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Ecological Impact Assessment

Land off Crawley Road, Faygate

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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 survey licences for bats and great crested newts, a level 1 survey licence for dormice and has prepared numerous European Protected Species licences. As a Full member of the Chartered Institute for Ecology and Environmental Management (CIEEM) and as Chartered Ecologist through this body, he is bound by their code of professional conduct.

About the Reviewer

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



Report Summary

1. The Ecology Co-op has been commissioned by SDP Developers to undertake an Ecological Impact Assessment for a development on land at Old Crawley Road. Following a repeat Preliminary Ecological Appraisal (initial survey undertaken in 2019), including UKHab mapping, of the site by The Ecology Co-op in April 2022, ecological surveys were repeated where necessary, including protected species surveys and desk-top studies between April 2022 and October 2022 in order to provide sufficient baseline information for this assessment. [REDACTED]

2. This document presents the findings of these surveys and previous surveys, and a full Ecological Impact Assessment (EclA) in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines to inform a planning application for 120 residential dwellings.

3. The site measures approximately 4.9ha, set within a semi-rural location on the fringe of Horsham and comprises a cultivated arable field, with a small area of bracken in the south-west corner, surrounded by hedgerows. A deciduous woodland parcel lies adjacent to the eastern boundary and further cultivated fields are situated to the north and east of the site. Residential housing forms the western boundary and small areas of grassland lie to the south. There is a parcel of ancient woodland approximately 450m east of the site.

4. [REDACTED]

5. [REDACTED]
- [REDACTED]
 - foraging and/or commuting barbastelle bats as well as more common species of bat
 - hazel dormouse
 - grass snake
 - skylark.

6. The arable field will be permanently lost to the proposals. The boundary habitat will be retained except for a 30m length of hedgerow which will be removed to create a new road access. The potential breeding skylark territory will be permanently lost and all other impacts will be caused by indirect disturbance to the boundary habitat especially the woodland edge habitat. A 15m buffer zone between the development and the woodland edge has been incorporated as part of mitigation measures. Skylark plots on adjacent arable fields are recommended.

7. In line with the National Planning Policy Framework the site's ecological value should be enhanced and the development can demonstrate that it can achieve a 10% net gain in biodiversity value. This will be detailed in a separate Biodiversity Impact Calculation report. This will be achieved through the creation of new woodland habitat, the creation of a 15m buffer zone to be planted up and enhancement of boundary hedgerows. Further detail is provided in section 5.



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1 INTRODUCTION

1.1 Background

The Ecology Co-op was commissioned by SDP Developers Ltd to undertake a repeat Ecological Appraisal of Land off Crawley Road, Faygate. This report presents the findings of the repeat ecological surveys and desk-study research, as well as summarising previous survey results, and assesses the likely impacts and significance of effects of the proposed works in relation to protected/notable species, habitats and designated sites.

A previous Ecological Impact Assessment¹ (EclA) was produced in 2019 following an initial site walkover and suite of ecological surveys. The site of the original proposal included two cultivated fields with a deciduous woodland parcel in between and the development proposal was for 473 units with associated hard and soft landscaping; the new red line boundary for the site has been greatly reduced and no longer includes the larger of the two cultivated fields or the woodland parcel. Surveys for the following protected species were carried out in 2019:

- [REDACTED]
- bats (activity and tree roost assessment)
- breeding birds
- common dormouse *Muscardinus avellanarius*
- great crested newts *Triturus cristatus*
- reptiles.

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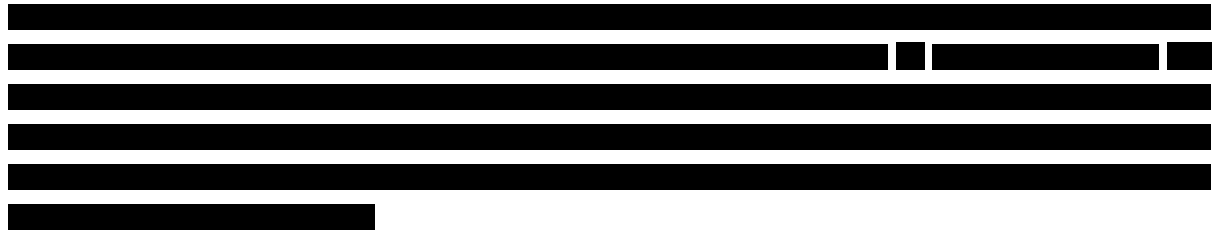
In 2022, the proposed development for which this report has been commissioned was greatly reduced and only comprised the smaller cultivated field closest to Old Crawley Road. The larger field and woodland parcel are no longer part of the application and are outside of the red line plan. As a result, the following protected species surveys were repeated across the 2022 survey season and the survey area reduced to the small western field only:

- bats (activity)
- breeding birds
- great crested newts.

¹ The Ecology Co-op (2019) Ecological Impact Assessment – Land off Crawley Road, Faygate.



The site measures approximately 4.9ha, set within a semi-rural location on the fringe of Horsham and comprises a cultivated arable field with a small area of bracken in the south-west corner, surrounded by hedgerows. A deciduous woodland parcel lies adjacent to the eastern boundary and more cultivated fields are situated to the north and east of the site. Residential housing forms the western boundary and small areas of grassland lie to the south. There is a parcel of ancient woodland approximately 450m east of the site. Figure 1 shows the boundary of the site and local context and Figure 2 provides the most recent indicative site layout produced by Paul Hewett, Chartered Architect.



The proposed development comprises a total of 120 units along with associated hard and soft landscaping.

1.2 Purpose of this Report

The Ecology Co-op undertook further protected species surveys for bats, breeding birds and great crested newts. The previous data collected for these species in 2019 and others where presence was confirmed, such as common dormice, will also be included to inform this impact assessment.

The purpose of this report is to:

- present the findings of surveys and desk-study research (baseline ecological information);
- identify and evaluate the most ecologically important features present on the site and within the zone of influence of the proposed development;
- describe the impacts of the proposed development and determine the significance of effects on these ecologically important features;
- set out the proposed impact avoidance, mitigation, compensation measures that will be undertaken to reduce significant adverse effects to an acceptable level.
- outline the habitat creation and enhancement measures that will be put into place as part of the proposed development. These are designed to ensure that the proposals contribute to both local and national biodiversity objectives.

This report is intended for submission as part of the planning application for the proposed development.

The surveys and report were carried out and produced at the request of SDP Developers Ltd, supervised by Sam Lunn, MSc, MCIEEM.



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 Planning Framework is provided in Appendix 2.



Figure 1. An aerial image showing the location of the site. The approximate site boundary is outlined in red. Images produced courtesy of Google maps (map data ©2023 Google).



Figure 2. Illustrative Masterplan, reproduced from Paul Hewett, Chartered Architect. Drawing no. 2126/PL.05 Rev J. Date March 2026.



2 SURVEY METHODOLOGY

The following sections describe the methods used in the desk study and protected species/habitat survey(s). All survey methods are in accordance with current best practice guidance for the respective species/taxonomic group and any limitations encountered during the survey are explained in section 2.12.

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 2.11 below.

2.1 Desk Studies

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

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

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

2.2 Habitat Survey

A site walkover survey was undertaken on 19th April 2022, during which the habitats contained within the site were described and evaluated in accordance with standard UK Habitat Classification (UKHab)⁴. The dominant species and indicators of important habitat types such as ancient woodland or unimproved grassland were recorded. Updated site visits on the 1st February 2024 and 11th December 2025 have confirmed that the habitats present and their conditions have not changed.

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

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

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

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



of the vegetation and wildlife habitats present over large areas of countryside. The habitat classification is based principally on vegetation, augmented by reference to topographic and substrate features, 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 2.12.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁵ UK Habitat Classification Working Group (2018). *UK Habitat Classification – Habitat Definitions V1.0* at <http://ecountability.co.uk/ukhabworkinggroup-ukhab>



2.4 Bats

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

2.4.1 Natural Roost Features – Trees

All trees likely to be affected directly or indirectly by the proposed development were subject to a ground-based visual inspection to identify potential roost features followed by climbing inspections where necessary and safe, to look for evidence of roosting bats and to further assess the suitability of the feature. The potential for roosting bats for each feature, or group of features was assessed as none, FAR (further assessment required) or PRF (Potential Roost Feature(s)) in accordance with best practice guidelines⁷.

Table 1. Characterising potential roost features in trees.

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

2.4.2 Bat Activity Surveys – Walked Transects

Bat activity surveys followed best practice guidelines⁷. Pre-determined transect routes were followed by surveyors (Figure 3), focussing on all linear features within the site boundary (tree-lines, woodland edge and hedgerows). The transect routes were walked at a slow pace during the period from sunset to two hours after sunset by a team of surveyors, such that each part of the route was passed

⁶ Harris, S, Cresswell, P. and Jefferies, D. (1989) *Surveying Badgers*. Mammal Society.

⁷ Collins, J.(ed.) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (4th edn). The Bat Conservation Trust, London.



approximately every twenty minutes. All surveys were undertaken during weather conditions suitable for bat activity and at ambient temperatures above 10°C. The surveyors recorded bat activity using 'Echo Meter Touch' bat detectors featuring auto-identification of bat species and automatically triggered recording for later review. The locations of all bat 'registrations' was recorded onto a field map during the survey to correspond with all sound recordings.

2.4.3 Bat Activity Surveys – Automated Static Bat Detecting

One Elekon Batlogger A static bat detector was deployed on the eastern boundary of the site, which lies adjacent to the woodland parcel (Figure 3), on three separate occasions in May, July and September 2022, and left in the field for a minimum of five days – the expected maximum lifetime of the battery. Static bat detectors comprise a passive recording device with real-time full-spectrum calls that can be viewed in detail once downloaded on analysis software, allowing accurate identification of most bat calls to species level (or genus level in the case of *Myotis* and *Plecotus* spp.).

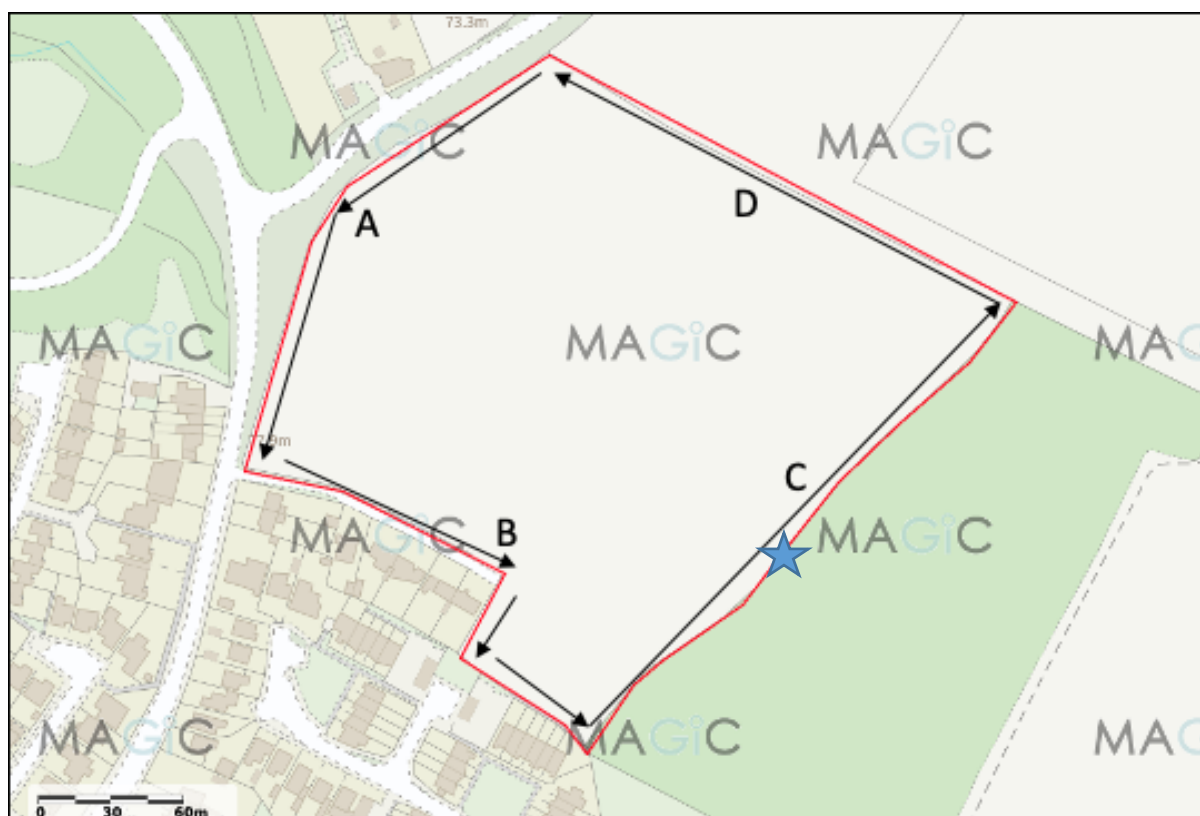


Figure 3. The transect routes of surveyors with stops (black letters) and the position of the static bat detectors deployed on the site (blue star). Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

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



2.5 Breeding Birds

The methods used for the breeding bird survey was adapted from a methodology developed by the Bird Survey and Assessment Steering Group (RSK Biocensus)⁸. This methodology typically requires six visits spread evenly between late-March and early-July. However, as three survey visits were conducted in 2019 across the same period, the methodology was reduced to four survey visits in 2022, which was deemed sufficient to top up the existing data. Surveys were carried out at sunrise with one of these visits conducted 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 (Figure 4) was walked on each visit, during which the observer recorded all birds encountered. As recommended in the guidelines, the transect route was walked at a constant slow pace by a competent bird surveyor, stopping to check any priority habitat/features and causing minimum disturbance, recording all birds detected either by sight or calls/song. Notes regarding the behaviour of birds identified were made to determine their breeding status. Birds were said to be 'confirmed as breeding' if they were observed carrying nesting material, food or faecal pellets; or nests, eggs, or recently fledged young were discovered. Birds were recorded as 'likely breeding' if observed singing or displaying, repeatedly visiting the same locations, and showing agitated or distraction behaviour. Each bird 'registration' was recorded on a field map of the survey site using standard BTO Common Birds Census (CBC) notation⁹, which includes behaviours and flight movements – new standards. A note was also made of the start and end time, sunrise/sunset time, temperature, wind (Beaufort scale) and precipitation levels.

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

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

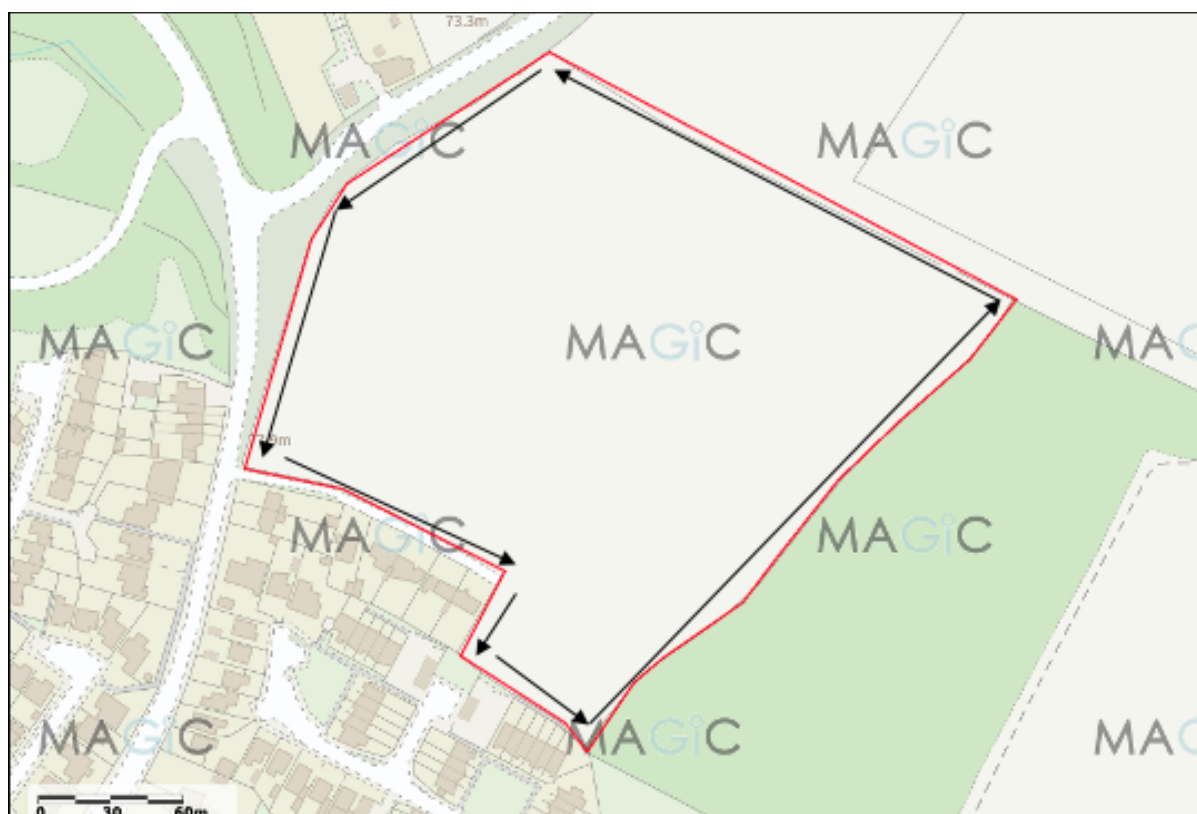


Figure 4. Breeding bird survey transect routes for the four surveys. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

2.6 Common Dormouse

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

2.6.1 Nest Tube/Box Survey

Dormouse nest tube surveys were undertaken in 2019 in accordance with current best practice guidelines¹⁰ and presence was confirmed in October 2019.

2.7 Great Crested Newts and Other Amphibians

Great crested newts require ponds for breeding that meet a series of habitat criteria including good quality water, aquatic plants and an absence of predatory fish. The ponds must have good connectivity to semi-natural terrestrial habitats that provide their invertebrate food sources and suitable safe places

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



to rest and hibernate outside the breeding season. Great crested newts tend to occur more frequently in areas of high pond density across the landscape in 'metapopulations' where habitat occupancy ebbs and flows according to changes in conditions.

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

2.7.1 Ponds

In 2019, a total of 11 ponds were identified within 500m of the site boundaries. Seven of those ponds were confirmed as likely absent using Environmental DNA (e-DNA) in 2019. Two ponds did not hold water during the 2019 survey season and two ponds could not be accessed.

As the site area has been greatly reduced, the number of ponds within 500m has also reduced. The two ponds which could not be accessed in 2019 are now over 500m away from the survey area. Ponds 1, 2, 6, 7 and 8 were all surveyed using e-DNA sampling. The owner of ponds 3 and 4 denied access this time around but pond 3 was dry in 2019 and pond 4 was subject to an e-DNA survey. Pond 5 was found to be dry in 2022 and is over 500m away from the site.

2.7.2 Environmental DNA Sampling and Analysis

This technique allows a quick and reliable qualitative measure of the presence/likely absence of great crested newts. It involves collection of water samples from a pond, using a standard protocol set out by Natural England¹¹. The samples are sent to an approved laboratory to isolate and determine presence of environmental DNA (eDNA) shed into the water by amphibians during the breeding season. The eDNA samples were taken on 19th April 2022.

As all ponds surveyed were confirmed as negative for great crested newt DNA, population size class assessments were not required.

Negative results have been returned for all ponds in 2019 and 2022 and given the limited amount of available suitable habitat for amphibians on site, it was not deemed necessary to repeat the eDNA surveys a third time.

¹¹ 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.

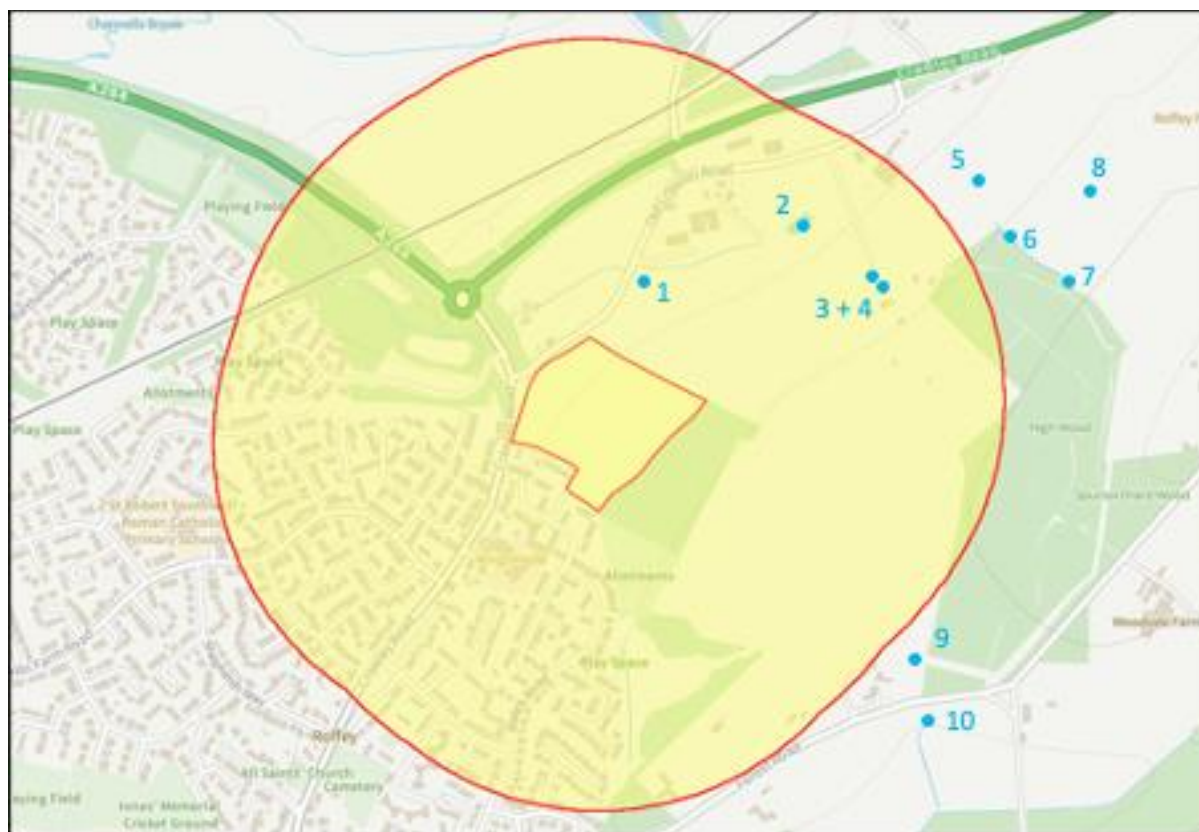


Figure 5. Location of ponds originally identified in 2019 both inside and outside 500m (yellow shaded area) from the site in relation to the Old Crawley Road site.

2.8 Reptiles

The common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis*, grass snake *Natrix helvetica* 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.

A single grass snake was recorded during the presence/likely absence reptile survey in 2019, found within grassland habitat that is no longer part of the site. The amount of suitable reptile habitat within the new red line site boundary is much reduced and consists of a small area of bracken and the boundary hedgerow. As such, a repeat reptile survey was not deemed necessary.

2.9 Other Notable Species

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



2.10 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.

2.11 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'.

2.11.1 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 where possible and it should be reasonable to assume that if a feature is not mentioned, it is not ecologically important.

2.11.2 Significance of Effects

In accordance with EclA (CIEEM 2018)², a significant effect is defined as "an effect that either supports or undermines biodiversity conservation objectives for important ecological features". Conservation



objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy). The effects may be described as significant at a range of geographic scales as defined above.

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

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

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

2.11.3 The 'Mitigation Hierarchy'

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

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

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



2.12 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, surveys are usually considered valid for up to eighteen months for [REDACTED] and bats, two years for reptiles if absence is recorded (five years for presence unless habitats significantly change) and three years for great crested newts and dormice. However, the advice note¹² from CIEEM on the lifespan of ecological reports and surveys highlights if a professional ecologist has undertaken a recent site visit and updated the desk study information then they can provide appropriate justification as to why surveys may still remain valid.

In this instance, the amount of semi-improved habitats present on site is limited and there has been no change to the habitats since the last round of surveys in 2022. As a result, most surveys are considered to still be valid for this application. [REDACTED]

3 ECOLOGICAL BASELINE

3.1 Designated Sites

The site sits within the High Weald National Landscape (formerly Area of Outstanding Natural Beauty - AONB) which has five components that make up the area's natural beauty¹³:

- rolling hills, dissected by steep-sided gill streams and studded by sandstone outcrops;
- small, irregular-shaped fields and open heaths which are often remnants of medieval hunting forests;
- abundant, interconnected ancient woods and hedges. The dense forest which gave the Weald its name has largely vanished, but fine ancient broadleaved woodland is still abundant, particularly in the deep gills which incise the ridges. The Weald retains one of the highest levels of woodland cover in the country at over 23 per cent. Traces of the ancient Wealden iron industry, including hammer ponds, are found scattered throughout the woodlands;
- scattered farmsteads and hamlets, largely developing from temporary dwellings in wooded areas or 'dens' where farmers from the Downs grazed their pigs. Buildings are characterised by distinctive stone, brick, tile and white weatherboard houses and oasthouses are common;
- narrow, sunken lane arising from pannage – the movement of animals from the Downs to the High Weald in the autumn to graze on mast in the area's woodlands or dens.

Whilst the features and interests of the High Weald National Landscape are provided here, as the

¹² CIEEM April 2019. Advice Note – On the Lifespan of Ecological Reports and Surveys.

¹³ <https://landscapesforlife.org.uk/about-aonbs/aonbs/high-weald>



impacts to this designated site are a consideration for a Landscape and Visual Impact Assessment, there is not further consideration within this report to the potential impact this development proposal may pose.

There are a further seven statutory designated sites within a 5 km radius (Table 2 & Figure 6); however, there are no Natura 2000 sites within at least 18 km of the site.

Information was requested from the Sussex Biodiversity Records Centre (SxBRC) in 2019 for non-statutory sites within 2 km of the application site and this information has been requested again in 2026 and the report will be updated with this data when it arrives; there were two Local Wildlife Sites (LWS) within a 2 km radius of the application site: Leechpool & Owlbeech Woods (200 m south) and St Leonard's Forest (300 m south-east).

The site's eastern boundary sits adjacent to a priority deciduous woodland parcel measuring approximately 2.9 ha and there is a parcel of ancient woodland approximately 430 m to the east. The site is surrounded by boundary hedgerows which are priority habitats (Figure 7).

There are two granted EPS licences for mitigation projects within 1 km of the site boundary. The closest EPS licence to the site concerns the destruction of a brown long-eared bat *Plecotus auritus* resting place – 350 m north-west, dated 19/10/2012–30/06/2013. The other record also concerns the destruction of a brown long-eared resting place, approximately 970 m south-west of the site, dated 09/08/2012–31/12/2014 (Figure 10).

Table 2. Statutory and non-statutory designated sites within 5km of the application site.

Site name	Designation	Features listed on citation	Proximity	Ecological importance
Statutory designated site				
High Weald	National Landscape	The High Weald (National Landscape) which lies between the North and South Downs is characterised by a patchwork of fields, woods and shaws.	0 km	National
St Leonard's Forest	SSSI	St Leonard's Forest is in 'unfavourable- declining' The site was found to lack signs of regeneration in both young tree/sapling and understorey layers, ground flora was also heavily reduced in places. One reason for this is the heavy deer browsing, there are large herds of Fallow ranging across the forest which is evident from sparse Bramble, minimal Holly and a lack of saplings. Regeneration is also reduced due to the lack of open space, there having been very little felling operations in the SSSI in the past 10 – 15 years. In addition, grassy rides (not forestry tracks) were narrow and becoming over-grown, apart from a few 'cross-road' areas where rides met which held sections of heather and plants that benefit from these acidic soils. This site includes the remnants of a formerly more extensive	1.7 km south-east	National



		deciduous forest on the Tunbridge Wells Sands (Hastings Beds) 3km east of Horsham. Examples of high forest remain and the ground vegetation is still varied; the streams which cross the site retain relict flora from the 'Atlantic' period of some 5000 years ago. The woodland bird population is varied and includes some of the more local species of old woodlands. The woodlands also support a population of the purple emperor <i>Apatura iris</i> , a butterfly with a restricted British distribution.		
St Leonard's Park Ponds	SSSI	St Leonard's Park Ponds supports diverse botanical communities and a range of Odonata, including several rare species, but is currently in 'unfavourable condition – no change' due to invasive non-native species such as rhododendron, as well as the heavy use of one of its ponds for fishing and heavy deer browsing restricting regeneration.	1.8 km south-west	National
Warnham	SSSI and Geological Conservation Review	The Langhurst Wood brick pit exposes the lower Weald Clay Group above the Horsham Stone and is one of the most important sites in this unit. Multidisciplinary evidence of the range of depositional environments may be seen here; freshwater (plants, Cypridea, small Viviparus, Unio, fish etc.), brackish (non-Cypridea ostracods, Filosina etc.) and brackishmarine (foraminifera, Cassiope etc.) habitats are all present. The preservation of shell aragonite provides carbon isotope evidence to support environmental studies.	3 km north-west	National
House Copse	SSSI	A small, isolated woodland, which is shown on the 1st Edition 1" Ordnance Survey Map (1816) to have much the same shape and extent as at present. There is much to suggest that it is an 'ancient' woodland with continuity of woodland cover since at least the Middle Ages. This type of woodland cover is rare, being a close association of small-leaved lime and hornbeam <i>Carpinus betulus</i> , previously managed as coppice, under oak <i>Quercus robur</i> standards, and is almost unknown elsewhere in Southern England.	3.5 km north-east	National
Buchan Hill Ponds	SSSI	These three ponds are the best example in West Sussex of Wealden hammer ponds on acid Tunbridge Wells sands. A nationally uncommon woodland type occupies the wetlands around the ponds and the site supports a rich dragonfly fauna which includes two particularly notable species: hairy dragonfly <i>Brachytron pratense</i> and brilliant emerald <i>Somatochlora metallica</i>	3.6 km north-east	National
Warnham	Local Nature Reserve	Boldings Brook runs through the middle of the reserve in a floodplain and floods the wet grassland	2.5 km west	County



Land off Crawley Road, Faygate – ECOLOGICAL IMPACT ASSESSMENT

	(LNR)	and the willow carr in winter. There is a mix of ancient woodland, conifer plantation and mixed broadleaved plantation.		
Target Hill Park	LNR	A mosaic of habitats including wetlands, woodlands, meadow and scrub areas. A pond and several ephemeral scrape ponds have been excavated, creating a range of wetland habitats.	4.5 km north-east	County
Non-statutory designated sites				
Leechpool and Owlbeech Woods	LWS	Once connected with the larger St Leonard's Forest SSSI, Leechpool Woods is a mixed woodland of ancient origin covering 30 acres. Owlbeech Woods consists of 55 acres of restored heathland. Crossbills <i>Loxia curvirostra</i> , yellowhammer <i>Emberiza citrinella</i> and siskin <i>Spinus spinus</i> can be found as well as nightjar <i>Caprimulgus europaeus</i> breeding on the heathland. Holly blue <i>Celastrina argiolus</i> and silver washed fritillary <i>Argynnis paphia</i> butterflies, and golden ringed <i>Cordulegaster boltonii</i> and southern hawker <i>Aeshna cyanea</i> dragonflies can be found as well as common lizard, grass snake and adder.	750 m south	County
St Leonard's Forest	LWS	The site is a large area of coniferous and deciduous plantation with heathy rides and some open heathy areas. The whole site has huge restoration potential. The area holds important breeding birds such as nightjar, redstart <i>Phoenicurus phoenicurus</i> , tree pipit <i>Anthus trivialis</i> , stonechat <i>Saxicola rubicola</i> , firecrest <i>Regulus ignicapilla</i> , hobby <i>Falco subbuteo</i> , woodcock <i>Scolopax rusticola</i> , wood warbler <i>Phylloscopus sibilatrix</i> and crossbill. Scarce butterflies include silver-studded blue <i>Plebejus argus</i> , pearl-bordered fritillary <i>Boloria euphrosyne</i> , small pearl-bordered fritillary <i>B. selene</i> and purple emperor.	1 km south-east	County

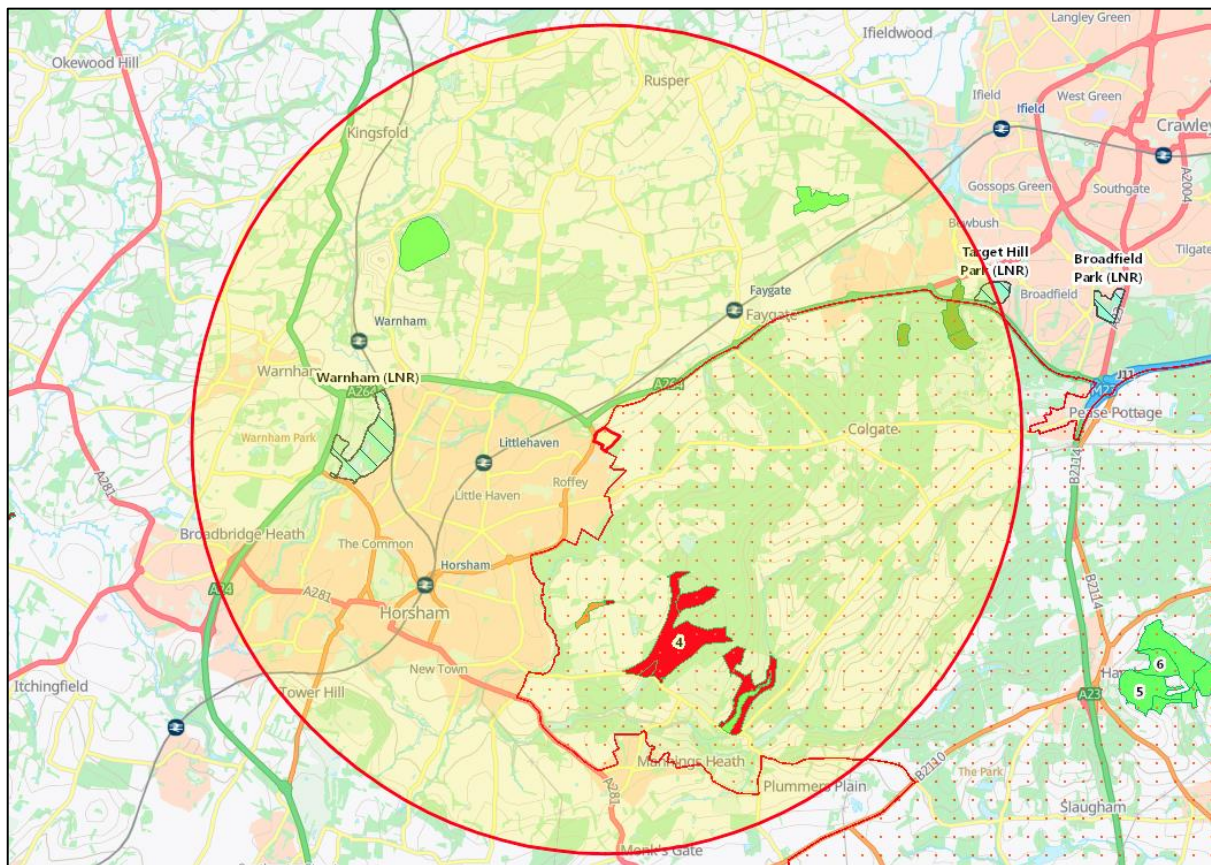


Figure 6. Statutory designated sites within a radius of 5km of the application site. Red means unfavourable condition. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

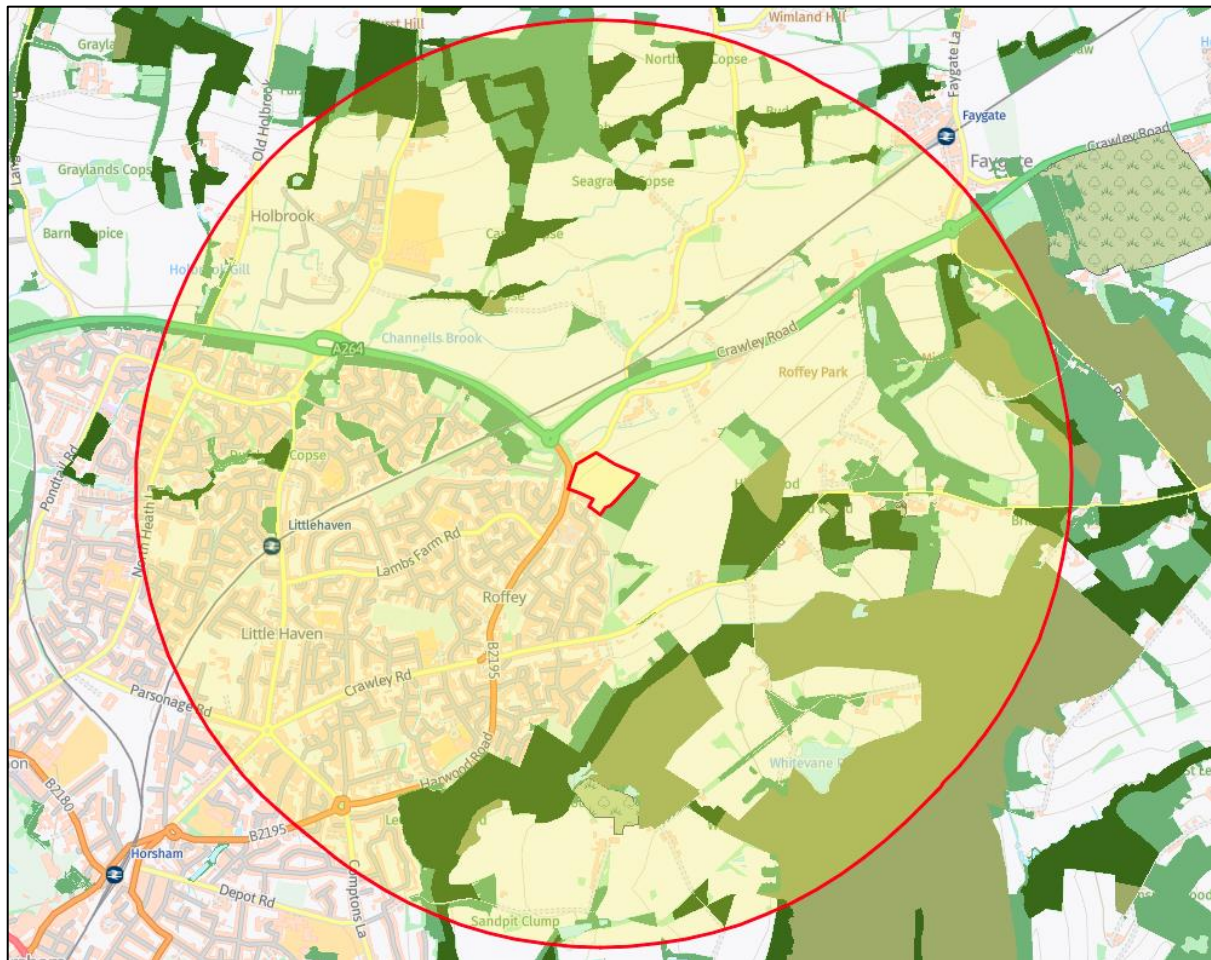


Figure 7. Priority Habitats contained by and adjacent to the site. Produced courtesy of Magic maps, contains public sector information licensed under the Open Government Licence v3.0).



Figure 8. Legend to Figure 7.

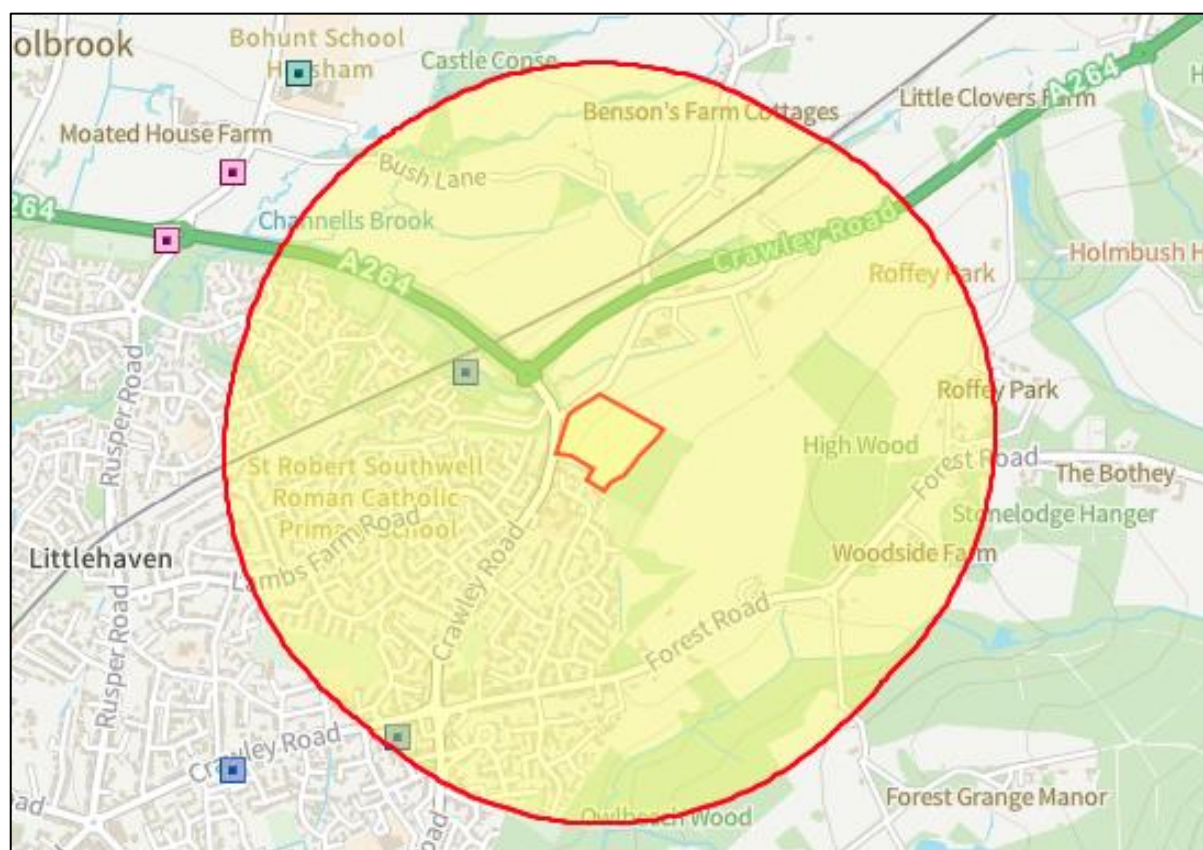


Figure 9. Granted EPS licences within 1km of the application site. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

3.2 Habitats

The site measures approximately 4.9ha and is predominantly comprised of a field cultivated to grow winter wheat *Triticum aestivum*. It is bordered by hedgerows to the north, west and south with a woodland parcel to the east. There is a ditch bordering the north-west which is dry in parts and has running water towards the western edge.

Table 3 below lists the UKHab habitats found at the site with the general species composition of these habitats. Note that detailed information on ponds with respect to great crested newts are presented in that specific section. The habitat map for the site and key to the standard mapping symbols used is presented in Figure 10. Photographs of important areas of habitat are presented below.

Table 3. The UKHab habitat contained within the site (using the DAFOR scale¹⁴)

Habitat type	UKHab Code	Area (ha) length (m)	Species composition	Ecological importance
Cereal crops	c1	4.734 ha	Winter wheat The thin field margins surrounding the field consist	Low

¹⁴ The DAFOR scale is used for semi-quantitative sampling, to provide a quick estimate of the relative abundance of species (generally plants) in a given area. D – Dominant (>75%), A – Abundant (51-75%), F – Frequent (26-50%), O – Occasional (11-25%) and R- Rare (1-10%).



Habitat type	UKHab Code	Area (ha) length (m)	Species composition	Ecological importance
			of: Abundant – cleavers <i>Galium aparine</i>, false oat-grass <i>Arrhenatherum elatius</i>, broad-leaved dock <i>Rumex obtusifolius</i>, dandelion <i>Taraxacum officinale</i>, cow parsley <i>Anthriscus sylvestris</i> Frequent – parsley-piert <i>Alphanes sp.</i>, herb robert <i>Geranium robertianum</i> Occasional – nettle <i>Urtica dioica</i>, dove's foot cranesbill <i>Geranium molle</i>, moss Rare – hogweed <i>Heracleum sphondylium</i> Occasional wood sage <i>Teucrium scorodonia</i> was recorded in the south field margin, near the woods.	
Bracken	g1c	0.089 ha	This is a small triangular section of bracken and ruderal vegetation that appears unmanaged in the south-west corner of the field. There is no hard barrier between the south-west border and the adjacent residential area. There is a 2 m high wooden fence bordering the north-west. Dominant – bracken Abundant – nettle Frequent – cleavers Rare – daffodil <i>Narcissus sp.</i> A cherry laurel <i>Prunus laurocerasus</i> bush and an ash tree <i>Fraxinus excelsior</i> lie at the back of this bracken patch, with holly and oak outside the boundary to the south-east.	Low
Modified grassland	g4	0.049 ha	Northwest boundary on the northern side of hedgerow 1.	Low
Ditch associated with line of trees	r1e w1g6	0.265 m	A line of trees runs along the outside of a ditch, measuring approximately 1 m high, and includes the occasional semi-mature tree. The ditch has steep sided banks and lacks vegetation. East end: Frequent – hawthorn <i>Crataegus monogyna</i>, ivy <i>Hedera helix</i>, bramble Occasional – oak Rare – rose <i>Rosa sp.</i>, honeysuckle There is a 9m gap in the hedgerow, providing access to an adjacent field. West end: Frequent – hazel <i>Corylus avellana</i> Occasional – silver birch, gorse, blackthorn <i>Prunus</i>	High



Habitat type	UKHab Code	Area (ha) length (m)	Species composition	Ecological importance
			<i>spinosa</i> Rare – holly, spindle <i>Euonymus europaeus</i>	
Hedgerow	h2	0.167 m	This hedgerow runs along the northwest boundary and measures approximately 1m high and is dominated by bramble with occasional hawthorn, oak and sycamore. Two mature sycamore trees lie outside the boundary, near the access gate. Dominant – bramble Occasional – hawthorn, oak, sycamore Rare – ash, holly, fruit tree (likely <i>Malus sp.</i>), bracken	Moderate
Hedgerow (priority habitat)	h2a	0.110 m	This hedgerow measures, on average, approximately 1.5 m high and is dominated by hawthorn running along the southwest boundary. Dominant – hawthorn Occasional – bracken, bramble Rare – ash, <i>Cypress sp.</i> Towards the eastern end of this hedgerow there is a post and wire fence that measures approximately 25 m in length, with a beech hedgerow and one cotoneaster bush on the outside of the boundary. At the end of the beech hedging there is an 8 m gap, which opens onto a residential driveway.	High



Figure 10. Habitat survey map of the site with the site boundary outlined in red. The woodland parcel included sits outside of the red line plan. Images prepared using QGIS version 3.16.3 - Hannover.



Photograph 1. The northwest boundary hedgerow and arable field.



Photograph 2. The arable field that dominates the site with the southwest boundary in the background.



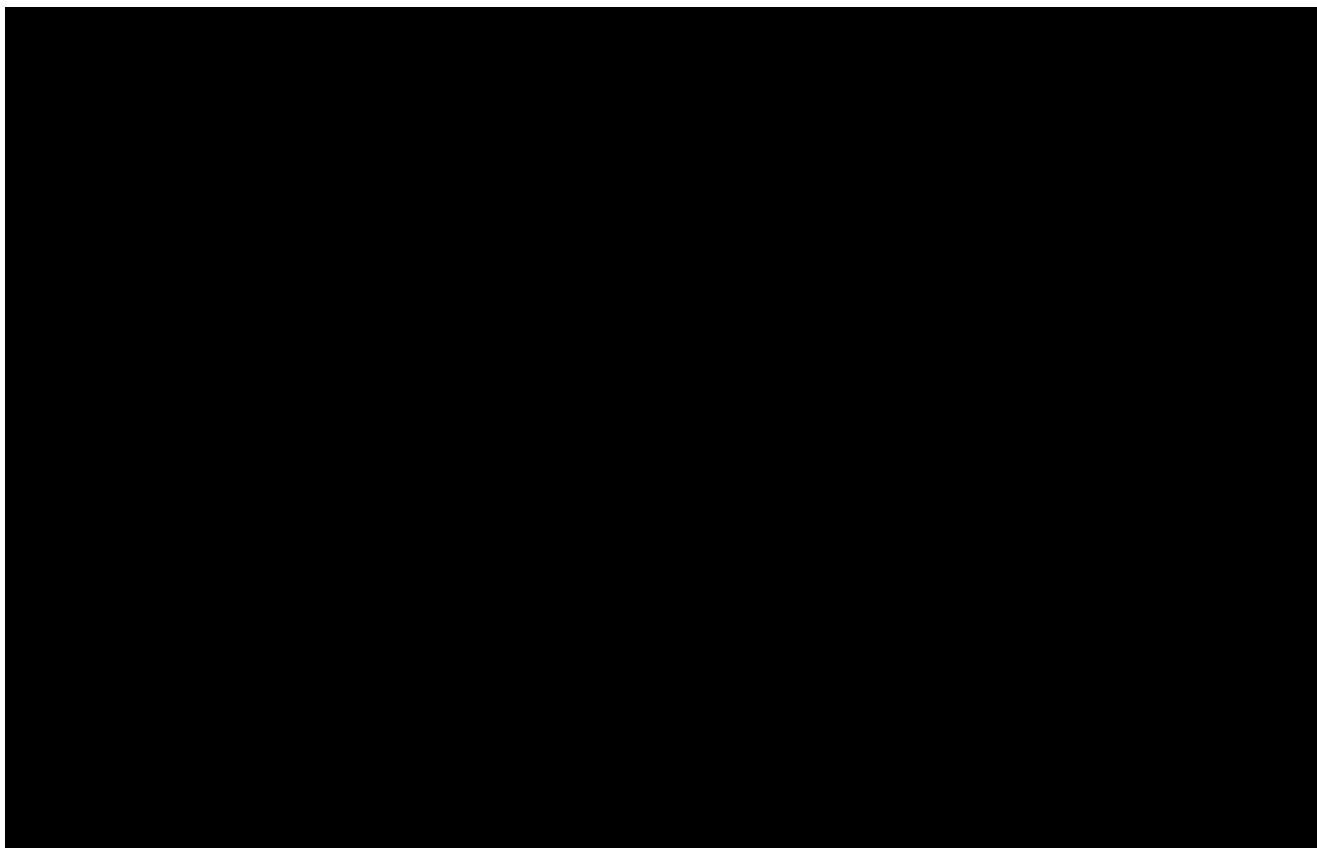
Photograph 3. Area of grassland dominated by bracken in southwest corner.



Photograph 4. The northeast boundary of the site.



Photograph 5. The southeast boundary and the adjacent priority habitat woodland.



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



[REDACTED]

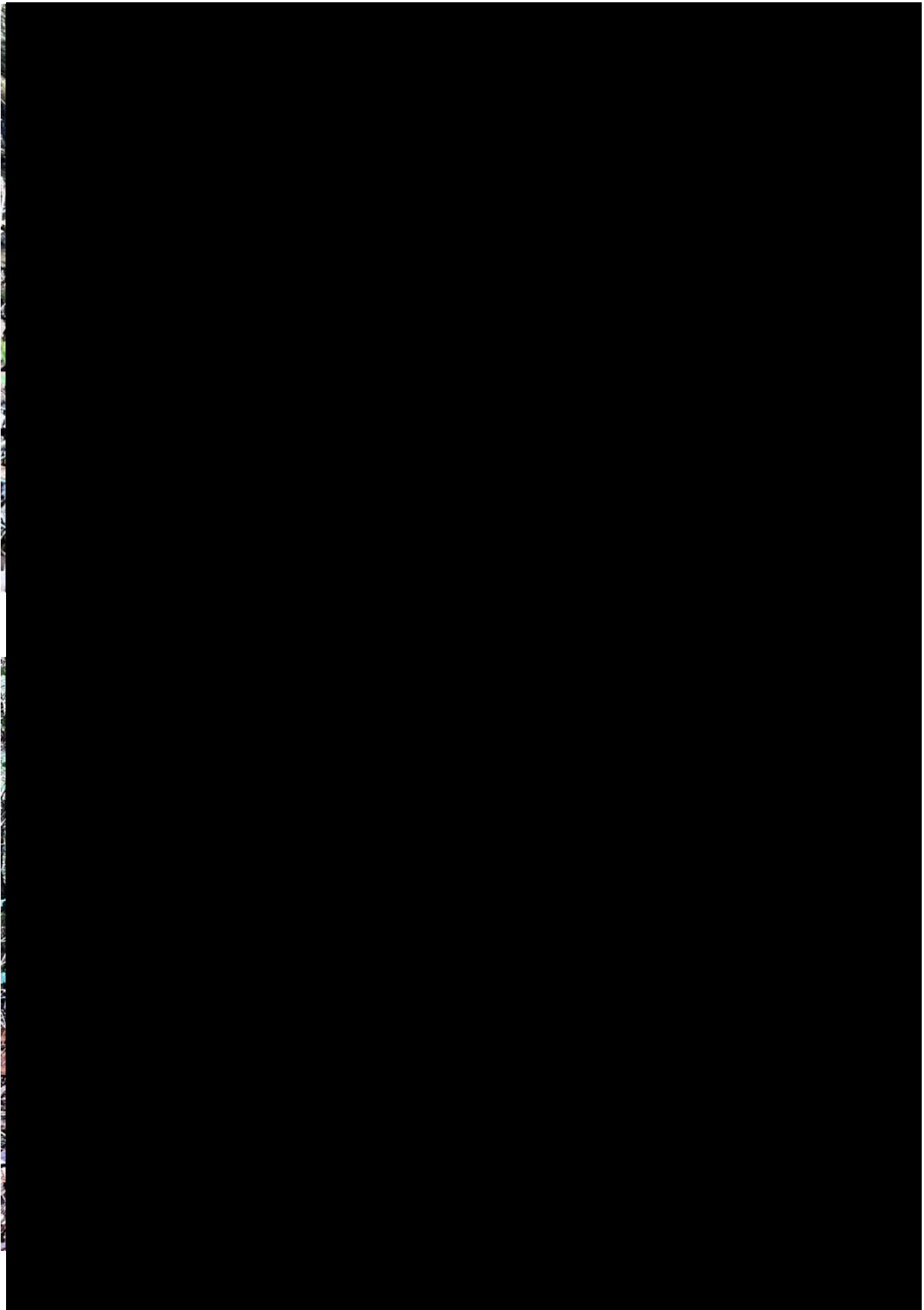
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



Tree ref.	Species	Description of features	Roost potential in 2022	Roost potential in 2025
T1	English oak	Semi-mature oak with rot hole in main trunk	Moderate	PRF-I
T2	English oak	Half dead covered in ivy	Low	PRF-I
T3	English oak	Bark folds on main trunk	Low	PRF-I
T4	English oak	Large split in bark 2 m in length close to base of main trunk. Approximately 20 cm width at widest point with gaps present	High	PRF-M



		between outer bark and inner bark. Rot hole above split, facing north.		
T5	English oak	Rot hole on main trunk. Light ivy covering below the hole.	Moderate	PRF-I



Figure 12. Aerial image indicating the bat roost potential of trees along the woodland edge adjacent to the site outlined in red. Green dot = PRF-I, red dot = PRF-M. Images produced courtesy of Google maps (map data ©2026 Google).

3.4.2 Bat Activity Surveys – Walked Transects

The most common species of bat using the site across all three surveys in 2022 was common pipistrelle *Pipistrellus pipistrellus* with the northern hedgerow boundary and eastern woodland edge boundary most frequently used. Small numbers of serotine and common noctule were identified during the April and July surveys. An unidentified myotis *Myotis sp.* was also recorded in July along the northern hedgerow. The September survey recorded small numbers of soprano pipistrelle using all boundaries and a common noctule on the northern boundary.

The 2019 survey results are very similar to those recorded in 2022.

Survey conditions and timings are presented in Table 5. The results of each walked transect survey is summarised in Figures 13–15. 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 5. Walked transect metadata: dates, times, temperature, weather conditions.

Date	Survey start time/end time	Temp. degrees centigrade, weather conditions	Surveyors
28.04.22	20:19/22:19 Sunset: 20:19	Max/min temp.: 11-10°C 80% cloud cover, calm, dry.	Sam Lunn Nick Bayne
13.07.22	21:13/23:19 Sunset: 21:13	Max/min temp.: 23-19°C 80% cloud cover, no wind, dry.	Sam Lunn Nick Bayne
01.09.22	19:48/21:10 Sunset: 19:50	Max/min temp.: 18-16°C 60% cloud cover, BF2, dry initially and then heavy rain from 21:10 (not forecasted).	Sam Lunn Nick Bayne

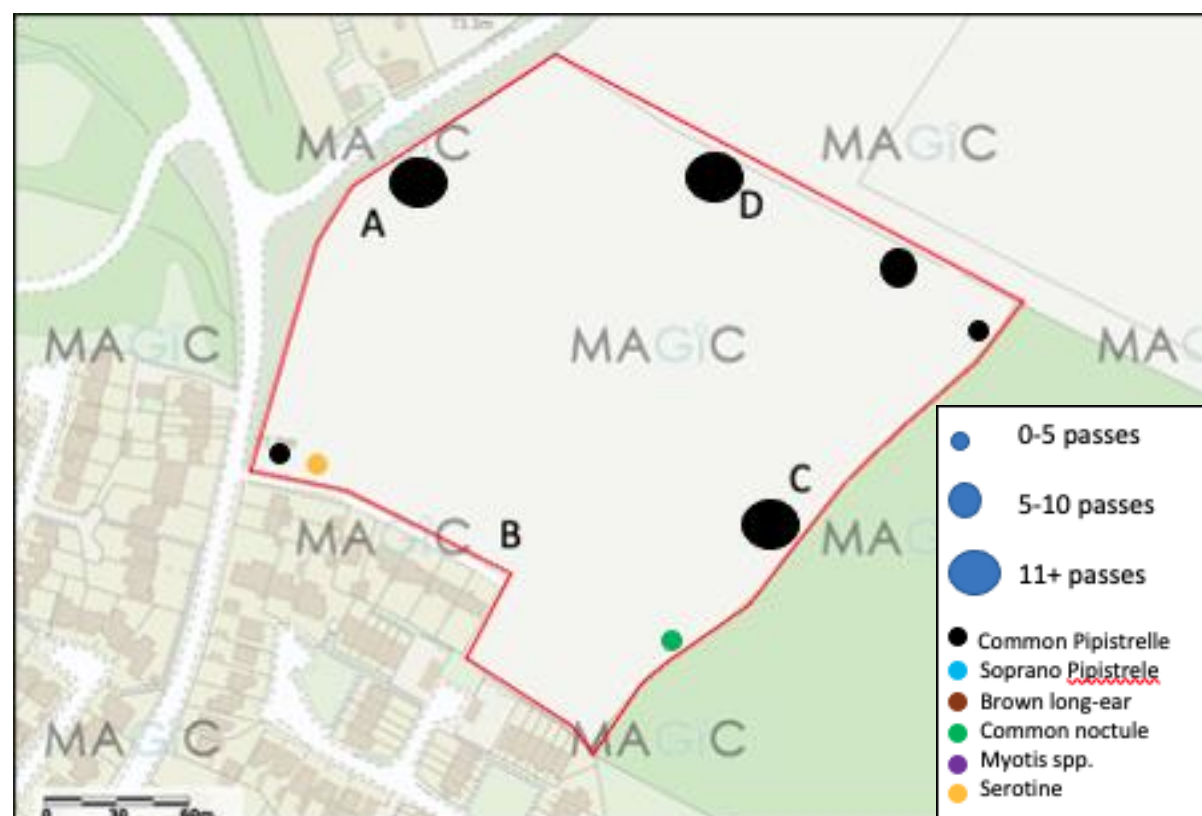


Figure 13. Approximate distribution of bats detected during the April walked transect survey. Coloured dots represent bat activity. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

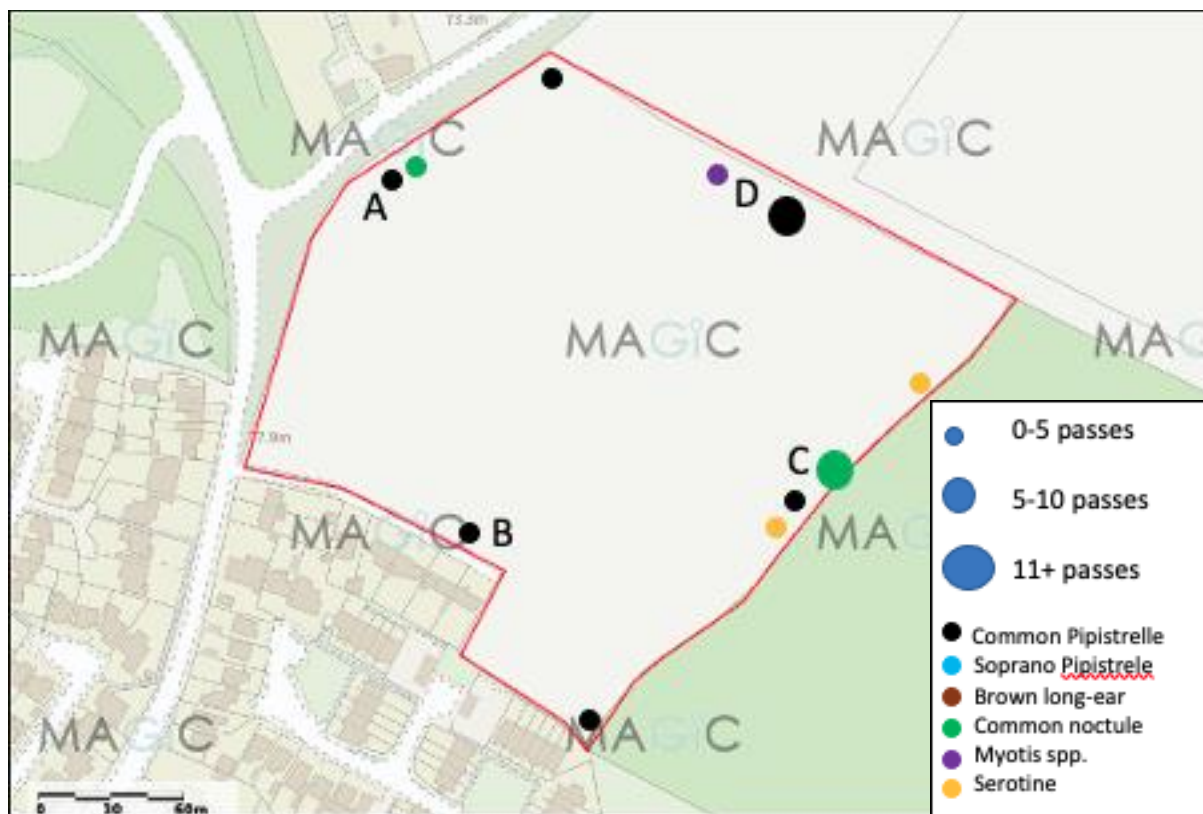


Figure 14. Approximate distribution of bats detected during the July walked transect survey. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

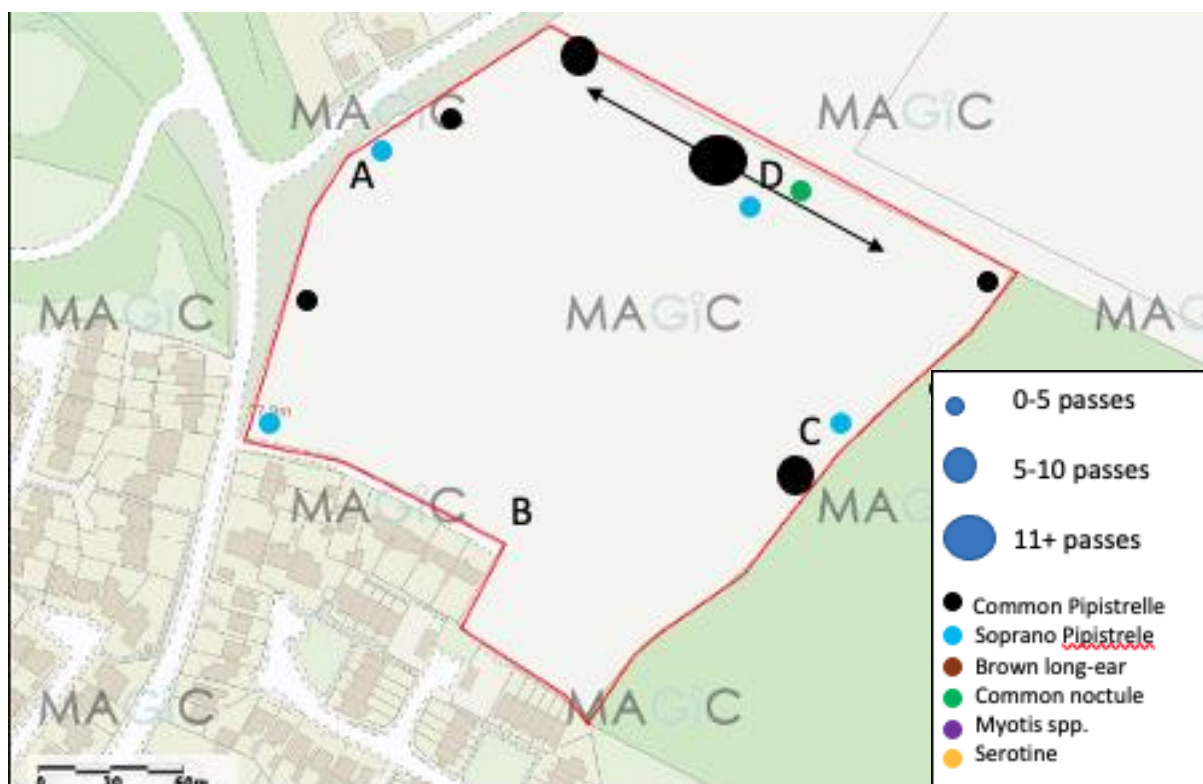


Figure 15. Approximate distribution of bats detected during the September walked transect survey. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).



3.4.3 Bat Activity Surveys – Automated Static Bat Detecting

The results of the automated static bat detector surveys are summarised in Table 6. The woodland edge that forms the eastern boundary is predominantly used by common pipistrelle bats. Moderate numbers of soprano pipistrelle were recorded in July. Barbastelle bats were recorded across all three surveys with the highest numbers recorded in May.

Table 6. Mean number of passes recorded by each static detector (rounded to nearest whole number) per night in 2022. The September logger only recorded one night and so these numbers are actual rather than the mean.

Location	Date	Common pipistrelle	Soprano pipistrelle	Barbastelle	Brown long-eared	Myotis sp.	Serotine	Noctule
East boundary (woodland edge)	May 2022 (5 nights)	240	3	14	1	3	1	3
	July 2022 (5 nights)	226	51	1	2	4	4	4
	September 2022 (1 night)	18	2	6	3	3	-	-

Table 7. Mean number of passes recorded by each static detector (rounded to nearest whole number) per night in 2019. Note that some deployments were affected by noise or interference leading to differences in the number of nights successfully recorded; in May 2019, both devices recorded noise on the 4th night with no bats recorded.

Location	Date	Common pipistrelle	Soprano pipistrelle	Nathusius' pipistrelle	Brown long eared	Myotis sp.	Serotine	Nyctalus sp.	Noctule	Barb
Central woodland parcel	May	32	<1	2	0	1	0	<1	1	0
	June	91	5	<1	0	1	1	0	0	0
	September	15	<1	<1	<1	0	0	0	4	0

3.4.4 Pre-existing Records

The SxBRC provided 63 bat records across seven recorded species, within the search area in 2019. These are detailed in Table 8 below and this table will be updated with SxBRC records from 2026 within the next week.

Table 8. Bat records returned within a 2km radius of the site

Species	Number of records - 2019	Number of records - 2026
Common pipistrelle	19	18
Soprano pipistrelle	8	9
Nathusius pipistrelle	-	1
<i>Pipistrelle sp</i>	8	8
Brown long-eared	7	7
<i>Myotis sp</i>	5	6
Unidentified bat species	5	6
Serotine	4	5
Noctule	2	3
Daubenton's <i>Myotis daubentonii</i>	2	3
Plecotus sp	2	3
Natterer's <i>Myotis nattereri</i>	1	1



3.4.5 Interpretation

Five trees along the eastern boundary of the site, which are part of the woodland adjacent to the site, were identified as supporting roosting potential for bats. Four of these trees were rated PRF-I and one tree PRF-M with potential support a large number of bats. It is likely that there are other trees within the woodland that also support potential for roosting bats and the woodland will also provide high value foraging habitat as part of a wider network.

The activity surveys indicate that the site is used to differing extents by a range of species at various times of the year. Bats are opportunistic and will exploit a range of habitats across the landscape in response to the rise and fall of insect populations. Activity was dominated by common pipistrelle during the April and September surveys whilst activity was more evenly spread in July between common pipistrelle and common noctule. Activity was consistently greatest along the northern hedgerow and woodland edge boundaries, which is to be expected.

The static loggers confirmed that common pipistrelle are the highest recorded species on site, followed by soprano pipistrelle and then barbastelle bats, albeit in far smaller numbers. No barbastelle bats were recorded during the activity surveys but this species was picked up by the static loggers. It is likely that the woodland parcel to the east of the site is used as foraging habitat as part of a wider network which includes the Ancient woodland further east.

These surveys indicate that the habitats bordering the site, particularly the north and eastern boundaries are utilised intermittently as part of the wider landscape by common and widespread bat species, such as common and soprano pipistrelle, as well as rare species such as barbastelle.

Barbastelle bats are an Annex II species and the UK population is estimated to be around 5000 individuals¹⁵, with their distribution largely restricted to the southern half of England and Wales. This species is however very wide-ranging, and is known to regularly forage long distances from their roosts over a variety of habitats. The development site is therefore considered to be important to this species up to the **local level** given the number of passes recorded in May by either commuting and/or foraging individuals. The site is also considered important to common pipistrelle bats at the local level whilst all other species recorded are considered to be significant up to **site level only**.

Table 9. Conservation status and distribution of bats recorded on site.¹⁶

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

¹⁵ <https://ptes.org/get-informed/facts-figures/barbastelle/>

¹⁶ The Mammal Society (2020): <https://www.mammal.org.uk/science-research/red-list/>



3.5 Breeding Birds

3.5.1 Survey Results

In total, 18 species of bird were recorded during the survey; of these, five species are 'red' listed under the Birds of Conservation Concern (BoCC) and four are 'amber' listed. The following species recorded during the survey are also listed under Section 41 of the NERC Act (2006): house sparrow *Passer domesticus*, skylark *Alauda arvensis*, yellowhammer *Emberiza citrinella*, common starling *Sturnus vulgaris* and song thrush *Turdus philomelos*.

3.5.2 April 2022 Survey

A total of seven birds including two wren *Troglodytes troglodytes*, one dunnock *Prunella modularis*, one blackcap *Sylvia atricapilla*, one blackbird *Turdus merula*, one chaffinch *Fringilla Coelebs* and one great tit *Parus major* were recorded singing within the woodland parcel, which is an indication of territorial marking or mating calls. Three birds were singing along the south-western boundary: two blue tits *Cyanistes caeruleus* and a blackbird. Another four birds were recorded singing close to the north-western boundary on the other side of the road: two wrens, one blackbird and one goldfinch *Carduelis carduelis*.

3.5.3 Early May 2022 Survey

A total of ten birds were recorded singing within the woodland parcel: three chaffinch, two robin *Erithacus rubecula*, two wren, a dunnock, a starling and a blackcap. A single robin was heard along the south-western boundary and a robin and wren were recorded singing along the north-western boundary.

3.5.4 Late May 2022 Survey

A long-tailed tit *Aegithalos caudatus* was confirmed nesting within the hedgerow on the north-eastern boundary with six chicks in the nest and blue tits were confirmed to be active within a nest box on a property along the south-western boundary.

A total of seven birds were recorded singing within the woodland parcel: three wren, a robin, a dunnock, a songthrush and a blackbird. A robin was heard singing along the south-western boundary, whilst two robins and a blackcap were recorded singing along the north-western boundary. A yellowhammer was heard singing along the north-eastern boundary close to the north corner. A skylark male was recorded singing and displaying within the centre of the arable field.

3.5.5 June 2022 Survey

Two birds were recorded singing in the woodland – song thrush and blackcap – and a blackbird was heard singing along the south-western boundary.

From these results, the most notable with respect to the proposed development was the skylark male identified singing and displaying in the centre of the arable field on one out of the four surveys which suggests that the site could potentially support a single skylark territory based on the assumption that



a singing skylark represents a skylark territory¹⁷.

Table 10 presents the bird survey results combined for all four visits. The table is divided into red, amber and green lists from the BoCC categories. Table 11 presents the dates, times and survey conditions recorded for each visit. In April 2024, during a condition assessment site visit for biodiversity impact calculations (BIC) house sparrow were observed nesting in the hedgerow in the western corner.

Table 10. Breeding bird survey summary list.

RESULTS Species	Apr (1)	May (1)	May (2)	Jun (1)	Breeding status
Common starling	-	3	3	-	Likely
House sparrow	2	6	4	-	Confirmed
Linnet <i>Carduelis cannabina</i>	-	1	-	-	Possible
Skylark	-	-	1	-	Likely
Yellow hammer	-	-	1	-	Likely
Wren <i>Troglodytes troglodytes</i>	4	3	3	-	Likely
Dunnock <i>Prunella modularis</i>	2	1	1	-	Likely
Wood pigeon <i>Columba palumbus</i>	2	3	1	2	Possible
Song thrush <i>Turdus philomelos</i>	-	-	1	1	Likely
Blackbird <i>Turdus merula</i>	5	4	4	2	Likely
Blackcap <i>Sylvia atricapilla</i>	1	1	2	1	Likely
Blue tit <i>Cyanistes caeruleus</i>	3	1	3	-	Confirmed
Chiffchaff <i>Phylloscopus collybita</i>	1	3	-	-	Likely
Goldfinch <i>Carduelis carduelis</i>	1	-	-	-	Likely
Great spotted woodpecker. <i>Dendrocopos major</i>	-	1	-	-	Possible
Great tit <i>Parus major</i>	1	-	-	-	Likely
Long-tailed tit <i>Aegithalos caudatus</i>	-	-	1	-	Confirmed
Magpie <i>Pica pica</i>	1	4	1	-	Possible
Robin <i>Erithacus rubecula</i>	1	5	5	-	Likely

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

Date	Survey start time/end time	Temp. degrees centigrade, weather conditions	Surveyors
19.04.22	06:18/06:48 sunrise 06:01	Max/min temp.: 6°C 25% cloud cover, still	Paul Whitby CEcol
11.05.22	05:45/06:15 sunrise 06:26	Max/min temp.: 11°C 40% cloud cover, 5-10 mph	Paul Whitby CEcol
17.05.22	05:28/06:08 Sunrise 06:21	Max/min temp.: 11°C 30% cloud cover, 0-5 mph	Paul Whitby CEcol

¹⁷ Marchant, J.M. (1983) BTO Common Birds Census Instructions. British Trust for Ornithology, Tring.



Date	Survey start time/end time	Temp. degrees centigrade, weather conditions	Surveyors
22.06.22	20:55/ 21:45 Sunset 20:55	Max/min temp.: 16°C 50% cloud cover, 5-10 mph	Paul Whitby CEcol

3.5.6 Pre-existing Records

SxBRC in 2019 provided numerous bird records for the search area, totaling 163 species in 2019. Most of these species are relatively common and widespread, but the list includes 30 species of principal importance for conservation (S41 NERC Act 2007), and 24 species listed on Schedule 1 of the Wildlife and Countryside Act. In addition, 39 species are red-listed on the BoCC. The 2026 SxBRC records returned 138 species with most widespread and relatively common. The list included 28 species of principal importance for conservation (NERC Act), and 17 species listed on schedule 1 of the Wildlife and Countryside Act. In addition, 22 are red-listed on the BoCC.

In 2019, a total of four species were confirmed as nesting within the woodland habitat adjacent to the site, including the BoCC amber listed dunnock. A total of 15 species were recorded within the woodland across the three surveys. Although the woodland is unlikely to support an important breeding bird assemblage, it is providing nesting habitat for some common nesting birds and used as either shelter or foraging at the very least by a larger number of species.

In 2019, a single male skylark was recorded singing and displaying within the centre of the arable field on one out of the four surveys.

3.5.7 Interpretation

Skylark numbers have been steadily declining, with a 75% decrease in the UK population between the early 70s and late 90s in their preferred farmland habitat. The main cause of this decline is believed to be the switch from spring to autumn-sown cereals, largely because autumn-sown cereals are taller and thicker for longer, restricting views of potential predators and denying these birds a winter food source in the absence of stubbles. As a result, fewer birds are choosing to nest there and when they do, they are unable to raise as many broods as in spring-sown crops¹⁸.

A single male skylark was recorded singing and displaying within the centre of the arable field. This number is expected to be low given that the field had been sown with winter wheat. Skylark are considered a high conservation priority given the rapid decline of the species in the UK since the 1970s, though they remain relatively common and widespread, with a recorded UK population of approximately 1.5 million breeding territories in 2009¹⁹. As a result, the arable field is considered to be important to skylark up to the **local level**.

¹⁸ Chamberlain, D.E., Vickery, J.A. & Gough, S. (2000a) Spatial and temporal distribution of breeding Skylarks *Alauda arvensis* in relation to crop type in periods of population increase and decrease. *Ardea* 88: 61–73.

¹⁹ <https://app.bto.org/birdtrends/species.jsp?s=skyla>



The adjacent woodland is unlikely to support an important breeding bird assemblage in terms of conservation status, although it is providing nesting habitat for some common nesting birds and used as either shelter or foraging at the very least by a larger number of species. Based on the evidence gathered and the quality of the existing habitat, the woodland parcel is likely to be important to breeding birds up to the **local level**.

The boundary hedgerows and tree lines surrounding the remainder of the site had just two species confirmed as nesting (long-tailed tit and house sparrow) and five species recorded singing within or close to the habitat including yellowhammer in May (Red BoCC). Apart from the woodland, the north-western and north-eastern boundaries appeared to support the largest numbers of birds, although most are common and widespread. Given the varying degrees of quality of the boundary habitat that ranges from species-poor defunct hedgerows to deciduous woodland and based on the data captured from the surveys, the boundary habitat is likely to be important to breeding birds up to the **local level**.

3.6 Dormice

3.6.1 Nest-tube Survey

In 2019, a single dormouse nest was identified within a nest tube (Appendix 5). It was found in the south-west corner of the larger field which sits to the east of the woodland parcel and the current application site. The larger field is no longer part of the site plan. However, there is suitable connectivity in the form of boundary hedgerows and the woodland parcel for dormice to still be considered present within the boundaries of the site. The habitats surrounding the application site have not changed since the 2019 dormouse survey.



Figure 15. Dormouse survey results. Yellow dots indicate nest tube locations, red dots indicate nest tubes occupied by dormice on at least one occasion. Application site outlined in red. Image taken from the 2019 EclA report¹ and



produced courtesy of Google maps (map data ©2019 Google).

3.6.2 Pre-existing Records

In 2019, SxBRC provided two dormouse records in the search area. The closest of these was located approximately 1 km north-west of the boundary of the site at an unspecified location in 2014. The other record was from 2001 in the Sandpit Clump woods approximately 2.1 km south-west. SxBRC data has been requested for 2026 and this report will be updated next week.

In 2026, six records were returned from SxBRC. The closest of these was located within the adjacent woodland, dated 2019 which coincides with the previous Ecology C-op survey effort.

3.6.3 Interpretation

The survey indicates that dormice are highly likely to be present within habitat that surrounds the site, though the distribution of this species may be restricted. Dormice are a conservation priority species in the UK and a European protected species. The woodland habitat along the eastern boundary of the site has good connectivity to the ancient woodland to the east via boundary hedgerows and contains an understorey that will provide foraging habitat for dormice, despite the woodland being dominated by silver birch. In isolation, the boundary habitat that surrounds the site is unlikely to support a population. However, in combination with the adjacent woodland parcel, boundary hedgerow and the nearby ancient woodland, the site could support a low population of dormice and provide important foraging habitat. Dormice are relatively common and widespread in south-east England, with West Sussex containing a high density of mixed broadleaved woodland compared to the national average. The distribution of the species is however largely restricted to the southern half of England and Wales. Given that the population at the site probably represents a small proportion of the local population of this species, the site is considered to be important to dormice at a **local level**.

3.7 *Great Crested Newts and Other Amphibians*

3.7.1 Habitat Suitability, eDNA Testing and Field Survey Results

The desk study identified four ponds within a 500m radius of the site (ponds 1, 2, 3 and 4). An additional four ponds (ponds 5, 6, 7 and 8) were identified within good quality connecting terrestrial habitat outside of 500m which were surveyed previously in 2019. Three more ponds (ponds 9, 10 and 11) outside of 500m could not be accessed in 2019 or 2022.

Access permission for further surveys could not be obtained for ponds 3 and 4 whilst Pond 5 held no water. The single presence/likely absence survey using e-DNA sampling undertaken on 19th April 2022 returned negative results for all ponds surveyed (ponds 1, 2, 6, 7 and 8).

Details of the eDNA results are presented in Appendix 6

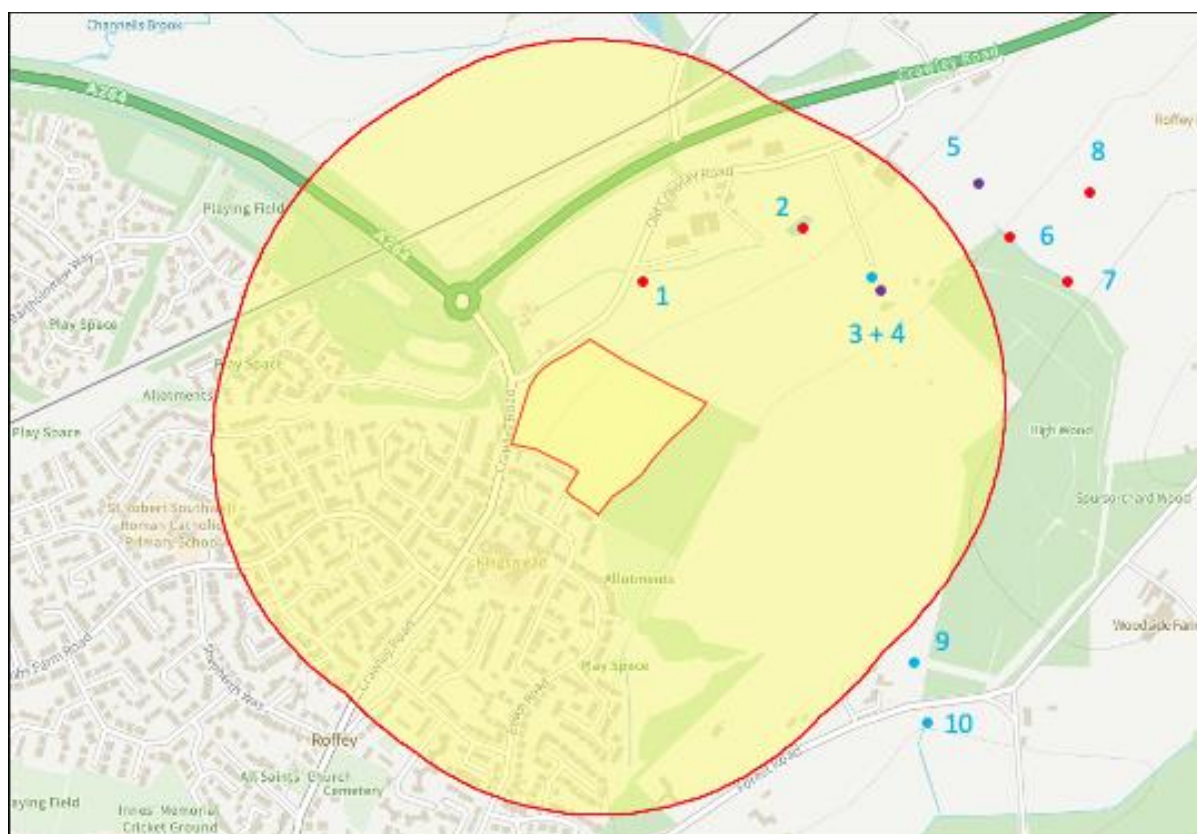


Figure 16. Ponds within 500m of the site (shown with red outline). Red dots indicate negative e-DNA result in 2022. Purple dots indicate negative e-DNA result in 2019. Blue dots could not be accessed or were dry during 2019 and 2022. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

3.7.2 Pre-existing Records

In 2019, ponds 1, 2, 4, 5, 6, 7 and 8 underwent a single presence/likely absence survey that was undertaken across the 15th and 16th of April which did not identify any great crested newts. An eDNA assessment was subsequently undertaken on these ponds on the 16th April and all of the results from these ponds were subsequently returned as negative for the presence of great crested newt DNA.

In 2019, Pond 3 and Pond 10 could not be surveyed as they did not hold water at the time of the survey and were therefore subsequently discounted from further assessment.

In 2019, access permission for further surveys could not be obtained for Pond 9 or Pond 11.

In 2019, SxBRC provided 100 amphibian records relating to the search area. These included three records for great crested newt, eight records for smooth newt *Lissotriton vulgaris*, four records for palmate newt *Lissotriton helvetica*, 47 records for common frog *Rana temporaria* and 38 records for common toad *Bufo bufo*. The closest of these was for common frog at 550 m south-west of the boundary, dated 1990. The closest great crested newt record was found 1.2 km south of the boundary of the site, dated 1989.

In 2026, SxBRC provided 130 amphibian records relating to the search area. These included 24 records for great crested newt, eight records for smooth newt, three records for palmate newt, 69 records for



common frog and 50 for common toad. The closest great crested newt record was found 0.9km north of the boundary of the site on the other side of a main road.

3.7.3 Interpretation

All five ponds that could be surveyed, including the closest two ponds to the site, tested negative for the presence of great crested newts. Two ponds that couldn't be accessed in 2022 (ponds 4 and 5) tested negative for the presence of great crested newts in 2019.

None of the ponds tested across both the 2019 and 2022 surveys returned a positive result.

Pond 3 was dry in 2019 and could not be accessed in 2022 but it is in close proximity to pond 4 and was considered less suitable and is therefore assumed not to support great crested newts either. Ponds 1–4 were the only ponds within 500m of the application site and therefore the site is considered to be of negligible importance to great crested newts considering their likely absence both from the site and surrounding ponds.

3.8 Reptiles

3.8.1 Survey Results

In 2019 a single grass snake was identified under a refugia within a strip of vegetation between the woodland parcel that borders the site and the larger field to the east which is now outside of the site. This area of vegetation was considered to be the most suitable reptile habitat across the whole site at the time. No other reptiles or signs of reptiles (such as sloughs) were identified.

3.8.2 Pre-existing Records

In 2019, SxBRC provided 295 reptile records in the search area, including 114 records for slow worm, 92 records for grass snake, 41 records for adder and 48 records for common lizard. The closest and most numerous records of these were identified at Leechpool and Owlbeech Woods, 300 m south of the boundary of the site. The most recent record was dated 2017.

In 2026, SxBRC provided 412 reptile records in the search area, including 143 records for slow worm, 106 records for grass snake, 57 records for adder and 106 records for common lizard. The closest was a grass snake record within the woodland adjacent to the development site recorded in 2019.

3.8.3 Interpretation

Grass snakes are common in the south-east of England, but are thought to be declining, with the Surrey Amphibian and Reptile Group (SARG) stating that the UK population is estimated to have reduced from 365,000 to 180,000 individuals²⁰, though it is accepted that the cryptic nature of this species makes population estimates and trends very difficult to ascertain.

Grass snakes are a transient species that occupy large ranges and can be found in most areas of

²⁰ http://surrey-arg.org.uk/SARGWEB.php?app=SpeciesData&Species=grass_snake



suitable habitat where there are water bodies present supporting favoured prey such as fish and amphibians. Based on the low population identified, the small extent of suitable grassland habitat around the boundaries of the application site and the likely absence of other reptile species, the site is not considered important to common reptiles beyond the **site level**.

3.9 Other Notable Species

3.9.1 Habitat Potential

The arable field on site could potentially support brown hare and the hedgerows and adjacent woodland could support hedgehogs and a variety of invertebrates, including saproxylic species such as stag beetle *Lucanus cervus*.

European hedgehog is a species of principal importance for nature conservation under Section 41 of the NERC Act (2006) (S41) that has suffered dramatic population declines in recent years. The boundary hedgerow contained within the development has the potential to support this species as well as the adjacent woodland parcel to the east. No evidence of hedgehogs was found during any survey work for other species.

Brown hare are an introduced species that have become naturalised and favour a mosaic of arable fields, grassland and woodland edges. As the site supports this range of habitats, there is some potential for brown hare to be present. They are widespread across the UK but are believed to be in decline. No brown hare were recorded during any survey work for other species.

The adjacent woodland parcel contains a small amount of dead and decaying wood that could potentially provide suitable habitat for stag beetles. They are classed as a 'priority species', listed on Schedule 5 of the Wildlife and Countryside Act 1981 and are believed to be in decline due to a loss of deadwood habitat as a result of a modern approach to garden and parkland management.

3.9.2 Pre-existing Records

In 2019, SxBRC did not provide any records for brown hare within the 2 km search radius, but they did provide 46 records of hedgehog, one record of stag beetle and a number of invertebrates, including the following NERC S41 species: grey dagger moth *Acronicta psi*, broom moth *Ceramica pisi* and blood vein moth *Timandra comae*.

The 2026 recorded 57 records for hedgehog, one record for polecat, two records for stag beetle and a number of invertebrates, including the following NERC S41 species: grey dagger moth *Acronicta psi*, broom moth *Ceramica pisi* and blood vein moth *Timandra comae*.

3.9.3 Interpretation

The adjacent woodland parcel and boundary habitats are of potential value to hedgehogs and stag beetles as part of a wider network of suitable habitat. The woodland is outside of the application site and being retained, although the woodland edge forms the eastern boundary of the site. Based on the presence of these habitats and an assumption that both hedgehog and stag beetle are either found at the site or in close proximity to it, the site is considered to be important for hedgehogs and stag beetles.



up to the **local level**.

Although the site contains suitable habitat for brown hare, the lack of records within 2 km and no sightings across any surveys during 2019 or 2022, suggests a likely absence of the species from the site. As such, brown hare is not considered further in this EclA.

3.10 Invasive Non-native Species

Cherry laurel, cotoneaster sp., and *Buddleia davidii* were recorded on site during the survey as well as non-native bluebell, which was likely the hybrid *Hyacinthoides x massartiana*.

3.10.1 Pre-existing Records

In 2019, SxBRC provided records for 31 invasive non-native species (INNS) including cherry laurel, hybrid bluebell and cotoneaster (*C. horizontalis* and *C. frigidus x salicifolius*). Marsh frog *Pelophylax ridibundus* was recorded at a site 1.2 km south-west in 1997.

In 2026, SxBRC provided records for 33 invasive non-native species (INNS) including cherry laurel, hybrid bluebell and cotoneaster (*C. horizontalis* and *C. frigidus x salicifolius*). Marsh frog *Pelophylax ridibundus* was recorded at a site 1.2 km south-west in 1997.

3.10.2 Interpretation

A very small amount of cotoneaster was identified within the adjacent woodland parcel and a single bush in the south-west corner of the site. There are several cotoneaster species that are non-native invasive species and listed on Schedule 9. This species does not appear to be spreading across the site, however it should be removed and replaced with native fruiting and flowering species.

Cherry laurel is a non-native invasive species that has become naturalised and is therefore not listed on Schedule 9 of the Wildlife and Countryside Act (1981) as amended. This species was identified in one location along the boundary of the site, behind a small section of bracken in the south-west corner of the site. Cherry laurel does not appear to be spreading across the site. This species should be removed where possible and replaced with native fruiting and flowering species.

There is a small amount of buddleia present within the adjacent woodland parcel. Though it is not listed on Schedule 9, it can spread quite rapidly when conditions are right, competing with native trees and shrubs. This species does not look to be spreading across the site and should be removed as part of the proposed development and replaced with native fruiting and flowering species.



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 proposed plan produced by Paul Hewett Chartered Architect, as provided in Figure 2.

The proposed scheme comprises the construction of new housing and associated infrastructure. The development will include hard and soft landscaping, private garden space and areas of public open space as are typically associated with this nature of development.

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

Construction:

- disturbance effects (for example to foraging bats and breeding birds) through noise, artificial lighting, vibration and the movement of people and construction machinery;
- potential protected species impacts through site preparation works, including disturbance and risk of killing or injury;
- soil compaction and other damage to adjacent habitats;
- habitat destruction; conversion of arable field into built environment.

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 (predation).

4.1 Designated Sites

4.1.1 Impact Characterisation

The site lies approximately 750 m and 1 km from the two LWSs and 1.7 km from the nearest SSSI, St Leonard's Forest. In terms of significant adverse effects resulting from the proposed development, these are the only designated sites with the zone of influence of the application site.

An increase in road traffic as a result of new roads can cause local air pollution impacts, though all three sites are considered to be a sufficient distance from the site to ensure noise, dust and visual impacts



will be minimal. Post construction, occupancy of the residential development could result in increased recreational pressure on the two LWSs and the St Leonard's Forest SSSI, leading to risks such as trampling of vegetation, soil compaction, littering, fly tipping, damage to trees, disturbance to wildlife and increased nutrient levels from dog fouling.

4.1.2 Significance of Effects

The two LWSs and St Leonard's Forest SSSI are all open to the public. As a result, the designated sites have already put in place measures to reduce impacts from a high number of visitors associated with Horsham and other surrounding urban centres, such as clearly marked bridleways and public footpaths for people to walk, cycle and horse ride, limiting car parking spaces close to the area and fencing off sensitive areas used by breeding birds such as nightjar. Additionally, as there are several designated sites in close proximity to one another, they help to spread the impacts of the visiting public by accommodating visitor pressures across them.

As a result, the additional pressures from the proposed development, in the absence of mitigation, are likely to pose a **negative impact at a local level**, with no perceived measurable impact upon St Leonards Forest SSSI, but some likely potential increase in visitors to the two LWSs.

4.2 *Priority Habitats*

4.2.1 Impact Characterisation

The proposed development will result in the loss of an arable field, a small area of bracken and a small area of modified grassland, all of which are not characterised as priority habitat.

There will be a small loss of hedgerow habitat along the western boundary to create a new access road into the development and this is also not a priority habitat as it is dominated by bramble with only occasional woody species across the length of the hedgerow.

Based on the current plans, the development will result in disturbance during the construction and operational phases on the adjacent woodland parcel and the retained boundary hedgerow in the form of noise and light pollution. The development has been designed with a 15m buffer between the woodland edge and the development.

There will also be additional recreational pressures placed on the adjacent woodland habitat through increased footfall during the operational phase of the development which in turn will lead to increased risks of trampling of vegetation, soil compaction, littering, fly tipping, damage to trees, disturbance to wildlife, increased nutrient levels from dog fouling and increased predation risks from domestic cats.

4.2.2 Significance of Effects

The northeast treeline and ditch and the western edge of the adjacent woodland parcel are the only priority habitats present within the site and these are both being retained. The loss of a small amount of boundary hedgerow habitat, in the absence of mitigation, will likely result in a negative impact at the **site level**, given that this habitat is fairly common throughout Sussex.



The level of disturbance that the development would have on the adjacent woodland would likely see wildlife displaced further into the woodland and potentially into surrounding habitats. This would likely result in a negative effect on the intrinsic value of the woodland. Therefore, in the absence of mitigation, there will be a **likely impact at the local level**.

[REDACTED]

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[REDACTED]

[REDACTED]

4.4 Bats

4.4.1 Impact Characterisation

There are no buildings contained within the site and results from previous activity surveys identified potential bat roosts within trees within the adjacent parcel of woodland. No trees from the woodland are to be removed although there is likely to be indirect disturbance from increased lighting and noise both during the construction and operational phases of the development.

The boundary vegetation across the site was identified to support the majority of bat foraging activity, particularly along the northern and eastern boundaries and regular passes by barbastelle bats were recorded in May. Boundary habitats are to be retained, with only the western boundary to be impacted by the new access road which involves a section of hedgerow to be removed to provide a new access into the site. The proposed development has potential to result in disturbance to commuting and foraging bats, both during construction and in the long term after completion, through increased artificial lighting and any management of boundary habitats that could lead to a reduction in bats hunting and/or a reduction of invertebrate prey.



4.4.2 Significance of Effects

As no trees are being removed, the potential indirect impacts from lighting and noise will be to potential roost features identified within trees on the woodland edge adjacent to the development site. The impact on bat roosts within trees is likely to only be significant up to the **site level** in the absence of mitigation.

The activity surveys revealed that the eastern boundary adjacent to the woodland is being used by barbastelle bats in small numbers across the year, peaking in May. In addition, the site was used most frequently by common pipistrelle bats and a total of seven species were identified (eight including Nathusius' pipistrelle in 2019). The presence of barbastelle bats using the woodland edge for foraging purposes or as a commuting route means the development could have a significant **negative impact at the local level** in the absence of mitigation.

4.5 Breeding Birds

4.5.1 Impact Characterisation

Five species which are 'red' listed under the Birds of Conservation Concern (BoCC) and four which are 'amber' listed were recorded on site. This includes a possible single skylark territory within the arable field. The arable field habitat will be lost entirely to the development and the adjacent woodland habitat will be retained. There is likely to be indirect impacts from noise as well as disturbance by dogs and predation from domestic cats.

4.5.2 Significance of Effects

The proposed development would directly impact the possible skylark breeding territory identified within the arable field, displacing the birds to the surrounding fields and resulting in a **certain negative impact at a site level**.

The woodland will be retained but the woodland edge will be subject to increased disturbance through noise, air and light pollution as well as increased footfall and domestic pets. This development will likely have a negative impact on nesting birds at the **site level**.

4.6 Common Dormice

4.6.1 Impact Characterisation

The dormouse nest found in the 2019 survey is now outside of the proposed development. However, there is suitable habitat surrounding the site that connects to the adjacent woodland and the nest identified. Only a small amount of hedgerow is to be removed to provide a new road access.

Post development, the occupation of the residential properties will likely lead to an increase in domestic cats, which predate upon dormice and will lead to increased mortality. Changes to hedge management at the site could lead to a reduction in the value of the habitat available. An increase in noise and light pollution during and post construction could cause dormice to be displaced from certain areas.

4.6.2 Significance of Effects

The loss of dormouse habitat is considered to be minimal and there will be no fragmentation or



severance of habitats. The potential risks from domestic cats as well as disturbance from noise and light means the development is likely to have a negative impact on dormice up to the **local level**.

4.7 Reptiles

4.7.1 Impact Characterisation

The limited amount of habitat suitable for reptiles around the edges of the site will be lost as part of the development although the boundary hedgerows will be retained. There is good adjacent habitat in the form of the woodland parcel and grass areas beyond that.

4.7.2 Significance of Effects

A low population of grass snake were identified during the reptile surveys and as this is a transient species, they are likely to move between the site and suitable habitat within the surrounding landscape. The presence of several ponds in close proximity to the proposed development means that amphibian and fish prey may be in abundance, with ponds providing crucial foraging resources for grass snakes. A desktop assessment has indicated there is significantly more grassland habitat within the landscape surrounding these ponds than within the site and the importance of the site for this species is likely to be low. The development will therefore have a **likely negative impact on reptiles that is not significant at a site level**.

4.8 Other Notable Species

4.8.1 Impact Characterisation

There will be a small loss of hedgerow habitat along the western boundary where the road access needs to be widened. All other boundary habitat including the woodland edge will be retained. This would result in a minor loss of foraging and commuting habitat for hedgehogs and no direct loss with regards to stag beetles. Neither species were identified during any of the protected species surveys, however local records suggest that they are both at least present in the wider landscape.

Most of the existing habitat is sub-optimal due to a lack of ground cover for resting hedgehogs, though the boundary habitat will be used for foraging and the adjacent woodland used for shelter and hibernation. The arable field that comprises most of this site will be replaced by residential development and the associated mosaic of private gardens and greenspace created would, in time, become suitable for hedgehogs and largely replace the habitat lost. In the absence of mitigation, there remains a risk of direct harm to hedgehogs during construction activities, if present on the development site. In the long term, the proposed development could result in fragmentation of hedgehog foraging and resting areas as fencing between properties could restrict the movement of hedgehogs and risks from residents may arise, including disturbance by people and pets and poisoning through use of slug pellets in the residential gardens.

4.8.2 Significance of Effects

The hedgehog has suffered dramatic declines in population in recent decades, although it remains fairly



widespread and has declined less in urban areas than rural areas²¹. The boundary hedgerow would only form part of a hedgehog territory and would be used in conjunction with other habitats of value such as the adjacent woodland. The minor loss of hedgerow habitat and risks during construction means the proposed development is likely to result in impacts that are **significant at the site level**.

Stag beetles are relatively widespread in southern England and coastal areas in the south-west. However, they are extremely rare elsewhere in Britain. The larvae feed on decaying wood on the ground and therefore, as the woodland, and the deadwood within it, is being retained the development poses a **negligible impact** to stag beetles.

4.9 Invasive Non-native Species

4.9.1 Impact Characterisation

There is a small risk that the proposed development could lead to the spread of root material, seeds or cuttings from the buddleia, cherry laurel and cotoneaster identified at the site, or through the creation of more favourable growing conditions for these species due to ground disturbance and habitat changes. The spread of these species across the site would lead to an increased risk of their establishment in the wider landscape and semi-natural habitats such as the ancient woodland.

The hybrid bluebell identified are unlikely to be spread through any development proposals.

There is always a risk that INNS could be unintentionally introduced to a site through contaminated machinery/equipment during construction activities, or deliberate/accidental introductions through site landscape planting by the developer or future residents. Once established on the site, there is a risk that invasive species could spread into the retained semi-natural habitats and wider landscape.

4.9.2 Significance of Effects

The potential to cause the spread of cherry laurel, cotoneaster and other INNS is low, as these species are not easily spread by root mass, though there may be a risk of spreading by seed where tracked machinery operates close to these species. **This poses an uncertain risk at a local level.**

5 MITIGATION PROPOSALS

5.1 Designated Sites

5.1.1 Impact Avoidance

There are no identified mechanisms for direct impacts upon any statutory designated sites from the proposed development, with the St Leonard's SSSI situated 1.7 km to the south, however potential indirect impacts from increased footfall cannot be avoided should the development go ahead.

The two LWSs will not be directly impacted. However, given their close proximity to the development,

²¹ (Warwick, H. (2016) Britain's Hedgehogs: research and the conservation effort in the face of serious decline. British wildlife Vol. 28, pp78-86).



there will be indirect impacts from increased footfall that cannot be avoided.

5.1.2 Mitigation Measures

In order to mitigate the impacts of increased footfall on the two LWSs and the St Leonards Forest SSSI, it is important that public green spaces are incorporated into the proposed scheme to provide attractive alternative areas for recreational purposes.

Based on the current proposed designs (Figure 2) there is an area of green space to be used for recreational use surrounded by newly planted woodland. Regularly mown, informal footpaths coupled with natural play elements will channel recreational impacts to certain areas, whilst leaving the new woodland habitat relatively undisturbed. Local bylaws concerning dog fouling will be enforced and signs will be erected together with dog waste bins to encourage people to pick up after their dog.

5.1.3 Residual Effects

With the implementation of the above mitigation measures, the potential for residual effects on the two LWSs and the St Leonard's Forest SSSI is considered to be reduced to the **site level**, with some increased footfall risk to the nearby LWSs remaining. 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

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

5.2 *Priority Habitats*

5.2.1 Impact Avoidance

The proposed development has been designed to avoid directly impacting priority habitats wherever possible and the adjacent woodland habitat and boundary habitat will be retained, with the exception of a section of hedgerow to be removed from the northwestern boundary to create a new access road into the site. This hedgerow is not a priority habitat.

A 15 m buffer zone has been incorporated into the design between the development footprint and the woodland parcel to the east.

5.2.2 Mitigation Measures

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

Heras fencing will be used to mark out the 15m buffer zone from the adjacent woodland and along all



retained boundary habitat. The buffer zone will reduce to 12.5m at the northern end to accommodate a road; however, this will not significantly reduce the buffer zone's ability to reduce indirect impacts such as light and noise. Solid hoarding will be installed along the edge of the buffer zone to not only prevent construction staff and machinery from damaging the woodland but also act to reduce noise and visual impacts upon the woodland during the construction phase.

The buffer zone will be planted up with a species-rich wildflower and grassland mix closest to the road approximately 5m in width running the length of the buffer. Native small trees and scrub habitat dominated by thorny species such as blackthorn, hawthorn and gorse will be created behind this with an average width of 10m with larger native trees included closest to the woodland habitat to create a graded ecotone.

5.2.3 Residual Effects

Once the buffer zone planting has established, the potential indirect impacts on the woodland habitat during the operation phase will be reduced to low/negligible at the site level. A 30m section of hedgerow will still be lost to facilitate the road access.

5.2.4 Compensation Measures

The remainder of the boundary hedgerows will be enhanced to improve their condition and small sections of native hedgerow will be planted around the new entrance and to in-fill any gaps within existing hedgerow.

[REDACTED]

[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]

[REDACTED]
[REDACTED]

- [REDACTED]
- [REDACTED]
[REDACTED]
- [REDACTED]
[REDACTED]
- [REDACTED]

[REDACTED]

[REDACTED]



5.3.4 Compensation Measures

No compensation measures are required.

5.4 Bats

5.4.1 Impact Avoidance

All of the boundary hedgerows will be retained with the exception of a 30m section on the western boundary to create a new access route. A 15m buffer zone will be implemented between the development and the adjacent woodland parcel on the eastern boundary.

5.4.2 Mitigation Measures

In order to minimise the impact of artificial lighting on foraging and commuting bats, the proposed development shall incorporate a sensitive lighting plan, prepared as part of the detailed design in accordance with the guidelines set out by the Bat Conservation Trust (summarised in Appendix 8).

This shall include measures to create 'dark corridors' through the development site along the retained hedgerows and tree lines, and measures to minimize light spill onto all semi-natural habitats. All street lighting will be directed downwards and use light sources that are not attractive to insects. Reflective white line marking will be used in preference to artificial lighting in all non-essential applications.

The 15m buffer zone alongside the existing woodland and the new woodland habitat to be created will be included within the dark corridor network which will significantly reduce the potential indirect impacts from the development including light spill and noise to low/negligible at the site level.



Figure 17. The proposed dark zones around the development and including the adjacent woodland overlayed onto the proposed development.

5.4.3 Residual Effects

There will likely still be low levels of indirect disturbance to the woodland during the early years of the operational phase as the buffer zone planting will need time to fully establish.

5.4.4 Compensation Measures

The buffer zone will ensure that lighting is at least 15 m from the woodland edge and the lighting scheme must ensure that no lights are directed towards habitats of value including the existing woodland, new woodland, the buffer zone and boundary hedgerow as barbastelle bats have been recorded using this habitat and are very sensitive to artificial light.

5.5 Breeding Birds

5.5.1 Impact Avoidance

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

The boundary hedgerows will not be directly impacted by the development except for a 30m section along the western boundary.



5.5.2 Mitigation Measures

The section of hedgerow to be removed on the western boundary to create a new road access must be removed outside of the nesting bird season (1st March to 31st August) unless it can first be thoroughly searched by an experienced ecologist immediately prior to the works given the likelihood that this work would otherwise disturb or destroy active bird nests.

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

5.5.3 Residual Effects

All of the arable field will be lost as part of the development which could result in the loss of a breeding pair of skylark resulting in a possible negative impact significant up to a **local level**.

Implementing the avoidance and mitigation measures should reduce the impacts on nesting birds. However, there will still be indirect impacts on nesting birds using the boundary hedgerows in the form of artificial light, noise, increased footfall and domestic pets resulting in a **likely negative impact significant at the site level**.

There will also be a small loss of nesting bird habitat as a result of the new access being created on the western boundary which would result in a **certain negative impact that is not significant at the site level**.

5.5.4 Compensation Measures

To mitigate for the loss of skylark breeding habitat potentially used by a nesting pair, it is recommended that skylark plots (Appendix 7) are created in adjacent arable fields under the same land ownership as the site. Skylark plots are undrilled patches in winter cereal fields. The fields should be more than 5 ha in size and have an open aspect, or larger than 10 ha where they are bounded by trees and a suitably qualified ecologist will be able to identify such suitable habitat.

Skylark plots are created by switching off the drill (or lifting it up) to create undrilled patches at least 3m wide and between 6 to 8 m long. The ideal number of plots in a field is two per hectare and a minimum of two plots are required to mitigate for the development. Typical plots of 20 m² will take up less than half of 1% of the field area based on a 5 ha plot. No further management is necessary once the plots are established and the full details of guidance on skylark plots written by the RSPB can be found in Appendix 5.

The loss of nesting bird habitat will be adequately compensated for through the addition of nest boxes and pockets, new species-rich hedgerows and through the planting of native trees and shrubs as part of the soft landscape design for the site. It is recommended that a minimum of one in five of these are fruiting trees, as these will provide vital food in the autumn and winter. Other trees which are recommended for planting include, rowan, which also provides an excellent food source for birds and lime *Tilia sp.* which provides excellent nesting habitat.

The planting up of the buffer zone between the development and the existing woodland habitat and the



creation of new woodland habitat in the north-west corner will provide an increase in nesting bird habitat. These new habitats will be bordered by newly planted hedgerows, that are dominated by blackthorn, hawthorn and gorse to reduce the risk of predation by cats and will provide nesting habitat for smaller species, such as dunnoek and wren. The provision of nest boxes, new hedgerows and creation of woodland habitat proposed will lead to a **likely positive impact for common nesting bird species at a site level.**

5.6 Common Dormouse

5.6.1 Impact Avoidance

The loss of suitable habitat has been largely avoided at the design stage, most of the boundary hedgerow will be retained except for a 30m long section along the western boundary to create a new road access into the site.

5.6.2 Mitigation Measures

Based on the survey results, it is reasonable to assume that dormice may be present in all areas of woodland, scrub and tree lines where it is connected across the landscape. However, as the amount of hedgerow to be removed is relatively small, of poor quality and will have no impact to connectivity, a dormouse licence will not be required for this development to proceed.

The works will be able to be carried out following a detailed method statement. In accordance with standard best practice guidance, this will involve timing above ground clearance operations in winter during the hibernation period for dormice, followed by excavation/stump removal, where necessary, the following spring. This work should be preceded by fingertip searches for dormouse nests of all potentially suitable features (e.g. coppice stools, accumulations of leaf litter, log piles and debris) by a suitably qualified ecologist.

5.6.3 Residual Effects

There will likely still be indirect disturbance due to the likely increase of domestic cats which will put the local population at greater risk of predation resulting in a **likely negative impact significant up to local level.**

There will also be a small loss of dormouse habitat as a result of the new access being created on the western boundary which would result in a **certain negative impact that is not significant at the site level.**

5.6.4 Compensation Measures

The buffer zone will be planted up with native trees, scrub mix and wildflower meadow to provide additional foraging and nesting habitat and to protect the existing woodland edge habitat. Blackthorn, hawthorn and gorse should comprise at least 50% of the scrub mix. A thorny species-rich hedgerow must be planted around the edge of the new woodland habitat to prevent domestic cats from entering the woodland and to provide additional shelter.

To compensate for the small loss of dormouse habitat, the existing road access will be planted up with



a species-rich hedgerow and the buffer zone will include an area of scrub habitat including hazel.

To enhance the site for dormice, a new woodland parcel is to be planted in the north-west corner of the development which along with other new habitat including the buffer zone and hedgerows totals approximately 1.2 ha and will likely provide **a positive impact for dormice up to the local level.**

5.7 Reptiles

5.7.1 Impact Avoidance

The boundary hedgerow and woodland edge habitat will be retained as part of the development.

5.7.2 Mitigation Measures

As only a small population of grass snakes were found at the site, and grass snakes are a highly mobile species, a reptile translocation is not necessary. Instead, a process of habitat manipulation at a suitable time of the year to encourage reptiles away from construction zones and minimise the risk of killing or injuring any individuals is proposed. All mitigation measures for reptiles are detailed in Appendix 11.

5.7.3 Residual Effects

The permanent loss of a small area of suitable reptile habitat relative to the wider landscape that supports a low population of grass snakes represents a residual impact **significant at a site level only.**

5.7.4 Compensation Measures

The buffer zone between the development and woodland will be partly planted with wildflower and rough grassland habitat which will provide an overall increase in reptile habitat post development. In addition, the new woodland habitat will provide an increase in refugia for reptiles.

5.8 Other Notable Species

5.8.1 Impact Avoidance

The site has been designed to retain as much suitable habitat for hedgehogs and stag beetles as possible with only a small section of hedgerow being removed in total.

5.8.2 Mitigation Measures

To avoid direct impacts on any hedgehogs that may be using the site, all suitable hedgehog habitat, such as dense scrub or log piles, must be sensitively searched prior to destruction. If a hedgehog is found it must be moved to a suitable area bordering the site, which is well connected to similar habitat.

Mitigation measures described to protect [REDACTED] in section 5.3 will also protect hedgehogs.

To ensure the free passage of hedgehogs through the proposed development, all residential boundaries will include permanent gaps under fences at regular intervals or using native hedgerow planting as an alternative to hard fencing solutions. The dimensions of such gaps will be designed to allow free passage of hedgehogs. Access points should be created such as an Eco Hedgehog Hole Fence plate



shown in Figure 18. A hole measuring 13 cm by 13 cm should be made in any fence-lines throughout the proposed development and an Eco Hedgehog Hole Fence plate fixed to the fence. This will clearly highlight this access for hedgehogs and ensure the hole does not get blocked up.

5.8.3 Residual Effects

There are no significant residual effects.

5.8.4 Compensation Measures

No compensation measures are required.



Figure 18. Example of a hedgehog hole incorporated into boundary fences to provide hedgehog highway

5.9 Invasive Non-native Species

5.9.1 Impact Avoidance

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

5.9.2 Mitigation Measures

All invasive non-native species within the site will be removed and safely disposed of to ensure the risk



of their spread is minimised. Where shrubs such as cherry laurel are removed, they should be replaced with native species to reduce the potential for the return of the invasive species removed and to provide a wildlife benefit. Recommended species to plant include hazel, elder and guelder rose which are beneficial to foraging and nesting birds and dormice.

5.9.3 Residual Effects

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

5.9.4 Compensation Measures

No compensation measures are required.

6 HABITAT CREATION

All created habitats will be set out through the production of a Landscape and Ecology Management Plan (LEMP) document that sets out the number, type and location of habitat enhancements that will be provided, as well as on-going maintenance needs and responsibilities. These include a graded ecotone buffer with a width of 15m along the entire length of the eastern boundary to be planted with a mix of wildflower, scrub and native trees; a new woodland parcel and a new species-rich hedgerow.

7 CONCLUSIONS

The majority of impacts have been avoided at the design stage by incorporating a 15m buffer between the development and the existing parcel of woodland on the eastern boundary. The development will result in a certain loss of skylark habitat in the form of the arable field being possibly used by a pair of breeding pair and precautionary measures have been put in place for [REDACTED], breeding birds, great crested newts and reptiles. A method statement with regards to dormice will be required for the removal of a section of hedgerow to create a new road access on the western boundary. The new habitats being created will provide an overall increase in high value habitats for a wide range of species and provide a net gain in biodiversity.

A summary of the EclA process is presented in Table 12 below.

Table 12. EclA summary table

Ecological feature	Importance	Impact characterisation	Level of significance	Mitigation	Residual effects	Compensation required? (Y/N)
St Leonard's Forest (SSSI)	National	Increased recreational pressure and road traffic	Local	Creation of public green spaces.	Reduced to the site level , with increased footfall still a risk	Financial contributions towards future management
Leechpool and Owlbeech	County	Increased recreational	Local	Creation of public green spaces.	Reduced to the site	Financial contributions



Land off Crawley Road, Faygate – ECOLOGICAL IMPACT ASSESSMENT

Ecological feature	Importance	Impact characterisation	Level of significance	Mitigation	Residual effects	Compensation required? (Y/N)
Woods (LWS)		pressure and road traffic			level , with increased footfall still a risk	towards future management
St Leonards Forest (LWS)	County	Increased recreational pressure and road traffic	Local	Creation of public green spaces.	Reduced to the site level , with increased footfall still a risk	Financial contributions towards future management
Boundary hedgerows	Local	Small section of hedgerow lost from western boundary to create new road access into development	Site	CEMP for scheme. Heras and solid hoarding to protect habitats	Loss of small section of boundary hedgerow for road access	Enhancement of existing boundary hedgerow including planting up gaps with native mix and planting new native hedgerow close to new road access.
Deciduous Woodland – Priority Habitat adjacent to site	Local	Indirect disturbance to woodland edge habitat	Local	CEMP for scheme. Heras and solid hoarding to protect habitats	n/a	n/a
██████	Site	████████████████████ ████████████████████ ██████ ████████████████████ ██████ ████████████████████ ████████████████████ ████████████████████	Site	No food or waste left out Tools locked away Excavations >50cm covered up Security lighting directed away from woodland Chemicals and materials stored securely	n/a	n/a
Bats - Foraging and commuting	District	Indirect impact from artificial light and poor management of hedgerows	Local	Planting scheme to increase foraging habitat, implementation of an ecologically sensitive lighting design and dark corridors	Low levels of indirect disturbance from operational phase to woodland edge used by Barbastelle bats	Buffer zone, new woodland and hedgerows to be included in dark corridors detailed in lighting scheme.



Land off Crawley Road, Faygate – ECOLOGICAL IMPACT ASSESSMENT

Ecological feature	Importance	Impact characterisation	Level of significance	Mitigation	Residual effects	Compensation required? (Y/N)
				through the development		
Bats – Tree roosts	Local	indirect impacts through artificial light to potential bat roosts	Site	Planting scheme to increase foraging habitat, implementation of an ecologically sensitive lighting design and dark corridors through the development	Low levels of indirect disturbance from operational phase to woodland edge used by Barbastelle bats	Buffer zone, new woodland and hedgerows to be included in dark corridors detailed in lighting scheme.
Breeding bird assemblage on development site	Local	Direct loss of possible skylark breeding territory. Indirect disturbance from increased footfall and domestic pets	Site Site	Appropriate Construction methods (timed outside breeding season). Heras fencing to protect all retained habitat	Loss of skylark habitat	Two skylark plots in adjacent arable fields under the same land ownership. Creation of woodland and hedgerow habitat. Erection of nesting bird boxes
Common dormouse population	Local	Minimal loss of suitable habitat. Disturbance through increased recreation pressure, artificial lights and increase in domestic cats	Local	Small section of hedgerow removed under detailed method statement to include appropriate timings of works etc. Planted buffer zone between development and woodland	Indirect disturbance to woodland through domestic cats Loss of small amount of hedgerow habitat	Buffer zone to be planted with at least 50% blackthorn/hawthorn. New woodland to be planted in northwest corner to contain species of benefit to dormice including Hazel.
Common reptiles	Site	Existing grass snake population is very low and sparse, and quality of existing habitat is poor. Small loss of habitat and fragmentation	Site	Habitat manipulation Leave areas unmanaged to encourage suitable habitat	Permanent loss of small area of suitable habitat	Buffer zone between development and woodland will be partly planted with wildflower and rough grassland providing an increase in reptile habitat.
Other notable species: European	Local	Small loss of habitat. Increased risk of injury and	local	All features suitable for hedgehogs to be	Small loss of habitat	Buffer zone between development and woodland



Land off Crawley Road, Faygate – ECOLOGICAL IMPACT ASSESSMENT

Ecological feature	Importance	Impact characterisation	Level of significance	Mitigation	Residual effects	Compensation required? (Y/N)
hedgehog and Stag beetle		disturbance through public presence		searched before being removed Hedgehog holes in all boundary fences to ensure connectivity		will be partly planted with trees and scrub. Two hedgehog houses to be installed in buffer zone habitat
Invasive Non-Native Species	Local	Potential spread and/ or introduction of INNS	Uncertain risk of local level	INNS removed and safely disposed of. INNS removed to be replaced with native species	n/a	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)²² 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*).

²² Wildlife and Countryside Act (WCA) (1981). HMSO London.



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).

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

The NERC Act (2006)²³ 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)²⁴, 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

²³ Natural Environment and Rural Communities Act (2006). HMSO London.

²⁴ Protection of Badgers Act (1992). HMSO London.



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 [REDACTED] between the end of November and the start of July.

National Planning Policy Framework

The National Planning Policy Framework (NPPF 2023)²⁵ sets out the Government's view on how planners should balance nature conservation with development and helps ensure that Government meets its biodiversity commitments with regard to the operation of the planning system.

Paragraph 179b, which states that council policies should “*promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.*” The Office of the Deputy Prime Minister (ODPM) Circular 06/2005, 2005)²⁶. 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)²⁷, and a progress update was provided in July 2013 (Defra 2013)²⁸.

'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.

²⁵ HM Government (2023). National Planning Policy Framework. Department for Levelling Up, Housing and Communities. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1182995/NPPF_Sept_23.pdf

²⁶ 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.

²⁷ 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>.

²⁸ Defra (2013) Progress Update. Available at: <https://www.gov.uk/government/publications/biodiversity-2020-simple-guide-and-progress-update-july-2013>.



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

Birds of Conservation Concern (BoCC)

In 1996, the UK's leading non-governmental bird conservation organisations reviewed the conservation status of all bird species in the UK against a series of criteria relating to their population size, trends and relative importance to global conservation. The lists, known as the 'Red', 'Amber' and 'Green' lists (in order of decreasing concern) are used to inform key conservation policy and decisions. The lists are reviewed every five years and are a useful reference for determining the current importance of a particular site for birds. The most recent review was undertaken in 2021²⁹ (Stanbury et al, 2015), which provides an up to date assessment of the conservation status of birds in the UK.

²⁹ 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 – HORSHAM DISTRICT PLANNING FRAMEWORK

Table 13 Horsham District Planning Framework (Excluding South Downs National Park) (Nov 2015) – under review and will run from 2018 to 2036).

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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APPENDIX 3 - IMPORTANCE OF ECOLOGICAL FEATURES

Table 14. 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)



[REDACTED]

[REDACTED]



APPENDIX 5 – COMMON DORMOUSE SURVEY RESULTS

Table 14. The results from the 2019 dormouse survey at Land off Crawley Road. Abbreviations: DM = dormouse, WM=wood mouse; NM= nest material, E=empty; NF=tube not found.

Completion date	17 May 2019	20 June 2019	26 July 2019	22 Aug 2019	20 Sept 2019	22 Oct 2019
Temp/°C	18	18	20	18	17	10
Cloud cover	10%	60%	80%	60%	60%	0%
Precipitation	Dry	Dry	Dry	Dry	Dry	Dry
1	E	E	E	E	E	E
2	E	E	E	E	E	E
3	E	NF	E	E	E	E
4	E	E	E	E	E	E
5	E	NF	E	E	E	E
6	E	E	E	WM	E	E
7	E	NF	E	NF	Destroyed	Destroyed
8	E	NF	E	NF	Destroyed	Destroyed
9	E	NF	E	E	WM	E
10	E	E	WMNM	E	WMNM	E
11	E	NF	E	WM	WMNM	E
12	E	E	E	E	E	E
13	E	NF	E	E	E	E
14	E	E	E	E	E	E
15	E	E	E	E	E	E
16	E	E	E	E	E	E
17	E	E	E	E	E	E
18	E	NF	NF	E	E	E
19	E	E	E	E	E	E
20	E	E	E	E	E	E
21	E	E	WMNM	WM	WMNM	E
22	E	E	E	E	E	E
23	E	E	WMNM	WM	WM	E
24	E	E	E	E	E	E
25	E	E	E	E	E	E
26	E	E	E	E	E	E
27	E	E	E	WM	E	E
28	E	E	E	E	E	E
29	E	E	E	E	E	E
30	E	E	E	E	E	E
31	E	E	E	E	E	E
32	E	E	NF	E	E	E
33	E	E	NF	E	E	E
34	E	E	NF	E	E	E
35	E	E	NF	E	E	E
36	E	E	NF	E	E	E
37	E	E	NF	E	E	E
38	E	NF	NF	E	NF	E
39	E	NF	NF	E	E	E



Completion date	17 May 2019	20 June 2019	26 July 2019	22 Aug 2019	20 Sept 2019	22 Oct 2019
40	E	E	E	E	E	DMNM
41	E	E	E	E	E	E
42	E	NF	E	NF	E	E
43	E	E	NF	E	E	E
44	E	NF	E	NF	WMNM	E
45	E	E	E	NF	E	E
46	E	E	E	NF	NF	E
47	E	E	E	NF	E	E
48	E	E	E	E	E	E
49	E	E	E	E	E	E
50	E	E	E	E	E	E
51	E	E	NF	E	E	E
52	E	E	NF	E	E	E
53	E	E	E	E	E	E
54	E	E	E	E	Destroyed	Destroyed
55	E	E	E	NF	E	E
56	E	E	NF	E	E	E
57	E	E	NF	E	E	E
58	E	E	E	E	E	E
59	E	E	E	NF	E	E
60	E	E	E	E	E	E
61	E	E	E	E	E	E
62	E	E	E	E	E	E
63	E	E	E	E	E	E
64	E	E	E	E	E	E
65	E	E	NF	E	E	E



Photograph 3. The dormouse nest found on 22nd October 2019.



APPENDIX 6 – GCN E-DNA RESULTS



Folio No: E12826
 Report No: 1
 Purchase Order: 3073
 Client: THE ECOLOGY CO-OP
 Contact: Nick Bayne

TECHNICAL REPORT

ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS (TRITURUS CRISTATUS)

SUMMARY

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

RESULTS

Date sample received at Laboratory: 22/04/2022
 Date Reported: 03/05/2022
 Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
1933	Pond 1 Old Crawley Road	TQ 20188 33033	Pass	Pass	Pass	Negative	0
1936	Pond 6		Pass	Pass	Pass	Negative	0
1938	Pond 7		Pass	Pass	Pass	Negative	0
1939	Pond 8		Pass	Pass	Pass	Negative	0
1940	Pond 2		Pass	Pass	Pass	Negative	0

If you have any questions regarding results, please contact us: ForensicEcology@surescreen.com

Reported by: Chris Troth

Approved by: Esther Strafford



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 Company Registration No. 08950940



APPENDIX 7 - SKYLARK PLOT GUIDANCE



for birds
for people
for ever



FARMING FOR WILDLIFE

Skylark plots

Skylark plots are undrilled patches created by briefly switching off the drill when sowing winter cereals.

Skylark plots are undrilled patches in winter cereal fields. They have been proven to boost nesting opportunities for skylarks in areas of predominantly autumn-sown crops. If spring crops are not a main feature of your rotation, this is an important measure to conserve skylark numbers.

BENEFITS FOR WILDLIFE

Skylark plots increase the number of chicks that skylarks can rear in winter cereals.

Winter cereal fields with skylark plots hold more nesting skylarks throughout the breeding season than conventional cereal fields, especially late in the season when numbers in conventional fields tail off as the crop becomes taller and thicker.

On average, nests in fields containing skylark plots produce more chicks than those in conventional fields. Skylark chicks that fledged in fields with skylark plots are also heavier, suggesting that they are better fed and more likely to survive the winter.

Skylarks do not generally nest in the skylark plots, but instead use them for foraging. In a conventional winter cereal field,

skylarks can forage easily in April but, by June, more than half of the foraging has to take place outside the field. If adjacent fields also contain winter crops, skylarks will struggle to find sufficient food. However, in fields with two skylark plots per hectare, they continue to forage easily within the field throughout the season.

GUIDELINES OVERLEAF

CREATION OF SKYLARK PLOTS

It is best to create skylark plots in fields that are to be sown with winter cereals. The fields should be more than 5 ha in size and have an open aspect. Fields bounded by trees or adjacent woods are not suitable unless they are larger than 10 ha.

Skylark plots are created by switching off the drill (or lifting it up) to create undrilled patches at least 3 m wide. Aim for each plot to be between 16 m² and 24 m². The table below indicates the ideal length for plots created with different drill widths. A tail-off of cereal grain in the plot after the drill has been switched off or lifted up is to be expected.

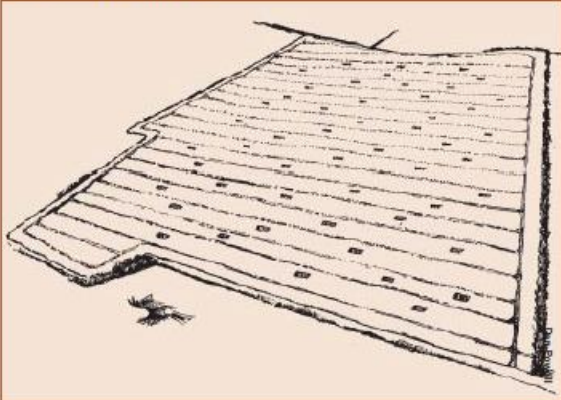
Guidance on the ideal plot length in relation to the width of the drill	
Drill width (m)	Plot length (m)
3	6 to 8
4	4 to 6
6	3 to 4
8	3

The ideal number of plots in a field is two per hectare. They should not be connected to the tramlines and should be sited away from field boundaries and telegraph poles. They should be at least 24 m from the edge of the field. Typical plots of 4 x 5 m will take up less than half of 1% of the field area.

No further action is necessary – skylark plots will receive the same sprays and fertiliser applications as the rest of the field. If you have concerns about difficult weeds,

such as black grass or wild oats, arising within the plot, you can control them using a knapsack sprayer – although this was rarely required in skylark plot trials.

A 25-hectare winter cereal field should ideally contain about 50 plots scattered across it. The plots should not be within 24 metres of the field edge or connected to the tramlines.



KEY POINTS

- Skylark plots are easily created by switching off the drill to create undrilled patches of at least 3 m in length.
- Fields with two skylark plots per hectare have been shown to have significant benefits for skylarks.
- Skylark plots are an option in the new Entry Level Scheme.

The Entry Level Scheme can fund the creation of skylark plots in England. You can get further information on this and other ways of managing your farm for wildlife from:

Agricultural Adviser, The RSPB,
UK Headquarters, The Lodge,
Sandy, Bedfordshire SG19 2DL.
Tel: 01767 680551
www.rspb.org.uk

RSPB registered charity no 207078

www.saffie.info

Farming and Wildlife Advisory Group, NAC, Stoneleigh,
Kenilworth, Warwickshire CV8 2RX. Tel: 02476 696699

The Game Conservancy Trust,
Fordingbridge,
Hampshire SP6 1EE.
Tel: 01425 652381

The RSPB is the UK charity working to secure a healthy environment for birds and wildlife, helping to create a better world for us all.

223-0989-04-05

Figure 18. The RSPB guidance on creating Skylark Plots within winter cereal crops.



APPENDIX 8 - ARTIFICIAL LIGHTING AND WILDLIFE

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

Guidelines issued by the Bat Conservation Trust³⁰ should be referred to when designing the lighting scheme. Note that lighting designs in very sensitive areas should be created with consultation from an ecologist and using up-to-date bat activity data where possible. The guidance contains techniques that can be used on all sites, whether a small domestic project or larger mixed-use, commercial or infrastructure development. This includes the following measures:

Avoid lighting key habitats and features altogether

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

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

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

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

³⁰ 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/>



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

Demonstrate compliance with illuminance limits and buffers

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

Lighting Fixture Specifications

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

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

Further reading:

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

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

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



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

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

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

Voigt, C.C., Azam, C., Dekker, J., Ferguson, J., Fritze, M., Gazaryan, S., Hölker, F., Jones, G., Leader, N., Lewanzik, D. and Limpens, H., 2018. *Guidelines for consideration of bats in lighting projects*. Unep/Eurobats. Available at:

https://cdn.bats.org.uk/uploads/pdf/Resources/EUROBATGuidelines8_lightpollution.pdf?v=1542109376