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Ecological Impact Assessment

Site Name

Land north of Balcombe Road, Haywards Heath

Client

Fairfax

Issue Date

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Author

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About the Author

This report has been prepared by Holly Waters, a Senior Ecologist at The Ecology Co-op, with over 3 years' experience. She has a Level 2 bat and Level 1 GCN survey license and has prepared numerous reports for protected species. As an Associate member of the Chartered Institute for Ecology and Environmental Management (CIEEM), she is bound by their code of professional conduct.

About the Reviewer

This report has been reviewed by Kate Priestman, who is a Principal Ecologist with over twenty years' experience. Kate has undertaken extensive survey work and reporting, encompassing a breadth of deliverables, and prepared European Protected Species licences for numerous schemes. As a Full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and a Chartered Environmentalist (CEnv), she is bound by CIEEM's code of professional conduct.

Report Summary

Purpose	The Ecology Co-op has been commissioned by Fairfax to undertake an Ecological Impact Assessment for a development on land north of Balcombe Road. Following a Preliminary Ecological Appraisal, undertaken by The Ecology Co-op in 2020, further ecological surveys were carried out, including protected species surveys and desk-top studies in 2020, these were updated in 2022 and were updated again in 2024 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 for a residential development.
Context	The site comprises three fields, a small parcel of woodland, hedgerows, a stream and a pond. Eight designated sites are present within a 5km radius of the site, and several priority habitats are present in close proximity to the site, within 50m.
Impact on Protected Species	The protected species surveys identified presence of a range of bat species, including barbastelle and serotine. A range of likely breeding birds were identified on the site, including one red listed and four amber listed species. Dormouse presence was confirmed, along with presence of slow worm, common lizard and common toad. The proposal will result in the loss of foraging habitat for bats, breeding habitat for birds, loss of habitat for dormouse, and loss of foraging habitat for reptiles.
Impact on Habitats	The proposal will result in the loss of almost all grassland habitat, a small amount of hedgerow habitat, and fragmentation of the central hedgerow.
Biodiversity Net Gain	In line with the National Planning Policy Framework, the site's ecological value should be enhanced. A separate Biodiversity Net Gain assessment has been prepared to address this.

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1 INTRODUCTION

1.1 Background

The Ecology Co-op was commissioned by Fairfax to undertake an Ecological Impact Assessment (EcIA) of land north of Balcombe Road. 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 works in relation to protected/notable species, habitats and designated sites.

The site measures approximately 9.4ha. It is located at Balcombe Road, Haywards Heath, West Sussex RH16 1XN. The central grid reference of the site is TQ 3264 2586. The site comprises of three fields, one small woodland parcel, hedgerows, a stream and a pond. Figure 1 shows the boundary of the site and local context.

The proposed development comprises the construction of 125 new dwellings along with their associated hard and soft landscaping. Proposed plans can be found in Figure 2.

The Ecology Co-op undertook an Ecological Appraisal (EA)[1] on land north of Balcombe Road in 2020. An Ecological Impact Assessment (EcIA) was also undertaken in 2020[2], and an updated EcIA was undertaken in 2022[3]. Based on the findings of these assessments, updated surveys for the following species were undertaken in 2024:

- bats (night-time bat walkover surveys and static logger deployments)
- breeding birds
- dormouse *Muscardinus avellanarius* (presence/likely absence)
- great crested newt *Triturus cristatus* (eDNA surveys)
- habitats (condition assessments for BNG)
- reptiles (presence/likely absence).

[1] The Ecology Co-op (2020) Ecological Appraisal – Land at Sugworth
[2] The Ecology Co-op (2020) Ecological Impact Assessment – Land at Sugworth
[3] The Ecology Co-op (2022) Ecological Impact Assessment – Land at Sugworth

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 ©2024 Google).

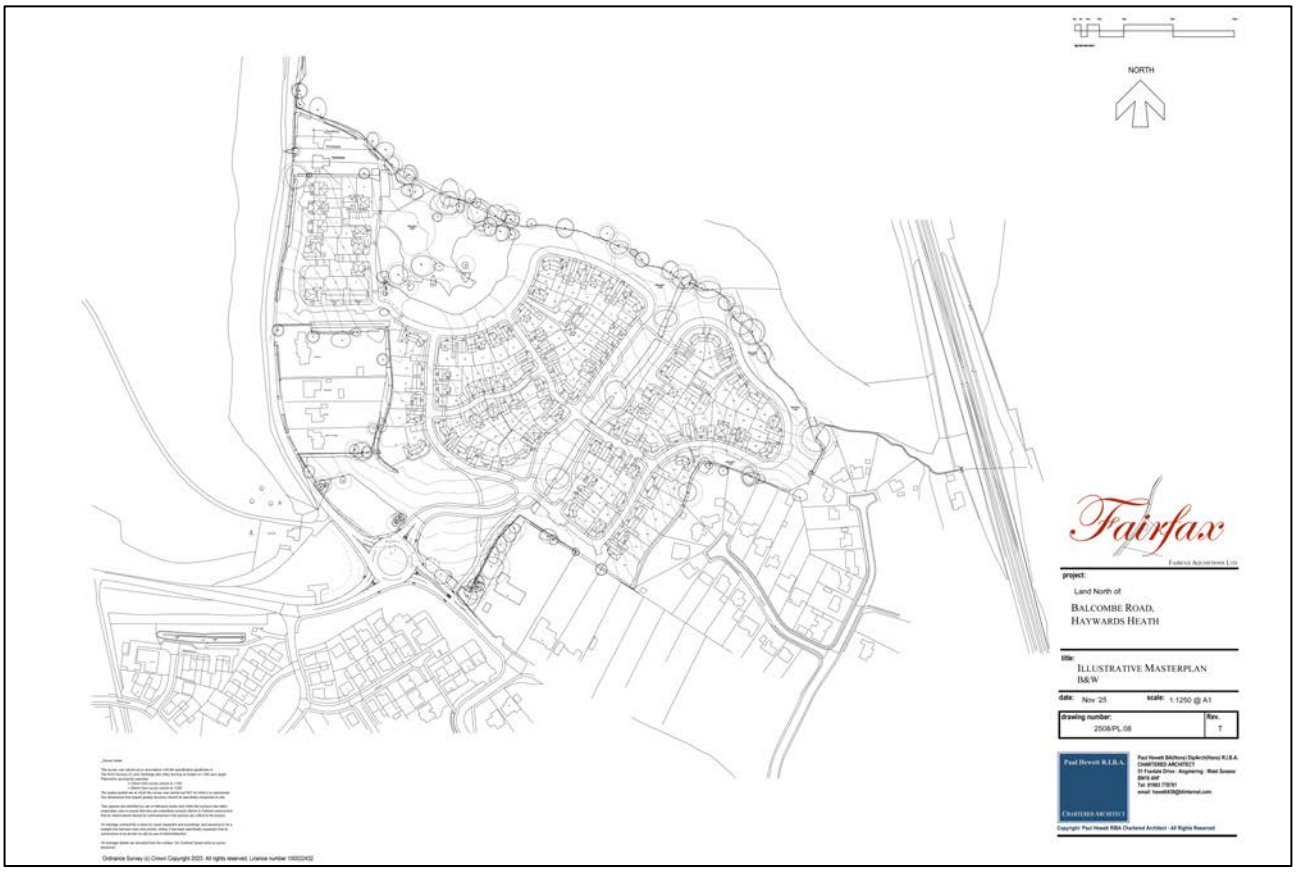

Figure 2. Proposed scheme layout, reproduced from the Landscape Design Statement by Fabrik.

1.2 Purpose of this Report

In 2024, The Ecology Co-op undertook further protected species surveys for bats, breeding birds, dormice, great crested newts, and common reptiles.

The purpose of this report is to:

- present the findings of surveys and desk-study research (baseline ecological information);
- identify and evaluate ecologically important features present on the site and within the zone of influence of the proposed development;
- describe the potential 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.

The surveys and report were carried out and produced at the request of SDP Developers and were supervised by Holly Waters, BSc (Hons), MSc, Associate member of CIEEM, Level 1 bat and Level 1 great crested newt Natural England licence holder.

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 is provided in Appendix 1 and relevant local planning policy by the Mid-Sussex District is provided in Appendix 2.

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 Assessment[4] and

[4] 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.

CIEEM Guidelines for Ecological Report Writing[5] Details of the ecological assessment methods are provided within section 2.12 below.

2.1 Desk Studies

A search of on-line mapping resources was undertaken to identify the location of any features of potential ecological interest including ponds within 500m (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 *Muscardinus avellanarius* 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

A site walkover survey was undertaken on the 3rd July 2024, during which the habitats contained within the site were described and evaluated in accordance with standard UK Habitat Classification (UKHab)[6]. The dominant species and indicators of important habitat types such as ancient woodland or unimproved grassland, were recorded.

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. The habitat classification is based principally on vegetation, augmented by reference to topographic and substrate features, particularly where vegetation is not the dominant component of the habitat.

Data was gathered through a site walkover survey and use of on-line aerial photography to broadly categorise the habitats present using the UKHab classifications[7]. The results 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

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

[6] The UK Habitat Classification Working Group (2018) *The UK Habitat Classification User Manual* at http://ecountability.co.uk/ukhabworkinggroup-ukhab

[7] UK Habitat Classification Working Group (2018). *UK Habitat Classification – Habitat Definitions V1.0* at http://ecountability.co.uk/ukhabworkinggroup-ukhab

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 *Meles meles* 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.

Potential evidence of badger activity was recorded during the site visit to carry out UKHab mapping and condition assessments, during which surveyors searched for badger setts, latrines, foraging marks, footprints and worn pathways, and trapped hairs on fences, with special attention paid to linear features.

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 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 or indirectly by the proposed development were subject to a ground-based visual inspection to identify potential roost features. Each tree/feature was categorised for its potential to support roosting bats as shown in Table 1 in accordance with best practice guidance[8].

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.

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

2.4.2 Night-time Bat Walkover Surveys

Bat activity surveys followed best practice guidelines[6]. Pre-determined transect routes were followed by surveyors (Figure), focussing on all linear features within the site boundary (tree-lines, woodland edge and hedgerows). 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.

2.4.3 Bat Activity Surveys – Automated Static Bat Detecting

Three SongMeter static bat detectors were deployed across the site (Figure 3) on six separate occasions, from April to September 2024, 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.).

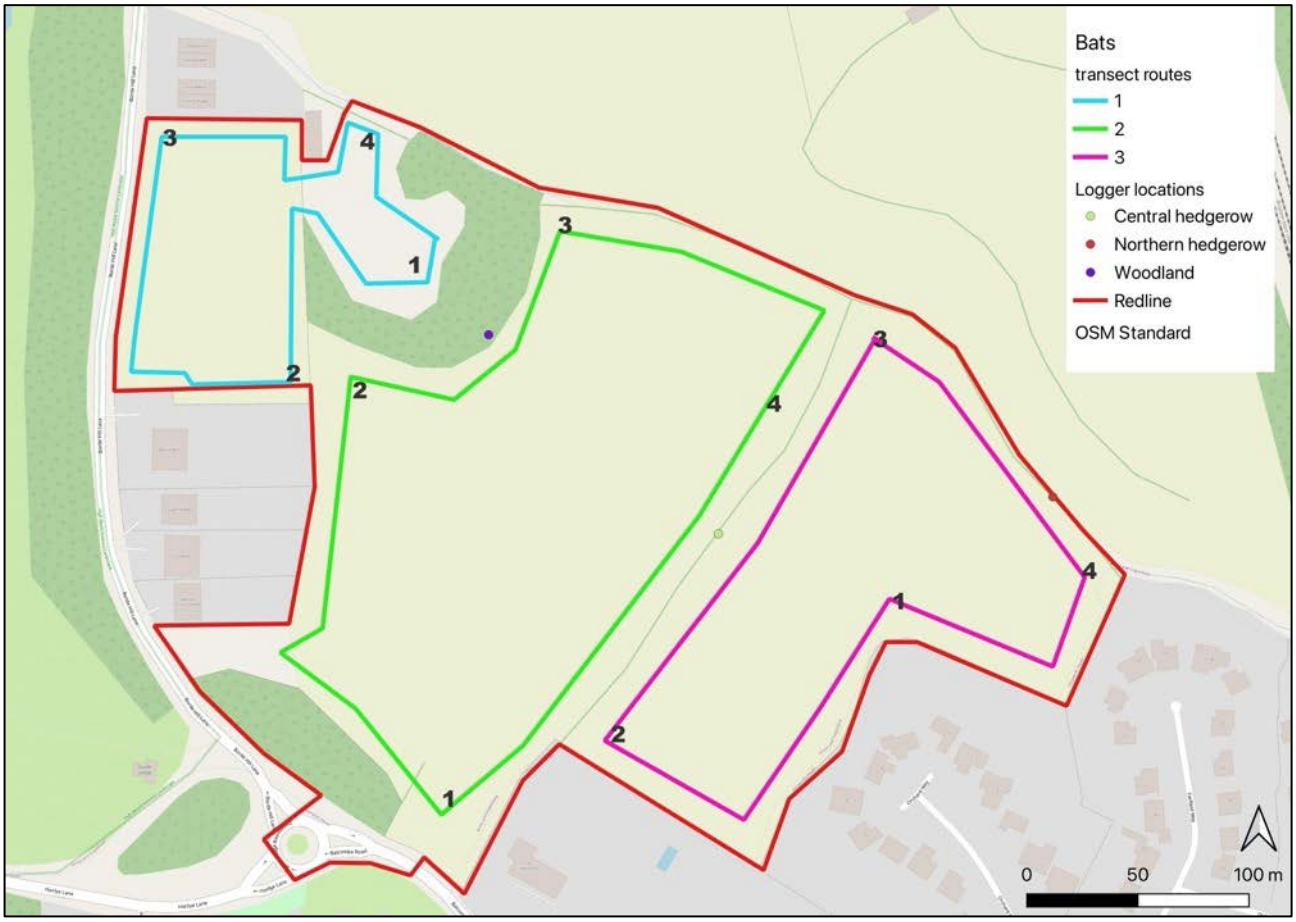


Figure 3. The transect routes of surveyors with stops (black numbers) and the position of the three static bat detectors deployed on the site. Image created using QGIS version 3.38 - Grenoble.

The data was processed using the British Trust for Ornithology's (BTO) Acoustic Pipeline c5.502[9], an auto-identification system. The Acoustic Pipeline uses classifiers to detect and identify bat calls within files and assign them a probability or confidence percentage of the call belonging to a particular species. The data output from the pipeline was then processed differently depending on the species identified, but groups of species calls underwent some degree of post-classification manual analysis by a suitably experienced bat acoustic analyst using Kaleidoscope Lite software v5.6.3[10]. Data management was facilitated using the R Shiny App through R Studio v2023.09.1+494[11], including to choose a random sample of some datasets to establish error rates.

Common and Soprano Pipistrelles, Barbastelle and Serotine

All calls with a confidence score of below 50% were discarded from the dataset. 10% of remaining calls from each logger then underwent post-classification validation through manual analysis to establish false positive error rates within the dataset. Each logger was validated as bat calls can vary between habitats, meaning that the location in which the logger is placed can influence the effectiveness of species detection.

Myotis, *Plecotus*, and *Nyctalus* species and Nathusius' Pipistrelle

All low confidence calls and 10% of high confidence calls from these species were analysed. This is because these genera overlap and are often very difficult to distinguish. Therefore, it is likely that the Acoustic Pipeline may otherwise underestimate the numbers of calls from these genera as it assigns them a lower confidence score, whilst the confidence in correctly analysing the genera the call belongs to is still high.

Noise

10% of all noise files identified by the BTO Acoustic Pipeline were manually analysed to establish a false negative error rate. Individual error rates were established for each logger location due to possible variation in noise production from logger placement.

If error rates of any species or noise files is above 10%, the entire dataset for that logger deployment is manually analysed by a competent bat acoustic analyst.

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.

2.5 Breeding Birds

The methods used for the breeding bird survey was adapted from a methodology developed by the Bird Survey and Assessment Steering Group (RSK Biocensus)[12]. 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 thirty minutes before sunrise through to mid-morning (10am to 11am). At least one of these visits should be in the evening, extending past sunset. The number of visits has been decreased to three

[9] BTO (2023). BTO Acoustic Pipeline. Available from: https://www/bto.org/our-science/products-and-technologies/btoacoustic-pipeline
[10] Wildlife Acoustics (2023) Kaleidoscope Lite Analysis Software. Available from: https://wildlifeacoustics.com/account/downloads/kaleidoscope
[11] RStudio Team (2020). RStudio: Integrated Development for R. Available from http://www.rstudio.com
[12] https://birdsurveyguidelines.org/methods/survey-method/

surveys as bird surveys have been previously undertaken at this site in 2020 and 2022. 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 (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) notation[13], 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.

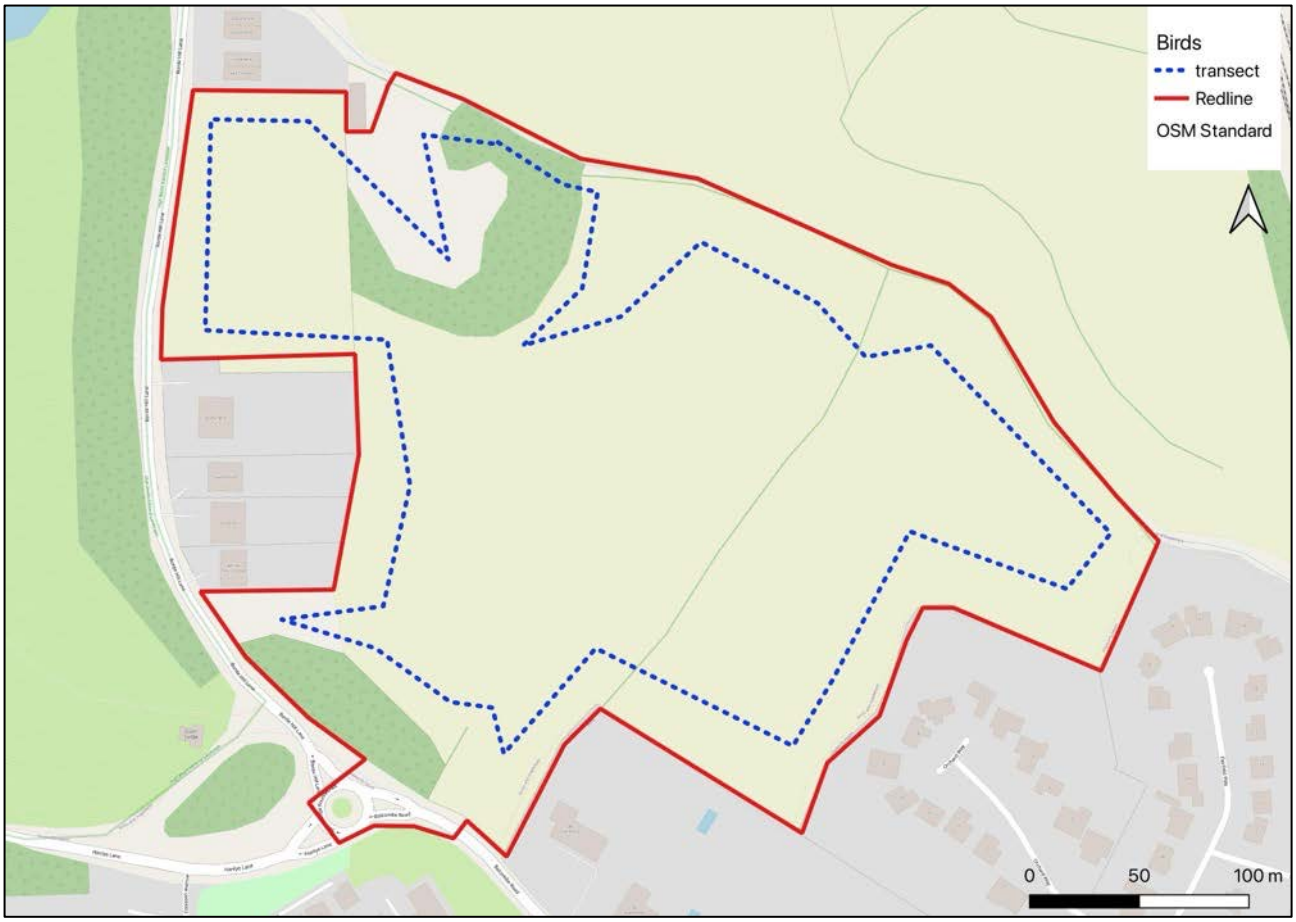


Figure 4. Breeding bird survey transect routes for the three surveys. Image created using QGIS version 3.38 - Grenoble.

[13] https://www.bto.org/sites/default/files/u16/downloads/forms_instructions/bto_bird_species_codes.pdf

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 guidelines[14], 50 nest tubes were deployed approximately 20m apart where accessible in the woodland and along the hedgerows on the 10th April 2024 and left *in situ* for the survey season (see Figure 5). These were checked on a monthly basis for presence of animals and evidence of dormouse presence (distinctively woven nests) from May to October 2024. 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.

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

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

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: Holly Waters (accredited under Rebecca Carter-Whitehead's dormouse licence).

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

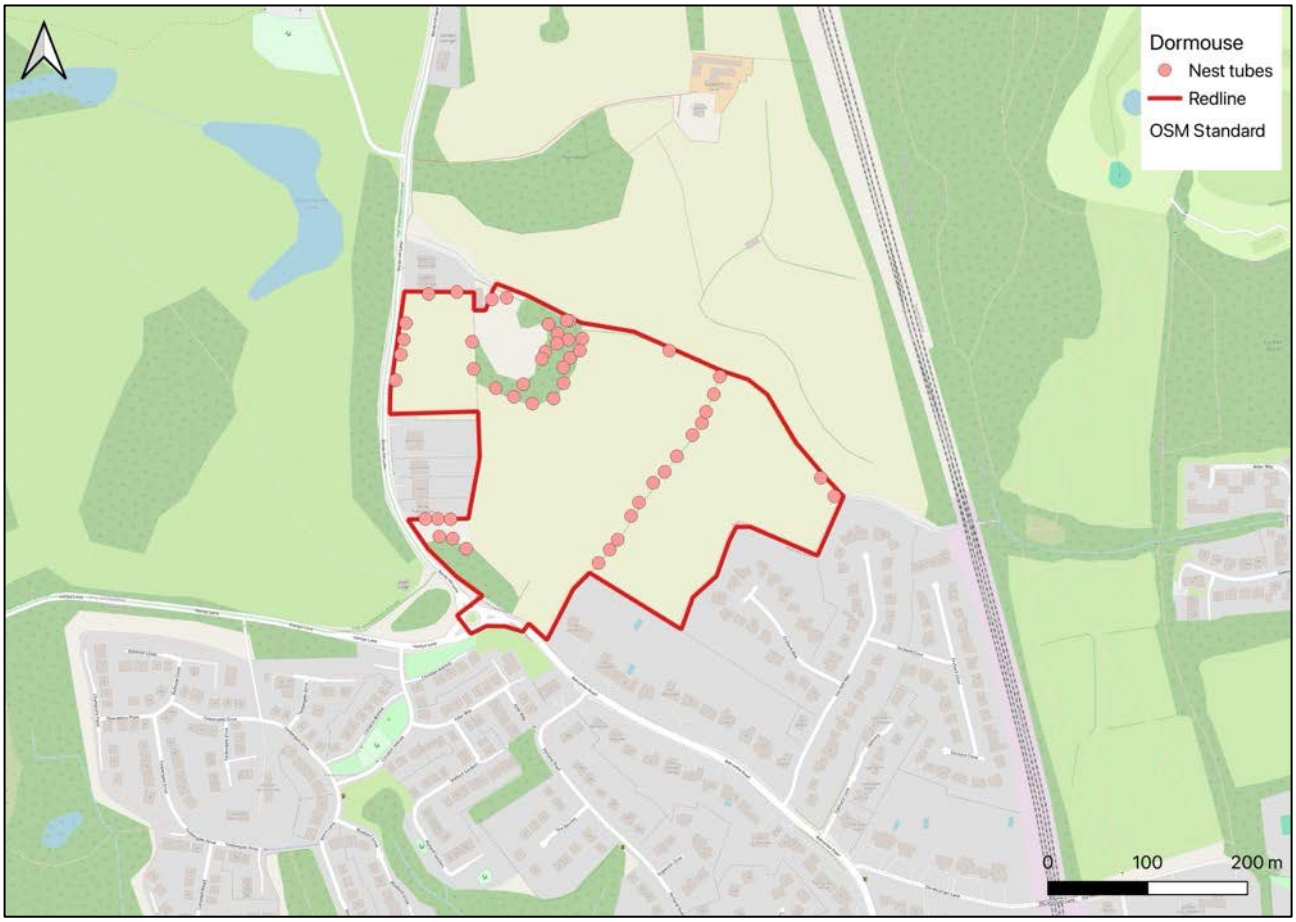


Figure 5. Dormouse nest tube locations (identified as red dots) across all suitable habitat. Image created using QGIS version 3.38 - Grenoble.

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

Land north of Balcombe Road contains a pond and a slow-moving stream within its boundaries. The desk study revealed a further two waterbodies within 500m of the site boundary. Where ponds were visible from public rights of way or 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).

The HSI values were used in combination with professional judgement to select the ponds to be carried forward for the further surveys described below.

2.7.2 Environmental DNA Sampling and Analysis

This 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 England[15]. The samples are sent to an approved laboratory to isolate and determine presence of eDNA shed into the water by amphibians during the breeding season. The eDNA samples were taken on the 30th April 2024. Four ponds in the adjacent Borde Hill Gardens underwent eDNA sampling by Arbtech in 2023.

2.7.3 Field Survey

The survey methodology followed standard guidance for great crested newts[16]. Four survey visits were undertaken using a combination of bottle-trapping, torchlight searching and egg searching during each survey visit. All surveys were undertaken during weather conditions suitable for great crested newts – above the minimum temperature of 5°C – and at least two of the survey visits were undertaken during the 'peak activity period' for breeding great crested newts (i.e. between 15th April and 15th May). Weather conditions, temperature and pond turbidity was recorded during each survey visit. If great crested newts were confirmed present by either of the above methods at a given pond, the field survey was extended to six separate visits to allow the population size class to be estimated.

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 and reptile tins are pieces of corrugated metal sheet approximately 1m x 1m in size, which absorb heat from the sun more rapidly than the surrounding vegetation and provide cover and basking places attractive to reptiles. These are then checked for presence of animals under suitable weather conditions. They are placed in areas of potentially suitable habitat at an approximate density of 20 per ha, or 20m apart along linear features. There are no up-to-date best practice guidelines for reptile surveys, but a minimum of seven survey visits under suitable weather

[15] Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F 2014. *Analytical and methodological development for improved surveillance of the Great Crested Newt.* Defra Project WC1067. Freshwater Habitats Trust: Oxford.
[16] English Nature (2001) *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.

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 81 mats were used in this survey (see Figure 6). 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 June 2024 and all observations of reptiles were recorded, together with the weather conditions, temperature and time of day.

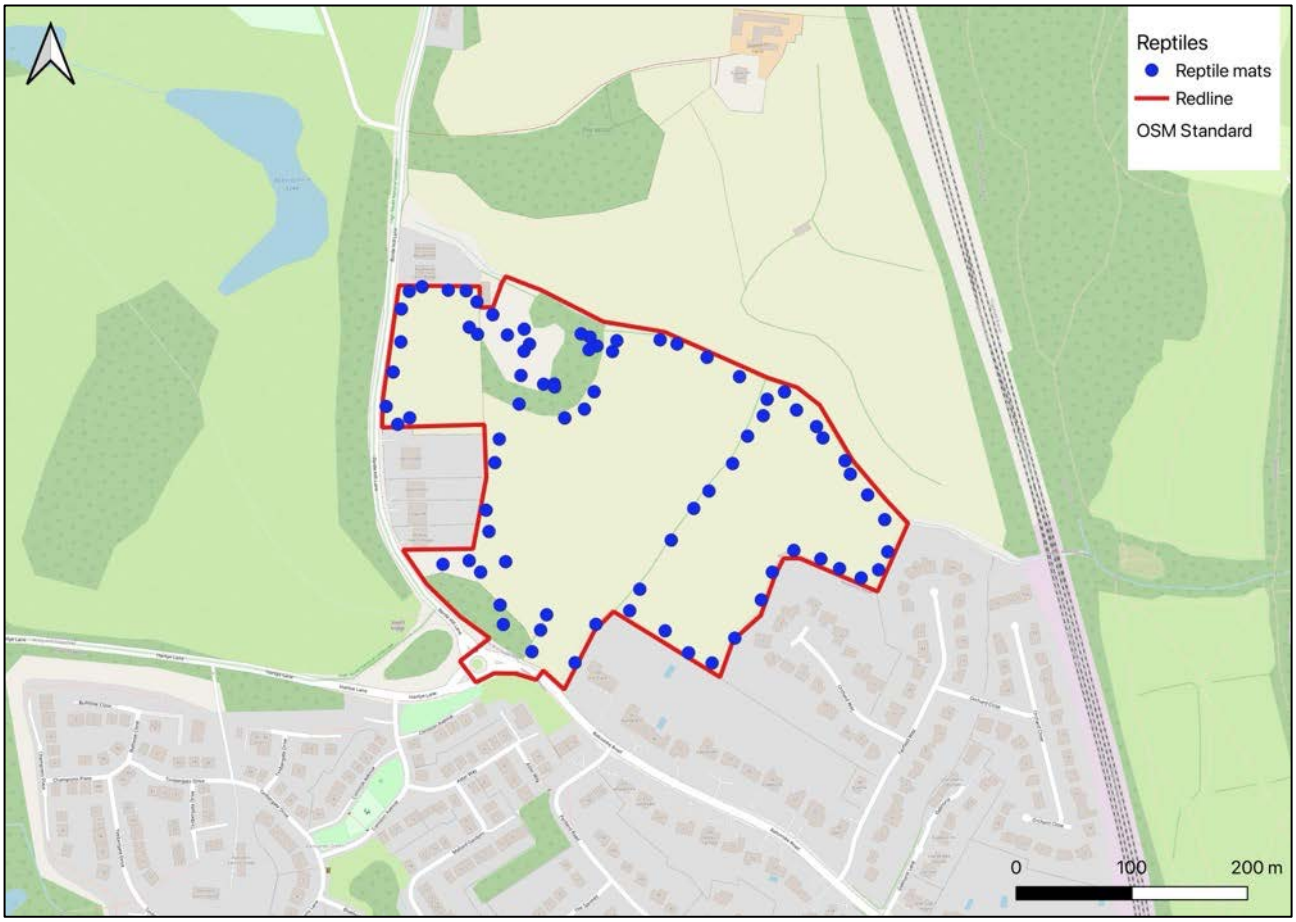


Figure 6. Location of reptile refuges (identified with red dots). Image created using QGIS version 3.38 - Grenoble.

2.9 Riparian Wildlife

Watercourses and waterbodies can support a range of protected species, principally otter *Lutra lutra*, water vole *Arvicola amphibius* and white-clawed crayfish *Austropotamobius pallipes*. Any watercourses identified during the desk study were visually assessed for their suitability to support these species.

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 (EcIA)[4]. 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 3):

- 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 EcIA. 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 EcIA. 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 EcIA 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 EcIA (CIEEM 2018)[4], 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.

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

There are eight designated sites present within a 5km radius of the land north of Balcombe Road. Details of these sites can be found in Table 3.

There are no priority habitats present on the site itself. Directly adjacent to the west of the site's boundary is a large area of woodpasture and parkland priority habitat, along with priority habitat deciduous woodland and ancient woodland. Priority habitat deciduous woodland and ancient woodland patches are also present approximately 40m north and 45m east of the site.

There are four granted EPS licences for mitigation projects within 1km of the site boundary. Table 4 shows the details of these licences.

Table 3. Designated sites within a 5km radius of the site.

Site name	Designation	Features listed on citation	Proximity	Ecological importance
High Weald	National Landscape	Previously referred to as Areas of Outstanding National Beauty, High Weald National Landscape is a medieval landscape of wooded, rolling hills, with sandstone outcrops, ancient routeways, and scattered farms.	Adjacent to the west of the site	National
Blunts and Paiges Wood	Local Nature Reserve (LNR)	This wood contains the following habitats; hazel *Corylus avellana* coppice, mixed coppice, birch *Betula pendula* woodland, bluebell *Hyacinthoides non-scripta* woodland, meadows, grassland with hedgerows and a pond and wetland area.	1.13km south-west	County
Scrase Valley	LNR	This site is composed of 15 acres of woodland, marsh, scrub and flood meadows. The Scrase stream runs through it. The reserve is home to some rare plants, and three nationally rare black poplars.	1.64km south-east	County
Eastern Road Nature Reserve	LNR	A former landfill site, this reserve features a variety of habitats, including rough grassland, wetland, woodland and scrub.	2.29km east	County
Ashenground and Bolnore Woods	LNR	Woodland with a 200-year-old beech *Fagus sylvatica* tree on the southern side. The woodland supports a huge variety of birds, as well as bats.	2.58km south	County
Ardingly Reservoir	LNR	This site comprises wetland, reedbed, deciduous woodland, hazel coppice and haymeadow, which is good for autumn and spring bird migrations. There are barn owls *Tyto alba*, osprey *Pandion haliaetus*, dormice *Muscardinus avellanarius* and glow worms *Lampyris*. The sandstone here supports some rare fern, moss and liverwort	2.74km north	County

		communities.		
Bedelands Farm	LNR	This reserve consists of ancient meadows, woodland, hedgerows and ponds, covering 80 acres.	4.42km south	County
Wakehurst and Chiddingly Woods	Site of Special Scientific Interest (SSSI)	These woods contain extensive exposures of sandrock, a nationally rare habitat, which are of biological and geological importance. This site has the richest sandrock community in the country, supporting a unique flora. It is the locality of an uncommon cranefly, and also has a diverse breeding community of woodland birds.	4.48km north	National

Table 4. EPS licences within a 1km radius.

Licence Number	Dates	Species	Distance	Impact
2017-28946-EPS-MIT-4	14/07/2017 – 31/12/2021	Hazel dormouse *Muscardinus avellanarius*	290m south-west	Damage and destruction of a resting place
EPSM2012-4991	31/10/2012 – 01/11/2014	Brown long-eared bat *Plecotus auritus*	700m south	Destruction of a resting place
EPSM2009-455	04/03/2010 – 01/02/2012	Brown long-eared bat	790m south	Destruction of a resting place and breeding site
2019-41521-EPS-MIT	15/09/2019 – 31/12/2025	Hazel dormouse	1000m east	Damage and destruction of a resting place and breeding site

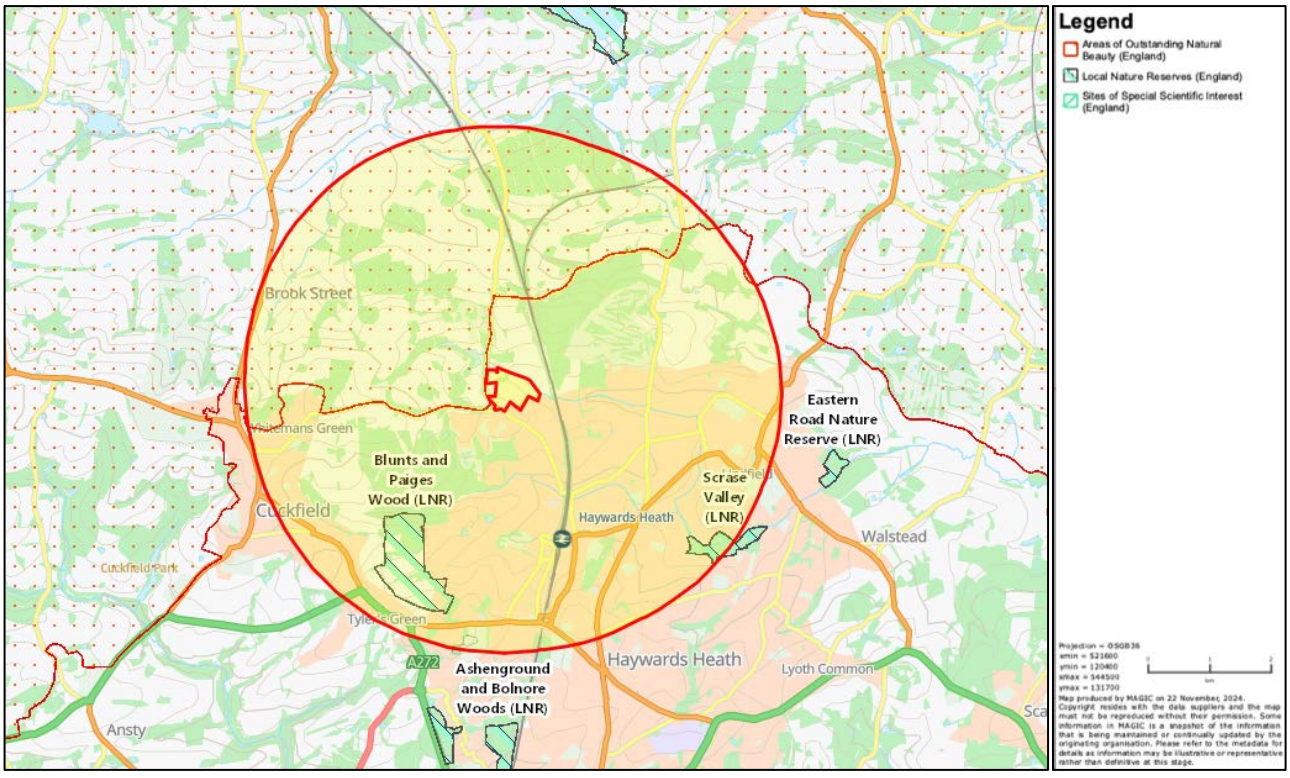


Figure 7. Statutory designated sites within a radius of 5km of the application site. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

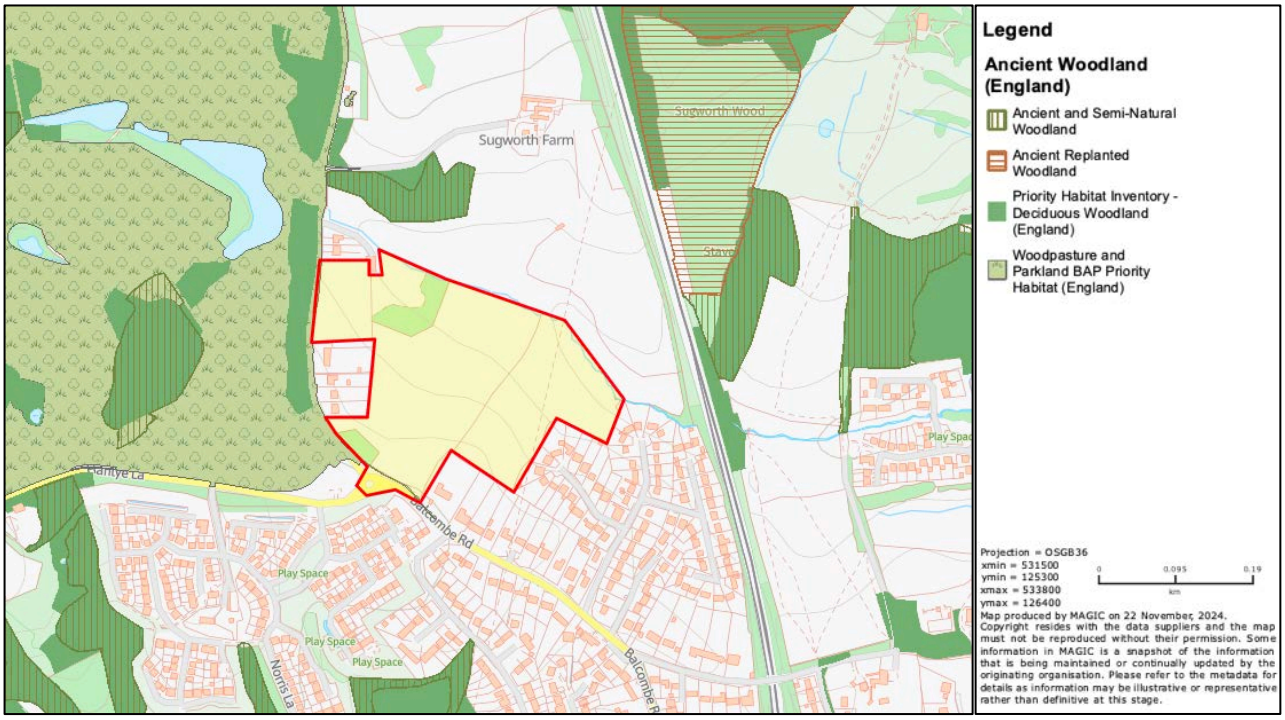


Figure 8. Priority Habitats contained by and adjacent to the application site. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

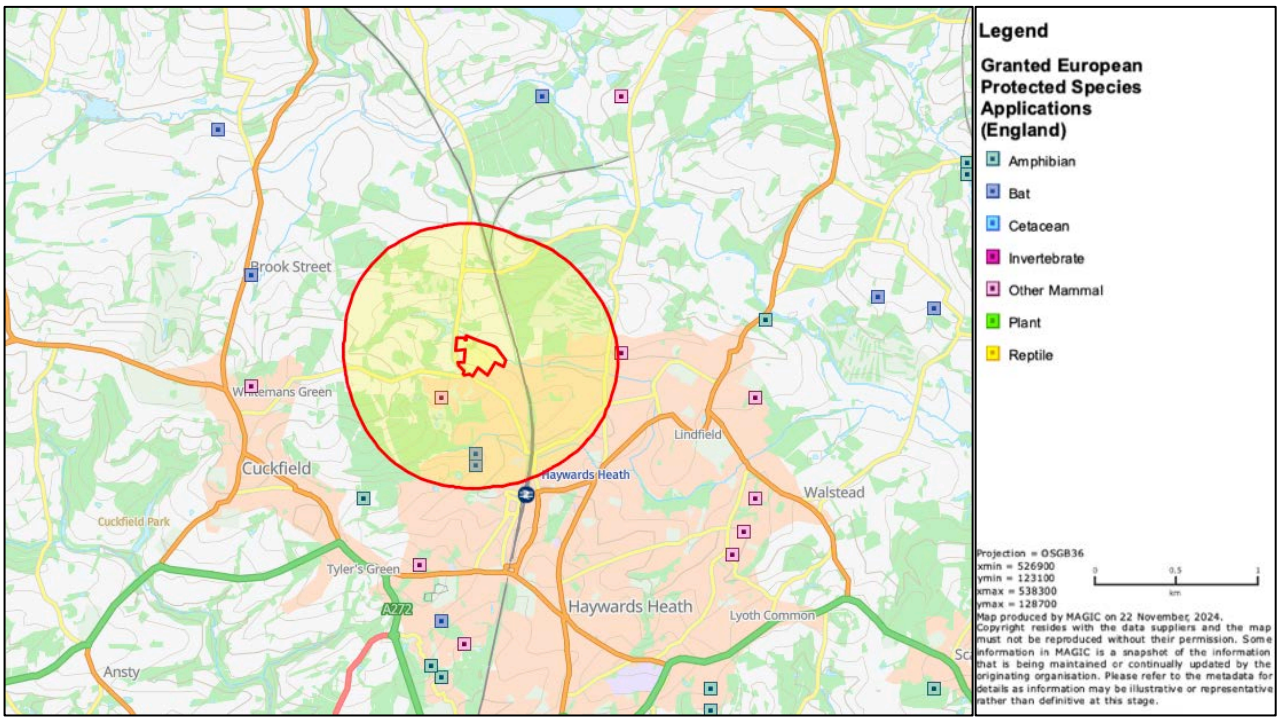


Figure 9. Granted EPS licences within 1km of the application site. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

3.2 Habitats

Table 2 below lists the UKHab habitats found at the site with the general species composition of these habitats. The habitat map for the site and key to the standard mapping symbols used is presented in Figure 10. Photographs of important areas of habitat are presented below.

Table 2. The UKHab habitat contained within the site.

Habitat type	UKHab Code	Area (ha)/ length (m)	Species composition
Other neutral grassland	g3c	8.655ha	Species present across areas of other neutral grassland include common knapweed *Centaurea nigra*, greater bird's-foot-trefoil *Lotus pedunculatus*, false oat-grass *Arrhenatherum elatius*, Yorkshire-fog *Holcus lanatus*, lesser stitchwort *Stellaria graminea*, ribwort plantain *Plantago lanceolata*, creeping bent *Agrostis stolonifera*, cock's-foot *Dactylis glomerata*, soft-rush *Juncus effusus*, red clover *Trifolium pratense*, perennial rye-grass *Lolium perenne*, Timothy *Phleum pratense*, common vetch *Vicia sativa*, curled dock *Rumex crispus*, sweet vernal-grass *Anthoxanthum odoratum*, marsh thistle *Cirsium palustre*, smooth meadow-grass *Poa pratensis*, dove's-foot crane's-bill *Geranium molle*, cleavers *Galium aparine*, common nettle *Urtica dioica*, common chickweed *Stellaria media*, clustered dock *Rumex conglomeratus*, meadow foxtail *Alopecurus pratensis*, rough meadow-grass *Poa trivialis*, common fleabane *Pulicaria dysenterica*, glaucous sedge *Carex flacca*, marsh stitchwort *Stellaria palustris*, creeping thistle *Cirsium arvense*, white clover *Trifolium repens*, cut-leaved crane's-bill *Geranium dissectum*, and broad-leaved dock *Rumex obtusifolius*.
Lowland mixed deciduous woodland	w1f	0.541ha	Species present within this area of woodland include sycamore *Acer pseudoplatanus*, pedunculate oak *Quercus robur*, ash *Fraxinus excelsior*, hawthorn *Crataegus monogyna*, bramble *Rubus fruticosus*, male-fern *Dryopteris filix-mas*, ground-ivy *Glechoma hederacea*, wood burdock *Arctium nemorosum*, cock's-foot, Enchanter's-nightshade *Circaea lutetiana*, red campion *Silene dioica*, alder *Alnus glutinosa*, common figwort *Scrophularia nodosa*, goat willow *Salix caprea*, remote sedge *Carex remota*, bluebell *Hyacinthoides non-scripta*, blackthorn *Prunus spinosa*, field maple *Acer campestre*, dog's mercury *Mercurialis perennis*, wood anemone *Anemone nemorosa*, primrose *Primula vulgaris*, common spotted-orchid *Dactylorhiza fuchsii*, cuckooflower *Cardamine pratensis*, wood speedwell *Veronica montana*, common dog-violet *Viola riviniana*, common nettle, smooth meadow-grass, wood meadow-grass *Poa nemoralis*, Yorkshire-fog and hard rush *Juncus inflexus*.
Other broadleaved woodland	w1g	0.192ha	Species present include sycamore, primrose, common nettle, dog's mercury, bramble, horse-chestnut *Aesculus hippocastanum*, ash, willow *Salix sp.*, wood avens *Geum urbanum*, male-fern *Dryopteris filix-mas*, garlic mustart *Alliaria petiolate*, cedar *Cedrus sp.*, Lords-and-Ladies *Arum maculatum*, ground0ivy, elder and poplar *Populus sp*.
Pond	r141	0.037ha	This pond is present in the centre of the lowland mixed deciduous woodland.
Native hedgerow	h2a	246m	Species present within the native hedgerows on site include sycamore, bramble, ash, pedunculate oak, hawthorn *Crataegus monogyna*, hazel *Corylus avellana*, blackthorn, common nettle, bracken *Pteridium aquilinum*, curled dock, butterfly-bush *Buddleja davidii*, fir sp. *Abies sp.*, yew *Taxus baccata*, garden privet *Ligustrum ovalifolium*, beech *Fagus sylvatica*, and *Cotoneaster sp.*
Species-rich native hedgerow	h2a5	223m	This hedgerow contains bramble, sycamore, oak, hawthorn, hazel, blackthorn and ash and is the central hedgerow on the site.
Line of trees	w3350	387m	Species within this habitat include pedunculate oak, common nettle, bramble, sycamore, hazel, ash, bracken, common ivy *Hedera helix*, and goat willow.
Stream	r1e	510m	This stream runs along the line of trees, along the northern boundary.
Road	u1b	0.18ha	A small area of road at the southern boundary.

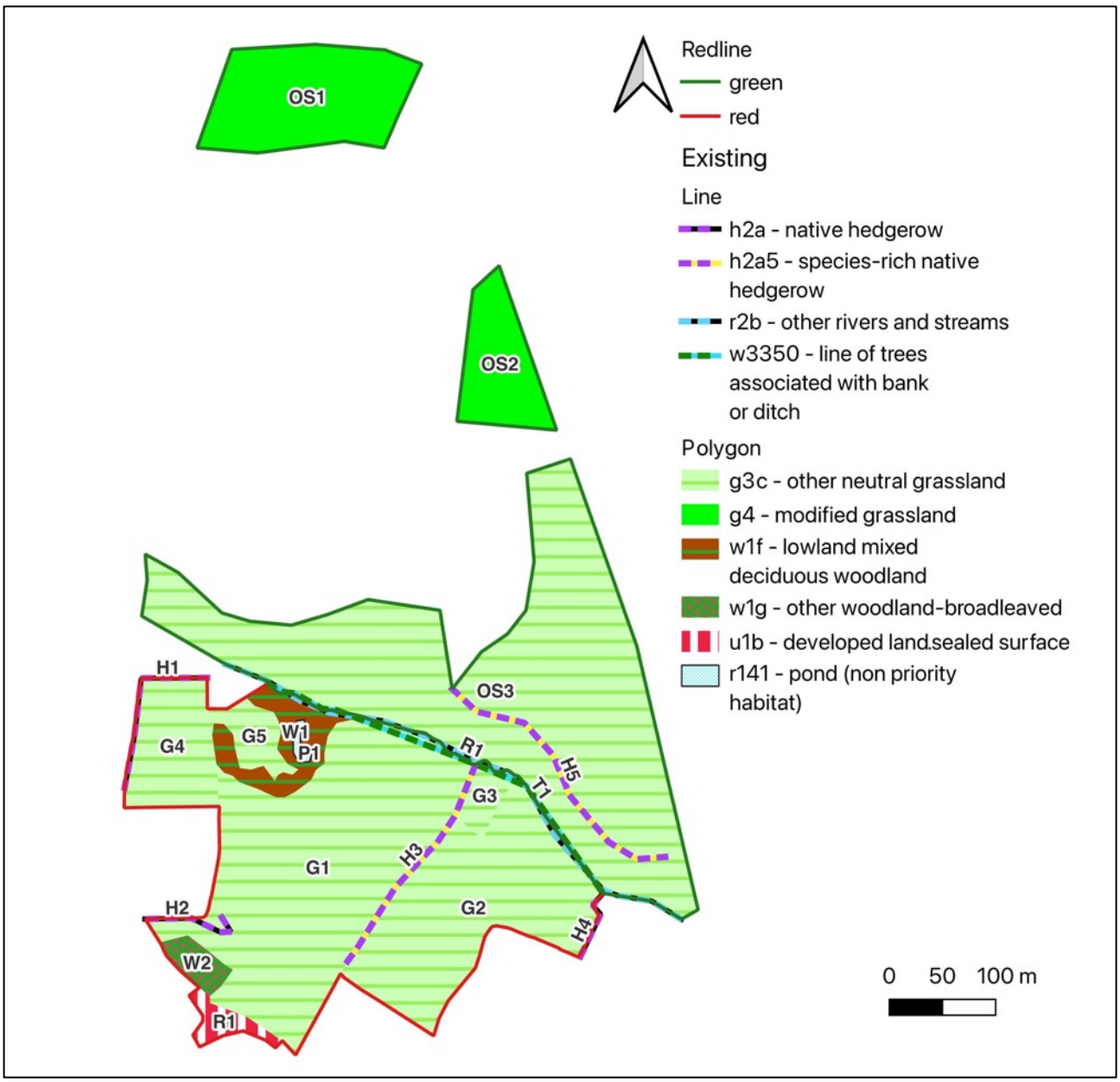


Figure 10. Habitat survey map of the site. Image created using QGIS version 3.34.

Photographs 1a (left) and 1b (right). The northern section of grassland (1a) and the central field showing the line of trees

along the northern boundary (1b).


Photographs 2a (left) and 2b (right). 2a: the western section of grassland. 2b: the grassland located by the northern section of woodland.


Photographs 3a (left) and 3b (right). The woodland.


Photographs 4a (left) and 4b (right). The northern hedgerow (4a) and the western hedgerow (4b).


Photographs 5a (left) and 5b (right). The south-western hedgerow (5a) and the eastern hedgerow (5b).


Photographs 6a (left) and 6b (right). The central hedgerow, looking north (6a) and the southern section looking east (6b).


Photographs 7a (left) and 7b (right). The stream running between the line of trees along the northern boundary.

3.3 Badgers

3.3.1 Survey Results

Mammal tracks were seen on site throughout the surveys in 2024, which may indicate the presence of badgers. No setts or latrines were recorded, although there are habitats of value for this species within the site and surrounding landscape. It is therefore likely that if badgers are present, they may only be using the site for foraging and/or commuting.

3.3.2 Interpretation

Badger populations have been rising for several decades and they are now 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.

3.4 Bats

3.4.1 Natural Roost Features – Trees

Several trees were identified to have potential roosting features for bats during a ground level tree assessment while carrying out condition assessments in July 2024. The trees, their location and their features along with survey recommendations if removal is proposed can be found in Table 6.

Table 3. Trees with potential roost features for bats.

Tree ref.	Species	Grid reference	Description of features	Survey recommendations
T1	Oak	TQ 32541 25725	Large old oak tree with thick branches of ivy. Potentially suitable crevices within upper limbs that could not be fully assessed from the ground.	PRF-I – aerial inspection of potentially suitable roosting features recommended if tree is to be removed.
T2	Oak	TQ 32556 25717	Large old oak tree with thick branches of ivy. Potentially suitable crevices within upper limbs that could not be fully assessed from the ground.	PRF-I – aerial inspection of potentially suitable roosting features recommended if tree is to be removed.
T3	Oak	TQ 32581 25699	Large old oak tree with thick branches of ivy. Potentially suitable crevices within upper limbs that could not be fully assessed from the ground.	PRF-I – aerial inspection of potentially suitable roosting features recommended if tree is to be removed.
T4	Oak	TQ 32650 25796	Large old oak tree. Potentially suitable crevices within upper limbs that could not be fully assessed from the ground.	PRF-I – aerial inspection of potentially suitable roosting features recommended if tree is to be removed.
T5	Oak	TQ 32699 25864	Large old oak tree. Potentially suitable crevices within upper limbs that could not be fully assessed from the ground.	PRF-I – aerial inspection of potentially suitable roosting features recommended if tree is to be removed.
T6	Oak	TQ 32741 25927	Large old oak tree. Potentially suitable crevices within upper limbs that could not be fully assessed from the ground.	PRF-I – aerial inspection of potentially suitable roosting features recommended if tree is to be removed.

Figure 11. Aerial image indicating the location of trees with bat roosting potential within the application site. Images produced courtesy of Google maps (map data ©2024 Google).

3.4.2 Built Structures

There are no built structures present within the red line boundary.

3.4.3 Bat Activity Surveys – Walked Transects

Survey conditions and timings are presented in Table 7. The results of each walked transect survey is summarised in Figures 12-14. These show the distribution of all bat observations on each walked transect, during which the route was covered at least twice in a session.

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

Date	Survey start time/end time	Temp. degrees centigrade, weather conditions	Surveyors
14th May 2024	20:43–22:43 Sunset: 20:43	Max/min temp.: 17–13°C 80% cloud cover, BF2, dry.	Holly Waters Josh Harwood Alice Motola Eleanor Curran Julian Browning Tom Francis
18th July 2024	21:05 – 23:05 Sunset: 21:05	Max/min temp.: 22–19°C 5% cloud cover, BF0, dry.	Sam Lunn Alice Motola Oscar Hardman Matthew Shore Destiny Stevenson
11th September	19:22 – 21:22 Sunset: 19:22	Max/min temp.: 10–8°C 40% cloud cover, BF0, dry.	Sam Lunn Josh Harwood

2024			Victoria Mercier Matthew Shore Destiny Stevenson

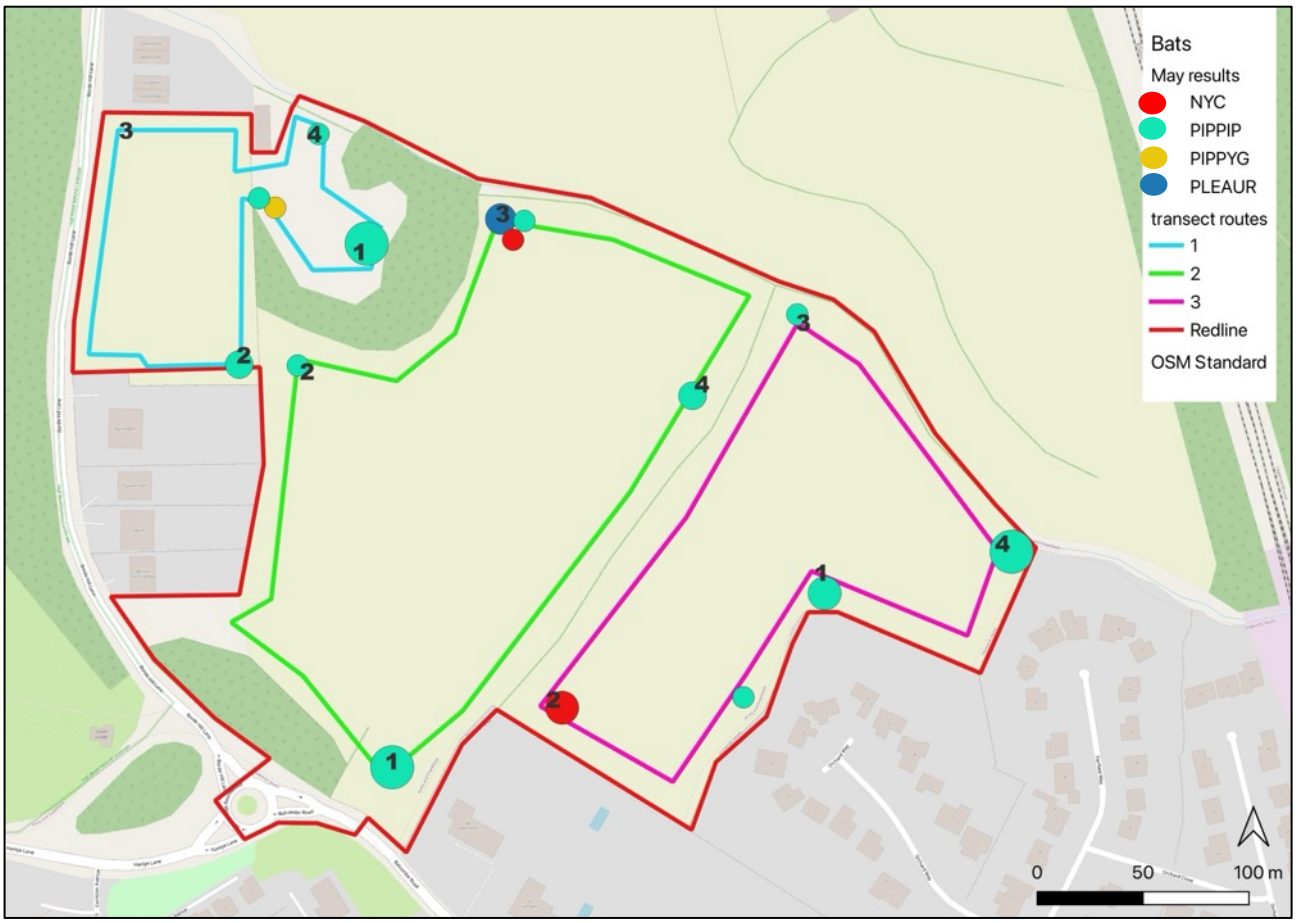


Figure 12. Approximate distribution of bats detected during the walked transect survey in May 2024. Coloured dots represent bat activity. Size of dots represents number of passes. Image created using QGIS version 3.38 - Grenoble.

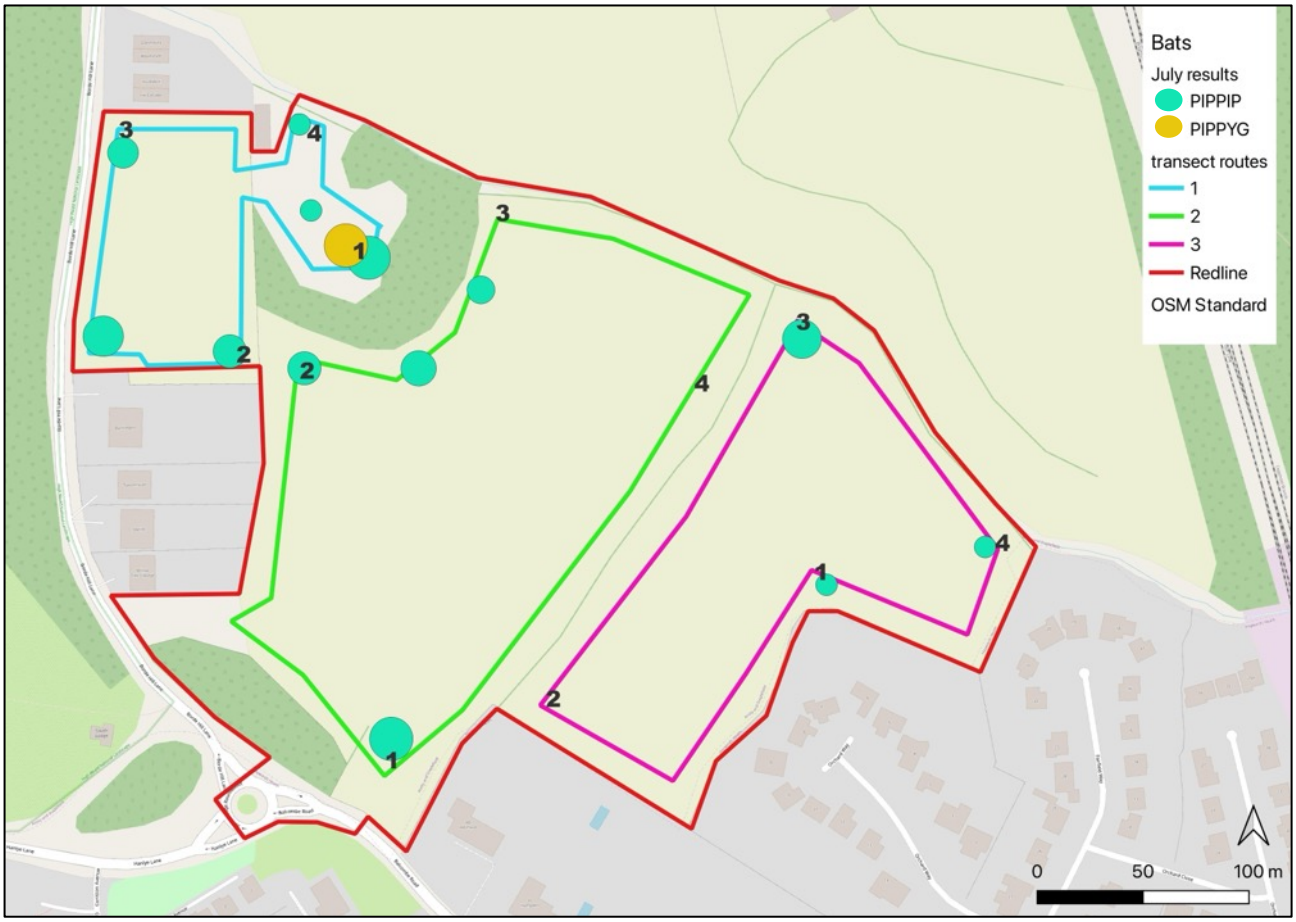


Figure 13. Approximate distribution of bats detected during the walked transect survey in May 2024. Coloured dots represent bat activity. Size of dots represents number of passes. Image created using QGIS version 3.38 - Grenoble.

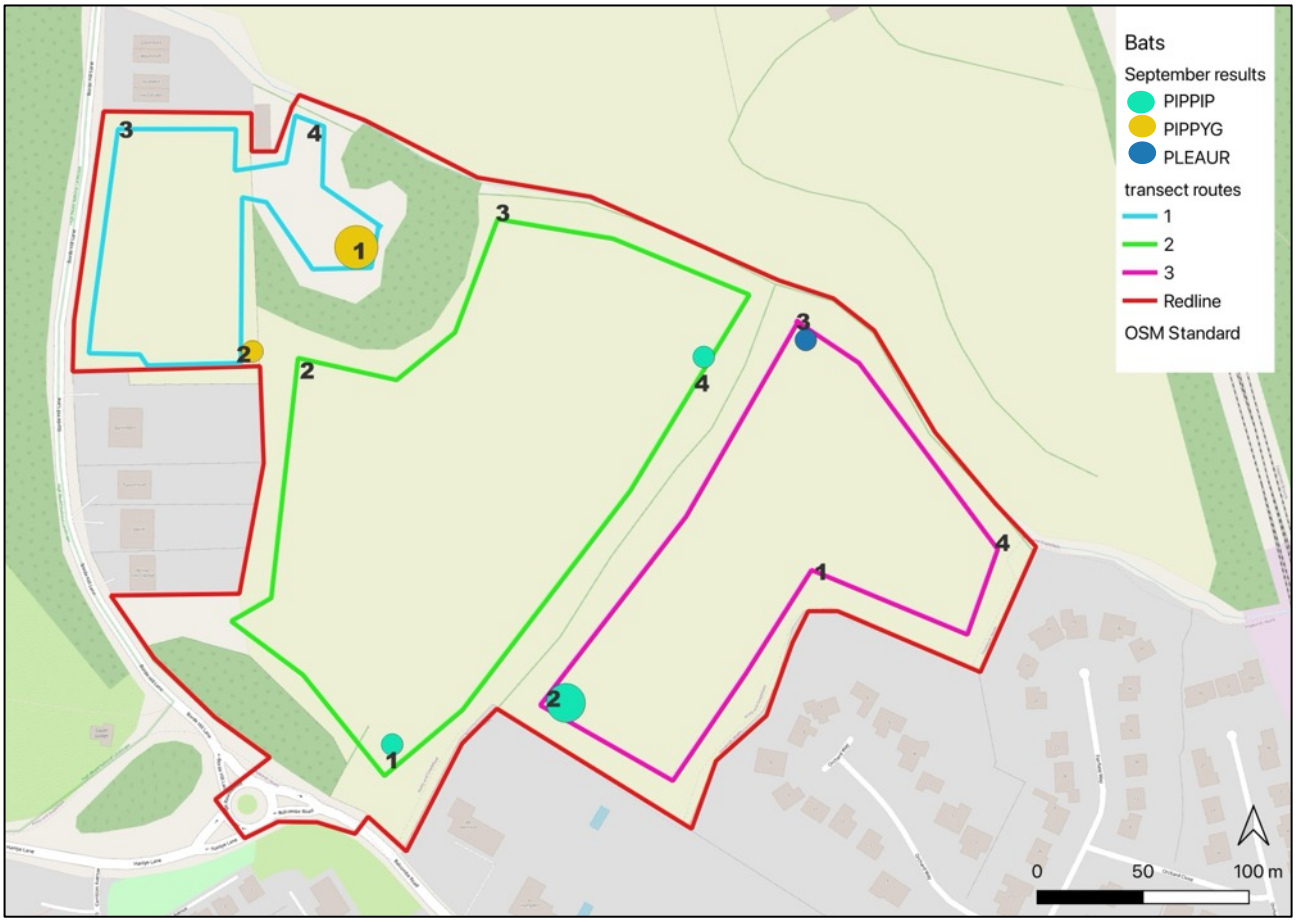


Figure 14. Approximate distribution of bats detected during the walked transect survey in May 2024. Coloured dots represent bat activity. Size of dots represents number of passes. Image created using QGIS version 3.38 - Grenoble.

3.4.4 Bat Activity Surveys – Automated Static Bat Detecting

The results of the automated static bat detector surveys are summarised in Table 8. The majority of passes recorded by detectors were from common pipistrelles. The most used habitat was the woodland edge, and August was the month with the highest number of passes. Species recorded on site include common pipistrelle, soprano pipistrelle, long-eared bats, *Myotis* species bats, serotine, noctule, and a barbastelle was recorded in September.

Table 8. Mean number of passes recorded by each static detector (rounded to nearest whole number) per night with percentage error rates where applicable.

Location	Date	Common pipistrelle	Soprano pipistrelle	Long-eared	*Myotis* sp.	Serotine	Noctule	Barbastelle
Woodland edge	April	3.8	1.2	0	0.2	0	0.6	0
	May	1	0.2	0	0	0.2	0.2	0
	June	7.6	11	0.6	1	0.2	0.8	0
	July	6.2	7.8	0.4	9	0.4	0	0
	August	114±1.7	11.8	7.2	10	4	0.4	0
	September	15.4	0.6	1	1.6	0.2	0.4	0
Central hedgerow	April	36.6	1.6	0	0	0	6.4	0
	May	42	1.8	1.2	0.6	0	0	0

Location	Date	Common pipistrelle	Soprano pipistrelle	Long-eared	*Myotis* sp.	Serotine	Noctule	Barbastelle
	June	11.4	2	1.4	1	0.2	0.8	0
	July	38.8	3.4	0	1	0	0.2	0
	August	26.2	4	4	5.2	0.6	0.6	0
	September	4.6	0.2	0.2	0.4	0	0.4	0
Northern tree line	April	43.8	0.6	0	0.2	0	1	0
	May	38.4	0.6	0.2	0	0	0.4	0
	June	28.6	0.2	0	0	0.2	3	0
	July	44.4	3	0.6	0	0.4	1.4	0
	August	80.8	0.8	1.4	0.6	0	0.2	0
	September	48.6	53.2	2.2	18.6	0	0	0.2

3.4.5 Interpretation

The activity surveys demonstrate that the main areas of importance for commuting bats consist of the woodland parcel, the southern boundary, and the northern boundary. The static loggers demonstrate that the woodland, the central hedgerow and the northern boundary are important areas for commuting and foraging bats, particularly common and soprano pipistrelles. Additionally, long-eared bats, *Myotis* bats, serotine and noctule use these habitats, likely for commuting purposes due to the lower average number of passes per night. Barbastelle bats were recorded commuting along the northern tree line, over the stream in September. The conservation status of bats recorded at the site is detailed in Table 9, along with their local distribution.

Due to the presence of barbastelle and serotine, both classed as 'vulnerable', the site is considered important to bats at a district level.

Table 9. Conservation status and distribution of bats recorded on site.[17]

Species	Conservation status England	Distribution in England
Barbastelle	**Vulnerable**	South and central England
Serotine	**Vulnerable**	South and south-east of England
Common pipistrelle	Least concern	Widespread
Soprano pipistrelle	Least concern	Widespread
Brown long-eared	Least concern	Widespread
Noctule	Least concern	Widespread
Myotis species	Least concern (common species)	Widespread

*It is not possible to identify the species of Myotis without droppings for DNA analysis or the capture of a live animal.

3.5 Breeding Birds

3.5.1 Survey Results

In total, 29 species of bird were recorded during the survey; of these, three species are 'red' listed under the Birds of Conservation Concern (BoCC) and six are 'amber' listed. An incidental sighting of tawny owl *Strix*

[17] The Mammal Society (2020): https://www.mammal.org.uk/science-research/red-list/

aluco was observed on the night-time bat walkover survey in July 2024.

Table 10 presents the bird survey results combined for all three visits. The table is divided into red, amber and green lists from the BoCC categories. A full list of results presented on a map for each survey visit is presented in Appendix 4. Table 11 presents the dates, times and survey conditions recorded for each visit.

Table 10. Breeding bird survey summary list. C = confirmed, NB = non-breeding, L = likely, P = possible

RESULTS **Species**	**Code**	**Apr (1)**	**Apr (2)**	**May**	**Breeding status**
Greenfinch *Carduelis chloris*	GR	2	-	-	L
Herring gull *Larus argentatus*	HG	-	1	1	NB
Mistle thrush *Turdus viscivorus*	M.	1	-	-	NB
Dunnock *Prunella modularis*	D.	2	2	2	P
Mallard *Anas platyrhynchos*	MA	-	2	1	NB
Song thrush *Turdus philomelos*	ST	3	2	1	L
Whitethroat *Sylvia communis*	WH	1	-	3	L
Woodpigeon *Columba palumbus*	WP	4	6	1	L
Wren *Troglodytes troglodytes*	WR	4	8	5	L
Blackbird *Turdus merula*	B.	4	4	5	L
Blackcap *Sylvia atricapilla*	BC	3	3	3	L
Blue tit *Cyanistes caeruleus*	BT	8	5	2	L
Carrion crow *Corvus corone*	C.	5	1	1	L
Chiffchaff *Phylloscopus collybita*	CC	2	3	2	L
Collared dove *Streptopelia decaocto*	CD	-	2	2	L
Feral pigeon *Columba livia domestica*	FP	1	-	-	NB
Goldcrest *Regulus regulus*	GC	3	3	2	P
Goldfinch *Carduelis carduelis*	GO	2	1	-	P
Great spotted woodpecker *Dendrocopos major*	GS	4	1	1	P
Great tit *Parus major*	GT	3	3	2	L
Grey heron *Ardea cinerea*	H.	-	2	-	NB
Jackdaw *Coloeus monedula*	JD	-	-	1	NB
Long-tailed tit *Aegithalos caudatus*	LT	1	1	-	C
Magpie *Pica pica*	MG	1	-	-	NB
Nuthatch *Sitta europaea*	NH	2	3	-	L
Pheasant *Phasianus colchicus*	PH	1	2	1	NB
Red-legged partridge *Alectoris rufa*	RL	-	1	-	NB
Robin *Erithacus rubecula*	R.	5	3	3	L
Treecreeper *Certhia familiaris*	TC	1	-	-	NB

Table 11. Breeding bird transect metadata: dates, times, temperature, weather conditions.

Date	Survey start time/end time	Temp. degrees centigrade, weather conditions	Surveyors
13th April 2024	05:40–06:35 Sunrise: 06:09	Temp: 6ºC 15% cloud cover, dry, BF0.	Libby Morris
23rd April 2024	05:45–06.40 Sunrise: 05:48	Temp: 5ºC 25% cloud cover, dry, BF0	Libby Morris
14th May 2024	04:55–06:45 Sunrise: 05:12	Temp: 5ºC 20% cloud cover, dry, BF0	Libby Morris

3.5.2 Interpretation

Based on these findings, the breeding bird assemblage supported by the land north of Balcombe Road is considered to be important for the conservation of birds at a **local level**, due to the presence of likely breeding greenfinch, a red listed bird species in the UK, and four more likely breeding amber listed species.

3.6 Dormice

3.6.1 Nest-tube Survey

The survey findings, dates of checks, and weather conditions are presented in Appendix 5. The nest tube survey identified presence of dormouse through confirmed nests within tubes on the central hedgerow and on the northern line of trees. Other mouse species were found to be using nest tubes within the northern woodland, and a bird species was found to use a nest tube on the western hedgerow.

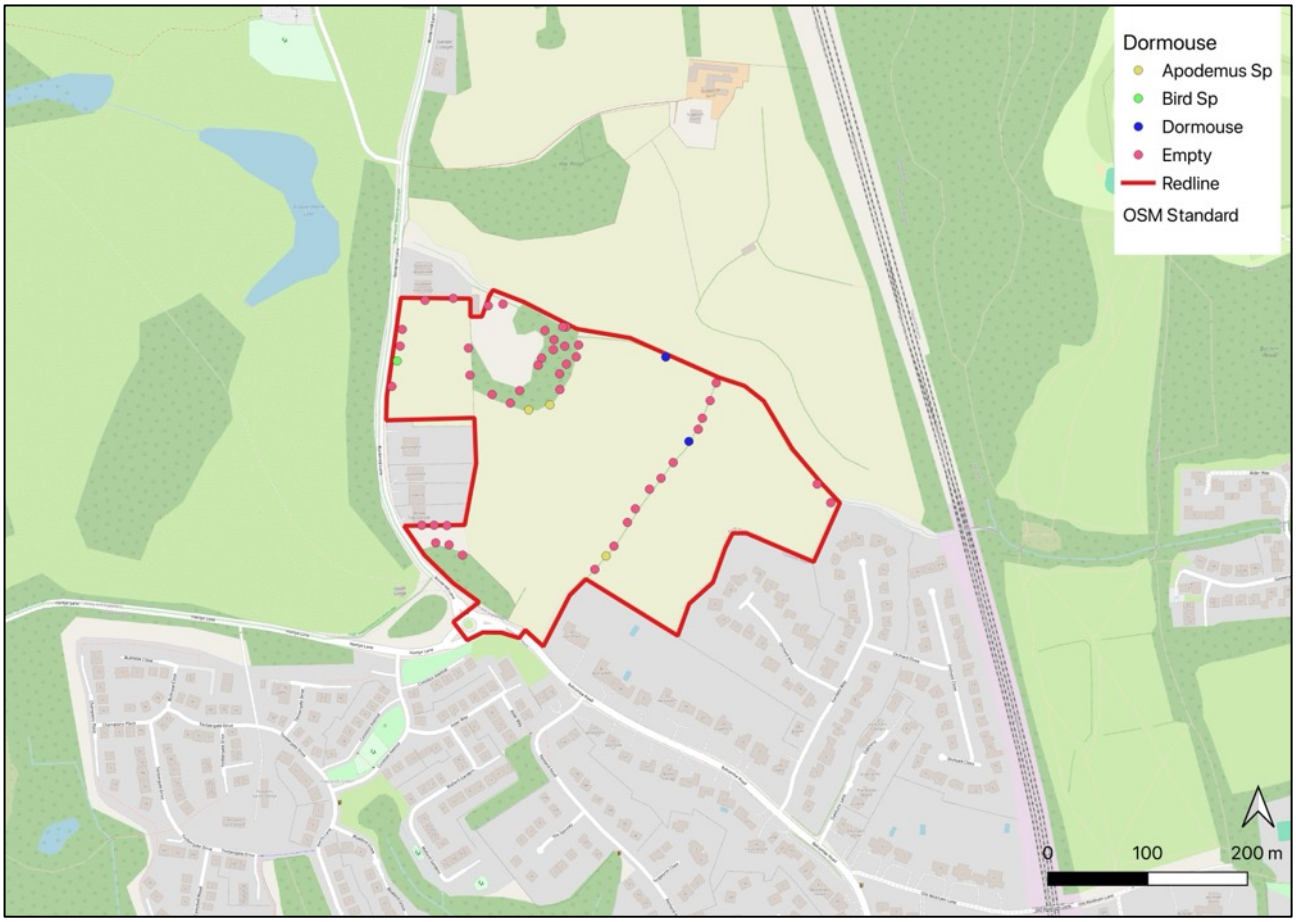


Figure 15. Dormouse survey results. Pink dots indicate nest tube locations, blue dots indicate nest tubes occupied by dormice on at least one occasion. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

3.6.2 Interpretation

The surveys confirm that dormice are present within the site. Previous surveys of this site found dormouse presence in the south-western hedgerow. Whilst dormice are a conservation priority species in the UK and a European protected species, they are relatively common and widespread in south-east England. Given that the population at the site probably represents a small proportion of the local population of this species, the site is considered to be important to dormice at a **local level**.

3.7 Great Crested Newts and Other Amphibians

3.7.1 Habitat Suitability, eDNA Testing and Field Survey Results

There is one pond and a slow moving stream within the site. A further 10 ponds are located within 500m of the site's boundaries. The pond within the site is heavily shaded, has limited macrophyte presence, and the Habitat Suitability Index (HSI) assessment undertaken in April 2024 assessed it as 'below average'. Previous Ecological Assessments of this site recommended that all ponds within 250m that are assessed as potentially suitable for great crested newts should be tested using eDNA. Both the pond and stream on site were tested. A number of ponds are present in the adjacent Borde Hill Gardens. The site was contacted, and results from a 2023 great crested eDNA survey were shared. Details of the HSI assessments, eDNA results and field survey results are presented in Appendix 6.

Table 12 presents a summary of all surveys undertaken at ponds within 250m of the proposed development boundary. The location of each pond is presented in Figure 16. All ponds identified within 250m have been assessed in some way or another and have been accounted for, for the purposes of this EcIA.

Table 12. Summary of great crested newt assessments and surveys.

Ref.	NGR	Distance/ direction	Description	HSI value	Interpretation	Survey results
1	TQ 32595 25988	0m	Pond situated in the centre of a small area of woodland	0.57	'Below average' suitability	eDNA sampling was completed in 2024 with negative results. No further action taken.
2	TQ 3603 26009	0m	Slow moving stream along northern boundary	0.71	'Good' suitability	eDNA sampling was completed in 2024 with negative results. No further action taken.
3	TQ 32325 26123	225m W	A small pond within woodland	0.59	'Below average' suitability	eDNA sampling was completed in 2023 with negative results. No further action taken
4	TQ 32263 26026	160m W	Woodland present to the south and west, fields present to the north and east. Connected to pond 5	0.80	'Excellent' suitability	eDNA sampling was completed in 2023 with negative results. No further action taken
5	TQ 32107 26251	75m W	Large fishing lake surrounded by managed grassland	1	'Poor' suitability	eDNA sampling was completed in 2023 with negative results. No further action taken
6	TQ 32228 25936	350m W	Pond containing fish, connected to a stream and surrounded by managed grassland	1	'Below average' suitability	eDNA sampling was completed in 2023 with negative results. No further action taken

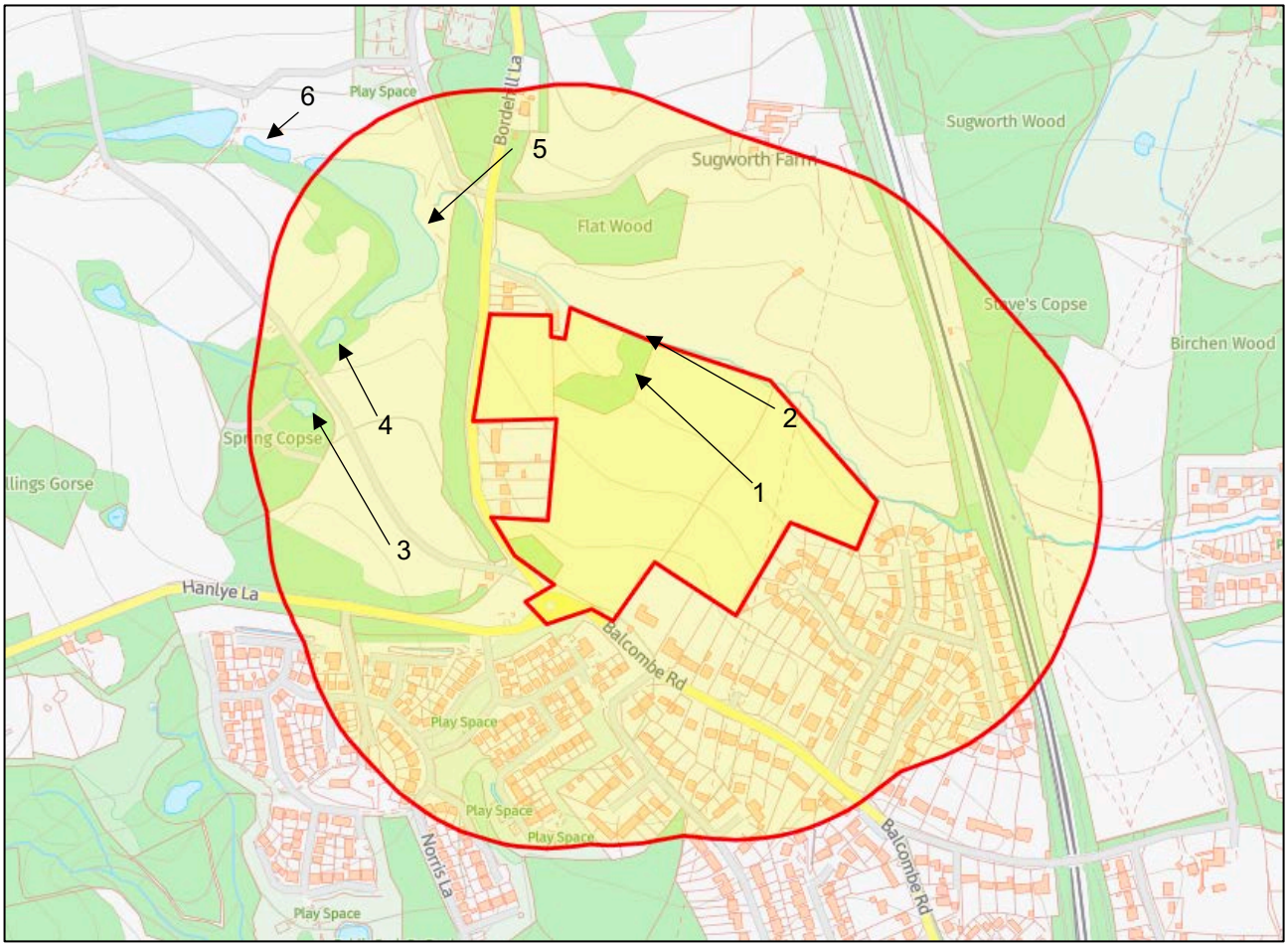


Figure 16. Ponds within 250m of the site (shown with red outline). Yellow dots indicate the presence of great crested newts in these waterbodies. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

3.7.2 Interpretation

As all of the ponds and streams on site and within 250m of the site have returned negative results for great crested newt DNA, it is considered highly unlikely that the land north of Balcombe Road supports great crested newts. Based on these factors, the site is considered to be of **negligible** importance to great crested newts.

3.8 Reptiles

3.8.1 Survey Results

The survey findings, dates and conditions are presented in Figure 17 and Table 13 below.

The survey confirmed presence of slow worm, common lizard and common toad on site. These were found across the whole site, within the woodland, along the central hedgerow, and around the boundaries of the site. The peak count of slow worm was eight individuals, common lizard was one, and common toad was two.

Table 13. Reptile survey results.

Date	Start time	Air temp. °C	Refugia temp. °C	Weather conditions	Results
9th May 2024	15:15	18	19	35% cloud cover, BF1	1 x adult male slow worm
24th May 2024	12:20	22	22	25% cloud cover, BF2, 50% humidity	2x adult slow worm, sex unknown 2x adult female slow worm 1x juvenile common lizard 2x adult common toad
29th May 2024	14:00	19	19	80% clound cover, 78% humidity	1x juvenile common toad 2x adult male slow worm
5th June 2024	15:20	26	25	60% cloud cover, 34% humidity	1x adult common toad 2x adult male slow worm 1x adult female slow worm
10th June 2024	15:33	26	25	30% cloud cover, 45% humidity	1x adult common toad 3x adult male slow worm
12th June 2024	11:30	21.5	20.5	85% cloud cover, BF1, 51% humidity	2x adult common toad 4x adult female slow worm 1x adult male slow worm
17th June 2024	10:00	23	22	50% cloud cover	1x adult common toad 4x adult female slow worm 1x adult male slow worm 1x juvenile slow worm 2x adult slow worm, sex unknown

Figure 17. Reptile survey results. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

3.8.2 Pre-existing Records

Previous surveys at this site undertaken in 2020 confirmed the presence of a small population of grass snake and slow worm within the site.

3.8.3 Interpretation

Slow worm and common lizard are common and widespread in south-east England, and are likely to be found in most areas of suitable habitat. Based on the small numbers involved, the population contained within the development site is not considered important to common reptiles beyond the **site level**.

3.9 Riparian Wildlife

3.9.1 Survey Results

A stream runs along the northern boundary of the site. This was assessed as unsuitable for riparian wildlife such as water vole and otter due to the shallow nature and lack of dense bank vegetation. The stream does not appear to connect to any other suitable watercourses.

3.10 Other Notable Species

3.10.1 Survey Results

No notable invertebrate or mammal species have been identified on the site during the 2024 surveys. Previous surveys identified a number of invertebrate species, including a number of butterflies and moths, and glow-worm *Lampyris noctiluca*.

3.10.2 Interpretation

Previous species recorded on site are relatively common and widespread, and there is extensive similar habitat within the surrounding landscape. Therefore, the proposed development will result in an impact that is significant at **site level** only.

3.11 Invasive Non-native Species

3.11.1 Survey Results

No evidence of invasive non-native species was found during the walkover survey. Previous surveys of the site identified presence of Japanese knotweed *Fallopia japonica* along the south-east boundary of the site, montbretia *Crocosmia x crocosmiiflora* along the northern boundary of the south-west parcel of woodland, and variegated yellow archangel *Lamiastrum galeobdolon argentatum* was found along the bank of the stream.

3.11.2 Interpretation

Japanese knotweed, montbretia and variegated yellow archangel are all Schedule 9 species due to their highly invasive nature. Should these species still be on site, they should be eradicated prior to commencement of works to prevent further spread. It is recommended that a specialist is enlisted to ensure the eradication is effective and there is no further spread of these species. Removal of Schedule 9 species if still present would result in a positive impact on native biodiversity.

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 the Illustrative Landscape Plan, as supplied by Fabrik on the 6th February 2025.

The proposed scheme comprises redevelopment of the majority of the site into residential housing with associated access roads, hard and soft landscaping, private garden space, and areas of public open space.

Activities that will occur during the proposed construction and operational phases that could give rise to significant ecological impacts include:

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 adjacent habitats 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

With the exception of the High Weald National Landscape, which is designated as such for the aesthetic landscape and not for conservation features, the designated sites surrounding the land north of Balcombe Road are outside of the zone of influence from construction-based impacts such as noise, light and air pollution.

Post construction, occupancy of the residential development could result in increased recreational pressure on the surrounding designated sites, leading to risks such as trampling of vegetation, soil compaction, littering, fly tipping, damage to trees, disturbance to wildlife, and increased nutrient levels from pet fouling.

4.1.2 Significance of Effects

Blunts and Paiges Wood (LNR), Scrase Valley (LNR) and the High Weald National Landscape are all open to the public. As a result, the designated sites have already put in place measures to reduce impacts from a high number of visitors, such as clearly marked bridleways and public footpaths for people to walk, cycle and horse ride, limiting car parking spaces close to the area and fencing off sensitive areas. The closest access to a designated site is the High Weald Landscape Trail which lies 350m north of the land north of Balcombe Road. Additionally, there are several non-designated sites nearby, such as Borde Hill Garden lying immediately west of the site, which helps to spread the impacts and effects of the visiting public by accommodating visitor pressures across them.

In the absence of mitigation, the additional pressures from the proposed development are likely to pose a **significant negative impact** at a **local level**, due to a likely increase in recreational pressure.

4.2 Priority Habitats

4.2.1 Impact Characterisation

The development will result in the direct loss of other neutral grassland. Some areas of hedgerow will also be lost. Although direct impacts on the remaining habitats will be minimal, during the construction phase there is the potential for damage due to dust deposition, digging and manoeuvring of heavy machinery, resulting in damage of roots and compaction of root zones.

Post construction, occupancy of the residential development could result in increased recreational pressure on the natural habitats, including the two areas of woodland, hedgerows, the stream, and remaining areas of other neutral grassland. This could lead to trampling of vegetation, soil compaction, littering, fly tipping, damage to trees, disturbance to wildlife, pollution of the watercourse, and increased nutrient levels from pet fouling, as a result of increased site use by residents. The surrounding habitats (fields and woodland) are all privately owned and therefore should not be impacted by increased recreational pressure arising from the development. However, fences and signs may be required to enforce this.

In the absence of mitigation, these combined impacts could potentially lead to severe degradation of the habitats on site, through altering species compositions and a reduction of species diversity and abundance.

4.2.2 Significance of Effects

The extensive loss of other neutral grassland will result in a **significant negative impact** at the **local level**, in the absence of mitigation or compensation. The loss of hedgerow will result in a **significant negative impact** at a **site level**, in the absence of mitigation. The degradation of retained habitats on site, such as the woodland, stream and pond habitats, as a result of increased footfall and littering will result in a **significant negative impact** at a **site level**.

4.3 Badgers

4.3.1 Impact Characterisation

Mammal tracks were observed across the site, which may indicate that the site is in use by foraging and commuting badgers, although presence was not confirmed.

There is potential for badgers to become trapped, injured or killed during the construction phase without the adoption of precautionary measures. The level of disturbance will increase during the construction phase and the operational phase, due to increased traffic and machinery, and more frequent interactions with the occupied residential properties (visiting gardens, interactions with people, pets and exposure to poisons).

The proposed development will also result in the loss of foraging habitat, namely the grassland, although this is of low value for badgers in comparison to the woodland within the site and the wider habitats beyond the construction zone.

4.3.2 Significance of Effects

In the absence of mitigation, the development has the potential to result in a **significant negative impact** at the **site level**.

4.4 Bats

4.4.1 Impact Characterisation

It is understood that the proposed scheme will not affect any buildings and therefore no direct impacts on bat roosts in buildings is predicted. The scheme does have potential to impact on bats roosting in trees, although the scale of this impact is unclear until the location and scale of tree clearance is known. Further surveys (ground based visual inspections, followed by either tree climbing inspections using an endoscope, or bat emergence surveys), will be required to assess the potential for affected trees to support roosting bats in advance of the scheme.

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 the other neutral grassland habitat that could be an important source of insect prey for bats. The impact of the development on the surrounding habitats must also be considered, particularly with respect to artificial lighting. The following species were determined to be using the site for commuting and foraging purposes and therefore will be impacted: common pipistrelle, soprano pipistrelle, brown long-eared, *Myotis* species, serotine, noctule and barbastelle.

4.4.2 Significance of Effects

The significance of the impact on roosting bats will need to be assessed following the recommended surveys of any trees to be directly impacted by the proposed plans.

Foraging activity at the site comprises mostly common species, with occasional passes of serotine and barbastelle recorded. As serotine and barbastelle are classed as ‘vulnerable’, the loss of foraging habitat will result in a **significant negative impact** at a **local level**.

4.5 Breeding Birds

4.5.1 Impact Characterisation

The majority of the nesting bird habitat within and surrounding the site will not be directly impacted by the development, though there will likely be indirect impacts during the construction phase due to disturbance and during the operational phase due to increased predation risk from cats.

Although significant grassland habitat will be lost, the surveys at the site have not identified any ground nesting bird species, therefore farmland birds such as skylark *Alauda arvensis* and lapwing *Vanellus vanellua* are likely absent and ground nesting birds not a consideration for this development. Barn owls *Tyto alba* have been recorded foraging across the site during previous surveys, therefore loss of grassland habitat will have a direct impact on this species. The UK conservation status of barn owls is currently Green, therefore, this species is of Least Conservation Concern. Tawny owl foraging was also noted during a bat activity survey in July 2024. Loss of grassland habitat may also impact on this species. The UK conservation status of tawny owls is currently Amber.

The development will result in the loss of hedgerow habitat along the southern boundary and the central hedgerow to allow for expanded and new site access. Without careful timing, the clearance of vegetation may result in destruction or disturbance of active nests and the killing/injuring of eggs/young. The identified impacts could potentially affect all bird species, including the likely breeding red and amber listed species.

4.5.2 Significance of Effects

The area of hedgerow habitat to be lost as a part of the proposed development represents a small area of the total hedgerow habitat available across the site. However, the development will also result in the loss of a significant area of grassland, which is valuable foraging habitat for barn owls.

It is important to consider the surrounding habitat, specifically the grassland, hedgerow and woodland habitat adjacent to the north of the site, to accurately assess the impact of the habitat loss on breeding birds and barn owls. As there is a significant amount of similar habitat in the close surrounding area, the impacts of the loss of the habitats on site is reduced. Therefore, in the absence of mitigation and compensation, the development is considered to have a negative impact at a **local level**.

4.6 Common Dormice

4.6.1 Impact Characterisation

Dormouse nests were identified along the central hedgerow and the northern boundary hedgerow. Previous surveys also identified a dormouse in the south-western corner of the site. This species should therefore be considered to be present in all suitable habitat within the site. Dormice are rare and vulnerable to extinction in the UK.

The proposed development will remove areas of hedgerow along the central hedgerow, and around the entrance to the site on the southern boundary. Clearance of vegetation prior to construction has the potential to result in direct harm to dormice and destruction of their nests and young, if carried out during the breeding season.

As dormice are nocturnal, the proposed development has the potential to result in disturbance, during the construction and operational phases, through increased artificial lighting. The development will likely also result in an increased predation risk from cats.

4.6.2 Significance of Effects

Based on the local status of this species, these impacts are predicted to result in significant negative impacts to dormice at a **local level**. Furthermore, these impacts would constitute an offence under current wildlife legislation.

4.7 Reptiles

4.7.1 Impact Characterisation

A small population of slow worm and common lizard were found in the 2024 surveys. A small population of grass snake has also been identified on the site in previous surveys. All three species are protected in the UK under the Wildlife and Countryside Act, 1981, and they are priority species under the UK Post-2010 Biodiversity Framework.

The majority of reptiles were identified along the external borders of the site, within the grassland habitat. The majority of this grassland habitat will be lost through the proposed development.

4.7.2 Significance of Effects

The majority of grassland habitat in which the reptiles were found will be lost as a consequence of the development. Removal of this habitat has the potential to cause harm to reptiles in the absence of mitigation. However, as these species have a low population on site, the impact will be significant at a **site level** only.

4.8 Invasive Non-native Species

4.8.1 Impact Characterisation

Small amounts of Japanese knotweed, montbretia and variegated yellow archangel have previously been identified on the site. In the absence of removal prior to the commencement of works, there is a high risk that the development could lead to the spread of root material, seeds or cuttings.

4.8.2 Significance of Effects

The spread of root material, seeds or cuttings of these highly invasive non-native species would result in a negative impact that is significant at **local level**, in addition to breaching legislation if they are allowed to spread off site.

Removal of the invasive, non-native species would see a positive effect on ecology at the **site level**.

5 MITIGATION PROPOSALS

5.1 Designated Sites

5.1.1 Impact Avoidance

There are no identified mechanisms for direct impacts upon any designated sites from the proposed development. However, potential indirect impacts from increased recreational use of the sites cannot be avoided should the development proceed.

5.1.2 Mitigation Measures

In order to mitigate the impacts of increased recreational pressure on the designated sites, it is important that public green spaces are incorporated into the proposed scheme to provide attractive alternative areas for recreational use.

Based on the current proposed designs (Figure 2), there are multiple areas of undeveloped land across the site that is afforded for open green space. If these areas are to be used as recreational areas, they should be carefully enhanced to provide recreational space whilst retaining value for biodiversity. Well-kept and clearly marked footpaths will channel recreational impacts to certain areas and reduce damage caused by footfall on natural habitats and will leave some habitats relatively undisturbed. Signs will be erected alongside dog waste bins to encourage people to pick up after their dogs.

5.1.3 Residual Effects

With the implementation of the above mitigation measures, the potential for residual impacts on the surrounding designated sites is considered reduced to the **local** level.

5.1.4 Compensation Measures

To compensate for the residual impacts from the development on the 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 impacting existing habitats where possible. The final plan includes a minimum 10m buffer along the stream, central hedgerow and woodland parcel (with the exception of the entrance to the site, access through the central hedgerow and a footpath along the western side of the central hedgerow). This buffer will ensure there is no run-off or other pollution of the watercourse and will protect the root zone of the hedgerow and trees.

The most significant impact will be the loss of 7.7ha of grassland.

5.2.2 Mitigation Measures

Industry standard construction measures 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.

Heras fencing will be used to mark out a minimum 8m buffer from all retained natural features, including the stream, central hedgerow, hedgerow borders and woodland parcels.

5.2.3 Residual Effects

There will be a permanent loss of other neutral grassland (approximately 7.7ha), hedgerow (approximately 60m), and 13 trees, 12 of which are ornamental and non-native.

5.2.4 Compensation Measures

All created habitats will be set out through the production of a Habitat Management and Monitoring Plan (HMMP) in accordance with the biodiversity net gain calculation and report that accompany this report. This will set out the number, type and location of habitat enhancements that will be provided, as well as on-going maintenance needs and responsibilities. The planting scheme will include native species only, which have been locally sourced where possible.

To ensure the ongoing health and value of existing and enhanced habitats on site, and to prevent damage caused by recreational use and consequential likely increase in footfall and littering, it is recommended that a partnership is formed with the Sussex Wildlife Trust or local conservation volunteers.

5.3 Badgers

5.3.1 Impact Avoidance

To avoid impacts to foraging badgers during the construction phase, safeguarding measures are recommended to prevent harm to badgers:

- no food or waste will be left out overnight and tools will be locked away after each day
- any excavations more than 50cm deep will either be covered up overnight or have a means of escape provided (ladder or ramp) should a badger fall in
- any artificial security lighting must be directed away from the remaining grassland and woodland to maintain alternative foraging options for badgers and avoid disturbance
- all chemicals and hazardous building materials must be securely stored.

5.3.2 Mitigation Measures

To reduce the risk of cars injuring or killing wildlife, including badgers, all roads through the site should be limited to 15mph. To enforce this, traffic calming measures such as speed bumps or road rumbles are not recommended as they have been shown to increase exhaust emissions and noise pollution. Instead, it is recommended that signs are used to warn drivers of animals and children crossing and high visibility road paint should be used to mark the edges of the road.

5.3.3 Residual Effects

There will be a residual loss of grassland habitat, which provides foraging habitat for badgers, that cannot be

avoided.

5.3.4 Compensation Measures

Compensation measures are not considered necessary for badgers, given that the site represents a small percentage of the overall foraging habitat for badgers within the wider landscape.

5.4 Bats

5.4.1 Impact Avoidance

The woodland habitat and the stream corridor within the site are being retained. There will be an unavoidable loss of grassland habitat which supports the invertebrate prey of bats, and fragmentation of the central hedgerow which is currently used as a commuting flight patch for bats.

Further surveys will be required if the development requires the removal of any trees with bat roosting features.

5.4.2 Mitigation Measures

To mitigate for impacts resulting from artificial light, it is important that the proposed scheme incorporates a 'sensitive lighting plan' developed as part of the detailed design, in accordance with the guidelines set out by the Bat Conservation Trust (summarised in Appendix 8). This should include measures to create dark corridors along the stream, central hedgerow, boundary hedgerows, and woodland boundaries, as well as measures to minimise light spill onto all semi-natural habitats. All street lighting should be directed downwards and light sources that are not attractive to insects should be used. 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 permanent loss of grassland habitat at the site and fragmentation of the central hedgerow.

5.4.4 Compensation Measures

Addition of new species-rich hedgerows around the site will increase the commuting suitability of the site and will increase the insect diversity, mitigating for some of the loss of grassland foraging habitat.

To enhance the development site and encourage roosting bats, the development will incorporate a minimum of 20 artificial bat roosts, either to be integrated into the new building design, or to be installed on the surrounding trees. See Figure 18 for examples of artificial bat roosts. These will be secured through addition into a Landscape and Ecology Management Plan (LEMP).

Figure 18. Examples of integral bat roosting features, left to right: 1FR Schwegler bat tube, installed 1FR Schwegler bat tube, a bat access tile, and a Beaumaris woodstone box. All images produced by NHBS.

5.5 Breeding Birds

5.5.1 Impact Avoidance

The layout of the development has retained nearly all existing hedgerows, most of the mature trees and all of the woodland. In addition, a 10m buffer will be present along the stream, central hedgerow (excluding the access areas) and woodland parcel, which will prevent accidental damage and reduce disturbance during the construction phase. There are some small, unavoidable losses attributed to the provision of access onto the site, namely the loss of hedgerow and trees around the entrance to the site and where access paths are created through the central hedgerow to reach the eastern field. The development will also result in the loss of barn and tawny owl foraging habitat.

5.5.2 Mitigation Measures

Vegetation clearance will only be undertaken outside of the breeding bird season (1st March to 31st August). Where this is not possible, a nesting bird check by a suitably qualified ecologist will be required to confirm the absence of any nests prior to vegetation clearance. This will include a precautionary walkover of the grassland to ensure there are no ground-nesting birds. Clearance will only proceed once the ecologist has established the absence of any active birds nests. If any active nests are identified, a buffer of at least 5m will be maintained and the nest left undisturbed until the young have fledged, or works will be postponed.

5.5.3 Residual Effects

The loss of suitable barn and tawny owl foraging habitat is unavoidable. However, there is a considerable amount of suitable habitat within the surrounding area, including a large expanse of grassland and woodland habitat immediately north of the site, which will reduce the impact that this loss of habitat will have.

There will be a residual impact from increased recreational pressure, which has the potential to disturb nesting birds and foraging barn and tawny owls, as well as increased predation risk from cats. The residual impact resulting from the development on breeding birds and barn owls is considered to be a significant negative impact at local level.

5.5.4 Compensation Measures

The minimal loss of hedgerow and tree nesting habitat will be compensated for by the planting of approximately 380m of hedgerow and 168 trees. It is recommended that the hedgerow planting should contain a minimum of 50% blackthorn to reduce the risk of predation by cats.

Bird boxes will be installed across the new development, to include a minimum of ten opportunities for swifts, ten for house martins, and ten for house sparrows across the buildings. Furthermore, one barn owl box and 25 small bird boxes will be installed upon trees and hedgerows across the site. The barn owl box will need to be protected from tampering, therefore should be installed in the fenced off woodland to the south of the site, where there is limited accessibility.

These measures will ensure that the site continues to provide value for a variety of nesting birds and will be fully detailed within the LEMP.

5.6 Common Dormouse

5.6.1 Impact Avoidance

The development will result in the loss of suitable dormouse habitat to create access to the site and to the eastern field; loss of hedgerow along the southern boundary, loss and fragmentation of the central hedgerow. This impact is unavoidable and a European Protected Species (EPS) licence must be obtained from Natural England for the development to legally proceed. The development proposals will need to illustrate that they can satisfy the three 'derogation tests' under Regulation 53 (e) of the Conservation of Habitats and Species Regulations can be met, through a clear illustration that the conservation status of this species can be preserved through the development.

5.6.2 Mitigation Measures

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. In accordance with best practice guidance, this is likely to involve timing clearance of all vegetation above ground in winter, during the hibernation period for dormice, followed by excavation/stump removal in the following spring. All vegetation/stump clearance should be preceded by fingertip searches for dormouse nests of all potentially suitable features (e.g. coppice stools, hedgerows, accumulations of leaf litter, log piles and debris) by a suitably qualified ecologist.

5.6.3 Residual Effects

The above mitigation measures will prevent harm to individual dormice during site clearance and construction. However, there will be a residual loss of suitable dormouse habitat that cannot be avoided. In order to meet the licence conditions, this loss of habitat will require compensation to ensure that the conservation status of dormice is maintained despite the loss of habitat.

5.6.4 Compensation Measures

The development will include a planting scheme of hedgerows that will benefit dormice and compensate for the minimal vegetation removal noted above.

Further, dormouse nest boxes (Figure 19) can be used to enhance the site by providing nesting opportunities.

Figure 19. An example of a dormouse box as sold by NHBS

5.7 Reptiles

5.7.1 Impact Avoidance

The development will result in the loss of grassland which is of value to the slow worm and common lizard (and historical grass snake) population present at the site.

5.7.2 Mitigation Measures

As only a small population of slow worm and common lizard (and a small historical population of grass snake) were found at the site, the majority of which are within habitat that will not be directly impacted by the development, a reptile translocation is not considered necessary. Instead, a Mitigation Statement must be followed in which 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. Strimming should be strictly conducted from south to north, to encourage reptiles into the stream and woodland habitats to the north of the site and discourage them from the construction zone or the road to the south.

The strimming should be completed in two phases, with the grass cut initially to a height of 10-15cm 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 5cm sward following the second pass, or taken back to bare ground, to ensure that it does not become suitable for use by reptiles while the development is on-going. The strimming process must be overseen by a suitably qualified ecologist.

5.7.3 Residual Effects

There will be a residual loss of grassland habitat.

5.7.4 Compensation Measures

To compensate for the loss of grassland, a minimum of two hibernacula will be created within an area of retained land. The hibernacula can be built using a combination of inert rubble, logs and branches, piled on

top of each other, with dead leaves, earth and turf laid over the top to provide insulation (see Figure 20). The hibernacula would also provide benefits for other species including amphibians and invertebrates.

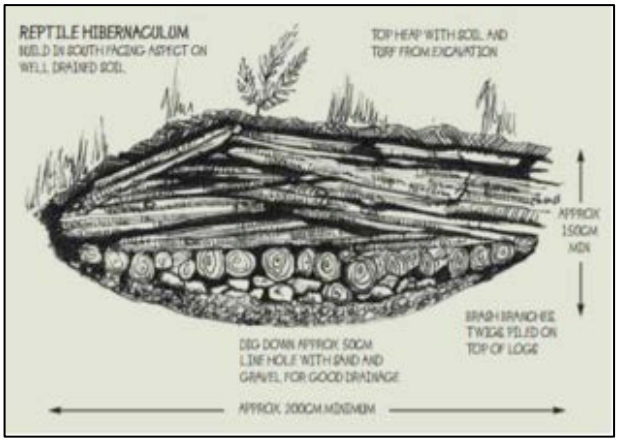


Figure 20. Illustration on how to build a reptile hibernaculum. Image produced by ARG UK.

5.8 Other Notable Species

5.8.1 Impact Avoidance

The development will result in the loss of a large area of grassland habitat, which supports a range of common and widespread invertebrate species, the impact of which is unavoidable.

5.8.2 Mitigation Measures

The fields should be cut in winter, when invertebrate populations are at their lowest, and maintained at below 5cm to minimise suitable habitat for invertebrates within the construction zone prior to commencement of works.

5.8.3 Residual Effects

There will be a residual loss of grassland.

5.8.4 Compensation Measures

To compensate for a loss of grassland habitat, the development will include a native, species-rich planting scheme of hedgerows, which will greatly benefit invertebrate species. Additionally, the creation of reptile hibernacula will allow for novel habitats for invertebrate species at the site.

5.9 Invasive Non-native Species

5.9.1 Impact Avoidance

Care will be taken to ensure that all planting as a part of the site landscaping is only from reputable suppliers, to minimise the risk of unintentional introduction of any INNS. Furthermore, any vehicles or machinery at the site, particularly tracked vehicles, will be washed and must not be used at the site unless they have been

appropriately inspected.

5.9.2 Mitigation Measures

To ensure there is no further spread of invasive non-native species, works must be undertaken carefully, and if the Japanese knotweed, montbretia and variegated yellow archangel previously recorded on site is reidentified, they must be eradicated by a specialist prior to commencement of works.

5.9.3 Residual Effects

The site should be monitored for any repeat growth of INNS and managed accordingly, to ensure the eradication of INNS at the site. With the impact avoidance and mitigation measures in place, there will be a likely positive impact at a site level through the development.

5.9.4 Compensation Measures

No compensation measures are required.

6 CONCLUSIONS

The land north of Balcombe Road includes other neutral grassland, hedgerows, woodland, a stream and a pond. The proposed development will result in the loss of almost all the grassland habitat and will result in the loss of a small amount of hedgerow habitat and fragmentation of the central hedgerow. It will not directly impact the other habitats present on site.

Repeat surveys for protected species were carried out in 2024 by The Ecology Co-op, with the following species recorded:

- foraging bats, including serotine and barbastelle
- a variety of breeding birds, including likely breeding greenfinch, song thrush, whitethroat, wood pigeon and wren, and foraging tawny owl
- confirmed presence of common dormouse
- a small population of slow worms and common lizard.

Previous surveys of the site also confirmed the presence of foraging barn owl, and a small population of grass snake.

For works to proceed, an EPS licence for dormice will be required, and the precautionary mitigation set out in section 5, to discourage reptiles from the construction zone and to avoid the removal of vegetation during the nesting bird season, must be followed to ensure that there is not a breach of the Wildlife and Countryside Act. Additionally, a sensitive lighting scheme must be adhered to, so that nocturnal species such as bats and dormice are not disturbed by artificial lights.

Trees due for removal must be re-assessed for their potential to support roosting bats prior to commencement of works, and if roosting bats or evidence of bat roosts is identified, an EPS licence will be required as appropriate to allow the works to commence legally.

Compensation measures as set out in section 5 will ensure that lost opportunities for wildlife are replaced. A biodiversity net gain calculation will ensure that valuable habitats on site are replaced or compensated for.

A summary of the EcIA process is presented in Table 14 below.

Table 14. EcIA summary table

Ecological feature	Importance	Impact characterisation	Level of significance	Avoidance/ Mitigation	Residual effects	Compensation
High Weald (AONB)	National	Increased recreational pressure and road traffic	Local	Creation of public green spaces	Increased footfall	Financial contributions towards future management
Blunts and Paiges Wood (LNR)	National	Increased recreational pressure and road traffic	Local	Creation of public green spaces	Increased footfall	Financial contributions towards future management
Scrace Valley (LNR)	National	Increased recreational pressure and road traffic	Local	Creation of public green spaces	Increased footfall	Financial contributions towards future management
Woodland on site	Local	No direct loss but indirect damage through increased footfall and pollution	Local	CEMP for scheme. Heras fencing buffer from development. Strategic placement	Neutral	N/A
Stream on site	Local	No direct loss but indirect damage through increased footfall and pollution	Local	CEMP for scheme. Heras fencing to be installed to create a buffer from development. Signs will be erected to remind people not to litter and strategic placement of footpaths to discourage walking through the woodland which borders the stream. Maintenance and management plan to be included in the LEMP.	Neutral	N/A
Central hedgerow	Local	A gap in the hedgerow at the southern end will be widened, and two other gaps will be created along the hedgerow for access.	Site	CEMP for scheme. Heras and solid boarding to protect habitats. Maintenance and management plan to be included within the LEMP	Loss and fragmentation of habitat	Creation of new species-rich hedgerow habitat

Ecological feature	Importance	Impact characterisation	Level of significance	Avoidance/ Mitigation	Residual effects	Compensation
Boundary hedgerows	Local	No direct impact. Potential indirect impact through root compaction	Site	CEMP for scheme. Heras fencing to be installed to create a buffer from development. Maintenance and management plan to be included within the LEMP	Neutral	N/A
Badgers	Site	There is potential for badgers to become trapped/injured/killed during the construction phase	Site	Construction safeguarding measures	Loss of foraging habitat	N/A
Foraging and commuting bats	District	Increased artificial lighting, disruption of commuting corridors and loss of foraging habitat	Local	Sensitive lighting scheme	Loss of foraging habitat	Planting of species-rich hedgerows and installation of bat boxes
Roosting bats	District	To be assessed following further survey of trees if they are to be impacted by the development				
Breeding bird assemblage on the development site	Local	Direct loss of minimal breeding habitat of low importance	Local	Appropriate construction methods (timed outside of the breeding season); biodiversity enhancements incorporated into soft landscape and drainage schemes	Neutral	Planting of species-rich hedgerows and installation of bat boxes
Common dormouse	Local	Harm caused by clearance of vegetation and disturbance by artificial lighting	Local	European Protected Species (EPS) licence for removal of vegetation. Sensitive lighting scheme	Loss of habitat	Planting of species-rich hedgerows and installation of dormouse boxes
Common reptiles	Local	Loss of foraging habitat	Site	Habitat manipulation to encourage reptiles away from construction zones	Loss of foraging habitat	Creation of two hibernacula

APPENDIX 1 – 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)[18] 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 *Satyrium 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)[19] 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 species of principal importance for the conservation of biodiversity* in England (commonly referred to as the 'Biodiversity

[18] Wildlife and Countryside Act (WCA) (1981). HMSO London.

[19] Natural Environment and Rural Communities Act (2006). HMSO London.

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)[20], 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 2024)[21] 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 185b, states that council plans should "*promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity*."

The Office of the Deputy Prime Minister (ODPM) Circular 06/2005, 2005)[22]. In accordance with the NPPF, it is

[20] Protection of Badgers Act (1992). HMSO London.

[21] HM Government (2023). National Planning Policy Framework. Department for Communities and Local Government. Available online at: https://assets.publishing.service.gov.uk/media/64f991c99ee0f2000fb7c001/NPPF_Sept_23.pdf.

[22] HM Government (2005) ODPM Circular 06/05 Government Circular: *Biodiversity and Geological Conservation –*

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)[23], and a progress update was provided in July 2013 (Defra 2013)[24].

'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 2021[25] (Stanbury et al, 2015), which provides an up to date assessment of the conservation status of birds in the UK.

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.

[23] 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.

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

[25] 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.

APPENDIX 2 – MID-SUSSEX DISTRICT COUNCIL PLAN 2014 - 2031

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 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.

APPENDIX 3 - IMPORTANCE OF ECOLOGICAL FEATURES

Table 1. 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 (SNCIs) 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)

APPENDIX 4 – BREEDING BIRD RAW DATA

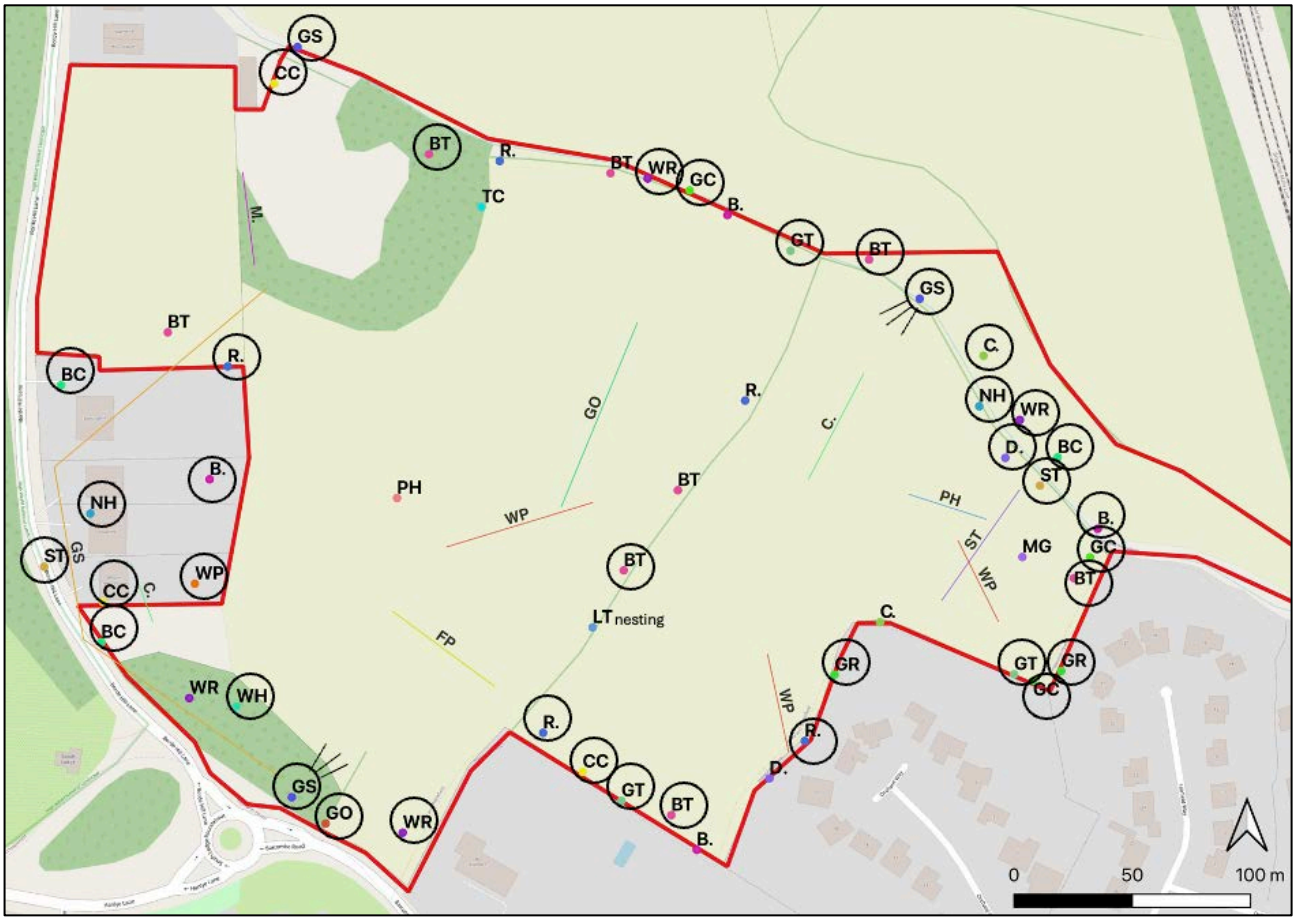


Figure 1. Breeding bird survey results from the survey on the 13th April 2024. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

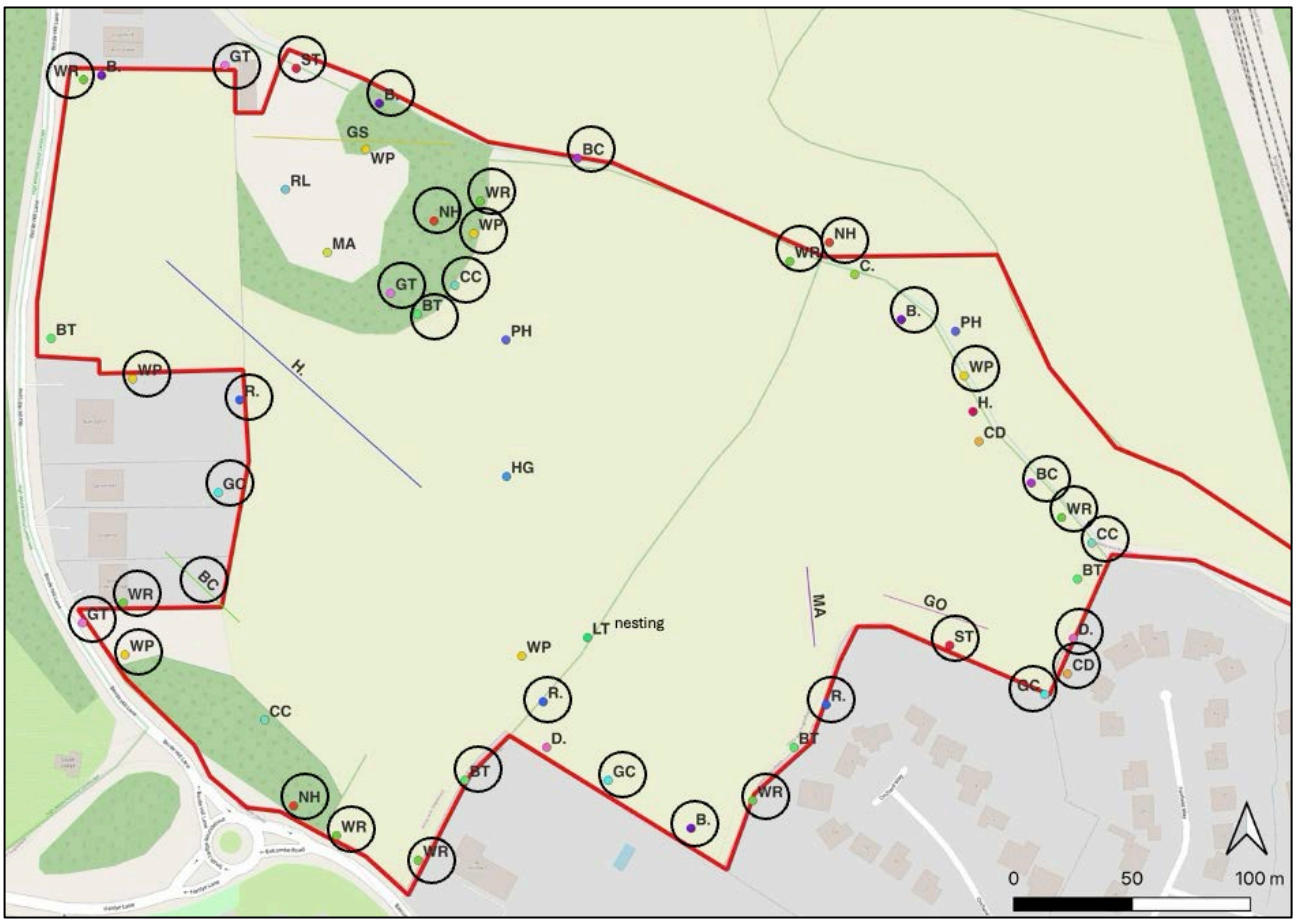


Figure 2. Breeding bird survey results from the survey on the 23rd April 2024. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

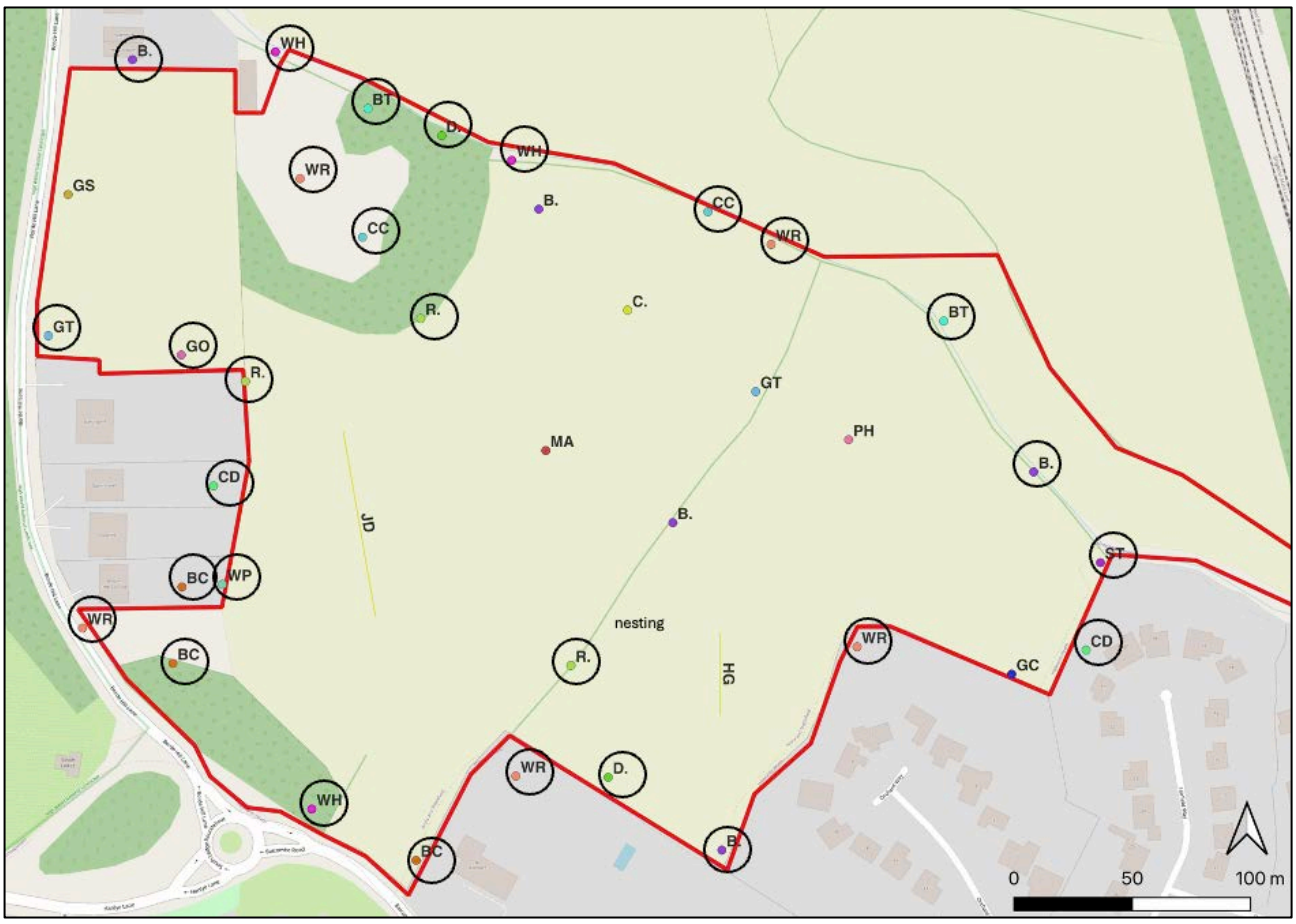


Figure 3. Breeding bird survey results from the survey on the 14th May 2024. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

APPENDIX 5 – COMMON DORMOUSE SURVEY RESULTS

Abbreviations: DM=dormouse; AS= *Apodemus* species; ad=adult; juv=juvenile, N=nest only; NM=nest material, not woven, unspecified; F=food cache (wood mouse); bee=tree bumblebee *Bombus hypnorum* nest. Bird=bird nest (BTO codes apply to species); E=empty; nf=tube not found or tube damaged.

Table 1. Full dormouse presence/absence survey results.

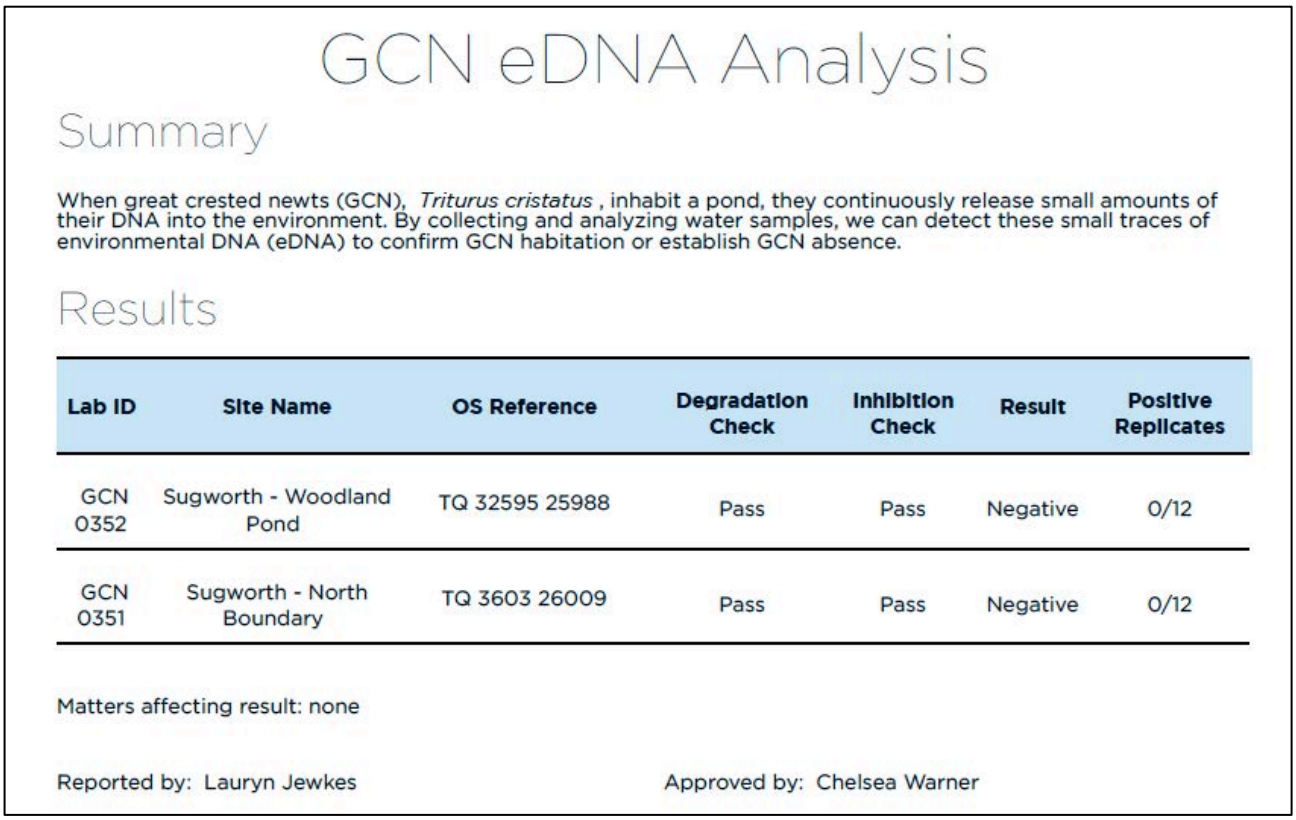
Completion date	**15th May 2024**	**25th June 2024**	**18th July 2024**	**16th August 2024**	**11th September 2024**	**24th October 2024**
Temp/ºC	**17**	**25**	**20**	**19**	**13**	**13**
Cloud cover	**30%**	**0%**	**80%**	**50%**	**60%**	**1%**
Precipitation	**Dry**	**Dry**	**Dry**	**Dry**	**Dry**	**Dry**
1	E	E	E	E	E	E
2	E	E	E	E	E	E
3	E	E	E	E	E	E
4	E	E	E	E	E	E
5	E	E	E	E	E	E
6	E	E	E	E	E	E
7	E	E	E	E	E	E
8	E	E	E	E	E	E
9	E	E	E	E	E	E
10	E	E	E	E	E	E
11	E	E	E	E	E	E
12	E	E	E	E	E	E
13	E	E	E	E	E	E
14	E	E	E	E	E	E
15	E	E	E	E	E	AS
16	E	E	E	E	AS, N	E
17	E	E	E	E	E	E
18	E	E	E	E	E	E
19	E	E	E	E	E	E
20	E	E	E	E	E	E
21	E	E	E	E	E	E
22	E	E	E	E	E	E
23	E	E	E	E	E	E
24	E	E	E	E	E	E
25	E	E	E	E	E	E
26	E	E	E	E	E	E
27	E	E	E	E	E	Bird
28	E	E	E	E	E	E
29	E	E	E	E	E	E
30	E	E	E	E	E	E
31	E	E	E	E	E	E
32	E	E	E	E	E	E
33	E	E	E	E	E	E
34	E	E	E	E	E	E
35	E	E	E	E	E	E

36	E	E	E	E	E	AS
37	E	E	E	E	E	E
38	E	E	E	E	E	E
39	E	E	E	E	E	E
40	E	E	E	E	E	E
41	E	E	E	E	E	E
42	E	E	E	E	E	E
43	E	E	E	E	DM, N	DM, N
44	E	E	E	E	E	E
45	E	E	E	E	E	E
46	E	E	E	E	E	E
47	E	E	E	E	E	E
48	E	E	E	E	E	E
49	E	E	E	E	E	E
50	E	E	E	E	E	DM, N

APPENDIX 6 - GREAT CRESTED NEWT SURVEY RESULTS

Table 1. HSI calculation for ponds assessed during the survey.

	Woodland Pond		**Northern Boundary Stream**	
NGR	**TQ 3259 2599**		**TQ 3259 2602**	
SI attribute	**SI value**	**Notes**	**SI value**	**Notes**
Location	1.00	A	1.00	A
Pond area	0.70	350m^2	0.85	1620m^2
Pond drying	0.10	Frequently	0.90	Never
Water quality	0.33	Poor	0.67	Moderate
Shade cover	0.20	100%	0.20	100%
Water-fowl	1.00	Absent	1.00	Absent
Fish presence	1.00	Absent	1.00	Absent
No. ponds	1.00	10	1.00	11
Terrestrial habitat	1.00	Good	1.00	Good
Macrophytes	0.31	0%	0.31	0%
HSI value	**0.52**	**'below average'**		



GCN eDNA Analysis

Summary

When great crested newts (GCN), *Triturus cristatus* , inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analyzing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

Results

Lab ID	Site Name	OS Reference	Degradation Check	Inhibition Check	Result	Positive Replicates
GCN 0352	Sugworth - Woodland Pond	TQ 32595 25988	Pass	Pass	Negative	0/12
GCN 0351	Sugworth - North Boundary	TQ 3603 26009	Pass	Pass	Negative	0/12

Matters affecting result: none

Reported by: Lauryn Jewkes

Approved by: Chelsea Warner

Figure 1. eDNA results for the woodland pond and the stream along the northern boundary of the site. SureScreen Scientifics, 14.05.2024.

APPENDIX 7 – REPTILE SURVEY METADATA

Abbreviations: SW= Slow worm; CT = Common toad; CL = Common lizard; ad=adult; jv=juvenile; F= female; M= male; E= empty.

Table 1. Full reptile survey results

Completion date	**9th May 2024**	**24th May 2024**	**29th May 2024**	**5th June 2024**	**10th June 2024**	**12th June 2024**	**17th June 2024**
Temp/ºC	**18**	**22**	**19**	**26**	**26**	**21.5**	**23**
Mat Temp/ºC	**19**	**22**	**19**	**25**	**25**	**20.5**	**22**
Cloud cover	**35%**	**25%**	**80%**	**60%**	**30%**	**85%**	**50%**
1	E	E	E	E	E	E	E
2	E	E	E	E	E	E	E
3	E	E	E	E	E	E	E
4	E	E	E	E	E	E	E
5	E	E	E	E	E	E	E
6	E	E	CT, Jv, 1	CT, Ad, 1	CT, Ad 1	CT, Ad, 1	CT, Ad, 1
7	E	E	E	E	E	E	E
8	E	E	E	E	E	E	E
9	E	E	E	E	E	E	E
10	E	E	E	E	E	E	E
11	E	SW, Ad, 1	SW, Ad M, 1	E	E	E	E
12	E	E	E	E	E	E	E
13	E	E	E	E	SW, Ad M, 1	E	SW, Ad F, Jv, 2
14	SW, Ad M, 1	E	E	E	E	E	E
15	E	E	E	E	E	E	E
16	E	E	E	E	E	E	E
17	E	E	E	E	E	E	E
18	E	CT, Ad, 1	E	E	E	E	E
19	E	E	E	E	E	E	E
20	E	E	E	E	E	E	E
21	E	E	E	E	E	E	E
22	E	E	E	E	E	E	E
23	E	E	E	E	E	E	E
24	E	E	E	E	E	E	E
25	E	E	E	E	E	E	E
26	E	E	E	SW, Ad M, 1	E	E	E
27	E	E	E	E	E	E	E
28	E	E	E	E	E	E	E
29	E	E	E	E	E	E	E
30	E	E	E	E	E	E	E
31	E	E	E	E	E	E	E
32	E	E	E	E	E	E	E
33	E	E	E	E	E	E	E
34	E	E	E	E	E	E	E
35	E	E	E	E	E	E	E
36	E	E	E	E	E	E	E

37	E	E	E	E	SW, Ad M, 1	E	E
38	E	E	E	E	E	E	E
39	E	E	E	E	E	E	E
40	E	E	E	E	E	E	E
41	E	E	E	E	E	E	E
42	E	E	E	SW, Ad M, Ad F, 2	SW, Ad M, 1	SW, Ad M, Ad F, 2	SW, Ad, 2
43	E	E	SW, Ad M, 1	E	E	E	E
44	E	CT, Ad, 1	E	E	E	E	SW, Ad F, 1
45	E	E	E	E	E	E	E
46	E	E	E	E	E	E	E
47	E	E	E	E	E	E	E
48	E	E	E	E	E	E	E
49	E	SW, Ad, 1	E	E	E	SW, Ad F, 1	SW, Ad M, 1
50	E	E	E	E	E	E	E
51	E	E	E	E	E	E	E
52	E	E	E	E	E	E	E
53	E	CL, Jv, 1	E	E	E	E	E
54	E	E	E	E	E	E	E
55	E	E	E	E	E	SW, Ad F, 1	SW, Ad F, 1
56	E	E	E	E	E	E	E
57	E	E	E	E	E	E	E
58	E	E	E	E	E	E	E
59	E	E	E	E	E	E	E
60	E	E	E	E	E	E	E
61	E	E	E	E	E	SW, Ad F, 1	SW, Ad F, 1
62	E	E	E	E	E	E	E
63	E	E	E	E	E	E	E
64	E	E	E	E	E	E	E
65	E	SW, Ad F, 1	E	E	E	CT, Ad, 1	E
66	E	E	E	E	E	E	E
67	E	E	E	E	E	E	E
68	E	E	E	E	E	E	E
69	E	E	E	E	E	E	E
70	E	E	E	E	E	E	E
71	E	E	E	E	E	E	E
72	E	E	E	E	E	E	E
73	E	E	E	E	E	E	E
74	E	E	E	E	E	E	E
75	E	SW, Ad F, 1	E	E	E	E	E
76	E	E	E	E	E	E	E
77	E	E	E	E	E	E	E
78	E	E	E	E	E	E	E
79	E	E	E	E	E	E	E
80	E	E	E	E	E	E	E
81	E	E	E	E	E	E	E

APPENDIX 8 - 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 Trust[26] 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 cats 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 features;

[26] 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/

- 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

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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/

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