys were undertaken – including protected species surveys and desk-top studies in 2022/2023 – in order to provide sufficient baseline information for this assessment. This document presents the findings of these surveys and a full Ecological Impact Assessment in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines to inform a planning application to create a new residential community, complete with up to 1,363 houses, a school and a community centre.

2. The site is approximately 98ha in area and is predominantly in use as arable farmland, comprising 12 different habitat types, including arable fields, woodland, grassland, species-rich hedgerows, standing water and running water.

3. The phase 2 surveys found that the site supports:

- a variety of habitats with some notable plant communities including ancient woodland indicators and species associated with arable field margins;
- two active badger setts;
- roosting and foraging bats including notable species (barbastelle, serotine, Nathusius' pipistrelle, Alcaho, whiskered and Brandt's myotis);
- a total of 59 bird species, including nine red listed species and 13 species listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act or Schedule 1 of the Wildlife and Countryside Act;
- a population of dormice;
- a small population of great crested newts;
- common toads, although no targeted surveys have been undertaken;
- a large population of grass snake;
- An assemblage of fairly common aquatic invertebrates which indicate a relatively healthy watercourse.

4. The proposed development has been designed to avoid losses to natural habitats on site where possible; however there will be an unavoidable small loss of woodland, grassland, arable margin, hedgerow and scrub. There is also potential for indirect impacts to significantly affect retained habitats through increased recreational pressure and the potential for pollution. The following measures will be implemented to avoid, mitigate and compensate for these significant effects:

- nearby designated sites: creation of alternative green space and financial contribution to the relevant authority;
- priority habitats on site: industry standard construction methods; installation of heras fencing to demarcate buffer zones and protect habitat during the



- construction phase; planting of a graded ecotone around retained woodland – all ancient woodland will be fenced to prevent public access; monitoring of all habitats on site in perpetuity and measures put in place where necessary to ensure no degradation of condition; replacement of all habitat lost to the proposed development through a Biodiversity Net Gain scheme;
- badgers: appropriate construction methods, fencing of the woodland in which the setts are located to prevent public access but allow free movement of badgers – (due to the sensitive nature of information pertaining to badgers, this should be omitted from the report prior to release into the public domain);
 - bats: ecologically sensitive lighting scheme to include no light zones and dark corridors, precautionary felling methodology and European Protected Species (EPS) licence where required, installation of bat roost features;
 - breeding birds: works/removal of suitable vegetation to be timed outside the nesting bird season, heras fencing installation to protect habitats from accidental damage during the construction phase, installation of bird boxes;
 - dormice: mitigation for direct impacts covered by EPS licence, biodiversity enhancements incorporated into soft landscape scheme including enhancement of woodland on-site, ecologically sensitive lighting design, installation of dormouse boxes;
 - great crested newt and common toad: precautionary approach to construction methods – to be set out in an EPS licence for great crested newts;
 - reptiles: precautionary approach to construction methods – reasonable avoidance measures and habitat manipulation, and the creation of a landscape and management plan for the proposed Parkland Reserve north-west of the site, which will include provision for reptiles, including targeted measures for grass snake;
 - European hedgehog: all new garden fencing will contain accessible gaps (10cm x 15cm) at their base to allow movement of hedgehogs between garden plots;
 - invasive non-native species: adoption of a native planting scheme, and removal of existing rhododendron and cherry laurel, to prevent the further spread of these species. All specimens will be removed and disposed of following strict invasive species protocol.

5. In line with the National Planning Policy Framework and the requirements of the Environment Act 2021, the site's ecological value will be enhanced by a minimum of 10% net gain in biodiversity value – to be detailed within a separate Biodiversity Impact Calculation Report.



CONTENTS PAGE

1	INTRODUCTION.....	1
1.1	Background	1
1.2	Purpose of this Report	1
1.3	Policy and Legislation	2
2	SURVEY METHODOLOGY	4
2.1	Desk Studies	4
2.2	Habitat Survey.....	4
2.3	Badgers.....	5
2.4	Bats	5
2.5	Breeding Birds.....	7
2.6	Common Dormouse	8
2.7	Great Crested Newts and Other Amphibians	9
2.8	Reptiles	10
2.9	Riparian Wildlife	11
2.10	Other Notable Species.....	11
2.11	Invasive Non-native Species.....	11
2.12	Impact Assessment Methodology and Mitigation.....	11
2.13	Constraints/Limitations to Surveys.....	13
3	ECOLOGICAL BASELINE	13
3.1	Designated Sites	13
3.2	Habitats	14
3.3	Botanical Baseline.....	16
3.4	Badgers.....	19
3.5	Bats	20
3.6	Breeding Birds.....	22
3.7	Dormice.....	23
3.8	Great Crested Newts and Other Amphibians	24
3.9	Reptiles	25
3.10	Riparian Wildlife	26
3.11	Other Notable Species.....	26
3.12	Invasive Non-native Species.....	28
4	IMPACT ASSESSMENT	29
4.1	Designated Sites	29
4.2	Priority Habitats.....	30
4.3	Badgers.....	30
4.4	Bats	31
4.5	Breeding Birds.....	32
4.6	Common Dormice	33



4.7	Great Crested Newts and Other Amphibians	34
4.8	Reptiles	35
4.9	Riparian Wildlife	35
4.10	Other Notable Species.....	36
4.11	Invasive Non-native Species.....	37
5	MITIGATION PROPOSALS.....	37
5.1	Designated Sites	37
5.2	Priority Habitats	38
5.3	Badgers.....	39
5.4	Bats	39
5.5	Breeding Birds.....	40
5.6	Common Dormouse	41
5.7	Great Crested Newts and Other Amphibians	42
5.8	Reptiles	43
5.9	Riparian Wildlife	43
5.10	Other Notable Species.....	44
5.11	Invasive Non-native Species.....	45
6	BIODIVERSITY ENHANCEMENTS.....	45
7	CONCLUSIONS.....	46



1 INTRODUCTION

1.1 Background

The Ecology Co-op was commissioned by Fairfax Acquisitions Ltd to undertake an Ecological Appraisal of land at Ansty, Haywards Heath RH17 5AF. This report presents the findings of baseline ecological surveys and desk-study research, and assesses the likely impacts and significance of effects of the proposed development in relation to protected/notable species, habitats and designated sites.

The site is located on the outskirts of Haywards Heath, south-west of Cuckfield. The central grid reference for the site is TQ 29692 23307. Figure 1 shows the boundary of the site and local context.

The site measures approximately 98 hectares (ha) and is predominantly in use as arable farmland, comprising 12 different habitat types, including arable fields, woodland, grassland, species-rich hedgerows, standing water and running water.

There is a proposal to develop the site to create a new residential community, with up to 1,363 houses, a school and a community centre. The exact scale and layout of the proposed development has yet to be finalised at the time this document was prepared, but a draft plan is provided in Figure 2.

The Ecology Co-op undertook a Preliminary Ecological Appraisal (PEA)¹ of the site in February 2019. Based on the findings of this assessment, and following updated proposals concerning the scale of the proposed development, the following surveys were recommended:

- extended botanical survey
- bat surveys, including trees, buildings and activity surveys
- breeding bird surveys
- dormouse *Muscardinus avellanarius* presence/likely absence surveys
- great crested newt *Triturus cristatus* presence/likely absence surveys
- reptile presence/likely absence surveys
- badger *Meles meles* presence/likely absence surveys
- otter *Lutra lutra* presence/likely absence surveys
- bryophyte and invertebrate surveys of Copyhold Stream, which runs through the site.

1.2 Purpose of this Report

The Ecology Co-op undertook all of the above surveys across 2022 and 2023. The purpose of this report is to:

- present the findings of surveys and desk-study research (baseline ecological information);
- identify and evaluate the most ecologically important features present on the site and within the

¹ The Ecology Co-op (2019) *Preliminary Ecological Appraisal and Phase 1 Habitat Survey, Area C, Ansty Farm*.



- zone of influence of the proposed development;
- describe the impacts of the proposed development and determine the significance of effects on these ecologically important features;
- set out the proposed impact avoidance, mitigation, compensation measures that will be undertaken to reduce significant adverse effects to an acceptable level.
- outline the habitat creation and enhancement measures that will be put into place as part of the proposed development. These are designed to ensure that the proposals contribute to both local and national biodiversity objectives.

This report is intended for submission as part of the planning application for the proposed development and will be updated with the results of the stream surveys as soon as they are complete.

The surveys and this report production has been overseen by Paul Whitby, BSc, MCIEEM, CEcol.

1.3 Policy and Legislation

Legal protection applying to relevant bird, mammal, herpetofauna and invertebrate species and current nature conservation planning policy is outlined in Appendix 1 of this report.

Where possible, this report provides information on how the development proposal will be designed to meet the requirements of both the National Planning Policy Framework (NPPF) and local planning policy. Details of the NPPF and relevant local planning policy by Mid Sussex District Council is provided in Appendix 1.



Figure 1. An aerial image showing the location of the site. The approximate site boundary is outlined in red. Image produced courtesy of Google maps (map data ©2022 Google).



Figure 2. A draft concept sketch plan. Image produced by fabrik ltd, drawing D3012-FAB-00-XX-DR-Y-009, dated March 2023.



2 SURVEY METHODOLOGY

The following sections describe the methods used in the desk study and protected species/habitat survey(s). All survey methods are in accordance with current best practice guidance for the respective species/taxonomic group and any limitations encountered during the survey are explained in section 2.13.

This document is written in accordance with the CIEEM Guidelines for Ecological Impact Assessment² and CIEEM Guidelines for Ecological Report Writing³ Details of the ecological assessment methods are provided within section 2.12 below.

2.1 Desk Studies

A search for pre-existing records of protected species, priority species for conservation and invasive non-native species was requested from the Sussex Biodiversity Records Centre (SxBRC) within a radius of 2 km of the site boundaries.

A search of on-line mapping resources was undertaken to identify the location of any features of potential ecological interest including ponds within 500 m (relevant to great crested newts *Triturus cristatus*), watercourses (relevant to riparian mammals and crayfish for example) and connectivity to woodland, scrub, and hedgerow networks (relevant to bats and dormice for example) in the wider landscape around the site. The connectivity of the site to these features, buildings and other semi-natural habitats are also relevant to species such as bats, great crested newts and reptiles.

The MAGIC website resource (www.magic.gov.uk) was used to identify the location of designated sites for nature conservation and European Protected Species (EPS) licences granted in relation to the survey site.

2.2 Habitat Survey

An extended site walkover survey was undertaken in the week commencing 13th June 2022, during which the habitats contained within the site were described and evaluated in accordance with standard UK Habitat Classification (UKHab)⁴. The dominant species and indicators of important habitat types such as ancient woodland or unimproved grassland, were recorded and the condition of the habitats was evaluated according to Biodiversity Metric 3.1 Habitat Condition Assessment.

UKHab survey presents a standardised system for classifying and mapping wildlife habitats in all parts of Great Britain, including urban areas. The aim of the survey is to provide, relatively rapidly, a record of the vegetation and wildlife habitats present over large areas of countryside. The habitat classification is based principally on vegetation, augmented by reference to topographic and substrate features,

² CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Chartered Institute of Ecology and Environmental Management, Winchester.

³ CIEEM (2017) *Guidelines for Ecological Report Writing, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

⁴ The UK Habitat Classification Working Group (2018) *The UK Habitat Classification User Manual* at <http://ecountability.co.uk/ukhabworkinggroup-ukhab>



particularly where vegetation is not the dominant component of the habitat.

The results of the survey are presented as a map showing the distribution of habitat categories across the site. Target notes are used to describe specific features of biodiversity interest and record indicator species where appropriate. In addition to this, notable habitats, such as habitats listed under the NERC Act, 2006 are highlighted.

The UKHab methodology is a recognised tool for initial scoping of potential ecological constraints and opportunities, and for identifying potential effects of the proposed development as part of the planning application process.

As part of the Preliminary Ecological Appraisal, the site features were evaluated for their potential to support legally protected species and observations of any important plant communities, bird assemblages or other potentially valuable ecological features were recorded. Details of the preliminary survey methods for each legally protected species are given below and any specific limitations to the survey(s), such as access constraints, are set out in section 2.13.

2.3 Badgers

Badgers tend to live in family groups with clearly defined territories with the main sett, used throughout the year, as a focal point. The territory often also contains a number of 'annex', 'subsidiary' and outlier setts that are used intermittently. Badgers can exist in a variety of habitats, but a mixed farmland landscape containing pasture and arable land, studded with woodland, scrub and hedgerows support the highest population density.

A comprehensive walkover survey of the site was undertaken in April 2022, covering all field parcels, woodlands and boundary features. Special attention was paid to boundary features such as hedgerows, woodland edge, earth banks, and fence-lines, where signs of badger activity are often concentrated. Surveyors searched for badger setts, latrines, foraging marks, footprints and worn pathways, and trapped hairs on fences and any other evidence of badger activity.

Any setts identified were subject to on-going monitoring during other survey visits to determine the type of sett and current occupation by badgers. Where necessary, motion sensitive cameras 'trail cams, or other non-intrusive methods (e.g. laying soft damp sand, placing dead leaves or straw or sticky hair traps at entrances) were used to confirm occupation by badgers. This survey methodology is in accordance with Harris, et al (1989)⁵.

2.4 Bats

There are 18 species of bat resident in the UK, each with their own specific habitat requirements. Bats can use a wide range of features for roosting purposes including loft spaces, cavity walls, loose tiles, mortice joints and cracks/gaps in a variety of built structures. They can also be found in trees with holes, splits, cracks, cavities, ivy and loose bark. Bats are generally active at night and utilise a wide range of habitats for foraging and commuting between roost sites, hibernation sites and foraging habitats. Linear

⁵ Harris, S, Cresswell, P. and Jefferies, D. (1989) *Surveying Badgers*. Mammal Society.



features such as hedgerows, woodland edges, even fences can be important for navigation between roosting and foraging habitats.

2.4.1 Natural Roost Features – Trees

All trees likely to be affected directly by the proposed development (see Appendix 1) were subject to a ground-based visual inspection to identify potential roost features, followed by climbing inspections where necessary and safe, to look for evidence of roosting bats and to further assess the suitability of the feature. This included an additional climbed survey of any roost features suitable for hibernating bats in February 2023. Each tree/feature was categorised for its potential to support roosting bats as shown in Table 1 in accordance with best practice guidance⁶.

Table 1. Characterising potential roost features in trees.

Category	Description
Negligible	A tree with negligible roosting habitat features likely to be used by bats.
Low	A tree of sufficient size to potentially support roosting features, but with none seen from the ground or features identified of limited roosting potential.
Medium	A tree with one or more potential roost sites that could be used by bats due to their size, conditions and surrounding habitat, but unlikely to support a roost of high conservation status such as a maternity or hibernation roost.
High	Trees with one or more potential roost sites that appear suitable for large numbers of bats or use as maternity or hibernation roosts.

2.4.2 Built Structures

A detailed ground based visual assessment was carried out of the buildings at the centre of the site (see Appendix 1 for locations), including Building 1 'The Barn' and Building 2 'Old Place', looking for features with potential to support roosting bats (e.g. gaps under tiles, soffits, cracks or gaps in brickwork and cladding) and any evidence indicating the presence of bats, such as rub marks, staining or droppings beneath potential roost features. Where possible and safely accessible, internal inspections of potentially suitable enclosed loft spaces were made to search for evidence of use by bats (live bats, dead bats, droppings, rub marks or staining of timbers). An additional survey of the cellar associated with Building 2 was carried out in February 2023 to check for any signs of hibernating bats.

2.4.3 Emergence/Re-entry Surveys

In accordance with survey findings and best practice guidance, three emergence/re-entry surveys were undertaken between August and September 2022, covering all buildings assessed as having high potential to support roosting bats. The surveys were carried out using methodology provided by the Bat Conservation Trust⁶.

The surveys focused on all features identified during the initial assessment as potential roosting sites or access points for bats, with surveyors positioned according to Figure 3 in Appendix 1. From these locations, surveyors could see all features potentially suitable for roosting bats that were identified during the initial bat scoping survey. Surveyors were positioned to start surveillance at approximately 30 minutes before sunset and continued until at least one and a half hours after sunset and up to 2 hours depending on the level of activity.

⁶Collins, J.(ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*. The Bat Conservation Trust, London.



The surveyors recorded any bat activity on or around the potential roosting entry/exit features. All surveys were undertaken during weather conditions suitable for bat activity and at ambient temperatures above 10°C. The surveyors recorded bat activity using 'Echo Meter Touch' bat detectors featuring auto-identification of bat species and automatically triggered recording for later review.

2.4.4 Bat Activity Surveys – Walked Transects

Bat activity surveys followed best practice guidelines⁶. Pre-determined transect routes were followed by surveyors (see Appendix 1, Figure 4), focussing on all linear features within the site boundary (tree-lines, woodland edge and hedgerows). The northern route included the north-east corner for the months April–June but due to practicalities of the route and as this part of the site will not be impacted by the development, it was not included within the last surveys (July–September). The transect routes were walked at a slow pace during the period from sunset to two hours after sunset by a team of surveyors, such that each part of the route was passed approximately every twenty minutes. All surveys were undertaken during weather conditions suitable for bat activity and at ambient temperatures above 10°C. The surveyors recorded bat activity using 'Echo Meter Touch' bat detectors featuring auto-identification of bat species and automatically triggered recording for later review. The locations of all bat 'registrations' was recorded onto a field map during the survey to correspond with all sound recordings.

2.4.5 Bat Activity Surveys – Automated Static Bat Detecting

Six Song Meter Mini static bat detectors were deployed across the site (see Appendix 1, Figure 4) on six separate occasions, once a month between April and September 2022, and left in the field for a minimum of five days – the expected maximum lifetime of the battery. Static bat detectors comprise a passive recording device with real-time full-spectrum calls that can be viewed in detail once downloaded on analysis software, allowing accurate identification of most bat calls to species level (or genus level in the case of *Myotis* and *Plecotus* spp.).

The walked transect and static bat detector ('bat logger') survey methods complement each other with the transect surveys providing information on foraging and commuting patterns, and distribution across the site; and automated static detector surveys giving more prolonged coverage through consecutive nights, thus increasing the likelihood of detecting scarce species.

2.4.6 Bat Activity Surveys – Trapping and Radiotracking

Temple Group Ltd carried out trapping and radiotracking at Ansty in 2022. They have produced a separate report⁷, to be issued alongside this one.

2.5 Breeding Birds

The methods used for the breeding bird survey were adapted from a methodology developed by the Bird Survey and Assessment Steering Group (RSK Biocensus)⁸. This methodology requires six visits spread evenly between late-March and early-July. Any deviation from this number should be justified. These should be carried out approximately 30 minutes before sunrise through to mid-morning (10am

⁷ Temple (2023) Bat Trapping and Radiotracking Report, Greater Ansty New Village

⁸ <https://birdsurveyguidelines.org/methods/survey-method/>



to 11am). At least one of these visits should be in the evening, extending past sunset. All bird surveys were only undertaken during favourable weather conditions for bird activity, with periods of persistent or heavy rain, high winds or fog avoided.

A pre-determined transect (see Appendix 1, Figure 4) was walked on each visit, during which the observer recorded all birds encountered. As recommended in the guidelines, the transect route was walked at a constant slow pace by a competent bird surveyor, stopping to check any priority habitat/features and causing minimum disturbance, recording all birds detected either by sight or calls/song. Notes regarding the behaviour of birds identified were made to determine their breeding status. Birds were said to be 'confirmed as breeding' if they were observed carrying nesting material, food or faecal pellets; or nests, eggs, or recently fledged young were discovered. Birds were recorded as 'likely breeding' if observed singing or displaying, repeatedly visiting the same locations, and showing agitated or distraction behaviour. Each bird 'registration' was recorded on a field map of the survey site using standard BTO Common Birds Census (CBC) notation⁹, which includes behaviours and flight movements – new standards. A note was also made of the start and end time, sunrise/sunset time, temperature, wind (Beaufort scale) and precipitation levels.

2.6 Common Dormouse

Common dormice are typically associated with broadleaved woodland habitat, hedgerows and scrub. They tend to occur at low density and good habitat connectivity is important. Common dormice need a constant supply of food throughout the active season over a large home range. A diversity of tree and shrub species will provide a range of fruit, nuts and insects. They hibernate during the winter – typically at ground level amongst leaf litter and mosses protected by coppice stools, tree stumps or piles of brash wood.

2.6.1 Nest Tube/Box Survey

Dormouse surveys are undertaken by attaching purpose built 'nest tubes' on trees and shrubs in suitable habitat such as woodland, scrub and hedgerows. Nest tubes are used by dormice as places of shelter and they will often construct their nests within them during their periods of activity (typically between April and November). In accordance with current best practice guidelines¹⁰, 400 nest tubes were deployed approximately 20m apart in suitable habitat across the site, including woodland, hedgerows and scrub, in April 2022 and left *in situ* for the survey season (see Appendix 1, Figure 6). These were checked on a monthly basis for presence of animals and evidence of dormouse presence (distinctively woven nests) from May to September 2022. Since the likelihood of use by dormice varies through the year, an index of probability score is used to determine confidence in a particular survey (see Table 2 below) comprising checks over several months. A minimum score of 20 is normally accepted to establish 'likely absence' in the event that no signs of dormice are found during the survey.

Dormice checks were undertaken in the mornings and commenced one month after the nest-tubes were positioned. Surveys were undertaken under the supervision of licensed surveyor, Kate Lewis, dormouse survey Class 1 licence holder.

⁹ https://www.bto.org/sites/default/files/u16/downloads/forms_instructions/bto_bird_species_codes.pdf

¹⁰ Bright, B., Morris, P., Mitchell-Jones, A.J. and Mitchell-Jones, T (1997) *The Dormouse Conservation Handbook*. English Nature.

**Table 2.** Search effort score for each month that dormouse tubes are out on the site and subject to surveys

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

2.7 Great Crested Newts and Other Amphibians

Great crested newts require ponds for breeding that meet a series of habitat criteria including good quality water, aquatic plants and an absence of predatory fish. The ponds must have good connectivity to semi-natural terrestrial habitats that provide their invertebrate food sources and suitable safe places to rest and hibernate outside the breeding season. Great crested newts tend to occur more frequently in areas of high pond density across the landscape in 'metapopulations' where habitat occupancy ebbs and flows according to changes in conditions.

Common toad *Bufo bufo* are a priority species in England under Biodiversity 2020: A strategy for England's wildlife and ecosystem services and under section 41 of The Natural Environment and Rural Communities (NERC) Act 2006, where UKBAP species were recognised as of principal importance for the conservation of biodiversity. This species should therefore be considered during planning and development. No surveys have been undertaken at the site that specifically target common toad but a record has been made if they are found during any other site visit/survey.

2.7.1 Habitat Suitability Assessment

Ansty contains 11 ponds within its boundaries. The desk study revealed a further 21 ponds within a 500m radius of the site boundaries (excluding ponds which are separated from the site by a significant barrier to amphibian movement such as a major road). See Appendix 1, Figure 7 for the location of the ponds.

Where ponds were visible from public rights of way or where access permission was granted, they were assessed for their potential to support great crested newts using the Habitat Suitability Index (HSI) (Oldham et al 2000).

Those ponds within 250m of the site's boundaries and with 'average' or 'above average' suitability for breeding great crested newts, were carried forward for Environmental DNA (eDNA) sampling and/or presence/likely absence surveys.

2.7.2 Environmental DNA Sampling and Analysis

This relatively new technique allows a quick and reliable qualitative measure of the presence/likely absence of great crested newts. It involves collection of water samples from a pond, using a standard protocol set out by Natural England¹¹. The samples are sent to an approved laboratory to isolate and

¹¹ Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn



determine presence of environmental DNA (eDNA) shed into the water by amphibians during the breeding season. Samples for eDNA analyses were taken from ponds 1, 3, 4, 13, 20 and 32 on 20th April 2022. All six ponds returned a negative result for great crested newt DNA and no further surveys were carried out.

2.7.3 Field Survey

Ponds 6, 7, 8 & 9 were carried forward for further surveys. The survey methodology followed standard guidance for great crested newts¹². Six survey visits were undertaken using a combination of bottle-trapping, torchlight searching and egg searching during each survey visit; ponds 8 & 9 had dried up after two survey visits and surveys were discontinued. All surveys were undertaken during weather conditions suitable for great crested newts – above the minimum temperature of 5°C – and at least three of the survey visits were undertaken during the ‘peak activity period’ for breeding great crested newts (i.e. between 15 April and 15 May). Weather conditions, temperature and pond turbidity was recorded during each survey visit.

2.8 Reptiles

The common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis* grass snake *Natrix natrix* and adder *Vipera berus* are widespread species that can be found in many semi-natural habitats, such as rough grassland, scrub, heathland and open woodland where there is good vegetation cover, an abundance of invertebrate, amphibian or small mammal prey and areas of open ground for basking.

Standard reptile presence/likely absence surveys involve setting out artificial refugia (reptile ‘mats’ or ‘tins’) in potentially suitable habitat. Reptile mats are pieces of roofing bitumen felt, corrugated onduline or carpet tiles, and reptile tins are pieces of corrugated metal sheet, all of which are approximately 1m x 0.5m in size. These refugia absorb heat from the sun more rapidly than the surrounding vegetation and provide cover and basking places attractive to reptiles. They are placed in areas of potentially suitable habitat at an approximate density of 20 per ha, or 20m apart along linear features, and are then checked for presence of animals under suitable weather conditions. There are no up-to-date best practice guidelines for reptile surveys, but a minimum of seven survey visits under suitable weather conditions is generally considered to be adequate when determining their presence/likely absence, and 15–20 visits are used to calculate a ‘peak count’ for population size class assessment.

A total of 400 roofing felt mats were used in this survey (see Appendix 1, Figure 8). The mats were left *in situ* for a minimum of one week to ‘bed in’ and allow reptiles to locate them before the first check. The mats were checked at least seven times over the period May to September 2022 and all observations of reptiles were recorded, together with the weather conditions, temperature and time of day. The location of the mats may have changed slightly from initial setup due to surveyors moving the mat to a better location (e.g. more sun) or the mats may have been replaced following damage.

F 2014. *Analytical and methodological development for improved surveillance of the Great Crested Newt*. Defra Project WC1067. Freshwater Habitats Trust: Oxford.

¹² English Nature (2001) *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.



2.9 Riparian Wildlife

Watercourses and waterbodies can support a range of protected species, principally otter, water vole *Arvicola amphibius* and white-clawed crayfish *Austropotamobius pallipes*, and can create rare woodland ghyll habitat under the right conditions.

Copyhold Stream runs through the northern half of the site and along the eastern boundary. A small tributary from the stream runs through the southern half of the site. Two walked surveys along the stream were carried out on 22nd April and 30th June 2022, looking for signs of crayfish, otter and water vole, including feeding remains, latrines and scat.

2.10 Other Notable Species

The site's habitats were broadly assessed for their potential to support species of principal importance for nature conservation (Section 41 NERC Act 2006) and other notable species. This includes mammals such as harvest mouse *Micromys minutus*, hedgehog *Erinaceus europaeus*, brown hare *Lepus europaeus*, and many bird species. The site was broadly assessed for its potential to support important invertebrate assemblages, with specific attention paid to features such as standing dead-wood, wet flushes, bare earth banks and botanically rich areas.

2.11 Invasive Non-native Species

No specific surveys for invasive non-native species (INNS) were undertaken. However, the presence of any invasive non-native species encountered during other fieldwork, was recorded.

2.12 Impact Assessment Methodology and Mitigation

The assessment of ecological impacts and mitigation recommendations in this report follow CIEEM Guidelines for Ecological Impact Assessment (EclA)². This involves evaluating the importance of an 'ecological feature' (habitat, vegetation community, population of a single species or assemblages of species) in terms of nature conservation priority, followed by the application of the 'mitigation hierarchy'.

2.12.1 Importance of Ecological Features

A level of importance was assigned to all existing ecological features through consideration of the rarity and distribution of a habitat or species, the population size, ecological function, and trends (declining/expanding), together with any designations, legal status, or conservation policies. CIEEM recommend that the importance of an ecological feature, in terms of nature conservation priority, should be considered within a defined geographical context (for definitions used by The Ecology Co-op, see Appendix 1):

- international and European
- national
- regional
- county
- local or parish



- site/negligible.

Where protected species are present and there is the potential for a breach of the legislation as a result of the development proposals, those species are considered as 'important' features and included in the EclA. However, the level of importance assigned to the affected population of a protected species will vary depending on contextual information about the population size, distribution, abundance and trends across the range of geographical scales.

Similarly, irreplaceable habitats such as ancient broadleaved woodland are considered as important features and included in the EclA. The level of importance will vary depending on the size of the habitat parcel, its distribution and abundance at different geographical scales.

Features that are considered to be important at site level only, or are of negligible importance (such as paved ground or amenity grassland) are excluded from this EclA and it should be reasonable to assume that if a feature is not mentioned, it is not ecologically important.

2.12.2 Significance of Effects

In accordance with EclA (CIEEM 2018)², a significant effect is defined as "an effect that either supports or undermines biodiversity conservation objectives for important ecological features". Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy). The effects may be described as significant at a range of geographic scales as defined above.

The impacts are identified and described in relation to the following characteristics:

- *adverse or positive* – does the impact result in the loss or gain in biodiversity/quality of the environment?
- *extent, magnitude* – the spatial area over which the impact may occur, the area of habitat lost, or the number of individuals/populations affected
- *timing* – in relation to the life cycle of the ecological feature (e.g. nesting bird season)
- *duration, frequency* – is the impact temporary or permanent, frequently repeated or a one-off event?
- *reversibility* – is the impact temporary or permanent? Would the ecological feature recover after the impact?
- *cumulative impacts* – in combination with other plans/projects.

This report has only sought to describe in detail the impacts that are likely to be significant. Impacts that are either unlikely to occur, or if they did occur are unlikely to have a significant effect have been discounted or 'scoped out' at an earlier stage. Effects on the conservation status of ecological features are only assessed in detail if they have a high enough value (local or above) and impacts upon them may be a material consideration in decision-making in terms of legislation and planning policy. Impacts on features below local value are categorised as of neutral significance and are not considered further. However, where it has not been possible to robustly conclude that there are no significant effects (due to insufficient survey data or scientific research for example), then the precautionary principle will be applied and a significant effect is assumed.



2.12.3 The 'Mitigation Hierarchy'

The assessment of the significance of an effect is made initially in the absence of mitigation. This is followed by a sequential process of determining the most appropriate way to remove or minimise significant effects. The preferred option is to avoid impacts in the first place, for example by redesigning the scheme to retain an important area of habitat, or timing works sensitively. Mitigation measures such as translocation or displacement of populations is only applied as a last resort where significant effects are unavoidable.

When residual significant adverse effects remain after all practicable measures to avoid and/or minimise impacts have been applied, compensation measures are required. Compensation measures include habitat creation in alternative locations that offset unavoidable habitat loss.

Finally, enhancements are proposed that do not relate to a specific impact and effect but provide net gains in biodiversity – taking advantage of opportunities in the design and operation of the proposed development. These measures are intended to ensure that the proposed development contributes towards national and local biodiversity objectives.

2.13 Constraints/Limitations to Surveys

Surveys record any flora or fauna that is present at the time of the survey visits. It is therefore possible that some species may not have been present during the surveys but may be evident at other times of the year and may appear or disappear from the site if habitat conditions change. For this reason, the surveys are considered valid for up to eighteen months for badgers and bats, two years for reptiles and three years for great crested newts and dormice. If the habitat conditions change significantly in the intervening period, then it is recommended that the surveys be updated.

3 ECOLOGICAL BASELINE

3.1 Designated Sites

The site lies on the border of the High Weald Area of Outstanding Natural Beauty and is 1.3 km west of Blunts and Paiges Wood Local Nature Reserve (LNR) and 1.6 km west of Ashenground and Bolnore Woods LNR. There are no European sites (such as Special Protection Areas) situated within 10 km of the site. Within 2km of the site there are five Local Wildlife Sites and three designated verges within, including Great Wood & Copyhold Hanger Local Wildlife Site (LWS) which lies immediately adjacent to the south-east boundary. No other statutory designated sites for nature conservation are found within 2km. See Appendix 2 (Table 1 and Figure 1) for details

The site contains approximately 8.87 ha of Ancient Woodland and 17.42 ha of Priority Lowland Mixed Deciduous Woodland and is well connected to similar habitat within the surrounding area (see Appendix 2, Figure 2).

There is one granted EPS licence for mitigation projects within 1 km of the site boundary, concerning the destruction of a resting place for brown long-eared bats *Plecotus auritus*, common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus* 800 m south-west of the site



boundary (see Appendix 2, Figure 3).

3.2 Habitats

The site comprises mostly of arable fields, with multiple parcels of woodland and tall grassland. The fields are separated by hedgerows which, for the most part, are native species-rich and provide high value green corridor habitat throughout the site. An overview of the individual habitats is provided in Table 3 below, with more detailed descriptions provided within sections 3.3 and 3.8. See Figure 3 for a habitat map of the site and Appendix 3 for corresponding photographs. Common names are used for botanical species within this report, with the scientific name provided in Appendix 2.

Table 3. The habitats contained within the site.

Habitat type	UKHab Code	Area/ length	Species composition	Ecological importance
Area (polygon)				
Arable and horticulture	c1	48.04 ha	The majority of the site comprises arable fields, sown with rye grass, barley and broad bean.	Site
Arable field margins	c1a	4.63 ha	See section 3.3	Local
Other neutral grassland	g3c	7.87 ha	See section 3.3	Site
<i>Arrhenatherum</i> neutral grassland	g3c5	4.81 ha	A few of the fields are dominated by false oat-grass and are likely harvested for hay/silage.	Site
Modified grassland	g4	8.69 ha	See section 3.3	Site
Lowland mixed deciduous woodland	w1f	17.42 ha	See section 3.3	District
Other woodland – broadleaved	w1g	4.84 ha	See section 3.3	Local
Other coniferous woodland	w2c	0.75 ha	See section 3.3	Local
Rivers and lakes – pond	r	0.13 ha	See section 3.8	Local
Built up areas and gardens	u1	1.3 ha	There are two houses, with associated residential gardens, at the centre of the site. The gardens comprise close mown lawns, manicured hedgerows and a mix of native and ornamental trees and shrubs. The buildings are described in section 3.5 and the garden ponds are described in section 3.8.	N/A
Linear (line)				
Hedgerow (non-priority)	h2	1.03 km	A species poor, damaged hedgerow forms the south-eastern boundary of the site. The hedgerow is dominated by bramble and bracken with occasional trees, including elder and sycamore.	Local
Hedgerow	h2a	5.83 km	The majority of the hedgerows on site are native	Local



Habitat type	UKHab Code	Area/ length	Species composition	Ecological importance
(priority)			species-rich hedgerow with trees, and are largely minimally managed, providing high value habitat for wildlife. Species recorded include field maple, oak, blackthorn, sycamore, hawthorn, hazel, dogwood, elder, holly, ash, bramble, rose, bracken, honeysuckle. The hedgerow at the centre of the site also contains wild service tree and spindle. The hedgerow along the western boundary of the site has frequent mature trees, with similar composition but with the addition of horse chestnut, beech and common lime.	
Ecologically valuable line of trees	w1 (34)	0.09 km	There is a line of oak trees bordering a horse paddock within the south-east section of the site.	Local
Canal or ditch - Stream	r1e	2.7 km	The Copyhold Stream includes a confluence point with the largest of the two tributaries flowing onto the site from the west across the A272 and a second small stream flowing southwards past the wastewater treatment works, which augment the flow. The watercourse runs southwards past the eastern boundary of the site after this confluence point and has steep clay banks with a stony bottom comprising a mixture of shallow faster flowing sections and deeper pools.	District
Built linear feature – sealed surface	u1e	1.15 km	A hardcore track bisects the site, providing access to a residential property along the eastern boundary.	N/A

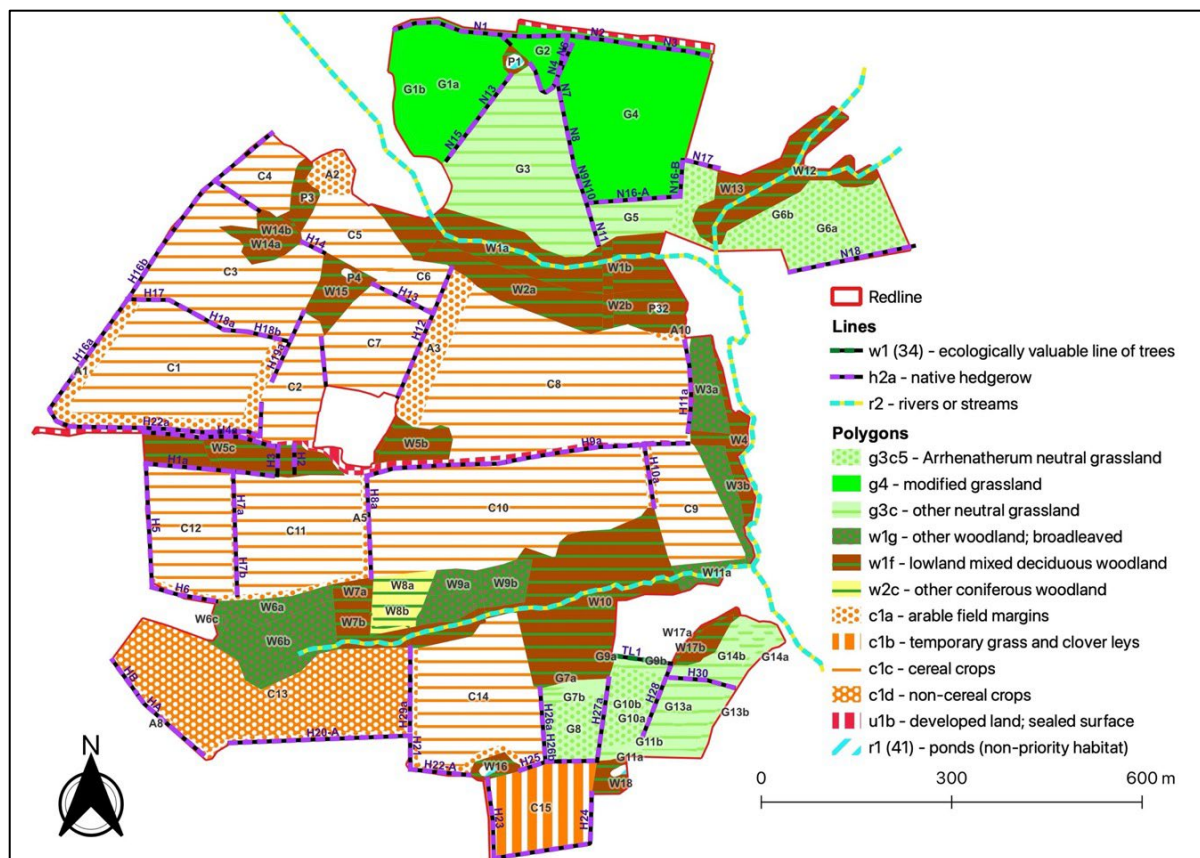


Figure 3. A UKHab map of existing habitats at the proposed development site. All habitats parcels have been labelled with a reference code. Image produced using QGIS software, version 3.16.3 – Hannover.

3.3 Botanical Baseline

As an extension to the UKHab survey the detailed botanical survey provides a full species list for the habitats present on the site.

In brief, the grassland (neutral and modified) appears to be subject to little management and is allowed to grow tall and coarse. The arable margins are mostly not of any notable botanical interest, with the exception of two relatively large areas at the centre of the site. The woodland parcels vary in composition and condition, but some are relatively diverse with an interesting ground flora, including multiple ancient woodland indicators.

Arable field margins

The majority of the fields on site have a margin of mostly rank vegetation, with frequent false oat-grass, cocksfoot, rough meadowgrass, creeping bent, creeping thistle and bristly oxtongue. Occasional or rare amounts of the following species were also recorded: redshank, scarlet pimpernel, hoary plantain, greater plantain, goosefoot sp., creeping buttercup, marsh cudweed, common fleabane, curled dock, tall fescue, dandelion, ragwort, hoary willowherb, sharp-leaved fluellen, round-leaved fluellen, common mouse-ear, scentless mayweed, red clover, oxeye daisy, creeping cinquefoil, field bindweed, self-heal, crested dog's-tail, bird's-foot trefoil, white clover, cut-cleaved cranesbill, thyme-leaved speedwell, germander speedwell, hard rush and smaller cat's-tail. Trailing St John's wort was recorded within the southern margin of the field south-east of the central track and hairy buttercup was recorded at the



centre of the site.

There are two notable field margins at the site; one is an area measuring approximately 0.4 ha, north-west of the central fields, the second is a 40 m wide margin at the centre of the site. Both have been seeded with a wildflower rich mix, including frequent knapweed, oxeye daisy, creeping thistle and yarrow, occasional white clover, creeping buttercup, bird's-foot trefoil, red fescue, smooth meadowgrass, rough meadowgrass, Yorkshire fog, crested dog's-tail, selfheal and rare amounts of thyme-leaved speedwell, yellow rattle, curled dock, cocksfoot, spear thistle, dandelion, field forget-me-not, ribwort plantain, hoary willowherb, red clover, smaller cat's-tail, smooth tare, hoary plantain, ragwort, lady's bedstraw, greater knapweed, hedge bedstraw, spear thistle and grass vetchling.

Other neutral grassland

Northern field: tall vegetation comprising abundant Yorkshire fog, frequent sweet vernal, creeping thistle, common sorrel, white clover, meadow buttercup, occasional ragwort, lesser stitchwort, red clover, cocksfoot, common bent and rare amounts of meadow vetchling, bird's-foot trefoil, meadow foxtail, rough meadowgrass, hard rush, curled dock, false oatgrass and smooth meadowgrass.

South-east corner of the site: these fields appear to be minimally managed, comprising frequent cocksfoot, red fescue, Yorkshire fog and hairy sedge, occasional rough meadowgrass, sweet vernal grass, meadow foxtail, common bent, creeping cinquefoil, germander speedwell, ragwort, lesser stitchwort, meadow buttercup, creeping buttercup, marsh thistle, yarrow, cleavers, rare amounts of common spotted orchid, curled dock, meadow vetchling, smaller cat's-tail, meadow buttercup, oak and ash saplings and encroaching bramble and bracken.

Modified grassland

The northern fields of modified grassland comprise abundant white clover, frequent meadow buttercup and creeping thistle, occasional Yorkshire fog, creeping buttercup, bird's-foot trefoil, curled dock, sweet vernal, crested dog's-tail and rare amounts of red clover, lesser stitchwort, perennial ryegrass, meadow foxtail and smooth meadowgrass.

Arrhenatherum neutral grassland

Several fields are dominated by false oatgrass with rare amounts of other forb species, recorded within the adjacent neutral grassland, such as creeping buttercup and selfheal.

Woodland

There are multiple parcels of woodland across the site, including ancient semi-natural, priority habitat deciduous woodland and a mix of broadleaved and conifer plantation woodland. A general description of each woodland parcel is provided in Table 4 with detailed species composition in Appendix 2 (Table 3). Woodland parcels W1, W2, W4 and W10 were identified as candidate ghyll woodlands owing to their topography. This is a habitat restricted to the weald area of Sussex and Kent and is typified by woodland habitat found in the extreme upper reaches of rivers where springs and streams form steep wooded valleys supporting a climate that usually supports a diverse and interesting range of bryophytes. An assessment of the bryophyte communities across these woodland parcels has identified 29 species of mosses and liverworts, with 27 of these species being common and widespread, whilst dentated silk-moss *Plagiothecium denticulatum* is recognised as widespread but infrequent and shining hookeria *Hookeria lucens* understood to have a predominantly northern and western



distribution.

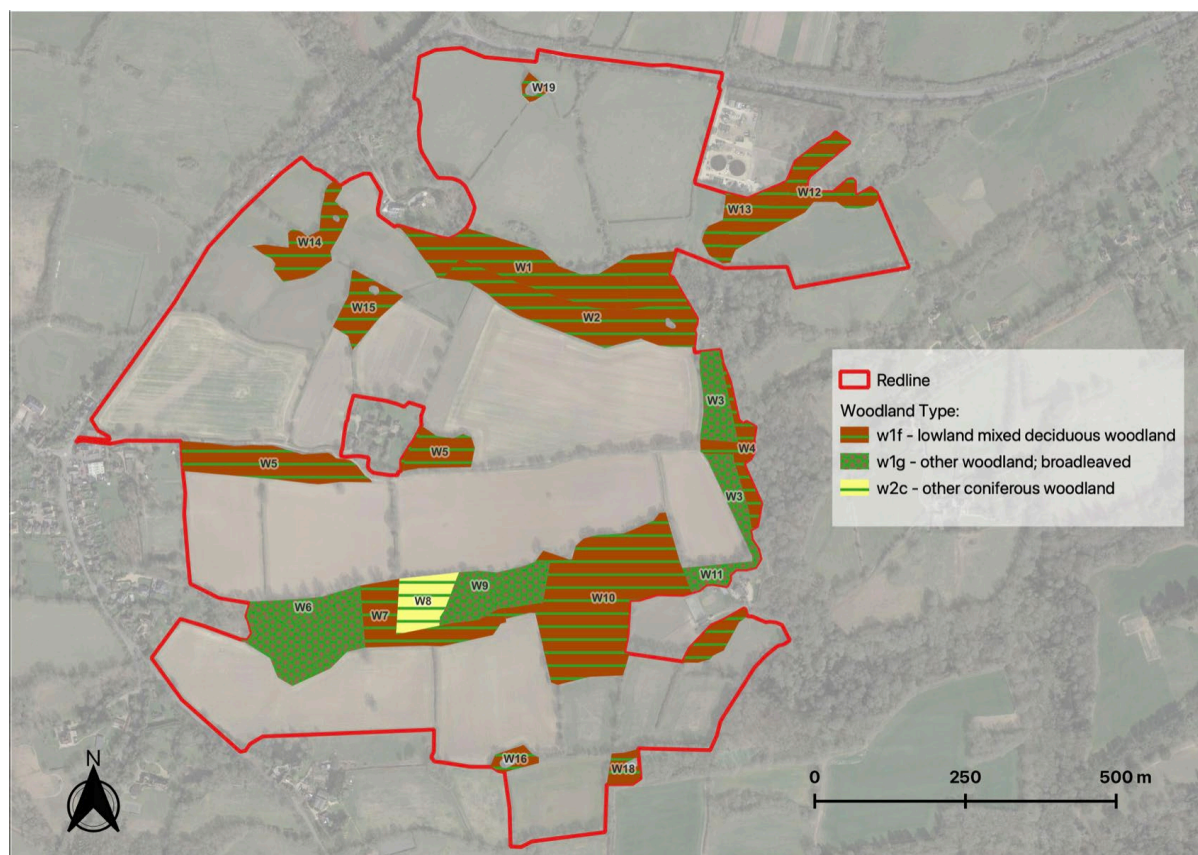


Figure 4. A map of woodland parcels at Ansty, numbered and colour coded to aid interpretation of Table 4 and Appendix 2.

Table 4. A general description of the woodland parcels at Ansty

Woodland type	Description (number relates to woodland parcel numbering shown on Figure 4)
Broadleaved woodland	1 & 4: Dense broadleaved woodland with diverse species of tree and flora 7: Low botanical diversity to the west, with signs of disturbance, frequent willow and occasional poplar. More diverse along the stream but becomes dominated by bramble to the east. 12: Broadleaved woodland with ancient woodland indicators. 13: An old Victorian landfill with rubble and glass throughout. 14: A small parcel of woodland with a steep bank and a small stream and woodland pond 15: A small parcel of woodland with dense ground flora in places, including three nerved sandwort and early purple orchid. There is a pond which is surrounded by dense scrub. 16: A small parcel of scrubby woodland surrounding a pond 17: A small parcel of scrubby woodland adjacent to a horse paddock. 18: A small parcel of woodland with a footpath through it and a large pond to the east. Ground flora around the footpath is dominated by bramble. Frequent wood anemone carpets the woodland around the pond. 19: Dense scrubby woodland surrounding a pond
Ash plantation	2: Less diverse than the adjacent broadleaved woodland and dominated by ash 5: Approx. 30yrs of age ash plantation, with ash dieback frequent. A small area in the central parcel is dominated by oak.



Woodland type	Description (number relates to woodland parcel numbering shown on Figure 4)
	9: Old ash plantation with some interesting ground flora. Bramble frequent. Alder along the stream.
Chestnut coppice	3: Sweet chestnut plantation with dense leaf litter and scattered ground flora
Hybrid poplar plantation	6: Hybrid poplar plantation with alder understory and dense leaf litter.
Larch plantation	8: Larch plantation
Hazel coppice	10: Recent coppicing management evident. Open areas and dense bluebells.
Laurel and rhododendron	11: Woodland is dominated by Invasive Non-native Species (INNS)

3.4 Badgers

3.4.1 Survey Results

Due to the sensitive nature of information pertaining to badgers, this section should be omitted from the report prior to release into the public domain.

Two active setts have been confirmed within the site, identified through the use of camera traps (see Appendix 2, Photograph 1). One sett, within the north-eastern parcel of woodland (W12) comprised of seven active entrances (with recent signs of digging and/or bedding recorded) and was confirmed as active throughout the 2022 survey season, confirming the classification as a 'main sett'. The sett within the western parcel of woodland (W14) was discovered late in the survey season and only comprised one entrance that appeared active at the time. This sett is likely an outlier sett.

Numerous mammal runs have been recorded throughout the site, along with multiple badger latrines, indicating that badgers frequently use the entire site for foraging and commuting.

Please note that the exact location of badger setts is confidential and will be submitted to the LPA directly, upon request.

3.4.2 Pre-existing Records

Records of badgers are not provided by the records centre, due to the sensitive nature of this information.

3.4.3 Interpretation

Badger are a common and widespread species across most of the UK countryside. Badgers are therefore not currently considered to be of great conservation concern within the UK, although the UK supports a significant proportion of the global population. Badgers are, however, legally protected for reasons of welfare.

The survey has identified evidence of badger activity in the form of one active main sett and one active outlier sett. A badger main sett is the primary location for a badger clan, whose territory may extend across a wide area beyond the site.



These records represent a very small proportion of the total UK population and, consequently, the site is not considered to be of importance to badgers beyond the **local level**.

3.5 Bats

3.5.1 Natural Roost Features – Trees

A ground level tree assessment identified 13 high suitability trees, 17 with moderate suitability and 62 low suitability trees for roosting bats (see Appendix 2, Figure 4 and Table 4). All moderate and high potential trees were climbed twice and three times respectively in 2022, to confirm roost features and to search for roosting bats. No bats were found but the roost features have potential to become occupied at any time. A further hibernation survey of all 'high' and 'moderate' trees was carried out in February 2023 with no evidence of roosting bats identified.

Trees that could not be safely climbed were subject to emergence surveys in 2023 utilising surveyors and supporting night-vision cameras.

3.5.2 Built Structures – Roost Appraisal

There are two main residences at the centre of the site which are surrounded by a number of smaller outbuildings. All 10 buildings were assessed for their potential to support roosting bats, the details of which are provided in Appendix 2, Table 5.

Three of the buildings were confirmed to be in use by bats or were assessed as having high potential to support roosting bats (buildings 1, 2 and 3), five of the buildings have moderate potential and the remaining two buildings have low potential. Further survey work was recommended for buildings 1, 2 and 3, comprising three emergence surveys, and these were carried out between 26th July and 3rd September 2022.

Additionally, a further hibernation survey of the cellar associated with Building 2 was carried out in February 2023, with no evidence of bats identified.

3.5.3 Built Structures – Emergence Survey

The dates, times, weather conditions, temperatures and personnel for each survey visit are presented in Appendix 2, Table 6.

Detailed descriptions of the emergence surveys are provided in Appendix 2. In summary, Building 1 was confirmed to support a day roost for common and soprano pipistrelle bats, and Building 2 was confirmed to support day roosts for common and soprano pipistrelle, brown long-eared bat(s) and an unknown myotis species.

Building 3 was shown to support brown long-eared bats, which are likely using the building as a maternity roost, with a peak of seven bats recorded emerging on 26th July 2022.

3.5.4 Bat Activity Surveys – Walked Transects

Survey conditions and timings are presented in Appendix 2, Table 7. The route of each walked transect



was covered at least two times in a session, with all bat passes recorded and directional data for all bats noted where bats were visible. The results of each walked transect survey are summarised in Appendix 2, Figure 5.

The walked transect surveys recorded six known species and one unknown myotis species. These were: common pipistrelle, soprano pipistrelle, brown long-eared, noctule, serotine and barbastelle. Generally, high activity was recorded for common and soprano pipistrelle, particularly around the sewage works in the north-east corner of the site, and along hedgerows and woodland boundaries. Low activity was generally recorded for the other species, with the exception of a few isolated instances of high activity from serotine and a myotis species.

As is to be expected, the woodland and hedgerow features are of high value to bats, which use them to commute and forage along.

3.5.5 Bat Activity Surveys – Automated Static Bat Detecting

The results of the automated static bat detector surveys are summarised in Appendix 2, Table 8.

The records reflect that of the walked transect survey, with common and soprano pipistrelle recorded in high numbers, relative to the other species. An additional species, Nathusius' pipistrelle, was recorded by the static loggers, though this only comprised a few passes.

Logger 4, along the central tree line, recorded an exceptionally high number of passes by common pipistrelle, with a peak average of 719 passes on a single night in June. Logger 6, within the south-east of the site, recorded an exceptionally high pass rate for myotis in September, relative to recordings for this species across the rest of the site over the survey season.

There was one instance of a logger failing to record any data: Logger 2 in May.

3.5.6 Pre-existing Records

The SxBRC provided 100 bat records in the search area comprising 10 identified species. The number of records for each species is presented in Table 5.

Table 5. Number of pre-existing records of each bat species within 2 km of the site boundary.

Species	No. of records
Common pipistrelle <i>Pipistrellus pipistrellus</i>	27
Brown long-eared <i>Plecotus auritus</i>	27
Unidentified bat species	12
Soprano pipistrelle <i>Pipistrelle pygmaeus</i>	7
Long-eared <i>Plecotus</i> species	5
Pipistrelle <i>Pipistrellus</i> species	5
Serotine <i>Eptesicus serotinus</i>	5
Myotis species	3
Noctule <i>Nyctalus noctule</i>	2
Daubenton's <i>Myotis daubentonii</i>	2
Nathusius' pipistrelle <i>Pipistrellus nathusii</i>	1
Whiskered/Brandt's <i>Myotis mystacinus/brandtii</i>	1



Natterer's <i>Myotis nattereri</i>	1
Whiskered <i>Myotis mystacinus</i>	1
Bechstein's <i>Myotis bechsteinii</i>	1

3.5.7 Interpretation

Three of the buildings at the centre of the site are confirmed to be in use by bats, with the surrounding buildings also having moderate/low potential – these have not been surveyed to date.

The activity surveys have demonstrated that the habitats contained within the development site support seven identified species and unknown myotis species(s). This includes barbastelle and serotine, which are classed as vulnerable to extinction, and Nathusius' pipistrelle which is near threatened. Although it is not possible to identify the myotis species from their calls, the SxBRC data shows that Daubenton's, whiskered/Brandt's, Natterer's and Bechstein's bats have all been recorded locally.

The trapping and radiotracking surveys, undertaken by Temple recorded the following:

'...A total of 67 bats from ten species were captured. The species included barbastelle, Bechstein's, Alcahloe, Brandt's, brown long-eared, common pipistrelle, Daubenton's, Natterer's, soprano pipistrelle, and whiskered bat.... Breeding females from four species Alcahloe, brown long-eared, common pipistrelle and whiskered were trapped... During the surveys, six roosting locations were identified, all between 300m east and 1.2km north-east... radio-tracking surveys have confirmed the importance of the site at a regional level for the rare Bechstein's bats, barbastelle and Alcahloe bats...'

Taking into consideration all of the survey data, the development site is considered to be important to bats at the **regional level**.

Table 6. Conservation status and distribution of bats recorded on site.¹³

Species	Conservation status England	Distribution in England
Barbastelle	Vulnerable	South and central England
Serotine	Vulnerable	South and south-east of England
Nathusius' pipistrelle	Near threatened	Widespread
Common pipistrelle	Least concern	Widespread
Soprano pipistrelle	Least concern	Widespread
Brown long-eared	Least concern	Widespread
Noctule	Least concern	Widespread
Daubenton's	Least concern	Widespread
Natterer's	Least concern	Widespread
Whiskered	Data deficient	Widespread, rare
Brandt's	Data deficient	Widespread, rare
Alcahloe	Data deficient	Widespread, rare

3.6 Breeding Birds

3.6.1 Survey Results

Appendix 2, Table 9 presents the dates, times and survey conditions recorded for each visit and Table

¹³ The Mammal Society (2020): <https://www.mammal.org.uk/science-research/red-list/>



10 provides a full list of species recorded during all six surveys. The location of notable bird species has been mapped for each survey, including information on whether the bird was singing, territory calling or only observed (Appendix 2, Figures 6–8).

In total, 45 species of bird were recorded during the survey; of these, eight species are ‘red’ listed under the Birds of Conservation Concern (BoCC) (common starling *Sturnus vulgaris*, herring gull *Larus argentatus*, house sparrow *Passer domesticus*, linnet *Linaria cannabina*, marsh tit *Poecile palustris*, mistle thrush *Turdus viscivorus*, skylark *Alauda arvensis*, yellowhammer *Emberiza citrinella*) and nine are ‘amber’ listed (bullfinch *Pyrrhula pyrrhula*, dunnoek *Prunella modularis*, grey wagtail *Motacilla cinerea*, moorhen *Gallinula chloropus*, song thrush *Turdus philomelos*, stock dove *Columba oenas*, whitethroat *Sylvia communis*, woodpigeon *Columba palumbus*, wren *Troglodytes troglodytes*). The following species recorded during the survey are also listed under Section 41 of the NERC Act (2006) or Schedule 1 of the Wildlife and Countryside Act: marsh tit, common bullfinch, common starling, skylark, yellowhammer, herring gull, linnet, red kite, firecrest *Regulus ignicapilla*, dunnoek, house sparrow and song thrush.

Additionally, a tawny owl *Strix aluco* was recorded calling on a night-time trail cam set out for the badger survey. Tawny owls have amber conservation status in the UK.

3.6.2 Pre-existing Records

The SxBRC provided bird records for a total of 59 species. Most of these species are relatively common and widespread, but the list includes 26 species of principal importance for conservation (S41 NERC Act 2006), and 13 species listed on Schedule 1 of the Wildlife and Countryside Act. In addition, 26 species are red listed on the Birds of Conservation Concern lists. Of these notable species the following are relevant to the habitats on site: bullfinch, dunnoek, song thrush, barn owl *Tyto alba*, red kite, swift *Apus apus*, lapwing *Vanellus vanellus*, herring gull, woodcock *Scolopax rusticola*, turtle dove *Streptopelia turtur*, cuckoo *Cuculus canorus*, skylark, corn bunting *Emberiza calandra*, yellowhammer, linnet, house martin *Delichon urbicum*, nightingale *Luscinia megarhynchos*, spotted flycatcher *Muscicapa striata*, marsh tit, house sparrow, wood warbler, starling and mistle thrush.

3.6.3 Interpretation

The breeding bird surveys have confirmed that the application site’s breeding bird assemblage consists largely of common and widespread species, with eight red listed species and 13 species listed under S41 or Sch1. In addition to the rarity of the species on site, the abundance is worth noting, with peak numbers of 55 woodpigeon, 40 blue tit and 17 song thrush of particular note.

Due to the size of the site, the range of habitats present and the bird species recorded, the site is considered to be important for the conservation of birds at the **local level**.

3.7 Dormice

3.7.1 Nest-tube Survey

A peak of two dormice were found at the site, both of which were recorded along the northern hedgerow boundary. A further four nests were also found along this boundary in different tubes and a starter nest was found within the southern boundary of the same field. See Appendix 2, Figure 10 for the exact



locations.

No evidence of dormice was found anywhere else on site but there is good connecting habitat and it is likely that they are present. Food caches were found but it's not possible to distinguish these from other mice, such as wood mice and yellow necked mice.

3.7.2 Pre-existing Records

The SxBRC provided 37 dormouse records in the search area. The closest of these was at 1.3 km north-east from the boundary of the site.

3.7.3 Interpretation

The site contains high value woodland, hedgerow and scrub habitat, which is well connected throughout, and is further well connected to habitat of value within the surrounding landscape.

A peak of two dormice were found during the surveys but, due to the extent of suitable habitat, the population size is likely far greater; in line with published research, population size in summer months is typically around three to five adults per ha, but up to 10 in optimal habitat (diverse deciduous woodland with abundant scrub and vigorous understorey)¹⁴. A recent study in 2018 found that the mean range-area for dormice was 0.51 ha and the mean core area was 0.09 ha¹⁵.

The current survey suggests that common dormouse is restricted to the northern hedgerow and not across the wider site, despite suitable habitat and good ecological connectivity. However, this result should be interpreted with caution and it is common best practice to assume that they could occur in any suitable habitat around a positive record, as they may use the habitat in other years or choose not to nest in the dormouse tubes in optimal habitats.

Dormice are recognised as vulnerable in the UK, though they are fairly common in many parts of the Southeast of England and there are numerous pre-existing records around Haywards Heath and other local surroundings. Based on the survey findings and the fairly restricted recorded distribution of this species within the Site, the habitats contained within the Site are considered likely important for the conservation of dormice at a local level.

3.8 Great Crested Newts and Other Amphibians

3.8.1 Habitat Suitability, eDNA Testing and Field Survey Results

Of the 32 ponds identified during the desk study, access was only granted for 11. HSI results for these ponds can be found in Appendix 2, with the exception of Pond 5, which was found to be dry.

Water samples were taken from six of the ponds (ponds 1, 3, 4, 13, 20 and 32) for eDNA analysis, with a negative result returned for all.

Presence/likely absence surveys were carried out for four of the ponds (ponds 6, 7, 8 and 9), and a

¹⁴ Bright et al (2006) The Dormouse Conservation Handbook, second edition.

¹⁵ Goodwin et al (2018) Habitat preferences of hazel dormice *Muscardinus avellanarius* and the effects of tree-felling on their movement.



small population of great crested newts was confirmed in ponds 6 and 7. Ponds 8 and 9 were dry by May and no evidence of great crested newts was found. In addition to great crested newts, smooth newt *Lissotriton vulgaris* and palmate newts *Lissotriton helvetica* were recorded in ponds 6, 7 and 8. All the survey results are detailed in Appendix 2, Table 12, 13, 14 and 15.

Common toad was recorded at Pond 6 (both adult and tadpoles) and adult common toads were recorded across the wider site (see Appendix 2, Figure 9).

3.8.2 Pre-existing Records

The SxBRC provided 258 amphibian records in the search area. This included 66 records for great crested newt, 84 records for smooth newt, 59 records for palmate newt, 32 records for common frog *Rana temporaria* and 17 records for common toad. The closest great crested newt record was 600m north of the site, dated 2020.

3.8.3 Interpretation

A small population of great crested newts has been recorded at the site. There is abundant high value terrestrial habitat for this species on site and numerous ponds of varying condition; however, the intensive arable habitat is likely the reason why the population is not thriving¹⁶.

Although targeted surveys for common toads were not undertaken, this species was recorded on site in low numbers and should be assumed present in all suitable habitat.

Based on the above, the site is considered to be important for the conservation of great crested newts at the **local level** and **likely local level** for common toad.

3.9 Reptiles

3.9.1 Survey Results

A total of 46 grass snakes were recorded at the site, with a peak of 11 grass snakes recorded during one survey (see Appendix 2, Figure 9 for the locations and Table 16 for details of the survey). No other reptiles were found.

The majority of the grass snakes were found along the northern boundary of the central field, with scattered records across the rest of the site.

3.9.2 Pre-existing Records

The SxBRC provided 69 reptile records in the search area, including 49 grass snake records, 8 adder, 7 common lizard and 5 slow worm. The closest of these was for grass snake, 180m west of the boundary of the site.

3.9.3 Interpretation

The survey findings indicate a likely 'large' population of grass snakes at the site with no other reptile

¹⁶ Piha et al (2007) Amphibian occurrence is influenced by current and historic landscape characteristics



species recorded.

Grass snakes are common and widespread species in south-east England, though numbers are thought to be declining¹⁷, and are likely to be present in most areas of suitable habitat. Based on the relatively large numbers involved and the large extent of suitable habitat at the site, the population contained within the development site is considered important to the conservation status of grass snake at the **local level**.

3.10 Riparian Wildlife

3.10.1 Survey Results

The walked river survey in April and June 2022 found no evidence of crayfish, water vole or otter.

An assessment for aquatic invertebrates was undertaken on the 18th May 2023, which identified 32 invertebrate species associated with the watercourse (see Appendix 2, section 8). The most notable species identified were the mayfly *Rhithrogena semicolorata*, which although quite common and widespread it at the eastern edge of its range. The most significant find was the giant lacewing *Osmylus fulvicephalus*, which is associated with streamside vegetation, especially in woodland.

3.10.2 Pre-existing Records

The SxBRC provided no records of otter or white clawed crayfish in the search area but did return one record for water vole, dated 2005. They also returned records for European eel *Anguilla anguilla*, bullhead *Cottus gobio*, brown trout *Salmo trutta* and brook lamprey *Lampetra planeri*, though all records were beyond 1km from the site.

3.10.3 Interpretation

Crayfish, water voles and otters are likely absent from the site and are not considered further within this report.

The assemblage of aquatic invertebrates recorded indicates that the watercourse is in a good overall condition and the sample points from locations above and below the discharge point by the sewerage treatment plant to the north indicate that this is not significantly impacting water quality, despite a noticeable effluent smell detected. The assemblage of aquatic invertebrates detected does not include any particularly rare or exciting finds, with the most notable record being the giant lacewing, however the restricted habitat availability of watercourses such as Copyhold Stream means that when identified in a healthy condition, they should be regarded to have importance for biodiversity at a **district level**.

3.11 Other Notable Species

3.11.1 Survey Results

There are habitats on site which could support brown hare, hedgehog and a variety of notable invertebrates.

¹⁷ Froglife (2023) <https://www.froglife.org/info-advice/amphibians-and-reptiles/grass-snake/>



Incidental sightings of invertebrates on site include beautiful demoiselle *Calopteryx virgo*, glow worm *Lampyrus noctiluca*, pale tussock moth *Calliteara pudibunda* caterpillar and ringlet butterfly *Aphantopus hyperantus*,

3.11.2 Pre-existing Records

The SxBRC provided 23 records for hedgehog and one record for brown hare within 2km of the site. The closest of these was for hedgehog, recorded within the site boundary in 2013.

The following higher plants have been recorded within the search area in the last 10 years:

- Hay-scented buckler-fern *Dryopteris aemula*
- Royal fern *Osmunda regalis*
- Star sedge *Carex echinate*
- Flea sedge *Carex pulicaris*
- Bladder-sedge *Carex vesicaria*
- Autumn hawkweed *Hieracium sabaudum*
- Long-leaved hawkweed *Hieracium virgultorum*
- Marsh pennywort *Hydrocotyle vulgaris*
- Bitter-vetch *Lathyrus linifolius*
- Corn mint *Mentha arvensis*
- Lesser spearwort *Ranunculus flammula*

The following notable invertebrates have been recorded within the search area in the last 10 years:

- Purple emperor *Apatura iris*
- Small heath *Coenonympha pamphilus*
- *Erynnis tages* Dingy Skipper
- White admiral *Limenitis Camilla*
- Grizzled skipper *Pyrgus malvae*
- Brown hairstreak *Thecla betulae*
- Downy emerald *Cordulia aenea*
- Common darter *Sympetrum striolatum*
- Red-green carpet *Chloroclysta siterata*
- Orange footman *Eilema sororcula*
- Chequered pearl *Evergestis pallidata*
- Alder kitten *Furcula bicuspis*
- Wainscot *Mythimna l-album*
- Common wainscot *Mythimna pallens*
- Spindle knot-horn *Nephopterix angustella*
- Grass rivulet *Perizoma albulata albulata*
- Cypress carpet *Thera cupressata*
- Sword-grass *Xylota exsoleta*
- Large sallow mining bee *Andrena apicata*
- Red-girdled mining bee *Andrena labiate*
- Four-banded flower bee *Anthophora quadrimaculata*
- Hill cuckoo bee *Bombus rupestris*



- A social wasp *Dolichovespula media*
- A solitary wasp *Gorytes laticinctus*
- Red bartsia blunthorn bee *Melitta tricincta*
- Painted nomad bee *Nomada fucata*
- Red-tailed mason bee *Osmia bicolor*
- Orange-vented mason bee *Osmia leaiana*
- Green dock beetle *Gastrophysa viridula*
- Stag beetle *Lucanus cervus*
- A long horned beetle *Poecilium alni*
- A checkered beetle *Tillus elongatus*
- Roesel's Bush-cricket *Roeseliana roeselii*
- A wolf Spider *Pardosa saltans*

3.11.3 Interpretation

The site comprises habitats, including habitat characteristic of ghyll woodland, arable field margins and grassland, which could support a number of notable plants and invertebrate species which have been recorded within the area. However, the majority of the proposed development impact area is arable farmland and improved pasture, of negligible value for these species.

Some of the species from the above list are assumed to be present, including the Roesel's bush-cricket, which is now abundant across the south-east, the common wainscot, which is found across grassland habitats and woodland rides and the stag beetle, which is found in most ancient woodland habitats where there is sufficient dead wood present. It is not possible to accurately attribute the importance of the site to each individual species

3.12 Invasive Non-native Species.

3.12.1 Survey Results

Rhododendron and cherry laurel have both been recorded on site.

3.12.2 Pre-existing Records

The SxBRC provided records for 34 invasive species within the search area, including cherry laurel, rhododendron, cotoneaster spp., Japanese knotweed *Fallopia japonica*, false acacia *Robinia pseudoacacia* and American mink *Neovison vison*.

3.12.3 Interpretation

Rhododendron and cherry laurel negatively impact biodiversity by outcompeting native species for resources such as light. The occurrences on site are restricted to a small area at present but both species thrive in the English climate and can spread with ease.

The ecological risks to the site posed by each species is significant at **site level**.



4 IMPACT ASSESSMENT

In this section, the predicted impacts and effects of the proposed scheme are described for each important ecological feature in turn. This is based on the best available information, both on the baseline ecological condition and on the method of construction, timescale and other development/planning constraints known at the time. The significance of the impact on nature conservation is recorded in accordance with CIEEM guidance and the degree of uncertainty relating to the occurrence and severity of an impact is discussed.

This assessment is based on the most up to date available plan shown on Sketch Site Plan D3012-FAB-00-XX-DR-Y-004, dated January 2023 (Figure 2).

The proposed scheme comprises redevelopment of the site to create a new community with approximately 1450 new homes. Direct impacts for the development will largely be isolated to the arable fields but will also impact areas of woodland, grassland, hedgerows and has the potential to impact the condition of Copyhold Stream.

Construction:

- direct harm from pollution, noise, lighting, vibration and the movement of people and construction machinery
- soil compaction
- habitat severance caused by construction works on-site
- habitat destruction during site clearance activities

Post construction/operation:

- permanent habitat loss;
- chronic disturbance from noise, lighting, vibration and the movement of people, vehicles on-site; risk of traffic collisions;
- increased recreational use of habitats on site and adjacent habitats, including Great Wood & Copyhold Hanger LWS, leading to soil compaction, human/dog disturbance, littering, physical damage to trees;
- increase in numbers of people and pets on site.

4.1 Designated Sites

4.1.1 Impact Characterisation

There is a footpath connecting the proposed development site with Great Wood and Copyhold Hanger LWS. The development would therefore result in direct impacts to the LWS in the form of increased recreational pressure and associated impacts including disturbance, increased dog fouling, litter and soil compaction. There is also a risk of small increases in air pollution as the proposed construction zone lies within 250m¹⁸ of the LWS.

Further, the proposed development will likely result in increased recreational pressure on Blunts and

¹⁸ Institute of Air and Quality Management (2016) Guidance on the assessment of mineral dust impacts for planning



Paiges Wood LNR (1.3 km north-east) and the three nearby LWSs, which are beyond 1km from the site boundary.

4.1.2 Significance of Effects

In the absence of mitigation, the potential impacts of the proposed development represent **possible adverse** effects on designated sites, considered to be significant at the **county** level.

4.2 *Priority Habitats*

4.2.1 Impact Characterisation

A bridge will be installed across two sections of priority habitat woodland, resulting in the loss of a small area of woodland habitat and likely a reduction in condition of the immediate surrounding area, due to shading and air pollution. A buffer of at least 20m from ancient woodland and 15m from priority habitat woodland will be implemented to avoid further impacts.

The development will largely retain the priority hedgerows on site with the exception of gaps for access roads. A total of 0.34 km of native hedgerow and 1.35 km of species-rich hedgerow will be lost through the development.

All 4.63 ha of the arable field margins will be lost.

In the absence of mitigation, the construction phase will result in significant noise and air pollution on site as well as soil compaction from machinery and materials.

The proposed development will result in increased recreational pressure during operation on all habitats accessible to the public, including the grassland in the south-east and north-east corners of the site, the woodland parcels, hedgerows and ponds.

The operational phase of the development will also result in chronic disturbance from noise and lighting, and ongoing air pollution due to an increase of vehicles on-site.

4.2.2 Significance of Effects

In the absence of mitigation, the potential impacts of the proposed development represent **possible adverse** effects on priority habitats, considered to be significant at the **local** level.

4.3 *Badgers*

4.3.1 Impact Characterisation

Due to the sensitive nature of information pertaining to badgers, this section should be omitted from the report prior to release into the public domain.

Both the active main sett within the north-east woodland and the outlier sett west of the centre of the site will not be directly impacted. However, indirect impacts to foraging and commuting badgers is likely, both during the construction phase (hazards of tools, trenches and disturbance) and the operational phase (risk of collision with cars, and interference of setts by the public and increased disturbance).



The proposed development will result in the loss of a small amount of suitable badger habitat (woodland, arable margins and grassland) and minor fragmentation of commuting routes, as a result of creating gaps in hedgerows and laying roads.

4.3.2 Significance of Effects

The majority of suitable badger habitat will be retained at the site. Badgers are generally quite adaptable to some degree of human disturbance, with foraging, commuting routes and occupation or establishment of new setts, constantly adjusting in response to new food sources and disturbance, so this impact is considered to be low.

In the absence of mitigation, there is a risk of direct harm to individual badgers during the construction phase and as a result of road traffic during the operational phase. This impact is considered significant at **site level**.

Since badgers are common and widespread, the impact of this scheme on the badger sett is not considered significant in nature conservation terms, but it is important to consider badgers from a welfare perspective and to ensure compliance with legislation.

4.4 Bats

4.4.1 Impact Characterisation

It is understood that the proposed scheme will not affect any buildings that are known to support roosting bats or that have potential roosting features suitable for bats. Therefore, no direct impacts on bat roosts in buildings is predicted, though there are associated impact risks through losses to foraging habitats within the Core Sustainance Zone (CSZ) of roosts in these buildings.

The scheme does have potential to impact on bats roosting in trees, though no bats in trees have been found thus far. A repeat climb will be required immediately prior to any works to a tree with roost a feature(s), to confirm the absence of bats.

The proposed development has potential to result in disturbance to commuting and foraging bats, both during construction and in the long term after completion, through increased artificial lighting, disruption of commuting corridors and direct loss of natural habitats including woodland.

Some opportunities for bats may arise from the development, in the form of increased roosting opportunities within buildings and an increase in structural habitat complexity of residential areas, compared with arable habitats. The often diverse garden habitats associated with residential development, compared with the monoculture found within arable fields may lead to an increase in foraging value for more light-tolerant species associated with edge habitats, such as the common and soprano pipistrelle.

4.4.2 Significance of Effects

Bechstein's and barbastelle bats are protected under Annex II of the Habitats Directive, affording them a higher level of legislative protection than the other species of bat recorded on site. Bechstein's are



almost exclusively dependent on woodland habitat and are vulnerable to the loss of woodland habitat and tree roosts. It is thought that barbastelle's 'prefer pastoral landscapes with deciduous woodland, wet meadows and water bodies, such as woodland streams and rivers'¹⁹. Barbastelle's are vulnerable to the loss of woodland habitat and degradation of fresh water habitat. The proposed development will result in the loss of 2.05 ha of woodland habitat and, in the absence of mitigation, could result in the degradation of Copyhold Stream.

Serotine are 'vulnerable' to extinction but are well adapted to sub-urban environments, making use of woodland edge and hedgerow habitats for foraging. The inclusion of artificial roosts in the proposed buildings could result in an overall positive impact on this species.

As data is deficient on the conservation status of Alcaethoe, whiskered and Brandt's bats, it is not possible to accurately assess the impact of the proposed development on the conservation status of these species. Little is known about the ecology of Alcaethoe bats, though they are thought to be woodland specialists. Whiskered and Brandt's bats are vulnerable to the effects of modern agricultural practices and decline of woodland. The inclusion of artificial roosts in the proposed buildings could result in an overall positive impact on Whiskered and Brandt's bats.

Common and soprano pipistrelle, brown long-eared bat, noctule, Daubenton's and Natterer's bats are all common and widespread, with a conservation status of 'least concern' in England. All rely on the natural habitats on site for foraging and commuting; although common and soprano pipistrelles and brown long-eared bats will roost in buildings, Daubenton's and Natterer's rarely do and noctules are primarily tree dwellers.

Of all the above species recorded on site, roosts were only confirmed for common pipistrelle, soprano pipistrelle and brown long-eared bat.

Due to the impacts listed above, the species recorded and the confirmation of roosting/foraging/commuting, in the absence of mitigation, the potential impacts of the proposed development represent **possible adverse** effects on bats, considered to be significant at the **county** level.

4.5 Breeding Birds

4.5.1 Impact Characterisation

Without sensitive timing to works, the proposed development has the potential to result in disturbance to breeding birds, including skylark and yellowhammer, both of which are red listed and have been confirmed to be breeding on site.

The proposed development will result in the loss of arable fields, which will directly impact skylarks, and the majority of the arable field margins, which will impact yellowhammer. There will also be a small loss of woodland and hedgerow habitat. Any vegetation removal during the breeding bird season has the potential to result in the destruction of active bird nests and the killing/injury of eggs/young.

¹⁹ Bat Conservation Trust (2023):

https://cdn.bats.org.uk/uploads/pdf/About%20Bats/barbastelle_11.02.13.pdf?v=1541085170



Increased human activity during the operational phase will result in chronic disturbance to nesting birds, and the likely increase in cats at the site will likely significantly increase the predation risk.

4.5.2 Significance of Effects

In the absence of mitigation, the impacts during the construction and operational phases will have a **possible adverse** effect on birds, considered to be significant at the **local** level.

Additionally, the loss of arable fields will remove suitable breeding habitat for skylarks, resulting in a permanent significant negative effect on skylarks at the **county level**.

4.6 Common Dormice

4.6.1 Impact Characterisation

The majority of suitable dormouse habitat will be retained at the site. However, the loss of small areas of woodland and hedgerow could result in direct harm to individual dormice and a negative effect on the conservation status of this species. The current distribution of the population present is poor, with presence only identified at the northern boundary, though this species can be difficult to detect and reducing opportunities for future colonisation of the site where suitable habitat is present must also be considered.

The creation of gaps in hedgerows could result in habitat fragmentation, restricting the movement of dormice and negatively affecting the ability for the population to grow and spread to surrounding habitats. However, dormice are able to use noncorridor habitat (e.g. fields and grassland) where necessary and this doesn't present a complete barrier to movement²⁰. Furthermore, dormice have been recorded crossing roads²¹ and, though this increases the risk of road mortality²², traffic is expected to be light during the night when dormice are active, and the risk is low.

The proposed development will likely result in a significant increase in cats on site which will result in a significant increase in predation risk to dormice²³.

There is likely to be a temporary impact from noise and vibration during the construction phase and a long-term impact from light pollution during the operational phase.

4.6.2 Significance of Effects

In the absence of mitigation, the impacts will have a **likely adverse** effect on dormice considered to be significant at the **local level**.

²⁰ Bright, P.W (1998) Behaviour of specialist species in habitat corridors: dormice avoid corridor gaps

²¹ Kelm et al (2015) How often does a strictly arboreal mammal voluntarily cross roads? New insights into the behaviour of the hazel dormouse in roadside habitats

²² Sevanu et al (2022) Road mortality in Hazel Dormice (*Muscardinus avellanarius*): first evidences for this species and implications for road mortality research

²³ Woods et al (2003) Predation of wildlife by domestic cats *Felis catus* in Great Britain



4.7 Great Crested Newts and Other Amphibians

4.7.1 Impact Characterisation

Based on the survey results, the great crested newt is present in the ponds at the centre of the site, in low numbers. These ponds will not be directly impacted by the development. Common toad has also been confirmed present on site.

The development will largely impact arable land which is of low/negligible value for great crested newts and common toad, with the surrounding hedgerows and woodland largely retained. However, there will be a small loss of these high value habitats and their presence cannot be ruled out from the arable land. There is therefore a risk of killing/injury to great crested newts and common toad during the construction phase.

There will be an increase in road traffic during the operational phase which will restrict movement of great crested newts and common toad and likely result in increased mortality of these species.

The operational phase of the development will likely result in an increase of cats on site, increasing the risk of predation on great crested newts and common toad.

4.7.2 Significance of Effects

As land within 100m of a great crested breeding pond is due to be impacted by the development, harm to great crested newts is likely (see Figure 5).

As the population of great crested newts at the site is low and the majority of suitable habitat will be retained, in the absence of mitigation, the impacts will have a **possible adverse** effect on great crested newts considered to be significant at the **local level**.

The size of the common toad population at the site is unknown but is likely low as only four observations were recorded throughout the 2022 survey season (three during the reptile survey and one during a great crested newt survey). However, toad tadpoles were recorded within the central pond. As the majority of suitable toad habitat is being retained, and there is extensive similar habitat within the surrounding landscape, and as the population on site is likely small, the effect of the development is assessed as a likely adverse effect, significant at **site level**.

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	>1 ha lost or damaged	0.9
Land 100-250m from any breeding pond(s)	>10 ha lost or damaged	0
Land >250m from any breeding pond(s)	>10 ha lost or damaged	0.5
Individual great crested newts	Minor disturbance of newts	0.5
	Maximum:	0.9
Rapid risk assessment result:		RED: OFFENCE HIGHLY LIKELY

Figure 5. 'Rapid risk assessment' extracted from Natural England's great crested newt mitigation method statement template instructions²⁴.

²⁴ Available from <https://www.gov.uk/government/publications/great-crested-newts-apply-for-a-mitigation-licence>



4.8 Reptiles

4.8.1 Impact Characterisation

The majority of grass snakes were recorded along the northern boundary of the central field. As priority habitat woodland lies to the north, an appropriate buffer zone will be implemented and the field margin will be retained and enhanced to form a graded ecotone. However, disturbance levels will likely significantly increase, both during the construction phase and the operational phase, which will likely deter grass snakes from this area entirely.

Grass snakes were also recorded in the south-east corner of the site, which will be retained as grassland. However, increased recreational pressure and disturbance by dogs will likely negatively impact grass snakes here too.

4.8.2 Significance of Effects

Grass snakes are highly mobile and will quickly disperse out of harms way, and therefore the risk of direct harm to grass snakes is low. However, the development will likely deter grass snakes from large parts of the site, pushing the existing 'large' population into the surrounding habitats and the capacity for these habitats to support grass snakes is unknown.

In the absence of mitigation, the impacts will have a **possible adverse** effect on grass snakes considered to be significant at the **county level**.

4.9 Riparian Wildlife

4.9.1 Impact Characterisation

There are no anticipated impacts on crayfish, water vole or otter as these species are all presumed absent.

The assemblage of aquatic invertebrates within Copyhold Stream indicates that the watercourse is in a good condition, with a healthy mixture of species identified, though the only notable species identified were *Rhithrogene semicolorata* and giant lacewing.

The watercourses that pass through the Site will be subject to increased risk of run-off from hard standing including roads and driveways that could wash salt and hydrocarbons into the watercourse and have cumulative adverse effects on the aquatic invertebrate assemblage. There is also an increased risk of accidental or deliberate pollution of the watercourse through more human activities close by. The increase in the local residential population resulting from the Proposed Development will result in an increased loading on the existing sewage treatment works, which currently discharges into this watercourse. In the absence of upgrades to these works to cope with this increased demand, the Proposed Development could indirectly lead to deterioration in the water quality of the watercourse downstream from the treatment works. Furthermore, the increased loading irrespective of any upgrades to the capacity of the works, will result in higher volumes of water flow discharged from this sewage works, and an increase in the level of nutrients (phosphates, nitrates) and other trace contaminants (endocrine disrupters, heavy metals and detergents) that could impact on the aquatic invertebrate assemblage.



The bridge crossing the Copyhold Stream will not directly impact the watercourse, with the bridge raised on pillars, negating the need to culvert the watercourse. However, there will be risks of impact during the construction of the bridge and both during construction and the operational phases, pollution risks must be considered, including from dust, airborne pollutants and spillage risks in addition to the additional shading the bridge will create in a localised area.

4.9.2 Significance of Effects

The Copyhold Stream is a healthy watercourse, considered to be in overall good condition, given the assemblage of aquatic invertebrates present. The effluent discharge from the sewerage treatment works does not appear to be notably degrading the watercourse, despite a noticeable smell around the discharge point. Any reduction in the water quality of the stream could lead to a reduction in aquatic invertebrate populations, or indeed the loss of some species altogether.

In the absence of adequate mitigation, the potential impact of a pollution incident or harmful discharges into the watercourse during the construction or operational phases of the development would represent a **possible adverse** effect that is significant at a **district level**.

4.10 Other Notable Species

4.10.1 Impact Characterisation

The majority of habitat to be impacted by the proposed development is arable, which has low biodiversity value and notable species are unlikely to be present.

However, small amounts of woodland, arable field margin, grassland and hedgerow will be lost to the development and this could potentially negatively impact notable invertebrate and botanical species.

Based on pre-existing records, the scheme has potential to impact on European hedgehog through habitat loss and increased risk of roadkill. However, the proposed residential development and the associated mosaic of private gardens and greenspace created would, in time, become suitable for hedgehogs and offer more value than the existing arable land if designed to allow permeability of movement for this species.

In the absence of mitigation, there remains a risk of direct harm to hedgehogs during construction activities, if present on the development site. In the long term, the proposed development could result in fragmentation of hedgehog foraging and resting areas as fencing between properties could restrict the movement of hedgehogs.

4.10.2 Significance of Effects

The hedgehog has suffered dramatic declines in population in recent decades, although it remains fairly widespread and is thought to have declined less in urban areas than rural areas²⁵. There is a high degree of uncertainty of impacts occurring but as the development will largely impact arable land, of low/negligible value to hedgehogs, the proposed scheme is unlikely to result in effects that are

²⁵ Warwick, H. (2016) Britain's Hedgehogs: research and the conservation effort in the face of serious decline. British wildlife Vol. 28, pp78-86



significant beyond the **local level**.

4.11 Invasive Non-native Species

4.11.1 Impact Characterisation

If cherry laurel and rhododendron are not removed from within woodland parcel 11, there is a risk that these species will spread to other areas at the site.

Planting schemes have yet to be prepared, however, should these include ornamental invasive/non-native species (such as those listed on Schedule 9 of the Wildlife & Countryside Act, 1981) there is potential for establishment within the site and spread beyond the application site.

4.11.2 Significance of Effects

In the absence of precautionary measures, the development presents opportunity for a **possible adverse** effect on ecology at the **site level**, through the spread of invasive non-native species.

5 MITIGATION PROPOSALS

5.1 Designated Sites

5.1.1 Impact Avoidance

The proposed scheme does not result in any direct loss of designated site habitats and no specifically designed avoidance measures are necessary.

5.1.2 Mitigation Measures

Areas of publicly accessible green space will be created on site and the proposed Parkland Reserve to the north-west measuring approximately 103.21 ha will provide an alternative place for recreation to the adjacent LWS and other designated sites within the local area.

5.1.3 Residual Effects

With the implementation of the above mitigation measures, the potential for residual impacts on the adjacent LWS and designated sites within 2km is considered to reduce **to minor adverse at a District Level**.

5.1.4 Compensation Measures

To compensate for potential residual impact risks from the development on the nearby designated sites, it is recommended that appropriate financial contributions are given to the respective authorities to go towards future management.



5.2 Priority Habitats

5.2.1 Impact Avoidance

The proposed development has been designed to avoid habitat losses where possible. The two bridges through the woodland are essential and cannot be avoided; however, a 'path of least resistance' that avoids the most valuable features within the woodland (such as native mature trees) will be taken.

5.2.2 Mitigation Measures

Industry standard construction methods will be implemented to minimise the risk of pollution or release of sediments into the surrounding habitats during the construction phase. These will be set out in a Construction Environmental Management Plan (CEMP) for the Scheme, prepared during the detailed design phase.

During the construction phase, heras fencing will be used to mark out the 20 m buffer from the ancient woodland, 15 m buffer from priority woodland and 10 m buffer from all other woodland. This heras fencing will be lined with an impermeable membrane to reduce dust pollution and visual impacts on the woodland. Heras fencing will be used to mark out a minimum 4 m buffer along all hedgerows, with the majority of hedgerows protected by an 8 m buffer.

A graded ecotone of thorny scrub and tussocky grassland will be planted along the boundary of all woodland on site, to prevent public access (where there is no footpath) and deter cats and dogs.

To prevent impacts from increased recreational pressure, all ancient woodland will be fenced off from the public. The remaining woodland and greenspace will be clearly signposted with footpaths and information boards will be erected to educate the public about the sensitive habitats and notable species.

It is essential that the habitats on site are monitored in perpetuity for signs of human damage, such as littering and footfall in restricted areas. Any signs of damage must be addressed and prevented from occurring again.

The above measures shall be set out in detail through the adoption of a Landscape and Ecology Management Plan (LEMP) for the development site and secured through the planning system.

5.2.3 Residual Effects

There will be a small loss of priority habitat woodland and hedgerows that cannot be avoided.

With the adoption of impact avoidance and suitable mitigation measures it is considered that residual effects on priority habitats will be reduced to site level.

5.2.4 Compensation Measures

The lost woodland and hedgerow habitat will be replaced through planting, either on-site or in the adjacent proposed county park. Details of which are to be confirmed but no less than 10% net gain will be achieved.



5.3 Badgers

Due to the sensitive nature of information pertaining to badgers, this section should be omitted from the report prior to release into the public domain.

5.3.1 Impact Avoidance

The scheme will be designed to avoid direct impacts on the badger setts by ensuring a minimum 30m exclusion zone for all earthworks, machinery and personnel. Pre-construction checks and ongoing monitoring of badger activity through the development phase, would inform the need for any changes to the badger mitigation strategy.

5.3.2 Mitigation Measures

Construction site safeguarding measures will be followed during the construction period to prevent harm to badgers. All deep excavations will be kept covered at night, or a means of escape provided (ramp or ladder) to prevent entrapment of badgers, and all hazardous waste, chemicals or food will be suitably contained to prevent access by badgers.

To reduce the risk of cars injuring or killing wildlife, including badgers, the roads will be limited to 20 mph where possible. Signs will be installed where any road is in close proximity to woodland or a natural feature that provides a commuting route for badgers, to warn drivers of animals crossing. High visibility road paint will be used to mark the edges of the road.

The woodland in which the setts are located will be fenced off to exclude the public but allow free movement by badgers.

5.3.3 Residual Effects

The avoidance and mitigation measures will significantly reduce impacts from the proposed development but cannot completely negate the risk of badgers being injured or killed by traffic. However, the residual effects are at site level only.

5.3.4 Compensation Measures

No compensation required.

5.4 Bats

5.4.1 Impact Avoidance

The majority of habitat of value for bats will be retained, though the loss of some plantation woodland is proposed and further loss and disturbance from the construction of the two proposed bridges is inevitable. There are no proposed impacts to the buildings at the centre of the site.

5.4.2 Mitigation Measures

If it is not possible to retain a tree with bat roost features, precautionary felling techniques ('soft-felling') will be used, at an appropriate time of year, or, exceptionally, may require a European Protected Species (EPS) licence if bats are clearly using the feature on a regular basis, or could be present at the



time of the works. Any trees to be felled, which have bat roost features, will be surveyed by a qualified ecologist immediately prior to commencement of works.

The proposed scheme will incorporate a 'sensitive lighting plan' developed as part of the detailed design, in accordance with guidelines set out by the Bat Conservation Trust. All woodland will be a 'no light zone' and 'dark corridors' will be created throughout the development site, along the retained hedgerows and tree belts. Any lighting required for health and safety will have features to minimize light spill onto all semi-natural habitats. All street lighting should be directed downwards and use light sources that are not attractive to insects. Reflective white line marking should be used in preference to artificial lighting in all non-essential applications.

5.4.3 Residual Effects

There will be a small loss of priority habitat woodland and hedgerows that cannot be avoided. However, this is unlikely to affect commuting and foraging bats and is not considered significant.

There will be an unavoidable loss of bat roost features due to the removal of a few trees to facilitate the development. Surveys to date have found no evidence of roosting bats in trees to date but the features will be lost all the same.

With the adoption of the above avoidance and mitigation measures, residual impacts on roosting bats are considered to be reduced to **local level**.

5.4.4 Compensation Measures

The loss of roosting features in trees will be compensated for through the incorporation of integral and external bat roost features in the buildings and on the surrounding trees. A minimum of two roosts features e.g. bat box will be installed for every one roost lost; these will be like-for-like e.g. a crevice roost will be replaced by a crevice roost feature. With these compensation measures in place, the effect of the proposed development on bats is reduced to **site level** only.

5.5 Breeding Birds

5.5.1 Impact Avoidance

Work must commence outside of the skylark breeding season (typically April to August), or only following the implementation of nesting deterrent measures and a survey that confirms the absence of active nests. Should any active nests be identified, works must be postponed until the chicks have fledged.

Any vegetation removal should only be undertaken outside of the breeding bird season (avoiding March–August inclusive). It is an offence to cause disturbance to an active nest of any bird species listed on Schedule 1 of the Wildlife and Countryside Act (1981) as amended.

5.5.2 Mitigation Measures

Small areas and single trees may be felled during the bird nesting season if all features are first searched by a suitably qualified ecologist and no active nests are found.



Heras fencing must be erected to protect all nesting bird habitat from indirect impacts such as accidental damage from machinery and to limit the amount of disturbance during the construction phase.

5.5.3 Residual Effects

The loss of suitable skylark breeding habitat cannot be avoided and will likely result in the loss of skylarks from the site.

There will be a small loss of suitable nesting bird habitat (woodland and hedgerows) and there will be an increased predation risk due to the likely increase of cats on site.

The residual effect is assessed as significant for breeding and wintering birds at a **local level**.

5.5.4 Compensation Measures

With the exception of suitable habitat for skylarks, the loss of nesting bird habitat will be adequately compensated for through the addition of nest boxes and pockets, new species-rich hedgerows and through the planting of native trees and shrubs as part of the soft landscape design for the site.

5.6 Common Dormouse

5.6.1 Impact Avoidance

The majority of suitable dormouse habitat will be retained.

5.6.2 Mitigation Measures

Based on the survey results, it is reasonable to assume that dormice may be present in all areas of woodland, scrub and tree lines where it is connected across the landscape. Since the proposed development involves removal of this habitat, a European Protected Species (EPS) licence must be obtained from Natural England for the development to legally proceed. Details of the mitigation measures will be set out in a method statement submitted with the licence application at an appropriate time before construction and habitat restoration works commence.

Where possible, vegetation removal should be strategically planned, to retain connectivity within the canopy of the woodland and across gaps in hedgerows. Where this is not possible, a specialised bridge for dormice will be installed across any gaps of more than 3m; gaps of more than 3m have been proven to present a significant barrier to dormouse movement²⁶. Details of these measures will be specified within the EPS licence.

All evidence of dormice recorded during the surveys was along the northern boundary, indicating that this hedgerow is of particular importance. To protect the hedgerow, an 8 m vegetated bund will be created and planted up with scrub, including species of high value for dormice such as hazel and honeysuckle. Thorny species will also be planted along the bund to deter cats.

²⁶ Bright, P.W (1998) Behaviour of specialist species in habitat corridors: arboreal dormice avoid corridor gaps



5.6.3 Residual Effects

The creation of gaps in hedgerows to facilitate roads, which will in turn result in increased noise and air pollution cannot be avoided. Additionally, the increased risk of predation by cats and light pollution cannot fully be mitigated. Therefore, the residual effect of the proposed development on dormice is reduced to **local level** only.

5.6.4 Compensation Measures

The 'poor' and 'moderate' condition woodland at the site will be enhanced, targeting features of value for dormice, such as improving the understory and coppicing hazel; the management plan for the woodland will be secured in a separate document. Additionally, a minimum of 50 dormouse boxes will be installed in suitable habitat across the site, away from likely disturbance by the public. With these compensation measures in place, the effect of the proposed development on dormice is reduced to **site level** only.

5.7 *Great Crested Newts and Other Amphibians*

5.7.1 Impact Avoidance

The ponds and surrounding gardens at the centre of the site are not due to be impacted by the development. However, the loss of field margins, and small areas of woodland and hedgerow cannot be avoided.

5.7.2 Mitigation Measures

The risk assessment tool provided by Natural England has determined that an 'offence is highly likely' as a result of the development and therefore an EPS licence will be required. There is presently two licensing options available for Mid Sussex that would enable lawful development. A Mitigation License may be applied for from Natural England, which would detail the mitigation measures will be set out in a method statement submitted with the licence application at an appropriate time before construction and habitat restoration works commence. Alternatively, a District License may be sought through the NatureSpace Partnership, who are the delivery partner for Mid-Sussex District Council under this licensing scheme. District Licensing takes the approach to create compensatory habitats for great crested newts at a landscape level and does not focus on intensive trapping and translocation of individual newts, though reasonable avoidance measures are applied to minimise mortality where reasonably possible. Any mitigation measures for great crested newts will also ensure mitigation for common toad.

5.7.3 Residual Effects

During the operational phase of the development, there is an increased risk of predation by cats and roadkill, resulting in a residual effect that is significant at **site level**.

5.7.4 Compensation Measures

Compensation measures will include the creation of new habitats favourable for great crested newts, to include new breeding ponds and terrestrial habitat of value for this species.



5.8 Reptiles

5.8.1 Impact Avoidance

The majority of suitable reptile habitat at the site will be retained. However, there will be an unavoidable loss of some habitats, which are of high value for grass snakes and disturbance may reduce activity in retained habitats adjacent to construction activity or subject to increased human activity.

5.8.2 Mitigation Measures

As grass snakes are a highly mobile species, fencing and translocation is not considered necessary or environmentally appropriate. Instead, a process of habitat manipulation at a suitable time of the year to encourage reptiles away from construction zones and minimise the risk of killing or injuring any individuals is proposed. Prior to commencement of works, suitable habitats for reptiles contained within the construction site should be strimmed of vegetation to ground level and all cuttings raked off and removed. This should ensure that reptiles are discouraged from the construction zone. The strimming process should be completed in two phases with the grass cut initially to a height of 10-15 cm on the first pass, to reduce the risk of harming reptiles during the strimming process and to allow any reptiles present to move away. Vegetation will either need to be maintained to below a 5 cm sward to ensure it does not become suitable for use by reptiles while the development is on-going, or could be taken back to bare ground, if this is the preferred option until the development is completed. The strimming process must be overseen by a suitably qualified ecologist.

5.8.3 Residual Effects

The development will result in chronic increase in disturbance of suitable reptile habitat at the site and will likely result in increased risk of predation by cats. The above mitigation will prevent immediate harm to grass snakes during the construction phase but the long-term effects of the development cannot be mitigated for. The remaining impacts will have a possible adverse effect on grass snakes considered to be significant at the **local level**

5.8.4 Compensation Measures

The landscape and management plan for the proposed Parkland Reserve, north-west of the site, must include targeted measures for grass snakes, including the creation of tussocky grassland, hibernacula and at least one pond.

5.9 Riparian Wildlife

5.9.1 Impact Avoidance

The bridge crossing the Copyhold Stream is set onto pillars that means there is a reduced impact to the watercourse, with the need for any culverting avoided.

5.9.2 Mitigation Measures

The control of surface drainage will be carefully managed to ensure that there is no direct runoff to the Copyhold Stream. Features to be incorporated will include Sustainable Drainage Systems (SuDS), attenuation ponds and pollution control valves. Access to the watercourse must be monitored and managed to ensure that public access is restricted. The local sewerage network will either cover the



proposed increased housing capacity, or the water company would be obliged to increase its capacity as necessary to support this development.

The construction of the bridge crossing the Copyhold Stream will need to be subject to a detailed Method Statement that ensures all construction operations are undertaken with great care and pollution control measures in place.

A monitoring programme will be put in place specifically to monitor the ecological condition of the Copyhold Stream for a specified period through the construction phase and post occupation of the development. The monitoring should be used to measure any changes in the water quality and instigate appropriate remedial action. The monitoring protocol shall be consistent with nationally recognised methods (outlined by the Environment Agency) and set out in the LEMP as secured through the planning system.

5.9.3 Residual Effects

With detailed mitigation measures in place the impact of the development upon riparian wildlife associated with the Copyhold Stream is considered **likely negligible**.

5.9.4 Compensation Measures

The removal of cultivation from the site and creation of wide woodland buffers (within which the watercourses are situated) has the potential to have a notable benefit in reducing surface runoff into the Copyhold Stream, including any associated nitrates, herbicides or pesticide residues.

5.10 Other Notable Species

5.10.1 Impact Avoidance

All excavations should be covered at night to prevent hedgehogs falling into any pits, failing that an escape mechanism should be provided to allow hedgehogs (and other wildlife) to climb out of an excavation.

5.10.2 Mitigation Measures

All new garden fencing should contain accessible gaps (10cm x 15cm) at their base to allow movement of hedgehogs between garden plots. An ecological permeability plan (showing hedgehog movement routes) should be included in the LEMP.

Road signs should be erected throughout the development, reminding people to look out for hedgehogs.

5.10.3 Residual Effects

Although there is a residual risk of increased roadkill, the creation of new interconnected garden habitats should result in a likely positive impact on hedgehogs at the site level.

5.10.4 Compensation Measures

None required.



5.11 Invasive Non-native Species

5.11.1 Impact Avoidance

Impacts resulting from non-native species will be avoided through the adoption of native planting schemes. Seed mixes and tree/shrub planting schemes will be detailed within a site-wide LEMP.

To avoid the further spread of rhododendron and cherry laurel, all specimens should be removed from the site and disposed of, following strict invasive species protocol.

5.11.2 Mitigation Measures

No specific mitigation measures are currently required.

5.11.3 Residual Effects

Following the removal of cherry laurel and rhododendron from the site, there will be a positive impact at site level.

5.11.4 Compensation Measures

None required.

6 BIODIVERSITY ENHANCEMENTS

The development will result in 20% biodiversity net gain, which surpasses the 10% gain required by the Environment Act 2021²⁷. A separate Biodiversity Impact Assessment report has been produced²⁸, detailing on-site habitat loss/enhancement and creation, as well as off-site habitat creation. This report will also ensure that all trading rules are met and that all loss of habitats on site are replaced with the same broad habitat type, with the same distinctiveness or higher.

These measures will be secured through the production of a Landscape and Ecology Management Plan (LEMP) document that sets out the number, type and location of habitat enhancements that will be provided, the on-going maintenance needs and responsibilities.

²⁷ HM Government (2021). Environment Act 2021. Available online at: <https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted>

²⁸ The Ecology Co-op (2023) *Biodiversity Impact Calculation, Land East of Ansty*.



7 CONCLUSIONS

A summary of the EclA process is presented in Table 7 below.

Table 7. EclA summary table

Ecological feature	Importance	Impact characterisation	Level of significance	Mitigation	Residual effects	Compensation required? (Y/N)
Blunts and Paiges Wood LNR	National	Increased recreational pressure	District	Alternative green space to be created on site and at the Parkland reserve	Likely negligible	Financial contribution to the relevant authority to aid visitor management.
Great Wood and Copyhold Hanger LWS, Pond Lye LWS, Catt's Wood Complex & Meadows LWS, The Hanger LWS	County	Increased recreational pressure	Local	Alternative green space to be created on site and at the Parkland reserve	Likely negligible	Financial contribution to the relevant authority to aid visitor management.
Priority habitats on site, including ancient woodland and hedgerows	Local	A small loss of habitat. Increased recreational pressure. Construction phase impacts such as air pollution. Operational phase impacts such as light pollution.	Local	Industry standard construction methods will be implemented to minimise the risk of pollution or release of sediments into the surrounding habitats during the construction phase. Heras fencing to mark buffers. A graded ecotone of thorny scrub and tussocky grassland will be planted along the boundary of all woodlands on site, to prevent public access (where there is no footpath) and keep cats and dogs out. all ancient woodland will be fenced off from the public. The remaining woodland and greenspace will be clearly signposted with footpaths and information boards	Site	All habitat lost will be replaced through Biodiversity Net Gain scheme the aim to achieve a positive overall outcome.



Ecological feature	Importance	Impact characterisation	Level of significance	Mitigation	Residual effects	Compensation required? (Y/N)
				will be erected to educate the public about the sensitive habitats and notable species. Habitats on site are monitored in perpetuity for signs of human damage, such as littering and footfall in restricted areas. Any signs of damage must be addressed and prevented from occurring again.		
Badgers - <u>Due to the sensitive nature of information pertaining to badgers, this section should be omitted from the report prior to release into the public domain.</u>	Site	Loss of foraging habitat. Hazards during construction and operational phase	Site	Appropriate Construction methods. The woodland in which the setts are located will be fenced off to exclude the public but allow free movement by badgers.	Site	None required
Foraging and commuting bats	Regional	Increased artificial lighting, disruption of commuting corridors and direct loss of natural habitats including woodland.	County	Ecologically sensitive lighting design, including 'no light zone' and 'dark corridors'.	Local	The creation of the new Country Park will significantly improve foraging and bat roosting resources locally as an offset to on site harms caused by the development.
Roosting bats (trees)	County	Loss of trees with bat roost features. Potential direct harm to bats if roosts are occupied.	Local	If it is not possible to retain a tree with bat roost features, precautionary felling techniques ('soft-felling') will be used. Any trees to be felled, which have bat roost features, will be surveyed by a qualified ecologist immediately prior to commencement of works and EPS applied for where necessary. Sensitive lighting plan.	Local	Installation of bat roost features.



Ecological feature	Importance	Impact characterisation	Level of significance	Mitigation	Residual effects	Compensation required? (Y/N)
Roosting bats (building)	Local	No impacts to the buildings are proposed at present.	-	-	-	-
Breeding birds	Local	Loss of breeding habitat and increased predation risk by cats. All suitable skylark habitat will be lost.	Local	Appropriate Construction methods (timed outside breeding season). Heras fencing to protect bird nesting habitats during construction phase.	Local for farmland birds	Installation of nest boxes across the site. Habitat enhancements at the Parkland Reserve will offset lost habitat values at the site.
Common dormouse	Local	Direct loss of suitable habitat and habitat fragmentation. Disturbance through artificial lighting and increased recreation pressure. Increased risk of predation by cats.	Local	Mitigation for direct impacts covered by EPS licence. Biodiversity enhancements incorporated into soft landscape scheme. Ecologically sensitive lighting design.	Local	Enhance woodland at the site. Habitat losses will be compensated through new habitat creation on site and at the Parkland Reserve. A minimum of 50 dormouse boxes will be installed in suitable habitat across the site.
Great crested newts	Local	Loss of terrestrial habitat and risk of harm during construction phase and road kill risk during operational phase.	Local	Precautionary approach to construction methods – to be set out in an EPS licence.	Site	None required
Common toad	Uncertain/site	Loss of terrestrial habitat and risk of harm during construction phase and road kill risk during operational phase	Uncertain/site	Precautionary approach, as for great crested newts.	Site	None required



Ecological feature	Importance	Impact characterisation	Level of significance	Mitigation	Residual effects	Compensation required? (Y/N)
Common reptiles	Local	Loss of habitat and increased disturbance	Local	Precautionary approach to construction methods - reasonable avoidance measures and habitat manipulation.	Local	The landscape and management plan for the proposed Parkland Reserve, north-west of the site, must include targeted measures for grass snakes, including the creation of tussocky grassland, hibernacula and pond restoration.
Riparian wildlife	District	Impacts to habitat of value to aquatic invertebrate assemblage	Local	Construction best practice methods to be employed to minimise risks of sediment runoff and pollution.	Likely negligible	Increased buffers to watercourses to be established.
Other notable species: European hedgehog	Uncertain; local	Small loss of suitable habitat and risk of harm during construction phase and risk of road traffic collision during operational phase	Uncertain; local	All new garden fencing should contain accessible gaps (10cm x 15cm) at their base to allow movement of hedgehogs between garden plots.	Site	None required
Invasive non-native species	Local	Risk of cherry laurel and rhododendron spreading across the site. Risk of planting scheme introducing invasive species to the site.	Local	Adoption of native planting scheme. To avoid the further spread of rhododendron and cherry laurel, all specimens should be removed from the site and disposed of, following strict invasive species protocol.	Positive impact at site level	None required



Ecological Impact Assessment

Ansty, Haywards Heath

Appendix 1 – Method



Contents Page

1	<i>Figures</i>	3
1.1	Bat surveys.....	3
1.2	Breeding Bird Surveys.....	5
1.3	Dormouse Surveys.....	6
1.4	Great Crested Newt Surveys.....	7
1.5	Reptile Surveys	8
2	<i>Legislation and Policy</i>	9
3	<i>Planning Policy: Mid Sussex District Plan 2014–2031</i>	13
4	<i>Importance Of Ecological Features</i>	14
5	<i>Artificial Lighting And Wildlife</i>	15



1 Figures

1.1 Bat surveys

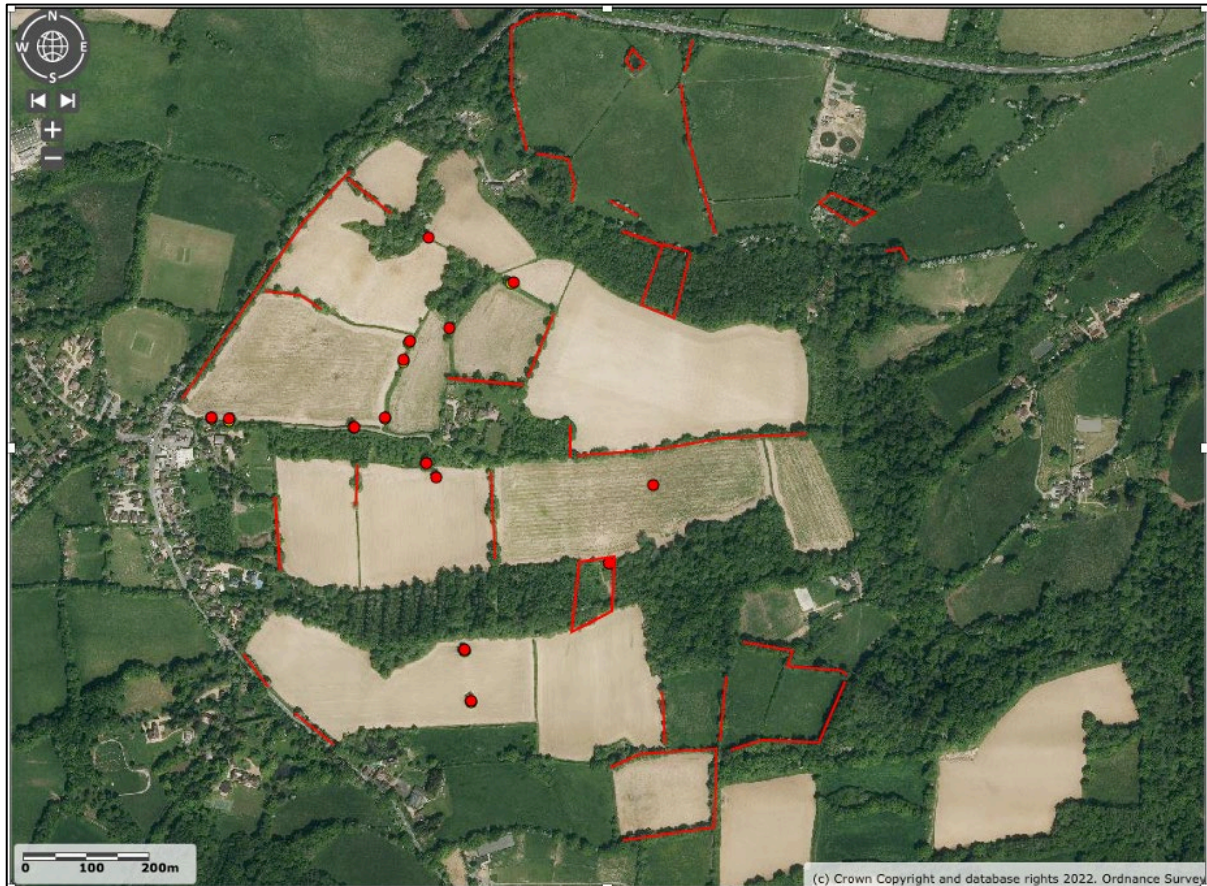


Figure 1. Ground level tree assessment: red lines/dots indicate the focus of the survey.



Figure 2. Buildings at the centre of the site which were surveyed for bat roost potential. The buildings highlighted grey were assessed as 'high' potential or were a confirmed roost. Image produced courtesy of Google maps (map data ©2022 Google).



Figure 3. An aerial image of the site, showing the positions of surveyors and infrared cameras. The surveyors and cameras were rotated across the surveys so that each position was covered at least once by either a person or a camera. A maximum of two surveyors and two cameras were used on Building 1, three surveyors and two cameras on Building 2 and two surveyors and two cameras on Building 3. Image produced courtesy of Google maps (map data ©2022 Google).

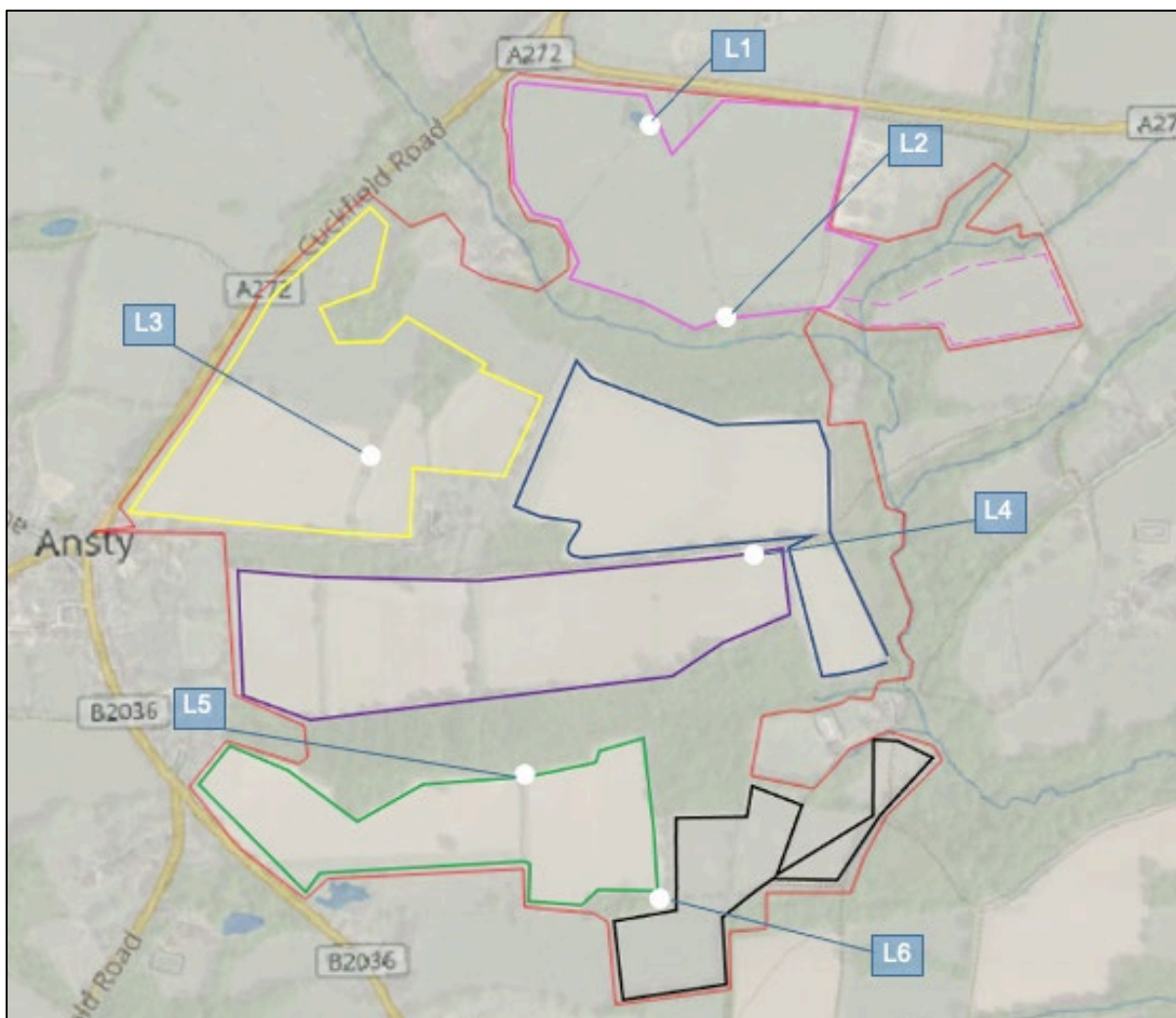


Figure 4. The transect routes of surveyors and the position of the six static bat detectors deployed on the site (white dots). The pink dash line shows the additional section walked April–June 2022. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).



1.2 Breeding Bird Surveys

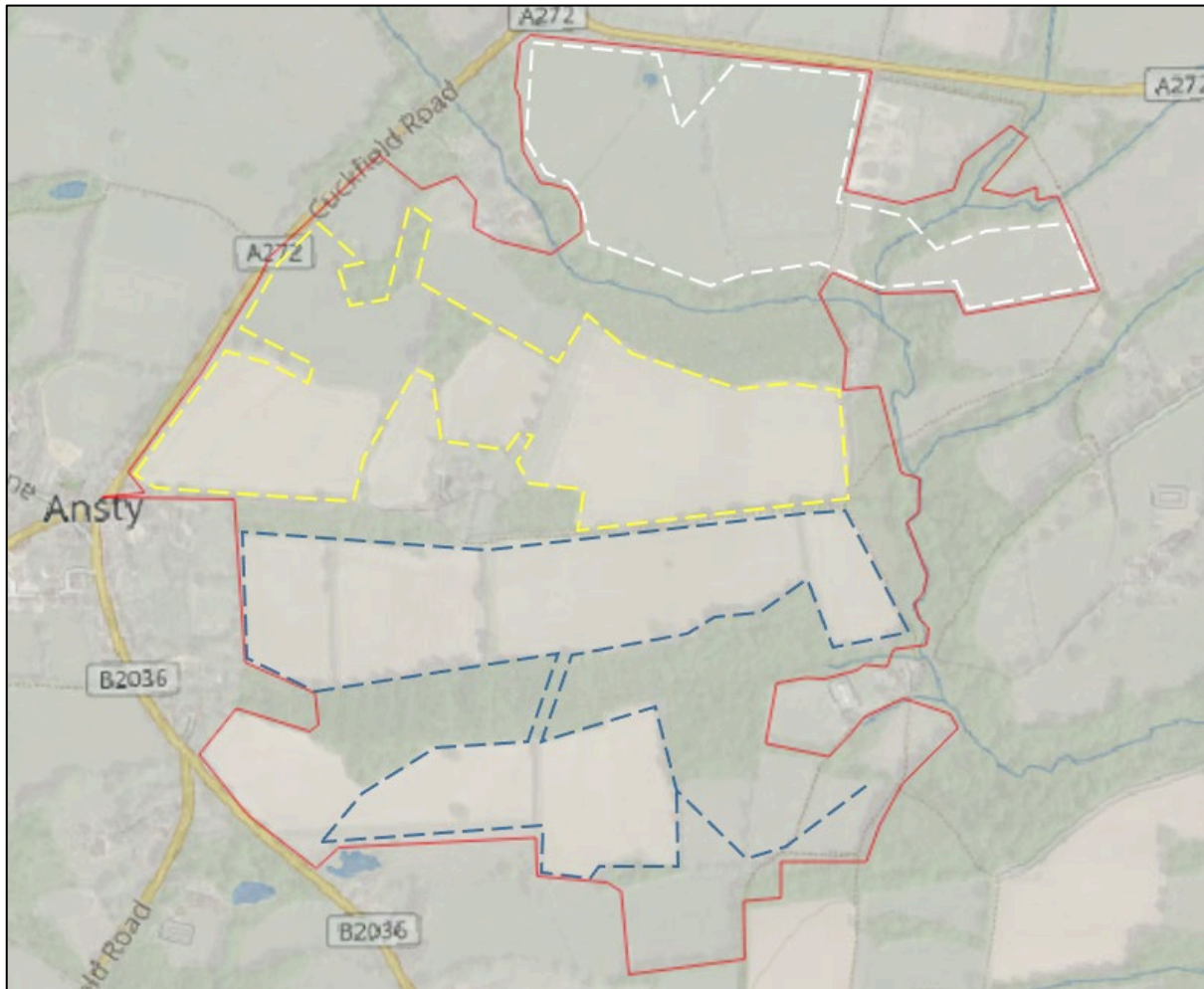


Figure 5. Breeding bird survey transect routes for the six surveys. Image produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).



1.3 Dormouse Surveys



Figure 6. Dormouse nest tube locations (identified as brown dots) across all suitable habitat. Image produced using QGIS.



1.4 Great Crested Newt Surveys

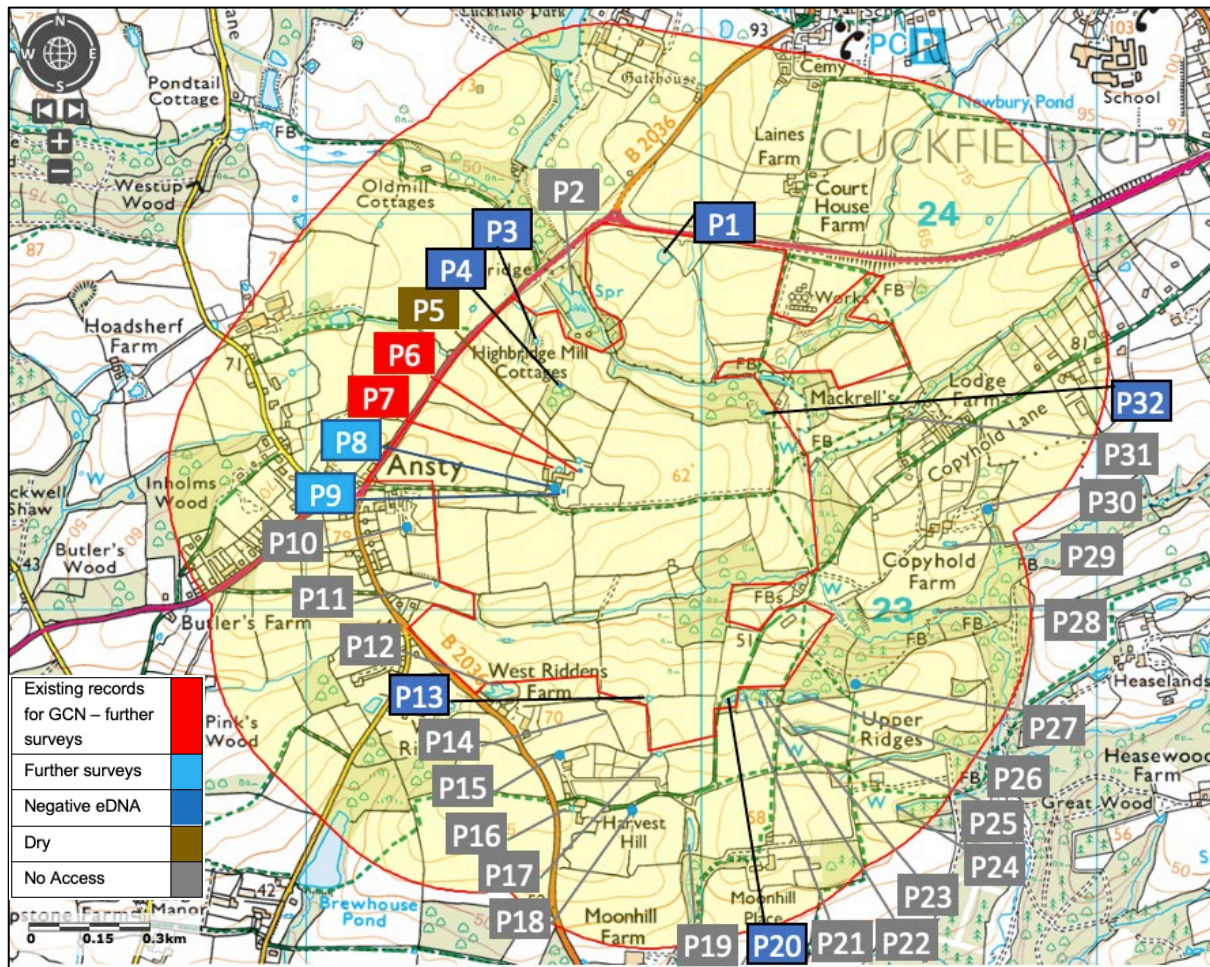


Figure 7. Ponds within the site boundary at Ansty and within a 500m radius (excluding major barriers to amphibians' movement). Existing records for great crested newts are held for Ponds 6 & 7 (highlighted red), Pond 5 (brown) was dry during all site visits, Ponds 1, 3, 4, 13, 20 and 32 (dark blue) were carried forward for eDNA. Access was not granted for all ponds highlighted grey. Image produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).



1.5 Reptile Surveys



Figure 8. Location of reptile refuges (identified with pink dots). Image produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).



2 Legislation and Policy

Introduction

The following text is intended for general guidance only and does not constitute comprehensive professional legal advice. It provides a summary of the current legal protection afforded to wildlife in general and certain species. It includes current national planning policy relevant to nature conservation.

The ‘Birds Directive’, ‘Habitats Directive’ and ‘Natura 2000 Sites’

The Council Directive 79/409/EEC on the Conservation of Wild Birds (“the Birds Directive”) sets a framework for the protection of wild birds. Under the Directive, several provisions are made including the designation and protection of ‘Special Protection Areas’ (SPAs) – areas which support important bird populations, and the legal protection of rare or vulnerable species.

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the “Habitats Directive”) directs member states of the EU to take measures to maintain the favourable conservation status of important habitats and species. This requires the designation of a series of sites which contain important populations of species listed on Annex II of the Directive. Together with ‘Special Areas of Conservation’ (SACs), SPAs form a network across Europe of protected areas known as the ‘Natura 2000’.

Annex IV lists species in need of more strict protection, these are known as “European Protected Species (EPS)”. All bat species, common dormice *Muscardinus avellana*, otter *Lutra lutra* and great crested newts *Triturus cristatus* are examples of EPS that are regularly encountered during development projects.

The ‘Habitats Regulations’

The Conservation of Habitats and Species Regulations 2017, as amended (the Habitats Regulations”) is the principle means of transposing the Habitats Directive and the Birds Directive, and updates the Conservation (Natural Habitats, &c.) Regulations 1994 (“the 1994 regulations”) in England and Wales.

‘Natura 2000’ sites, now known as National Site Network sites under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, receive the highest level of protection under the Regulations which requires that any activity within the zone of influence of these sites would be subject to a Habitats Regulations Assessment (HRA) by the competent authority (e.g. planning authority), leading to an Appropriate Assessment (AA) in cases where ‘likely significant effects’ to the conservation objectives are identified.

For European Protected Species, Regulation 41 makes it a criminal offence to:

- deliberately capture, injure or kill any such animal;
- deliberately disturb wild animals of such species;
- deliberately take or destroy their eggs (where relevant);
- damage or destroy a *breeding or resting place* of such an animal;
- possess, control, sell or exchange any live or dead animal or plant, of such species;
- deliberately pick, collect, cut, uproot or destroy a wild plant of such species.

The Habitats Directive and Habitats Regulations provide for the derogation from these prohibitions for specific reasons provided certain conditions are met. An EPS licensing regime allows operations that would otherwise be unlawful acts to be carried out lawfully. Natural England is the licensing Authority and, in order to grant a license, ensures that three statutory conditions (sometimes referred to as the ‘three derogation tests’) are met:



- a licence can be granted for the purposes of “preserving public health or safety or for other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment” (Regulation 53 (2) (e);
- a licence can be granted if “there are no satisfactory alternatives” to the proposed action;
- a licence shall not be granted unless the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Wildlife and Countryside Act (1981) as amended

The Wildlife and Countryside Act (1981)¹ remains one of the most important pieces of wildlife legislation in the UK. There are various schedules to the Act protecting birds (Schedule 1), other animals including insects (Schedule 5), plants (Schedule 8), and control of invasive non-native species (Schedule 9).

Under the Wildlife and Countryside Act (WCA) 1981, all wild birds (with the exception of those listed on Schedule 2), their eggs and nests are protected by law and it is an offence to:

- take, damage or destroy the nest of any wild bird while it is in use or being built
- take or destroy the egg of any wild bird
- disturb any bird listed on Schedule 1, while it is nest building, or at a nest with eggs or young, or disturb the dependant young of any such bird.

Schedule 5 lists all non-avian animals receiving protection to a varied degree. At its strongest, the Act makes it an offence to intentionally kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturb animals while occupying such places. Examples of species with *full protection* include all EPS, common reptile species, water vole *Arvicola amphibius*, white-clawed crayfish *Austropotamobius pallipes* and Roman snail *Helix pomatia*. Other species are protected from sale, barter or exchange only, such as white letter hairstreak *Satyrrium w-album*.

The Act makes it an offence to intentionally pick, uproot or destroy any plant or seed, and sell or possess any plant listed on Schedule 8. It is also an offence to intentionally uproot any wild plant not listed on Schedule 8 unless authorised [by the land owner]. Species on Schedules 5 and 8 are reviewed every 5 years when species can be added or removed.

Measures for the prevention of spreading non-native species which may be detrimental to native wildlife is included in the Act, which prohibits the release of animals or planting of plants into the wild of species listed on Schedule 9 (for example Japanese knotweed *Fallopia japonica*, Himalayan balsam *Impatiens glandifera*, New Zealand Pygmyweed *Crassula helmsii*).

The Wildlife and Countryside Act 1981 (as amended) also prohibits certain inhumane methods of traps and devices for the capture or killing of wild animals and certain additional methods such as fixed trap, poisoning with gas or smoke, or spot-lighting with vehicles for killing species listed on Schedule 6 of the Act (this includes all bat species, badger, otter, polecat, dormice, hedgehog and red squirrel).

Natural Environment and Rural Communities (NERC) Act (2006)

The NERC Act (2006)² places a statutory duty under Section 40 on all public bodies, including planning authorities, to take, or promote the taking by others, steps to further the conservation of *habitats and*

¹ Wildlife and Countryside Act (WCA) (1981). HMSO London.

² Natural Environment and Rural Communities Act (2006). HMSO London.



species of principal importance for the conservation of biodiversity in England (commonly referred to as the 'Biodiversity Duty'). This duty extends to all public bodies the biodiversity duty of Section 74 of the Countryside and Rights of Way (CROW) Act 2000, which placed a duty only on Government and Ministers. Section 41 lists the habitats and species of principle importance. This includes a wide range of species from mosses, vascular plants, invertebrates through to mammals and birds. It originates from the priority species listed under the UK Biodiversity Action Plan (UK BAP) with some omissions and additions.

Environment Act (2021)

The Environment Act sets a target of halting the decline in species through the inclusion of a legally binding 2030 species abundance target. Aiming to restore natural habitats and enhance biodiversity, the Act requires new developments to improve or create habitats for nature (through mechanisms such as mandatory Biodiversity Net Gain), and tackle deforestation. Going forwards, UK businesses will need to look closely at their supply chains as amongst other measures they will be prohibited from using commodities associated with wide-scale deforestation. Woodland protection measures are also strengthened through the Act.

The Act enables the reform of the Habitats Regulations and further improves protection for nature through the establishment of Local Nature Recovery Strategies that support national Nature Recovery Networks. In addition, the Act provides for the production of Protected Site Strategies and Species Conservation Strategies, aimed at supporting the design and delivery of strategic approaches to deliver better outcomes for nature.

Protection of Badgers Act (1992)

The Badger *Meles meles* is afforded specific legal protection in Britain under the Protection of Badgers Act (1992)³, and Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) (see above).

Under this legislation, it is a criminal offence to:

- intentionally kill, injure, take, possess, or cruelly ill-treat, a Badger, or to attempt to do so;
- interfere with a sett, by damaging or destroying it;
- to obstruct access to, or any entrance of, a badger sett; or
- to disturb a badger when it is occupying a sett.

A licence may be obtained from Natural England to permit certain prohibited actions for a number of defined reasons including interference of a sett for the purpose of development, provided that a certain number of conditions are met. Note that licenses are not normally granted for works affecting badgers between the end of November and the start of July.

National Planning Policy Framework

The National Planning Policy Framework (NPPF 2021)⁴ sets out the Government's view on how planners should balance nature conservation with development and helps ensure that Government meets its biodiversity commitments with regard to the operation of the planning system.

Paragraph 179b, which states that council policies should "*promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species;*

³ Protection of Badgers Act (1992). HMSO London.

⁴ HM Government (2021). National Planning Policy Framework. Department for Communities and Local Government. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf



and identify and pursue opportunities for securing measurable net gains for biodiversity.” The Office of the Deputy Prime Minister (ODPM) Circular 06/2005, 2005)⁵. In accordance with the NPPF, it is important that developments should contribute to and enhance the natural and local environment by:

- minimising impacts on existing biodiversity and habitats;
- providing net gains in biodiversity and habitats, wherever possible;
- establishing coherent ecological networks that are more resilient to current and future pressures.

UK Post-2010 Biodiversity Framework

The UK Biodiversity Action Plan (UK BAP), published in 1994, was the UK’s response to the commitments of the Rio Convention on Biological Diversity (1992). The UK BAP was replaced by the UK Post-2010 Biodiversity Framework. This framework covers the period 2011 to 2020 and forms the UK government’s response to the new strategic plan of the United Nations Convention on Biodiversity (CBD) published in 2010. This promotes a focus on individual countries delivering target for protection for biodiversity through their own strategies.

The most recent biodiversity strategy for England, 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services' was published by Defra (2011)⁶, and a progress update was provided in July 2013 (Defra 2013)⁷.

'Biodiversity 2020' builds on the Natural Environment White Paper for England – 'The Natural Choice', published on 7 June 2011, and sets out the strategic direction for biodiversity policy for the next decade.

Biodiversity 2020 deliberately avoids setting specific targets and actions for local areas because Government believes that local people and organisations are best placed to decide how to implement the strategy in the most appropriate way for their area or situation.

Birds of Conservation Concern (BoCC)

In 1996, the UK’s leading non-governmental bird conservation organisations reviewed the conservation status of all bird species in the UK against a series of criteria relating to their population size, trends and relative importance to global conservation. The lists, known as the 'Red', 'Amber' and 'Green' lists (in order of decreasing concern) are used to inform key conservation policy and decisions. The lists are reviewed every five years and are a useful reference for determining the current importance of a particular site for birds. The most recent review was undertaken in 2021⁸ (Stanbury et al, 2015), which provides an up to date assessment of the conservation status of birds in the UK.

⁵ HM Government (2005) ODPM Circular 06/05 Government Circular: *Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System*. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7692/147570.pdf.

⁶ Defra (2011) Biodiversity 2020: A strategy for England's wildlife and ecosystem services. Available at: <https://www.gov.uk/government/publications/biodiversity-2020-a-strategy-for-england-s-wildlife-and-ecosystem-services>.

⁷ Defra (2013) Progress Update. Available at: <https://www.gov.uk/government/publications/biodiversity-2020-simple-guide-and-progress-update-july-2013>.

⁸ Stanbury, A., Eaton, M., Aebischer, N., Balmer, N., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). Birds of Conservation Concern 5: the status of bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man. *British Birds* 114, pp 723-747.



3 Planning Policy: Mid Sussex District Plan 2014–2031

Table 1. An overview of the planning policy for Mid Sussex District Council

Policy Number/Title	Policy Summary
DP38 - Biodiversity	• Protect landscape for biodiversity qualities • Maintain green corridors to act as wildlife corridors Biodiversity will be protected and enhanced by ensuring development: • Contributes and takes opportunities to improve, enhance, manage and restore biodiversity and green infrastructure so there is a net gain in biodiversity including through creating new designated sites and locally relevant habitats, and incorporating biodiversity features within developments • Protects existing biodiversity, so there is no net loss of biodiversity • Unavoidable damage to biodiversity should be offset through enhancements and mitigation measures • Minimises habitat and species fragmentation and maximises opportunities to enhance and restore ecological corridors to connect natural habitats and increase coherence and resilience • Promotes the restoration, management and expansion of priority habitats in the district • Avoids damage to, protects and enhances the qualifying features of internationally designated sites of importance Designated sites will be given protection and appropriate weight according to their importance and the contribution they make to the wider ecological networks Valued soils will be protected and enhanced, including the best and most versatile agricultural land and development should not contribute to unacceptable levels of soil pollution.



4 Importance Of Ecological Features

Table 2. Determining importance of an ecological feature.

Level of importance	Criteria
International	Internationally designated site; Special Protected Area (SPA), Special Areas of Conservation (SAC), Ramsar, Biosphere Reserves; Regularly occurring population of internationally important species listed in Annex 1, 2 or 4 of the Habitats Directive and Annex 1 of the Birds Directive; A viable area of a habitat listed in Annex 1 of the Habitats Directive or area important for maintaining viability listed as in Annex 1 of the Habitats Directive; Areas outside designated sites that are important for supporting and maintaining the viability of the above designated habitats and/or species.
National	Nationally designated sites; Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR), Local Nature Reserves (LNR). A sufficiently large population of a species or area of habitat listed as a priority for nature conservation (S41 NERC Act) to make a significant contribution to the national conservation status (e.g. greater than 1% of the national total). A viable or regularly occurring population of a species that is nationally scarce, threatened or declining on a national scale. A habitat type that is nationally scarce, threatened or declining on a national scale.
Regional	A habitat type that is scarce, threatened or declining on a regional scale. A sufficiently large population of a species or area of habitat listed as a priority for nature conservation (S41 NERC Act) to make a significant contribution to the regional conservation status (e.g. greater than 1% of the national total).
County	Locally designated sites; Local Wildlife Sites (LWSs), Sites of Nature Conservation (SNCs) and Site of Importance for Nature conservation (SINCs). A sufficiently large population of a species or area of habitat listed as a priority for nature conservation (S41 NERC Act) to make a significant contribution to the conservation status of the species at county level (e.g. greater than 10% of the county total). A viable or regularly occurring population of a species that is rare in the county, but may be common and widespread elsewhere, For example, a population at the edge of a species' range. A habitat type that is scarce in a county but may be more frequent elsewhere.
Local/parish	Habitats and species which are scarce in the local area but are sufficiently common and widespread elsewhere that they do not meet the above criteria.
Site/negligible	Habitats with little to no ecological value (e.g. amenity grassland and hardstanding)



5 Artificial Lighting And Wildlife

Bright external lighting can have a detrimental impact upon foraging and commuting bat flight paths, but more importantly can also cause bats to remain in their roosts for longer. Artificial lighting can also cause significant impacts to other nocturnal species, most notably moths and other nocturnal insects. It can also result in disruption of the circadian rhythms of birds, reducing their fitness.

Guidelines issued by the Bat Conservation Trust⁹ should be referred to when designing the lighting scheme. Note that lighting designs in very sensitive areas should be created with consultation from an ecologist and using up-to-date bat activity data where possible. The guidance contains techniques that can be used on all sites, whether a small domestic project or larger mixed-use, commercial or infrastructure development. This includes the following measures:

Avoid lighting key habitats and features altogether

There is no legal duty requiring any place to be lit. British Standards and other policy documents allow for deviation from their own guidance where there are significant ecological/environmental reasons for doing so. It is acknowledged that in certain situations lighting is critical in maintaining safety, such as some industrial sites with 24-hour operation; however, in the public realm, while lighting can increase the perception of safety and security, measurable benefits can be subjective. Consequently, lighting design should be flexible and be able to fully consider the presence of protected species.

Apply mitigation methods to reduce lighting to agreed limits in other sensitive locations – lighting design considerations

Where bat habitats and features are considered to be of lower importance or sensitivity to illumination, the need to provide lighting may outweigh the needs of bats. Consequently, a balance between a reduced lighting level appropriate to the ecological importance of each feature and species, and the lighting objectives for that area will need to be achieved. The following are techniques which have been successfully used on projects and are often used in combination for best results:

- dark buffers, illuminance limits and zonation;
- sensitive site configuration, whereby the location, orientation and height of newly built structures and hard standing can have a considerable impact on light spill;
- consideration of the design of the light and fittings, whereby the spread of light is minimised ensuring that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Consideration should be given to the height of lighting columns. It should be noted that a lower mounting height is not always better. A lower mounting height can create more light-spill or require more columns. Column height should be carefully considered to balance task and mitigation measures. Consider no lighting solutions where possible such as white lining, good signage, and LED cat's eyes. For example, light only high-risk stretches of roads, such as crossings and junctions, allowing headlights to provide any necessary illumination at other times;
- screening, whereby light spill can be successfully screened through soft landscaping and the installation of walls, fences and bunding;
- glazing treatments, whereby glazing should be restricted or redesigned wherever the ecologist and lighting professional determine there is a likely significant effect upon key bat habitat and

⁹ Bat Conservation Trust and Institute for Lighting Professionals (2018) Guidance note 8. Bats and Artificial Lighting. <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>



features;

- creation of alternative valuable bat habitat on site, whereby additional or alternative bat flightpaths, commuting habitat or foraging habitat could result in appropriate compensation for any such habitat being lost to the development;
- dimming and part-night lighting. Depending on the pattern of bat activity across the key features identified on site it may be appropriate for an element of on-site lighting to be controlled either diurnally, seasonally or according to human activity. A control management system can be used to dim (typically to 25% or less) or turn off groups of lights when not in use.

Demonstrate compliance with illuminance limits and buffers

- *Design and pre-planning phase*; it may be necessary to demonstrate that the proposed lighting will comply with any agreed light-limitation or screening measures set as a result of your ecologist's recommendations and evaluation. This is especially likely to be requested if planning permission is required.
- *Baseline and post-completion light monitoring surveys*; baseline, pre-development lighting surveys may be useful where existing on or off-site lighting is suspected to be acting on key habitats and features and so may prevent the agreed or modelled illuminance limits being achieved.
- *Post-construction/operational phase compliance-checking*; as a condition of planning, post-completion lighting surveys by a suitably qualified person should be undertaken and a report produced for the local planning authority to confirm compliance. Any form of non-compliance must be clearly reported, and remedial measures outlined. Ongoing monitoring may be necessary, especially for systems with automated lighting/dimming or physical screening solutions.

Lighting Fixture Specifications

The Bat Conservation Trust recommends the following specifications for lighting on developments to prevent disturbance:

- Lighting spectra: peak wavelength >550nm
- Colour temperature: <2700K (warm)
- Reduction in light intensity
- Minimal UV emitted
- Upward light ratio of 0% and good optical control

Further reading:

Buglife (2011) A review of the impact of artificial light on invertebrates.

Royal Commission on Environmental Pollution (2009) Artificial light in the environment. HMSO, London. Available at: <https://www.gov.uk/government/publications/artificial-light-in-the-environment>

Rich, C., Longcore, T., Eds. (2005) Ecological Consequences of Artificial Night Lighting. Island Press. ISBN 9781559631297.

CPRE (2014) Shedding Light: A survey of local authority approaches to lighting in England. Available at: <http://www.cpre.org.uk/resources/countryside/dark-skies/item/3608-shedding-light>

Planning Practice Guidance guidance (2014) When is light pollution relevant to planning? Available at: <https://www.gov.uk/guidance/light-pollution>



Institution of Lighting Professionals (2021) Guidance Notes for the Reduction of Obtrusive Light GN01:2011. Available at: <https://www.theilp.org.uk/resources/free-resources/>

Voigt, C.C., Azam, C., Dekker, J., Ferguson, J., Fritze, M., Gazaryan, S., Hölker, F., Jones, G., Leader, N., Lewanzik, D. and Limpens, H., 2018. *Guidelines for consideration of bats in lighting projects*. Unep/Eurobats. Available at: https://cdn.bats.org.uk/uploads/pdf/Resources/EUROBATGuidelines8_lightpollution.pdf?v=1542109376

Ecological Impact Assessment

Ansty, Haywards Heath

Appendix 2 – Results

Contents

1	<i>Desk Study</i>	2
2	<i>Botany</i>	5
3	<i>Badgers</i>	9
4	<i>Bats</i>	10
4.1	Natural Roost Features - Trees	10
4.2	Built Structures – Roost Appraisal.....	16
4.3	Emergence Surveys	18
4.4	Bat Activity Surveys – Walked Transects	21
4.5	Bat Activity Surveys – Static Loggers.....	25
5	<i>Breeding Birds</i>	26
6	<i>Hazel Dormice</i>	29
7	<i>Amphibians and Reptiles</i>	30

1 Desk Study

Table 1. Designated sites within 2 km of the site at Ansty

Site name	Designation	Features listed on citation	Proximity	Ecological importance
Statutory Designated Sites				
Ashenground and Bolnore Woods	Local Nature Reserve (LNR)	Ashenground and Bolnore Woods LNR is a small area of ancient woodland in Haywards Heath. The woodland comprises of relic stands of hornbeam <i>Carpinus betulus</i> , hazel <i>Corylus avellana</i> and ash <i>Fraxinus excelsior</i> coppice along with oak <i>Quercus</i> sp., mature beech <i>Fagus sylvatica</i> and field maple <i>Acer campestre</i> . The woodland provides suitable habitat and food source for a range of birds with blackthorn <i>Prunus spinosa</i> , rowan <i>Sorbus aucuparia</i> , and goat willow <i>Salix caprea</i> providing insect prey.	1.3 km north-east	National
Blunts and Paiges Wood	LNR & Local Wildlife Site (LWS)	This LNR is 28.9 hectares in size and habitats include hazel coppice, mixed coppice, birch <i>Betula</i> sp. woodland, bluebell <i>Hyacinthoides non-scripta</i> woodland, meadow, grassland, pond, hedgerows and wetland area. The reserve was extended to include several meadows in June 2003	1.6 km east	National
Non-statutory Designated Sites				
Great Wood & Copyhold Hanger	LWS	This site consists mostly of a wooded ghyll valley which is ancient in origin, and several old abandoned water meadows. The ground flora is generally quite species rich and well developed, becoming increasingly so nearer the streams. The site also has particularly good fern and bryophyte communities.	Adjacent to south-east boundary	County
Pond Lye	LWS	This site includes a pond with extensive areas of sedge swamp around the margins and a species-rich neutral grassland. A number of locally uncommon plants are found in the meadow. The pond is of great ornithological importance, particularly for its breeding birds.	1.1 km north-east	County
Blunts and Paiges Wood	Local Wildlife Site (LWS)	Blunts & Paiges Woods comprise blocks of ancient and semi-natural woodland, including wet woodland along the route of a stream, and two species rich meadows located in the High Weald between Haywards Heath and Cuckfield. The site supports a diverse Lepidoptera fauna.	1.6 km east	County
Catt's Wood Complex & Meadows	LWS	This large block of woodland lies on the edge of Haywards Heath. Most of it is ancient, though only the north-east of Catt's Wood (known as Ashenground) appears to be ancient semi-natural woodland. The complex has a rich and varied ground flora. Several ungrazed meadows, just north of the woodland, are of botanical importance.	1.7 km south-east	County
The Hanger	LWS	Two main types of wood are present within this gill woodland site. Alder occurs along the streams and extends up the lower slopes in parts, with oak, hazel and ash on the upper slopes and the flat ground above. The wood supports a wide range of woodland plants, mosses and liverworts, a good	1.9 km north-west	County

		bird community and a number of uncommon butterflies.		
--	--	--	--	--

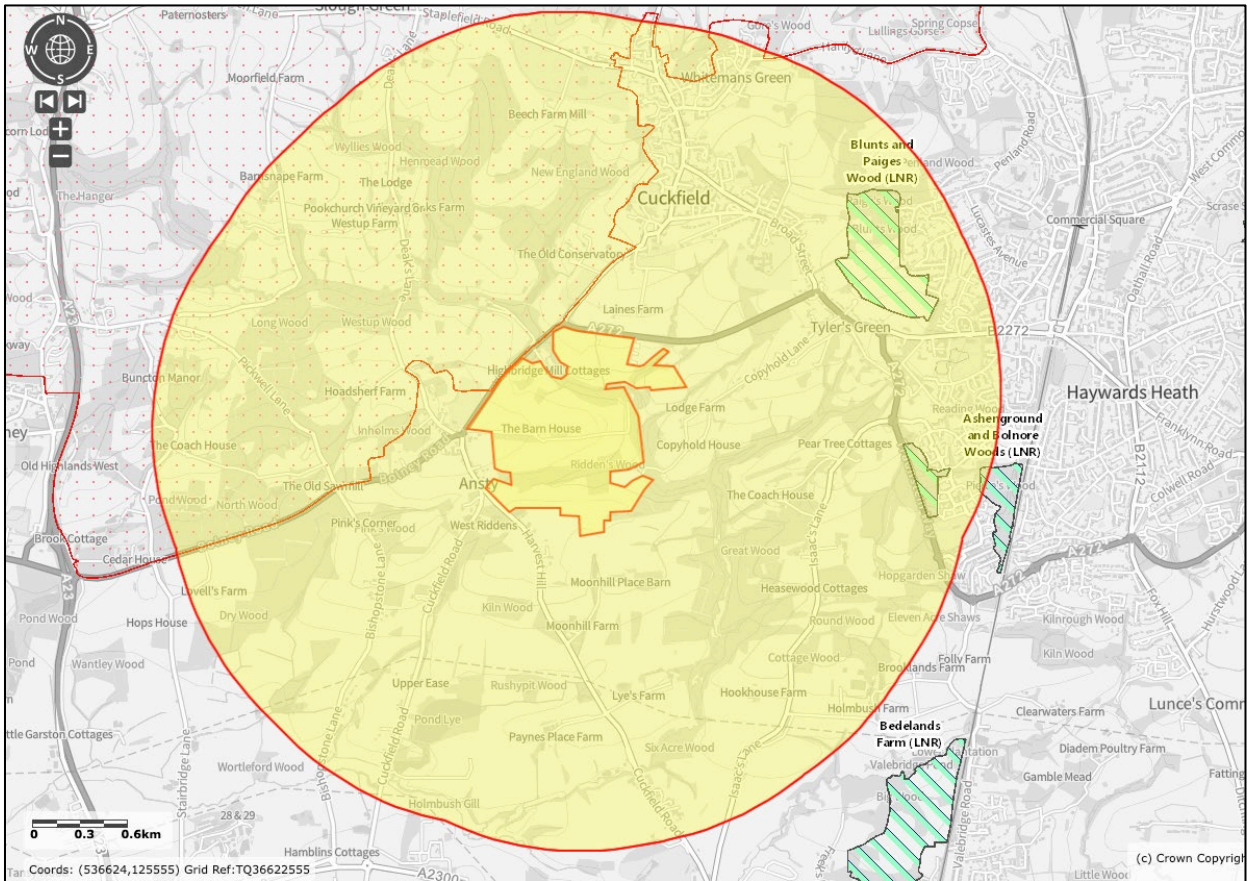


Figure 1. Statutory designated sites within a radius of 2km of the application site. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

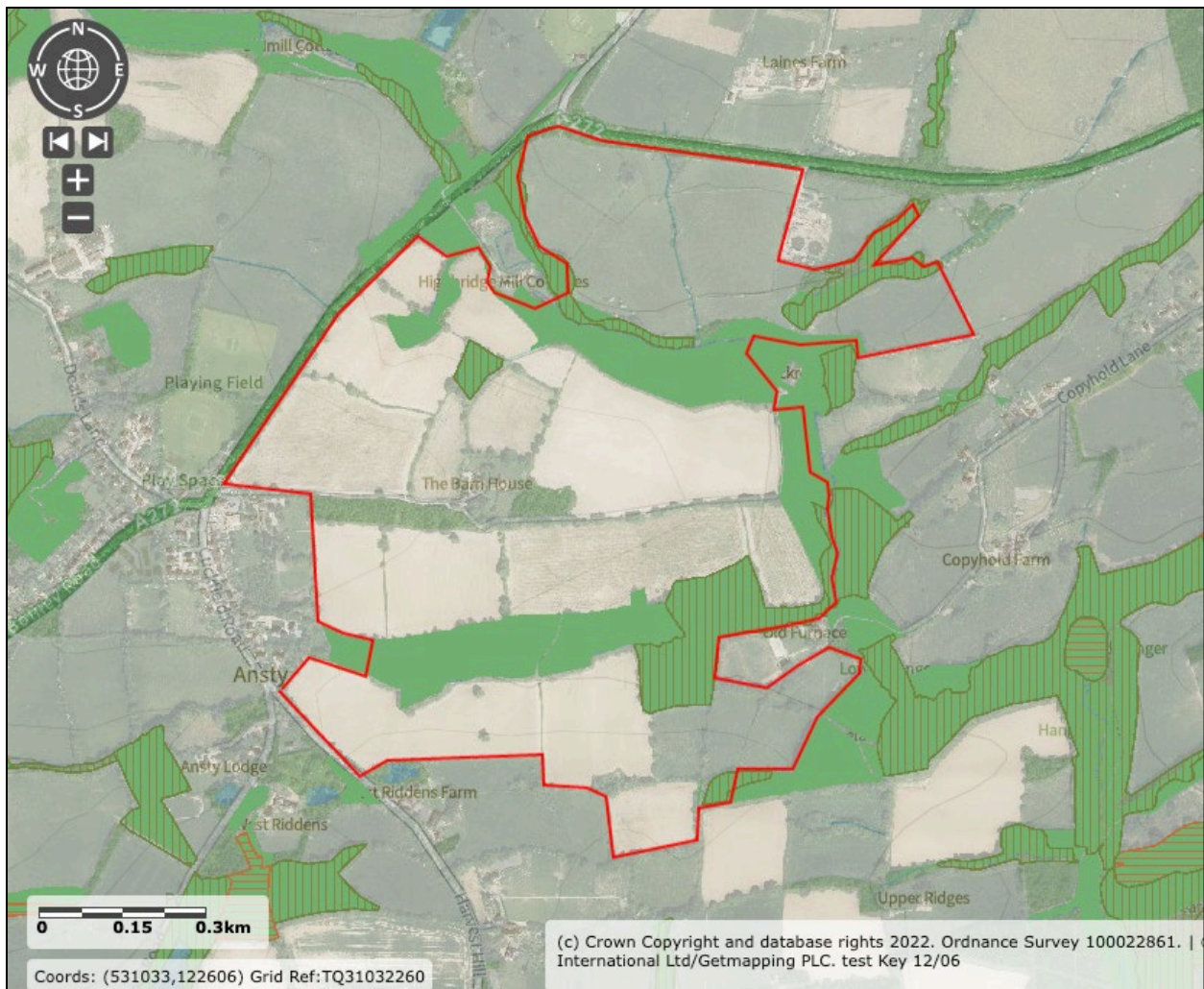


Figure 2. Ancient woodland (hash) and priority woodland (green) within the site and within the immediate surrounding area. Image produced courtesy of Magic maps (<http://www.magic.gov.uk/>).

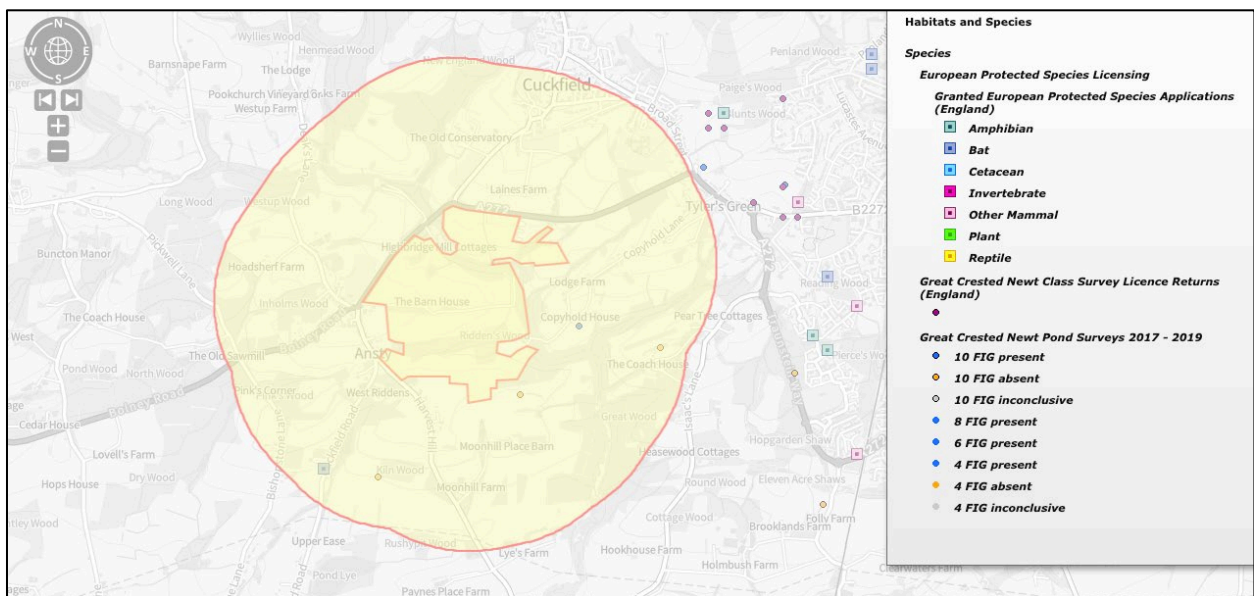


Figure 3. Granted EPS licences within 1km of the application site. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

2 Botany

Table 2. Botanical names for all common names listed within the main report

Common Name	Botanical Name	Common Name	Botanical Name
Ash	<i>Fraxinus excelsior</i>	Knapweed	<i>Centaurea nigra</i>
Bird's-foot trefoil	<i>Lotus corniculatus</i>	Lady's bedstraw	<i>Galium verum</i>
Bracken	<i>Pteridium aquilinum</i>	Lesser stitchwort	<i>Stellaria graminea</i>
Bramble	<i>Rubus fruticosus agg.</i>	Marsh cudweed	<i>Gnaphalium uliginosum</i>
Bristly oxtongue	<i>Helminthotheca echioides</i>	Marsh thistle	<i>Cirsium palustre</i>
Cleavers	<i>Galium aparine</i>	Meadow buttercup	<i>Ranunculus acris</i>
Cocksfoot grass	<i>Dactylis glomerata</i>	Meadow foxtail	<i>Alopecurus pratensis</i>
Common bent	<i>Agrostis capillaris</i>	Oak	<i>Quercus robur</i>
Common fleabane	<i>Pulicaria dysenterica</i>	Oxeye daisy	<i>Leucanthemum vulgare</i>
Common mouse-ear	<i>Cerastium fontanum</i>	Perennial ryegrass	<i>Lolium perenne</i>
Common sorrel	<i>Rumex acetosa</i>	Ragwort	<i>Senecio jacobaea</i>
Common spotted orchid	<i>Dactylorhiza fuchsii</i>	Red clover	<i>Trifolium pratense</i>
Creeping bent	<i>Agrostis stolonifera</i>	Red fescue	<i>Festuca rubra</i>
Creeping buttercup	<i>Ranunculus repens</i>	Redshank	<i>Persicaria maculosa</i>
Creeping cinquefoil	<i>Potentilla reptans</i>	Ribwort plantain	<i>Plantago lanceolata</i>
Creeping thistle	<i>Cirsium arvense</i>	Rough meadowgrass	<i>Poa trivialis</i>
Crested dog's-tail	<i>Cynosurus cristatus</i>	Round leaved fluellen	<i>Kickxia spuria</i>
Curled dock	<i>Rumex crispus</i>	Scarlet pimpernel	<i>Anagallis arvensis</i>
Cut-leaved cranesbill	<i>Geranium dissectum</i>	Scentless mayweed	<i>Tripleurospermum inodorum</i>
Dandelion	<i>Taraxacum sp.</i>	Self-heal	<i>Prunella vulgaris</i>
False oat-grass	<i>Arrhenatherum elatius</i>	Sharp leaved fluellen	<i>Kickxia elatine</i>
Field bindweed	<i>Convolvulus arvensis</i>	Smaller cat's-tail	<i>Phleum bertolonii</i>
Field forget-me-not	<i>Myosotis arvensis</i>	Smooth meadow-grass	<i>Poa pratensis</i>
Germander speedwell	<i>Veronica chamaedrys</i>	Smooth tare	<i>Vicia tetrasperma</i>
Goosefoot	<i>Chenopodium sp.</i>	Spear thistle	<i>Cirsium vulgare</i>
Grass vetchling	<i>Lathyrus nissolia</i>	Sweet vernal	<i>Anthoxanthum odoratum</i>
Greater knapweed	<i>Centaurea scabiosa</i>	Tall fescue	<i>Festuca arundinacea</i>
Greater plantain	<i>Plantago major</i>	Thyme-leaved speedwell	<i>Veronica persicaria</i>
Hard rush	<i>Juncus inflexus</i>	Trailing St John's Wort	<i>Hypericum humifusum</i>
Hedge bedstraw	<i>Galium album</i>	White clover	<i>Trifolium repens</i>
Hoary plantain	<i>Plantago media</i>	Yarrow	<i>Achillea millefolium</i>
Hoary willowherb	<i>Epilobium parviflorum</i>	Yellow rattle	<i>Rhinanthus minor</i>

Table 3. Detailed species composition of the woodland parcels at Ansty (see the main EcIA report for a map of the numbered parcels).

Woodland Parcel Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Trees																			
Alder <i>Alnus glutinosa</i>	F			R		F	O		F					R	R				
Ash <i>Fraxinus excelsior</i>	O			R			O		F		R			R	R	R	O	R	R
Beech <i>Fagus sylvatica</i>				R															
Bird cherry <i>Prunus padus</i>			R																
Blackthorn <i>Prunus spinosa</i>	R			R					R					O		O	O	R	O
Cherry laurel <i>Prunus laurocerasus</i>											D								
Dogwood <i>Cornus sanguinea</i>																		R	
Downy birch <i>Betula pubescens</i>			R			R													
Elder <i>Sambucus nigra</i>	R		O	R			R		R			R		O	R		O		
Field maple <i>Acer campestre</i> *				R			R									R		R	
Hawthorn <i>Crataegus monogyna</i>	O			O		R	R		R					O	R	R		R	R
Hazel <i>Corylus avellana</i>	O			F			O		R	F	O	F	O	F	F			R	
Holly <i>Ilex aquifolium</i> *	O			R			R		R	R								R	
Midland hawthorn <i>Crataegus laevigata</i> *	R																		
Oak <i>Quercus robur</i>	O			O	R				R	R	O	O		O	O	R	R	O	R
Poplar (hybrid) <i>Populus</i> sp.						D	O												
Rhododendron <i>Rhododendron ponticum</i>											O								
Small-leaved lime <i>Tilia cordata</i> *												R	O						
Sweet chestnut <i>Castanea sativa</i>			D	O															
Sycamore <i>Acer pseudoplatanus</i>													O	S					
Wild cherry <i>Prunus avium</i> *					R		R												
Wild service tree <i>Sorbus torminalis</i> *															R				
Goat willow <i>Salix caprea</i>														R		F	O		O
Willow <i>Salix</i> sp.							F							R					
Plants																			
Angelica <i>Angelica sylvestris</i>	R																		
Annual meadowgrass <i>Poa annua</i>			R																
Barren strawberry <i>Potentilla sterilis</i> *	R																		
Black bryony <i>Tamus communis</i> *															R				
Bluebell <i>Hyacinthoides non-scripta</i> *	F		O	A			O		O	A	F	F		O	F				
Bluebell hybrid <i>Hyacinthoides x massartiana</i>			R	R			O												
Bramble <i>Rubus fruticosus</i> agg.	O		O	O	F	R	F		F					O		F		D	F
Broadleaved dock <i>Rumex obtusifolios</i>					O													R	
Bugle <i>Ajuga reptans</i>	R		R		O		R							R	R				
Butchers broom <i>Ruscus aculeatus</i> *	R															R			
Cleavers <i>Galium aparine</i>	O			R	R		O								O			R	
Clustered dock <i>Rumex conglomeratus</i>																		R	
Cocksfoot grass <i>Dactylis glomerata</i>									R						R			R	
Common figwort <i>Scrophularia nodosa</i>							R		R				R						
Common nettle <i>Urtica dioica</i>	O				A		A		O				A	F	O				

Woodland Parcel Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Common spotted orchid <i>Dactylorhiza fuchsii</i>						R													
Cow parsley <i>Anthriscus sylvestris</i>	O			R															
Creeping buttercup <i>Ranunculus repens</i>	O				A	O									R				
Creeping thistle <i>Cirsium arvense</i>					O														
Cuckoo flower <i>Cardamine pratensis</i>	O						R		O	R									
Curled dock <i>Rumex crispus</i>															R				
Dog's mercury <i>Mercurialis perennis</i>	F			R			R		F			F		F					
Early dog violet <i>Viola reichenbachiana</i> *	F								O	O									
Early purple orchid <i>Orchis mascula</i> *															R				
Enchanter's nightshade <i>Circaea lutetiana</i>	O		R	O			O												
False brome <i>Brachypodium sylvaticum</i>	R			R					R							O			
Foxglove <i>Digitalis purpurea</i>				R											R				
Germander speedwell <i>Veronica chamaedrys</i>	O						F								O				
Giant fescue <i>Schedonorus giganteus</i> *	R																		
Greater burdock <i>Arctium lappa</i>	R																		
Greater stitchwort <i>Stellaria holostea</i>	R																		
Ground ivy <i>Glechoma hederacea</i>	F		F	F	O	O	A		F	O				F	O				
Hairy woodrush <i>Luzula pilosa</i> *				R															
Hedge garlic <i>Alliaria petiolata</i>	O								R										
Hedge woundwort <i>Stachys sylvatica</i>	O			O															
Hemlock water-dropwort <i>Oenanthe crocata</i>	R						O		R										
Herb Robert <i>Geranium robertianum</i>	O								R						R			O	
Hoary willowherb <i>Epilobium parviflorum</i>					R														
Hogweed <i>Heracleum sphondylium</i>	R								R					R					
Honeysuckle <i>Lonicera periclymenum</i>	O			O					R		O				R				
Ivy <i>Hedera helix</i>	O		R																
Ivy-leaved speedwell <i>Veronica hederifolia</i>	O			O								O	F						
Lesser burdock <i>Arctium minor</i>														R					
Lesser celandine <i>Ficaria verna</i>	O			O			O		O	O					R				
Lords and ladies <i>Arum maculatum</i>	O				O				O			R	O	R					
Marsh marigold <i>Caltha palustris</i>							R												
Opposite-leaved golden-saxifrage <i>Chrysosplenium oppositifolium</i> *	A						R							O					
Pendulous sedge <i>Carex penudula</i> *	O																		
Primrose <i>Primula vulgaris</i> *	O			R					O	R				R					
Ramsons <i>Allium ursinum</i> *	R																		
Red campion <i>Silene dioica</i>	O		R		R	R	O		O	O				O	O				
Red currant <i>Ribes rubrum</i> *	R			R								R							
Reed canary grass <i>Phalaris arundinacea</i>	R																		
Remote sedge <i>Carex remota</i> *	O			R		R	R		O										
Rough meadowgrass <i>Poa trivialis</i>	O				O	F	O							O	O			O	
Small nettle <i>Urtica urens</i>	O																		
Soft rush <i>Juncus effusus</i>						R			R										

Woodland Parcel Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Small sweetgrass <i>Glyceria declinata</i>						R													
Three nerved sandwort <i>Moehringia trinervia</i> *														O	O				
Town hall clock <i>Adoxa moschatellina</i> *	F						R		O	O		O		R					
Tufted hairgrass <i>Deschampsia cespitosa</i>	R																		
Valerian <i>Valeriana officinalis</i>	O																		
Violet <i>Viola</i> sp.	O						O							O	O				
Wavy bittercress <i>Cardamine flexuosa</i>	O																		
Wood anemone <i>Anemone nemorosa</i> *	F			O			O		O	F	F	O		O	F			F	
Wood avens <i>Geum urbanum</i>	R								O										
Wood dock <i>Rumex sanguineus</i>	R					F	F		R					F					
Wood meadowgrass <i>Poa nemoralis</i> *	F			O	O	F	F		F			F	F	F	O				
Wood melic <i>Melica uniflora</i> *															O				
Wood sedge <i>Carex sylvatica</i> *	O			R			R							R	O				
Wood sorrel <i>Oxalis acetosella</i> *	R			R															
Wood speedwell <i>Veronica montana</i> *	O			O			O			O		O		R	O				
Yellow archangel <i>Lamium galeobdolon</i> *	F		O	F			O		O	R		F	F	R	R				
Yorkshire fog <i>Holcus lanatus</i>					R		O							R	R				
Ferns																			
Black spleenwort <i>Asplenium adiantum-nigrum</i>	R		R							O									
Bracken <i>Pteridium aquilinum</i>			R						R					O	O				
Broad buckler <i>Dryopteris dilatata</i>	R		F	O			R			R				R					
Intermediate polypody <i>Polypodium interjectum</i>	R																		
Hard fern <i>Blechnum spicant</i> *				R						F									
Harts tongue fern <i>Asplenium scolopendrium</i>	R						R												
Lady fern <i>Athyrium filix-femina</i>	R			R															
Male fern <i>Dryopteris filix-mas</i>	R		O	R	R		O							O	R				
Soft shield fern <i>Polystichum setiferum</i> *	R								R										
Scaly male fern <i>Dryopteris affinis</i> *															R				

* Ancient Woodland Indicator

3 *Badgers*

Due to the sensitive nature of information pertaining to badgers, this section should be omitted from the report prior to release into the public domain.



Photograph 1. Video stills of badgers using a sett on site at Ansty. Two badgers emerged together (left) and a badger takes bedding into the sett (right).

4 Bats

4.1 Natural Roost Features - Trees



Figure 4. The location of trees at Ansty assessed as having 'high', 'moderate' or 'low' bat roost potential

Table 4. Trees with potential roost features for bats

Tree ref.	Species	Age	Grid reference	Initial assessment July 2022 - all moderate/high were climbed. Ten trees/features, indicated with an * were assessed from the ground only due to safety.	Updated assessment following second/third climb in August and September 2022. Ten trees, indicated with an * were assessed from the ground only due to safety.	Feature(s)
T100	Oak	–	TQ29932 22785	High	High	Tear out, NW and NE
T24	Ash	Semi-mature	TQ 29924 22788	High	High*	Multiple woodpecker holes. The highest feature, a tear out above woodpecker holes, is inaccessible.
T30	Ash	Young	TQ 29905 22636	Moderate	High	Callous roll
T53	Poplar	Mature	TQ 30256 23641	High	High*	Large knot holes facing south-west. The highest knot hole couldn't be safely accessed
T56	Lime	Semi-mature	TQ 30267 23665	High	High	Stem wounds
T70	Oak	Mature	TQ 29996 23593	High	High	Woodpecker hole in branch
T83	Oak	Semi-mature	TQ 29322 23551	Moderate	High	Branch cavity under snapped limb, callus rolls higher in canopy
T89	Beech	Semi-mature	TQ 29227 23321	Moderate	High	Branch wound
T96	Field maple	-	TQ 29775 23493	High	High	Rot hole + butt rot
T64	Ash	Mature	TQ 29755 23739	High - Outside of site boundary	High - outside of site boundary	2 x woodpecker holes
T65	Cherry	Dead monolith	TQ 29916 23907	High - Pond and dense scrub prevent access	High - pond and dense scrub prevent access	Dead/rotten hollow stem
T34	Unknown	Dead	TQ 3004222670	High* - not safe to climb	High* - not safe to climb	Completely rotten stem
T66	Ash	Fallen mature	TQ 29895 23921	High* - not safe to climb	High* - not safe to climb	Central trunk split + rot hole
T1	Oak	n/a	TQ 29459 23185	High	Moderate	Multiple wounds / rot
T2	Oak	Veteran	TQ 29572 23256	Moderate	Moderate	Numerous knots / tears
T4	Oak	Young	TQ 29855 23269	Moderate	Moderate	Stem cavity
T20	Horse-chestnut	Semi-mature	TQ 29289 22944	Moderate	Moderate	Branch cavities
T25	Ash	n/a	TQ 29940 22786	Moderate	Moderate	Stem wound
T26	Oak	Semi-mature	TQ 29902 22650	Moderate	Moderate	Pruning scar
T49	Poplar	Dead	TQ 30309 23584	Moderate	Moderate	Stem wounds from tear outs
T72	Alder	-	TQ 29986 23533	Moderate	Moderate	3 x rot holes

Tree ref.	Species	Age	Grid reference	Initial assessment July 2022 - all moderate/high were climbed. Ten trees/features, indicated with an * were assessed from the ground only due to safety.	Updated assessment following second/third climb in August and September 2022. Ten trees, indicated with an * were assessed from the ground only due to safety.	Feature(s)
T74	Field maple	-	TQ 29487 23666	Moderate	Moderate	Rot holes
T8	Field maple	n/a	TQ 29989 23294	Moderate	Moderate	Weld
T90	Oak	Semi-mature	TQ 29259 23317	Moderate	Moderate	Flaking bark and desiccation fissure
T91	Oak	Mature	TQ 29454 23311	Moderate	Moderate	Knot hole
T99	Sycamore	Semi-mature	TQ 29626 23388	High	Moderate	Very large tear out and cavity
T19	Oak	Dead	TQ 29870 23096	Moderate* - not safe to climb	Moderate* - not safe to climb	Flaking bark
T37	Oak	n/a	TQ 3007722961	Moderate* - not safe to climb	Moderate* - not safe to climb	Lifted bark
T63	Ash	Mature	TQ 29793 23724	Moderate* - not safe to climb	Moderate* - not safe to climb	Dead limb + rot hole
T93	Dead tree	-	TQ 29611 23467	Moderate* - not safe to climb	Moderate* - not safe to climb	Flaking bark
T43	Oak	-	TQ 30246 22912	Low	Low	Crevices in branch snap
T29	Unknown	Dead	TQ 29896 22633	Low	Low	Woodpecker hole
T22	Horse-chestnut	Mature	TQ 29320 22901	Moderate	Low	Branch cavity
T28	Ash	Semi-mature	TQ 29889 22634	High	Low	Woodpecker hole
T3	Ash	Semi-mature	TQ 29806 23263	High	Low	Woodpecker hole
T32	Ash	Semi-mature	TQ 30013 22669	High	Low	Large callous rolls and stem cavities
T36	Oak	n/a	TQ 30047 22810	Moderate	Low	Tear out
T42	Oak	-	TQ 30221 22925	Moderate	Low	Hole in branch break
T46	Poplar	Mature	TQ 30325 23595	Moderate	Low	Branch wound with gap behind deadwood plate (S facing)
T52	Lime	Decline	TQ 30269 23646	High	Low	Failed limb with decayed hole
T61	Mature ash	Mature	TQ 29796 23682	Moderate	Low	Knot hole + tear out
T75	Field maple	-	TQ 29492 23668	High	Low	Rot holes
T76	Oak	Semi-mature	TQ 29482 23677	Moderate	Low	Pruning scar
T79	Lime	Semi-mature	TQ 29415 23680	Moderate	Low	Rot hole in stem and branch cavity

Tree ref.	Species	Age	Grid reference	Initial assessment July 2022 - all moderate/high were climbed. Ten trees/features, indicated with an * were assessed from the ground only due to safety.	Updated assessment following second/third climb in August and September 2022. Ten trees, indicated with an * were assessed from the ground only due to safety.	Feature(s)
T84	Oak	Mature	TQ 29335 23524	Moderate	Low	Dead limbs, flaking bark and knot hole
T9	Oak	Semi-mature	TQ 29992 23291	Moderate	Low	Transverse split
T92	Oak	Semi-mature	TQ 29534 23417	Moderate	Low	Branch cavity and knot hole
T95	Ash	-	TQ 29717 23533	Moderate	Low	Callous rolls and stem cavity
T10	Oak	n/a	TQ 30009 23288	Low	Low	Gaps around pruning wound
T11	Oak	Semi-mature	TQ 30030 23301	Low	Low	Hazard beam
T12	Oak	Mature	TQ 30090 23301	Low	Low	Transverse snap
T13	Oak	n/a	TQ 30134 23304	Low	Low	Deadwood/fissure cavity
T14	Beech	n/a	TQ 30165 23308	Low	Low	Rot hole in stem
T15	Oak	n/a	TQ 30175 23302	Low	Low	Snapped limb
T17	Oak	Semi-mature	TQ 29679 23176	Low	Low	Stem cavity
T18	Oak	Semi-mature	TQ 29680 23159	Low	Low	Tear out
T21	Lime	Semi-mature	TQ 29304 22916	Low	Low	Crack in branch
T27	Oak	Semi-mature	TQ 29928 22654	Low	Low	Pruning scar
T31	Field maple	n/a	TQ 29911 22635	Low	Low	Frost cracks and callousing
T33	Oak	Semi-mature	TQ 30028 22667	Low	Low	Branch cavity
T35	Oak	Semi-mature	TQ 30025 22735	Low	Low	Split/snapped limb
T38	Oak	n/a	TQ 30090 22959	Low	Low	Lifted bark
T39	Oak	n/a	TQ 30107 22953	Low	Low	-
T40	Oak	n/a	TQ 30146 22952	Low	Low	-
T41	Ash	-	TQ 30161 22923	Low	Low	-
T44	Oak	-	TQ 30092 22801	Low	Low	Small branch cavity
T45	Poplar	Mature	TQ 30319 23595	Low	Low	Branch wound
T47	Poplar	Mature	TQ 30329 23593	Low	Low	Branch wound (facing ground/north)
T48	Poplar	Mature	TQ 30332 23585	Low	Low	Branch wound (facing north-east)

Tree ref.	Species	Age	Grid reference	Initial assessment July 2022 - all moderate/high were climbed. Ten trees/features, indicated with an * were assessed from the ground only due to safety.	Updated assessment following second/third climb in August and September 2022. Ten trees, indicated with an * were assessed from the ground only due to safety.	Feature(s)
T5	Oak	Semi-mature	TQ 29904 23262	Low	Low	Hazard beam
T50	Oak	Mature	TQ 30287 23651	Low	Low	Gaps around deadwood
T57	Blackthorn	n/a	TQ 30028 23639	Low	Low	Subsidence crack
T58	Crack willow	Mature	TQ 29996 23785	Low	Low	Transverse snap
T59	Crack willow	Mature	TQ 29998 23792	Low	Low	Various ground level fissures
T6	Oak	Semi-mature	TQ 29921 23268	Low	Low	Branch cavity
T60	Ash	Mature	TQ 29987 23879	Low	Low	Ivy cover and signs of dieback
T62	Oak	Mature	TQ 29807 23686	Low	Low	Flaking bark
T67	Hawthorn	Mature	TQ 29895 23665	Low	Low	Transverse snap
T68	Hazel	Semi-mature coppiced	TQ 29947 23591	Low	Low	Transverse snap
T69	Alder	Semi-mature	TQ 29934 23611	Low	Low	Flaking bark
T7	Field maple	n/a	TQ 2997823290	Low	Low	Fissures
T71	Alder	-	TQ 29982 23554	Low	Low	Callus rolls
T73	Alder	-	TQ 29965 23512	Low	Low	Rot hole
T77	Oak	Mature	TQ 29462 23693	Low	Low	Snapped limb
T80	Oak	Mature	TQ 29385 23648	Low	Low	Desiccation fissures
T81	Oak	Semi-mature	TQ 29334 23573	Low	Low	Flaking bark and splintering wood
T82	Lime	Semi-mature	TQ 29322 23563	Low	Low	Stem cavity
T86	Field maple	-	TQ 29226 23412	Low	Low	Snapped stem
T88	Sycamore	Young	TQ 29206 23380	Low	Low	Vertical crack
T94	Oak	Mature	TQ 29704 23540	Low	Low	Pruning wound
T97	Oak	Semi-mature	TQ 29760 23439	Low	Low	Several snapped limbs
T98	Ash	Young	TQ 29688 23377	Low	Low	Knot hole
T16	Oak	Semi-mature	TQ 29672 23196	Moderate	Negligible	Stem cavity
T23	Horse-chestnut	Semi-mature	TQ 29367 22847	Moderate	Negligible	Pruning wounds

Tree ref.	Species	Age	Grid reference	Initial assessment July 2022 - all moderate/high were climbed. Ten trees/features, indicated with an * were assessed from the ground only due to safety.	Updated assessment following second/third climb in August and September 2022. Ten trees, indicated with an * were assessed from the ground only due to safety.	Feature(s)
T51	Oak	Mature	TQ 30284 23656	Moderate	Negligible	Hazard beam on dead branch
T54	Alder	Mature	TQ 30238 23655	Moderate	Negligible	Branch wound (obscured from view)
T55	Oak	Mature	TQ 30260 23663	Moderate	Negligible	Gap behind deadwood plate in canopy, multiple fissures lower down
T78	Field maple	-	TQ 29448 23706	Moderate	Negligible	Branch cavity
T85	Oak	Mature	TQ 29392 23498	High	Neg Negligible	Wound on underside of limb + callus rolls
T87	Ash	Mature	TQ 29222 23404	Moderate	Negligible	Possible branch cavity with callus rolls

4.2 Built Structures – Roost Appraisal

Table 5. Potential roost features for bats in buildings

Building	Description of features	Assessment	
1	A residential building, approximately 400 years old, in moderate condition. The roof comprises clay tiles and is pitched and hipped, with a catslide on the western elevation. Stone walls with weatherboarding present on western and eastern elevations. Multiple gaps under clay roof tiles on all elevations and gaps behind the weatherboarding on the eastern elevation. There is an exposed timber frame on the western elevation, with small gaps between external frame and brick on south-east corner. There is one internal roof void which is in use for storage and has a boarded floor. No evidence of bats was found within the void.	High potential	Front:  Back: 
2	A residential building, approximately 500 years old, in moderate condition. A pitched, hipped and cross gabled roof with multiple gaps under clay roof tiles and clay hanging tiles. Small gaps at the eaves into the roof void. Exposed timber frame with gaps. The building contains one roof void and one cellar. There is a gap in the chimney brickwork, allowing access into the chimney stack. Bat droppings were found throughout the roof void, in large concentrations in places. No evidence of bats was recorded in the cellar.	Confirmed roost	 
3	Brick walled garage with clay tiled pitched, hipped roof. Gaps are present under the roof tiles on all elevations and there are some missing/slipped tiles. Weatherboarding on the north and south elevation, with some gaps recorded. Gaps at the eaves, allowing access inside to a void that is open to the apex. A handful of droppings were recorded inside.	Confirmed roost	
4	This single storey 'outbuilding' is connected to Building 1 and is currently in use for storage. The roof is pitched and hipped on the eastern elevation, with multiple gaps noted under the clay tiles. The roof is lined internally by bitumen and is open to the apex. No evidence of bats was seen.	Moderate potential	

Building	Description of features	Assessment	
5	Outbuilding in use for storage. Cross gabled with catslide roof. Gaps under roof tiles on all elevations and gaps around the door, allowing access inside. No evidence of bats recorded.	Low potential	
6	Small outbuilding in use for storage. Pyramid hip roof with gaps present under roof tiles on all elevations. No evidence of bats recorded.	Low potential	
7	Converted barn into garage and office space. Pitched and half hipped roof. Gaps under clay roof tiles on all elevations and small gaps behind weatherboarding. No access inside. No evidence of bats recorded.	Moderate potential	
8	Residential modern barn conversion in good condition. Pitched, hipped and flat roof. Gaps under clay roof tiles on all elevations and small gaps behind weatherboarding. No internal roof void. No evidence of bats recorded. Some parts of the building were difficult to assess due to surrounding vegetation.	Moderate potential	
9	Open sided outbuilding with multiple gaps under that clay tiles of the pitched and hipped roof. No evidence of bats recorded.	Moderate potential	
10	Open sided outbuilding in use for storage and as a car port. Gaps under the clay roof tiles on all elevations. No evidence of bats recorded.	Moderate potential	

4.3 Emergence Surveys

Table 6. Details of the emergence surveys for buildings 1–3, including timings, weather conditions and personnel.

Date	Survey start time/end time	Temp. degrees centigrade, weather conditions throughout survey	Surveyors
Building 1: The Barn			
01/08/22	Start time: 20:27 Sunset: 20:47 End time: 22:17	Max/min temp: 19–18°C. 80-100% cloud cover and still air (BF0)	Kate Lewis Federico Ghittoni
23/08/22	Start time: 19:36 Sunset: 20:06 End time: 21:36	Max/min temp: 20–19°C. 100% cloud cover and still air (BF0)	Kate Lewis Julian Browning
03/09/22	Start time: 19:08 Sunset: 19:38 End time: 21:08	Max/min temp: 20–18°C. 60-90% cloud cover and light breeze (BF2)	Kate Lewis Julian Browning
Building 2 & 3: Old Place			
26/07/22	Start time: 20:26 Sunset: 20:56 End time: 22:26	Max/min temp: 19–16°C. 40-80% cloud cover and light air (BF1)	Dan Bennett Nik Neale Aaran hart Bella Friar Rebecca Mortensen
09/08/22	Start time: 20:10 Sunset: 20:33 End time: 22:03	Max/min temp: 20–18°C. 5-0% cloud cover and light air (BF1)	Kate Lewis Tom Francis James Whitby Rebecca Mortensen Aaron Hart
31/08/22	Start time: 19:30 Sunset: 19:48 End time: 21:18	Max/min temp: 18–16°C. 5-10% cloud cover and light air (BF1)	Kate Lewis Tom Francis Sophie Bradfield Patrick Kitchenor Xenia Snowman

Emergence survey results

Building 1, The Barn:

- 01/08/22
No emergences were recorded and general activity was very low with only one or two passes recorded for common pipistrelle, soprano pipistrelle, brown long-eared and a myotis species.
- 23/08/22
A common pipistrelle and a soprano pipistrelle were recorded emerging from the eave on the eastern elevation.
Foraging common pipistrelles were recorded throughout the survey. A low number of passes for soprano pipistrelle, noctule and a myotis species were also recorded.
- 03/09/22
A common pipistrelle was recorded emerging from a roof tile on the eastern elevation.
General activity was low for soprano pipistrelle, noctule and a myotis species, with moderate foraging activity for common pipistrelle.

Building 2, Old Place:

- 26/07/22
A look inside the loft void before the survey found a single brown long-eared bat in the void at the northern gable end.
Three soprano pipistrelles and three common pipistrelles were recorded emerging from hanging tiles on the southern elevation. A brown long-eared bat was recorded re-entering a crevice near the front door at 21:36.

Two common pipistrelles were recorded emerging from hanging tiles on the eastern elevation and a soprano pipistrelle was recorded emerging from a gap in the chimney stack on the eastern elevation.

A soprano pipistrelle was recorded emerging from hanging tiles on the northern elevation and a brown long-eared bat emerged from the eave on the north-west elevation.

General activity was low, with only a few passes recorded for common pipistrelle, soprano pipistrelle, noctule, a myotis species and brown long-eared.

- 09/08/22

Southern elevation: Eight common pipistrelles and two soprano pipistrelles emerged from hanging tiles.

Eastern elevation: One soprano pipistrelle and one common pipistrelle emerged from the eaves.

Western elevation: One common pipistrelle emerged from a hanging tile. Another bat was caught on camera emerging from a hanging tile at 20:57 which, due to the size, flight pattern and time of emergence, was likely a pipistrelle.

General activity: moderate foraging by soprano and common pipistrelle. Low activity for serotine, noctule and a myotis species.

- 31/08/22

A bat was recorded on camera emerging from a hanging tile on the western elevation at 20:23. At the same time a myotis echolocation was detected by a nearby surveyor.

General activity was high for common and soprano pipistrelle foraging and social calling. One or two passes recorded for myotis and brown long-eared bats.

Building 3, Old Place Outbuilding

- 26/07/22

A non-echolocating bat emerged from the south-east eave at 33 minutes after sunset.

Seven brown long-eared bats were caught on camera emerging from the south-west eave.

General activity was as of that for Building 2 (see above).

- 09/08/22

A single brown long-eared bat emerged from the eave on the eastern elevation.

General activity was as of that for Building 2 (see above).

- 31/08/22

No emergences recorded. General activity was as of that for Building 2 (see above).

Trees T19, 24, 37, 53, 63, 66 and 93

Date	Survey start time/end time	Temp. degrees centigrade, weather conditions throughout survey	Trees Surveyed
02/05/23	Start time: 19:53 Sunset: 20:23 End time: 21:53	Max/min temp: 9–14°C. 0% cloud cover and light breeze (BF2)	T24, T34, T53, T66
25/05/23	Start time: 20:27 Sunset: 20:57 End time: 22:27	Max/min temp: 10–13°C. 0% cloud cover and light breeze (BF2)	T24, T34, T53, T66
05/06/23	Start time: 20:45 Sunset: 21:09 End time: 22:39	Max/min temp: 11–14°C. 0% cloud cover and very light breeze (BF1)	T19, T37, T63, T93
06/06/23	Start time: 20:40 Sunset: 21:10 End time: 22:40	Max/min temp: 13°C. 80% cloud cover and very light breeze (BF1)	T24, T34, T53, T66
22/06/23	Start time: 20:49 Sunset: 21:19 End time: 22:49	Max/min temp: 18 -20°C Clear and light breeze (BF2)	T19, T37, T63, T93

No bat emergences were identified by the surveyors or from subsequent night-vision camera footage review.

A summary of bat activity can be provided upon request, though no activity identified was found to differ from general activity recorded and identified in Section 4.4.

4.4 Bat Activity Surveys – Walked Transects

Table 7. Walked transect metadata: dates, times, temperature, weather conditions.

Date	Survey start time/end time	Temp. degrees centigrade, weather conditions	Surveyors
20/04/22	20:04 - 22:04 Sunset: 20:04	Start temp.: 12°C 10% cloud cover, BF2, dry.	Kate Lewis James Whitby Nick Bayne Patrick Kitchenor Sophie Bradfield Xenia Snowman
23/05/22	20:54 - 22:54 Sunset: 20:54	Start temp.: 12°C 10% cloud cover, BF1, dry.	Kate Lewis James Whitby Nik Neale Rebecca Mortensen Dan Bennet Federico Ghittoni Xenia Snowman
22/06/22	21:19 - 23:19 Sunset: 21:19	Start temp.: 18°C 0% cloud cover, BF0, dry.	Kate Lewis Julian Browning Nick Bayne Patrick Kitchenor Sophie Bradfield Sam Lunn Rebecca Mortensen
21/07/22	21:04 - 23:04 Sunset: 21:04	Start temp.: 21°C 80% cloud cover, BF0, dry.	Kate Lewis Ryan Walker Tom Francis Patrick Kitchenor Sophie Bradfield Chris Drake
17/08/22	20:18 - 22:18 Sunset: 20:18	Start temp.: 20°C 20% cloud cover, BF0, dry.	Kate Lewis James Whitby Nick Bayne Patrick Kitchenor Sophie Bradfield Chris Drake
20/09/22	19:04 - 21:04 Sunset: 19:04	Start temp.: 14°C 80% cloud cover, BF0, dry.	Kate Lewis Paul Stevens Nick Bayne Tom Francis Josh Blackman Federico Ghittoni

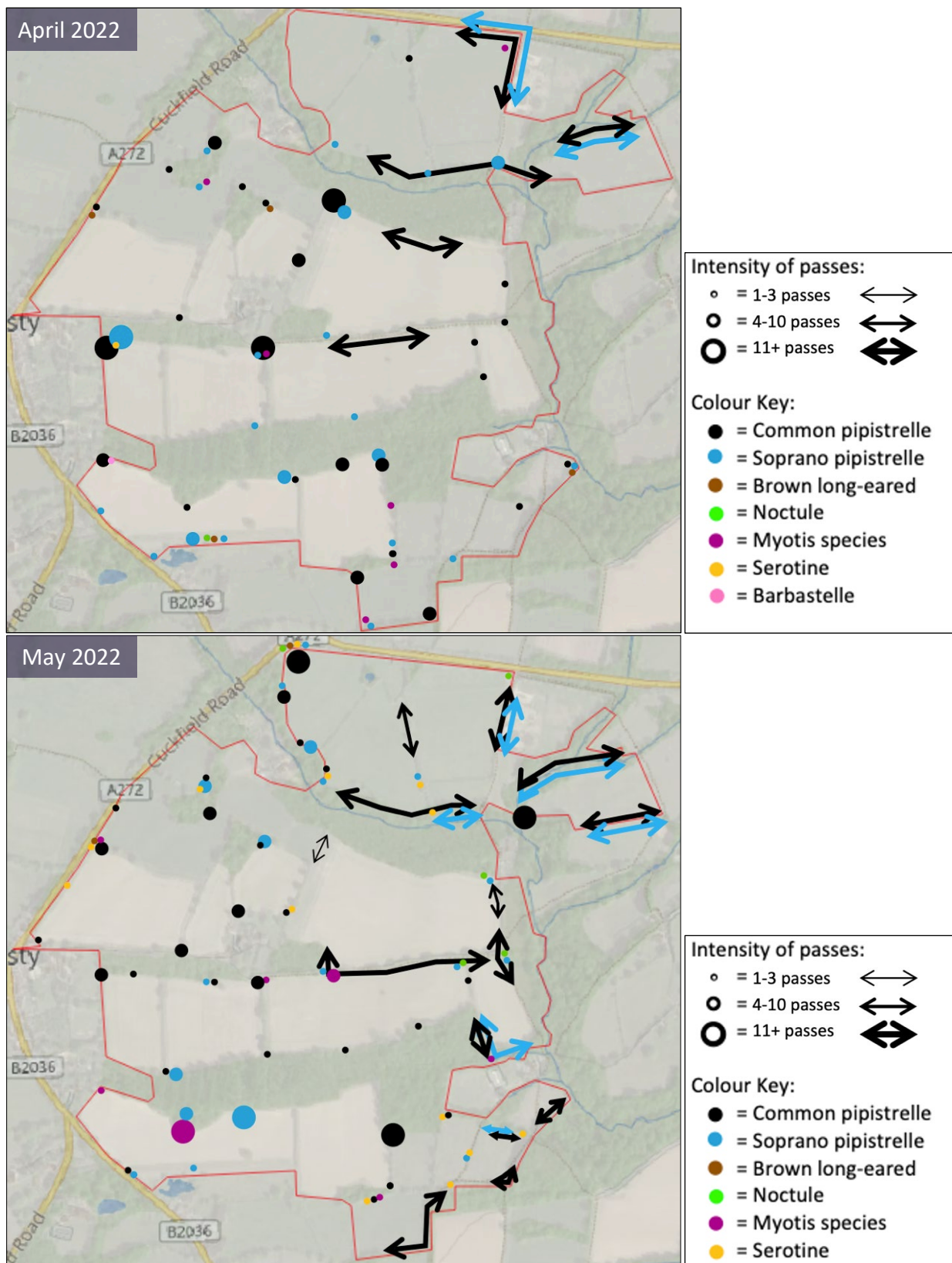


Figure 5. Approximate distribution of bats detected during each walked transect survey in April and May 2022. Images produced using QGIS.

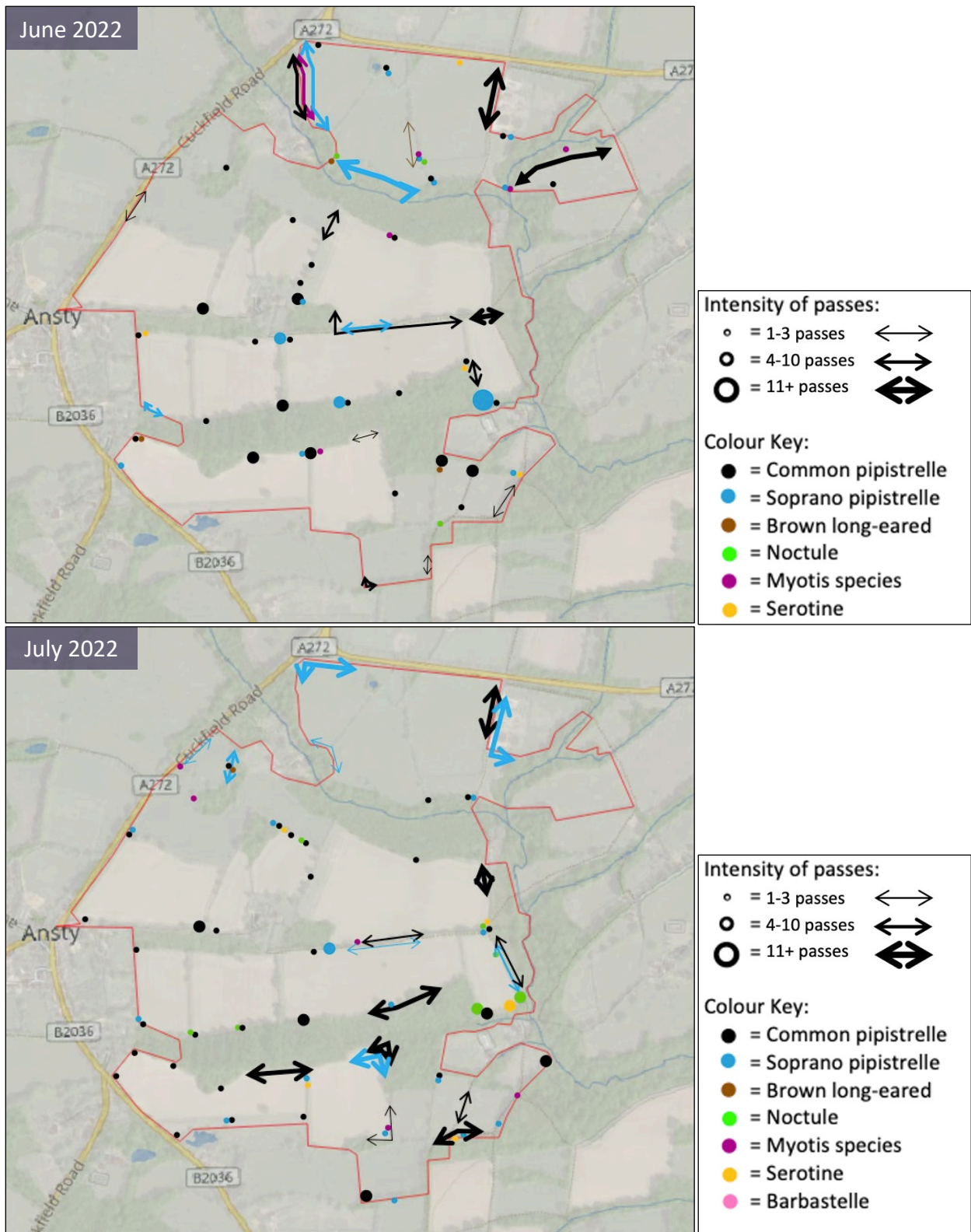


Figure 6. Approximate distribution of bats detected during each walked transect survey in June and July 2022. Images produced using QGIS.

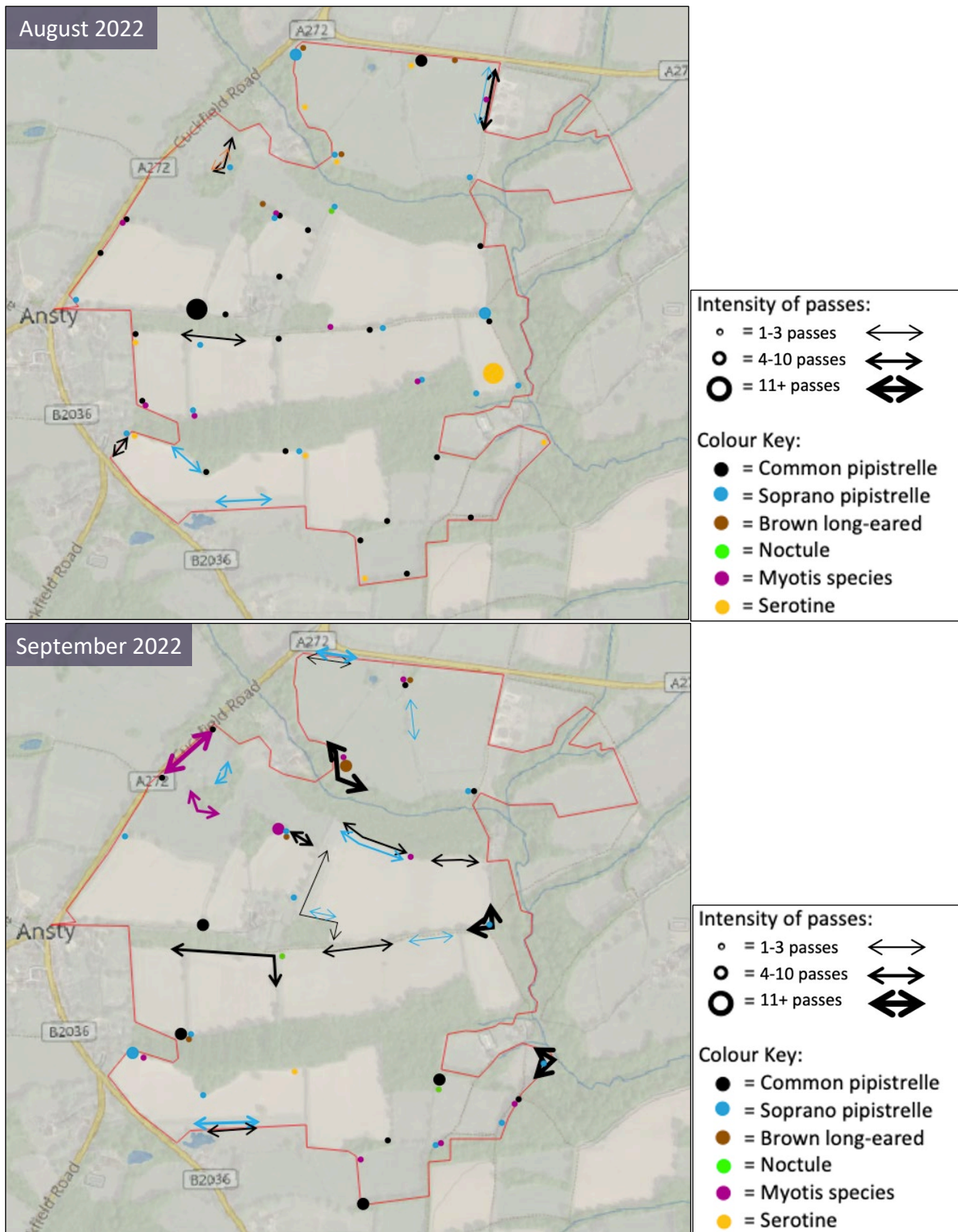


Figure 7. Approximate distribution of bats detected during each walked transect survey in August and September. Images produced using QGIS.

4.5 Bat Activity Surveys – Static Loggers

Table 8. The mean number of passes recorded by each static detector (rounded to nearest whole number) per night.

Logger	Date	Common pipistrelle	Soprano pipistrelle	Nathusius' pipistrelle	Brown long- eared	<i>Myotis</i> sp.	Serotine	Noctule	Barb
1	13/04/22	33	42	-	1	2	-	-	-
	11/05/22	26	79	-	4	4	3	1	-
	15/06/22	237	151	-	1	8	5	1	-
	14/07/22	24	80	-	1	30	1	1	-
	12/08/22	28	93	-	9	41	3	1	-
	08/09/22	23	110	-	11	6	1	1	1
2	13/04/22	124	22	-	2	4	-	-	-
	11/05/22	Logger failed to record							
	15/06/22	15	41	1	5	2	1	1	-
	14/07/22	174	114	-	4	8	3	2	-
	12/08/22	428	86	-	7	8	2	3	1
	08/09/22	77	44	1	11	7	-	1	1
3	13/04/22	19	3	-	3	2	-	1	-
	11/05/22	25	12	-	1	2	1	1	-
	15/06/22	13	11	1	4	2	1	1	1
	14/07/22	29	8	-	7	10	5	1	-
	12/08/22	40	16	-	5	7	11	4	1
	08/09/22	18	10	1	4	15	1	1	-
4	13/04/22	14	8	-	2	2	-	-	-
	11/05/22	522	95	-	2	7	3	1	1
	15/06/22	719	22	-	3	9	2	2	-
	14/07/22	192	6	-	1	13	4	1	-
	12/08/22	92	32	-	8	13	19	4	-
	08/09/22	118	49	1	10	9	1	1	1
5	13/04/22	3	48	-	-	1	-	1	-
	11/05/22	94	41	-	1	4	1	0	1
	15/06/22	175	37	1	1	6	5	3	1
	14/07/22	229	59	-	1	16	16	6	1
	12/08/22	510	76	-	2	8	63	26	1
	08/09/22	24	47	1	1	6	1	1	1
6	13/04/22	11	20	-	1	1	-	-	-
	11/05/22	86	34	-	2	2	1	1	1
	15/06/22	156	23	1	1	5	2	1	-
	14/07/22	147	40	-	1	16	3	-	1
	12/08/22	60	45	-	3	33	6	4	-
	08/09/22	10	32	1	3	97	1	1	5

5 Breeding Birds

Table 9. Breeding bird transect metadata: dates, times, temperature, weather conditions.

Date	Survey start /end	Temp. degrees centigrade, weather conditions	Surveyors
24/03/22	07:20 - 08:30 Sunrise: 05:54	Max/Min temp.: 3 - 8°C BF0, CC 0%,	Dan Bennett Ryan Walker Paul Stevens
12/04/22	06:40 - 08:11 Sunrise: 06:12	Max/Min temp.: 10 - 12°C BF1, CC 90%	Paul Whitby Ryan Walker Owen Crawshaw
03/05/22	06:20 - 07:50 Sunrise: 05:30	Max/Min temp.: 10 - 11°C BF0, CC 90%,	Paul Whitby Ryan Walker Dan Bennett
24/05/22	06:00 - 07:20 Sunrise: 04:59	Max/Min temp.: 10 - 10°C BF0, CC 20%	Dan Bennett Paul Whitby Owen Crawshaw
13/06/22	20:25 - 22:00 Sunset: 21:15	Max/Min temp.: 18 - 15°C BF1, CC 0%	Paul Whitby Dan Bennett Paul Stevens
30/06/22	05:20 - 06:50 Sunrise: 04:49	Max/Min temp.: 13 - 13°C BF0, CC 25%	Paul Whitby Dan Bennett Ryan Walker

Table 10. Breeding bird survey summary list. The table is divided into red, amber and green lists from the BoCC categories.

Species	24/03	12/04	03/05	24/05	13/05	30/06	Breeding status
Common starling <i>Sturnus vulgaris</i>	-	-	3	12	-	-	Possible
Herring gull <i>Larus argentatus</i>	-	3	-	-	4	-	Non-breeding
House sparrow <i>Passer domesticus</i>	-	2	4	1	-	5	Possible
Linnet <i>Linaria cannabina</i>	-	-	4	-	-	-	Un-likely
Marsh tit <i>Poecile palustris</i>	1	-	-	-	-	-	Un-likely
Mistle thrush <i>Turdus viscivorus</i>	2	1	-	5	-	-	Possible
Skylark <i>Alauda arvensis</i>	3	2	1	-	-	1	Confirmed
Yellowhammer <i>Emberiza citrinella</i>	6	6	1	4	3	3	Confirmed
Bullfinch <i>Pyrrhula pyrrhula</i>	-	-	2	-	-	-	Possible
Dunnock <i>Prunella modularis</i>	3	5	8	8	2	7	Confirmed
Grey wagtail <i>Motacilla cinerea</i>	-	-	-	-	-	1	Un-likely
Moorhen <i>Gallinula chloropus</i>	1	-	-	1	-	1	Un-likely
Song thrush <i>Turdus philomelos</i>	9	8	8	12	17	9	Confirmed
Stock dove <i>Columba oenas</i>	2	41	7	4	-	8	Likely
Whitethroat <i>Sylvia communis</i>	-	-	-	2	-	3	Possible
Woodpigeon <i>Columba palumbus</i>	25	20	20	16	6	55	Confirmed
Wren <i>Troglodytes troglodytes</i>	20	19	27	25	5	20	Confirmed
Blackbird <i>Turdus merula</i>	13	26	23	22	19	25	Confirmed
Blackcap <i>Sylvia atricapilla</i>	-	7	11	7	2	8	Likely
Blue tit <i>Cyanistes caeruleus</i>	40	41	37	40	-	25	Confirmed
Buzzard <i>Buteo buteo</i>	2	1	2	-	2	1	Un-likely
Carrion crow <i>Corvus corone</i>	2	8	-	9	-	10	Possible
Chaffinch <i>Fringilla coelebs</i>	2	6	3	4	1	4	Likely
Chiffchaff <i>Phylloscopus collybita</i>	6	16	11	7	3	13	Likely
Coal tit <i>Periparus ater</i>	1	2	-	-	-	-	Un-likely
Firecrest <i>Regulus ignicapilla</i>	-	2	-	-	-	-	Un-likely
Garden warbler <i>Sylvia borin</i>	-	-	-	1	-	-	Un-likely
Goldcrest <i>Regulus regulus</i>	1	1	2	-	1	2	Possible
Goldfinch <i>Carduelis carduelis</i>	6	5	10	4	1	9	Likely
Great spotted woodpecker. <i>Dendrocopos major</i>	3	7	3	7	2	6	Likely
Great tit <i>Parus major</i>	23	27	14	17	1	21	Confirmed
Green woodpecker <i>Picus viridis</i>	1	1	-	2	-	4	Possible

Species	24/03	12/04	03/05	24/05	13/05	30/06	Breeding status
Jackdaw <i>Coloeus monedula</i>	15	33	10	16	5	4	Confirmed
Jay <i>Garrulus glandarius</i>	3	2	2	1	-	4	Possible
Long-tailed tit <i>Aegithalos caudatus</i>	4	5	-	15	6	8	Confirmed
Mallard <i>Anas platyrhynchos</i>	-	1	-	-	-	-	Un-likely
Magpie <i>Pica pica</i>	4	11	2	3	-	4	Likely
Nuthatch <i>Sitta europaea</i>	3	5	2	1	1	3	Likely
Pheasant <i>Phasianus colchicus</i>	6	8	-	2	-	1	Possible
Pied wagtail <i>Motacilla alba yarelli</i>	1	1	-	1	-	2	Possible
Red kite <i>Milvus milvus</i>	2	1	-	-	-	-	Un-likely
Red legged partridge <i>Alectoris rufa</i>	1	2	-	-	-	-	Un-likely
Robin <i>Erithacus rubecula</i>	28	20	34	25	15	2	Confirmed
Swallow <i>Hirundo rustica</i>	-	-	5	5	4	4	Possible
Tree creeper <i>Certhia familiaris</i>	-	-	1	1	-	1	Possible



Figure 8. The location of notable bird species recorded during the survey on 24th March 2022 (left) and 12th April 2022 (right). Image produced in QGIS using BTO bird species codes.



Figure 9. The location of notable birds species recorded during the survey in on 3rd May 2022 (left) and 24th May 2022 (right). Image produced in QGIS using BTO bird species codes.



Figure 10. The location of notable birds species recorded during the survey on 13th June 2022 (left) and 30th June 2022 (right). Image produced in QGIS using BTO bird species codes.

6 *Hazel Dormice*



Figure 11. Dormouse survey results. Red dots indicate nest tubes occupied by dormice on at least one occasion and yellow dots indicate that a dormouse nest was present. A peak of two dormice was found during a single survey. Image produced using QGIS.

7 Amphibians and Reptiles

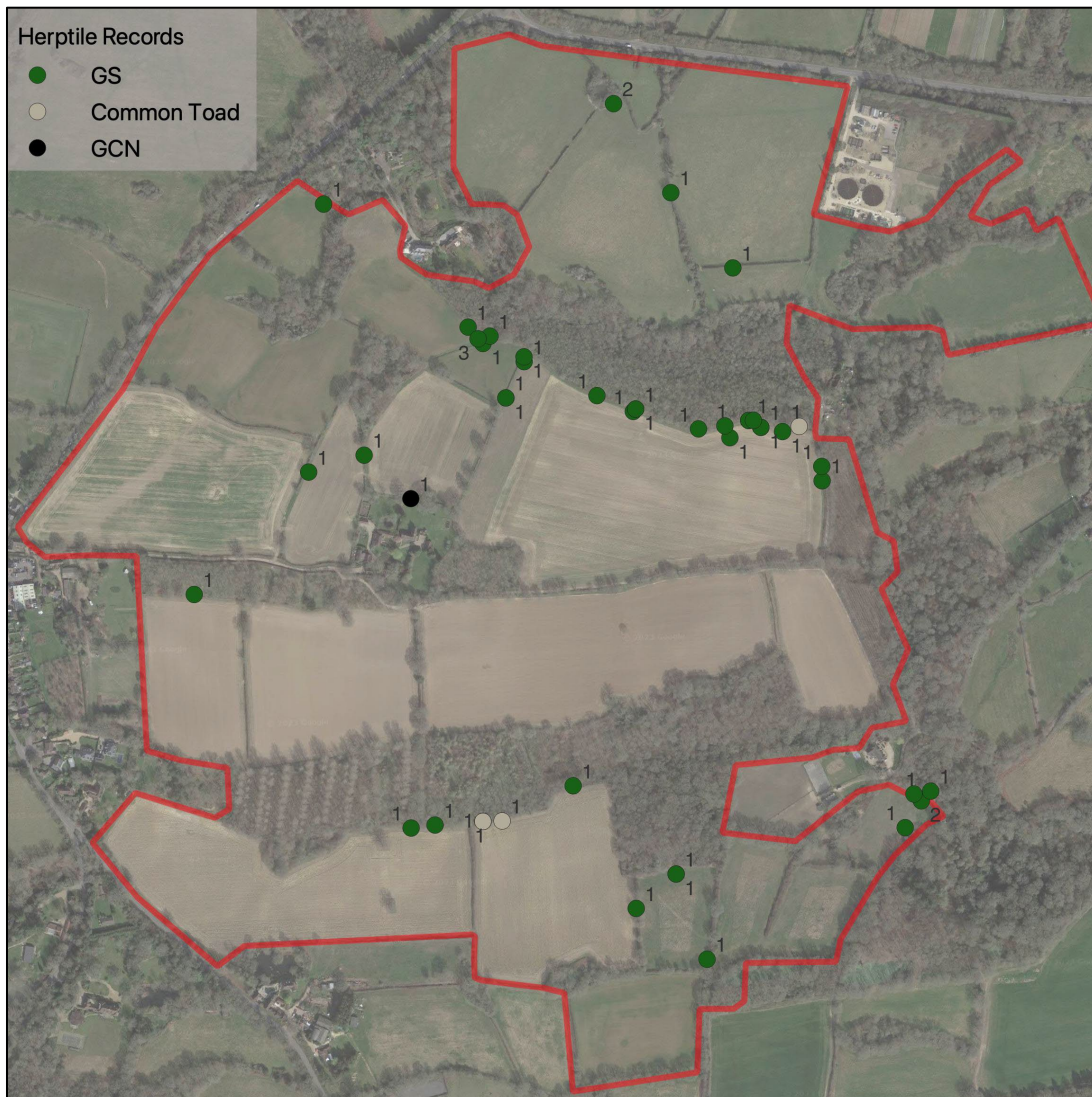


Figure 12. The location of reptiles (GS: grass snake) and amphibians (toad and great crested newt (GCN)) during the reptile surveys at Ansty in 2022.

Table 11. HSI results for the ponds within the site at Ansty. Please note that Pond 5 was dry and was therefore not assessed.

	Pond 1		Pond 3		Pond 4	
NGR	TQ 29914 23899		TQ 29582 23680		TQ 29640 23566	
SI attribute	SI value	Notes	SI value	Notes	SI value	Notes
Location	1.00	A	1.00	A	1.00	A
Pond area	0.6	300m ²	0.05	45m ²	0.4	200m ²
Pond drying	0.9	Never	0.5	Sometimes	1.0	Rarely
Water quality	0.33	Poor	0.67	Moderate	0.67	Moderate
Shade cover	0.6	80%	0.8	70%	1.0	60%
Water-fowl	0.67	Minor	0.67	Minor	0.67	Minor
Fish presence	0.7	Possible	1.0	Absent	1.0	Absent
No. ponds	1.0	>12	1.0	>12	1.0	>12
Terrestrial habitat	0.67	Moderate	1.0	Good	1.0	Good
Macrophytes	0.3	0%	0.3	0%	0.4	8%
HSI value	0.629	'Average'	0.55	'Below Average'	0.769	'Good'
eDNA result	NEGATIVE		NEGATIVE		NEGATIVE	
	Pond 6		Pond 7		Pond 8	
NGR	TQ 29714 23352		TQ 29642 23358		TQ 29638 23301	
SI attribute	SI value	Notes	SI value	Notes	SI value	Notes

Location	1.00	A	1.00	A	1.00	A
Pond area	0.05	40m²	0.1	100m²	0.05	20m²
Pond drying	0.9	Never	0.9	Never	0.5	Sometimes
Water quality	0.67	Moderate	0.67	Moderate	0.67	Moderate
Shade cover	1.0	0%	1.0	5%	1.0	40%
Water-fowl	1.0	Absent	0.67	Minor	0.67	Minor
Fish presence	1.0	Absent	0.7	Possible	1.0	Absent
No. ponds	1.0	>12	1.0	>12	1.0	>12
Terrestrial habitat	0.67	Moderate	0.67	Moderate	0.67	Moderate
Macrophytes	0.45	15%	0.5	20%	0.5	20%
HSI value	0.63	‘Average’	0.625	‘Average’	0.57	‘Below Average’
	Pond 9		Pond 13		Pond 20	
NGR	TQ 29657 23301		TQ 29861 22778		TQ 30076 22779	
SI attribute	SI value	Notes	SI value	Notes	SI value	Notes
Location	1.00	A	1.00	A	1.00	A
Pond area	0.05	6m²	0.5	240m²	0.1	100m²
Pond drying	0.5	Sometimes	1.0	Rarely	0.9	Never
Water quality	0.67	Moderate	0.67	Moderate	0.67	Moderate
Shade cover	1.0	50%	0.6	80%	0.6	80%
Water-fowl	1.0	Absent	0.67	Minor	0.67	Minor
Fish presence	1.0	Absent	0.7	Possible	0.7	Possible
No. ponds	1.0	>12	1.0	>12	1.0	>12
Terrestrial habitat	0.67	Moderate	0.67	Moderate	1.0	Good
Macrophytes	0.5	20%	0.35	5%	0.3	0%
HSI value	0.596	‘Below Average’	0.68	‘Average’	0.587	‘Below Average’
eDNA result			NEGATIVE		NEGATIVE	
	Pond 32					
NGR	TQ 30154 23499					
SI attribute	SI value	Notes				
Location	1.00	A				
Pond area	0.05	45m²				
Pond drying	1.00	Rarely				
Water quality	0.67	Moderate				
Shade cover	0.6	80%				
Water-fowl	0.67	Minor				
Fish presence	1.0	Absent				
No. ponds	1.0	>12				
Terrestrial habitat	1.0	Good				
Macrophytes	0.3	0%				
HSI value	0.576	‘Below Average’				
eDNA result	NEGATIVE					

Table 12. Results of great crested newt field surveys for **Pond 6**. Abbreviations: Tc=great crested newts; Lv=common newt *Lissotriton vulgaris*; Lh=palmate newt *Lissotriton helveticus*; Bb=common toad *Bufo bufo*; Rt=common frog *Rana temporaria*; M=male, F=female, Un=Unknown sex, ad=adult; j=juvenile, SA=sub adult. Turbidity/Veg cover: scale 0-5 where 0=clear, 5=completely turbid/obscured.

	Torching results: Tc numbers				Bottle trapping results: Tc numbers				Pond 6 NGR: TQ 29714 23352	
Date	Turbi- dity	M	F	Un	No. traps:	M	F	Juv	Egg search	Other species/ observations (torching & trapping)
05/04/22	1	-	-	-	4 nets	-	-	-	Unable to reach vegetation	MLv: 8 MLh: 6 FUn: 23 jLv/Lh: 2 Bb tadpoles
19/04/22	2	1	2	-	4 nets	-	-	-	-	MLv: 7 FLv: 2 MLh: 2 FLh: 1 UnF not Tc: 7 J not Tc: 2
28/04/22	2	-	-	3	4 nets	1	-	-	Unable to reach vegetation	MLv: 6 FLv: 1 MLh: 3 FLh: 2 UnF not Tc: 5 Un not Tc: 7
10/05/22	2	-	-	3	4 nets	-	-	-	Unable to reach vegetation	MLv: 9 FLv: 1 MLh: 2 FLh: 1 F not Tc: 5 Un not Tc: 7
19/05/22	2	1	-	-	4 nets	1	-	3	Unable to reach vegetation	MLv: 11 FLv: 4 MLh: 1 FLh: 2 F not Tc: 8 J not Tc: 2
31/05/22	2	-	1	1	4 nets	-	1	-	Unable to reach vegetation	MLv: 1 FLv: 1 F not Tc: 8 Un not Tc: 5 SA not Tc: 1 FBb: 1

Table 13. Results of great crested newt field surveys for **Pond 7**. Abbreviations: Tc=great crested newts; Lv=common newt *Lissotriton vulgaris*; Lh=palmate newt *Lissotriton helveticus*; Bb=common toad *Bufo bufo*; Rt=common frog *Rana temporaria*; M=male, F=female, Un=Unknown sex, ad=adult; j=juvenile, SA=sub adult. Turbidity/Veg cover: scale 0-5 where 0=clear, 5=completely turbid/obscured.

	Torching results: Tc numbers				Bottle trapping results: Tc numbers				Pond 7 NGR: TQ 29642 23358	
Date	Turbi- dity	M	F	Un	No. traps:	M	F	Juv	Egg search	Other species/ observations (torching & trapping)
05/04/22	5	-	-	-	15 btls	2	1		3 Tc	MLv: 1 Un not Tc: 12
19/04/22	4	1	1	-	14 btls	1	-	-	-	MLv: 5 FLv: 4 FLh: 1 F not Tc: 7 Un not Tc: 7
28/04/22	5	-	-	-	5 nets	1	-	-	-	MLv: 3 FLv: 7 FLh: 4 J not Tc: 1 Un not Tc: 3

10/05/22	4	-	-	1	5 nets	-	1	-	-	MLv: 5 FLv: 3 MLh: 1 FLh: 1 Un not Tc: 6
19/05/22	4	1	1	1	5 nets	2	1	-	-	MLv: 13 FLv: 6 MLh: 2 F not Tc: 6 Un not Tc: 12
31/05/22	4	-	-	1	5 nets	1	1	-	-	MLv: 4 FLv: 5 MLh: 4 FLh: 2 Un not Tc: 18

Table 14. Results of great crested newt field surveys for **Pond 8**. Abbreviations: Tc=great crested newts; Lv=common newt *Lissotriton vulgaris*; Lh=palmate newt *Lissotriton helveticus*; Bb=common toad *Bufo bufo*; Rt=common frog *Rana temporaria*; M=male, F=female, Un=Unknown sex, ad=adult; j=juvenile, SA=sub adult. Turbidity/Veg cover: scale 0-5 where 0=clear, 5=completely turbid/obscured.

	Torching results: Tc numbers				Bottle trapping results: N/A – too shallow for traps				Pond 8 NGR: TQ 29638 23301	
Date	Turbi- dity	M	F	Juv	No. traps:	M	F	Juv	Egg search	Other species/ observations (torching & trapping)
05/04/22	3	-	-	-	-	-	-	-	-	Un not Tc: 2
19/04/22	Pond dry. No further surveys.									
28/04/22										
10/05/22										
19/05/22										
31/05/22										

Table 15. Results of great crested newt field surveys for **Pond 9**. Abbreviations: Tc=great crested newts; Lv=common newt *Lissotriton vulgaris*; Lh=palmate newt *Lissotriton helveticus*; Bb=common toad *Bufo bufo*; Rt=common frog *Rana temporaria*; M=male, F=female, Un=Unknown sex, ad=adult; j=juvenile, SA=sub adult. Turbidity/Veg cover: scale 0-5 where 0=clear, 5=completely turbid/obscured.

Where 0 = clear, 1 = completely turbid/obscured.										
	Torching results: Tc numbers				Bottle trapping results: Tc numbers				Pond 9 NGR: TQ 29657 23301	
Date	Turbi- dity	M	F	Juv	No. traps:	M	F	Juv	Egg search	Other species/ observations (torching & trapping)
05/04/22	1	-	-	-	4 btls	-	-	-	-	Un tadpoles
19/04/22	1	-	-	-	Too shallow for trapping				-	-
28/04/22	Pond dry. No further surveys.									
10/05/22										
19/05/22										
31/05/22										

Table 16. Reptile survey results for Ansty. (Please note that the site was split into two and surveyed by two surveyors at a time to ensure the survey could be completed before weather conditions became unsuitable e.g. too hot. The surveyors usually carried out the survey at the same time but occasionally this was not possible, hence why some of the survey visits are split in the table. New sheets were set out following the 4th survey due to a number of sheets being destroyed. This date is included in the table as there was an incidental record for a grass snake but this was not an official survey.)

Survey Visit Number	Date	Time		Weather Notes - wind speed (BF), cloud cover (cc%), sunny/misty, recent rainfall etc.	Temperature (°C)		Reptiles Found			Refuge location (what three words)
		Start	End		Air	Refugia	Species GS: Grass Snake, Bb: Common toad, GCN: Great crested newt	Age & Sex M- male, F - Female, A - Adult, Juv - Juvenile	Number of Individuals	
1	06/05/22	08:30 - 09:30	10:30 - 12:00	BF1, cloud cover 20%, Sunny	12 - 15	22	GS	Juv	1	gaps.closer.lobby
							GS	Juv	1	event.tester.tins
							GS	FA	1	cost.dips.force
							GS	MA	1	chew.shirt.dreams
2	27/05/22	08:30 - 09:00	11:00 - 11:30	Sunny, CC 25%, BF0	14 - 18	28-34	GS	Juv	1	season.vent.acute
							GS x2	Juv	2	mini.pardon.slimy
							GS	FA	1	fields.dirt.accent
							GS	FA	1	serve.locked.vibrates
							GS	MA	1	teeth.slip.gown
							GS	MA	1	outfit.soils.hurray
							GS	MA	1	rivers.souk.treat
							GS	FA	1	snow.casino.belong
3	10/06/22	08:00	13:00	sunny, 25% CC, BF0	13 - 18	18 - 34	GS	FA	1	outfit.soils.hurray
							GS	FA	1	audit.grew.values
							GS	Juv	1	cook.rated.spun
							GS	FA	1	nures.reason.invest
							GS	Juv	1	gaps.closer.lobby
							GS	MA	1	vital.exchanges.entertainer
4 (South)	28/06/22	08:15	10:30	Sunny, 15% CC, BF0	13 - 17	17 - 29	GS	FA	1	cost.dips.force
							GS	FA	1	snow.casino.belong
							GS	Juv	1	news.sunk.such
							GS	MA	2	flank.editor.trick
4 (North)	05/07/22	08:00	10:30	15, 0% cc, BF1	15 - 18	20 - 31	GS	MA	1	anyway.cases.loud
							GS	A	1	mutual.matteer.salt
							GS	FA	1	taxi.angel.stream
Replacing lost sheets	17/08/22	N/A	N/A	N/A	N/A	N/A	GS	Juv	1	skill.risky.legs
5	28/08/22	08:00 - 08:30	10:30	Sunny 50%CC, BF0 (fog cleared 30mins before arrival)	14 - 18	17-34	GS	MA	1	jump.limit.loses
							GS	FA	1	stick.nail.feared
							GS	Juv	1	firmlly.dunes.form
							GS	MA	1	exams.topped.trash

Survey Visit Number	Date	Time		Weather Notes - wind speed (BF), cloud cover (cc%), sunny/misty, recent rainfall etc.	Temperature (°C)		Reptiles Found			Refuge location (what three words)
		Start	End		Air	Refugia	Species GS: Grass Snake, Bb: Common toad, GCN: Great crested newt	Age & Sex M- male, F - Female, A - Adult, Juv - Juvenile	Number of Individuals	
				sunny intervals			Bb	A	1	dream.rats.ships
							GS	MA	1	cost.intervals.like
							GS	FA	1	organ.flames.beyond
							GS	A	1	varieties.gown.round
							GS	1F, 2M	3	teeth.bronze.jumped
							GCN	FA	1	towns.petty.desk
							GS Skin	-	1	spark.bless.drill
							GS	Juv	1	patio.tame.deed
6	15/09/22	15:20 - 15:00	17:25 - 17:00	BF3, sunny 30% cc	17 - 16	29 - 27	GS	Juv	1	minds.torch.chemistry
							GS	AM	1	flip.wooden.spoon
							GS	AM	1	spoken.cook.rice
							GS	AM	1	then.swing.silly
							GS	AF	1	splice.tinsel.rash
							GS	AM	1	sums.both.brand
							GS	AM	1	shadow.drama.names
							GS	AF	1	toxic.pile.pouch
7 (south)	28/09/22	16:06	18:25	BF3, intervals 60% - 15% cc, sunny	14 - 12	23 - 14	Bb	A	1	firmly.dunes.form
							Bb	A	1	decay.basis.email
7 (north)	28/09/22	09:00	11:00	BF1, cloud cover 20%, Sunny	12 -15	25	GS	Juv	1	sulk.path.trials
							GS	F	1	splice.tinsel.rash

8 Aquatic Invertebrates

Samples taken on 18th May 2023

Sample Point 1: TQ 3008 2357 Copyhold Stream, upstream footpath crossing and confluence with headwater carrying sewage works effluent.

Sample point 2: TQ 3025 2337 Copyhold Stream, Furnace Wood, downstream footpath crossing and confluence with headwater carrying sewage works effluent.

Sample point 3: TQ 3013 2308 Headwater stream flowing through Ridden's Wood.

Latin name	English name/type	Sample 1 u/s STW Copyhold Stream	Sample 2 d/ STW Copyhold Stream	Sample 3 Small tributary
ELMIDAE Riffle beetles				
<i>Elmus aenea</i>		2	1	
<i>Limnius volkmari</i>		2	1	
HELOPHORIDAE Groovy mud beetles				
<i>Helophorus brevipalpis</i>				1
SERICOSTOMATIDAE Cased caddisflies BMWP 10-scorer				
<i>Sericostoma personatum</i>		3	2	
LIMNEPHILIDAE Cased caddisflies BMWP 7-scorer				
<i>Chaetopteryx villosa</i>				2
LEPTOCERIDAE Cased caddisflies BMWP 10-scorer				
<i>Athripsodes</i> sp.		2		
GOERIDAE Cased caddisflies BMWP 10-scorer				
Unidentified pupa in case		1		
HYDROPSYCHIDAE Caseless caddisflies BMWP 5-scorer				
<i>Hydropsyche saltalai</i>		2	2	
POLYCENTROPODIDAE Caseless caddisflies BMWP 7-scorer				
<i>Polycentropodus flaveomaculatus</i>		1	1	
<i>Holocentropus dubius</i>			1	2
OSMYLIDAE Giant lacewing				
<i>Osmylus fulvicephalus</i>		1		
VELIDAE Water crickets				
<i>Velia caprai</i>				1
CALEOPTERYGIDAE Demoiselles BMWP 8-scorer				
<i>Caleopteryx virgo</i> Beautiful demoiselle		2		
BAETIDAE Mayflies BMWP 4-scorer				
<i>Baetis rhodani</i>		3	2	
LEPTOPHLEBIDAE Mayflies BMWP 10-scorer				

Latin name	English name/type	Sample 1 u/s STW Copyhold Stream	Sample 2 d/ STW Copyhold Stream	Sample 3 Small tributary
<i>Habrophlebia fusca</i>		3	3	1
EPHEMERELLIDAE Mayflies BMWP 10-scorer				
<i>Ephemerella ignita</i>		2	3	
EPHEMERIDAE Mayflies BMWP 10-scorer				
<i>Ephemera danica</i>		3	3	2
HEPTAGENIIDAE BMWP 10-scorer				
<i>Ecdyonurus torrentis</i>		1	1	
<i>Rhithogena semicolorata</i>		2	2	
SIMULIIDAE Blackflies BMWP 5-scorer				
<i>Simulium</i> sp.		2	2	
CHIRONOMIDAE Non-biting midge BMWP 2-scorer				
CHIRONOMINAE spp.		2	2	
TANIPODINAE spp.		1	1	
ORTHOCLADINAE spp.				
<i>Prodiamesa olivacea</i>		1	1	
<i>Thienemonniella</i> spp.				1
CERATOPOGONIDAE spp.		2	1	
GAMMARIDAE BMWP 6-scorer				
<i>Gammarus pulex</i> Freshwater shrimp		3	4	3
ASELLIDAE BMWP 3-scorer				
<i>Asellus aquaticus</i> Common water hog-louse			2	
SPHAERIDAE BMWP 3-scorer				
<i>Pisidium</i> sp. Pea mussel		2	2	
PISCICOLIDAE BMWP 4-scorer				
<i>Piscicola geometra</i> Fish leech		2	2	
GLOSSIPHONIDAE BMWP 3-scorer				
<i>Glossiphonia heterclita</i>		1		
ERPOBDELLIDAE BMWP 3-scorer				
<i>Erpobdella testacea</i>		2		
OLIGOCHAETA Segmented worms spp. BMWP 1-scorer				
NEMATOMORPHA Horsehair worms sp.				1



Ecological Impact Assessment

Ansty, Haywards Heath

Appendix 3 – Photographs



Photograph 1. A view across the south-west field at the site. Note the hedgerow to the left, mature tree in the field and the woodland to the right.



Photograph 2. A view of the rye field at the centre of the site, before and after it's been harvested.



Photograph 3. An example of the arable margins across the site and their varying botanical diversity.