



The Ecology Co-op

ENVIRONMENTAL CONSULTANTS

Unit 4, Langham Stables, Langham Lane, Lodsworth, Petworth, West Sussex, GU28 9BU.

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

Ecological Impact Assessment

Site Name

The Byre, Bolney

Issue Date

1st July 2026

Client

Shire Barns Developments LLP

Author

Andy Fry & Sam Lunn

Project No: P11509

The Ecology Co-operation Ltd

Registered Office: Unit 4, Langham Stables, Langham Lane, Lodsworth, West Sussex, GU28 9BU

Company number: 8905527





Document Control

Issue No	Author	Reviewer	Issue Date	Additions/alterations	Notes
Original	Andy Fry MSci (Hons)	Kate Priestman MCIEEM, CEnv	01.07.2026	N/A	

Conditions of use

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

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

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

About the Author

This report has been prepared by Andy Fry, an Assistant Ecologist at The Ecology Co-op who holds a master's degree in Zoology and 4 years' experience in consultancy.

This report has also been authored by Sam Lunn, who is a Senior ecologist with 10 years' experience. He has a Level 2 bat survey licence and has prepared several European Protected Species licenses for bats. As an Associate member of the Chartered Institute for Ecology and Environmental Management (CIEEM), 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

Purpose	The Ecology Co-op has been commissioned by Shire Barns Developments LLP to undertake an Ecological Impact Assessment for a development on land at The Byre. Following a Preliminary Ecological Appraisal, including UKHab mapping of the site by The Ecology Co-op on the 8 th April 2026, further ecological surveys were undertaken, including protected species surveys and UKHab assessment in order to provide sufficient baseline information for this assessment. This document presents the findings of these surveys, and an Ecological Impact Assessment in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines to inform a planning application to erect 5 detached dwellings houses and outbuildings, including new garage to serve The Byre.
Context	The site currently consists of an area of grassland used for livestock grazing associated with The Byre property which contains two outbuildings. There is a grassland parcel in the east left to grow long and ruderal, with hedgerows bounding the north and south and a small ditch to the east. The site lies within a rural location, with residential housing and farmland to the north and south, and a small woodland to the west.
Impact on Protected Species	The protected species surveys identified a low population of slow worms, a moderately diverse assemblage of foraging/commuting bats including low levels of barbastelle, and a negative eDNA result for great crested newts associated with the ditch on site. A loss of low-value grassland will result in reduced suitability for reptiles and great crested newts, as well as a minor reduction in foraging opportunities for birds and bats. Without appropriate mitigation, ground-dwelling species may be harmed during the construction phase.
Impact on Habitats	The majority of the site is dominated by uniform, low-value, modified grassland, with a small patch of other neutral grassland where management is less rigorous. Much of the grassland will be lost to housing and gardens. A small belt of bramble scrub will also be lost as a part of the works. The ditch and hedgerows will be retained, and two small amounts of modified grassland will be retained and enhanced to other neutral grassland.
Biodiversity Net Gain	In line with the National Planning Policy Framework, the site's ecological value should be enhanced and it is likely that the development will need to demonstrate that it can achieve a 10% net gain in biodiversity value. This can be achieved through the enhancement of retained modified grassland along the northern hedgerow, as well as a buffer along the southern and western boundaries of other neutral grassland and mixed scrub respectively. Further detail is provided in section 5.



CONTENTS PAGE

1	INTRODUCTION	1
1.1	Background	1
1.2	Purpose of this Report.....	2
1.3	Policy and Legislation.....	3
2	SURVEY METHODOLOGY	4
2.1	Desk Studies	4
2.2	Habitat Survey.....	4
■		
2.4	Bats	5
2.5	Breeding Birds.....	8
2.6	Common Dormouse	8
2.7	Great Crested Newts and Other Amphibians	8
2.8	Reptiles	9
2.9	Riparian Wildlife	10
2.10	Other Notable Species	10
2.11	Invasive Non-native Species	11
2.12	Impact Assessment Methodology and Mitigation	11
2.13	Constraints/Limitations to Surveys	12
3	ECOLOGICAL BASELINE	13
3.1	Designated Sites	13
3.2	Habitats	14
■		
3.4	Bats	19
3.5	Breeding Birds.....	25
3.6	Dormice	25
3.7	Great Crested Newts and Other Amphibians	26
3.8	Reptiles	27
3.9	Other Notable Species	28
3.10	Invasive Non-native Species	29
4	IMPACT ASSESSMENT	30
4.1	Designated Sites	31
4.2	Habitats	31
■		
4.4	Bats	32
4.5	Breeding Birds.....	32
4.6	Common Dormice	33
4.7	Great Crested Newts and Other Amphibians	33
4.8	Reptiles	34
4.9	Other Notable Species	34



4.10	Invasive Non-native Species	34
5	MITIGATION PROPOSALS.....	35
5.1	Priority Habitats	35
5.3	Bats	36
5.4	Breeding Birds.....	37
5.5	Common Dormouse	37
5.6	Great Crested Newts and Other Amphibians	38
5.7	Reptiles	38
5.8	Other Notable Species	39
5.9	Invasive Non-native Species	40
6	BIODIVERSITY ENHANCEMENTS.....	40
6.1	Bats	40
6.2	Nesting Birds	40
6.3	Amphibians and Reptiles.....	41
7	CONCLUSIONS.....	41
APPENDIX 1 – LEGISLATION AND POLICY.....		45
APPENDIX 2 – LOCAL PLANNING POLICY.....		49
APPENDIX 3 - IMPORTANCE OF ECOLOGICAL FEATURES		50
APPENDIX 4 - ARTIFICIAL LIGHTING AND WILDLIFE		51



1 INTRODUCTION

1.1 Background

The Ecology Co-op was commissioned by Shire Barns Developments LLP to undertake an Ecological Impact Assessment (EclA) of land at The Byre, Bolney. This report presents the findings of baseline ecological surveys and desk-study research and assesses the likely impacts and significance of effects of the proposed works in relation to protected/notable species, habitats and designated sites.

This site measures approximately 1.1ha and is situated on the southern outskirts of Bolney, West Sussex RH17 5PG. The site currently consists of a number of outbuildings and associated access road, a garden and an area of grassland used for livestock grazing. The site lies within a rural location, with residential housing and farmland to the north and south, and a small woodland to the west. The central grid reference for the site is TQ 26084 23180. Figure 1 shows the boundary of the site and local context.



Figure 1. An aerial image showing the location of the site. The approximate site boundary is outlined in red. Image produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

The proposed development/project includes the erection of 5 detached dwellings houses and outbuildings, including new garage to serve The Byre. Figure 2 shows the development plan.

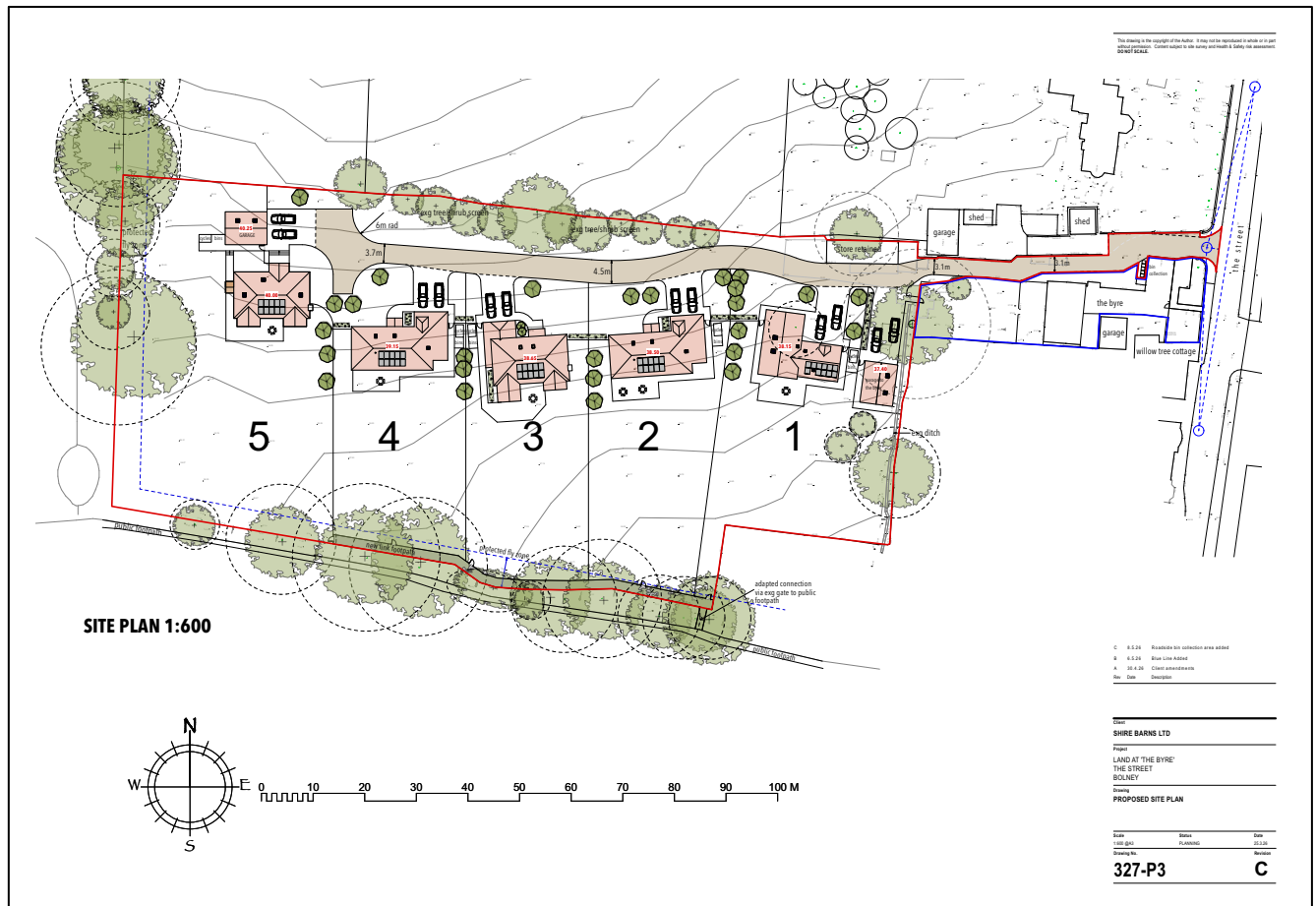


Figure 2. Draft site layout for the development, provided by the client, Shire Barns Developments LLP, dated 30.04.2026, dwg no. 327-P3.

An interim bat activity survey¹, comprising a single walked transect using a hand-held bat detector and a static logger deployment, was undertaken by SLR Consulting Ltd in autumn 2025; the findings of this survey have been reviewed and incorporated into the baseline assessment presented within this report. It should be noted that the SLR survey was undertaken in relation to an earlier scheme which included land from the neighbouring property and, therefore, covered a larger survey area than that considered within this assessment.

The Ecology Co-op undertook a Preliminary Ecological Appraisal (PEA)² on the 8th April 2026. Based on the findings of this assessment, presence/likely absence surveys for reptiles and great crested newt *Triturus cristatus* were recommended, along with bat activity surveys in spring and summer.

1.2 Purpose of this Report

Following the recommendations of the PEA, The Ecology Co-op undertook further presence/absence surveys for great crested newts and common reptiles, and activity surveys for bats.

The purpose of this report is to:

¹ SLR Consulting Limited (2025) *Interim Bat Survey Report – The Byre & Dalton's Farm, The Street, Bolney, West Sussex.*

² The Ecology Co-op (2026) *Preliminary Ecological Appraisal – The Byre, Bolney.*



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

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

The surveys and report were carried out and produced at the request of Shire Barns Developments LLP and were supervised by Sam Lunn, a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM), with level 2 survey licences for bats and great crested newts and a level 1 survey licence for dormice *Muscardinus avellanarius*.

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 Mid Sussex District Council is provided in Appendix 2.



2 SURVEY METHODOLOGY

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

This document is written in accordance with the CIEEM Guidelines for Ecological Impact Assessment³ and CIEEM Guidelines for Ecological Report Writing⁴. Details of the ecological assessment methods are provided within section 2.12 below.

2.1 Desk Studies

A search for pre-existing records of protected species, priority species for conservation and invasive non-native species was requested from the SxBRC within a radius of 1km of the site boundaries.

A search of on-line mapping resources was undertaken to identify the location of any features of potential ecological interest including ponds within 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 8th April 2026, during which the habitats contained within the site were described and evaluated in accordance with standard UK Habitat Classification (UKHab)⁵. The dominant species and indicators of important habitat types such as ancient woodland or unimproved grassland were recorded.

UKHab survey presents a standardised system for classifying and mapping wildlife habitats in all parts of Great Britain, including urban areas. The aim of the survey is to provide, relatively rapidly, a record of the vegetation and wildlife habitats present. The habitat classification is based principally on vegetation, augmented by reference to topographic and substrate features, particularly where vegetation is not the dominant component of the habitat.

Data was gathered through a site walkover survey and use of on-line aerial photography to broadly categorise the habitats present using the UKHab classifications⁶. The results are presented as a map showing the distribution

³ CIEEM (2024) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Chartered Institute of Ecology and Environmental Management, Winchester.

⁴ CIEEM (2017) *Guidelines for Ecological Report Writing, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

⁵ The UK Habitat Classification Working Group (2023) *The UK Habitat Classification User Manual* at <http://ecountability.co.uk/ukhabworkinggroup-ukhab>

⁶ UK Habitat Classification Working Group (2018). *UK Habitat Classification – Habitat Definitions V1.0* at <http://ecountability.co.uk/ukhabworkinggroup-ukhab>

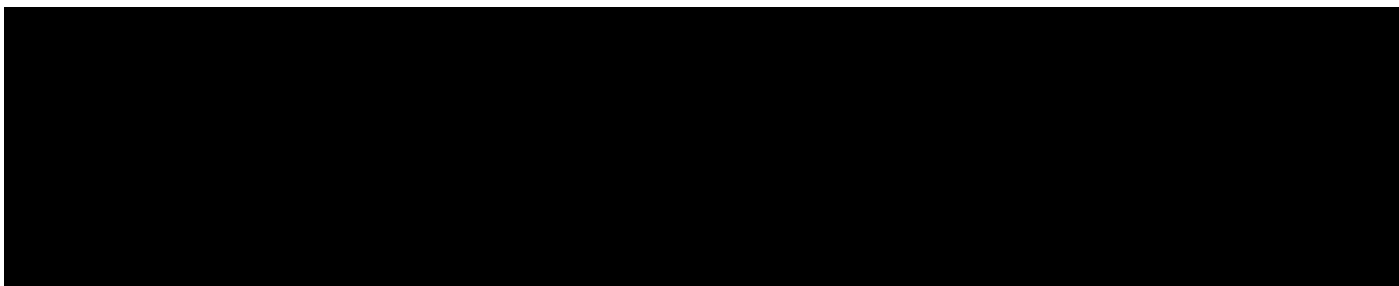


of habitat categories across the site. Target notes are used to describe specific features of biodiversity interest and record indicator species where appropriate. In addition to this, notable habitats, such as habitats listed under the NERC Act, 2006, are highlighted.

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

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

The findings of the PEA indicated that no habitats of sufficient botanical interest were present on site to warrant a detailed botanical survey, and none was therefore undertaken.



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. 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.

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



2.4.2 Built Structures

A detailed ground based visual assessment was carried out, looking for features with potential to support roosting bats (e.g. gaps under tiles, soffits, cracks or gaps in brickwork and cladding) and any evidence indicating the presence of bats, such as rub marks, staining or droppings beneath potential roost features. Where possible and safely accessible, internal inspections of potentially suitable enclosed loft spaces were made to search for evidence of use by bats (live bats, dead bats, droppings, rub marks or staining of timbers). B1-3, comprising of two small storage sheds and a Wendy house, were inspected externally while B4 (a stable block) was inspected both internally and externally.

Table 1 Potential suitability of structures for bats⁷

Suitability	Description of roosting habitats
None	No habitat features on the structure likely to be used by any roosting bats at any time of year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).
Negligible	A structure that does not have any obvious habitat features that are likely to be used by roosting bats. However, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.
Low	A structure that has one or more potential roosting features that could support individual roosting bats opportunistically. These features however lack the space, shelter or appropriate conditions, to support larger numbers of bats (such as a maternity roost).
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter and suitable conditions for roosting, but are unlikely to support a roost of high conservation significance.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potential for longer periods of time due to their size, shelter, protection and conditions.

2.4.3 Bat Activity Surveys

Three bat activity surveys, comprising walked transects and automated static detector deployment, were undertaken across three seasons as part of this assessment: an autumn 2025 survey completed by SLR Consulting Ltd prior to the commissioning of this report, followed by spring and summer surveys undertaken by The Ecology Co-op in 2026, the results of which are presented herein.

2.4.4 Bat Activity Surveys – Walked Transects

Bat activity surveys followed best practice guidelines⁶. Pre-determined transect routes were followed by surveyors (Figure 3), focusing on all linear features within the site boundary (tree-lines, woodland edge and hedgerows). The transect route followed a reduced version of that taken during the September 2025 survey (see Figure 7). The transect routes were walked at a slow pace during the period from sunset to two hours after sunset by a team of surveyors, such that each part of the route was passed approximately every twenty minutes. All surveys were undertaken during weather conditions suitable for bat activity and at ambient temperatures above 10°C. The surveyors recorded bat activity using 'Echo Meter Touch' bat detectors featuring auto-identification of bat species and automatically triggered recording for later review. The locations of all bat 'registrations' was recorded onto a field map during the survey to correspond with all sound recordings.

The September 2025 survey undertaken by SLR¹ followed a similar methodology, except that the survey commenced 30 minutes prior to sunset, continuing to 1.5 hours after sunset, recording bat activity with an 'Elekon



Batlogger M2' bat detector.

2.4.5 Bat Activity Surveys – Automated Static Bat Detecting

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.).

A single Wildlife AcousticsMiniBAT static bat detector was deployed by SLR Consulting Ltd in the northern hedgerow (see Figure 7) in September 2025 and left in the field for a minimum of five nights. Full methodological details are provided in the SLR Interim Bat Survey Report¹, submitted alongside this assessment.

A single Song Meter Mini A static bat detector was deployed on site (see Figure 3) in May and June 2026 and left in the field for a minimum of five days.

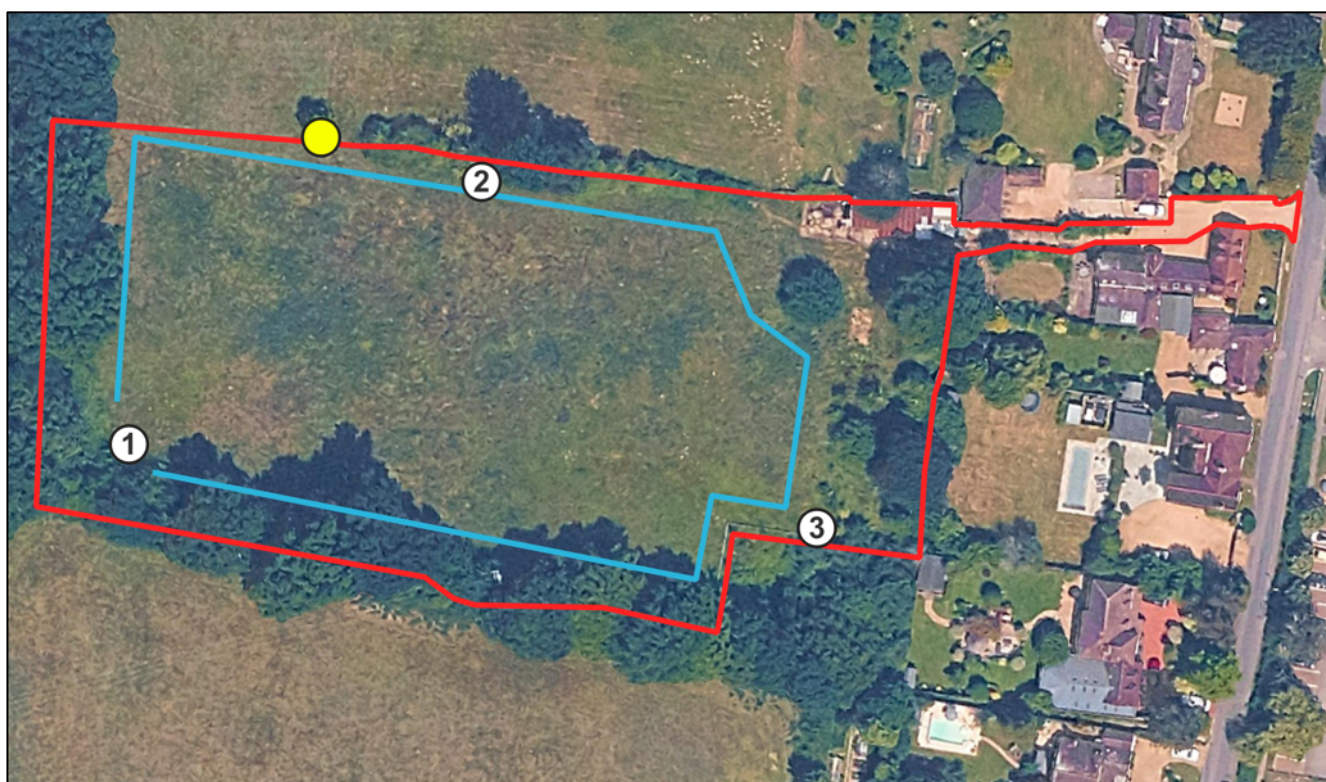


Figure 3. The transect routes of surveyors (blue lines) with stops (white numbered circles) and the position of the static bat detector deployed on the site (yellow circle).

The datasets collected by the static bat detectors were interpreted using ECOBAT⁸: an online resource which is used to interpret static detector data by calculating percentiles through comparison of the data with a national database of bat activity. Levels of bat activity were qualified according to Table 2.

⁸ <http://www.ecobat.org.uk>

**Table 2.** Qualification of bat activity levels at The Byre detected by static bat detectors, using ECOBAT outputs.

Bat activity level	Bat passes/night (median percentile range)
Low	0–20 th Percentile
Low–moderate	21 st –40 th Percentiles
Moderate	41 st –60 th Percentiles
Moderate–high	61 st –80 th Percentiles
High	81 st –100 th Percentiles

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

During the PEA, the habitats contained within the site and adjacent areas were broadly assessed for their potential to support important bird species/assemblages and breeding birds. Any birds identified during the site visit were recorded. Special attention was paid to notable species such as red-listed Birds of Conservation Concern (Stanbury *et al.* 2021)⁹ and those species afforded special protection on Schedule 1 of the Wildlife and Countryside Act (1981).

The PEA walkover survey identified no habitats or features of sufficient suitability to warrant a dedicated breeding bird survey.

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.

The PEA concluded that, whilst some suitable hedgerow and scrub habitat is present on site, the connectivity of this habitat to the wider landscape was not considered sufficient to support a viable dormouse population. In particular, the northern hedgerow features several gaps, the largest of which is around 50m, which limits the connectivity of the hedgerow to the western woodland. Dedicated dormouse surveys were therefore not undertaken.

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,

⁹ 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.



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

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

2.7.1 Habitat Suitability Assessment

Land at The Byre does not contain any ponds within its boundaries, but it does contain a wet ditch. The desk study revealed a further seven ponds within 500m of the site boundary. While none of these ponds could be accessed during the survey, the on-site ditch was assessed for its potential to support great crested newts using the Habitat Suitability Index (HSI) (Oldham et al, 2000). The on-site ditch was carried forward for Environmental DNA (eDNA) sampling.

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 England¹⁰. The samples are sent to an approved laboratory to isolate and determine presence of eDNA shed into the water by amphibians during the breeding season. The eDNA samples were taken on the 20th April 2026.

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.

Standard reptile presence/likely absence surveys involve setting out artificial refugia (reptile 'mats' or 'tins') in potentially suitable habitat. Reptile mats are pieces of roofing bitumen felt and reptile tins are pieces of corrugated metal sheet approximately 0.5m x 0.5m in size, which absorb heat from the sun more rapidly than the surrounding vegetation and provide cover and basking places attractive to reptiles. These are then checked for presence of animals under suitable weather conditions. They are placed in areas of potentially suitable habitat at an approximate density of 30 per ha, with mats placed along suitable linear features. There are no up-to-date best practice guidelines for reptile surveys, but a minimum of seven survey visits under suitable weather conditions is generally considered to be adequate when determining their presence/likely absence, and 15–20 visits are used to calculate a 'peak count' for population size class assessment.

¹⁰ 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.



A total of 30 roofing felt mats were used in this survey (see Figure 4), deployed on the 27th April 2026. The mats were left *in situ* for a minimum of one week to ‘bed in’ and allow reptiles to locate them before the first check. The mats were checked at least seven times between the 5th and 25th May 2026 and all observations of reptiles were recorded, together with the weather conditions, temperature and time of day.



Figure 4. Location of reptile refuges (identified with numbered yellow circles).

2.9 Riparian Wildlife

Watercourses and waterbodies can support a range of protected species, principally otter *Lutra lutra*, water vole *Arvicola amphibius* and white-clawed crayfish *Austropotamobius pallipes*.

Waterbodies on the site and within close proximity of the site were surveyed during the PEA survey for suitability for riparian wildlife, during which features such as water presence, water depth, bank condition, marginal vegetation and connectivity to wider habitats were noted.

2.10 Other Notable Species

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



2.11 Invasive Non-native Species

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

2.12 Impact Assessment Methodology and Mitigation

The assessment of ecological impacts and mitigation recommendations in this report follow CIEEM Guidelines for Ecological Impact Assessment (EclA)³. This involves evaluating the importance of an 'ecological feature' (habitat, vegetation community, population of a single species or assemblages of species) in terms of nature conservation priority, followed by the application of the 'mitigation hierarchy'.

2.12.1 Importance of Ecological Features

A level of importance was assigned to all existing ecological features through consideration of the rarity and distribution of a habitat or species, the population size, ecological function, and trends (declining/expanding), together with any designations, legal status, or conservation policies. CIEEM recommend that the importance of an ecological feature, in terms of nature conservation priority, should be considered within a defined geographical context (for definitions used by The Ecology Co-op, see Appendix 3):

- international and European
- national
- regional
- county
- local or parish
- site/negligible.

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

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

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

2.12.2 Significance of Effects

In accordance with EclA (CIEEM 2018)³, a significant effect is defined as "an effect that either supports or undermines biodiversity conservation objectives for important ecological features". Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy). The effects may be described as significant at a range of geographic scales as defined above.



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

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

2.12.3 The 'Mitigation Hierarchy'

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

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

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

2.13 Constraints/Limitations to Surveys

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

The majority of the site was mown shortly before the deployment of reptile survey mats, no earlier than one week prior, resulting in a significantly shorter sward height across much of the survey area than had been recorded during the initial site visit. This reduced the suitability of the habitat for reptiles at the point of mat deployment, potentially suppressing detection rates during the early survey visits in particular. The sward was not mown again during the survey period and recovered over the course of the month, meaning that habitat conditions improved progressively across the seven survey visits. The results should therefore be interpreted with this limitation in mind. However, while this may have affected the results of the survey, it is not considered to be a significant constraint given that the site is known to be grazed/mown at intervals throughout the year.



The spring automated static bat detector deployment was subject to two equipment failures prior to a successful deployment being achieved, resulting in the survey being undertaken later in May 2026 than was originally intended. However, this is not considered to represent a significant limitation to the assessment, as the majority of bat species are reliably active and detectable by mid-May, and the results of the spring deployment are largely consistent with those of the following deployment in June and the autumn survey undertaken by SLR Consulting Ltd, suggesting that the key species utilising the site have been recorded.

3 ECOLOGICAL BASELINE

3.1 Designated Sites

The only designated site within 2km of the site is the High Weald National Landscape, which is 0.4km north of the site. The High Weald is one of the most intact ancient landscapes in northern Europe, characterised by a medieval pattern of ghylls, ancient routeways, historic farmsteads and hedgerows. Habitats present include ancient woodland, heathland, species-rich hedgerows, ghyll woodland, freshwater ponds and pasture.

The immediate surroundings support areas of ancient woodland and priority habitat deciduous woodland, with a parcel of deciduous woodland meeting the western boundary of the site (shown in Figure 5). Ancient woodland and ancient replanted woodland lie 0.5km and 0.3km from the red line boundary respectively.

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

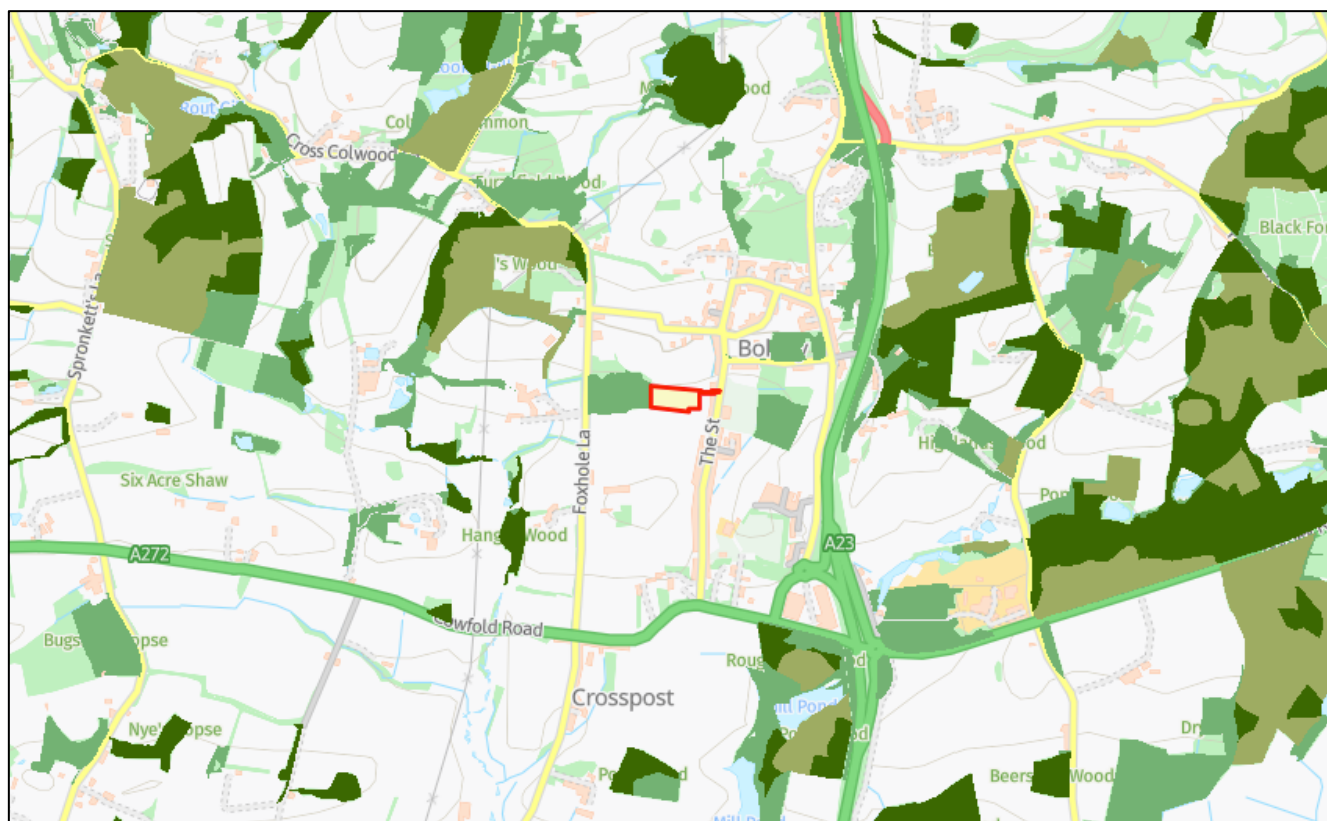




Figure 5. Habitats of importance for nature conservation. The site boundary is highlighted in red. Image produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

3.2 Habitats

3.2.1 Survey Results

The site comprises a stable block and associated outbuildings, hardstanding and garden, set within an area of modified grassland. It also includes bramble *Rubus fruticosus* agg. scrub, boundary hedgerows with trees, and a ditch. Each habitat is described in turn below.

The majority of the site is occupied by an area of modified grassland, which is intermittently grazed and mown. At the time of survey (April 2026), the grassland had a varied sward height; the predominant sward was long and tussocky, having recovered from sheep grazing over the winter and early spring, whilst shorter, more herb-rich areas were also present. An electric fence was noted surrounding a large portion of the grassland, and evidence of previous livestock presence was recorded, although no livestock were present at the time of survey. The uneven terrain and rough character of parts of the sward are consistent with a history of pastoral management. A small portion of the grassland in the northeastern corner has been classified as other neutral grassland due to its more diverse species composition, presumably because it is less intensively managed than the rest of the sward. The southeastern portion of the grassland is characterised by a more disturbed and heterogeneous sward, reflecting a history of garden-influenced management and the presence of introduced and escapee species. The vegetation includes a number of small, planted trees and localised patches of Himalayan balsam *Impatiens glandulifera* and of pendulous sedge *Carex pendula*. This parcel contained a pile of discarded wood and brash.

Within the eastern grassland portion are two small gravel pits delineated by small wooden borders, along with a small gravel-covered path connecting the easternmost pit to the access road. Both of these gravel pits support a ruderal vegetative community of modified grassland species and some garden escapees.

The site is bordered by a wet ditch to the east, hedgerows with trees to the north and south, and a neighbouring mixed deciduous woodland to the west, with an area of bramble scrub encroaching from the woodland.

Table 3 below lists the UKHab habitats found at the site with the general species composition of these habitats. Note that detailed information on buildings and ponds with respect to bats and great crested newts are presented in the following sections. The habitat map for the site and key to the standard mapping symbols used is presented in Figure 6. Photographs of important areas of habitat are presented below.

Table 3. The UKHab habitat contained within the site.

Habitat type	UKHab Code	Area (ha) / length (m)	Species composition	Ecological importance
Bramble scrub	h3d	0.01 ha	Bramble and common nettle <i>Urtica dioica</i> .	Site.
Buildings	u1b5	0.01 ha	N/A.	Site.
Built linear feature	u1e	0.03 ha	N/A.	Site.
Developed land; sealed surface	u1b	0.00 ha	None recorded.	Site.
Modified grassland	g4	0.97 ha	Yorkshire fog <i>Holcus lanatus</i> , cock's-foot <i>Dactylis glomerata</i> , red fescue <i>Festuca rubra</i> , rough	Site.



Habitat type	UKHab Code	Area (ha) / length (m)	Species composition	Ecological importance
			meadow grass <i>Poa trivialis</i> , broad-leaved dock <i>Rumex obtusifolius</i> , curled dock <i>Rumex crispus</i> , white clover <i>Trifolium repens</i> , creeping buttercup <i>Ranunculus repens</i> , creeping thistle <i>Cirsium arvense</i> , common hogweed <i>Heracleum sphondylium</i> , common sorrel <i>Rumex acetosa</i> , cut-leaved crane's-bill <i>Geranium dissectum</i> , round-leaved crane's-bill <i>Geranium rotundifolium</i> , bindweed <i>Calystegia</i> sp., garlic mustard <i>Alliaria petiolata</i> , forget-me-not <i>Myosotis</i> sp., common nettle, bugle <i>Ajuga reptans</i> , Himalayan balsam, three-cornered garlic <i>Allium triquetrum</i> , pendulous sedge, Abraham-Isaac-Jacob <i>Trachystemon orientalis</i> , cherry <i>Prunus avium</i> , hazel <i>Corylus avellana</i> , domestic apple <i>Malus domestica</i> , domestic plum <i>Prunus domestica</i> , and yew <i>Taxus baccata</i>	
Other neutral grassland	g3c	0.01 ha	Meadow foxtail, cock's-foot, rough meadow grass, red fescue, cuckooflower <i>Cardamine pratensis</i> , cow parsley <i>Anthriscus sylvestris</i> , soft brome <i>Bromus hordeaceus</i> , curled dock, common sorrel, cut-leaved crane's-bill, round-leaved crane's-bill, creeping buttercup, creeping thistle, common hogweed, and bindweed.	Site.
Sparsely vegetated land	u1f	0.01 ha	Yorkshire fog, cock's-foot, curled dock, creeping buttercup, creeping thistle, common hogweed, common nettle, and butterfly-bush <i>Buddleja davidii</i> .	Site.
Ditch	r50	0.05 m	None recorded.	Site.
Species-rich native hedgerow	h2a5	0.05 m	Lime <i>Tilia</i> sp., oak <i>Quercus robur</i> , hawthorn <i>Crataegus monogyna</i> , silver birch <i>Betula pendula</i> , hybrid black poplar <i>Populus x canadensis</i> , and bramble.	Site.

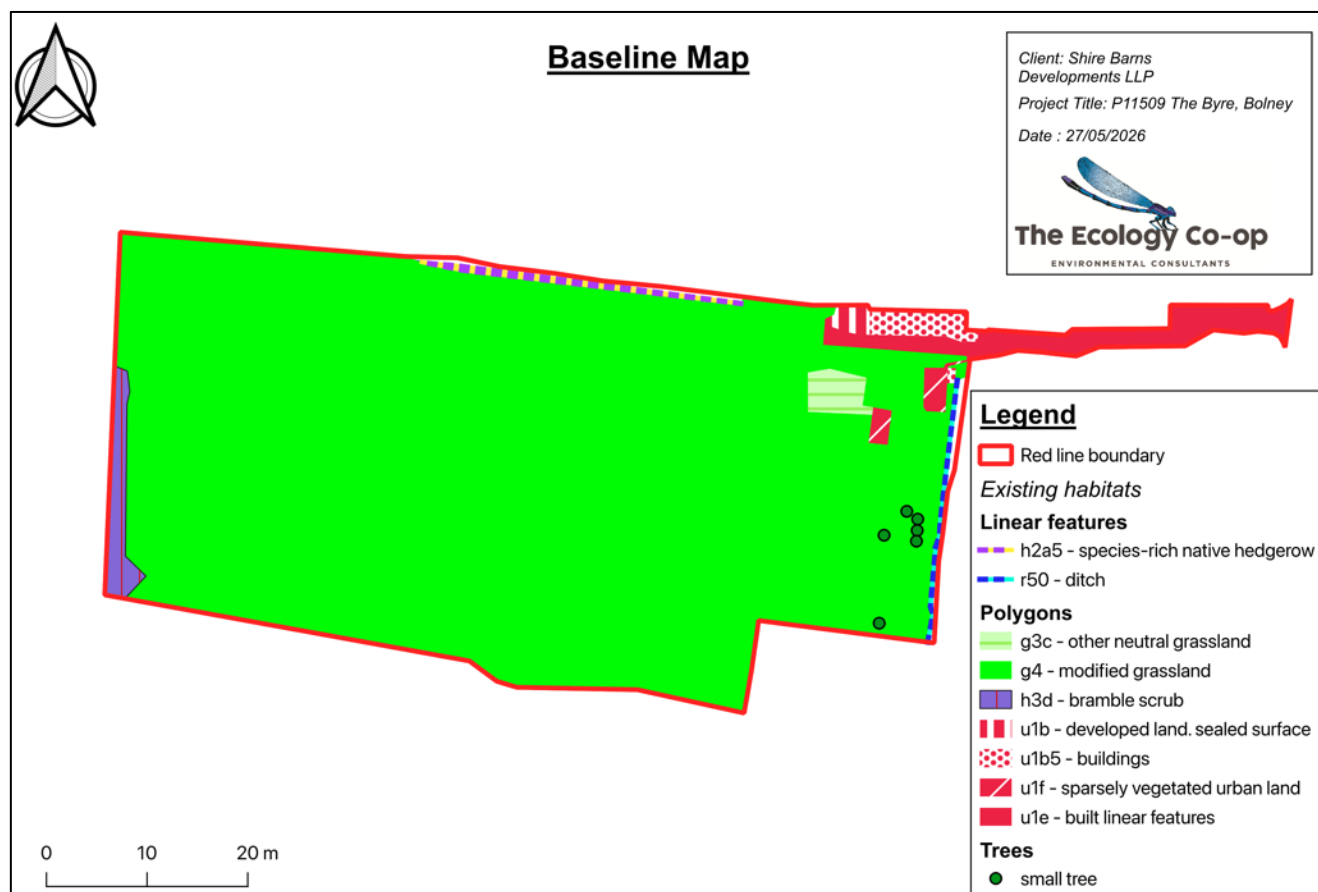


Figure 6. UKHAB map showing existing habitats within the site. The site boundary is indicated with a red line. Produced using QGIS software, version 3.44.9-Solothurn (LTR).



Photograph 1a (left) and 1b (right). The site viewed from the access road to the east (1a), and the main grassland area viewed from the east (right).



Photograph 2a (left) and 2b (right). The wet ditch along the eastern boundary (2a), and the area of marginal vegetation dominated by pendulous sedge and Himalayan balsam seedlings (2b).



Photograph 3a (left) and 3b (right). The small fruit trees viewed from the west (3a), and the southern hedgerow with trees beyond the site boundary (3b).



Photograph 4a (left) and 4b (right). The northern hedgerow, including the fallen hybrid black poplar (4a), and the compost/brash piles within the northern hedgerow (4b).



Photograph 5a (left) and 5b (right). The northeastern corner of the site, including building B4 and the other neutral grassland parcel (5a), and the bramble scrub along the western border with the deciduous woodland beyond (5b).



Photograph 6a (left) and 6b (right). The eastern (6a), and western gravel pits (6b).

3.2.2 Interpretation

The site supports a number of common and widespread habitats, the majority of which hold limited value beyond the site level. The modified grassland, sparsely vegetated gravel pits and bramble scrub are of limited botanical interest in their current condition and while the small area of other neutral grassland in the northeastern corner represents a marginally more diverse sward, its size and condition limit its biodiversity value. The eastern boundary ditch is shallow, still and supports no discernible marginal or emergent vegetation community and is heavily shaded. These habitats are therefore considered to be important at the **site** level only.

The principal ecological value of the site lies in the boundary hedgerows, though the southern hedgerow lies outside of the development boundary. These hedgerows and the trees within them provide connectivity between the adjacent mixed deciduous woodland to the west and the wider farmed landscape, and are considered to be of **local** importance. The adjacent woodland, whilst outside the site boundary, represents the most ecologically valuable habitat in the immediate vicinity of the site and is likely to represent a significant source of biodiversity interest for species utilising the site.



[REDACTED]

[REDACTED]

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

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]
[REDACTED]

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

3.4 Bats

3.4.1 Natural Roost Features – Trees

No potential roost features were identified on any of the trees within the site boundary, and the trees present are therefore considered to be of negligible suitability for roosting bats.

3.4.2 Built Structures

There are four buildings within the site boundary, these are concentrated in the northeastern corner and comprise a shed (B1), a Wendy house (B2), a wood store (B3) and a stable block (B4).

B1-3 are each of timber construction and measure approximately 1.5m (l) by 1.5m (w) by 2m (h), with boarded, felt-lined roofs. B4 is a timber-framed stable block with a corrugated metal roof and a combination of enclosed and open-fronted bays.

No potential roost features were identified on any of the buildings during the survey. B4 was inspected internally; no bat droppings or feeding remains were recorded, and the building is currently in use for storage. A gap was noted between the metal roof and the elevations of B4, though this was not considered to constitute a potential roost feature of significance.

3.4.3 Bat Activity Surveys – Walked Transects

Survey conditions and timings are presented in Table 4. The results of each walked transect survey is summarised in Figures 7-9. 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.

The September 2025 survey conducted by SLR recorded a total of 157 bat registrations were recorded across seven species or species groups during the survey. Common pipistrelle was the most frequently recorded species with 119 registrations, followed by *Myotis* sp. with 16 registrations and soprano pipistrelle *Pipistrellus pygmaeus* with 15 registrations. Barbastelle *Barbastella barbastellus*, *Nyctalus* sp., pipistrelle sp. and long-eared sp. were also recorded in low numbers. No roosts were recorded during the survey, and all bats appeared to be foraging or commuting. Full results shown in Table 5 and Figure 7.

The April 2026 survey was comparatively quiet, with only five bat registrations over the duration of the survey. Four of these attributed to commuting or foraging common pipistrelle, and one to a commuting *Myotis* sp. bat. Full results shown in Figure 8.

During the survey in June 2026, over 100 bat registrations were recorded attributable to five species or species groups. Four of these species were observed foraging relatively consistently for the duration of the survey, namely common and soprano pipistrelle, Leisler's and serotine. The records for Leisler's and serotine calls are consistent with one, possibly two individuals of each species. Additionally, a *Myotis* sp. bat was recorded and seen commuting through the site to fields further south. Full results shown in Figure 9.

Table 4. Walked transect metadata: dates, times, temperature, weather conditions.

Date	Survey start time/end time	Temp. degrees centigrade, weather conditions	Surveyors
24 th September 2025	18:50–20:54 Sunset: 18:54	Air temp: 12°C 37.5% cloud cover, light air, dry.	Jon Foster, MBiol, CIEEM Eva Booth, BSc, CIEEM
20 th April 2026	20:04-22:04 Sunset: 20:04	Air temp: 9°C 5% cloud cover, light air, dry.	Ben Small, MSc, CIEEM Andy Fry, MSci
16 th June 2026	21:10-23:25 Sunset: 21:15	Air temp: 6°C 80% cloud cover, light air, dry.	Ben Small, MSc, CIEEM Andy Fry, MSci

Table 5. Species recorded during the autumn night-time bat walkover survey conducted by SLR Consulting on the 24th September 2025.

Bat Species	No. of Registrations
Barbastelle	3
<i>Myotis</i> sp	16
<i>Nyctalus</i> sp	1
Pipistrelle sp	1
Common Pipistrelle	119
Soprano Pipistrelle	15
Long-eared sp	2
Grand Total	157



Figure 7. Recorded bat activity during the night-time bat walkover survey on the 24th September 2025, showing the transect route (orange dashed line), start (green square) and end (blue square), bat flight lines (blue arrows) and the placement of a static bat detector (orange triangle). This figure was taken from the SLR Interim Bat Report¹.

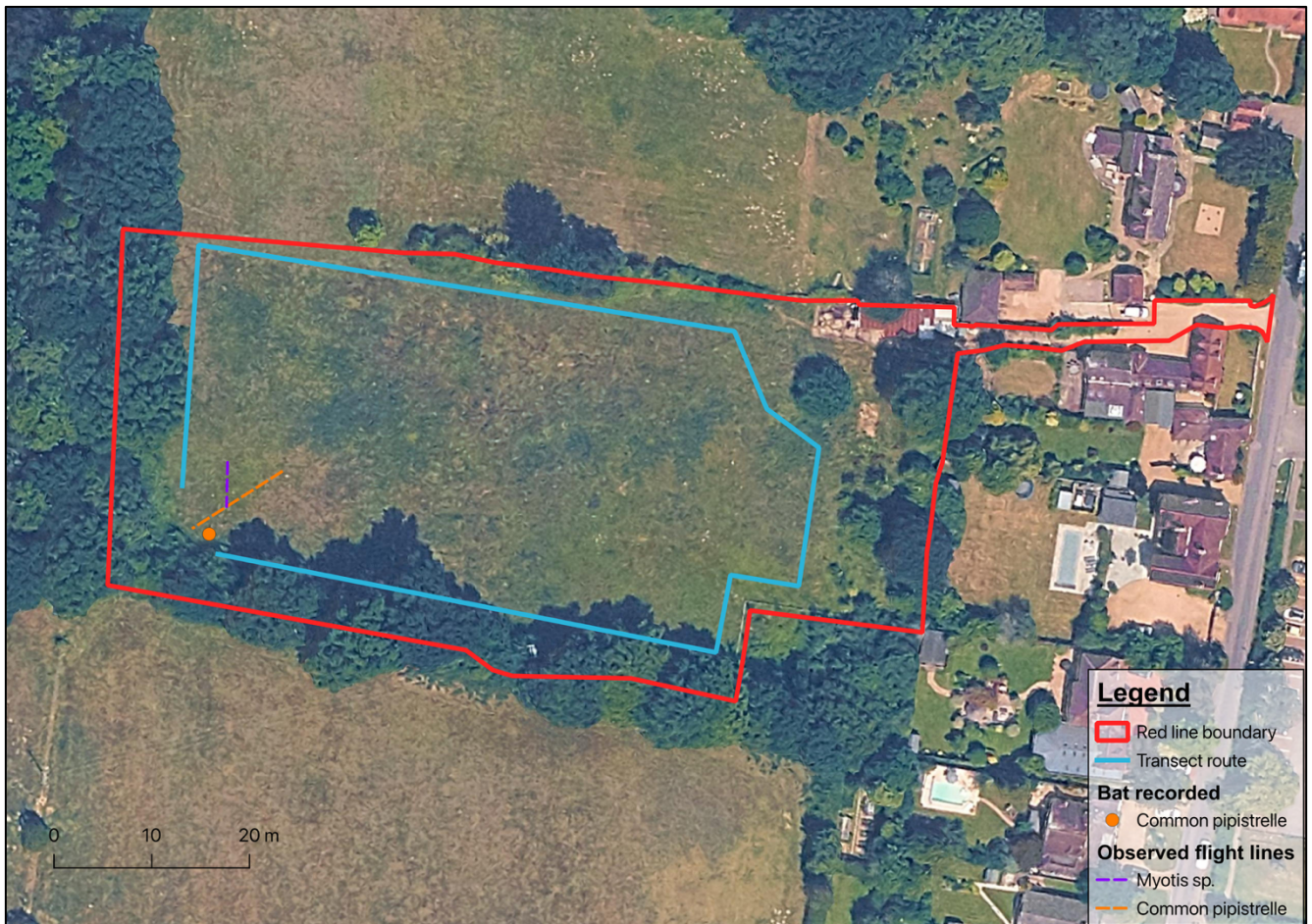


Figure 8. Recorded bat activity during the night-time bat walkover survey on the 20th April 2026.



Figure 9. Recorded bat activity during the night-time bat walkover survey on the 16th June 2026.

3.4.4 Bat Activity Surveys – Automated Static Bat Detecting

The results of the automated static bat detector surveys are summarised in Table 6. A single detector was placed along the northern boundary hedgerow during September 2025, May 2026 and the following June, with the September survey having been undertaken by SLR Consulting Ltd. Across all deployments, a total of eight bat species or species groups were recorded, with common pipistrelle and soprano pipistrelle the most frequently detected. Activity levels were notably higher during the autumn deployment, consistent with typical seasonal patterns. Barbastelle was recorded in low numbers during both the September and June logger deployments, as well as the SLR walked transect survey which is a notable finding given the species' conservation status. Records of brown long-eared bats were significantly more frequent during the June logger deployment than any static or walked activity survey prior.

Table 6. Mean number of passes recorded by each static detector (rounded to nearest whole number) per night.

Location	Date	Common pipistrelle	Soprano pipistrelle	Nathusius' pipistrelle	Brown long-eared	Barb.	Myotis sp.	Serotine	Noctule	Leisler's
Northern boundary (hedgerow)	September (5 nights)	168	297	1	1	1	6	2	1	1
	May (5 nights)	51	3	0	1	0	3	8	2	0
	June (5 nights)	25	5	0	40	1	8	12	5	16



3.4.5 Pre-existing Records

The SxBRC provided 17 bat records in the search area comprising 6 identified species. The number of records for each species is presented in Table 7.

Table 7. Number of pre-existing records of each bat species within 2 km of the site boundary

Species	No. of records
Common pipistrelle <i>Pipistrellus pipistrellus</i>	3
Soprano pipistrelle <i>Pipistrell pygmaeus</i>	2
Brown long-eared <i>Plecotus auritus</i>	6
Serotine <i>Eptesicus serotinus</i>	2
Noctule <i>Nyctalus noctule</i>	1
Leisler's <i>Nyctalus leisleri</i>	1
Unidentified bat species etc...	2

3.4.6 Interpretation

None of the buildings support features suitable for roosting bats.

The activity surveys have demonstrated that the habitats contained within the development site do support foraging bats, but in relatively low numbers, and are not sustained throughout the season. Bats are opportunistic and will exploit a range of habitats across the landscape in response to the rise and fall of insect populations. These surveys indicate that the habitats contained on the site are utilised intermittently as part of the wider landscape by common and widespread bat species.

The site supports a range of habitats of varying value to bats. The boundary hedgerows and adjacent woodland edge represent the most important features on site, providing both foraging habitat and commuting routes through the landscape. The northern boundary hedgerow in particular appears to function as a linear feature for common and soprano pipistrelles which were recorded in good numbers, connecting the residential development to the east with the broadleaved woodland to the west, albeit with a significant gap between the hedgerow and the woodland edge. The southern hedgerow similarly provides connectivity through the wider farmland. The open grassland within the site interior is of more limited value to foraging bats, though it may be exploited opportunistically during periods of high invertebrate activity.

The activity surveys recorded eight species or species groups across all three logger deployments and walked transects, reflecting a moderate diversity of bat species making use of the site and its immediate surroundings. The spring and summer walked transects recorded four species foraging primarily in the western portion of the site along the southern boundary hedgerow and woodland edge to the west, highlighting this junction as a locally important foraging and commuting hotspot. The most recorded species by far were common and soprano pipistrelle bats with most other species recorded in small numbers. The surge in brown long eared bat recordings during the summer static detector survey suggests that the site may have been used as a foraging site for a nearby maternity roost.

The recording of a small number of barbastelle during the summer and autumn surveys is a notable finding. Barbastelle is listed under Annex II of the Conservation of Habitats and Species Regulations 2017 and is a Species of Principal Importance under Section 41 of the Natural Environment and Rural Communities Act 2006.

The overall value of the bat assemblage at the Site is equal to a score of 20 which just meets the threshold for



county importance. This is partly due to the presence of Barbastelle. The low number of barbastelle recorded would suggest that this site is not of significant importance to the species.

Based upon the survey data, the site is considered to be of **local** importance to barbastelle, common pipistrelle and soprano pipistrelle bats based on the small scale of impact. The site is considered to be of **site** importance for brown long-eared, serotine, noctule, Leisler's bat and Nathusius' pipistrelle *Pipistrellus nathusii*.

Although the overall assemblage of bat species puts the site at a **county** level of importance for bats, the low numbers of several species including barbastelle, Leisler's bat and Nathusius' pipistrelle mean that in the context of the proposed development and its limited impact on boundary habitat, the development site is not considered to be important to bats beyond the **local level**.

3.5 Breeding Birds

3.5.1 Survey Results

The site offers limited breeding habitat for birds overall. The regularly mown and grazed grassland is not considered suitable for ground-nesting species, and the small ornamental and fruit trees scattered within the grassland are of limited value for nesting. The boundary hedgerows with associated trees represent the most valuable bird habitat on site, providing nesting opportunities and foraging habitat for a range of woodland edge and hedgerow species and these are being retained as part of the proposed plans.

3.5.2 Pre-existing Records

The SxBRC biodiversity records search indicates the presence of 103 bird species within 1km of the site. Of these 103, 25 are red listed Birds of Conservation Concern and 24 are amber listed.

3.5.3 Interpretation

Whilst several notable species are recorded in the wider area, the limited extent and diversity of suitable nesting and foraging habitat within the site boundary reduces the likelihood of the site supporting significant numbers of breeding birds.

As such, the development site is not considered to be important to breeding birds beyond the **local level**.

3.6 Dormice

3.6.1 Survey Results

The hedgerows and adjacent woodland have the potential to support hazel dormouse *Muscardinus avellanarius*, with some foodplants for dormice recorded in the hedgerows on site, although key species like hazel and honeysuckle *Lonicera periclymenum* are absent from the hedgerows. The northern hedgerow features several gaps, the largest of which is around 50m, which limits the connectivity of the hedgerow to the western woodland.

3.6.2 Pre-existing Records

The SxBRC provided two dormouse records in the search area. The closest of these was approximately 630m from the boundary of the site, dated 2015.



3.6.3 Interpretation

The PEA concluded that, whilst some suitable hedgerow and scrub habitat is present on site, the connectivity of this habitat to the wider landscape was not considered sufficient to support a viable dormouse population. In particular, the northern hedgerow features several gaps, the largest of which is around 50m, which limits the connectivity of the hedgerow to the western woodland.

As such, the development site is not considered to be important to dormice beyond the **site level**.

3.7 Great Crested Newts and Other Amphibians

3.7.1 Survey Results

While there are no ponds within the development boundary, there is a wet ditch on the eastern boundary. The desk study also identified seven ponds within 500m of the proposed development boundary, none of which could be accessed during the survey. The on-site ditch scored an HSI value of 'Below average' (see Table 8). Waterbodies with this score would not ordinarily be carried forward for eDNA, but given that no other nearby ponds could be assessed, and that the site lies within an amber risk zone, an eDNA sample was considered to be proportionate.

The eDNA survey tested negative.

Table 8. HSI assessment for the wet ditch on site.

SI attribute	SI value	Notes
Location	1.00	A
Pond area	0.1	300m ²
Pond permanence	0.1	Dries annually
Water quality	0.33	Poor
Shade cover	0.6	80%
Water-fowl	1	Absent
Fish presence	0.7	Absent
No. ponds	1.0	>30
Terrestrial habitat	1	Good
Macrophytes	0.5	20%
HSI value	0.54	'Below average'

3.7.2 Pre-existing Records

The SxBRC provided 19 amphibian records in the search area. This included two records for great crested newt, four records for smooth newt *Lissotriton vulgaris*, five records for palmate newt *Lissotriton Helvetica* and eight records for common frog *Rana temporaria*. The closest great crested newt record was at 955m from the boundary of the site, dated 2023.

3.7.3 Interpretation

Whilst the available evidence does not suggest that the site is likely to support a significant population of great crested newt, a definitive conclusion of negligible importance cannot be reached given that the seven waterbodies within 500 metres of the site, including a pond located approximately 50 metres from the site boundary, could not be assessed for suitability or surveyed for great crested newt presence. The presence of great crested newt in the wider landscape, therefore, cannot be fully discounted, and the site is considered to be of **site** importance to



this species on the basis of the available evidence and habitats present within the site.

With seven ponds within vicinity to the site that could not be surveyed, and with the site located in an amber risk zone, it means that this site would be best placed to apply for a District Licence through the NatureSpace Partnership. Registration with the DLL scheme would provide an appropriate and proportionate mechanism for managing any residual great crested newt risk through the planning process, negating the requirement for further pond-level survey.

The site also has the potential to support common toad due to favourable terrestrial habitat where the sward height is taller, as well as the wet ditch, although the ditch provides very limited aquatic habitat suitability and is unlikely to support breeding toads.

3.8 Reptiles

3.8.1 Survey Results

The survey findings, dates and conditions are presented in Figure 10 and Table 9 below.

The survey confirmed the presence of slow worm, with all individuals found towards the eastern end of the grassland habitat on site, specifically in or adjacent to areas unaffected by the recent mowing.

Table 9. Reptile survey results.

Date	Start time	Air temp. °C	Weather conditions	Results
5 th May 2026	9:18am	11°C	75%cc, BF2, dry	1 adult male slow worm
8 th May 2026	10:30am	15°C	40%cc, BF1, dry	1 adult male slow worm
11 th May 2026	3:02pm	13°C	85%cc, BF2, recently rained with patchy sun	No reptiles found
14 th May 2026	11:56am	12°C	60%cc, BF1, dry	1 adult male slow worm; 1 adult female; 1 juvenile
18 th May 2026	8:58am	11°C	80%cc, BF3, overcast but recently sunny	1 adult female slow worm
21 st May 2026	9:30am	15°C	10%cc, BF2, sunny	1 adult male slow worm
25 th May 2026	8:07am	19°C	0%cc, BF1, sunny	1 adult female slow worm

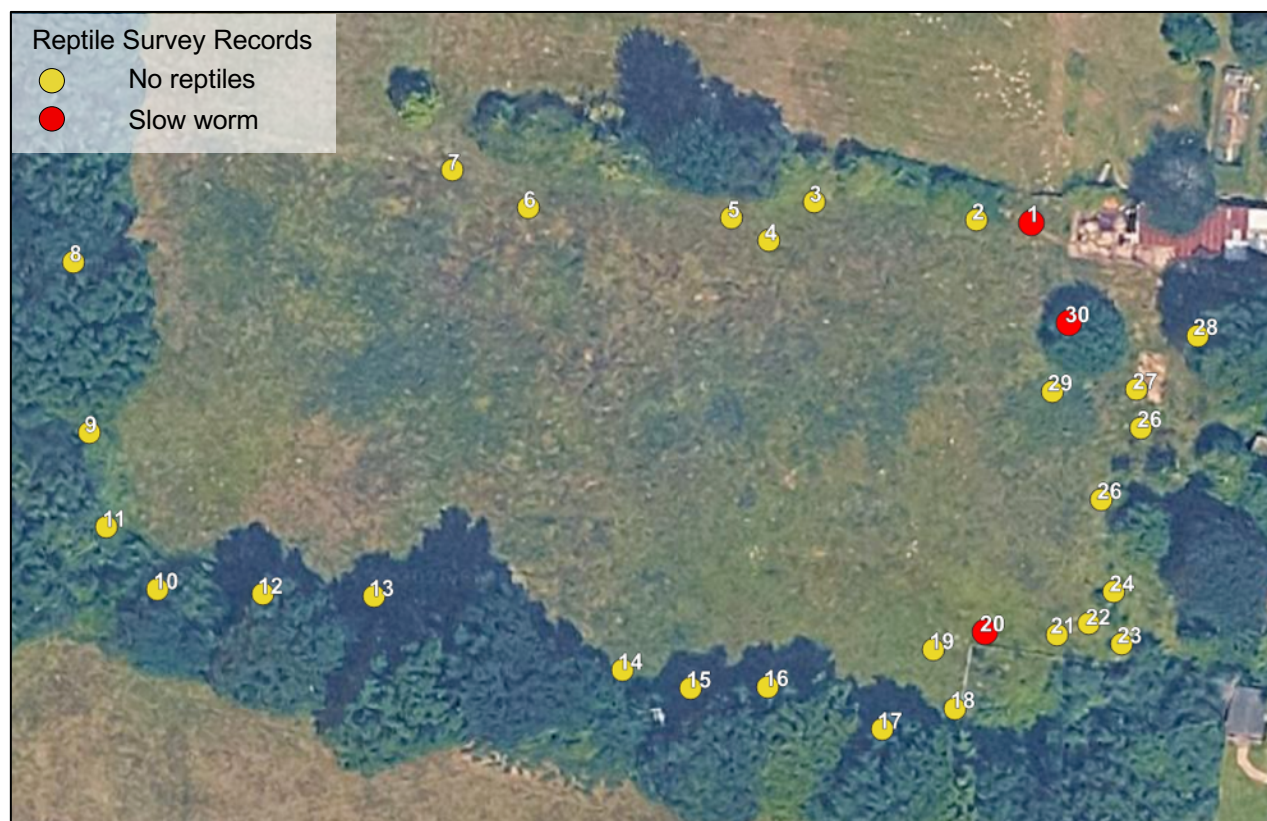


Figure 10. Reptile survey results. Yellow dots indicate refugia locations and, red dots indicate where reptiles were identified. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

3.8.2 Pre-existing Records

The SxBRC provided three reptile records in the search area. The closest of these was a slow worm at 510m from the boundary of the site, dated 1994.

3.8.3 Interpretation

All records of slow worm were concentrated within or adjacent to areas of grassland that were not mown prior to the deployment of reptile mats, which is to be expected given the reduced suitability of habitat outside of the eastern portion.

Slow worms are common and widespread species in south-east England and likely to be present in most areas of suitable habitat. Based on the numbers involved, the small extent of habitat and absence of other reptile species, the population contained within the development site is not considered important to common reptiles beyond the **local level**.

3.9 Other Notable Species

3.9.1 Survey Results

The hedgerows, woodland edge and taller grassland swards on site have the potential to support hedgehogs.

A number of NERC Section 41 butterfly and moth species could be supported on site owing to favourable habitats, including the small heath *Coenonympha pamphilus*, cinnabar *Tyria jacobaeae* and lackey *Malacosoma neustria*.



3.9.2 Pre-existing Records

The SxBRC provided four records of hedgehog in the search area. The closest of these was at 180m from the boundary of the site, dated 2003.

3.9.3 Interpretation

The site supports habitats considered suitable for hedgehog, including boundary hedgerows, bramble scrub, rough grassland and areas of deadwood, all of which provide foraging opportunities and potential nesting or hibernation sites. The connectivity of the site with the adjacent woodland and surrounding farmland further enhances its suitability as part of a wider foraging landscape. The site is considered to be of **local importance** to hedgehog.

The on-site habitats provide some value for a number of Section 41 moth species, particularly those associated with oak, hedgerow shrubs and common grassland species. Given the relatively small size of the site and the management of the grassland, the site is considered to be of **site importance** to moths.

3.10 Invasive Non-native Species

3.10.1 Survey Results

Himalayan balsam and three-cornered garlic were identified within the grassland in the east of the site, both of which are highly invasive and listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). Butterfly-bush *Buddleja davidii* was also noted within one of the gravel pits, which isn't listed under Schedule 9 but is known to be highly invasive. A number of cherry laurel *Prunus laurocerasus* trees were identified overhanging the western boundary from the adjacent woodland.

3.10.2 Pre-existing Records

The SxBRC data search indicates the presence of the following invasive non-native species within the search area:

- Mandarin duck *Aix galericulata*
- Canada goose *Branta canadensis*
- Wall cotoneaster *Cotoneaster horizontalis*
- New Zealand pigmyweed *Crassula helmsii*
- Montbretia *Crocasmia* × *crocosmiiflora*
- Harlequin ladybird *Harmonia axyridis*
- Himalayan balsam
- Least duckweed *Lemna minuta*
- Cherry laurel
- Winter heliotrope *Petasites pyrenaicus*
- Rhododendron *Rhododendron ponticum*
- Japanese knotweed *Reynoutria japonica*
- False-acacia *Robinia pseudoacacia*
- Grey squirrel *Sciurus carolinensis*
- Horse-chestnut leaf-miner *Cameraria ohridella*
- Gypsy moth *Lymantria dispar*
- Oak processionary *Thaumetopoea processionea*.



3.10.3 Interpretation

The site and its immediate surroundings support a number of invasive non-native species that pose varying degrees of ecological risk. Himalayan balsam and three-cornered garlic, both Schedule 9 listed species, are present within the site boundary and represent the most immediate management concern, with the ditch corridor providing a potential dispersal pathway into the wider watercourse network. Butterfly-bush has the potential to spread into disturbed ground and scrub habitats if left unmanaged. Cherry laurel, recorded overhanging the western boundary from the adjacent woodland, poses a longer-term risk of encroachment into the site and outcompeting native species for resources such as light.

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

4 IMPACT ASSESSMENT

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

This assessment is based on the draft site layout for the development, provided by the client, Shire Barns Developments LLP, dated 30th April 2026, dwg no. 327-P3.

The proposed scheme comprises the construction of five residential dwellings and the extension of the existing access road.

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

Construction:

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

Post construction/operation:

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



4.1 Designated Sites

4.1.1 Impact Characterisation

The High Weald National Landscape, which is 0.4km north of the site is considered to be outside the zone of influence given the small size and scale of the proposed development.

An increase of five residential dwellings is unlikely to significantly affect the designated feature in terms of increased recreational pressure.

4.1.2 Significance of Effects

Based on the above – with regards to the designated site – in the absence of mitigation the proposed development is considered to be not significant.

4.2 Habitats

4.2.1 Impact Characterisation

The development will result in the loss of modified and other neutral grassland, as well as a small bramble scrub belt on the western boundary. The northern hedgerow will be retained, along with the modified grassland associated with it, which will be enhanced to other neutral grassland. A 6m mixed scrub buffer is being planted along the western boundary with the adjacent woodland, and a 4m strip of modified grassland between the residential gardens and the southern boundary hedgerow will be enhanced to other neutral grassland. Although the boundary hedgerows are being retained, the proposed development could potentially have an adverse indirect impact through an increase in artificial lighting and an increased predation/disturbance from pets. During the construction phase, the retained boundary hedgerows and their associated trees are also at risk of indirect damage if not adequately protected, including root zone compaction from heavy machinery, dust deposition and physical damage to stems and branches. The adjacent deciduous woodland to the west, whilst outside the site boundary, could similarly be subject to indirect impacts during construction through disturbance and dust deposition, and its proximity to the development footprint should be considered in the design and implementation of construction phase mitigation measures.

4.2.2 Significance of Effects

In the absence of mitigation, the potential adverse indirect impacts on the hedgerow habitats are not considered to be significant beyond the **site level**.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



4.4 Bats

4.4.1 Impact Characterisation

None of the buildings/structures or trees present within the site support features that are suitable for roosting bats.

The proposed development has potential to result in disturbance to commuting and foraging bats, both during construction and in the long term after completion, through increased artificial lighting, disruption of commuting corridors and direct loss of the modified grassland habitat that could be a source of insect prey for bats.

4.4.2 Significance of Effects

The surveys indicate that the site is predominantly utilised by common and soprano pipistrelle bats, with barbastelle, Leisler's, serotine, and brown long-eared bats also recorded. Brown long-eared activity was notably elevated during June, consistent with foraging activity potentially associated with a nearby maternity roost. With all boundary habitats set to be retained and habitat buffers planted along the western and southern boundaries, the quality of foraging and commuting habitat along these features is expected to be maintained and enhanced following development. Therefore, in the absence of mitigation, the potential impacts of the proposal to bats using the site are not considered to be significant beyond **local** level.

4.5 Breeding Birds

4.5.1 Impact Characterisation

The boundary hedgerows provide the most value to nesting birds and these are being retained as part of the proposed development with potential to increase the available nesting bird habitat by planting up the gaps present with a range of native tree species.

The loss of modified and other neutral grassland and bramble scrub will result in a reduction in the extent of foraging and sheltering habitat available to birds on site. Whilst these habitats are of limited individual value, collectively they provide foraging opportunities for a range of farmland and generalist bird species. The loss of these habitats is considered to represent a minor adverse impact on birds.

The proposed development could result in adverse indirect impacts through increased noise and vibrations during the construction phase and increased lighting and cat predation during the operational phase.

4.5.2 Significance of Effects

In the absence of mitigation, the potential adverse indirect impacts on nesting birds are not considered to be significant beyond the **site level**. This is because the majority of habitat suitable for nesting birds is being retained.



4.6 Common Dormice

4.6.1 Impact Characterisation

Given the significant gaps present along the boundary hedgerow and the isolated nature of the habitat, it is considered unlikely that dormice are present. As the boundary habitats are being retained, any potential impacts would be from noise during the construction phase and increased lighting and cat predation during the operational phase.

4.6.2 Significance of Effects

With the hedgerows on site holding low suitability for dormice, and otherwise being retained, the impacts described above are considered to be minor and temporary in nature. Since the likelihood of dormouse presence is considered low and the boundary habitats are being retained and enhanced, the impact of this scheme on dormouse is not considered to be significant. In the absence of mitigation, the potential adverse indirect impacts on dormice are not considered to be significant beyond the **site level**.

4.7 Great Crested Newts and Other Amphibians

4.7.1 Impact Characterisation

There are no ponds within the development site and the ditch present returned a negative result for great crested newts. However, due to the lack of access to surrounding ponds, some of which are in close proximity, the possibility of the great crested newt using the site during their terrestrial phase cannot be ruled out. The development could therefore potentially result in the permanent loss of low value terrestrial habitat for this species.

In the absence of appropriate mitigation, there is a risk of direct harm to amphibians present on site during the clearance of grassland, scrub and other vegetation, through crushing or injury by machinery or hand tools. During the construction phase, open excavations represent a significant hazard to amphibians and other ground-dwelling species, which may fall in and be unable to escape.

4.7.2 Significance of Effects

The ditch on site returned a negative eDNA result for great crested newt and the site falls within an amber risk zone, the presence of waterbodies unable to be surveyed in close proximity means that the use of the site as terrestrial habitat by great crested newt cannot be entirely discounted. The permanent loss of low value terrestrial grassland habitat represents a minor adverse impact on this species. In the absence of mitigation, there is also a risk of direct harm to amphibians and other ground-dwelling species during vegetation clearance and groundworks.

However, given the negative eDNA survey result, the low habitat suitability of the ditch, and the availability of suitable terrestrial habitat in the wider landscape, the impact of this scheme on great crested newt is not considered to be significant beyond the site level.



4.8 Reptiles

4.8.1 Impact Characterisation

The development would result in the permanent loss of modified grassland that supports a low population of slow worms as part of a wider network of habitats. The construction phase could result in the death or injury of slow worms and the direct loss of habitat. In the operational phase, there could potentially be an increase in cat predation.

4.8.2 Significance of Effects

In the absence of mitigation and based on the low value terrestrial habitat and low population of slow worms found, the direct and permanent impact from the development is not considered to be significant beyond the **site level**. This is based on the large amount of suitable habitat adjacent to the site.

4.9 Other Notable Species

4.9.1 Impact Characterisation

Based on the low biodiversity value of most of the existing habitats that will be lost to the proposed development, in general it can be concluded that important populations of other notable species are unlikely to be present (Section 9.6.8) and no impacts are likely to occur.

However, based on pre-existing records the scheme has potential to impact on European hedgehog through habitat loss, though no evidence of this species was found during other survey fieldwork. Most of the existing habitat is sub-optimal for this species due to a lack of ground cover for resting hedgehogs, though the modified grassland habitat could potentially be used for foraging. This habitat 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.

4.9.2 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 areas (Warwick, H. (2016) Britain's Hedgehogs: research and the conservation effort in the face of serious decline. British wildlife Vol. 28, pp78-86). There is a high degree of uncertainty of impacts occurring but based on the relatively low habitat quality contained on the site for hedgehogs, the proposed scheme is unlikely to result in impacts that are significant beyond **local level**.

4.10 Invasive Non-native Species

4.10.1 Impact Characterisation

Himalayan balsam is a non-native and invasive species and if it is not removed it would continue to spread across the site and potentially into the wider landscape by outcompeting native plants. Under Schedule 9 of the Wildlife and Countryside Act it is an offence to intentionally or recklessly cause the spread of this plant and therefore its eradication is essential by a specialist in schedule 9 removal.



Three cornered garlic is also a Schedule 9 plant and its eradication would be required as part of the proposed development.

4.10.2 Significance of Effects

In the absence of invasive species being removed as part of the proposal, there is a risk of these species spreading further across the site and into land outside of the site which would be an offence under Schedule 9 of the WCA 1981. The spread of these species unchecked would likely have an adverse effect on ecology, significant at the **local level**.

5 MITIGATION PROPOSALS

5.1 Habitats

5.1.1 Impact Avoidance

The development has been designed to ensure that the boundary habitat is retained.

5.1.2 Mitigation Measures

To protect the boundary habitat from accidental damage during the construction phase, heras fencing must be positioned along the north, west and south boundaries adhering to root protection zones.

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

5.1.3 Residual Effects

The proposed development will still result in the loss of the majority of modified grassland from the site as well as a small amount of scrub habitat. This effect is considered to be significant at the site level.

5.1.4 Compensation Measures

The loss of scrub will be compensated for through planting up the existing gaps in the boundary hedgerow with a range of native trees and scrub, and a 6m native mixed scrub buffer will be established along the western boundary. Two areas of modified grassland will be retained and enhanced to other neutral grassland to compensate for the modified grassland being lost.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

5.3 Bats

5.3.1 Impact Avoidance

The boundary habitats are being retained as part of the development design which provide the most value to foraging and commuting bats across the site.

5.3.2 Mitigation Measures

It is important that the proposed scheme incorporates a 'sensitive lighting plan' developed as part of the detailed design, in accordance with guidelines set out by the Bat Conservation Trust. (summarised in Appendix 8). This should include measures to create 'dark corridors' along the retained boundary habitats, and measures to minimize light spill onto all semi-natural habitats. All street lighting should be directed downwards and use light sources that are not attractive to insects. Reflective white line marking should be used in preference to artificial lighting in all non-essential applications.

5.3.3 Residual Effects

The proposed development would still result in the loss of low value modified grassland which could form part of the prey resource for bats. The residual effect is assessed as significant for bats at a **site level**.

5.3.4 Compensation Measures

The gaps along the boundary hedgerows are to be planted up with native species-rich trees and scrub to provide better connectivity and an increase in foraging and commuting habitat. In addition 0.038ha of native mixed scrub



will be created along the western boundary providing more foraging habitat and strengthening a potential corridor for movement.

5.4 Breeding Birds

5.4.1 Impact Avoidance

The boundary habitats are being retained as part of the development design.

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

5.4.2 Mitigation Measures

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

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

5.4.3 Residual Effects

A small amount of nesting bird habitat in the form of bramble scrub will be lost as part of the proposed development and there could be a slight increased predation risk due to the potential increase of cats on site.

The residual effect is assessed as significant for breeding birds at a **site level**.

5.4.4 Compensation Measures

The loss of nesting bird habitat would be adequately compensated for through the planting up of the gaps along the boundary habitats measuring approximately 0.56km in total, and the establishment of a native mixed scrub buffer between the site and the adjacent woodland to the west.

5.5 Common Dormouse

5.5.1 Impact Avoidance

The boundary habitats are being retained as part of the development design.

5.5.2 Mitigation Measures

Although it is considered unlikely that dormice would be present on site, the mitigation measures implemented for bats and breeding birds with regards to lighting would also reduce any potential indirect impacts on dormice should they be present.

5.5.3 Residual Effects

There are no residual effects.



5.5.4 Compensation Measures

No compensation measures are required. The planting up of the gaps in the boundary habitat and planned mixed scrub buffer will provide an increase in dormouse habitat and improve connectivity for this species and thus increase the suitability of the site post development.

5.6 Great Crested Newts and Other Amphibians

5.6.1 Impact Avoidance

There are no ponds on site, and the ditch on the eastern boundary is set to be retained, therefore no breeding habitat for great crested newts will be impacted by the development.

5.6.2 Mitigation Measures

The proposed development does not require mitigation under an EPS licence. However, the presence of the occasional individual great crested newt cannot be completely discounted and therefore it is recommended that the scheme proceeds under a District Licence sought through the NatureSpace Partnership, who are the delivery partner for East Sussex under this licensing scheme. They would assess the potential impact to great crested newts from the proposed development using a Natural England approved metric. A fee is calculated to provide compensation towards great crested newt conservation which would help to deliver a long-term, landscape-scale, great crested newt conservation strategy and does not focus on intensive trapping and translocation of individual newts, though reasonable avoidance measures are applied to minimise mortality where reasonably possible.

Given the small scale of the project and because several ponds in close proximity to the site couldn't be assessed at all, it is recommended that a District Level Licence is applied for.

5.6.3 Residual Effects

There will be a permanent loss of low value terrestrial habitat in the form of modified grassland resulting in a residual effect that is significant at **site level**.

5.6.4 Compensation Measures

Two areas of modified grassland will be retained and enhanced to other neutral grassland to compensate for the modified grassland being lost and an area of native mixed scrub will be created along the western boundary which will provide additional shelter and foraging habitat for this species. Post development the large residential gardens would provide the same value of habitat as the existing modified grassland in the event that great crested newts are present in the local area.

5.7 Reptiles

5.7.1 Impact Avoidance

The majority of the modified grassland on site will be permanently lost as part of the proposed development and this impact is unavoidable.

5.7.2 Mitigation Measures

Due to the low levels of reptiles identified during the survey, a full trapping and translocation is not deemed



necessary. Instead, two areas of modified grassland along the north and southern boundaries of the site will be enhanced to other neutral grassland and will be used as on-site receptor areas to be fenced off after a two phase strimming exercise has been completed under ecological supervision and during the construction period.

Instead of trapping, habitat manipulation in the form of a two-phased strim will be completed starting in the centre of the site and working both north and south towards the areas to be enhanced into other neutral grassland. The two phase strim consists of an initial strim where grass is strimmed down to no lower than 10cm in height, working from south to north. The area will then be walked over and a finger tip search conducted with any reptiles found relocated into the enhanced areas. The following day, a second strim will be conducted reducing the sward height to 5cm or lower moving from the centre both south and north. Once the two phase strim has been completed, the grassland area along the northern boundary and southern boundary to be enhanced to other neutral grassland will be fenced using reptile proof fencing to prevent any individuals from re-entering the construction zone.

Once the construction period has been completed and the residential gardens have been created, the reptile fencing can be removed allowing individuals to move back out across the site and into the residential gardens which provide as much value, if not more, than the existing modified grassland habitat.

5.7.3 Residual Effects

The development will still result in the loss of an area of modified grassland during the construction phase. The residual effect is assessed as significant for reptiles at a **site level**.

5.7.4 Compensation Measures

Two areas of modified grassland will be retained and enhanced to other neutral grassland to compensate for the modified grassland being lost. Post construction, the residential gardens are likely to provide similar ecological value to the existing modified grassland. An area of native mixed scrub will be created along the western boundary which will provide additional shelter and foraging habitat for this species

5.8 Other Notable Species

5.8.1 Impact Avoidance

All boundary habitats are being retained as part of the development design.

5.8.2 Mitigation Measures

All excavations must be covered at night to prevent hedgehogs from falling into any pits and failing that an escape mechanism such as a wooden plank should be provided to allow hedgehogs (and other wildlife) to climb out.

All new garden fencing should contain accessible gaps (10cm x 15cm) at their base to allow movement of hedgehogs between garden plots.

Retained hedgerows / tree lines would be strengthened where possible to provide safe wildlife corridors for hedgehogs.

5.8.3 Residual Effects

No significant residual effects identified.



5.8.4 Compensation Measures

No compensation measures required.

5.9 Invasive Non-native Species

5.9.1 Impact Avoidance

Impacts resulting from non-native species would be avoided through the removal of these and through the adoption of native planting schemes. Seed mixes and tree/shrub planting schemes would be detailed within a site-wide Landscape and Ecology Management Plan (LEMP).

All Schedule 9 species must be removed by a specialist company to ensure they are removed and disposed of correctly.

5.9.2 Mitigation Measures

A future construction traffic strategy must include careful measures to ensure that vehicles arriving and leaving the site are subject to appropriate wheel washes and cleaning measures that remove earth and debris that may contain seeds or plant material that could otherwise cause the spread of invasive species.

5.9.3 Residual Effects

Following the removal of all non-native species from the site, there would be a positive impact at site level.

5.9.4 Compensation Measures

None required.

6 BIODIVERSITY ENHANCEMENTS

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

6.1 Bats

It is recommended that at least three bat boxes are erected onto retained semi-mature/mature trees to provide an increase in bat roosting habitat.

6.2 Nesting Birds

It is recommended that at least three bat boxes are erected onto the new residential properties or retained semi-mature/mature trees to provide an increase in bird nesting features.



6.3 Amphibians and Reptiles

A single hibernaculum is recommended to be built within the grassland area to the north which is to be enhanced and retained to provide additional shelter and foraging habitat for amphibians and reptiles. These structures can be built using logs, piled on top of each other within a stripped area of turf approximately 50cm deep with earth. Soil material, grass cuttings, brash and leaf litter or other suitable natural material should be laid over the top to provide insulation and retain moisture (Figure 11). This feature would also provide benefits for other species including solitary bees, wasps and saproxylic insects.

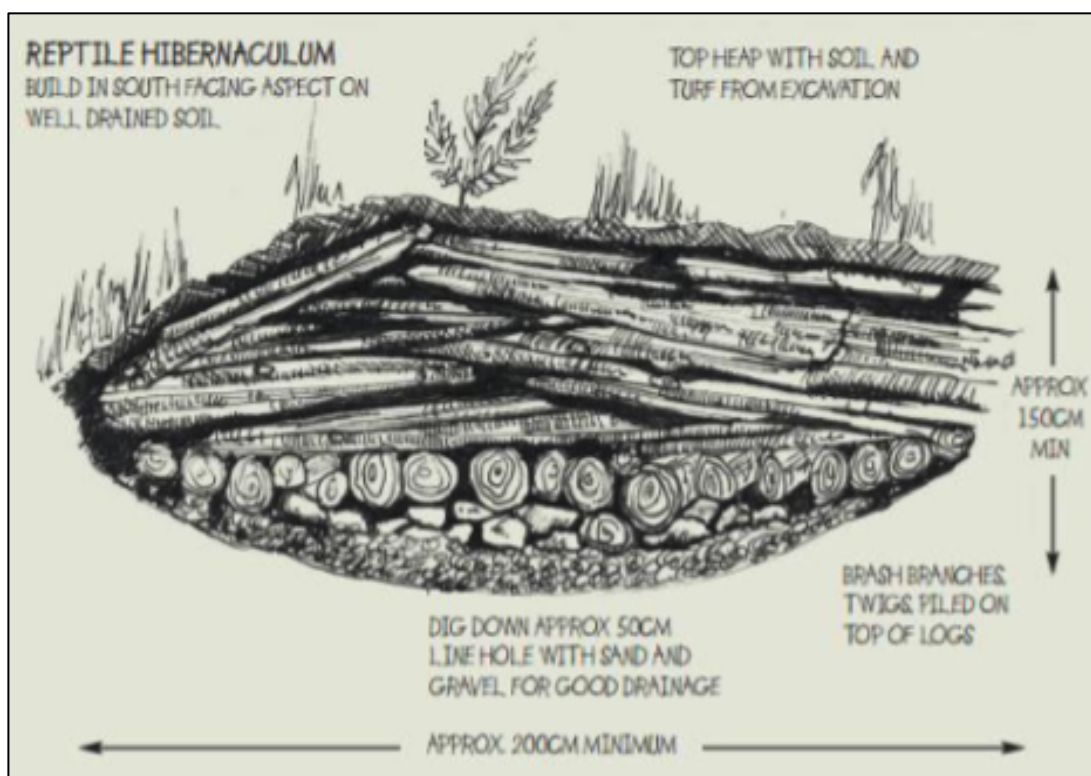


Figure 11. Illustration on how to build a reptile hibernaculum. Image taken from the 'Reptile Habitat Management Guidelines' by Herefordshire Amphibian and Reptile Team and the Herefordshire Nature Trust.

7 CONCLUSIONS

A summary of the EcIA process is presented in Table 10 below.

Table 10. EcIA summary table

Ecological feature	Importance	Impact characterisation	Level of significance	Avoidance/Mitigation	Residual effects	Compensation
The High Weald	National	Outside zone of influence given size and scale of project.	No likely significant effects	None required	No likely significant effects	None required or provide details
Priority habitat – hedgerow	Local	Indirect impact through artificial lighting. Construction phase impacts including root compaction, dust	Site	Heras fencing must be positioned along the north, west and south boundaries adhering to root	Loss of the majority of modified grassland from the site as well as a small	The loss of scrub will be compensated for through planting up the existing gaps in the boundary hedgerow with a



Ecological feature	Importance	Impact characterisation	Level of significance	Avoidance/Mitigation	Residual effects	Compensation
		deposition and physical damage to stems and trunks.		protection zones. Industry standard construction methods	amount of scrub habitat.	range of native trees and scrub
Modified grassland	Site	Direct permanent loss	Site	Loss cannot be avoided	Loss of modified grassland	Two areas of modified grassland will be retained and enhanced to other neutral grassland to compensate for the modified grassland being lost
Foraging and commuting bats	Local	Boundary habitat retained. increased artificial lighting, disruption of commuting corridors and direct loss of the modified grassland habitat.	Local	The boundary habitats are being retained as part of the development design which provide the most value to foraging and commuting bats across the site. proposed scheme incorporates a 'sensitive lighting plan' developed as part of the detailed design, in accordance with guidelines set out by the Bat Conservation Trust.	Site - proposed development would still result in the loss of low value modified grassland which could form part of the prey resource for bats.	The gaps along the boundary hedgerows are to be planted up with native species-rich trees and scrub planting to provide better connectivity and an increase in foraging and commuting habitat In addition 0.038ha of native mixed scrub will be created along the western boundary.
Breeding birds	Local	Boundary habitats provide highest value are retained. Small loss of bramble scrub.	site	Any vegetation removal should only be undertaken outside of the breeding bird season (avoiding March–August inclusive). Heras fencing must be erected to protect all retained nesting bird habitat from	Site – small amount bramble scrub will be lost	Loss of nesting bird habitat would be adequately compensated for through the planting up of the gaps along the boundary habitats measuring approximately 0.56km in total. In addition 0.038ha of native mixed scrub will be



Ecological feature	Importance	Impact characterisation	Level of significance	Avoidance/Mitigation	Residual effects	Compensation
				indirect impacts such as accidental damage from machinery and to limit the amount of disturbance during the construction phase		created along the western boundary.
Common dormouse population	site	Increase in artificial lighting.	Site	Although it is considered unlikely that dormice would be present on site, the mitigation measures implemented for bats and breeding birds with regards to lighting would also reduce any potential indirect impacts on dormice should they be present.	There are no residual effects.	No compensation measures are required
Great crested newts	Uncertain; local	No ponds within the development site and the ditch present returned a negative result. Lack of access to surrounding ponds. permanent loss of low value terrestrial habitat. Potential physical harm during vegetation clearance and entrapment during excavation.	Uncertain - site	the presence of the occasional individual great crested newt cannot be completely discounted and therefore it is recommended that the scheme proceeds under a District Licence may be sought through the NatureSpace Partnership.	Permanent loss of low value terrestrial habitat in the form of modified grassland resulting in a residual effect that is significant at site level.	Two small areas of modified grassland will be enhanced to other neutral and post development the large residential gardens would provide the same value of habitat as the existing modified grassland in the event that great crested newts are present in the local area
Common reptiles	Site	Permanent loss of modified grassland that supports a low population of slow worms as part of a wider network of habitats.	Site	Due to the low levels of reptiles identified during the survey, a full trapping and translocation is not deemed necessary. Instead, an area of modified grassland along the north boundary of the site will be enhanced to other neutral grassland and will be used as an on-site receptor area to	The development will still result in the loss of an area of modified grassland during the construction phase	Two small areas of modified grassland will be enhanced to other neutral and post construction, the residential gardens are likely to provide similar ecological value to the existing modified grassland.



Ecological feature	Importance	Impact characterisation	Level of significance	Avoidance/Mitigation	Residual effects	Compensation
				be fenced off after the two phase strimming has been completed and during the construction period.		
Other notable species: European hedgehog	Uncertain; local	Risk of direct harm to hedgehogs during construction activities, 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.	Uncertain; local	All excavations must be covered at night to prevent hedgehogs from falling into any pits, or failing that an escape mechanism such as a wooden plank should be provided to allow hedgehogs (and other wildlife) to climb out. All new garden fencing should contain accessible gaps (10cm x 15cm) at their base to allow movement of hedgehogs between garden plots.	No significant residual effects identified	No compensation measures required.
Invasive non-native species	Local	Himalayan balsam and three cornered garlic could spread if not removed	Local	Impacts resulting from non-native species would be avoided through the removal of these in non-native species and through the adoption of native planting schemes.	Following the removal of all non-native species from the site, there would be a positive impact at site level	None required



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, otter *Lutra lutra* and great crested newts 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)¹¹ 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 *Reynoutria japonica*, Himalayan balsam *Impatiens glandifera*, New Zealand Pygmyweed *Crassula helmsii*).

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

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

¹¹ Wildlife and Countryside Act (WCA) (1981). HMSO London.



The NERC Act (2006)¹² 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.

[REDACTED]

[REDACTED]

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

[REDACTED]

National Planning Policy Framework

The National Planning Policy Framework (NPPF 2024)¹⁴ 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 192b, states that council plans should “*promote the conservation, restoration and enhancement of*

¹² Natural Environment and Rural Communities Act (2006). HMSO London.

¹³ [REDACTED]

¹⁴ HM Government (2024). National Planning Policy Framework. Department for Communities and Local Government. Available online at: <https://assets.publishing.service.gov.uk/media/675abd214cbda57cacd3476e/NPPF-December-2024.pdf>.



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)¹⁵. 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)¹⁶, and a progress update was provided in July 2013 (Defra 2013)¹⁷.

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

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

Birds of Conservation Concern (BoCC)

In 1996, the UK's leading non-governmental bird conservation organisations reviewed the conservation status of all bird species in the UK against a series of criteria relating to their population size, trends and relative importance to global conservation. The lists, known as the 'Red', 'Amber' and 'Green' lists (in order of decreasing concern) are used to inform key conservation policy and decisions. The lists are reviewed every five years and are a useful reference for determining the current importance of a particular site for birds. The most recent review was undertaken in 2021¹⁸ (Stanbury et al, 2015), which provides an up to date assessment of the conservation status of birds in the UK.

¹⁵ 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.

¹⁶ 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>.

¹⁷ Defra (2013) Progress Update. Available at: <https://www.gov.uk/government/publications/biodiversity-2020-simple-guide-and-progress-update-july-2013>.

¹⁸ Stanbury, A., Eaton, M., Aebischer, N., Balmer, N., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). Birds of Conservation Concern 5: the status of bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man. *British Birds* 114, pp 723-747.



APPENDIX 2 – LOCAL PLANNING POLICY

Table 1. Biodiversity policy taken from Mid Sussex District Council Local Plan 2014-2031 (March 2018)

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



APPENDIX 3 - IMPORTANCE OF ECOLOGICAL FEATURES

Table 1. Determining importance of an ecological feature.

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



APPENDIX 4 - 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 Trust¹⁹ should be referred to when designing the lighting scheme. Note that lighting designs in very sensitive areas should be created with consultation from an ecologist and using up-to-date bat activity data where possible. The guidance contains techniques that can be used on all sites, whether a small domestic project or larger mixed-use, commercial or infrastructure development. This includes the following measures:

Avoid lighting key habitats and features altogether

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

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

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

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

¹⁹ Bat Conservation Trust and Institute for Lighting Professionals (2023) Guidance note 08/23. Bats and Artificial Lighting. <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>



commuting habitat or foraging habitat could result in appropriate compensation for any such habitat being lost to the development;

- dimming and part-night lighting. Depending on the pattern of bat activity across the key features identified on site it may be appropriate for an element of on-site lighting to be controlled either diurnally, seasonally or according to human activity. A control management system can be used to dim (typically to 25% or less) or turn off groups of lights when not in use.

Demonstrate compliance with illuminance limits and buffers

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

Lighting Fixture Specifications

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

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

Further reading:

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

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

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

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

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



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

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