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Ecological Impact Assessment

Site Name

Land at Northlands Lane

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About the Author

This report has been prepared by Sam Lunn, a Principal Ecologist at The Ecology Co-op, with 13 years' experience. He has Level 2 bat and great crested newt survey licenses and a level 1 dormouse survey licence. As a Full member of the Chartered Institute for Ecology and Environmental Management (CIEEM), he is bound by their code of professional conduct.

About the Reviewer

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Report Summary

Purpose	The Ecology Co-op has been commissioned by Fairfax Acquisitions Ltd to undertake an Ecological Impact Assessment (EclA) for a development on land at Northlands Lane. Following a Preliminary Ecological Appraisal (PEA), including UKHab mapping of the site by The Ecology Co-op in December 2023, further ecological surveys were undertaken, including protected species surveys and desktop studies between December 2023 and December 2024 in order to provide sufficient baseline information for this assessment. This document presents the findings of these surveys, and a full EclA in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines to inform a planning application for the construction of up to 56 homes upon the site.
Context	This site measures approximately 4.7ha and comprises a singular field. Land adjacent to the site to the east was available to be surveyed at the same time providing a greater picture of how species are using the area. The site is located to the northeast of the town of Storrington, West Sussex. The site is bounded by woodland parcels on three boundaries with scrub habitat along the western boundary.
Impact on Protected Species	The protected species surveys identified the presence of the following: • multiple bat species (commuting and foraging); • multiple breeding bird species on site, including three 'red' listed and three eight 'amber' listed (BoCC); • hazel dormouse; • smooth newt, palmate newt, common frog and common toad; • a low grass snake population and good slow worm population as well as a single common lizard identified; • suitable habitat for [REDACTED] west European hedgehog and stag beetles; • invasive rhododendron within on-site woodland.
Impact on Habitats	The proposed development will result in the loss of a large proportion of other neutral grassland, and small amounts of bracken and bramble scrub. However, the woodland, scrub and treelines will be retained. Additionally, unmitigated, there may be direct and indirect impacts upon the priority habitat deciduous woodland and ancient woodland north of the site during both the construction and operational phase of the development.
Biodiversity Net Gain	In line with the National Planning Policy Framework, the site's ecological value should be enhanced, and it is likely that the development will need to demonstrate that it can achieve a 10% net gain in biodiversity value.



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1 INTRODUCTION

1.1 Background

The Ecology Co-op was commissioned by Fairfax Acquisitions Ltd. to undertake an Ecological Impact Assessment (EclA) of land at Northlands Lane. 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.

This site measures approximately 4.7ha and comprises a singular field illustrated by the red line boundary in Figure 1. Land adjacent to the site to the east was available to be surveyed at the same time providing a greater picture of how species are using the area and producing more robust data. As a result, most of the protected species surveys branch into this adjacent field, however it should be noted that it is not part of the development.

It is also important to note that the red line extends westwards into another parcel of land which belongs to a separate planning application by Matthew Homes and has been included in the red line to facilitate access via their proposed development. However, it is not part of the proposed development detailed within this report.

The site is located to the northeast of the town of Storrington, West Sussex. The central grid reference for the site is TQ0918 1529. The survey site includes a grassland field with a public footpath and woodland shaw along the eastern boundary. The site is bounded by a woodland parcel to the south with hedgerows and scrub parcels bordering the site to the northern and western aspects. To the east is Field 2.

At present, the survey site is currently unoccupied, though clear evidence of usage has been noted by dogwalkers from the local vicinity. It is noted that the previous usage and management of both fields included sheep grazing in 2017, and it is unclear when the site usage and management regime changed. Figure 1 shows the boundary of the site and local context.

The proposed development comprises up to 56 residential dwellings with associated hard and soft landscaping, including several sustainable drainage systems (SuDS) and a village green area (see Figure 3).

Following an Ecological Impact Assessment (EclA) undertaken by The Ecology Co-op in 2019¹ the previous report included the results from a number of protected species surveys, including:

- [REDACTED]
- bat scoping assessment (March 2018);
- bat activity surveys (July 2017 to May 2019);
- hazel dormice *Muscardinus avellanarius* presence/absence survey (July 2017 to May 2018);
- great crested newt *Triturus cristatus* presence/absence surveys (June 2017); and
- reptile presence/absence surveys (July to September 2017).

¹ The Ecology Co-op (2021). *Ecological Impact Assessment – Land at Northlands Lane, Storrington, West Sussex.*



These indicated that the site supported:

- a 'low' population of slow worm *Anguis fragilis* and grass snake *Natrix Helvetica*.
- likely absence of great crested newts;
- dormouse presence;
- [REDACTED]
- moderate bat species diversity; and
- four trees with high bat roosting potential.

Due to the age of this report and previous surveys, a repeat assessment was commissioned including an initial site walkover to assess the site's value for protected species and habitats and determine if the site has changed significantly from the previous assessments.

1.2 Purpose of this Report

The Ecology Co-op undertook surveys for hazel dormice, great crested newts, common reptiles, breeding birds and bats (activity surveys) as well as botanical assessments.

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, and 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 Fairfax Acquisitions Ltd and supervised by Joshua Harwood, BSc (Hons), an associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM). He holds both a great crested newt and bat class 1 survey licence from Natural England (licence numbers available upon request).

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 Horsham District Council is provided in Appendix 2.



Figure 1. An aerial image showing the location of the site. The approximate site boundary is outlined in red with a second red line boundary to the west included to facilitate access only. Images produced courtesy of QGIS 3.36 Maidenhead.



Figure 2. The location plan showing the field to be developed highlighted in green with the land to the west included to facilitate access only.



Figure 3. Illustrative coloured masterplan produced courtesy of Paul Hewett Architects. Drawing number 2505/PL.05 Dated April 2026.

2 SURVEY METHODOLOGY

The following sections describe the methods used in the desk study and protected species/habitat surveys. 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 2.14.

This document is written in accordance with the CIEEM Guidelines for Ecological Impact Assessment² and CIEEM Guidelines for Ecological Report Writing³ Details of the ecological assessment methods are provided within section 2.13 below.

2.1 Surveyors

A number of experienced and qualified surveyors undertook the surveys on site, and a list of the surveyors with their appropriate qualifications and experience is below. All licence holders are in relation to personal licences issued by Natural England and correct at time of surveys. Licence numbers can be provided upon

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

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



request where appropriate.

- Joshua Harwood – Project Ecologist, ACIEEM, Class 1 bat licence, class 1 great crested newt licence.
- Paul Whitby – Principal Ecologist, MCIEEM, Chartered Ecologist (CEcol), Field Identification Skills Certificate (FISC) level 4
- Alice Motola – Assistant Ecologist, qualifying member of CIEEM
- Dr Ryan Walker – Principal Ecologist, MCIEEM, Chartered Environmentalist (CEnv)
- Libby Morris – Consultant Ecologist – FISC level 4
- Sam Lunn – Principal Ecologist, MCIEEM, Class 2 bat licence, class 1 dormouse licence, class 2 great crested newt licence
- Owen Crawshaw - Principal Ecologist, MCIEEM, CEcol, class 2 bat licence, qualified tree climber
- Rebecca Carter - Whitehead - Senior Ecologist, class 4 bat licence, class 1 dormouse licence
- James Whitby – Project Ecologist, ACIEEM, class 1 bat licence (accredited to endoscope under Sam Lunn) and accredited agent class 1 dormouse licence, qualified tree climber
- Holly Waters – Senior Ecologist, ACIEEM– class 2 bat licence and accredited agent class 1 dormouse surveyor
- Theresa Stewart – Principal Ecologist, MCIEEM, class 4 bat licence

2.2 Desk Studies

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

A search of online 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 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.

2.3 Habitat Survey

A site walkover survey was undertaken on 7th December 2023, by Joshua Harwood and Libby Morris (FISC level 4, obtained June 2024) during which the habitats contained within the site were described and evaluated in accordance with standard UK Habitat Classification (UKHab)⁴. The dominant species and indicators of important habitat types such as ancient woodland or unimproved grassland were recorded. A repeat site walkover and condition assessment was completed on 22nd April 2026 by James Whitby.

⁴ UKHab Ltd (2023). UK Habitat Classification Version 2.0 (at <https://www.ukhab.org>).



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 classifications⁵. 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 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 2.14.

2.4 Detailed Botanical Assessment

As an extension to the UKHab survey, a botanical survey was undertaken on 3rd July 2024 to assess the grassland habitats on site. This is the optimum time of year for botanical surveys when most flora is actively growing and trees are in leaf. The aim of the survey was to list the dominant species composition, and accurately assess the grassland habitat under UKHab. The walkover surveys were undertaken by Paul Whitby, Principal Ecologist, MCIEEM, CEcol, FISC level 4, and Alice Motola, Assistant Ecologist. This survey was repeated on 22nd April 2026.

[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]



2.6 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.

2.6.1 Natural Roost Features – Trees

All trees likely to be affected directly or indirectly by the proposed development were subject to a ground-based tree assessment (GLTA) to identify potential roost features, followed by climbing inspections where necessary and safe, to look for evidence of roosting bats and to further assess the suitability of the feature. Each tree/feature was categorised for its potential to support roosting bats as shown in Table 1 in accordance with best practice guidance⁶. GLTA surveys were undertaken by Joshua Harwood ACIEEM, and class 1 bat licenced ecologist with the use of a high-powered torch and binoculars.

Table 1. Characterising potential roost features in trees⁶.

Category	Description
None	Either no PRFs in the tree or highly unlikely to be any.
FAR	Further assessment required to establish if PRFs are present in the tree.
PRF	A tree with at least one PRF present.

Trees previously identified with FAR or PRF potential on the GLTA assessment and considered to be at risk of potential removal, damage or modification as a result of the design proposals were subject to secondary GLTAs and subsequent climb and inspect assessments where appropriate. A single tree was subject to a ground level endoscope assessment as it was previously identified as having high potential for roosting bats in the original EcIA¹. Trees subject to a climb and inspect assessment could then be further described to determine if they had individual potential roosting features (PRF-I) or multiple (PRF-M) as described in Table 2. Table 3 illustrates the appropriate survey effort as detailed in the bat survey best practice guidelines.

Table 2. Categorising the potential suitability of PRFs for bats in trees.

Suitability	Description
None	Either no PRFs in the tree or highly unlikely to be any.
PRF-I	PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats
PRF-M	PRF is suitable for multiple bats and may therefore be used by a maternity colony

Table 3. Survey effort for trees with possible roosting features.

PRF-I	PRF-M
No further	Three separate dusk emergence surveys or three close aerial inspection surveys between May

⁶ Collins, J.(ed.) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition)*. The Bat Conservation Trust, London. ISBN-978-1-7395126-0-6.



PRF-I	PRF-M
surveys	and September with a minimum of two visits between May and August spaced a minimum of 3 weeks apart.

2.6.2 Built Structures

No built structures have been identified on site.

2.6.3 Bat Activity Surveys – Night Time Bat walkover

Bat activity surveys followed best practice guidelines⁶. Pre-determined transect routes were followed by surveyors (Figure 4), focussing on all linear features within the site boundary (treelines, woodland edge and hedgerows) and adjacent land. 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.

2.6.4 Bat Activity Surveys – Automated Static Bat Detecting

Two wildlife acoustic "Song meter mini bat" static bat detectors were deployed across the site (one to the north of the site and one to the south) on three separate occasions, in Spring (May), Summer (July to August) and Autumn (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* species).

The data was processed using the British Trust for Ornithology's (BTO) Acoustic Pipeline v5.5027, 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 v5.6.38. Data management was facilitated using the R Shiny App through R Studio v2023.09.1+4949, including to choose a random sample of some datasets to establish error rates.



Figure 4. The transect routes of surveyors on survey 1 (stopping points not utilised on survey one). Images produced courtesy of QGIS 3.36 Maidenhead.



Figure 5. The transect routes of surveyors on survey 2, with stopping points indicated in numbered red points and the initial vantage point survey with a red star. Images produced courtesy of QGIS 3.36 Maidenhead.



Figure 6. The transect routes of surveyors on survey 3, with stopping points indicated in numbered red points and the initial vantage point survey with a red star. Images produced courtesy of QGIS 3.36 Maidenhead.

Common and Soprano Pipistrelles

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 bat logger is placed can influence the effectiveness of species detection. For the purpose of reporting, some results were adjusted in light of the error rate found to create a more representative number of calls, accounting for positive error rates. The data that has undergone this modification are clearly labelled as such.

Barbastelle

All 'low confidence' calls (i.e. calls with a confidence score of below 50%) were discarded from the dataset. All remaining calls were manually analysed due to the small call sample size for this species. All calls found to be incorrectly identified as barbastelle during verification were then also discarded from the dataset. The false positive error rate for this species was 1%.

Myotis, *Plecotus* and *Nyctalus* species and Serotine

All calls from *Myotis*, *Plecotus*, *Nyctalus* and *Cnephaeus* species were analysed, regardless of their confidence score. This is because calls from 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 Files

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

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.

2.7 Breeding Birds

The methods used for the breeding bird survey were adapted from a methodology developed by the Bird Survey and Assessment Steering Group (RSK Biocensus)⁷. 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. 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 (

⁷ <https://birdssurveyguidelines.org/methods/survey-method/>



Figure 7) 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) notation⁸, 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.

Static acoustic detection measures were used to aid the survey effort to help record nocturnal and secluded species that may not be recorded during the transect surveys. Each recording was run through the BTO Acoustic Pipeline⁹ reviewed by a suitable qualified ecologist to confirm species identification.

The breeding bird surveys were undertaken by Dr Ryan Walker, Principal Ecologist, MCIEEM, CEnv and Libby

⁸ https://www.bto.org/sites/default/files/u16/downloads/forms_instructions/bto_bird_species_codes.pdf

⁹ BTO (2023). BTO Acoustic Pipeline. Available from: <https://www.bto.org/our-science/products-and-technologies/bto-acoustic-pipeline>



Morris.



Figure 7. Breeding bird survey transect route for the six surveys with loggers denoted by coloured dots. Images produced courtesy of QGIS 3.40.5-Bratislava.

2.8 Common Dormouse

Common/ hazel 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.

2.8.1 Nest Tube/Box Survey

Dormouse surveys are undertaken by attaching purpose built 'nest tubes' on trees and shrubs in suitable habitat such as woodland, scrub and hedgerows. Nest tubes are used by dormice as places of shelter and they will often construct their nests within them during their periods of activity (typically between April and November). In accordance with current best practice guidelines¹⁰, 56 nest tubes were deployed approximately

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



20m apart in woodland and scrub habitat within, bordering and adjacent to the site on the 8th March 2024 and left *in situ* for the survey season (see Figure 8). These were checked on a monthly basis for presence of animals and evidence of dormouse presence (distinctively woven nests) from April to October. 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 4 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 ¹⁰.

Table 4. 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 by licensed surveyors: Sam Lunn, James Whitby and Holly Waters (accredited agent under Rebecca Carter-Whitehead's licence) with tube collection undertaken by Joshua Harwood.



Figure 8. Dormouse nest tube locations (identified as purple dots) across all suitable habitat. Images produced courtesy of QGIS 3.40.5-Bratislava.



2.9 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* is 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.

2.9.1 Habitat Suitability Assessment

The site does not contain any ponds within its boundaries. The desk study revealed a total of 15 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)¹¹.

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

2.9.2 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 England¹². 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 26th April 2024.

Ponds that were confirmed as positive for great crested newt DNA were then carried forward to full field survey (population size class assessment).

2.9.3 Field Survey

The survey methodology followed standard guidance for great crested newts¹³. 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

¹¹ Oldham, R.S., Keeble, J., Swan, M.J.S. and Jeffcote, M., 2000. Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*). *Herpetological Journal*, 10(4), pp.143-155.

¹² 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.

¹³ English Nature (2001) *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.



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.

2.10 Reptiles

The common lizard *Zootoca vivipara*, slow-worm, grass snake 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 0.5m 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 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 65 artificial refugia (comprised of bitumen roofing felt, corrugated bitumen and corrugated metal) were used in this survey (see Figure 9). 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 2nd July and 24th October 2024 and all observations of reptiles were recorded, together with the weather conditions, temperature and time of day.



Figure 9. Location of reptile refugia. Images produced courtesy of 3.40.5-Bratislava.

2.11 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 deadwood, wet flushes, bare earth banks and botanically rich areas.

2.12 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.

2.13 Impact Assessment Methodology and Mitigation

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



2.13.1 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 EclA. However, the level of importance assigned to the affected population of a protected species will vary depending on contextual information about the population size, distribution, abundance and trends across the range of geographical scales.

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

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

2.13.2 Significance of Effects

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

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

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



2.13.3 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 are 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.

2.14 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 [REDACTED] 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 and if there has been no change then it is possible that the data could be valid for longer than the stated time frames above.

3 ECOLOGICAL BASELINE

3.1 Designated Sites

Any designated sites located within 2km of the site have been identified within Table 5 below. The closest is Sullington Warren Site of Special Scientific interest (SSSI) located 550m southeast of the site (see Figure 10).

No priority habitats have been identified on or directly adjacent to the site, but all priority habitats identified within 2km of the site have been illustrated within Figure 11.

There are no granted EPS licences for mitigation projects within 1km of the site boundary.

Table 5. Designated sites within 2km of the site.

Site nam	Designation	Features listed on citation	Proximity	Ecological importance
Sullington Warren	SSSI	This heathland has declined somewhat in recent years largely as a result of agricultural improvement and encroachment of woodland onto neglected	550m SE	National



		heaths. The site contains wet and dry heath. An area of dry grassland exists in the centre. Woodland surrounds these habitats and a variety of birds breed within this woodland.		
Chantry Mill	SSSI	Non-ecological designation – geological.	1220m S	N/A
South Downs	National Park	The area's designation as a National Park recognises that it is a landscape of national importance. Habitats present include ancient woodland, river valleys, chalk grassland, heathland, meadows and farmland. The park supports a number of threatened and nationally scarce species, including round-headed rampion <i>Phyteuma orbiculare</i> , otter <i>Lutra lutra</i> and barbastelle bat <i>Barbastella barbastellus</i> .	1310m S	National
Hurston Warren	SSSI	Area of heathland that contained woodland, wet and dry heath, open water and bog. A quaking bog has developed over an old lake and is regarded as one of the best examples of this habitat in the South East. It contains several locally rare plants. Much of the remainder of the heathland is managed as a golf course.	1820m NW	National
Parham Park	SSSI	Medieval deer park rich in epiphytic lichen floras. One section of the site contains lowland raised bog with adjacent alder carr. There are a number of artificial ponds throughout the site and ancient woodland. The oaks in the Northpark wood are rich in lichen flora. Among the 165 recorded species is <i>Thelopsis rubella</i> , here in its only known locality east of the New Forest. This site is the locality of two rare beetles: <i>Ampedus cardinalis</i> and <i>Procræus tibialis</i> .	2289m W	National
Arun Valley	Special Area of Conservation (SAC), Special Protection Area (SPA) and RAMSAR	The site supports ramshorn snail <i>Aniscus vorticulus</i> which is an Annex II species. This snail is found along a range of sites in the south and east of England. The Arun Valley is one of three main population centres for this species within the UK. Arun Valley also benefits a large number of waders and wildfowl including over 1% of the British population of Annex I listed bewick's swan <i>Cygnus columbianus bewickii</i> .	3610m E	International
Pullborough Brooks	SSSI	Wet meadows on the floodplain of the River Arun, managed with grazing and cutting. These support rich aquatic flora and invertebrate fauna. Much of the site is	3670m NW	National



		managed as a nature reserve. Invertebrate fauna within wet ditches is varied and important. A large area of the site is now managed as wet grassland, principally for the benefit of breeding waders and controlled flooding of this area allows for the site to support internationally important assemblages of wintering wildfowl.		
Marehill Quarry	SSSI	Non-ecological designation – geological.	4170m NE	National
Amberley Wild Brooks	SSSI	Alluvial grazing marsh dissected by drainage ditches. The number of birds which overwinter here are nationally significant. In placed woodland has taken over the fen and here two rare fungi have been recorded. The birds recorded at bewick's swan and shoveler <i>Anas clypaeta</i> . It is one of the most important sites in the country for breeding redshank <i>Tringa totanus</i> . Seventeen species of dragonfly and two rare snails have also been recorded here.	4480m SE	National
Chanctonbury Hill	SSSI	Steep chalk escarpment with a nationally uncommon woodland type as well as chalk grassland with areas of scrub. The site supports a range of butterflies associated with chalk grassland as well as records for over sixty species of breeding bird such as meadow pipit <i>Anthus pratensis</i> corn bunting <i>Emberiza calandra</i> and nightingale <i>Luscinia megarhynchos</i> .	4860m SE	National

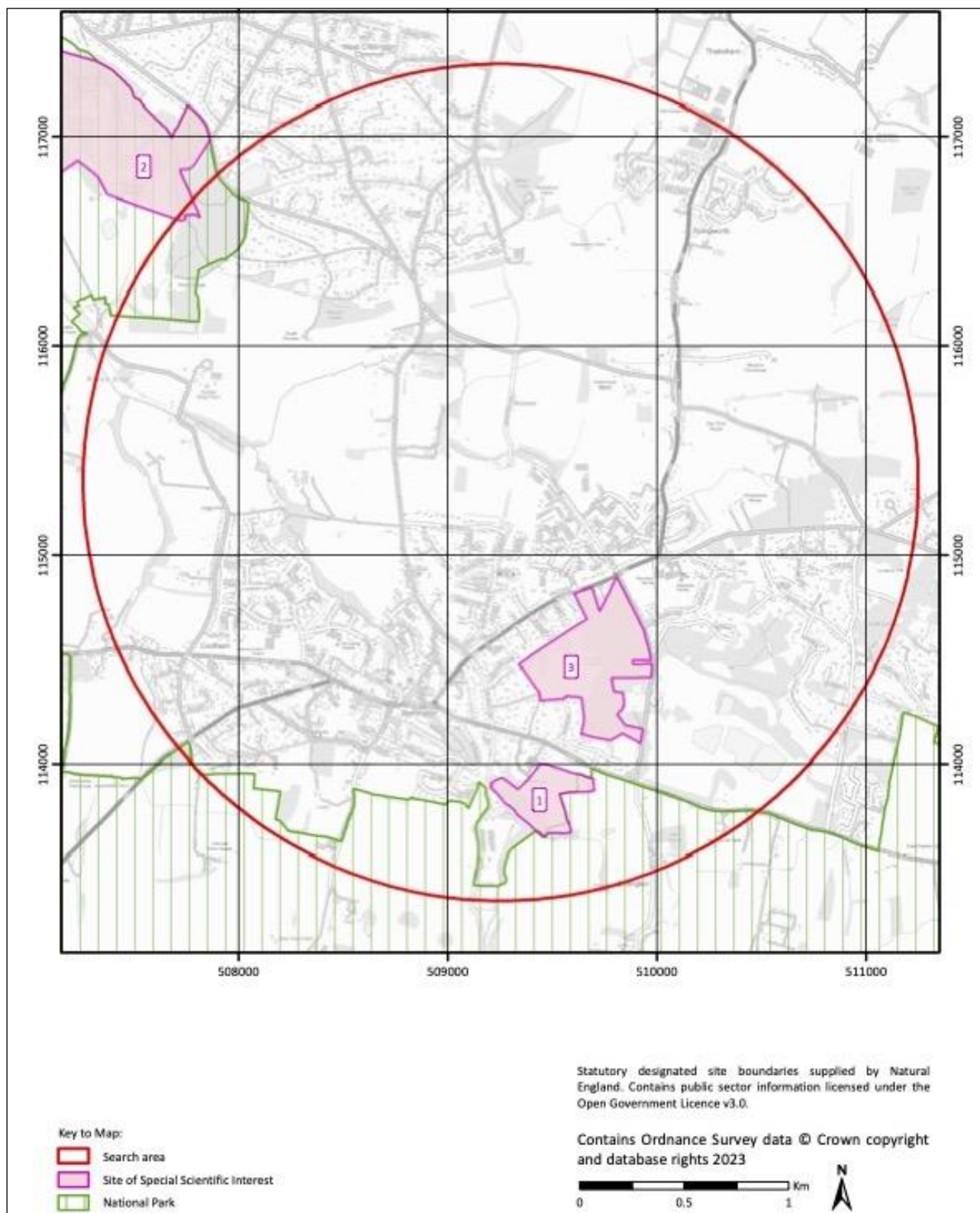


Figure 10. Statutory designated sites within a radius of 2km of the application site. Images produced courtesy of SxBRC 18th December 2023.

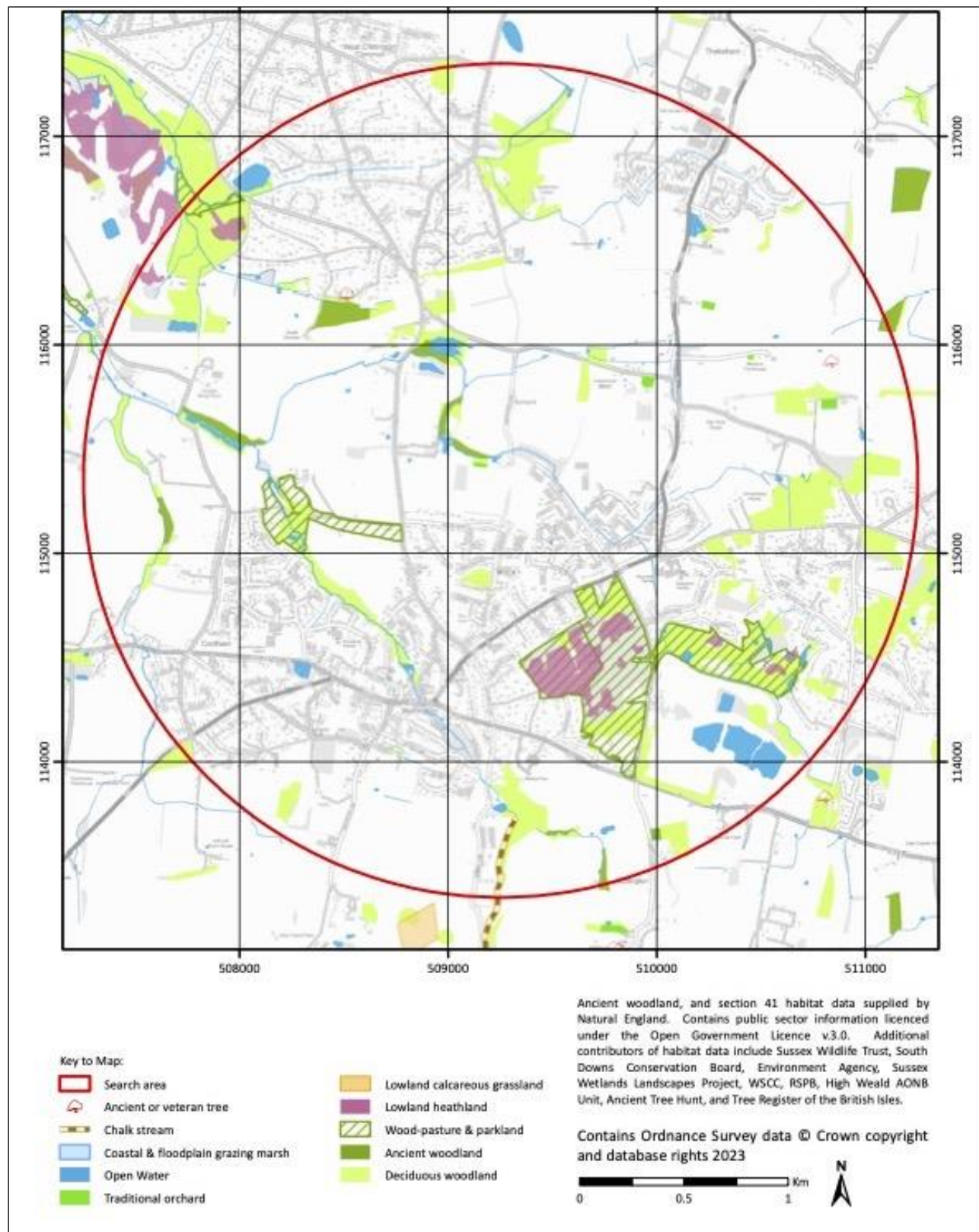


Figure 11. Priority Habitats within a radius of 2km of the application site. Images produced courtesy of SxBRC 18th December 2023.

3.2 Habitats

Table 6 below lists the UKHab habitats found at the site with the species composition of these habitats. Note



that detailed information on buildings and ponds with respect to bats and great crested newts is presented in the following sections. The habitat map for the site and key to the standard mapping symbols used is presented in Figure 12. Photographs of important areas of habitat are presented below.

Table 6. The UKHab habitat contained within the site.

Habitat type	UKHab Code	Area (ha)/ length (m)	Species composition	Ecological importance
Field 1				
Other Neutral Grassland	g3c	2.77 ha	Large parcel of grassland that dominates the field. Includes the following species: Red Fescue <i>Festuca rubra</i> , Field Wood-rush <i>Luzula campestris</i> , Perennial Rye-grass <i>Lolium perenne</i> , Yorkshire-fog <i>Holcus lanatus</i> , Cock's-foot <i>Dactylis glomerata</i> , Common sorrel <i>Rumex acetosa</i> , Dandelions <i>Taraxacum spp.</i> , Germander Speedwell <i>Veronica chamaedrys</i> , Ground-ivy <i>Glechoma hederacea</i> , Common Bird's-foot-trefoil <i>Lotus corniculatus</i> , and Common Knapweed <i>Centaurea nigra</i>	Local
Bracken	g	0.09 ha	Monotypic parcel of bracken located to the east of the other neutral grassland parcel acting as an ecotone between the grassland and other lowland mixed deciduous woodland parcel.	Site
Bramble Scrub	h3d	0.56ha	Four parcels of bramble scrub located across the field with one large parcel (E-H-1) located to the western aspect of the field forming a large site boundary. Another smaller parcel of bramble scrub (E-H-2) is located to the southern aspect of the field just off-set from the southern woodland parcel. The other two areas of bramble scrub are located in the south east corner connecting two parcels of woodland (E-H-3) and in the northeastern corner (E-H-4).	Site
Other woodland – broadleaved	W1g	0.23ha	A parcel of woodland along the northern boundary (E-W-1) dominated by pedunculate oak <i>Quercus robur</i> .with no ground flora present apart from a small amount of greater stitchwort <i>Rubra holostea</i> in the north-eastern corner.	Site
Lowland Mixed Deciduous Woodland	w1f	0.5ha 0.52ha	There are two woodland parcels located along the south (E-W-2) and eastern boundaries (E-W-3). Along the eastern boundary, trees are dominated by pedunculate oak with hazel <i>Corylus avellana</i> , elder <i>Sambucus nigra</i> and ash <i>Fraxinus excelsior</i> frequent in the parcel along with Bluebell <i>Hyacinthoides non-scripta</i> , Lesser celandine <i>Ficaria verna</i> , Lords-and-Ladies <i>Arum maculatum</i> , Wood Avens <i>Geum urbanum</i> , Dog's Mercury <i>Mercurialis perennis</i> , Moschatel <i>Adoxa moschatellina</i> , and Ivy-leaved Speedwell <i>Veronica hederifolia</i> .	Local



			The southern woodland parcel contains the following species: Pedunculate Oak <i>Quercus robur</i>, Beech <i>Fagus sylvatica</i>, Hornbeam <i>Carpinus betulus</i>, Hawthorn <i>Crataegus monogyna</i>, Hazel <i>Corylus avellana</i>, Field Maple <i>Acer campestre</i>, Elder <i>Sambucus nigra</i>, Silver Birch <i>Betula pendula</i>, Bramble <i>Rubus fruticosus</i> agg., Ramsons <i>Allium ursinum</i>, Wood Avens <i>Geum urbanum</i>, Ivy-leaved Speedwell <i>Veronica hederifolia</i>, Wood Forget-me-not <i>Myosotis sylvatica</i>, Bluebell <i>Hyacinthoides non-scripta</i>, Clustered Dock <i>Rumex conglomeratus</i>, Germander Speedwell <i>Veronica chamaedrys</i>, Cleavers <i>Galium aparine</i>, Creeping Thistle <i>Cirsium arvense</i>, Herb-Robert <i>Geranium robertianum</i>, Cow Parsley <i>Anthriscus sylvestris</i>, Common Nettle <i>Urtica dioica</i>, and Balm <i>Melissa officinalis</i>.	
Line of trees	w1 33	100m (50m on either side)	Two lines of trees are noted along the northern boundary of the field to the immediate east and west of the other woodland - broadleaved parcel. These trees are dominated by pedunculate oak.	Site



Figure 12. Habitat survey map of the site with the site boundary is outlined in red. Images produced courtesy of QGIS 3.36 Maidenhead.



Photographs 1a (left) and 1b (right). a - view of the other neutral grassland parcel (E-G-1) to the centre and left of image with view of the bracken parcel (E-G-2) to the centre right and woodland parcel to the far right of image (E-W-3), image taken from the central eastern aspect of the parcel facing north. b - view of the other neutral grassland parcel from the central eastern aspect of the parcel facing west.



Photographs 2a (left) and 2b (right). a - view of the other neutral grassland parcel (E-G-1) from the central western aspect of the site facing north, note the adjacent bramble scrub parcel (E-H-1) is visible to the far left of the image. b – same grassland with view of the woodland parcel (E-W-1) is visible to the centre and left of the image.



Photographs 3a (left) and 3b (right). a - lowland mixed deciduous woodland parcel (E-W-3) with public footpath that runs alongside, image taken from the northernmost aspect of the parcel facing south. b - woodland parcel from the easternmost aspect of the parcel facing west.



3.3 Botanical Baseline

As an extension to the UKHab survey the detailed botanical survey provides a full species list for the habitats present on the site and this can be found in Table 6.

The botanical species on site are considered to be of importance at **site level** only.

[REDACTED]

[REDACTED] [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

3.5 Bats

3.5.1 Natural Roost Features – Trees

A full list of trees assessed during this ecological assessment is shown below with the results of the GLTA survey shown in Table 7 and Figure 13.

Table 7. Trees assessed for potential roost features (PRFs) for bats during the ground level tree assessment (GLTA).

Tree numbers		Species	Description of features	Survey findings
This report	ARB Report ¹⁴			
T01	T46	Pedunculate oak	Tree of appropriate size and species to support possible roosting features, specific PRF's not identified at this time.	FAR
T02	T48	Pedunculate oak	Tree of appropriate size and species to support possible roosting features, specific PRF's not identified at this time.	FAR
T03	T55	Pedunculate	Sections of deadwood and twisted bark located	FAR

¹⁴ Arbortrack Systems Ltd (2025), *Northlands Lane Storrington Arboricultural Impact Assessment Appendix A*, revision C June 2025



		oak	throughout, unclear if these features offer PRF's.	
T04	W61	Cherry species	Old tree with veteran features, notably a large wound located to the southern aspect of the main stem at approximately 1.5m height.	PRF
T05	W61	Hawthorn	Knot holes noted to southern aspect of the main stem.	FAR
T06	W61	Pedunculate oak	Wound to stem on southern aspect, unknown if the wound extends into suitably roosting feature.	FAR
T07	G71	Pedunculate oak	Dense ivy noted on tree either forming or concealing potential roosting feature(s).	FAR
T08	G72	Sweet Chestnut	Minor bark damage noted to lower stem of tree with suspect damage higher up stem but couldn't confirm during GLTA.	FAR
T09	T39	Ash	Tree of appropriate size and species to support possible roosting features, specific PRF's not identified at this time.	PRF
T10	T40b	Ash	Tree of appropriate size and species to support possible roosting features, specific PRF's not identified at this time.	PRF
T11	T40a	Ash	Tree of appropriate size and species to support possible roosting features, specific PRF's not identified at this time.	PRF



Figure 13. Aerial image indicating the location of trees with bat roosting potential within the application site following the GLTA. Images produced courtesy of 3.40.5-Bratislava.

Following the GLTA survey, a number of trees were subject to further assessment including a climb and



inspection where appropriate. Not all trees were subject to detailed assessment, trees that were further assessed were trees; T01, T02, T04, T09, T10 and T11. Tree 04 was subject to a ground level endoscope assessment by Rebecca Carter-Whitehead, undertaken on the 29th August 2024, and the remainder of trees were subject to both secondary ground level and climbed inspections where safe to do so. These climbed inspections were undertaken by James Whitby and Owen Crawshaw on the 18th November 2024. Subsequent descriptions and roost assessments are shown in Table 8 and Figure 14. Trees 4 - 8 are being retained and sit within woodland habitat that will be incorporated into a dark zone as part of a detailed lighting strategy.

Table 8. Results of further inspection of trees with possible bat roosting potential on site.

Tree numbers		Species	Features		Roosting potential
This report	ARB Report ¹⁴		Title	Description	
T01	T46	Pedunculate oak	N/A	No suitable roosting features identified during detailed inspection.	None
T02	T48	Pedunculate oak	N/A	No suitable roosting features identified during detailed inspection.	None
T04	W61	Cherry species	Wound	A wound identified on the southern aspect of the main stem at 1.5m height which extends upwards for a minimum of 2.0m (maximum length of endoscope) with internal crevices noted throughout.	PRF-M and Hibernation potential
T11	40a	Ash	Knot Hole	A small knothole measuring 6cm x 4cm at entrance extending downwards ~ 10cm.	Negligible
			Wound	Wound to the western aspect of the stem at 6m height.	PRF-I
T10	40b	Ash	Shearing Cracks	Very exposed, large crack; varying diameter. Roughly 80cm by 15cm at widest point. Goes back 10cm. Mostly dry, spider webs present.	Negligible
			Knot holes	6cm diameter, possible squirrel <i>Sciurus carolinensis</i> damage. Goes down and up creating a 20cm long chamber. Dry throughout. Bit dirty. Goes up all the way to tear out above. One connected feature.	PRF-I
			Tear Out	Large tear out, approximately 20cm x 10cm.	Negligible
			Woodpecker <i>Dendrocopos</i> sp. hole	5cm diameter entrance currently in use as a honeybee nest.	Negligible
			Wound	Extends up to 30cm, wound is dry with no evidence of moisture entering feature.	PRF-I
			Wound	Located to underside of limb, the access measures about 4cm at widest point entering into a chamber cavity where only a small section was visible at the time of survey. A large number of leopard slugs <i>Limax maximus</i> were noted at time of inspection.	PRF-I
T09	39	Ash	Woodpecker hole	A 5cm diameter entrance that extends 10cm inwards and does not extend upwards of downwards.	PRF-I
			Woodpecker	The hole was discovered to go downward	PRF-I



			hole	approximately 50cm, being relatively damp and rough at the edges. Debris was identified throughout the hole, with some possible nesting material identified at the bottom.	
			Woodpecker hole	Another woodpecker hole measuring 5cm diameter at the entrance that extends 10cm inwards and does not extend upwards or downwards.	PRF-I
			Woodpecker hole	10cm diameter entrance that holds the same diameter throughout, the hole extends downwards for 25cm, is dry and clean with evidence of an olds bird's nest with lots of hair.	PRF-I



Figure 14. Aerial image indicating the location of trees with bat roosting potential within the application site following the detailed assessments. Images produced courtesy of 3.40.5-Bratislava.

3.5.2 Bat Activity Surveys – Walked Transects

Survey conditions and timings are presented in Table 9. The results of each walked transect survey is summarised in Figures 15 to 17.

This shows the distribution of all bat observations on each walked transect, during which the route was covered at least three times in a session.



Table 9. Walked transect metadata: dates, times, temperature, weather conditions (CC = cloud cover, BF = Beaufort Wind Scale¹⁵).

Date	Survey Timings	Temp. degrees centigrade, weather conditions	Surveyors
30/04/2024	Start Time: 20:22 Sunset Time: 20:22 End Time: 22:25	12°C, 20% CC, BF0, dry.	Joshua Harwood Alice Motola James Whitby Sam Lunn
31/07/2024	Start Time: 21:00 Sunset Time: 20:51 End Time: 22:40	23°C, 95% CC, BF2, occasional drops of rain. Survey ended early due to rainfall increasing.	Theresa Stuart Destiny Stevinson Julian Browning Alice Motola
10/10/2024	Start Time: 18:23 Sunset Time: 18:23 End Time: 20:25	13°C, 95-100% CC, BF1, dry.	Joshua Harwood Alice Motola Elanor Curran Destiny Stevinson

3.5.2.1 30th April 2024

Static vantage point survey conducted for 53 minutes post survey start time due to good visibility with walked transect conducted hereafter. Stopping points not completed on first survey due to recent release of new survey guidelines and interpretation at time of survey.

Limited bat activity was noted between the two transects with a single common pipistrelle *Pipistrellus pipistrellus* heard and seen 36 minutes post sunset. The remainder of bats comprised additional common pipistrelles between both fields a single serotine *Cnephaeus serotinus* 80 minutes post sunset and a long-eared *Plecotus* sp. bat 119 minutes post-sunset, both located on the second transect.

¹⁵ Empirical system for classifying wind intensity from 0 (calm) to 12 (hurricane).



Figure 15. Approximate distribution of bats detected during first walked transect survey. Coloured dots represent bat activity with adjacent numbers relating to number of calls at the point. Images produced courtesy of QGIS 3.36 Maidenhead.

3.5.2.2 31st July 2024

Activity on survey 2 had significantly increased from that noted on survey 1, and stopping points were incorporated during the walked transect section of this survey. Static vantage point survey was undertaken for 45 minutes post survey due to good light levels.

The first bat detected was a foraging common pipistrelle 25 minutes post-sunset located along Transect 2. A large number of bat species were detected across the survey, with common and soprano pipistrelles, serotines, noctules *Nyctalus noctula* and *Myotis* spp. identified within the site.



Figure 16. Approximate distribution of bats detected during second walked transect survey. Coloured dots represent bat activity with adjacent numbers relating to number of calls at the point. Images produced courtesy of QGIS 3.36 Maidenhead.

3.5.2.3 10th October 2024

The final survey had a limited number of bat detections within the site, with more being detected outside of the site along Transect 2. Only two records of barbastelle *Barbastella barbastellus* bats, three common pipistrelle bats and two serotines were recorded within the site, whilst the land to the east of the site recorded three barbastelle calls, 21 common pipistrelle calls, 30 soprano pipistrelle, two long-eared species, two serotine and two *Myotis* spp. The majority of calls were located on the public footpath running along the eastern boundary of the site. The second transect route was amended during the survey as a result due to bats seen flying towards the public footpath at the start of the survey.



Figure 17. Approximate distribution of bats detected during third walked transect survey. Coloured dots represent bat activity with adjacent numbers relating to number of calls at the point. Images produced courtesy of QGIS 3.36 Maidenhead.

3.5.3 Bat Activity Surveys – Automated Static Bat Detecting

The results of the automated static bat detector surveys are summarised in Table 10. A total of nine bat species across six genera were recorded over the three seasons. Common pipistrelle was the most recorded bat species comprising 53.6% of all bat calls with the second most recorded bat being the soprano pipistrelle responsible for 38.3% of bat calls identified on site. Between common and soprano pipistrelle they were responsible for 91.9% of all bat calls on site, with the seven other species responsible for the remaining 8.1% of bat calls.

Bat loggers were deployed in the spring between the 1st to 7th May 2024 (data was taken from the 1st, 2nd, 3rd, 6th and 7th May to total a five-day surveying period, excluding sub-standard weather on the other days). The summer deployment was undertaken between the 31st July and 5th August 2024 and the Autumn deployment between 4th and 10th September 2024.



Table 10. Mean number of passes recorded by each static detector (rounded to nearest whole number) per night. Months marked with ♦ were subject to full manual analysis due to error rates being too high within the dataset.

Location	Date	CP	SP	NP	LE	Myo	Sero	Nct	Barb	Lei	Total
North of Field 1	May 2024	3	55	0	0	0	0	10	0	0	68
	July 2024	227	471	0	4	36	12	11	12	8	781
	September 2024	853	397	0	9	34	1	0	4	3	1301
	Total	1083	923	0	13	70	13	21	16	11	2150
South of Field 1	May 2024 ♦	637	101	0	2	2	0	8	0	0	750
	July 2024	223	357	0	2	24	13	25	9	0	653
	September 2024	51	67	0	0	4	0	0	0	0	122
	Total	911	525	0	4	30	13	33	9	0	1525
Total		1994	1448	0	17	100	26	54	25	11	3675
% of all calls		55%	39%	0%	<1%	<1%	<1%	<1%	<1%	<1%	

Abbreviations: CP= common pipistrelle, SP= soprano pipistrelle, NP=Nathusius pipistrelle, LE= long-eared bat species, Myo= *Myotis* bat species, Sero=serotine, Nct= noctule, Barb= barbastelle, Lei = Leisler's bat.

3.5.4 Pre-existing Records

The SxBRC provided a number of bat records in the search area comprising nine identified species. The number of records for each species is presented in Table 11. The closest of these records was a serotine bat recorded commuting and foraging in the adjacent field to the east dated May 2019.

Table 11. Number of pre-existing records of each bat species within 2km of the site boundary.

Species	No. of records
Common pipistrelle	35
Soprano pipistrelle	21
Brown long-eared	12
Serotine	24
Noctule	12
Daubenton's <i>Myotis daubentonii</i>	6
Whiskered/Brandts <i>Myotis mystacinus/brandtii</i>	5
Natterer's Bat <i>Myotis nattereri</i>	3
Western Barbastelle	2
Unidentified bat species	13
Unidentified long-eared	11
Unidentified myotis	1

3.5.5 Interpretation

Nine species have been confirmed to be commuting and foraging within the site through activity surveys. Although *Myotis* and *Plecotus* species cannot be identified to species level through call analysis only, as no records of grey long-eared *Plecotus austriacus* bats have been recorded within 2km of the site, it is considered unlikely that these species will be utilising the site and for bat assemblage information *Plecotus* bats have been assumed to be brown long eared bats. Similarly the *Myotis* species cannot be determined, however taking into



account the site's location, habitats on and adjacent to the site and within the wider context, as well as records within 2km of the site it is considered unlikely that Alcathe *Myotis alcathoe* or Bechstein's *Myotis bechsteinii* are present on site, and the assumption has been made that any *Myotis* calls on site likely belongs to one of the other species.

With the above considered using the UK Bat Mitigation Guidelines¹⁶, the land at Northlands Lane achieves a score of 19/45, which is just below the minimum threshold to assign a sites importance at county level (20/45), and as such the site is considered to be of **local value** to bat species.

Table 12. 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
Nathusius' pipistrelle	Near threatened	Widespread
Brown long-eared	Least concern	Widespread
Noctule	Least concern	Widespread
Leisler's bat	Near threatened	Widespread
<i>Myotis</i> species*.	Data deficient to least concern**	Widespread

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

** Excluding greater mouse eared bat *Myotis myotis*

3.6 Breeding Birds

3.6.1 Transect Results

In total, 33 species of bird were recorded during the surveys; of these, three species are 'red' listed under the Birds of Conservation Concern (BoCC) and eight are 'amber' listed. The following species recorded during the survey are also listed under Section 41 of the NERC Act (2006): dunnoek *Prunella modularis*, common bullfinch *Pyrrhula pyrrhula*, common starling *Sturnus vulgaris* and song thrush *Turdus philomelos*.

Nightingales have been identified directly west of the site, and therefore may use the application site from time to time.

Table 13 presents the bird survey results combined for all six 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 14 presents the dates, times and survey conditions recorded for each visit.

¹⁶ CIEEM (2023). UK Bat Mitigation Guidelines 2023. Available from: <https://cieem.net/wp-content/uploads/2023/09/Bat-Mitigation-Guidelines-2023.pdf>

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


Table 13. Breeding bird survey summary list.

RESULTS Species	1	2	3	4	5	6	Breeding status
Common starling *	2						Possible
Herring gull * <i>Larus argentatus</i>				1			Possible
Swift <i>Apus apus</i>				4			Possible
Bullfinch *					1	1	Possible
Dunnock *	1		1	6			Likely
Mallard <i>Anas platyrhynchos</i>	1						Unlikely
Lesser Black-backed Gull <i>Larus fuscus</i>	1	4					Unlikely
Song thrush *		2	2	4	3		Confirmed
Stock dove <i>Columba oenas</i>				2			Possible
Woodpigeon <i>Columba palumbus</i>	14	16	10	7	15	9	Likely
Wren <i>Troglodytes troglodytes</i>	1	4	2	1	3	4	Likely
Blackbird <i>Turdus merula</i>	6	2	12	9	7	3	Likely
Blackcap <i>Sylvia atricapilla</i>		2	2	5	4		Confirmed
Blue tit <i>Cyanistes caeruleus</i>	3	9	2	3	5	7	Confirmed
Buzzard <i>Buteo buteo</i>		1					Possible
Carrion crow <i>Corvus corone</i>	4	5	2	7	3		Likely
Chaffinch <i>Fringilla coelebs</i>	2	1					Possible
Chiffchaff <i>Phylloscopus collybita</i>	6		1	4			Likely
Collared Dove <i>Streptopelia decaocto</i>		1					Possible
Goldcrest <i>Regulus regulus</i>				2			Possible
Goldfinch <i>Carduelis carduelis</i>			5		1	1	Possible
Great spotted woodpecker. <i>Dendrocopos major</i>	1	2			1	1	Possible
Great tit <i>Parus major</i>	2	3	3		2	1	Likely
Garden Warbler <i>Sylvia borin</i>				1			Possible
Grey heron <i>Ardea cinerea</i>		1					Possible
Jackdaw <i>Coloeus monedula</i>			1				Possible
Jay <i>Garrulus glandarius</i>	3						Possible
Long-tailed tit <i>Aegithalos caudatus</i>	1					1	Possible
Magpie		1	1	1	3		Likely



RESULTS Species	1	2	3	4	5	6	Breeding status
<i>Pica pica</i>							
Nuthatch <i>Sitta europaea</i>	1						Possible
Robin <i>Erithacus rubecula</i>	1	1	2	8	2	1	Likely
Raven <i>Corvus corax</i>		1					Possible
Whitethroat <i>Sylvia communis</i>			1		4	1	Confirmed

* = S41 species

Table 14. Breeding bird transect metadata: dates, times, temperature, weather conditions.

Date	Survey start time/end time	Temp. degrees centigrade, weather conditions	Surveyors
08.04.2024	Start Time: 05:50 Sunrise Time: 06:20 End Time: 07:20	8°C, 7% CC, BF0, dry.	Ryan Walker
16.04.2024	Start Time: 06:05 Sunrise Time: 06:30 End Time: 07:23	6°C, 6% CC, BF1, dry.	Ryan Walker
08.05.2024	Start Time: 05:26 Sunrise Time: 05:56 End Time: 07:02	13°C, 6% CC, BF0, dry.	Ryan Walker
30.05.2024	Start Time: 20:10 Sunset Time: 21:07 End Time: 21:30	8°C, 7% CC, BF0, dry.	Libby Morris
11.06.2024	Start Time: 05:20 Sunrise Time: 04:48 End Time: 07:10	12°C, 0% CC, BF0, dry.	Ryan Walker
07.07.2024	Start Time: 05:25 Sunrise Time: 04:54 End Time: 06:34	13°C, 100% CC, BF0, dry.	Ryan Walker

3.6.2 Static Logger Results

The static loggers picked up a number of common bird species, one of which is red listed, and three amber listed on the BoCC list.



Table 15. Static logger results for breeding bird surveys.

Species	Logger 1	Logger 2
Woodcock <i>Scolopax rusticola</i>	1	0
Song thrush *	4	0
Tawny owl <i>Strix aluco</i>	7	0
Woodpigeon	1	0
Blackbird	6	0
Chaffinch	2	0
Magpie	1	0
Robin	4	0

3.6.3 Pre-existing Records

The SxBRC provided bird records for a total of 173 species. Most of these species are relatively common and widespread, but the list includes 27 species of principal importance for conservation (S41 NERC Act 2006), and nine species listed on Schedule 1 of the Wildlife and Countryside Act. In addition, seven species are red listed on the BoCC list. Some bird species identified include species such as; nightingale, woodlark *Lullula arborea*, barn owl *Tyto alba* and skylark *Alauda arvensis*.

3.6.4 Interpretation

The site supports three red listed (BoCC) species, and eight amber listed species. Four of these are also listed under Section 41 of the NERC Act (2006). Dunnock (amber, S41), woodpigeon (amber) and wren (amber) are likely breeding on site, and song thrush (amber, S41) is confirmed as breeding on the site. There are no red listed species breeding on the site. There are three other confirmed and six likely breeding birds on site which are green listed. Nightingale has also been identified adjacent to the application site, and therefore may utilise the site, though it has not been confirmed as breeding.

Based on these findings, the breeding bird assemblage supported by the application site is considered to be important for the conservation of birds at the **local level**.

3.7 Dormice

3.7.1 Nest-tube Survey

No dormice were identified during surveys, but during a final check when removing tubes to the south of the site, a nest was identified within a tube in the southern woodland that was formally missed on previous surveys due to the growth of scrub during the season. The full survey findings, dates of checks, weather conditions are presented in Appendix 5.



Table 16. Dormouse survey metadata.

Date	Survey month/score	Survey start time	Temp. degrees centigrade, weather conditions	Surveyors
26/04/2024	April	11:25	8°C, 90% CC, BF2	Holly Waters
05/05/2024	May	09:22	15°C, 10% CC, BF?	Sam Lunn
28/06/2024	June	10:13	18°C, 90% CC, BF3	Holly Waters
01/08/2024	August	09:13	24°C, 40% CC, BF0	Sam Lunn
29/08/2024	September	10:32	21°C, 0% CC, BF2	Rebecca Carter-Whitehead
24/10/2024	October	11:44	14°C, 60% CC, BF1	Joshua Harwood



Photograph 1. Dormouse nest identified within a nest tube in December 2024, when tubes were being removed.



3.7.2 Pre-existing Records

The SxBRC provided 24 dormouse records in the search area. The closest of these was identified on the boundary of the site. Previous ecological surveys conducted between 2017-2018 identified four dormouse nests and two individual dormice.

3.7.3 Interpretation

A single dormouse nest has been identified within the site. The site itself supports woodland and scrub habitats, as well as tree lines which all provide suitable dormice habitat. These parcels of habitat are connected via hedgerows and woodland to further small pockets of suitable habitat within the wider landscape. However, there is no connectivity to large swathes of woodland. As such, the habitats contained within the application site are important for the conservation of dormice at the **local level**.

3.8 Great Crested Newts and Other Amphibians

3.8.1 Habitat Suitability, eDNA Testing and Field Survey Results

15 ponds were identified within the site and within 500m of the site boundaries. Table 17 presents a summary of all surveys undertaken at ponds within 500m of the proposed development boundary. The location of each pond is presented in Figure 18. All ponds identified within 500m have been assessed in some way or another and have been accounted for, for the purposes of this EclA.

Details of the HSI assessments, eDNA results and field survey results are presented in Appendix 6.

Table 17. Summary of great crested newt assessments and surveys.

Ref.	NGR	Distance/ direction	Description	Survey results
1a	TQ 09249 15458	80m north	Garden Pond	No GCN found
1b	TQ 09231 15449	80m north	Garden Pond	No GCN found
2	TQ 08992 15510	184m north west	N/A	No response to letter requesting access
3	TQ 08813 15443	323m west	N/A	
4	TQ 08991 16001	454m west	N/A	
5	TQ 08748 15948	625m west north west	N/A	
6	TQ 08523 15785	620m north west	N/A	
7a	TQ 09458 15942	550m north north east	Cattle Pond	Negative eDNA
7b	TQ 09341 15940	520m north north east	Parcel of flooded grassland	Negative eDNA
8	TQ 08927 15892	402m west north west	N/A	Permission refused
9	TQ 09855 15825	598m north east	N/A	No response to letter requesting access



Ref.	NGR	Distance/ direction	Description	Survey results
10	TQ 08715 15549	396m west	Garden pond	No GCN found
11	TQ 09657 15212	246m east south east	N/A	Local council contacted for access, but no response given.
12	TQ 08848 15213	231m west	Disused swimming pool	Negative eDNA
13	TQ 08829 15123	259m south west	Swimming pool of unknown value	No response to letter requesting access.
14	TQ 08703 15081	304m south west	Swimming pool of unknown value	
15	TQ 08997 15156	90m south	Small garden wildlife pond	Negative eDNA



Figure 18. Ponds within 500m of the site. Images produced courtesy of QGIS 3.40.5-Bratislava.



Table 18. Great crested newt survey metadata: dates, times, temperature, moon phase, weather conditions.

Survey number	Survey date	Metadata						
		Evening				Morning		
		Temp.	Cloud cover	Wind speed	Moon phase ^{18&19}	Temp.	Cloud cover	Wind speed
1	8 th to 9 th April	9°C	30%	BF2	New supermoon (1%)	8°C	80%	BF3
2	25 th to 26 th April	7°C	100%	BF1	Full moon (99%)	6°C	60%	BF1
3	15 th to 16 th May	9.3°C	0%	BF2	First quarter (45%)	13°C	60%	BF2
4	17 th to 18 th June	15°C	100%	B0	Waxing gibbous (75%)	14°C	100%	BF1

Table 19. Amphibian presence/absence survey results. Data indicated in red illustrates that is the survey where that peak count originates. CF= common frog and CT = common toad.

Survey 1																
Pond	Turbidity	Torching									Bottle Trap					
		GCN			Palmate		Smooth		Unknown small newt	Other	GCN		Palmate		Smooth	
		M	F	U	M	F	M	F			M	F	M	F	M	F
1a	3	0	0	0	2	0	1	1	47	2 CF	0	0	3	3	1	0
1b	2	0	0	0	0	2	0	0	2	-	0	0	0	0	0	0
10	5	0	0	0	0	0	1	0	0	1 CF 1 CT	0	0	2	1	1	7
15	4	0	0	0	0	0	0	0	1	-	0	0	0	0	0	0
Total Count per sex		0	0	0	2	2	2	1	50	3 CF	0	0	5	4	2	7
Total Count per species		0			4		3			1 CT	0		9		9	
Survey 2																
Pond	Turbidity	Torching									Bottle Trap					
		GCN			Palmate		Smooth		Unknown small newt	Other	GCN		Palmate		Smooth	
		M	F	U	M	F	M	F			M	F	M	F	M	F
1a	3	0	0	0	0	0	0	0	15	-	0	0	2	3	1	1
1b	2	0	0	0	0	0	0	0	5	-	0	0	0	0	0	0
10	4	0	0	0	0	0	0	0	0	-	0	0	1	1	0	1
15	2	0	0	0	0	0	0	0	0	3 CF	Not set					
7a	2	0	0	0	0	0	0	0	0	-	0	0	0	1	0	0
Total Count per sex		0	0	0	0	0	0	0	20	3 CF	0	0	3	4	1	2
Total Count per species		0			0		0			0	0		7		3	
Survey 3																
Pond	Turbidity	Torching									Bottle Trap					

¹⁸ Deeming, D.C. (2008). Capture of smooth newts (*Lissotriton vulgaris*) and great crested newts (*Triturus cristatus*) correlates with the lunar cycle, British Herpetological Society

¹⁹ Harper, L.R., Downie, J.R. & McNeill, D.C. Assessment of habitat and survey criteria for the great crested newt (*Triturus cristatus*) in Scotland: a case study on a translocated population. *Hydrobiologia* 828, 57–71 (2019). <https://doi.org/10.1007/s10750-018-3796-4>



Survey 1																
Pond	Turbidity	Torching									Bottle Trap					
		GCN			Palmate		Smooth		Unknown small newt	Other	GCN		Palmate		Smooth	
		M	F	U	M	F	M	F			M	F	M	F	M	F
		GCN			Palmate		Smooth		Unknown small newt	Other	GCN		Palmate		Smooth	
M	F	U	M	F	M	F	M	F			M	F	M	F		
1a	2	0	0	0	9	0	3	1	24	1 CF 1 Eel	0	0	5	5	1	1
1b	2	0	0	0	0	0	0	0	0	1 Eel	0	0	0	0	0	0
10	5	0	0	0	0	0	0	0	0	-	0	0	6	6	5	2
Total Count per sex		0	0	0	9	0	3	1	24	1CF	0	0	11	11	6	3
Total Count per species		0			9		4			2 Eel	0		22		9	
Survey 4																
Pond	Turbidity	Torching									Bottle Trap					
		GCN			Palmate		Smooth		Unknown small newt	Other	GCN		Palmate		Smooth	
		M	F	U	M	F	M	F			M	F	M	F	M	F
		GCN			Palmate		Smooth		Unknown small newt	Other	GCN		Palmate		Smooth	
		M	F	U	M	F	M	F			M	F	M	F	M	F
1a	0	0	0	0	2	9	0	2	25	-	0	0	5	2	0	0
1b	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0
10	2	0	0	0	0	0	0	0	1	-	0	0	0	0	1	1
Total Count per sex		0	0	0	2	9	0	2	26	-	0	0	5	2	1	1
Total Count per species		0			11		2				0		7		2	

3.8.2 Pre-existing Records

The SxBRC provided 120 amphibian records in the search area. This included 25 records for great crested newt, 26 records for smooth newt *Lissotriton vulgaris*, 12 records for palmate newt *Lissotriton helvetica*, 42 records for common frog *Rana temporaria* and 15 records for common toad. The closest of these was a common frog located 300m east from the boundary of the site, dated 2002. The closest great crested newt record is located over 1.1km southeast of the site, recorded in 2008.

3.8.3 Interpretation

Based on these results, it is concluded that no ponds on site or ponds accessed within 500m of the site contain great crested newts. Given a large number of waterbodies were identified within 500m of the site, but could not be accessed, it is possible that great crested newts are present in the wider area, however the survey results and pond densities would indicate that the site is not currently in use by great crested newts.

However, the survey results indicate that some ponds within 500m support other amphibian species, with a peak count of 22 palmate newts and nine smooth newts.

A total of 50 small newts were identified on Survey 1, and the split between palmate newts and smooth newts found during both torching and bottle traps was evenly split. On this basis we can predict a similar division and assume a maximum count of 25 smooth newts and 25 palmate newts. In addition, a peak count of three common frogs and one common toad were noted during pond surveys. The total amphibian assemblage in line with the Herpetofauna Workers Manual²⁰ & Joint Nature Conservation Committee (JNCC) SSSI

²⁰ Gent, A.H., & Gibson, S.D., eds. 1998. Herpetofauna workers' manual. Peterborough, Joint Nature Conservation Committee.



guidelines²¹ would achieve a score of **six** which is considered a good assemblage, but not significant enough to warrant the site's classification as a SSSI for amphibians. Based on these factors, the site is considered to be of **negligible** importance to great crested newts and of **local** importance to other amphibian species.

3.9 Reptiles

3.9.1 Survey Results

The survey confirmed presence of slow worm and grass snake. Most of these reptiles were found at the eastern end of the site adjacent to the parcel of bracken vegetation. A peak count of 13 adult slow worms, one common lizard and two adult grass snakes were recorded on site with slow worms recorded on all site visits, common lizard on one and grass snakes recorded on five. The survey findings, dates and conditions are presented in and Table 20 and

Table 21 below.

Table 20. Reptile survey conditions.

Survey Number	Date	Start time	End Time	Air temp. °C	Weather conditions
1	02.07.2024	09:23	10:10	14	40%CC, felt mild, BF0
2	17.07.2024	09:31	10:38	18	70%CC, BF0
3	15.08.2024	15:58	16:26	16	100% CC, light rain, BF2
4	10.09.2024	09:20	10:22	14	100%CC, BF 3
5	25.09.2024	12:45	13:56	15	100% CC, BF1
6	08.10.2024	08:05	09:00	14	70% CC, rain all morning BF2
7	24.10.2024	09:30	11:00	14	0%CC, sunny, BF2

²¹ Bernhard, T., Driver, D., Dyer, S., Edgar, P., Ellis, M., Foster, J., Howe, E., McKinnell, J., and Raynor, R. 2022. Guidelines for the Selection of Biological SSSIs. Part 2: Detailed Guidelines for Habitats and Species Groups. Chapter 18 Reptiles and Amphibians. Joint Nature Conservation Committee, Peterborough.



Table 21. Reptile survey results. Data indicated in red illustrates that is the survey where that peak count originates. “?” denotes unknown sex.

Survey Number	Slow Worm				Common Lizard		Grass Snake		Other
	Adult			Juvenile	Adult	Juvenile	Adult	Juvenile	
	M	F	?						
1	5	6	1	3	1	0	0	0	N/A
2	4	9	0	2	0	0	0	5	N/A
3	1	4	2	2	0	0	1	0	N/A
4	6	5	2	7	0	0	1	2	Juvenile common toad found
5	0	8	0	12	0	0	2	2	N/A
6	0	0	1	1	0	0	0	0	N/A
7	0	0	0	1	0	0	0	0	N/A
Peak Count (per sex)	6	9	N/A	12	1	0	2	5	N/A
Peak Count (per adult species)	13			N/A	1	N/A	2	N/A	N/A



Figure 19. Reptile survey results. Images produced courtesy of 3.40.5-Bratislava.

3.9.2 Pre-existing Records

The SxBRC provided 215 reptile records in the search area. The closest of these was for a grass snake located 300m east from the boundary of the site, dated 2002.

3.9.3 Interpretation

The site supports a number of slow worms and grass snakes, with a peak adult count of 13 slow worms and two grass snakes. In addition, a large number of juvenile slow worms were identified in September along with a large number of juvenile grass snakes in mid-July. It is believed that the site/surrounding areas are used by gravid females of both species, with the site supporting the juveniles at appropriate times of year with suspected areas of suitable hibernacula on or close to the site. In line with the Froglife (1999) advice sheet 10²² the site would not be considered a key reptile area, supporting two species of reptile (of which one is a snake species) and achieving a population score of 4, with a low population of grass snakes (score 1), low population of common lizards (score 1) and a good population of slow worms (score 2). Based on the population contained within the development site, the site is not considered important to common reptiles beyond the **site level**.

²² Froglife (1999) Reptile Survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife advice sheet 10. Froglife, Halesworth.



3.10 Other Notable Species

3.10.1 Survey Results

The woodland on the site may have potential to support stag beetles, as well as hedgehogs. Neither of these species were observed on site during the surveys.

During various Phase 2 surveys on site, the following invertebrates were observed: six spot burnet moth *Zygaena filipendulae*, cinnabar moth *Tyria jacobaeae* (caterpillar), forester moth *Adscita statice*, marbled white *Melanargia galathea*, meadow brown *Maniola jurtina*, and a skipper species *Thymelicus* sp..

3.10.2 Pre-existing Records

SxBRC returned multiple records for stag beetle and hedgehog within the search area, as well as a variety of invertebrate species, however, none of these fall within the site boundaries.

3.10.3 Interpretation

The on-site habitats are considered to be of value to stag beetle, and hedgehogs at the **site level**.

3.11 Invasive Non-native Species

3.11.1 Survey Results

Rhododendron was identified within the Broadleaved Mixed Woodland. This is an invasive species, listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

3.11.2 Pre-existing Records

The SxBRC returned multiple invasive species records in the search area, which included two species of rhododendron, as well as other plants, invertebrates, birds, amphibians and mammals. None of these records are located on the site, but there is a record for Japanese knotweed *Fallopia japonica* 170m north-east of the site boundary.

3.11.3 Interpretation

The Rhododendron may spread throughout the broadleaved mixed woodland, causing native species to be outcompeted and lowering the value of this habitat over time. This potential degradation is not considered important beyond the **site level**.

4 IMPACT ASSESSMENT

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

This assessment is based on the most up to date available plan shown on “Illustrative masterplan produced courtesy of Paul Hewett Architects. Drawing number 2505/PL.05 Dated April 2026.”

The proposed scheme comprises the construction of up to 56 new dwellings, a village green and SuDS, with



soft and hard landscaping.

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
- Increased recreational pressure upon nearby SSSIs

4.1 Designated Sites

4.1.1 Impact Characterisation

The site lies within 1km of two statutory designated nature conservation sites. In terms of significant adverse effects resulting from the proposed development, the site lies within the impact risk zones of Arun Valley SAC, SPA and Ramsar (located 4.1km west of the site). Natural England's advice is that further information would be required in relation to the development's impact on water supply and that a Habitats Regulations Assessment (HRA) is provided with regards to this SAC/SPA/Ramsar site.

The development is considered likely to result in increased recreational pressure on the nearby SSSIs through increased numbers of visitors which can lead to increased dog fouling, littering, and trampling.

4.1.2 Significance of Effects

In the absence of mitigation, the proposed development is considered to have a significant negative impact of moderate extent and minor magnitude on the SSSIs in the area, the impacts would be permanent and frequent (though suspected to be higher during spring and summer). The impacts would be considered irreversible. Impacts from the development would be considered significant at the **local** level, but when looked at in combination with wider planning applications in the local area, in the absence of mitigation, the cumulative impacts would be considered significant at **regional** level.

Impacts to Arun Valley SAC, SPA and Ramsar cannot be predicted at this time, and at the discretion of the local planning authority and in consultation with Natural England, a HRA may be required to determine the proposed development impacts to the protected sites.



4.2 Priority Habitats

4.2.1 Impact Characterisation

The proposed development will not result in the direct loss or damage of any priority habitats, with none located on site. However, there is priority habitat deciduous woodland and ancient woodland directly north of the site. Unmitigated, these habitats could be impacted throughout the construction phase through physical damage, dust deposition and hydrological pollution. During the operational phase, access into this habitat by residents may cause degradation through littering, trampling of ground flora and dog fouling.

The development proposals also pose risk of damage to priority habitats in the wider landscape through increased recreational pressures such as dog walking and fouling, litter, trampling and increased emissions. The majority of priority habitats identified within 2km of the proposed development are within private ownership. However, the Warren and Sandgate (lowland heathland, woodpasture and parkland, open water and deciduous woodland) has regular public access.

4.2.2 Significance of Effects

Based on the above, in the absence of mitigation, the proposed development poses a significant negative impact of major extent and magnitude. There would be temporary impacts (during construction), as well as permanent and frequent (operational phase), recreational impacts which would be year-round, though likely focused upon spring and summer months. These impacts would be considered irreversible. Impacts from the development are considered significant at the **local** level.

4.3 Bats

4.3.1 Impact Characterisation

The proposals seek to retain the boundary vegetation, including the woodland, scrub and treelines, all of which are of value to commuting and foraging bats with the exception of a small section along the western boundary to facilitate access. However, the neutral grassland that makes up much of the site will be largely lost and replaced with housing and hardstanding which is of little to no value for commuting and foraging bats. This will be a permanent loss of suitable habitat. There is also the risk of disturbance to commuting and foraging bats, in the long-term after completion, through increased artificial lighting.

4.3.2 Significance of Effects

Since the activity surveys did not reveal use of the site by large numbers of foraging bats, with the presence of barbastelle (a rarer bat species) being limited in both numbers and seasonality, these impacts before mitigation are not considered to be significant beyond **local** level.

4.4 Breeding Birds

4.4.1 Impact Characterisation

All the suitable habitat for breeding birds on site (trees, woodland, treelines and scrub) is to be retained, with grassland and bracken to be lost. However, there remains a risk to birds through noise disturbance during the construction phase and through increased disturbance and predation by domestic cats during the operational phase of the development.



4.4.2 Significance of Effects

Based on the above, in the absence of mitigation, the proposed development poses an adverse impact of minor extent and magnitude. Impacts would be frequent but temporary (noise) and frequent and permanent (disturbance and increased predation). Therefore, these impacts are considered to be significant at the **local** level.

4.5 *Common Dormice*

4.5.1 Impact Characterisation

All the suitable habitat for dormice on site (trees, woodland, treelines and scrub) is to be retained, with grassland and bracken to be lost. However, there remains a risk to dormice through noise disturbance during the construction phase and through increased predation by domestic cats and increased artificial lighting during the operational phase of the development.

4.5.2 Significance of Effects

Based on the above, in the absence of mitigation, the proposed development poses an adverse impact of minor extent and magnitude. Impacts would be frequent but temporary (noise) and frequent and permanent (increased predation and increased artificial lighting). Therefore, these impacts are considered to be significant at the **local** level.

4.6 *Great Crested Newts and Other Amphibians*

4.6.1 Impact Characterisation

Based on the survey results, great crested newts may be present within the wider landscape, but do not utilise the application site. However, the site does support smooth newt and common frog, and may support palmate newt and common toad. Much of the suitable habitat is to be retained in the form of woodland and scrub, but the partial loss of the neutral grassland to the development will reduce the available foraging habitat on site for amphibians. There is also a direct risk to amphibians during clearance of this habitat including potential injury or death. This loss of suitable habitat for amphibians will be permanent.

4.6.2 Significance of Effects

Based on the above, in the absence of mitigation, the proposed development poses an adverse impact of moderate extent and magnitude. Impacts would be permanent and irreversible. Impacts from the development are considered significant at the **local** level.

4.7 *Reptiles*

4.7.1 Impact Characterisation

Some of the suitable habitat for slow worms and grass snakes is to be retained in the form of woodland and scrub, but the partial loss of the neutral grassland to the development will reduce the available foraging habitat on site for reptiles. There is also a direct risk to reptiles during clearance of this habitat including potential injury or death. This loss of suitable habitat for reptiles will be permanent.



4.7.2 Significance of Effects

Based on the above, in the absence of mitigation, the proposed development poses a significant adverse impact of major extent and magnitude. Impacts would be permanent and irreversible. Impacts from the development are considered significant at the **local** level.

4.8 Other Notable Species

4.8.1 Impact Characterisation

Given that the high value woodland and scrub habitats on site are to be retained, maintaining connectivity between the application site and the wider landscape, it can be concluded that it is unlikely that the proposals will impact upon stag beetle or hedgehog. Though a portion of the neutral grassland will be lost, this represents a very small portion of suitable grassland habitat and as such, these two notable species are not considered further within this report.

The loss of the other neutral grassland will reduce the available habitat for invertebrates on the site.

4.8.2 Significance of Effects

Based on the above, in the absence of mitigation, the proposed development poses a risk to other notable species such as hedgehog and stag beetle of negative impact at minor extent and magnitude, impacts would be permanent and irreversible. Impacts from the development are considered significant at the **local** level.

4.9 Cumulative Effects

4.9.1 Impact Characterisation

Two proposed developments have been identified within close proximity to the proposed development at northlands lane which have been taken into account for cumulative effects upon ecology. The first is an outline planning application (DC/19/2015) for the erection of up to 62 residential units and the creation of a new vehicle access located immediately adjacent to the eastern boundary of the site. The second is an outline planning application (DC/24/2006) for the demolition of an existing barn and the erection of up to 62 dwellings. The second application is located immediately west of the proposed development at northlands lane.

The adjacent developments considered their associated development impacts on ecology in relation to; Designated sites, priority habitats, invertebrates, amphibians, reptiles, birds, [REDACTED] bats and hazel dormouse. The predicted impacts of the proposed developments in the absence of mitigation are illustrated in Table 22 below. The data has been summarised using the available documents available on the local planning portal.



Table 22. Predicted impacts of the adjacent developments without mitigation.

	DC/24/2006 ²³	DC/19/2015 ^{24,25 & 26}
Designated Sites	No impact determined	No impact determined
Priority habitats	Moderate impact at local level	No impact determined
Invertebrates	No impact determined	No impact determined
Amphibians	No impact determined	No impact determined
Reptiles	Moderate adverse impact at a site level	No impact determined
Birds	Slight adverse impact at the local level	No impact determined
Bats	Moderate adverse impact at a district level	No impact determined
Hazel dormouse	Moderate adverse impact at a local level	No impact determined

4.9.2 Significance of Effects

With the above considered, the cumulative impacts are not considered to extend beyond the highest level of predicted impact when all sites are considered cumulatively. As such, in the absence of mitigation the proposed development's predicted impacts to; designated sites, invertebrates, amphibians, reptiles, birds and hazel dormouse are considered as detailed in the above impacts section. The proposed impacts to bats when considered cumulatively (in the absence of mitigation) pose an elevated impact at the **district level**.

5 MITIGATION PROPOSALS

5.1 Designated Sites

5.1.1 Impact Avoidance

Increased recreational pressure upon Arun Valley SAC, SPA and Ramsar cannot be avoided during the operational phase of the development. This is also true of the closest SSSI (Sullington Warren).

5.1.2 Mitigation Measures

As the exact impacts to Arun Valley SAC, SPA and Ramsar cannot be predicted at this time, at the discretion of the local planning authority and in consultation with Natural England, a HRA may be required to determine impacts to the protected site as a result of the proposals.

The proposed design has created areas of open space with footpaths around the development to encourage members of the public to utilise their local space.

²³ RSK biocensus (2024) Land north of Melton Drive, Storrington, Ecological Impact Assessment

²⁴ The Ecology Partnership (2019) Land north of Downsview Avenue, Storrington, Dormouse Survey 2019

²⁵ The Ecology Partnership (2017) Land north of Downsview Avenue, Storrington, Reptile Survey 2017

²⁶ The Ecology Partnership (2019) Land north of Downsview Avenue, Storrington, Letter



5.1.3 Residual Effects

The residual effects are unknown at this time with regards to the SAC, SPA and RAMSAR site

The risk of increases in footfall on the SSSI cannot be completely mitigated, however the above mitigation measures prescribed and clear access to local footpath networks will greatly reduce this risk.

5.1.4 Compensation Measures

Compensation measures that may be required are unknown at this time but may include provision of Suitable Alternative Natural Greenspace (SANG), or contribution into a local authority fund.

To compensate for the residual effects from the development on the nearest SSSI, it is recommended that appropriate financial contributions are given to the respective authority to go towards future management.

5.2 Priority Habitats

5.2.1 Impact Avoidance

A buffer zone has been included within the proposed development along the northern boundary where the ancient woodland and priority habitat deciduous woodland are located.

5.2.2 Mitigation Measures

Measures to delineate this buffer zone and provide added protection for these habitats should be outlined within a detailed Construction and Environmental Management Plan (CEMP), which would generally outline measures on suitable fencing, and methods to reduce dust deposition, noise and hydrological pollution.

5.2.3 Residual Effects

There remains a risk of increased recreational pressure upon the habitats within The Warren and Sandgate during the operational phase of the development.

5.2.4 Compensation Measures

Compensation measures that may be required are unknown at this time but could include a contribution into a local authority fund.

5.3 Bats

5.3.1 Impact Avoidance

Higher value commuting and foraging habitats such as the woodland, scrub and treelines are to be retained.

5.3.2 Mitigation Measures

It is important that the proposed scheme incorporates a 'sensitive lighting plan' developed as part of the detailed design, in accordance with guidelines set out by the Bat Conservation Trust (summarised in Appendix 7). This should include measures to create 'dark corridors' through the development site along the retained woodland and scrub, and measures to minimise light spill onto all semi-natural habitats. All street lighting should be directed downwards and use light sources that are not attractive to insects. Reflective white line marking should be used in preference to artificial lighting in all non-essential applications.

To mitigate against the loss of suitable foraging habitat in the form of neutral grassland, the existing retained



habitats can be enhanced for foraging bats through the inclusion of buffer planting and wildflower seeding. A swale is also proposed for the north-western corner of the site, which will provide good foraging opportunities once established.

5.3.3 Residual Effects

With this mitigation in place there will be no residual impacts on bats as a result of the development.

5.3.4 Compensation Measures

Given the absence of residual effects, no compensation measures will be required for bats.

5.4 Breeding Birds

5.4.1 Impact Avoidance

Habitats of value to breeding birds such as the woodland, scrub and treelines are to be retained where possible. A small section of scrub to the western site boundary will be lost to accommodate the proposed development access. The grassland which is to be lost is of lower value to birds.

5.4.2 Mitigation Measures

To protect birds within these retained habitats throughout the construction phase, the measures outlined in section 5.2.2 should be followed.

Any vegetation that does require removal 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 or demolition. Clearance will only proceed when the ecologist has established the absence of any active bird nests. If any active nests are identified, a buffer of at least 5 meters will be maintained and the nest left undisturbed until the young have fledged, or works will be postponed.

5.4.3 Residual Effects

The proposed development will result in the loss of a parcel of suitable breeding habitat on the western boundary. There remains an increased risk of disturbance and predation by domestic cats for birds during the operational phase of the development.

5.4.4 Compensation Measures

Thorny buffer planting should be included around the retained woodland parcels to ensure that residents and cats have limited access to this habitat.

5.5 Common Dormouse

5.5.1 Impact Avoidance

Habitats of value to breeding dormice such as the woodland, scrub and treelines are to be retained. The grassland which is to be lost is of lower value to dormice.

5.5.2 Mitigation Measures

To protect dormice within these retained habitats throughout the construction phase, the measures outlined in



section 5.2.2 should be followed.

Though the bracken to be removed is unlikely to support dormice, it is important that the following reasonable avoidance measures are implemented under the supervision of a suitably qualified and licensed Ecological Clerk of Works (ECoW). Any dense vegetation to be removed (such as the western section of scrub) should be meticulously hand searched in small increments, from the outside of the vegetation first. When a section is determined to be clear, it can be cut back slightly, using a hand-held tool only to gain visibility gradually into the centre of the vegetation until a thin strip of vegetation remains that can be checked before being dug out. As recommended in the Dormouse Conservation Handbook, it is best to carry out work on small sites in the spring to summer months to ensure that dormice are active and can freely move to safety in the retained adjacent habitat north and south along the hedgerow. All contractors on the site will be given a Toolbox Talk covering identifying the species and the methods of working required to ensure no harm to this species should they be present and will immediately inform an ecologist if dormice are found. If dormice are found at any time during this process by the ECoW or a contractor, work would cease immediately. It is likely that applying for an EPS licence from Natural England would be necessary to allow the proposed development to proceed legally. Further mitigation and compensation measures may be required under such a licence. Timing is also important to prevent any disturbance to this species, and as such the above ground vegetation within the designated construction zones will firstly be cut to approximately 200mm above ground, using handheld power tools (i.e. chainsaw) and then the stumps and roots removed shortly after with all works completed between April and May to prevent harm to dormice that are breeding and in torpor.

It is important that the proposed scheme incorporates a 'sensitive lighting plan' developed as part of the detailed design, in accordance with guidelines set out by the Bat Conservation Trust (summarised in Appendix 7). This should include measures to create 'dark corridors' through the development site along the retained woodland and scrub, and measures to minimise light spill onto all semi-natural habitats. All street lighting should be directed downwards and use light sources that are not attractive to insects. Reflective white line marking should be used in preference to artificial lighting in all non-essential applications.

5.5.3 Residual Effects

The development will result in the loss of a section of suitable dormouse habitat on the western boundary of the site to facilitate the access track. There remains an increased risk of disturbance and predation by domestic cats for dormice during the operational phase of the development.

5.5.4 Compensation Measures

Thorny buffer planting should be included around the retained woodland parcels and scrub to ensure that residents and cats have limited access to this habitat.

5.6 Great Crested Newts and Other Amphibians

5.6.1 Impact Avoidance

Some habitats of value for common amphibian species will be retained (woodland and scrub).

5.6.2 Mitigation Measures

Prior to any other works commencing, the removal of the grassland habitat will be subject to a two-phase strim approach. The first strim would reduce the grass to 15cm in height to encourage any amphibians to move out of the area. A second pass would reduce the grass height to 5cm which would render the habitat unsuitable.



The areas must then be maintained at this height or below until works commence. These works should be undertaken by or be overseen by an ecologist who is trained in the use of strimmers to ensure that the 'two-phase strimming' work is compliant, and no amphibians are harmed in the process. It is imperative that all cuttings are raked away and stored off the construction footprint to prevent hibernacula for reptiles and amphibians from forming. Similarly, once any substrate has been excavated, it is best practice to move materials off site, to a skip or to nearby hardstanding areas to minimise the risk of the spoil being used for shelter. If this is not possible, the material should be placed on a tarpaulin and be compacted to avoid gaps and spaces. Construction materials will be stored within the construction zone only or on hard standing and must not be placed directly on grassland where they may be accessible to amphibians to use as a refuge. Any amphibians found during the mitigation works would be caught and relocated into the woodland habitat on the eastern boundary.

5.6.3 Residual Effects

The proposed development will result in the loss of suitable terrestrial habitat for great crested newts and amphibians through the loss of the grassland parcels.

5.6.4 Compensation Measures

At least four hibernacula should be created within the retained woodland habitat to provide additional shelter and foraging habitat for amphibians.

5.7 Reptiles

5.7.1 Impact Avoidance

A portion of suitable habitat (woodland and scrub) will be retained in-situ. However, a large amount of the neutral grassland which is of value to reptiles will be lost.

5.7.2 Mitigation Measures

Unmitigated, there remains the risk of harm or death of individual slow worms, common lizard and grass snakes as a result of the development. A reptile translocation will therefore be required. The retained habitats on site are unlikely to have carrying capacity for these populations, and as such, an off-site receptor site will need to be secured. This site will need to meet the following criteria:

- preferably adjacent to the site, but within 1km radius maximum;
- same or larger area than the area from which reptiles will be translocated from;
- must already include some habitat suitable for reptiles;
- suitable for carrying slow worm, common lizard and grass snake populations with some enhancement, and
- not subject to any threats from site management obligations (i.e. farming) or future development.

5.7.3 Residual Effects

With this mitigation in place there will be no residual impacts on slow worms, common lizards and grass snakes as a result of the development.



5.7.4 Compensation Measures

Given the absence of residual effects, no compensation measures will be required for reptiles.

6 BIODIVERSITY ENHANCEMENTS

Specific enhancement measures to provide biodiversity uplift will need to be in line with a Biodiversity Net Gain calculation, to ensure a minimum 10% net gain through the proposed development. These, along with targeted enhancements for protected species can be outlined in depth within a Landscape and Ecology Management Plan (LEMP) document that sets out the number, type and location of habitat enhancements that will be provided, the on-going maintenance needs and responsibilities. A Habitat Monitoring and Management Plan (HMMP) will also likely be required for the development. Enhancements may generally include (but are not limited to):

- wildflower seeding;
- thorny buffer planting;
- native tree planting;
- native hedgerow planting;
- bug bricks to proposed buildings;
- pond creation;
- bird nest boxes to proposed buildings;
- bat boxes to proposed buildings; and
- hedgehog houses and gaps between fence lines.

7 CONCLUSIONS

A summary of the EclA process is presented in Table 23 below.

Table 23. EclA summary table.

Ecological feature	Importance	Impact characterisation	Level of significance	Avoidance/ Mitigation	Residual effects	Compensation
Arun Valley SAC, SPA and Ramsar	International	Increased recreational pressure	Regional	HRA needed to understand what this would require	Cannot be predicted at this time.	Possibly Suitable Alternative Natural Greenspace (SANG), or contribution into a local authority fund.
Sullington Warren SSSI	National	Potential for increased recreational pressure	County	Creation of areas of open space with footpaths around the development	Potential risk of increase in footfall	Financial contribution towards management of site



Ecological feature	Importance	Impact characterisation	Level of significance	Avoidance/ Mitigation	Residual effects	Compensation
Ancient Woodland/ Priority Habitat deciduous woodland (north of site)	Local	No direct loss but indirect damage throughout construction phase and operational phase	Local	Thorny buffer planting, mitigation measures to be outlined in CEMP such as fencing, and dust, noise and pollution prevention methods	Possible risk of increased recreational pressure.	N/A
Warren and Sandgate, (lowland heathland, woodpasture and parkland, open water and deciduous woodland)	Local	Increased recreational pressure	Local	Not possible	Possible risk of increased recreational pressure.	Possibly Suitable Alternative Natural Greenspace (SANG), or contribution into a local authority fund
Habitats contained within site	Local	Direct loss of large area of other neutral grassland	Local	Biodiversity enhancements incorporated into soft landscape and drainage schemes	Loss of grassland and scrub parcels on site	Habitat specific mitigation including phased habitat clearance and offsite compensation for lost habitats
Foraging and commuting bats	Local	Permanent loss of moderate value foraging habitat	Local	Biodiversity enhancements incorporated into soft landscape and drainage schemes; ecologically sensitive lighting design	None	N/A
Breeding bird assemblage on development site	Local	Loss of low value habitat (grassland), disturbance through construction and operational phase and increased predation by domestic cats	Local	Appropriate Construction methods (timed outside breeding season); appropriate construction methods to reduce noise where possible	loss of a parcel of suitable breeding habitat to the western boundary. And increased predation risk by domestic cats	Thorny buffer planting to reduce predation by cats



Ecological feature	Importance	Impact characterisation	Level of significance	Avoidance/Mitigation	Residual effects	Compensation
Common dormouse population	Local	Disturbance through construction and operational phase and increased predation by domestic cats	Local	Appropriate Construction methods (timed outside breeding season); appropriate construction methods to reduce noise where possible and an ecologically sensitive lighting design	loss of a section of suitable dormouse habitat to the western boundary of the site to facilitate the access track. There remains an increased risk of disturbance and predation by domestic cats	Thorny buffer planting to reduce predation by cats
Amphibians (not including GCN)	Site	Potential direct harm or death during site works, loss of foraging habitat (grassland)	Site	Precautionary approach to construction methods; 'reasonable avoidance measures';	The proposed development will result in the loss of suitable terrestrial habitat for great crested newts and amphibians through the loss of the grassland parcels.	At least four hibernacula should be created within the retained woodland habitat to provide additional shelter and foraging habitat for amphibians
Common reptiles	Local	Direct harm or death, permanent loss of a large proportion of suitable habitat	Local	Translocation to off-site receptor site	The proposed development will result in the loss of suitable terrestrial habitat for reptiles through the loss of the grassland	N/A



Ecological feature	Importance	Impact characterisation	Level of significance	Avoidance/ Mitigation	Residual effects	Compensation
					d parcels.	
Other notable species: European hedgehog, and stag beetle	Site	Small loss of foraging habitat for hedgehog	Site	N/A		
Non-native and invasive species	Site	Spread further into woodland causing degradation	Site	N/A		



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)²⁷ remains one of the most important pieces of wildlife legislation in the UK. There are various schedules to the Act protecting birds (Schedule 1), other animals including insects (Schedule 5), plants (Schedule 8), and control of invasive non-native species (Schedule 9).

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

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

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

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

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

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

²⁷ Wildlife and Countryside Act (WCA) (1981). HMSO London.



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

The NERC Act (2006)²⁸ 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 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)²⁹, 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)³⁰ sets out the Government's view on how planners

²⁸ Natural Environment and Rural Communities Act (2006). HMSO London.

²⁹ Protection of Badgers Act (1992). HMSO London.

³⁰ HM Government (2024). National Planning Policy Framework. Department for Communities and Local Government. Available online at: <https://assets.publishing.service.gov.uk/media/675abd214cbda57cacd3476e/NPPF-December-2024.pdf>.



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 192b, 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)³¹. In accordance with the NPPF, it is important that developments should contribute to and enhance the natural and local environment by:

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

UK Post-2010 Biodiversity Framework

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

The most recent biodiversity strategy for England, 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services' was published by Defra (2011)³², and a progress update was provided in July 2013 (Defra 2013)³³.

'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

³¹ HM Government (2005) ODPM Circular 06/05 Government Circular: *Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System*. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7692/147570.pdf.

³² 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>.

³³ Defra (2013) Progress Update. Available at: <https://www.gov.uk/government/publications/biodiversity-2020-simple-guide-and-progress-update-july-2013>.



most recent review was undertaken in 2021³⁴ (Stanbury et al, 2015), which provides an up to date assessment of the conservation status of birds in the UK.

³⁴ 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 – LOCAL PLANNING POLICY

Table 24. Horsham District Planning Framework (Excluding South Downs National Park) (Nov 2015)

Policy number/title	Policy summary
Policy 24 (Strategic Policy: Environmental Protection)	The high quality of the district's environment will be protected through the planning process.
Policy 25 (Strategic policy, the natural environment and landscape character)	The council will support development that: • Maintains and enhances the Green Infrastructure Network and addresses any identified deficiencies in the District. • Maintains and enhances the existing network of geological sites and biodiversity, including safeguarding existing designated sites and species, and ensures no net loss of wider biodiversity and provides net gains in biodiversity where possible. • Conserves and where possible enhances the setting of the South Downs National Park.
Policy 26 (Strategic policy: countryside protection)	The rural character and underdeveloped nature of the countryside will be protected against inappropriate development. It may be considered if it protects or enhances the character area in which it is located, such as: the ecological qualities of the area, the pattern of woodlands, fields, hedgerows, trees, waterbodies and other features.
Policy 31 (Green infrastructure and biodiversity)	Development proposals will be required to contribute to the enhancement of existing biodiversity and should create and manage new habitats where necessary. It should ensure the ecosystem services of that area are maintained. The council will favour development that retains and enhances significant features of nature conservation on development sites, as well as development which makes a positive contribution to biodiversity through the creation of green spaces, and linkages between habitats to create local and regional ecological networks. Where protected trees must be felled, replacement planting with a suitable species will be required. SPAs, SACs and SSSIs as well as Local Nature Reserves (LNR) and National Nature Reserves (NNR) will be given particular consideration. If the development is thought to have an indirect/direct adverse effect on biodiversity, development will be refused unless the reason for development outweighs the need to protect the site, or mitigation will be provided. Any development with the potential to impact Arun Valley SPA or the Mens SAC will be subject to a HRA to determine the need for an Appropriate Assessment. In addition, development will be required to be in accordance with the necessary mitigation measures for development set out in the HRA of this plan.



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Table 25. Emerging Local Plan - Horsham District Council – Horsham District Local Plan 2023-2040 (December 2023).

Policy Number/Title	Policy Summary
Strategic Policy 13: The Natural Environment and Landscape character	The Natural Environment and landscape character of the District, including the landscape, landform and development pattern, together with protected landscapes and habitats, will be protected against inappropriate development. The Council will expect development proposals to be landscape-led from the outset so that they clearly inform the design and layout. Proposals will also be required to: 1. Protect, conserve and enhance the landscape and townscape character, taking into account features / areas identified as being of landscape importance and the individual settlement characteristics, and maintain settlement separation; 2. Maintain and enhance the Green Infrastructure Network, the Local Nature Recovery Strategy and national Nature Recovery Network and, where practicable, help to address any identified needs and deficiencies in these networks across the District; 3. Maintain and enhance the existing network of geological sites and biodiversity, including safeguarding existing designated sites and species, and secure measurable net gains in biodiversity; and 4. Incorporate SuDS into a scheme in an optimal location for their purpose whilst also securing landscape and biodiversity enhancements and delivering high-quality green spaces. Proposals will be expected to provide details to demonstrate that the 62 whole life management and maintenance of the SuDS are appropriate, deliverable and will not cause harm to the natural environment and/or landscape.
Strategic Policy 14: Countryside Protection	1. Outside built-up area boundaries and secondary settlements, the rural character and undeveloped nature of the countryside will be protected against inappropriate development. Any proposal must be essential to, and justify, its countryside location, and must meet one of the following criteria: a) Support the needs of agriculture or forestry b) Enable the extraction of minerals or the disposal of waste; c) Provide for quiet informal recreational use; or d) Enable the sustainable development of rural areas. 2. In addition, all proposals must be appropriately integrated within the landscape and be of a scale appropriate to its countryside character and location. Development will be considered acceptable where it does not lead, either individually or cumulatively, to a significant increase in the overall level of activity in the countryside, and protects, conserves, and seeks to enhance, the key features and characteristics of the landscape character area in which it is located, including; a) The development pattern of the area, its historical and ecological qualities, tranquillity and sensitivity to change; b) The pattern of woodlands, fields, hedgerows, trees, waterbodies and other features; c) The landform of the area; and d) The protection of dark skies, in particular where it may impact on a designated International Dark Sky Reserve (IDSR), Neighbourhood Plan designations and High Weald AONB Management Plan objectives.



Strategic Policy 16: Protected Landscapes	1. Development proposals within and adjacent to the High Weald AONB must demonstrate how their development proposals conserve and enhance the natural beauty of the AONB, having appropriate regard to the setting and views into and out of the AONB, the High Weald AONB Management Plan, any updates and any other relevant documents. Proposals will be required to set out any proposed mitigation or compensation measures needed to address any harm. 66 2. Small scale development that helps to support the social and economic well-being of the AONB will be supported, provided that the scheme is compatible with the purpose of the designation. 3. Major development within the AONB will only be permitted in exceptional circumstances. Applicants will be required to demonstrate why the proposal is in the public interest and what alternatives to the proposal have been considered. 4. Proposals within land that contributes to the setting of the South Downs National Park should be consistent with National Park purposes and have regard to the South Downs Local Plan, the South Downs Integrated Landscape Character Assessment, the South Downs Partnership Management Plan and any other relevant document and updates. In particular, proposals should not cause harm to the special qualities (including dark skies), local distinctiveness or sense of place, by negatively affecting views into and out of the National Park. Proposals will be required to set out any proposed mitigation or compensation measures needed to address any harm.
Strategic Policy 17: Green Infrastructure and Biodiversity	Green Infrastructure 1. Development will be supported where it can demonstrate that it maintains and enhances the existing network of green infrastructure and contributes to the delivery of public open space, the Local Nature Recovery Strategy, Nature Recovery Network, natural capital, ecosystem services and / or biodiversity. Green Infrastructure should be integral to the design and layout of development, and new provision, including green linkages, should be provided taking into account Natural England's green infrastructure guidance and the council's green infrastructure strategy. Provision should seek to optimise public access to open space and nature via foot, bicycle, wheeling, and also horse as appropriate. 2. Proposals that would result in any loss, degradation or harmful impacts to green infrastructure, or core areas of the Local Nature Recovery Strategy and Nature Recovery Network will be resisted unless it can be demonstrated that new opportunities will be provided that appropriately mitigates and / or compensates for the respective harm and ensures that the ecosystem services of the area are retained and enhanced. Development proposals will be expected to remove invasive species. 3. Proposals will be expected to retain and enhance existing priority habitats and trees, and accord with the aims and objectives of the Green Infrastructure and Local Nature Recovery Strategies. Habitat enhancement including additional hedgerow and tree planting must take account of the local landscape and habitat context. It should seek to optimise biodiversity, ecological connectivity and function, and climate change resilience. a) Development likely to affect a watercourse and its associated corridor should seek to conserve and enhance its ecological, landscape and recreational



	value. This should include providing adequate natural buffer zones to the watercourse. Biodiversity 5. The Council will support appropriate new development which delivers at least 12% biodiversity net gain and: a) Retains and enhances significant features of nature conservation value on development sites; b) Makes a positive contribution to biodiversity and accords with the aims and objectives of the Green Infrastructure and Local Nature Recovery Strategies, through the creation of appropriate green spaces, that provide linkages between habitats to create local and regional ecological networks that enable the movement of wildlife through development sites; and / or c) Following the principle of 'right habitat in the right place', significantly increases woodland or other habitats for the purpose of appropriately enhancing biodiversity, carbon sequestration, pollution control, and / or flood mitigation. 6. Relevant development proposals will be expected to deliver 12% biodiversity net gain and must submit Biodiversity Net Gain information to show how this will be achieved using the mandated Biodiversity Metric or the Small Sites Metric as appropriate and must abide by the metric trading rules. Submissions must make clear what will be provided to meet no net loss and what will deliver net gains. The net gain must be achieved through the delivery of appropriate on-site biodiversity net gain or, where this is not practicable, through off-site net gain within the District especially areas, as suitable to the habitats subject to gain, identified in the District's Green Infrastructure Strategy or the Local Nature Recovery Strategy, or as agreed by the Council. All such schemes, excluding any respective element using statutory biodiversity credits, must submit for approval by the Council a funded maintenance and management plan, including monitoring / reporting and appropriate enforcement processes, that secures the biodiversity net gains for at least 30 years. 7. All other development proposals must seek to demonstrate how measurable biodiversity net gains will be delivered. Protected Sites and Species 8. Proposals must give appropriate consideration to protected and notable species. They will be expected to protect priority species and seek to aid their recovery, and must conserve, restore and enhance priority habitats, and should create and manage appropriate new habitats, taking into account pollination, where practicable. 9. Particular consideration will be given to the hierarchy of sites and habitats, including buffer areas, within the District, or functionally linked to, as follows: a) Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites; b) Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs), Veteran Trees, Ancient Woodland and other irreplaceable habitats; 75 c) Local Wildlife Sites (LWS), Local Nature Reserves (LNRs) and any areas of priority habitats including traditional orchards, local geodiversity, Core Sites in the emerging NRN and other irreplaceable habitats not already identified in a & b above. 10. An appropriate buffer around woodland will be required, this will be at least 15m around Ancient Woodland or greater in accordance with good practice, and
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	consideration should be given to the potential for protected species, such as bats, and impacts on hydrology. Around ancient and veteran trees a minimum buffer zone of at least 15 times larger than the diameter of the tree, or 5 metres from the edge of the tree's canopy whichever is the larger, will be required. 11. Where the felling of a tree is necessary, for example due to disease, replacement planting with a suitable tree species, age and location to retain and enhance the link with the wider network of habitats and Green Infrastructure, will be required. 12. Where development is anticipated to have a direct or indirect adverse impact on sites or features of importance to nature conservation, development will be refused unless it can be demonstrated that: a) The mitigation hierarchy has been applied and the objectives of a site's designation, where applicable, and integrity of the area will not be undermined; b) The reason for the development clearly outweighs the likely impact to notified features and / or the need to protect the value of the site; and c) Appropriate mitigation and compensation measures will be provided alongside the delivery of measurable biodiversity net gain as relevant. 13. Any development with the potential to impact the Arun Valley SPA / SAC / Ramsar site, The Mens SAC and / or Ebernoe Common SAC will be subject to a Habitats Regulation Assessment to determine the need for an Appropriate Assessment. In addition, development will be required to be in accordance with the necessary mitigation measures for development set out in the Habitat Regulation Assessment of this Plan.
Policy 18: Local Green Space	1. Local green and open spaces should be protected. Areas designated as Local Green Space, as identified on the Policies Map, will be safeguarded from development unless it can be demonstrated that: a) Development is proposed to enhance Local Green Space functions, for example through improvements to access, recreation and wildlife; or b) It is required for a statutory utility infrastructure purpose, for example water, gas, electricity or telecommunications provision. 2. Within Neighbourhood Plans, the creation of new areas of Local Green Space will be supported providing it is within reasonably close proximity to the community it serves, is local in character and is not an extensive track of land. It must also meet the relevant criteria, as set out in any relevant national planning guidance documents, in relation to scale, beauty, historic significance, recreational value, tranquillity and ecological value, and does not conflict with the strategic policies of this Local Plan.



APPENDIX 3 - IMPORTANCE OF ECOLOGICAL FEATURES

Table 26. 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

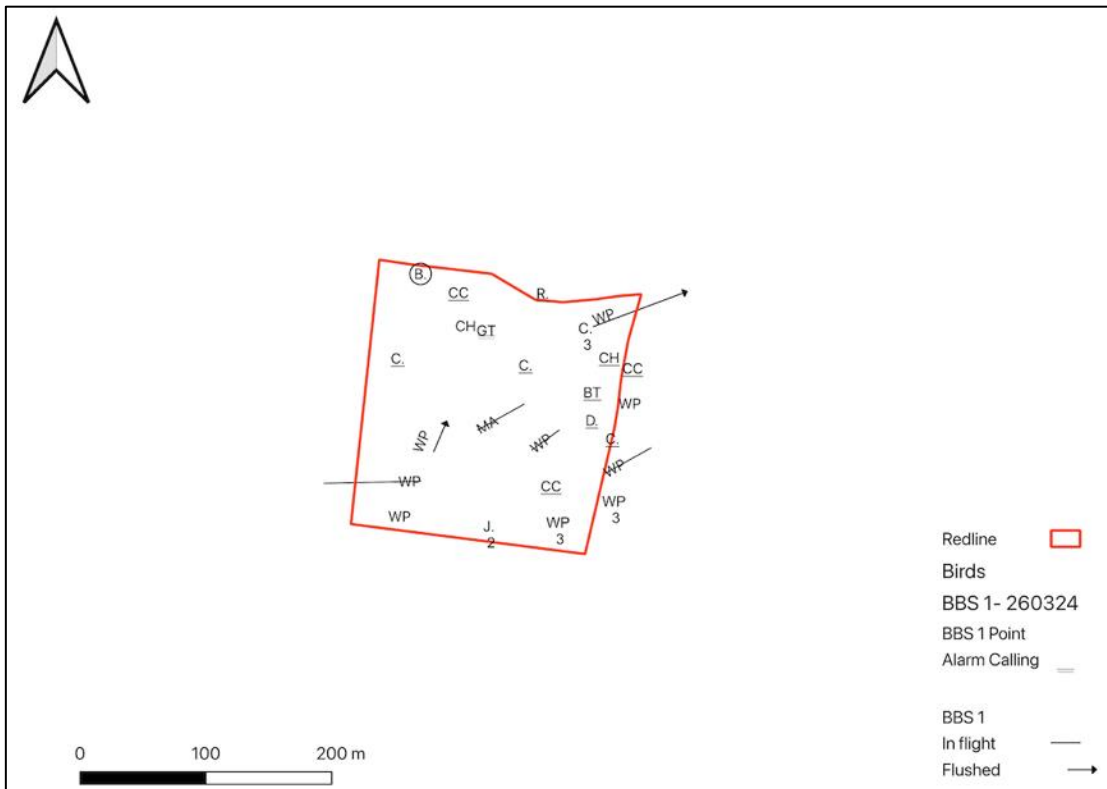


Figure 20. Breeding bird survey results for survey 1. Images produced courtesy of QGIS 3.36 Maidenhead.

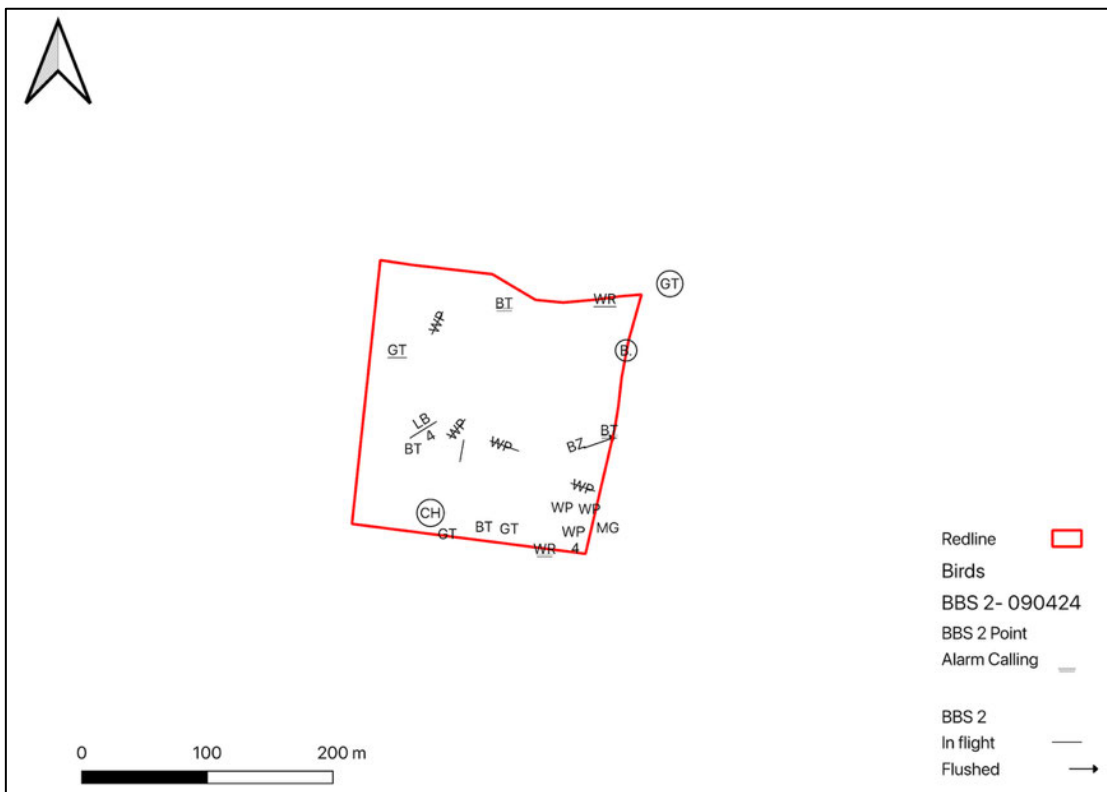


Figure 21. Breeding bird survey results for survey 2. Images produced courtesy of QGIS 3.36 Maidenhead.

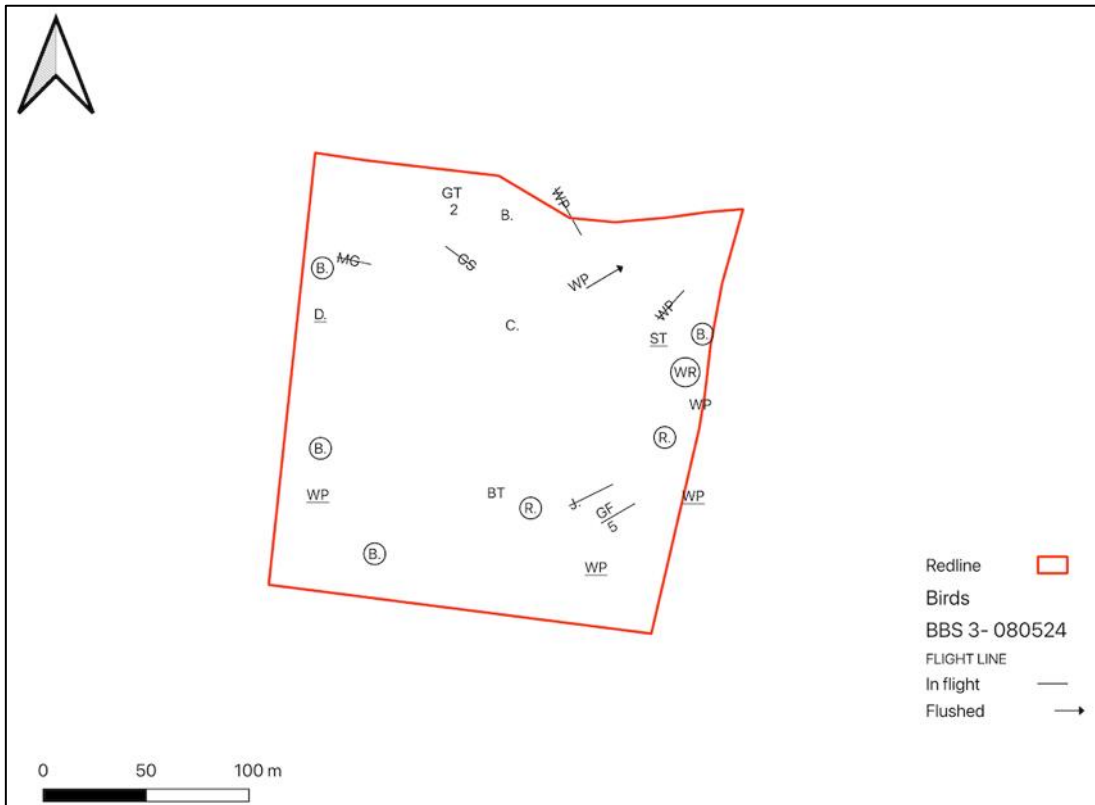


Figure 22. Breeding bird survey results for survey 3. Images produced courtesy of QGIS 3.36 Maidenhead.

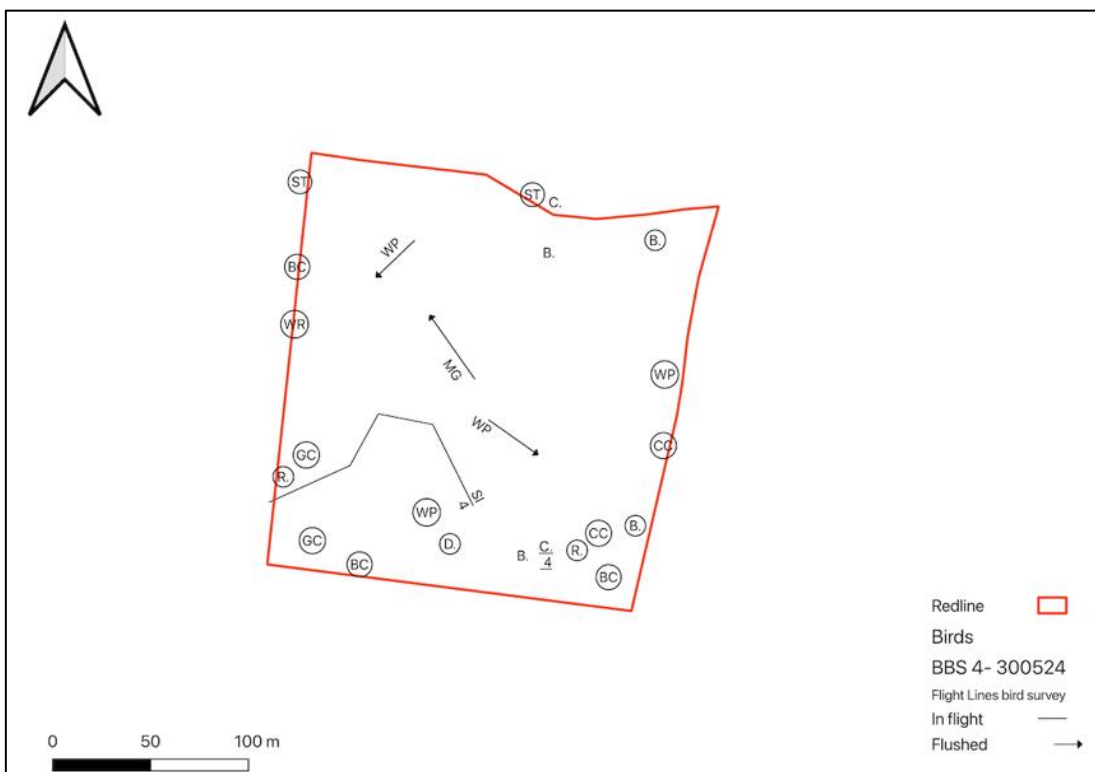


Figure 23. Breeding bird survey results for survey 4. Images produced courtesy of QGIS 3.36 Maidenhead.

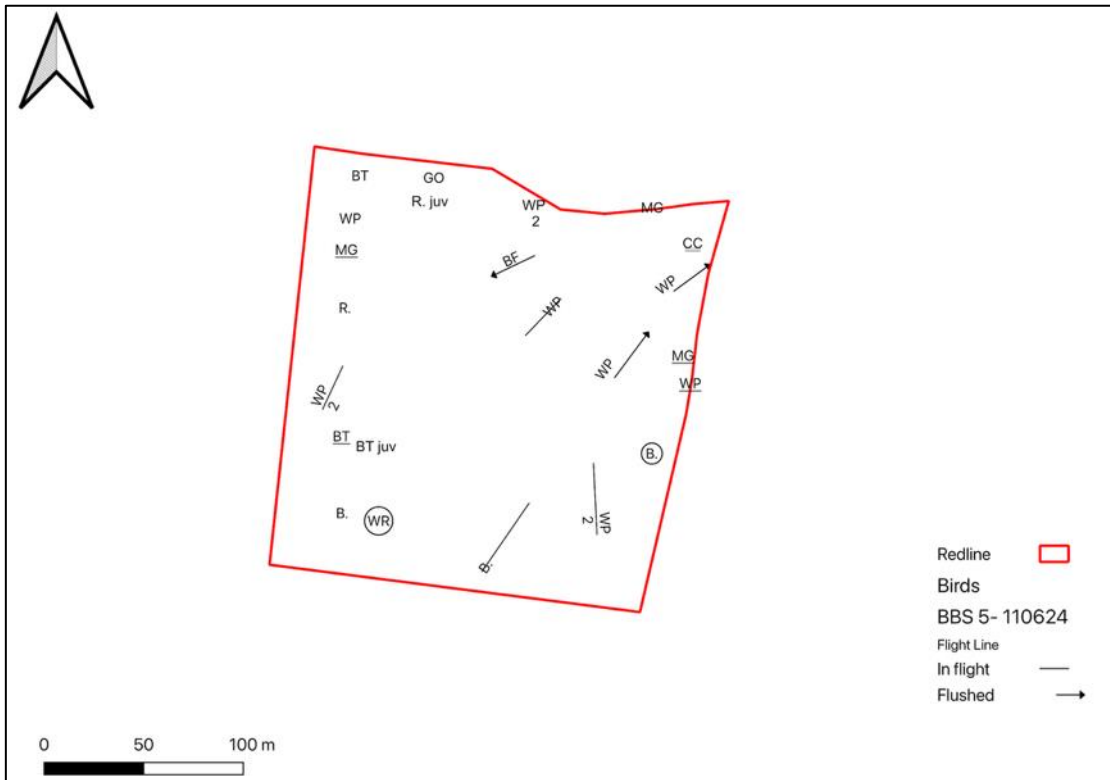


Figure 24. Breeding bird survey results for survey 5. Images produced courtesy of QGIS 3.36 Maidenhead.

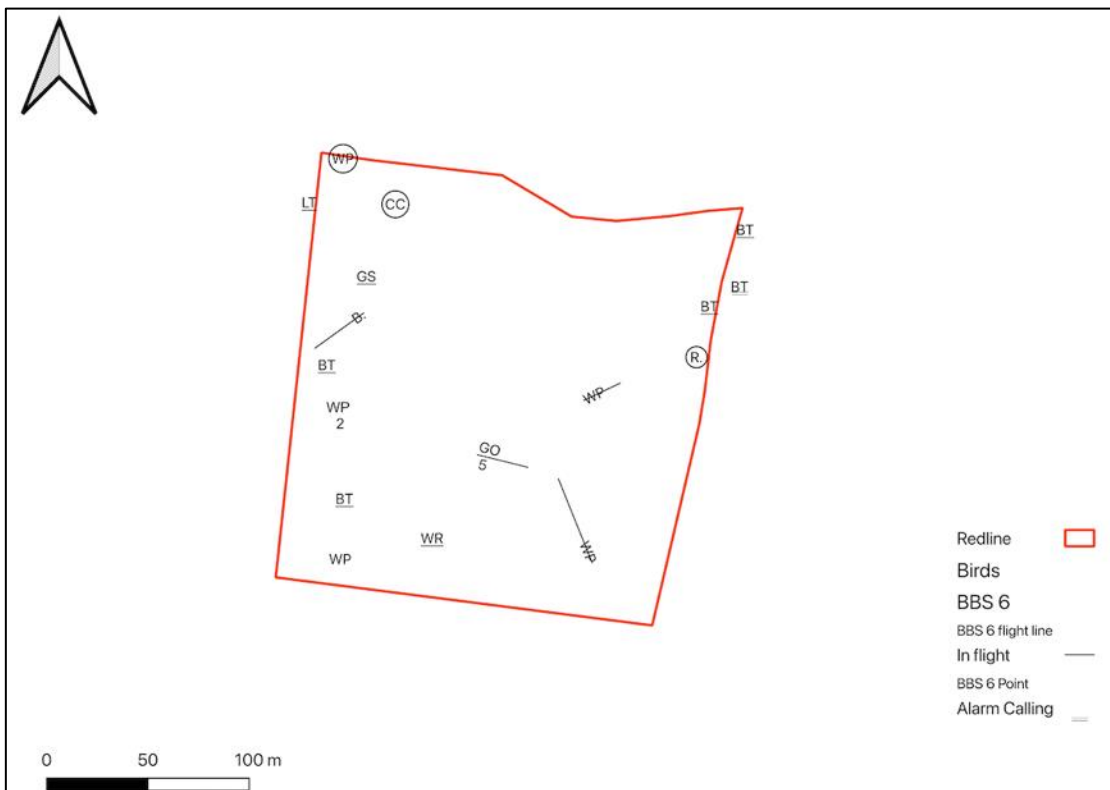


Figure 25. Breeding bird survey results for survey 6. Images produced courtesy of QGIS 3.36 Maidenhead.



APPENDIX 5 – COMMON DORMOUSE SURVEY RESULTS

Abbreviations: DM=dormouse; WM=wood mouse; YN=yellow-necked mouse; 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 27. Full dormouse presence/absence survey results.

Completion date	April	May	June	August	September	October	December
Temp/°C	18	15	18	24	21	14	N/A
Cloud cover	90%	10%	90%	40%	0%	60%	80%
Precipitation	Dry	Dry	Dry	Dry	Dry	Dry	Damp
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	E	E	E	E	E
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	E	E	E	E	E	E
12	E	E	E	E	E	E	E
13	E	E	E	E	E	E	E
14	E	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	E	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	E	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	N
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	E	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	E	E	E	E
43	E	E	E	E	E	E	E
44	E	E	E	E	E	E	E
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	E	E	E	E	E	E
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	E	E	E	E	E	E
54	E	E	E	F	E	E	E
55	E	E	E	E	E	E	E
56	E	E	E	F	E	E	E



APPENDIX 6 - GREAT CRESTED NEWT SURVEY RESULTS

Table 28. HSI calculation for ponds assessed during the survey.

	Pond 1a		Pond 1b		Pond 7	
NGR						
SI attribute	SI value	Notes	SI value	Notes	SI value	Notes
Location	1	SE England	1	SE England	1	SE England
Pond area	0.9	450m ²	0.02	100m ²	0.1	80m ²
Pond drying	0.9	Never	0.9	Never	0.5	Sometimes Dries
Water quality	0.67	Moderate	0.67	Moderate	0.33	Poor
Shade cover	0.2	96-100%	0.2	96-100%	0.2	96-100%
Water-fowl	1	Absent	1	Absent	1	Absent
Fish presence	0.33	Minor	0.33	Minor	1	Absent
No. ponds	1	>12	1	>12	1	>12
Terrestrial habitat	0.67	Moderate	0.67	Moderate	1	Good
Macrophytes	0.45	11-15%	1	66-80%	0.95	81-85%
HSI value	0.63	Average	0.59	Below Average	0.56	Below Average

	Pond 9		Pond 10		Pond 11	
NGR						
SI attribute	SI value	Notes	SI value	Notes	SI value	Notes
Location	1	SE England	1	SE England	1	SE England
Pond area	0.05	<50m ²	0.4	200m ²	0.05	<50m ²
Pond drying	0.9	Never	0.9	Never	0.1	Dries Annually
Water quality	0.33	Poor	0.33	Poor	0.33	Poor
Shade cover	0.2	96-100%	1	0-60%	1	0-60%
Water-fowl	1	Absent	1	Absent	1	Absent
Fish presence	1	Absent	1	Absent	1	Absent
No. ponds	1	>12	1	>12	1	>12
Terrestrial habitat	1	Good	0.67	Moderate	0.67	Moderate
Macrophytes	0.3	<1%	0.4	6-10%	0.3	<1%
HSI value	0.49	Poor	0.70	Good	0.44	Poor



Table 29. Great crested newt field survey metadata: Dates, times, weather conditions and air temperature.

Survey number	Survey date	Metadata						
		Evening				Morning		
		Temp.	Cloud cover	Wind speed	Moon phase ^{18 & 19}	Temp.	Cloud cover	Wind speed
1	8 th to 9 th April	9°C	30%	BF2	New supermoon (1%)	8°C	80%	BF3
2	25 th to 26 th April	7°C	100%	BF1	Full moon (99%)	6°C	60%	BF1
3	15 th to 16 th May	9.3°C	0%	BF2	First quarter (45%)	13°C	60%	BF2
4	17 th to 18 th June	15°C	100%	B0	Waxing gibbous (75%)	14°C	100%	BF1



Table 30. Results of great crested newt field surveys.

Survey 1																
Pond	Turbidity	Torching									Bottle Trap					
		GCN			Palmate		Smooth		Unknown small newt	Other	GCN		Palmate		Smooth	
		M	F	U	M	F	M	F			M	F	M	F	M	F
1a	3	0	0	0	2	0	1	1	47	2 CF	0	0	3	3	1	0
1b	2	0	0	0	0	2	0	0	2	-	0	0	0	0	0	0
10	5	0	0	0	0	0	1	0	0	1 CF 1 CT	0	0	2	1	1	7
15	4	0	0	0	0	0	0	0	1	-	0	0	0	0	0	0
Total Count per sex		0	0	0	2	2	2	1	50	3 CF	0	0	5	4	2	7
Total Count per species		0			4		3			1 CT	0		9		9	
Survey 2																
Pond	Turbidity	Torching									Bottle Trap					
		GCN			Palmate		Smooth		Unknown small newt	Other	GCN		Palmate		Smooth	
		M	F	U	M	F	M	F			M	F	M	F	M	F
1a	3	0	0	0	0	0	0	0	15	-	0	0	2	3	1	1
1b	2	0	0	0	0	0	0	0	5	-	0	0	0	0	0	0
10	4	0	0	0	0	0	0	0	0	-	0	0	1	1	0	1
15	2	0	0	0	0	0	0	0	0	3 CF	Not set					
7a	2	0	0	0	0	0	0	0	0	-	0	0	0	1	0	0
Total Count per sex		0	0	0	0	0	0	0	20	3 CF	0	0	3	4	1	2
Total Count per species		0			0		0			0	0		7		3	
Survey 3																
Pond	Turbidity	Torching									Bottle Trap					
		GCN			Palmate		Smooth		Unknown small newt	Other	GCN		Palmate		Smooth	
		M	F	U	M	F	M	F			M	F	M	F	M	F
1a	2	0	0	0	9	0	3	1	24	1 CF 1 Eel	0	0	5	5	1	1
1b	2	0	0	0	0	0	0	0	0	1 Eel	0	0	0	0	0	0
10	5	0	0	0	0	0	0	0	0	-	0	0	6	6	5	2
Total Count per sex		0	0	0	9	0	3	1	24	1CF	0	0	11	11	6	3
Total Count per species		0			9		4			2 Eel	0		22		9	
Survey 4																
Pond	Turbidity	Torching									Bottle Trap					
		GCN			Palmate		Smooth		Unknown small newt	Other	GCN		Palmate		Smooth	
		M	F	U	M	F	M	F			M	F	M	F	M	F
1a	0	0	0	0	2	9	0	2	25	-	0	0	5	2	0	0
1b	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0
10	2	0	0	0	0	0	0	0	1	-	0	0	0	0	1	1
Total Count per sex		0	0	0	2	9	0	2	26	-	0	0	5	2	1	1
Total Count per species		0			11		2			0	0		7		2	



APPENDIX 7 - 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 Trust³⁵ should be referred to when designing the lighting scheme. Note that lighting designs in very sensitive areas should be created with consultation from an ecologist and using up-to-date bat activity data where possible. The guidance contains techniques that can be used on all sites, whether a small domestic project or larger mixed-use, commercial or infrastructure development. This includes the following measures:

Avoid lighting key habitats and features altogether

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

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

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

- dark buffers, illuminance limits and zonation;
- sensitive site configuration, whereby the location, orientation and height of newly built structures and hard standing can have a considerable impact on light spill;
- consideration of the design of the light and fittings, whereby the spread of light is minimised ensuring that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Consideration should be given to the height of lighting columns. It should be noted that a lower mounting height is not always better. A lower mounting height can create more light-spill or require more columns. Column height should be carefully considered to balance task and mitigation measures. Consider no lighting solutions where possible such as white lining, good signage, and LED cat 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;

³⁵ 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>

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

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

Planning Practice Guidance guidance (2014) When is light pollution relevant to planning? Available at:



<https://www.gov.uk/guidance/light-pollution>

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

Voigt, C.C., Azam, C., Dekker, J., Ferguson, J., Fritze, M., Gazaryan, S., Hölker, F., Jones, G., Leader, N., Lewanzik, D. and Limpens, H., 2018. *Guidelines for consideration of bats in lighting projects*. Unep/Eurobats.
Available at:
https://cdn.bats.org.uk/uploads/pdf/Resources/EUROBATSGuidelines8_lightpollution.pdf?v=1542109376