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Ecological Impact Assessment

Site Name

Land North of Borers Arms Road, Copthorne

Client

Fairfax Acquisitions Ltd.

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Authors

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REV01	Emma Baker BSc (Hons), MSc, MCIEEM	Paul Whitby MCIEEM, CEcol	30th October 2025	Change to site layout and site name	

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About the Authors

This document has been authored by Kate Priestman, who is a Principal Ecologist with over twenty years' experience. Kate has undertaken numerous protected species and habitat surveys, and prepared a wide variety of reporting deliverables, and 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

Isabella Friar, an assistant ecologist at The Ecology Co-op provided support with methodology and baseline sections and managing data, preparing figures and tables. Bella has supported bat emergence and activity surveys, reptile surveys, dormouse surveys, bat scoping's, bat scoping reports, Preliminary Ecological Appraisals and prepared the Biodiversity Impact Report for this scheme.

About the Reviewers

This EcIA has been overseen and reviewed by Dan Bennett, a Principal Ecologist with over 20 years' experience as a professional ecologist. Dan holds survey licences for bats, dormice, great crested newts and white-clawed crayfish. He has prepared impact assessments, designed mitigation strategies and successfully applied for European Protected Species Licences on these species for numerous projects. As a Full member of the Chartered Institute for Ecology and Environmental Management (CIEEM), he is bound by their code of professional conduct.

This EcIA has been further reviewed by Paul Whiby, the Managing Director at the Ecology Co-op, who has 19 years experience as a professional ecologist. Paul holds survey licenses for bats, great crested newts and dormice and has experience completing Ecoloogical Impact Assessments for a range of developments. As a Full member of the Chartered Institute for Ecology and Environmental Management (CIEEM) and as a Chartered Ecologist through the Instiutute, he is bound by their code of professional conduct.

Report Summary

Background	The Ecology Co-op has been commissioned by Fairfax Acquisitions Ltd to undertake an Ecological Impact Assessment for a proposed development on land at Land North of Borers Arms Road, Copthorne. Following an Extended Phase 1 Survey undertaken in October 2016 by AEWC, baseline ecological surveys were initially undertaken by The Ecology Co-op in 2018 and 2019, including breeding bird surveys, botanical walkover surveys, bat activity surveys, and presence/absence surveys for common dormouse, common reptiles and great crested newts. A draft Ecological Impact Assessment (EcIA) was prepared together with a preliminary 'Biodiversity Net Gain Calculation' in 2019, for an outline development scheme. The proposed layout has been through several design alterations since that date and The Ecology Co-op were commissioned to update the impact assessment and biodiversity net gain calculation in February 2023, based on the current proposal. To provide sufficient baseline information for this assessment, the ecological surveys were repeated between February and October 2023 as management and habitat condition has changed in the intervening period.
Purpose	The current proposal is for the demolition of an existing commercial building, the erection of up to 260 dwellings, up to 1,700sqm of employment floorspace, car parking, associated landscaping, open space, and associated development works, with access from Copthorne Bank and Borers Arms Road. This document presents the findings of the survey information to date and provides an updated full EcIA in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines to inform a planning application for that proposal.
Context	Land North of Borers Arms Road is located to the north of Copthorne, on the Sussex/Surrey border, near to Crawley and Gatwick airport. The proposed development site occupies two distinctly different areas; 'Copthorne Bank', which is located at the western end of the development site and consists of modified grassland horse paddocks, and 'Land North of Borers Arms Road', which forms the bulk of the site and comprises seven grassland field parcels divided by lines of mature trees. Land North of Borers Arms Road falls within the Copthorne Meadows Site of Nature Conservation Interest (SNCI) designated for lowland meadow priority habitat with a botanically rich sward on neutral to slightly acid clay soils. The original surveys in 2018 revealed a mosaic of grassland types from 'improved grassland' at Copthorne Bank through 'poor semi-improved grassland' and 'semi-improved grassland' to 'unimproved neutral grassland' towards the east. Land North of Borers Arms Road had apparently been left unmanaged for several decades, allowing scrub to invade and the botanical interest of the sward is likely to have deteriorated as a result. However, since 2018 all year-round grazing by horses has been introduced and areas of scrub encroachment have been removed.
Impact on Protected Species	The combined surveys recorded presence of dormouse, [redacted] grass snakes and common lizard. The site supports an assemblage of foraging common species of bat and a breeding bird assemblage comprising largely common and widespread species. Great crested newts are unlikely to be present upon the site. Land North of Borers Arms Road does not support large populations of protected species, important at no more than local level, but mitigation will be required to prevent harm to these species and ensure compliance with legislation.
Impact on Habitats	The current proposed development involves construction of residential housing on Copthorne Bank and the western half of Land North of Borers Arms Road. The development will result in the direct loss of more than a third of the total area of the SNCI and the demolition of one industrial building to form an access into the site. This will mean the permanent loss of a significant proportion of the grassland mosaic, but the scheme layout retains the existing mature treelines and the more botanically important field parcels towards the east. Three separate parcels of land immediately to the north-east and east of Land North of Borers Arms Road have been brought into the scheme as compensation for

	the loss of grassland habitat. These are currently part of the Copthorne Meadows SNCI but due to lack of appropriate management have deteriorated in condition. These areas will be restored and managed for wildlife conservation.
Biodiversity Net Gain	In February 2024, it became a mandatory requirement that all developments must deliver a minimum of '10% Biodiversity Net Gain' under the Environment Act 2021. This ensures that habitats for wildlife are left in a measurably better state than they were before the development. This scheme will be accompanied by a separate Biodiversity Impact Calculation and report, which should be read in conjunction with this document.

CONTENTS PAGE

1 INTRODUCTION

1.1 Background

The Ecology Co-op was commissioned by Fairfax Acquisitions Ltd to undertake an Ecological Impact Assessment (EcIA) of Land North of Borers Arms Road. This report presents the findings of baseline ecological surveys and desk-study research and assesses the likely impacts and significance of effects of the proposed works in relation to protected/notable species, habitats and designated sites.

The overall site measures 31.68ha including the development and compensation areas and is situated to the north of the settlement of Copthorne in Surrey, close to the East Sussex border. The postcode for the site is RH10 3JE, and the central grid reference for the site is TQ 3238 3970.
Figure 1. An aerial image showing the location of the site. The approximate development site boundary is outlined in red and the proposed areas for habitat compensation are outlined in blue. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).
shows the boundary of the site and local context. The town of Crawley and Gatwick Airport lie approximately 2km to the west of the site.

The proposed development site occupies two distinctly different areas (Figure 1). The first area to the west comprises an L-shaped area of grassland, heavily grazed by horses, known as 'Copthorne Bank'. This area is divided into paddocks by stock fencing and is bordered by lines of mature trees. The second, larger area to the east known as 'Land North of Borers Arms Road' comprises seven separate grassland meadow parcels separated by lines of mature trees. Land North of Borers Arms Road forms part of the non-statutory designated site, Copthorne Meadows Site of Nature Conservation Interest (SNCI). To the south, the site is bordered by residential and light industrial developed land forming the edge of Copthorne. The northern boundary is marked by Clay Hall Lane, a small rural cul-de-sac leading to Land North of Borers Arms Road. The surrounding land use to the north, east and west is more rural in character comprising mostly pasture with small field sizes and mature hedgerows, dotted with small blocks of woodland and scrub. Larger arable fields exist towards the west.

The proposed scheme comprises the demolition of an existing commercial building, the erection of up to 260 dwellings, up to 1,700sqm of employment floorspace, car parking, associated landscaping, open space, and associated development works, with access from Copthorne Bank and Borers Arms Road. The current layout (**Error! Reference source not found.**) shows two access routes into the site: one via Copthorne Bank Road to the west, and the other through an area of light industrial units off Borer's Arms Road to the south.

AEWC undertook an extended Phase 1 survey of land at Land North of Borers Arms Road in October 2016[1]. A Preliminary Ecological Appraisal (PEA)[2] of Copthorne Bank was carried out by The Ecology Co-op in

[1] Animal Ecology and Wildlife Consultants (2017) *Extended Phase 1 Habitat Survey, Land North of Borers Arms Road, Copthorne, Crawley, West Sussex.* 16-046. Dated January 2017. Petworth, West Sussex, GU28 0DP.
[2] The Ecology Co-op (2018) *Preliminary Ecological Appraisal and Phase 1 Survey: Land East of Copthorne Bank, Copthorne, Crawley,* REV01 dated February 2018. Langham Stables, Lodsworth GU28 9BU.

September 2016. Based on the findings of these assessments, further surveys for bats, dormice *Muscardinus avellanarius*, great crested newts *Triturus cristatus* and common reptiles were undertaken together with a more detailed botanical assessment of Land North of Borers Arms Road in 2018.

These surveys informed the emerging scheme design and identified the potential need for habitat compensation measures. In winter 2019 two additional land parcels were brought into the scheme (**Error! Reference source not found.**). These areas are under the same ownership as Land North of Borers Arms Road and included in Copthorne Meadows SNCI. The Ecology Co-op was instructed to investigate their suitability as compensation for the impacts arising from the proposed development. Baseline surveys of this area were undertaken in summer 2019 including a Phase 1 Habitat Survey and botanical assessment, dormouse and bat surveys.

In 2019, a draft EcIA report was prepared together with an indicative 'Biodiversity Net Gain Calculation', based on the Environment Bank's independent metric, using survey information and an outline development scheme. However, the proposed layout has been through several design alterations since that date and the site has been managed in a different way. In February 2023, The Ecology Co-op was commissioned to update the Ecological Impact Assessment and biodiversity net gain calculation, based on the current proposal to inform a planning application. To provide current baseline information for this assessment, the ecological surveys were updated between February and October 2023 as follows:

- bats (tree roosting assessment and activity surveys)
- breeding birds
- dormouse presence/likely absence
- great crested newt presence/likely absence
- reptiles presence/likely absence.

A detailed botanical assessment of the site was also conducted in June 2023 in accordance with the condition assessments required under the new statutory BNG metric.

Figure 1. An aerial image showing the location of the site. The approximate development site boundary is outlined in red and the proposed areas for habitat compensation are outlined in blue. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

Figure 2. 2512-PL07 Overall **P**arameters **P**lan, reproduced from Paul Hewett, drawing no. 2512/PL07, produced in October 2025.

1.2 Purpose of this Report

The purpose of this report is to:

- present the findings of all 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 Fairfax Acquisitions Ltd and were overseen by Dan Bennett, a full member of the Chartered Institute for Ecology and Environmental Management (MCIEEM) and Natural England Level 2 Bat Survey Class Licence holder.

1.3 Policy and Legislation

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

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

2 SURVEY METHODOLOGY

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

This document is written in accordance with the CIEEM Guidelines for Ecological Impact Assessment[3] and CIEEM Guidelines for Ecological Report Writing[4] Details of the ecological assessment methods are provided within section 2.11 below.

2.1 Desk Studies

The proposed development site lies within Surrey, but the southern boundary follows the county boundary with West Sussex. Therefore, to inform the Preliminary Ecological Appraisal and Phase 1 surveys, a search for pre-existing records of protected species, priority species for conservation and invasive non-native species was requested from both the Surrey Biodiversity Information Centre (SBIC) and the Sussex Biological Records Centre (SxBRC) to yield all records within a radius of 2 km of the site boundaries. These were received in December 2016 and October 2016 respectively and an updated record search from SBIC was requested and received in July 2019.

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

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

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

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

2.2 Habitat Survey and Botanical Assessment

In October 2016, a Phase 1 Habitat Survey was completed by AEWC for the land at Land North of Borers Arms Road and a Preliminary Ecological Appraisal (PEA) for Copthorne Bank was carried out separately by The Ecology Co-op in September 2016. Further botanical assessments were then completed in 2018 to assess the ecological value of the grassland habitat contained within the Land North of Borers Arms Road part of the site and the proposed habitat compensation parcels. These surveys comprised simple species lists for each field parcel complied from a walkover survey of the site at the peak in the growing season in May–June 2018 and 2019.

The botanical survey was updated in June 2023, 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 was developed and released in 2018 and presents a new 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.

The UKHab methodology is now 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. The UKHab classification system underpins the Biodiversity Net Gain metric although there are some subtle differences.

Data was gathered through a site walkover survey and use of on-line aerial photography to broadly categorise the habitats present using the UKHab classifications[6]. Each habitat was then 'condition assessed' in accordance with the most up-to-date Statutory Biodiversity Metric Condition Assessment Methodology[7]. In the case of grassland habitats, this involved gathering presence/absence data for plants in a series of ten randomly placed 1m^2 quadrats across each field parcel. The results are presented as a map showing the distribution of habitat categories across the site. Target notes are used to describe specific features of biodiversity interest and record indicator species where appropriate. In addition to this, notable habitats, such as habitats listed under the NERC Act, 2006, are highlighted. The botanical surveys were undertaken by Dan Bennett, MCIEEM, FISC 4 (Principal Ecologist – The Ecology Co-op).

[redacted]

[5] The UK Habitat Classification Working Group (2018) *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

7 THe Statutory Biodiversity Metric Technical Annex 1. Condition Assessment Methodology. Available at: Statutory biodiversity metric tools and guides - GOV.UK (www.gov.uk).

[redacted]

[redacted]

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

A ground-based assessment of trees was undertaken by Ryan Walker and Owen Crawshaw on 15th May 2019, during which eleven trees were identified for climbing inspections to check the status of potential roosting features. Each tree/feature was categorised for its potential to support roosting bats as shown in **Error! Reference source not found.** in accordance with best practice guidance[8].

Table 1. Characterising potential roost features in trees.

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

2.4.2 Built Structures

There are only two existing buildings within the proposed development site. A collection of temporary agricultural buildings contained within the Copthorne Bank part of the site were assessed during the Preliminary Ecological Appraisal in September 2016. A light industrial warehouse located on the southern boundary where an access road is proposed was assessed in March 2018. In both cases, a detailed ground based visual assessment was carried out, looking for features with potential to support roosting bats (e.g. gaps

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

under tiles, soffits, cracks or gaps in brickwork or 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, dropping, rub marks or staining of timbers).

2.4.3 Emergence/Re-entry Surveys

In accordance with the building inspection findings and best practice guidance, two emergence/re-entry surveys were undertaken in May and June 2019 on an industrial building located where the access road for the proposed development will be. The surveys were carried out using current methodology at the time provided by the Bat Conservation Trust[8]. No emergence surveys were required for buildings on Copthorne Bank as they were assessed as negligible potential for roosting bats.

The surveys focused on all features identified during the initial assessment as potential roosting sites or access points for bats, with surveyors positioned according to **Error! Reference source not found.**. From these locations, surveyors could see all features potentially suitable for roosting bats that were identified during the initial bat scoping survey. Surveyors were positioned to start surveillance at approximately 30 minutes before sunset and continued until at least one and a half hours after sunset and up to two hours depending on the level of activity.

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

Figure 3. An aerial image of the site, showing the positions of surveyors in 2019 (yellow stars). Images produced courtesy of Google maps (map data ©2021 Google).

Emergence surveys have not been repeated in 2023 following a check of the building condition which confirmed that there had been no change and that the potential suitability for bats remained low.

2.4.4 Bat Activity Surveys – Walked Transects

Bat activity surveys followed best practice guidelines[6]. Pre-determined transect routes were followed by surveyors (Figure 4) focussing on all linear features within the site boundary (treelines, woodland edge and hedgerows). The transect routes were walked at a slow pace during the period from sunset to two hours after sunset by a team of surveyors, such that each part of the route was passed approximately every twenty minutes. All surveys were undertaken during weather conditions suitable for bat activity and at ambient temperatures above 10°C. The surveyors recorded bat activity using 'Echo Meter Touch' bat detectors featuring auto-identification of bat species and automatically triggered recording for later review. The locations of all bat 'registrations' was recorded onto a field map during the survey to correspond with all sound recordings.

Walked activity surveys were completed for Copthorne Bank in 2017 and Land North of Borers Arms Road in 2018. The activity surveys were due to be updated using the same transects in May 2023, but ceased in July due to safety concerns related to the high number of horses contained on the site that were spooked by surveyors working at night. Following discussion with the client, it was agreed that the remaining walked transects would be substituted for three additional static logger deployments, which could be deployed in the daytime.

Figure 4. The walked transect routes of surveyors with stops (numbers) in 2018 and May and June 2023. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

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.).

Previously in 2018 three 'Elekon Batlogger A' static bat detectors were deployed across the Land North of Borers Arms Road part of the site (Figure 5) on three separate occasions, in May, August and September 2018, and left in the field for a minimum of five days: the expected maximum lifetime of the battery. Bat loggers were not used on the Copthorne Bank part of the site due to unrestricted access to the site posing a high risk of equipment being interfered with or stolen.

In 2023 four Song Meter Mini Bat Ultrasonic static bat detectors were deployed across the site (Figure 6) on seven separate occasions, in May, June, July, early August, mid-August, August/September, and September/October and left in the field for a minimum of five days – the expected maximum lifetime of the battery. Static bat detectors comprise a passive recording device which records real-time full-spectrum calls in five-second clips that can be viewed in detail using analysis software, allowing accurate identification of most bat calls to species level (or genus level in the case of *Nyctalus, Myotis* and *Plecotus* species).

Figure 5. The positions of static bat detectors deployed on the site (white numbers) in 2018. Images prepared using QGIS version 3.28.14 - Firenze.

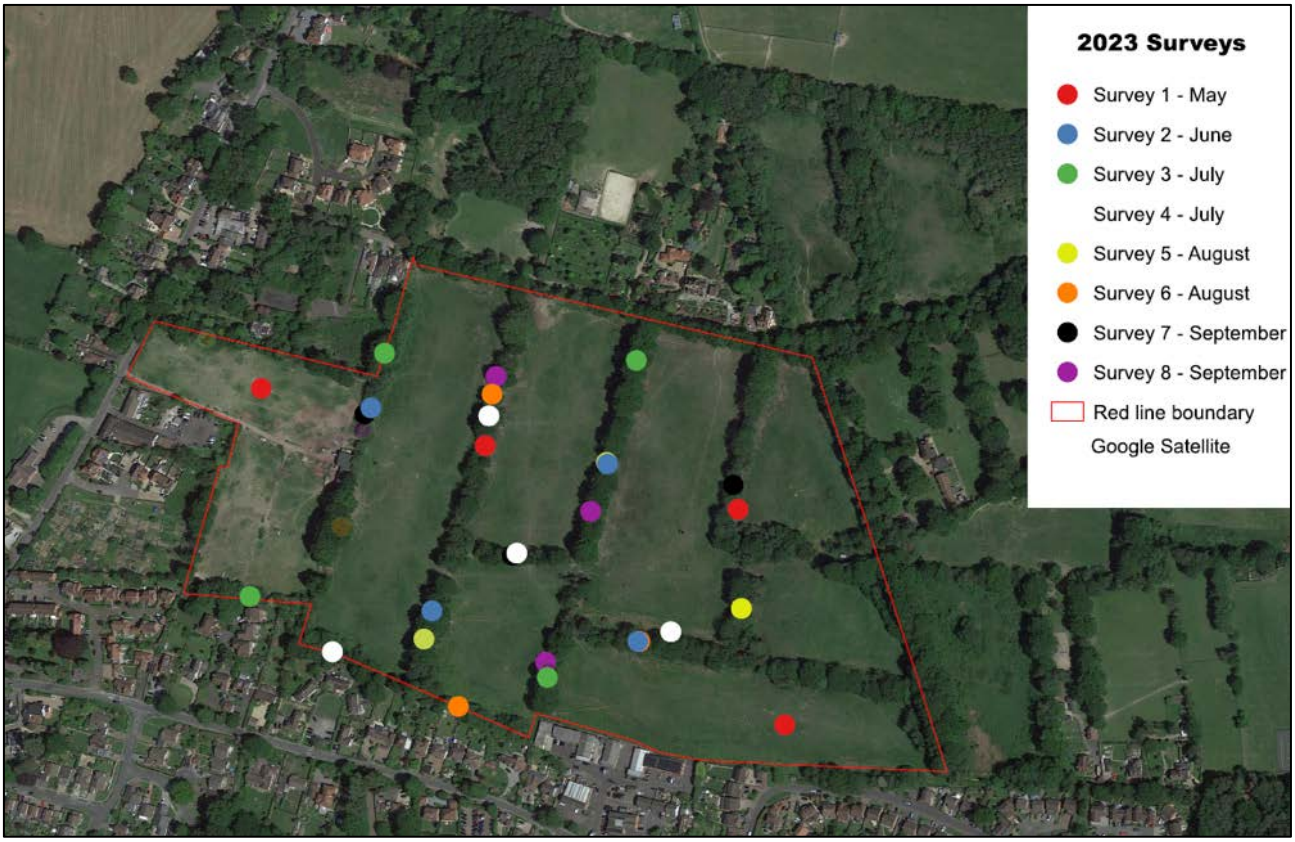

Figure 6. The position of the four of static bat detectors deployed on the site (white numbers) in 2023. Images prepared using QGIS version 3.28.14 - Firenze.

The datasets collected by the static loggers in 2018 were interpreted using Kaleidoscope Lite[9].

The data collected by static detectors in 2023 was processed using the British Trust for Ornithology's (BTO) Acoustic Pipeline v5.502[10], an auto-identification system. The Acoustic Pipeline uses classifiers to detect and identify bat calls within files and assign them a probability or confidence percentage of the call belonging to a particular species. The data output from the pipeline was then processed differently depending on the species identified, but groups of species' calls underwent some degree of post-classification manual analysis by a suitably experienced bat acoustic analyst (in accordance with the most recent Bat Conservation Trust guidelines) using Kaleidoscope Lite software v5.6.3[11]. Data management was facilitated using the R Shiny App through R Studio v2023.09.1+494[12], which assisted with creating random samples of some datasets to establish error rates.

Common Pipistrelles, Soprano Pipistrelles, Barbastelles and Serotine Bats

All calls with a confidence score of below 50% ('low confidence' calls) were discarded from the dataset for the above species. 10%, or at least 10, calls (whichever was higher) of remaining 'high confidence' calls for each species from each detector then underwent post-classification validation through manual analysis to establish false positive error rates within the dataset. Each static detector was validated as bat calls can vary between habitats, meaning that the location in which the bat static detector is placed can influence the effectiveness of species detection. For the purpose of reporting, some results were adjusted in light of the error rate found to create a more representative number of calls, accounting for positive error rates. The data that has undergone this modification are clearly labelled as such.

Myotis, Plecotus and *Nyctalus* species

As with the above group, 10% or at least 10, (whichever was higher) of all 'high confidence' calls for each species from each detector underwent post-classification validation through manual analysis to establish false positive error rates within the dataset. However, differing to the above group, all 'low confidence' calls from *Myotis, Plecotus* and *Nyctalus* species also were analysed. This is because calls from these genera overlap and are often very difficult to distinguish. Therefore, it is likely that the Acoustic Pipeline may otherwise underestimate the numbers of calls from these genera as it assigns them a lower confidence score, whilst the confidence in correctly analysing the genera the call belongs to is still high.

Noise Files

10%, or at least 10, (whichever was higher) of all noise files identified by BTO Acoustic Pipeline for were manually analysed to establish a false negative error rate. Individual error rates were established both seasonally and spatially for each static detector location and deployment (over the three seasonal deployments) due to possible variation in noise production from static detector placement and time of year.

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

[9] https://www.wildlifeacoustics.com/products/kaleidoscope/kaleidoscope-lite

[10] BTO (2023). BTO Acoustic Pipeline. Available from: https://www.bto.org/our-science/products-and-technologies/bto-acoustic-pipeline

[11] Wildlife Acoustics (2023) Kaleidoscope Lite Analysis Software. Available from: https://www.wildlifeacoustics.com/account/downloads/kaleidoscope

[12] RStudio Team (2020). RStudio: Integrated Development for R. Available from: http://www.rstudio.com

increasing the likelihood of detecting scarce species.

2.5 Breeding Birds

Breeding bird surveys were conducted in 2018 using a method adapted from the Breeding Bird Survey (BBS) methodology, designed by the British Trust for Ornithology (BTO)[7] as an accessible means of monitoring British bird population trends over the UK using volunteers. It is frequently adapted for EcIA. The original methodology requires two visits per season to be carried out over many seasons, allowing datasets to be built up. For this scheme, three separate visits on 15th May, 8th June and 19th June 2018 were undertaken to provide a more representative 'snapshot' of the bird assemblages present at the site during a single survey season.

Since then, new guidance on breeding bird survey methodology for EcIA has been introduced by the *Bird Survey and Assessment Steering Group* (RSK Biocensus)[13]. This methodology requires six visits spread evenly between late-March and early-July. These visits should be carried out approximately thirty minutes before sunrise through to mid-morning (10am to 11am). At least one of the visits should be in the evening, extending past sunset. All bird surveys were only undertaken during favourable weather conditions for bird activity, with periods of persistent or heavy rain, high winds or fog avoided.

For all surveys, a pre-determined transect (Figure 7) was walked at a constant slow pace by a competent bird surveyor, stopping to check key habitat/features and causing minimum disturbance, recording all birds detected either by sight or calls/song. Notes regarding the behaviour of birds identified were made to determine their breeding status. Birds were said to be 'confirmed as breeding' if they were observed carrying nesting material, food or faecal pellets; or nests, eggs, or recently fledged young were discovered. Birds were recorded as 'likely breeding' if observed singing or displaying, repeatedly visiting the same locations, and showing agitated or distraction behaviour. Each bird 'registration' was recorded on a field map of the survey site using standard BTO Common Birds Census (CBC) notation[14], which includes behaviours and flight movements. A note was also made of the start and end time, sunrise/sunset time, temperature, wind (Beaufort scale) and precipitation levels.

[13] https://birdsurveyguidelines.org/methods/survey-method/
[14] https://www.bto.org/sites/default/files/u16/downloads/forms_instructions/bto_bird_species_codes.pdf

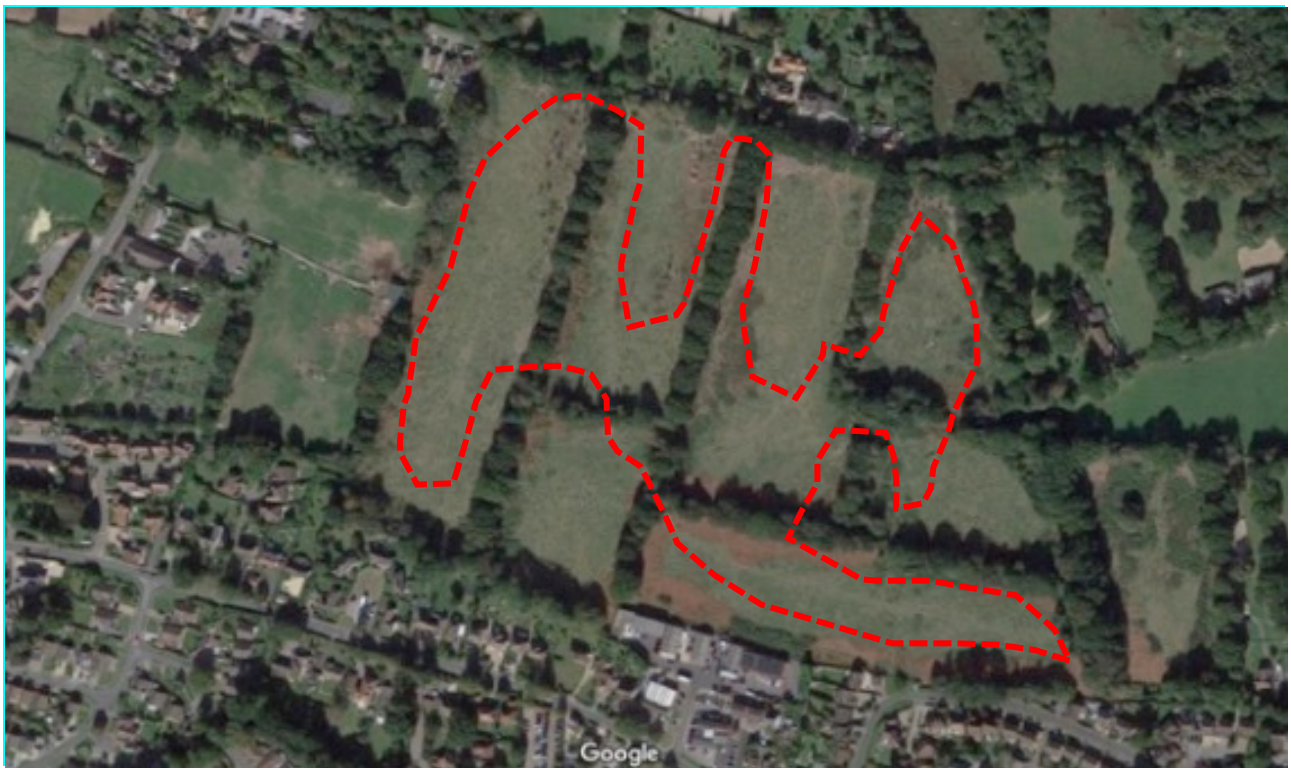

Figure 7. Breeding bird survey transect routes for surveys in both 2018 and 2023. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

2.6 Common Dormouse

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

2.6.1 Nest Tube/Box Survey

Dormouse surveys are undertaken by attaching purpose built 'nest tubes' on trees and shrubs in suitable habitat such as woodland, scrub and hedgerows. Nest tubes are used by dormice as places of shelter and they will often construct their nests within them during their periods of activity (typically between April and November). Since the likelihood of use by dormice varies through the year, an index of probability score is used to determine confidence in a particular survey (see Table 2 below) comprising checks over several months. A minimum score of 20 is normally accepted to establish 'likely absence' in the event that no signs of dormice are found during the survey.

In accordance with current best practice guidelines[15], nest tubes were attached to trees and shrubs along tree lines, hedgerows and dense scrub field boundaries throughout Land North of Borers Arms Road and the adjoining field parcels. In 2018, 200 nest tubes were installed approximately 20m apart, and in 2023, 116 next

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

tubes were used (see Figure 8). These were checked on a monthly basis for presence of animals and evidence of dormouse presence (distinctively woven nests) from May to November 2018 and 2023, which achieved a survey effort score that exceeds 20 in both seasons. Surveys were undertaken under the supervision of licensed surveyors, Dan Bennett, Rebecca Carter-Wright and Paul Whitby.

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

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

Figure 8. Top: dormouse nest tube locations in 2018 (red dots) and 2019 (yellow dots); bottom: dormouse nest tube locations in 2023. Images prepared (top) courtesy of Google maps (map data ©2018 Google.com) and (bottom) using QGIS version 3.28.14 - Firenze.

2.7 Great Crested Newts and Other Amphibians

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

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

2.7.1 Habitat Suitability Assessment

Land North of Borers Arms Road contains one pond within its boundaries. The desk study revealed a further five waterbodies within 500m of the site boundary. Where ponds were visible from public rights of way or access permission was granted, they were assessed for their potential to support great crested newts using the Habitat Suitability Index (HSI) (Oldham et al, 2000).

All ponds within 250m of the site's boundaries, and those with 'average' or 'above average' suitability for breeding great crested newts, were carried forward for Environmental DNA (eDNA) sampling, unless separated from the site by significant barriers to dispersal.

2.7.2 Environmental DNA Sampling and Analysis

This technique allows a quick and reliable qualitative measure of the presence/likely absence of great crested newts. It involves collection of water samples from a pond, using a standard protocol set out by Natural England[16]. 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. Two eDNA samples were taken from the ponds that met the above criteria on the 20th April 2018 and again on 25th of April 2023.

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

2.7.3 Field Survey

The survey methodology followed standard guidance for great crested newts[17] and involves four survey visits using a combination of bottle-trapping, torchlight searching and egg searching during each survey visit. All surveys must be undertaken during weather conditions suitable for great crested newts – above the minimum

[16] 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.
[17] English Nature (2001) *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.

temperature of 5°C – and at least two of the survey visits were undertaken during the 'peak activity period' for breeding great crested newts (i.e. between 15th April and 15th May). Weather conditions, temperature and pond turbidity was recorded during each survey visit. If great crested newts were confirmed present by either of the above methods at a given pond, the field survey was extended to six separate visits to allow the population size class to be estimated.

However, at Land North of Borers Arms Road, none of the ponds were carried forward to this level of survey.

2.8 Reptiles

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

Standard reptile presence/likely absence surveys involve setting out artificial refugia (reptile 'mats' or 'tins') in potentially suitable habitat. Reptile mats are made from pieces of bitumen roofing 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 the presence of animals underneath during suitable weather conditions. They are placed in areas of potentially suitable habitat at an approximate density of 20 per ha, or 20m apart along linear features. There are no up-to-date best practice guidelines for reptile surveys, but a minimum of seven survey visits under suitable weather conditions is generally considered to be adequate when determining their presence/likely absence, and 15–20 visits are used to calculate a 'peak count' for population size class assessment.

In 2018, 103 reptile mats were distributed across Land North of Borers Arms Road and a further 90 mats were used on the proposed habitat compensation land in 2019 (Figure 9). In 2023, 78 reptile mats were used because the introduction of grazing animals had reduced the vegetation cover and suitable reptile habitat was scarce. The mats were left *in situ* for a minimum of one week to 'bed in' and allow reptiles to locate them before the first check.

The mats were checked at least seven times over the period April to September 2018 and 2023 and all observations of reptiles were recorded, together with the weather conditions, temperature and time of day.

Figure 9. Top: Reptile mat locations in 2018 (red dots) and 2019 (yellow dots); bottom: reptile mat locations in 2023. Images prepared (top) courtesy of Google maps (map data ©2018 Google.com) (bottom) using QGIS version 3.28.14 - Firenze.

2.9 Other Notable Species

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

2.10 Invasive Non-native Species

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

2.11 Impact Assessment Methodology and Mitigation

The assessment of ecological impacts and mitigation recommendations in this report follow CIEEM Guidelines for Ecological Impact Assessment (EcIA)[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'.

2.11.1 Importance of Ecological Features

A level of importance was assigned to all existing ecological features through consideration of the rarity and distribution of a habitat or species, the population size, ecological function, and trends (declining/expanding), together with any designations, legal status, or conservation policies. CIEEM recommend that the importance of an ecological feature, in terms of nature conservation priority, should be considered within a defined geographical context (for definitions used by The Ecology Co-op, see Appendix 2):

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

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

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

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

2.11.2 Significance of Effects

In accordance with EcIA (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.

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

2.11.3 The 'Mitigation Hierarchy'

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

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

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

2.12 Constraints/Limitations to Surveys

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

Bat loggers were not used on the Copthorne Bank part of the site due to unrestricted access to the site posing a high risk of equipment being interfered with or stolen. This applies to both the original surveys in 2018 and

again in 2023. This does not represent a significant limitation as walked transects have shown that this part of the site contains low value habitat for foraging bats. Due to a technical fault during the deployment of some of the automatic bat detectors, the devices sometimes failed to record on all five nights. However, since multiple devices were used, the minimum number of nights were achieved on at least one other logger for each deployment period and at all locations on at least one of the three deployments.

Breeding bird surveys were conducted in accordance with new guidelines in 2023, although one survey visit was cancelled due to inclement weather. It was considered that sufficient data has been gathered from the combined 2018 and 2023 seasons to accurately characterise the site and this survey visit was not rescheduled.

The reptile survey on Land North of Borers Arms Road was subject to interference from the public in 2018 across part of the site, resulting in the loss of approximately a third of the mats that were put out. These were not replaced during the survey to prevent harm to reptiles in these areas. The survey continued using the remaining mats and this was considered to be sufficient to make a representative assessment of the habitat quality across the site as a whole. In late June 2023, it was discovered that most of the roofing felt mats had been destroyed due to flail mowing of all of Land North of Borers Arms Road, which took place without prior knowledge of Fairfax Acquisitions Ltd. New roof felting mats were set out, with 74 mats used from the remaining four checks.

Botanical surveys were conducted using the most up-to-date survey methods at the time. The guidelines on and condition assessments of habitat for biodiversity net gain calculations have evolved in the intervening period between surveys and so are not directly comparable. Adding to the complexity of assessing baseline habitat condition at this site was the change in management on Land North of Borers Arms Road in the intervening period between surveys, which resulted in a mixture of gains and losses. The baseline condition carried forward in this EcIA and the biodiversity net gain metrics used the more recent data collected in 2023, simply because the data was collected using the most up to date methods and previous survey information was not consistent with current methodology.

3 ECOLOGICAL BASELINE

3.1 Designated Sites

3.1.1 Desk Study

There are no statutory designated sites located within 2 km of the proposed development site. However, the Land North of Borers Arms Road part of the site is itself designated as ‘Copthorne Meadows Site of Nature Conservation Importance’ (SNCI), and one SNCI (Surrey) and one Local Wildlife Site (LWS) (West Sussex) is located within a 2 km radius of the site. A further nine ‘potential SNCIs’ are located within this zone. Potential SNCIs are sites that have been identified using available information at that time as likely to support flora and/or fauna of county significance but have yet to be surveyed and measured against the SNCI selection criteria. Current local planning policy treats these sites as fully designated SNCIs. A description of these non-statutory designated sites is presented in Table 3 and locations in Figure 10.

Priority habitats including ancient semi-natural woodland, one area of ancient, replanted woodland and two areas of Gill Woodland are located within 2 km of the site boundary (Figure 11). The closest of these areas is an area of ancient semi-natural woodland located 0.44 km to the north-west and has good connectivity to the

Land North of Borers Arms Road site.

There is one granted EPS license for mitigation projects within 1km of the site boundary. This concerns a brown long-eared bat roost (non-maternity), dated 2014 (see Figure 12).

Table 3. Non-statutory sites within 2km of Land North of Borers Arms Road.

Site name	Designation	Features listed on citation	Proximity	Ecological importance
Copthorne Meadows	SNCI	Designated for its species-rich grassland classified as lowland meadow, a priority habitat for nature conservation under Section 41 of the NERC Act 2006. Surveys recorded 53 species of vascular plant of conservation interest on this site.	Part of the development site falls within this designation	County
Copthorne Common	LWS	Fragmented areas of lowland dry heath between fairways of the golf course.	0.17 km south	County
Murgins Wood	pSNCI	No information available	0.2 km west	Assumed County level
Effingham Lane Field	pSNCI	No information available	0.29 km east	Assumed County level
West Park wood	pSNCI	No information available	0.29 km east	Assumed County level
Cophall Field	pSNCI	No information available	0.69 km north	Assumed County level
Stonelands Wood	pSNCI	No information available	0.83 km west	Assumed County level
Kiln Heath	pSNCI	No information available	0.97 km north-west	Assumed County level
Copper Coin Pond	SNCI	A mesotrophic pond with broadleaved semi-natural woodland and relict unimproved grassland	1.22 km north-west	County level
Copper Coin Paddocks	SNCI	Unimproved mesotrophic grassland with small areas of improved grassland.	1.36 km north-west	County level
Rede Hall Pond	pSNCI	No information available	1.62 km north-west	Assumed County level
Lobbs Wood and Furnace Pond	LWS	Lobbs Wood comprises areas of ancient semi-natural woodland and gill woodland. Furnace Pond is a large area of open water that supports an important bird assemblage.	1.65 km south-east	County

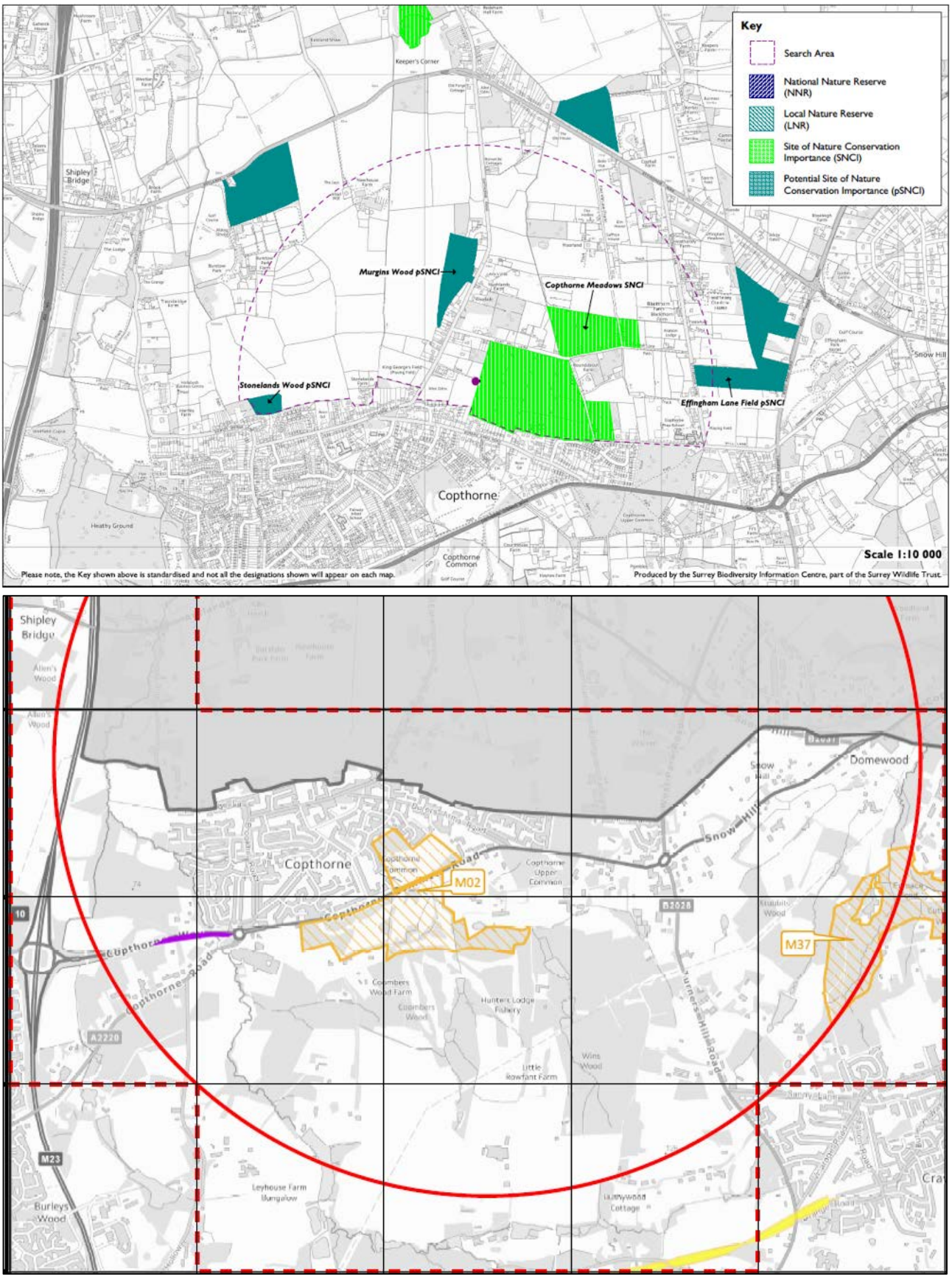

Figure 10. SNCIs (Surrey) within a radius of 5 km of the application site. Top: Reproduced from SBIC Background Ecological Data Search; Land Adjacent to Copthorne Bank, Copthorne, Crawley, RH10 3JF, Surrey Biodiversity Information Centre, July 2019, Ref. 19105. Bottom: LWS (Sussex) within a radius of 5 km of the application site. Reproduced from SBIC Background Ecological Data.

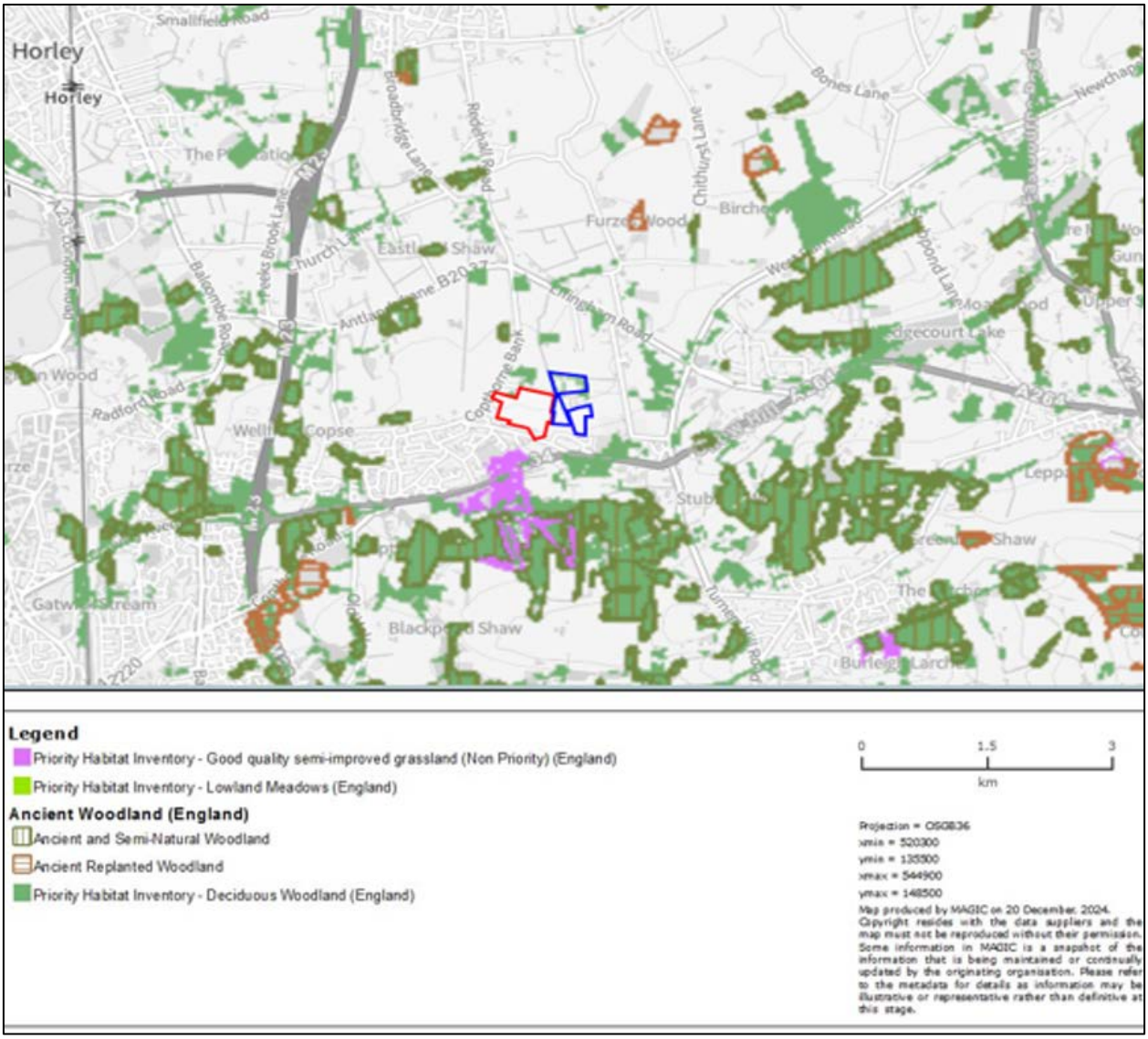

Figure 11. Priority Habitats contained by and adjacent to the application site. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

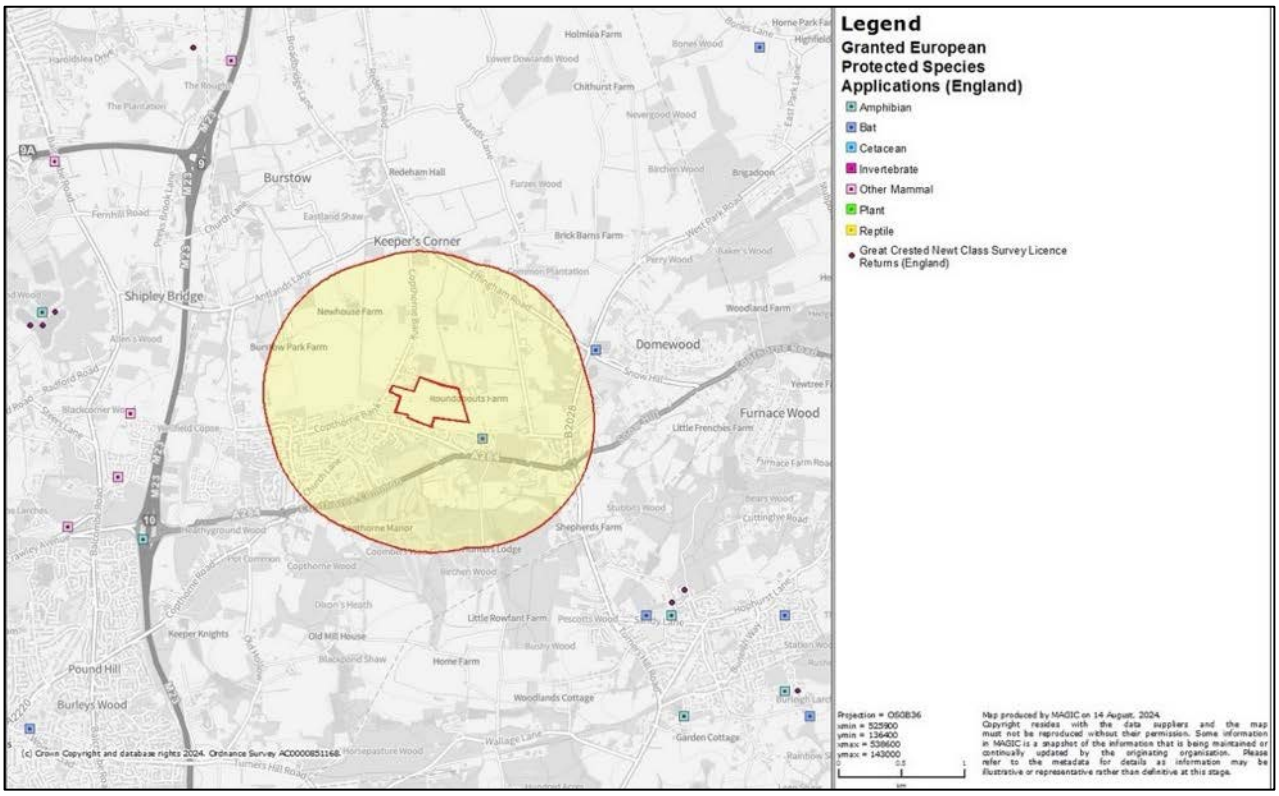

Figure 12. Granted EPS licences within 1km of the application site. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

3.1.2 Interpretation

All LWSs and SNCIs are generally considered to be of county importance for nature conservation. Since the Land North of Borers Arms Road site is designated as an SNCI it follows that the habitats it supports are of county importance for nature conservation.

3.2 Habitats

3.2.1 Overview of Habitat Types

The Phase 1 Habitat Surveys of the site undertaken prior to 2023 identified that Land North of Borers Arms Road comprised a spectrum of semi-natural grassland types from areas of botanically rich unimproved neutral grassland (UKHab 'lowland meadow'), semi-improved grassland (UKHab 'other neutral grassland) through to relatively species-poor improved grassland (UKHab 'modified grassland' and '*Arrhenatherum* other neutral grassland'). Some localised areas were waterlogged and supported marshy grassland dominated by rushes and sedges. Each field parcel was bordered by a line of mature trees and shrubs, often with an earth bank and dry ditch. Bramble scrub and bracken form a transitional zone between the grassland and tree lines, but this had been cut back in places, leaving areas of bare ground covered in woodchip. Copthorne Bank comprised close-grazed horse paddocks of improved grassland with poor botanical diversity. This area is compartmentalised by fences and bordered by mature trees and woodland. The two separate proposed habitat enhancement areas comprised similar habitats to Land North of Borers Arms Road. All areas apart from Copthorne Bank had evidently been left un-managed for a considerable length of time. This has resulted in a tall grassland sward with substantial areas of encroaching bramble scrub, secondary woodland and dense bracken thickets bordering the grassland. Nevertheless, the site retains areas of botanically rich lowland meadow, as part of a mosaic of other grassland types that were maintained by rabbit and deer grazing.

Between the 2018 surveys and the 2023 re-survey of the site, the Land North of Borers Arms Road site has been continuously grazed by many horses. The site has also been subject to intermittent flailing and scrub control. This has led to substantial changes to the grassland sward structure, cover of habitats and general appearance of the site. The original surveys were therefore out of date and required updating. Botanical surveys were undertaken in 2023 using a different methodology in accordance with the most recent guidance on habitat condition assessment (Statutory Biodiversity Metric 4.0) and the UK Habitat classification (UKHab). For the grassland habitats, this included gathering botanical data using a series of randomised quadrat samples taken from each field parcel. was identified that the site comprised the following habitat types:

- g3a lowland meadows
- g3c other neutral grassland
- g4 modified grassland
- g1c bracken
- h3h mixed scrub
- w1f lowland mixed deciduous woodland
- u1b5 buildings
- u1c artificial unvegetated, unsealed surface
- w1g6 line of trees
- h2b non-native and ornamental hedgerow
- pond (non-priority habitat).

Table 4 below details the land parcels on site and compares the habitats recorded in 2018 using the Phase 1 Habitat Survey results with the results of the 2023 surveys using UKHab classification. The 2023 habitat map for the site and key to the standard mapping symbols used is presented in Figure 19 below. Each habitat parcel is labelled and cross referenced to Table 4.

Table 4. Habitat conditions (2018 and 2023 results).

Location/reference of habitat parcel (2023)	**Phase 1 Habitat Survey classifications for each habitat parcel, 2018**	**UKHab classifications for each habitat parcel, 2023**	**Habitat condition 2023**
Copthorne Bank, western most field (1a + 1b).	Improved grassland	Modified grassland	Poor
Copthorne Bank, southwest corner of eastern most field.	Pond	Pond	Moderate
Land North of Borers Arms Road, south field (7b)	Unimproved neutral grassland	Lowland meadow	Good
Land North of Borers Arms Road, middle of eastern boundary (7e)	Unimproved neutral grassland	Lowland meadow	Moderate
Land North of Borers Arms Road, middle of eastern boundary (8a)	Dense/continuous scrub	Mixed scrub	Poor
Land North of Borers Arms Road, northeast corner (7d)	Unimproved neutral grassland	Lowland meadow	Moderate
Land North of Borers Arms Road, eastern central field boundary (5b + 5c)	Broadleaved woodland – semi-natural	Lowland mixed deciduous woodland	Moderate
Land North of Borers Arms Road, central field parcel (7c)	Semi-improved neutral grassland & marshy grassland (north); unimproved neutral grassland	Lowland meadow	Moderate

Location/reference of habitat parcel (2023)	**Phase 1 Habitat Survey classifications for each habitat parcel, 2018**	**UKHab classifications for each habitat parcel, 2023**	**Habitat condition 2023**
	(south).		
Land North of Borers Arms Road, field boundary SE corner (5d + 5e)	Broadleaved woodland – semi-natural	Lowland mixed deciduous woodland	Moderate
Land North of Borers Arms Road, central field parcel (7a)	Semi-improved neutral grassland, marshy grassland, unimproved neutral grassland, broadleaved parkland/scattered trees, bracken & 'other' habitat.	Lowland meadow	Good
Land North of Borers Arms Road, southern central small field parcel (6b)	Poor semi-improved grassland, bracken, dense/continuous scrub, & 'other' habitat.	Other neutral grassland	Moderate
Land North of Borers Arms Road, western field parcel (6a)	Poor semi-improved grassland, semi-improved neutral grassland, marshy grassland, broadleaved parkland/scattered trees & 'other' habitat.	Lowland meadow	Moderate
Land North of Borers Arms Road, southwestern boundary (5a)	Broadleaved woodland – semi-natural	Lowland mixed deciduous woodland (less extensive than in 2018)	Moderate
Land North of Borers Arms Road compensation site northwest field parcel (7f)	Unimproved neutral grassland and marshy grassland	Lowland meadow	Moderate
Land North of Borers Arms Road compensation site northern parcel (8b)	Dense/continuous scrub	Mixed scrub	Poor
Land North of Borers Arms Road compensation site southwest corner of northeast parcel (1c)	Poor semi-improved grassland	Modified grassland	Poor
Land North of Borers Arms Road compensation site surrounding northeast field parcels (5f)	Broadleaved woodland – semi-natural	Lowland mixed deciduous woodland	Moderate
Land North of Borers Arms Road compensation site (north-easternmost field parcel) (7g)	Unimproved neutral grassland and semi-improved neutral grassland	Lowland meadow	Moderate
Land North of Borers Arms Road compensation site (north-easternmost field parcel) (8c)	Marshy grassland	Mixed scrub	Poor
Land North of Borers Arms Road compensation site (north-easternmost field parcel) (9a)	Broadleaved woodland – semi-natural	Wet woodland	Poor
Land North of Borers Arms Road compensation site (north-easternmost field parcel) eastern boundary (5g)	Broadleaved woodland – semi-natural	Lowland mixed deciduous woodland	Moderate
Land North of Borers Arms Road compensation site (southernmost field parcel) (6c)	Semi-improved neutral grassland.	Other neutral grassland	Good
Land North of Borers Arms Road compensation site (north-easternmost field parcel) (7h)	Unimproved neutral grassland	Lowland meadow	Good
Land North of Borers Arms Road compensation site eastern boundary to	Semi-improved neutral grassland & marshy grassland	Other neutral grassland	Poor

Location/reference of habitat parcel (2023)	**Phase 1 Habitat Survey classifications for each habitat parcel, 2018**	**UKHab classifications for each habitat parcel, 2023**	**Habitat condition 2023**
southernmost field parcel (6d)			
Land North of Borers Arms Road compensation site western boundary to southernmost field parcel (8d + 8e)	Dense/continuous scrub	Mixed scrub	Moderate
Land North of Borers Arms Road all field boundaries –13g, 13f, 13k, 13l, 13m, 13j, 13i	Tree lines	Treelines (on site)	Moderate
Land North of Borers Arms Road compensation site all field boundaries – 13a, 13b, 13c, 13d, 13e	Tree lines	Treelines (off site)	Moderate
Land North of Borers Arms Road compensation site northern boundary of north-east parcels.	Ditch	Ditch	Poor

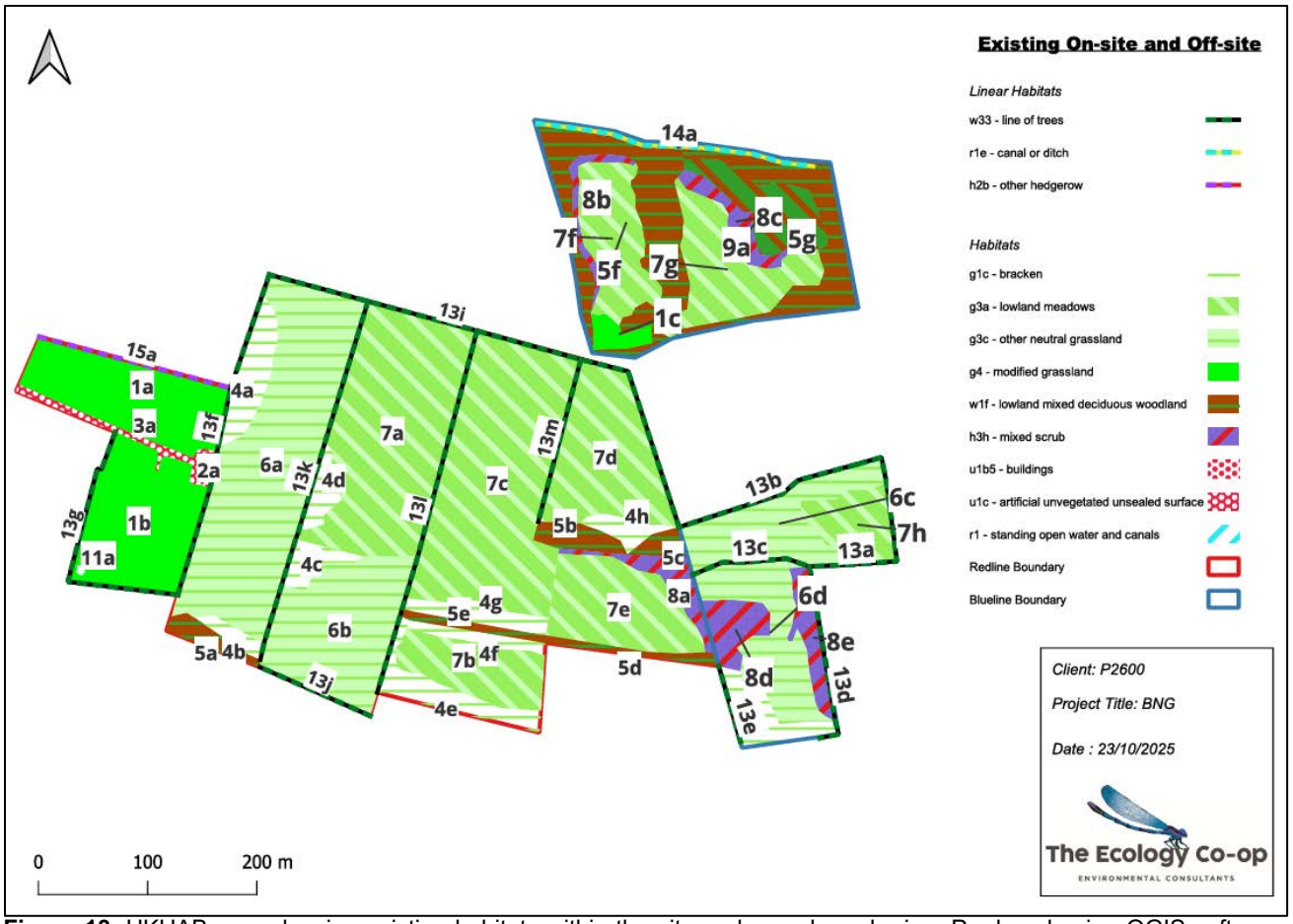

Figure 13. UKHAB map showing existing habitats within the site and parcel numbering. Produced using QGIS software, version 3.34.7 – Prizren.

3.2.2 Botanical Survey Findings

A detailed description of each distinct habitat compartment is presented below. A complete list of recorded

species is presented in Appendix 3.

Copthorne Bank

1a & 1b: modified grassland

The survey in 2018 found this area to be predominantly comprised of tightly grazed horse pasture which had been divided into paddocks by stock fencing. The vegetation was very short with heavily poached and disturbed ground. Consequently, the vegetation was dominated by a range of very common annual herbs and ruderal species (totalling approximately 20 species).

These paddocks were unchanged in 2023, and their condition remains the same.

Land North of Borers Arms Road development site

6a & 6b: other neutral grassland

When initially surveyed in 2018 field parcel 6a was dominated by false oat grass due to a lack of management. 6b had a tall sward of more coarse grass species including false oat and cocksfoot grass and ruderal species such as common sorrel and buttercups that indicated higher fertility than the other fields. The margins were composed of dense bracken thickets alternating with dense bramble and invading scrub. During the survey a roe deer doe and fawn were encountered in this field together with Dingy skipper butterfly.

Since the introduction of permanent grazing by horses, the false oat grass has significantly declined and been replaced by a short sward. In 2023, this was dominated by common bent *Agrostis capillaris* and creeping bent *A. stolonifera* with colonising herbaceous species from other parts of the site. In field 6b this included common knapweed *Centaurea nigra*, field woodrush *Luzula campestris*, lesser stitchwort *Stellaria graminea* and birds foot trefoil *Lotus corniculatus*. The abundance of jointed rush *Juncus articulosus*, creeping buttercup *Ranunculus repens* and lesser spearwort *Ranunculus flammula* indicated very damp ground conditions in places. Unfortunately, field 6a was flail-cut to ground level in mid-June 2023 before the botanical survey could be completed, but a walkover of the aftermath indicated that it is very similar to field 6b.

5a: lowland mixed deciduous woodland

Forming the southern boundary of 6a's pasture field supporting a small group of mature trees including oak and silver birch between adjoining residential gardens. This area has reduced in size since 2018.

7a: lowland meadow

In 2018, marshy grassland covered a large proportion of this field dominated by dense stands of rushes and marsh thistle with encroaching willow scrub and fine grasses beneath. The drier semi-improved grassland areas was dominated by fine grasses and still retained a high proportion of herbaceous species typical of neutral to slightly acid grassland. The west margin was dominated by a dense bracken thicket, and encroaching willow scrub in the northeast corner had been flailed leaving a bare ground surface covered in woody debris.

In 2023, the survey found this parcel to comprise close-grazed pasture field with over 30 botanical species recorded over ten quadrats, including five positive indicator species for lowland meadow (common knapweed *Centaurea nigra*, bird's foot trefoil *Lotus corniculatus*, greater bird's foot trefoil *Lotus pedunculatus*, meadow vetchling *Lathyrus pratensis* and common spotted orchid *Dactylorhiza fuchsii*. The average species richness per quadrat was 12.4, and it therefore meets the criteria for lowland meadow.

7b: lowland meadow

In 2018, the survey covered the entirety of this long field, orientated east-west, and it contained the highest

botanical diversity at Land North of Borers Arms Road. It contrasted with the other parts of the site by supporting a rich grassland sward with abundant yellow rattle and betony. Yellow rattle is an annual plant that is hemiparasitic on grass roots and was not found anywhere else on the site. It is known to reduce the vigour of grasses, which allows other herbs to establish, and therefore improves overall botanical diversity. There was evidence of grazing by rabbits and browsing by deer, which together with human trampling which helped to create a varied species-rich sward. The southern boundary and western end of this field was bordered by a broad thicket of bracken with underlying bluebells and other ancient woodland indicator species.

The 2023 survey found that horse grazing had produced a close-grazed pasture field with a very short sward and significantly reduced abundance of yellow rattle. Nevertheless, with 50 botanical species recorded over ten quadrats, including seven positive indicator species for lowland meadow (common knapweed *Centaurea nigra*, bird's foot trefoil *Lotus corniculatus*, common spotted orchid *Dactylorhiza fuchsia*, yellow rattle *Rhinanthus minor*, betony *Betonica officinalis*, common milkwort *Polygala vulgaris* and tormentil *Potentilla erecta*). The average species richness per quadrat was 10.2, and it meets the criteria for lowland meadow.

7c: lowland meadow

The 2018 survey found this field to be largely open semi-improved grassland dominated by fine grasses with a small area of marshy grassland along the western edge. The east and west margins had been flailed and the southern margin had a dense bracken thicket with an understorey of bluebells in spring.

The survey in 2023 found this field to comprise close-grazed pasture with very short sward. The survey recorded 33 botanical species over ten quadrats, including six positive indicator species for lowland meadow (common knapweed *Centaurea nigra*, bird's foot trefoil *Lotus corniculatus*, common spotted orchid *Dactylorhiza fuchsia*, betony *Betonica officinalis*, common milkwort *Polygala vulgaris* and bugle *Ajuga reptans*). The average species richness per quadrat was 10.6, and it meets the criteria for lowland meadow.

13g, 13f, 13k, 13l, 13m, 13j, 13i: treelines

Lines of mature trees mark the boundaries around much of the Land North of Borers Arms Road site. Lines of mature trees also form the boundaries between field parcels within the site. These are characterised by tall mature trees dominated by English oak, hornbeam and holly. Many of the boundary features are marked by ancient ditch and earth banks. The lines of trees are variously bordered by bracken and bramble thickets and in places willow and birch scrub. In 2018, some of this encroaching scrub had been removed by flail mowing and in 2023, most of it had gone on the Land North of Borers Arms Road site, although it was still present in the north-east habitat compensation parcels.

Land North of Borers Arms Road Habitat compensation parcels

Main site

7d: lowland meadow

The 2018 survey found this smaller land parcel to be influenced by shade cast by tall trees on all sides. The northern corner was evidently dense scrub that had recently been flailed back leaving mostly bare ground covered in woody debris. Most of the central area comprised drier species-rich semi-improved grassland dominated by tussock forming fine grasses. The northwest corner was marshy grassland dominated by a stand of sharp-flowered rush fringed with marsh thistle. A dense thicket of bracken extended along the rest of the northern boundary, which contained a variety of long-abandoned farm machinery.

The survey in 2023 found the field to comprise close-grazed pasture with 32 botanical species recorded over ten quadrats, including nine positive indicator species for lowland meadow (common knapweed *Centaurea nigra*, bird's foot trefoil *Lotus corniculatus*, common spotted orchid *Dactylorhiza fuchsia*, betony *Betonica officinalis*, tormentil *Potentilla erecta*, carnation sedge, greater bird's foot trefoil *Lotus pedunculatus*, eyebright *Euphrasia* sp. and bugle *Ajuga reptans*). The average species richness per quadrat was 10.05, and it meets ¾ of the criteria for lowland meadow. A walkover reconnaissance site visit in September revealed that this field also supported waxcap mushrooms *Hygrocybe*, including scarlet and yellow forms, and the magic mushroom *Psilocybe semilanceolata*.

7e: lowland meadow

In 2018, this was another botanically rich small field dominated by fine tussock-forming grassland and marshy grassland in the corners. This field contained an eyebright species and several sedges that were not encountered towards the western side of the site. Unlike the other field parcels the margins have not been flailed and dense continuous scrub, formed by a group of similar-aged self-set oak trees extends from the eastern boundary line into the field. The southern boundary has a broad thicket of dense bracken backed by mature holly trees.

The 2023 survey found a close-grazed pasture field with 37 botanical species recorded over ten quadrats, including eight positive indicator species for lowland meadow (common knapweed *Centaurea nigra*, bird's foot trefoil *Lotus corniculatus*, common spotted orchid *Dactylorhiza fuchsia*, betony *Betonica officinalis*, meadow vetchling *Lathyrus pratensis*, greater bird's foot trefoil *Lotus pedunculatus*, water mint *Mentha aquatica* and bugle *Ajuga reptans*). The average species richness per quadrat was 9.3, and it meets the criteria for lowland meadow.

5b, 5c, 5d and 5e: lowland mixed deciduous woodland

Comprising a line of mature English oaks marks the original field boundary, with mature holly *Ilex aquifolium*, semi-mature English oak and hornbeam and scrub extending out beneath the canopy. This forms a narrow belt of secondary woodland on either side of the original line of trees. This habitat remained the same in 2018 and 2023.

8a: mixed scrub

A dense stand of self-set oak saplings that have colonised and encroached upon the pasture field corner from the adjacent ancient tree line and hedgerow, forming a dense continuous canopy of uniform aged young oak trees, casting a shade on the ground so that no grassland persists beneath the trees. This habitat remained the same in 2018 and 2023.

North-east parcels

1c: modified grassland

This small area forms a narrow glade between scrub/tree lines that connects two grassland areas. The 2018 survey found this small area to comprise a species-poor grassland and tall ruderal herbs. The species composition indicated much higher soil fertility with common nettle, creeping thistle, hedge bindweed and bramble dominant.

In 2023, this was poached and enriched further by accumulating manure from loafing livestock. Creeping bent grass and creeping buttercup were dominant and creeping thistles, common nettle and ragwort common.

5f & 5g: lowland mixed deciduous woodland

In 2018, this was described as secondary woodland bordered by an ancient boundary feature and line of mature oak trees. The woodland is recently established and dominated by semi-mature self-set silver birch and young oak, sallow, and bramble forming a sparse shrub layer. The ground layer was mostly bare and covered with leaf litter with occasional wood avens *Geum urbanum*, lady fern *Athyrium filix-femina*, and patches of mosses including *Polytrichium communis*.

The 2023 survey found much the same habitat conditions.

7f: lowland meadow

Surveys in 2018 found this area to comprise three habitat types: neutral to slightly acid unimproved grassland, with a coarse sward structure, and marshy grassland. The sward supported patches with a high density of herbs including heath spotted orchid, betony, sedges and rushes, other areas with dense tussocky structure. The coarse sward structure was dominated by purple moor grass and tufted hairgrass, marsh thistle and common knapweed. It contained heath-spotted orchid, carnation sedge and tormentil sneezewort and golden rod.

The 2023 survey found the tussocky grass structure had largely disappeared and replaced by a close-grazed pasture field. The survey recorded 26 botanical species over ten quadrats, including seven positive indicator species for lowland meadow (common knapweed *Centaurea nigra*, common spotted orchid *Dactylorhiza fuchsia*, common bird's foot *trefoil Lotus corniculatus*, greater bird's foot trefoil *Lotus pedunculatus*, tormentil *Potentilla erecta*, carnation sedge *Carex panicea*, sneezewort *Achillea ptarmica*). The average species richness per quadrat was 12.2, and it meets the criteria for lowland meadow. Some further encroachment of scrub and young birch trees occupy approximately 1/3 of the field parcel.

7g: lowland meadow

Identified as neutral to slightly acid unimproved and semi-improved grassland in earlier surveys. This open part of the field was enclosed between young invading scrub and graded into marshy grassland. It appeared to have been left undisturbed for many years at the time of the scoping visit in December 2018 but heavy grazing by horses had been resumed in spring 2019. There were patches with a high density of herbs including heath spotted orchid, betony, sedges and rushes, other areas dominated by dense tussocky grasses.

The 2023 survey found a close-grazed pasture field with 23 botanical species recorded over ten quadrats, including seven positive indicator species for lowland meadow (common knapweed *Centaurea nigra*, common spotted orchid *Dactylorhiza fuchsia*, common bird's foot trefoil *Lotus corniculatus*, greater bird's foot trefoil *Lotus pedunculatus*, tormentil *Potentilla erecta*, carnation sedge *Carex panicea*, sneezewort *Achillea ptarmica*). The average species richness per quadrat was 11.3, and it meets the criteria for lowland meadow. Some encroachment of scrub and young birch trees occupy approximately 1/3 of the field parcel.

8b & 8c: dense scrub

8c was identified as marshy grassland in the 2019 survey with a total of 13 species recorded including invading birch saplings, willow and bramble, self-set from adjacent secondary woodland belt. The boundary between this habitat and other types was indistinct. However, the sward gradually became more dominated by rushes and sedges towards wet woodland in the east. The presence of carnation sedge, common yellow sedge together with several species of rush and herbs such as lesser spearwort and marsh thistle characterised this waterlogged vegetation type.

The 2023 survey found the encroaching young birch trees and invading the pasture field to be much more advanced to create a closed canopy of young trees and shrubs dominated by downy birch, with some bramble and broom, hazel, hawthorn and blackthorn.

9a: wet woodland

Previous surveys identified this as secondary woodland on waterlogged ground (total of 10 species). Silver birch was replaced by sallow with some downy birch and aspen. Where the ground lay wet in winter, the field layer was dominated by floating sweet grass, with patches of sphagnum moss and the occasional fern.

2023 surveys found this habitat has not changed significantly from previous surveys, although some patches of sphagnum moss were found this time around.

14a: ditch

A small seasonal ditch along the northern boundary, shaded by a line of trees and earth bank. The ditch carries flowing water in winter and is dry through most of summer with a clay bedrock and substrate. It remained unchanged in 2023.

Eastern parcel

6c: other neutral grassland and 7h: lowland meadow

Surveyed in 2019, this field was divided into two areas, 6c is semi-improved grassland that is regularly mown and grazed by horses. This part of the field, is characterised by common knapweed, ribwort plantain, birds-foot trefoil and selfheal, but was not sufficiently botanically rich to meet lowland meadow criteria. 7h was identified as unimproved neutral grassland in 2019. The boundary between this habitat type and 6c is indistinct but towards the eastern end of the field, betony, sneezewort, eyebrights, devil's bit scabious and rough/lesser hawkbit start to appear, indicating a more unimproved grassland sward type.

The field was not accessible in 2023 due to safety concerns with large horses. The assessment is therefore based on data from a survey undertaken in the summer of 2019.

Southeastern parcel

6d: other neutral grassland

The 2019 survey found this field to be overgrown with encroaching bracken, brambles and scrub and in an advanced stage of succession; the centre of which remained open grassland with a variety of sward types; some areas were taller with herbs, sedges and rushes, and were quite species-poor compared with the other areas. Some small areas had been maintained as tightly grazed by rabbits. In the middle there were two distinct patches of waterlogged ground dominated by sharp flowered rush and compact rush. The sward appeared to have relatively high fertility with creeping buttercup, marsh cudweed and common mouse-ear growing between the clumps of rushes.

This field was not surveyed in 2023; it had been flailed in June/July 2023.

8d & 8e: dense scrub

Patches of dense bramble thicket with trees and scrub contained within the 6d field were sufficiently large and distinct to be mapped as a separate habitat parcel. In 2019 they comprised dense bramble and scrub with some tall ruderal vegetation and semi-improved grassland patches in-between. The field was flail cut in

June/July 2023 before surveys could be conducted and it is likely that these areas of scrub are now removed.

13a, 13b, 13c, 13d, 13e: treelines

Lines of mature trees mark the boundaries around much of the Land North of Borers Arms Road habitat compensation sites. Lines of mature trees also form the boundaries between field parcels within the site. These are characterised by tall mature trees dominated by English oak, hornbeam and holly. Many of the boundary features are marked by ancient ditch and earth banks. The lines of trees are variously bordered by bracken and bramble thickets and in places belts of secondary woodland have developed around them.

3.2.3 Pre-existing Records

A search for pre-existing records requested in July 2019 provided numerous botanical records from both the Land North of Borers Arms Road site and proposed habitat compensation areas. Many of these were also recorded during the botanical surveys including species listed as scarce in Surrey such as trailing tormentil and heath spotted orchid. The following additional species, listed as local, scarce or rare in Surrey, were not recorded during the surveys in 2019 or 2023: Green-winged orchid *Orchis morio* (dated 1995), smooth-stalked sedge *Carex laevigata* (dated 2014), bladder sedge *Carex vesicaria* (dated 2010), eared willow *Salix aurita* (dated 2014), field pepperwort *Lepidium campestre*, (dated 1995) and meadow thistle *Cirsium dissectum* (dated 2014).

3.2.4 Interpretation

In 2018, over 100 species of vascular plant were recorded during the botanical walkover surveys of the Land North of Borers Arms Road site and proposed habitat compensation areas combined. The list included many species indicative of unimproved grasslands, including frequent betony *Betonica officinalis* and tormentil *Potentilla erecta*, and heath spotted orchid *Dactylorhiza maculata*, and occasional devil's bit scabious *Succisa pratensis*, oval sedge *Carex leporina*, eyebrights *Euphrasia* sp. and sheep's fescue *Festuca ovina*. The distribution of many species is patchy and localised, for example yellow rattle *Rhinanthus minor* and quaking grass *Briza media* were found only in the drier and less acid influenced south-eastern most field. Some species are notable as being local, scarce or rare in Surrey including the trailing tormentil *Potentilla anglica*, carnation sedge *Carex panicea*, and marsh pennywort *Hydrocotle vulgaris*.

The surveys in 2023 updated the botanical composition and ecological condition of the site following the introduction of heavy grazing horses across the Land North of Borers Arms Road site. The horses are understood to have been permanently present all year round on the site for at least five years. The updated surveys revealed that there have been both losses and gains in habitat quality in response to this change in management. Overall, the sward structure has changed significantly with most field parcels have a short turf and reduced plant architecture and the abundance of some flowering species, most noticeably yellow rattle and betony has been reduced. Conversely, some of the fields that were dominated by tall grasses in 2018 have increased in botanical diversity due to the grazing management reducing the smothering effect of the grasses and allowing more herbs to colonise. This has occurred in the western fields of Land North of Borers Arms Road and on the north-eastern habitat compensation parcels.

Published guidance on the selection of SNCIs in Surrey state that for unimproved neutral grasslands, "sites that support 15 or more species listed as habitat indicators by Surrey Botanical Society/BSBI, including at least two that are listed as rare, scarce or of conservation interest in Surrey, are likely to be of SNCI designation quality". The species lists recorded during this survey confirm that both the Land North of Borers Arms Road

and proposed habitat compensation areas still qualify as SNCI because they support 23 species (including five rare or scarce in Surrey) and 21 (including five rare or scarce) respectively.

As such, all combined grassland habitats contained within the Land North of Borers Arms Road site should be considered as of **county importance** to nature conservation.

While the tree lines and hedgerows are included in the designated site, and contribute to the overall biodiversity value, they are not the principal reason for the designation. These linear features are considered to be of ecological importance at up to district level as they provide interconnectivity of semi-natural habitat and support a rich variety of species.

[redacted]

[redacted]

3.4 Bats

3.4.1 Natural Roost Features – Trees

The climbing inspection survey categorised three trees of low suitability, seven trees of moderate suitability and one tree of high potential suitability to support roosting bats. Figure 14 shows the location of these trees. A detailed description of the potential roosting features supported by each of these trees is presented in Appendix 5.

The Phase 1 survey undertaken in 2016 recorded that some of the mature oak trees along the western boundary of Copthorne Bank have potential to support roost features. Since these trees lie outside the proposed development, they were not subject to climbing inspections. The same applies to all trees in the proposed habitat compensation area.

Figure 14. Aerial image indicating the location of trees identified with bat roosting potential from ground-based surveys and the result of climbing inspections at Land North of Borers Arms Road. Images produced courtesy of Google maps (map data ©2018 Google).

3.4.2 Built Structures

During the Preliminary Ecological Appraisal in 2016, the agricultural building on Copthorne Bank was assessed as having negligible bat roost potential. This structure comprises a series of open sided storage barns with

corrugated steel roof supported on concrete or steel posts and timber rafters. The building lacks any enclosed voids, and crevice spaces that could offer shelter to bats (Photograph 1).

There is an existing light industrial unit in the path of the southern access route for the proposed scheme. This comprises a single storey warehouse building of brick and blockwork cavity wall construction, with a pitched corrugated chrysotile roof structure supported on concrete beams (Photograph 2 and 3). There are two bitumen covered flat roof extensions to the front (southern) elevation and side (west) elevation that provide office space and bathrooms respectively. This building exhibited several features with potential to support roosting bats, due to a variety of access points into the cavity wall both inside and outside the building (Photographs 4 and 5), plastic cladding with gaps (Photograph 6) and a crevice space behind on the front gable end above the flat roof. Some gaps were also identified behind barge boards on top of the walls of the extension (Photograph 7), although no direct evidence of occupation by bats was found.

The building interior is well lit with natural light from windows and translucent skylights fitted into the roof, and there is no enclosed loft space. The building is surrounded by hard standing and other similar buildings, although it is situated directly adjacent to suitable foraging habitat and has connectivity to tree lines bordering the Land North of Borers Arms Road site. Overall, this building was rated as having moderate bat roost potential and as such, a two-visit emergence survey was undertaken in June–July 2019.

Photograph 1. A view of the agricultural building on Copthorne Bank.

Photograph 2. The front (southern elevation) of the light industrial building to the south of Land North of Borers Arms Road.

Photograph 3. An interior space of the light industrial building showing natural light and lack of enclosed loft space.

Photograph 4. An example of gap in masonry of the industrial building affording potential access into cavity wall.

Photograph 5. A photograph of inside the industrial building's cavity wall (taken using an endoscope).

Photograph 6. A gap in plastic cladding on front elevation of the industrial building.

Photograph 7. A gap behind the barge board on the extension of the industrial unit potentially affording access to a void space between roof and ceiling.

3.4.3 Bat Emergence Surveys

Two emergence surveys were undertaken on the light industrial building to the south of Land North of Borers

Arms Road on 26th June and 15th July 2019. Survey conditions and timings are presented in Appendix 5. No bats were observed emerging from the features on the building. The bat activity recorded during the surveys was limited to a very small number of distant commuting common pipistrelle and noctule bats only. As such, bat emergence surveys were not repeated in 2023. The survey results demonstrate that the building was not used by roosting bats and indicate that this area of the site is not important to foraging bats.

3.4.4 Bat Activity Surveys – Walked Transects in 2018

Four relatively common and widespread species were detected, plus *Myotis* sp. (echolocation calls of this genus cannot be reliably separated). Bat activity was generally widely scattered, with no distinct commuting or foraging routes, although the corridor along Clay Hall Lane to the north of the site had noticeably more activity. There was generally more bat activity during the spring (two visits in May) and towards the autumn (September visit), with much reduced activity during the June–August period.

The common pipistrelle *Pipistrellus pipistrellus* was by far the most frequently encountered species and was recorded in all survey visits. The serotine bat was recorded in small numbers on all visits apart from August. *Myotis* sp. were recorded on three out of the six visits in low numbers, peaking with four single passes in September. Noctule bats followed a similar pattern although these were probably bats passing high over the site rather than using it for foraging. Brown long eared bats *Plecotus auritus* were detected once or twice on four out of the six visits, though it should be noted that brown long-eared bats are often under recorded, with their quiet calls being difficult to detect.

Only common pipistrelle was recorded during the walked transects surveys of Copthorne Bank part of the site in 2017. Solitary foraging and commuting bats were detected on each of the three survey visits scattered around the boundaries of the site.

The results of each walked transect survey is shown in Appendix 5. This shows the cumulative distribution of all bat observations on each walked transect, during which the route was covered at least three times in a session.

3.4.5 Bat Activity Surveys – Walked Transects Update in 2023

Only two walked activity surveys were undertaken in 2023. This is because surveyors encountered unsafe interactions with the horses at night, and surveys were subsequently cancelled and substituted for by automatic static bat detectors for the rest of the season. Common pipistrelle was the most frequently encountered species, serotine and noctule bats were also recorded in small numbers on both visits as well as *Myotis* sp.

The results of the 2023 walked transect surveys covering Land North of Borers Arms Road are presented in Appendix 5, along with the survey conditions and timings.

3.4.6 Bat Activity Surveys – Automated Static Bat Detecting in 2018

The results of the automated static bat detector surveys in 2018 are summarised in Table 5. Automated static bat detectors were not deployed on Copthorne Bank due to a perceived high risk of interference.

The results generally reflect the results of the walked transects with a clear dominance of common pipistrelle, and a very small number of passes recorded from serotine bat, brown long-eared bat, and *Myotis* sp. This

method recorded the presence of soprano pipistrelle *Pipistrellus pygmaeus*, which was not detected during walked transects. *Soprano pipistrelle* was recorded for all four nights in May on the western border of the site. Similarly, a peak in *Myotis* spp. bat activity was recorded at the same location and time near two ponds just beyond the site boundary and this activity spike may represent bats exploiting a higher density of insects emerging from the pond at that time.

Table 5. Mean number of passes recorded by each static detector (rounded to nearest whole number) per night in 2018. Where only one pass was recorded during the deployment, this is presented as '1' and not averaged over the number of nights. Note that the number of nights that the loggers recorded sound are variable. This was due to technical failure. On some nights, static detectors recorded high levels of noise/interference throughout the night, leading to reduced battery life, and all bat calls being obscured. These are marked with * and are discounted from the number of nights recorded and the calculated mean number of passes. Static detectors were not deployed at location 1 in August and location 3 in September due to technical problems.

Location	Date (2018)	Common pipistrelle	Soprano pipistrelle	Brown long-eared bat	Serotine bat	Noctule bat	*Myotis* sp.
1	May (5 nights *)	86	0	0	0	2	1
	September (3 nights *)	2	1	0	0	0	0
2	May (6 nights)	1	1	1	1	0	0
	August (3 nights *)	22	1	0	0	2	1
	September (5 nights)	19	0	0	1	0	0
3	May (4 nights *)	734	14	1	1	1	8
	August (3 nights *)	11	0	0	1	0	0
4	May (3 nights *)	1	0	0	1	0	0
	August (5 nights)	9	1	0	1	0	1
	September (3 nights *)	22	1	0	0	0	0

3.4.7 Bat Activity Surveys – Automated Static Bat Detecting Update in 2023

The results of the automated static bat detector surveys in 2023 are summarised in Table 6. Automated static bat detectors were not deployed on Copthorne Bank due to a high risk of interference. Table 7 shows the error rates from manually analysing a sample of the files identified as noise by the BTO Acoustic Pipeline analysis. This demonstrates that the error rate for noise files is also within acceptable parameters.

The results generally reflect the results of previous survey findings with a dominance of common pipistrelle and a small number of passes recorded from soprano pipistrelle, Nathusius' pipistrelle, long-eared species, barbastelle, serotine and *Nyctalus* sp. Spring and autumn appear to be the time of year with the most activity across all locations; August saw the least activity across the locations, except for Location 4.

Barbastelle (recorded on one occasion) and Nathusius' pipistrelle (recorded on three occasions) were not detected on previous surveys of the site but appear only be occasional visitors.

Table 6. Average (mean) number of passes recorded by each static detector (rounded to nearest whole number) per night in 2023. Static detectors were placed out for 5 nights each. CP = common pipistrelle, SP = soprano pipistrelle, NP = Nathusius' pipistrelle, LE = long-eared species, BARB = barbastelle, MYO = *Myotis* species, SERO = serotine and NYCT = *Nyctalus* species. '*' indicates genus grouped because individual species cannot be reliably distinguished from echolocation calls. Common and soprano pipistrelle calls have had error rates established by manually analysing 10% of each species' calls across all three seasons of static detectors for each location (see Table 7).

Location	Month	CP	SP	NP	LE*	BARB	*MYO**	SERO	*NYCT**
1	May (SM3)	147 (±2)	<1		<1			<1	11
	June (SM3)	27 (±2)	1		1			1	2
	July (1) (SM3)	86 (±2)	2		4			1	2
	July 2 (SM3)	670	<1		<5		<1	<1	<1
	August 1 (SM3)	60	6		3		1	<1	2
	August 2 (SM3)	61	6		3		1	<1	4 (±1)
	Sept 1 (SM7)	888 (±6)	55	1	17		7	<1	2
	Sept 2 (SM3)	Deployment failed/data corrupted							
2	May (SM4)	355 (±2)	3		2		23	2	53
	June (SM9)	269 (±8)	<1		<1		<1	<1	
	July (1) (SM4)	84 (±2)	<1		<1		1		<1
	July 2 (SM4)	167 (±0.2)	2		<1		<1	<1	1
	Aug 1 (SM4)	3	<1		2		<1	1	
	Aug 2 (SM4) re-analysed due to high noise error rate	4	<1		1		<1	<1	<1
	Sept 1 (SM8) re-analysed due to high noise error rate	564	32		1		2	1	<1
	Sept 2 (SM4)	104 (±2)	3		2		6	<1	
3	May (SM5)	145	2		<1	4	1	20	9
	June (SM5)	20			<1			<1	
	July (1) (SM5)	235 (±4)	8		2		2	<1	2
	July 2 (SM5)	262	1		1		2	<1	<1
	Aug 1 (SM5)	-	-	-	-	-	-	-	-
	Aug 2 (SM5)								
	Sept 1 (SM9)	763	19	1	5		13		<1
	Sept 2 (SM5)	688	2		1		3	1	<1
4	May (SM6)	403 (±6)	1				2	5	3

Location	Month	CP	SP	NP	LE*	BARB	*MYO**	SERO	*NYCT**
	June (SM6)	82 (±6)	1		<1		2	4	<1
	July (1) (SM6)	166 (±4)	1		1		3	<1	<1
	July 2 (SM6) re-analysed due to high noise error rate	112	10		4		3	2	<1
Due to high noise error rate reanalysed manually	Aug 1 (SM6)	848 (±7)	14 (±2)		12		3	2	5
	Aug 2 (SM6)	410 (±14)	1		12		7	1	3
	Sept 1 (SM10)	151	12	1	10		2	<1	1
	Sept 2	524 (±2)	9		11		4	<1	<1

Table 7. False negative error rates from noise files identified by the BTO Acoustic Pipeline, established by manually analysing a portion of identified files. Detectors indicated with a * had a full analysis due to unacceptable false negative error rates (above >10%).

Deployment Month	Detector Location	Number of noise files	Number of noise files manually analysed	False negative error rate (%)
May	SM3	41	41	2.44
	SM4	898	90	0
	SM5	23	23	4.3
	SM6	66	10	0
June	SM3	31	10	0
	SM5	30	10	0
	SM6	58	10	0
	SM9	70	10	0
July 1	SM3	10	10	0
	SM4	10	10	0
	SM5	95	10	10
	SM6	84	10	10
July 2	SM3	26	10	0
	SM4	305	31	0
	SM5	42	10	0
	SM6*	177	17	35.3
August 1	SM3	26	10	0
	SM4	305	31	0
	SM5	42	10	0
	SM6	N/A – manually analysed due to high false positive error rate		
August 2	SM3	33	18	0
	SM4*	390	39	23.07
	SM9			
	SM6	294	26	0
Sept 1	SM7	117	116	0.9
	SM8*	28	28	14.29
	SM9	150	15	10
	SM10	349	35	8.57
Sept 2	SM3	Deployment failed/data corrupted		
	SM4	50	13	0
	SM5	165	17	5.88
	SM6	165	17	5.88

3.4.8 Pre-existing Records

The previous search requests identified only three bat records in the search area comprising brown long-eared bat roost visitor records, and a further eight records of the same species and one of Natterer's bat at Tetrad or 10km square resolution that overlap the search area.

In 2018, SxBRC provided 34 records of bats comprising the three most common species: common pipistrelle, soprano pipistrelle and brown long-eared. The closest of these was a common pipistrelle record of a grounded young bat picked up by a bat care worker, approximately 150m to the south, dated 2011. The second closest records relate to the same species recorded flying during an activity survey in 2012.

The number of records for each species from SBIC and SxBRC is presented in Table 8.

Table 8. Number of pre-existing records of each bat species within 2 km of the site boundary as provided by SxBRC.

Species	**No. of records**
Common pipistrelle *Pipistrellus pipistrellus*	16
Soprano pipistrelle *Pipistrelle pygmaeus*	3
Brown long-eared *Plecotus auritus*	9
Natterer's bat *Myotis nattereri*	1

3.4.9 Interpretation

The 2019 tree inspections identified a number of trees with potential roost features. Of these only one was classified as high roost potential; seven were classified as having moderate potential and no evidence of bats using these features was found. As such, the trees contained within the development site are not considered important for roosting bats beyond **local level**.

Emergence surveys of the light industrial building found no evidence that it supports roosting bats in 2019 and the condition of this building remained the same in 2023 so the surveys were not updated at that time. While potential roost features do exist, based on the low level of bat activity recorded during the survey and the lack of vegetation around the buildings, it is considered unlikely that bats use these features. Built structures at Land North of Borers Arms Road and Copthorne Bank presently have a **negligible importance** to roosting bats based upon these survey findings.

The activity surveys have demonstrated that the habitats contained within the development site do support a modest assemblage of foraging and commuting bats, predominantly common pipistrelle using the linear features. 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 development site are used as part of the wider landscape by common and widespread bat species, with linear field boundary features being of particular importance to bats, and as such, the site is not considered to be important to bat conservation beyond the **local level**.

Table 9. Conservation status and distribution of bats recorded on site.[18]

Species	**Conservation status England**	**Distribution in England**
Serotine	Vulnerable	South and south-east of England
Common pipistrelle	Least concern	Widespread
Soprano pipistrelle	Least concern	Widespread
Brown long-eared	Least concern	Widespread
Noctule	Least concern	Widespread
Leisler's bat	Near threatened	Local, southern England to Wales
Barbastelle	Vulnerable	Rare, central-south England
Nathusius' pipistrelle	Near threatened	Widespread, but sparsely recorded

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

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

3.5 Breeding Birds

3.5.1 Survey Results in 2018

A total of 31 species of bird were recorded during the surveys in 2018; of these, three species are 'red' listed under the Birds of Conservation Concern (BoCC) and six are 'amber' listed. The following species recorded during the survey are also listed under Section 41 of the NERC Act (2006): house sparrow *Passer domesticus*, common starling *Sturnus vulgaris,* dunnock *Prunella modularis*, common bullfinch *Pyrrhula pyrrhula*, and song thrush *Turdus philomelos*.

3.5.2 Survey Results Update in 2023

The 2023 surveys recorded 25 species of bird; of these, three species are 'red' listed under the BoCC and six are 'amber' listed. House sparrow, common starling, dunnock and song thrush, which are listed under Section 41 of the NERC Act (2006), were recorded again in 2023.

Tables 10 and 11 present the bird survey results for the 2018 and 2023 surveys respectively. The tables are divided into red, amber and green lists from the BoCC categories. Tables 12 and 13 present the dates, times and survey conditions recorded for each visit.

Table 10. Breeding bird survey summary list for 2018.

RESULTS **Species**	**15 May 2018**	**8 June 2018**	**19 June 2018**	**Breeding status**
House sparrow *Passer domesticus*	1			Non-breeding
Mistle thrush *Turdus viscivorus*	1			Likely
Starling *Sturnus vulgaris*		11		Confirmed
Bullfinch *Pyrrhula pyrrhula*		2	2	Likely
Dunnock *Prunella modularis*		2	4	Likely
House martin *Delichon urbicum*		4	2	Non-breeding
Song thrush *Turdus philomelos*		5	2	Likely
Wood pigeon *Columba palumbus*	12	4	12	Confirmed
Wren *Troglodytes troglodytes*	1	10	11	Likely
Blackbird *Turdus merula*	11	9	9	Confirmed
Blackcap *Sylvia atricapilla*		7	4	Likely
Blue tit *Cyanistes caeruleus*	3	20	8	Likely
Carrion crow *Corvus corone*	2	2	2	Possible
Chaffinch *Fringilla coelebs*	3	2	1	Likely
Chiffchaff *Phylloscopus collybita*	4	2	3	Likely
Coal tit *Periparus ater*			1	Likely
Collard dove *Streptopelia decaocto*	2	1		Possible
Goldcrest *Regulus regulus*		4		Likely
Goldfinch *Carduelis carduelis*		5	3	Likely
Great spotted woodpecker *Dendrocopos major*		2	3	Possible
Great tit *Parus major*	1	2	5	Likely
Greenfinch *Carduelis chloris*		1		Likely
Jackdaw *Coloeus monedula*	5	8	26	Possible
Jay *Garrulus glandarius*		1		Possible
Long-tailed tit *Aegithalos caudatus*		8	1	Likely

Magpie *Pica pica*	1	6	5	Likely
Nuthatch *Sitta europaea*		1		Likely
Pied wagtail *Motacilla alba yarelli*		1		Non-breeding
Robin *Erithacus rubecula*		12	5	Likely
Tree creeper *Certhia familiaris*			2	Likely
White throat *Sylvia communis*		1		Likely

Table 11. Breeding bird survey summary for 2023.

RESULTS **Species**	**6 Apr**	**27 Apr**	**May**	**Jun**	**July**	**Breeding status**
Common starling *Sturnus vulgaris*		2	1	1		Likely breeding
House sparrow *Passer domesticus*			1			Non-breeding
Mistle thrush *Turdus viscivorus*				1		Likely
Dunnock *Prunella modularis*	2	1	1	2		Likely
Kestrel *Falco tinnunculus*				1		Non-breeding
Song thrush *Turdus philomelos*				2		Likely
Stock dove *Columba oenas*				1		Possible
Wren *Troglodytes troglodytes*	9	8	3	8	2	Likely
Woodpigeon *Columba palumbus*	22	10	15	1	1	Confirmed
Blackbird *Turdus merula*	11	9	10	5	4	Confirmed
Blackcap *Sylvia atricapilla*				1		Likely
Blue tit *Cyanistes caeruleus*	7	13	2	9	6	Likely
Carrion crow *Corvus corone*	7	5	1	1	3	Possible
Chiffchaff *Phylloscopus collybita*	4	3	2	5		Likely
Common buzzard *Buteo buteo*		1			1	Possible
Goldfinch *Carduelis carduelis*				2	1	Confirmed
Great spotted woodpecker. *Dendrocopos major*				1		Confirmed
Great tit *Parus major*	7	13	9	2		Likely
Jackdaw *Coloeus monedula*	5	1	3	1	2	Possible
Long-tailed tit *Aegithalos caudatus*				2		Possible
Magpie *Pica pica*	1	2	7	2	1	Likely
Nuthatch *Sitta europaea*				4		Likely
Robin *Erithacus rubecula*	6	9	1	1		Likely
Swallow *Hirudo rustica*					1	Non-breeding
Tree creeper *Certhia familiaris*	1					Likely

Table 12. Breeding bird transect metadata; dates, times, temperature, weather conditions 2018.

Date	**Survey start time/end time**	**Temp. degrees centigrade, weather conditions**	**Surveyors**
15/05/18	06:30-07:45	Temp.: 15–18°C 40% cloud cover, calm, dry.	Ryan Walker BSc. PhD. MCIEEM
08/06/18	07:10-09:30	Temp.: 17°C 100% cloud cover, calm, dry.	Dan Bennett BSc. MCIEEM
19/06/18	05:00-07:45	Temp.: 18°C 80% cloud cover, calm, dry.	Dan Bennett BSc. MCIEEM

Table 13. Breeding bird transect metadata: dates, times, temperature, weather conditions for 2023. *Later start due to rain.

Date	Survey start time/end time	Temp. degrees centigrade, weather conditions	Surveyors
06/04/23	6:40–7:59 Sunrise: 6:40	Temp.: 12°C 100% cloud cover, calm, dry.	Ryan Walker BSc. PhD. MCIEEM
27/04/23	5:45-6:06 Sunrise: 5:40	Temp.: 4°C 0% cloud cover, calm, dry.	Ryan Walker BSc. PhD. MCIEEM
23/05/23	5:15–6:41 Sunrise: 5:00	Temp.: 9°C 20% cloud cover, calm, dry.	Ryan Walker BSc. PhD. MCIEEM
June	4:38-6:01 Sunrise 4:30	Temp.: 11°C 0% cloud cover, calm, dry.	Ryan Walker BSc. PhD. MCIEEM
27/07/23	6:55* – 7:55 Sunrise: 5:19	Temp.: 17°C 100% cloud cover, light rain	Ryan Walker BSc. PhD. MCIEEM

3.5.3 Pre-existing Records

In 2018, SBIC provided only 10 bird records for a total of six common and widespread species. SxBRC provided over 2000 bird records for a total of 95 species. Most of these species are relatively common and widespread, but the list includes 18 species of principal importance for conservation (S41 NERC Act 2006), and three species listed on Schedule 1 of the Wildlife and Countryside Act. In addition, 20 species are red listed on the Birds of Conservation Concern lists. Of these notable bird species, the habitats contained within the proposed development site are broadly suitable for some of the high priority farmland bird and woodland edge species such as turtle dove, cuckoo, marsh tit and yellowhammer. However, the pre-existing records for these species are more than a decade old and none were recorded during the breeding bird surveys. The following more widespread, but declining S41 priority species were present and likely breeding on the site: mistle thrush, song thrush, starling, bullfinch, and dunnock.

3.5.4 Interpretation

The breeding bird assemblage recorded on the Land North of Borers Arms Road part of the site comprised a range of common and widespread bird species including a small number of species listed as priorities for conservation concern. While these species have suffered significant population declines, they remain relatively common in the wider landscape. No nationally scarce species were found during the breeding bird surveys, although the pre-existing biological records indicate that several of these species may have historically been present locally. The habitats contained within the Copthorne Bank part of the site are of poor quality for breeding birds and were therefore not included in the breeding bird surveys.

Based on the above findings, the breeding bird assemblage supported by the site of the proposed development at Land North of Borers Arms Road is not considered to be important for the conservation of birds beyond **local level**.

3.6 Dormice

3.6.1 Nest-tube Survey Results in 2018

The habitats contained within the Land North of Borers Arms Road site include areas of dense scrub, mature tree belt and broadleaved woodland that are all potentially suitable for common dormouse. The site is ecologically well-connected in the wider landscape via tree lines and hedgerows to small blocks of woodland to the east and north of the site. Copthorne Bank does not contain suitable dormouse habitat but borders a small area of broadleaved woodland to the north and tree lines to the south and east where it abuts the Land North of Borers Arms Road part of the site.

During the survey of Land North of Borers Arms Road in 2018, no active dormice were found throughout the survey but evidence of dormouse presence was confirmed with two empty nests found on the last check in October (Figure 15). These nests were distinctive enough to confirm their presence without finding the live animal (Photograph 8 and 9). Several dormice and their nests were found on the proposed habitat compensation areas in 2019, with occupation of eight dormouse tubes overall in 2019.

3.6.2 Nest-tube Survey Results Update in 2023

The surveys were repeated in 2023, and evidence was again limited to an empty nest found in October (Figure 16). Given the structure of the nest and previous results from the site, the nest is enough to confirm the continued presence of dormice on the site without finding the live animal (Photograph 10).

The survey findings, dates of checks and weather conditions are presented in Appendix 6.

Photograph 8. Photograph of the first probable dormouse nest found in October 2018.

Photograph 9. Photograph of the second probable dormouse nest found in October 2018.

Photograph 10. Photograph of the probable dormouse nest found in October 2023.

Figure 15. Land North of Borers Arms Road 2018. White dots indicate nest tubes with evidence of dormouse; red rings in October 2018 checks, and blue rings during 2019 checks. Red dots and amber dots indicate nest tubes where no evidence was found on Land North of Borers Arms Road and habitat compensation areas respectively. Images produced courtesy of Google maps (map data ©2018 Google).

Figure 16. Dormouse survey results for 2023. Red dots indicate nest tube locations, yellow dot indicates nest tube in which evidence of dormice was found. Images prepared using QGIS version 3.28.14 - Firenze.

3.6.3 Pre-existing Records

In 2018 SBIC provided no records of common dormouse in the search area. SxBRC provided five dormouse records in the search area, all located around a wooded area known as Heathy Ground, to the north-east of Junction 10 of the M23 (A264: Copthorne), all dated 2013. The closest of these was at 1.68km from the nearest point of the proposed development site boundary.

3.6.4 Interpretation

The results of the surveys in both years confirm that common dormouse is potentially present in any suitable hedgerows and scrub on both Land North of Borers Arms Road and the proposed habitat compensation site. Dormice tend to occur in low population densities and individuals may have relatively large home ranges for a small mammal. The results indicate that they are probably very scarce across Land North of Borers Arms Road, and more likely to use the habitat compensation site as part of a wider home range. This may reflect the habitat quality, which generally lacks hazel, the favoured foodplant, and suitable habitats within the proposed development site have been cleared of scrub in recent years and comprise tree-lines mature trees with a sparse shrub layer or hedgerow. Substantial parts of the site are very damp and may hold standing water over the winter period, which may be a problem for hibernating dormice. The best areas of habitat are found towards the eastern side of the site, where the dormouse evidence was found and dense continuous scrub remains, extending out from the field boundaries.

Common dormice are known to be widespread across the south-east region of England. They are generally under-recorded and better woodland habitats with stronger populations can be found outside of the proposed development site. Therefore, presence of a small number of individuals at Land North of Borers Arms Road probably represents a small proportion of the overall population and is not considered important to dormouse conservation beyond **local level**.

3.7 Great Crested Newts and Other Amphibians

3.7.1 Habitat Suitability, eDNA Testing Results in 2018 and updated in 2023

The desk study revealed that there is one pond contained within the site and five ponds within 500m of the site boundary (Photograph 11 and Figure 17).

- **Pond 1.** This pond, contained in the south-west corner of the Copthorne Bank part of the site, is a small ephemeral pool that apparently dries out each summer. This pond appears to be recently excavated to provide a source of drinking water for grazing horses. The margins are bare ground, but some aquatic plants are present in the middle. The HSI value for this pond is 0.48: 'poor' making it highly unlikely to support great crested newts and it was not carried forward for further survey in 2018 and was completely poached and dry at the time of eDNA sampling in April 2023.
- **Pond 2.** Ponds 2-3 are located next to each other along the eastern boundary of the site. Both are under mature trees and have a thick leaf litter layer. Pond 2 was dried out over summer 2018. The pond contains a small amount of yellow flag *Iris pseudoacorus*. The HSI value for this pond was calculated as 0.46: 'poor'. This pond was subject to eDNA sampling in April 2017 and repeated in 2023. The results of both tests were returned as 'negative', see Appendix 5.
- **Pond 3.** Adjacent to pond 2, this much larger pond supports more permanent open water, although it was almost dry in 2018. In all other respects it is similar to pond 2, located under mature trees with a deep layer of leaf litter, and marginal pendulous sedge *Carex pendula*. The HSI value for this pond was calculated as 0.70: 'average'. This pond was subject to eDNA sampling in April 2017 and repeated in 2023. The results of both tests were returned as 'negative', see Appendix 5.
- **Pond 4.** This pond is located to the north and is more than 250m away, separated by grazing farmland. It is highly unlikely that great crested newts would disperse as far as the development site. It was therefore discounted from the survey in both 2017 and 2023.
- **Pond 5.** This pond is located more than 250m away to the south of the A264 trunk road, which, together with existing residential areas between the proposed development site and this pond, acts as a significant barrier to dispersal of great crested newts. It was therefore discounted from the survey in 2017 and 2023.
- **Pond 6.** This pond is also located more than 250m away to the south of the A264 trunk road and discounted from both surveys.

Photograph 11. Ponds assessed for suitability to support great crested newts.

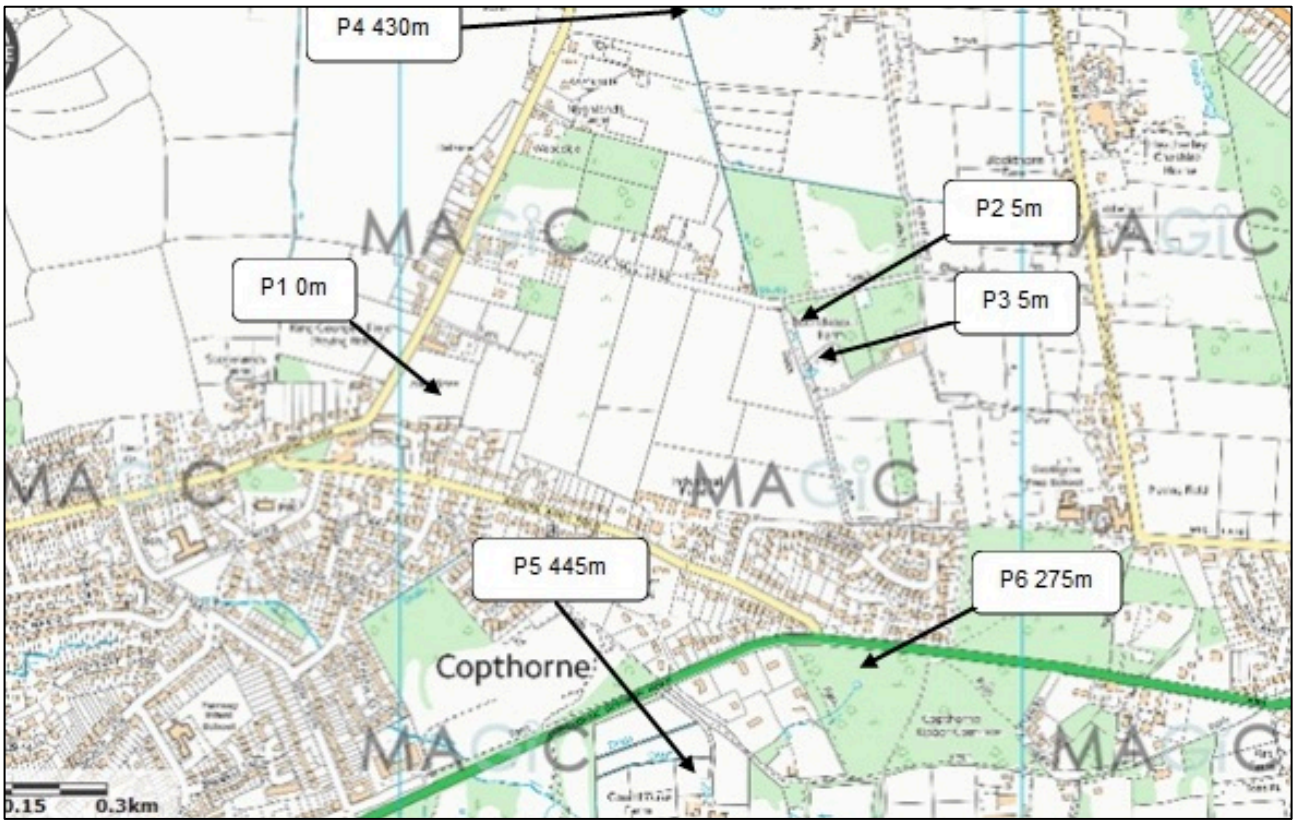

Figure 17. Location of ponds within 500m of the boundary of the site and their distance. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

3.7.2 Pre-existing Records

In 2018, SxBRC provided no amphibian records in the search area. SBIC provided four amphibian records in the search area of 2km. This included one record for great crested newt, one record for smooth newt *Lissotriton vulgaris*, and two records for common frog *Rana temporaria*. The closest great crested newt record was 1.9km from the site boundary and dated 'before 1996'.

3.7.3 Interpretation

Based on the results of the surveys, low pond density in the surrounding landscape and lack of pre-existing records nearby, great crested newts are likely to be absent from the both the development site and habitat compensation site. Despite containing good quality suitable terrestrial habitats for great crested newts, the development site is therefore assessed as of **negligible** importance to great crested newts. However, caution should be exercised in this conclusion as parts of the site falls within the NatureSpace 'Impact Risk amber or red zone' for this species[19].

The presence of common toad was identified during reptile surveys on Land North of Borers Arms Road in 2018. Common toad is a Priority Species under the NERC Act (2006) and as such, should be a consideration for planning and development.

[19] Naturespace Impact Risk Zone Maps - NatureSpace Partnership

3.8 Reptiles

3.8.1 Survey Results

Three individual grass snakes was found during the surveys in 2018 on Land North of Borers Arms Road, although at that time the weather had been unseasonably warm. The habitat compensation site was surveyed the following year but only one grass snake sloughed skin was found. In 2023, 11 grass snakes were found across the site as well as two sloughed skin of grass snake and common toads (see amphibian section above). One adult common lizard was also recorded but no slow worms nor adder were found during any of the reptile surveys.

The survey findings, dates and conditions are presented in Tables 14 to 16 below.

Table 14. Reptile survey findings, and survey dates, times and weather conditions, Land North of Borers Arms Road, 2018.

Date	Start time	Air temp. °C	Refugia temp. °C	Weather conditions	Results
17/4/18	12:00	21	21	Clear sky, moderate breeze, dry	Nil
1/5/18	13:10	25	25	Cloud cover 40%, moderate breeze, dry	1 grass snake juvenile
10/5/18	16:50	30	30	Clear sky, light breeze, dry	Nil
14/5/18	18:15	31	31	Cloud cover 30%, light breeze, dry	1 grass snake juvenile
7/6/18	14:30	22	22	Overcast, light air, damp	1 grass snake adult
31/8/18	17:55	32	32	Clear sky, light air, dry	Nil
25/9/18	16	25	25	Clear sky, light breeze, dry	Nil

Table 15. Reptile survey findings, and survey dates, times and weather conditions, Land North of Borers Arms Road habitat compensation site, 2019.

Date	Start time	Air temp. °C	Refugia temp. °C	Weather conditions	Results
2 July 2019	08:20	16	30	2% cloud cover, calm, damp conditions	Nil reptiles
6 Aug 2019	07:50	17.5	21	50% cloud cover, light air, damp conditions	Nil reptiles
12 Aug 2019	08:00	14	16	90% cloud cover, calm, damp conditions	Nil reptiles
19 Aug 2019	08:40	15	26	5% cloud cover, light air, damp conditions	Nil reptiles
5 Sept 2019	09;00	14.5	20	50% cloud cover, light breeze, damp conditions	Nil reptiles
14 Sept 2019	09:30	15	21.5	5% cloud cover, light air, dry conditions	Nil reptiles

28 Sept 2019	09:30	16	19	90% cloud cover, light breeze, damp conditions	Nil reptiles, though one sloughed skin of adult grass snake found in northernmost field.

Table 16. Reptile survey findings, and survey dates, times and weather conditions, Land North of Borers Arms Road, update 2023.

Date	Start time	Air temp. °C	Refugia temp. °C	Weather conditions	Results
11/05/23	8:50	12	24	70%cc, BF2, dry	1 adult grass snake 1 adult common lizard 4 juv, 2 adult common toad
17/05/23	9:50	14	25	0%cc, BF1, dry	2 adult grass snake 1 sub-adult grass snake 3 juv., 2 adult common toad
09/06/23	8:30	14	20	90%cc, BF3, dry, hazy, intermittent sun	1 adult grass snake 2 sub-adult grass snakes 1 juv. grass snake 7 juv. common toad
25/09/23	16:30	18	24	20%cc, BF2, dry	1 adult grass snake 1 sub-adult grass snakes 1 grass snake slough
28/09/23	13:15	12	23	90%cc, hazy sun	1 juv. grass snake 1 adult common frog 1 grass snake slough
03/10/23	11:00	18	24	40%cc, BF4, dry	No reptiles found
10/10/23	17:00	17	21	30%cc, BF2, dry	1 juv. grass snake

3.8.2 Pre-existing Records

In 2018, SxBRC provided 26 records concerning all four common reptile species. Many of these are located over 2km away close to Junction 10 of the M23 in relation to a development into airport parking, dated 2011-2015. Other sites are more distant, although a single adder record is located at Copthorne Common approximately 600m to the south-west of Land North of Borers Arms Road.

SBIC provided no records for common reptile species within the 1km search area.

3.8.3 Interpretation

Grass snakes are common and widespread species in south-east England and are likely to be present in most areas of suitable habitat. The apparent increase in numbers between 2018 and 2023 may be an artefact of the survey method and change in management – all year-round grazing has produced a significant reduction in

the amount of vegetation structural complexity, which will increase the use of artificial reptile mats by the existing reptile population.

Based on the numbers involved, and the widespread status of grass snakes, Land North of Borers Arms Road is not considered important to common reptile conservation beyond the **local level**.

3.9 Other Notable Species

3.9.1 Incidental Observations/Habitat Potential

Land North of Borers Arms Road contains a variety of good quality semi-natural habitats that are likely to support a rich invertebrate fauna that could potentially include rare or threatened species that are important for nature conservation. During the survey fieldwork in 2018, some of the more readily identified invertebrate species were recorded incidentally (Table 17). These were predominantly common and widespread grassland species but two, the dingy skipper *Erynnis tages* and small heath *Coenonympha pamphilus* are listed as a priority species for conservation (S41).

The introduction of year-round grazing at Land North of Borers Arms Road will have a significant influence on the invertebrate assemblage that it supports, with some species benefitting from the more open grass sward and exposed bare ground, and others in decline. None of these species were recorded in 2023 although a comprehensive survey of the invertebrate assemblage has not been undertaken.

Table 17. A selection of invertebrates recorded at Land North of Borers Arms Road in 2018-19.

English name	Scientific name
Large skipper	*Ochlodes venata*
Dingy skipper	*Erynnis tages*
Small skipper	*Thymelicus sylvestris*
Essex skipper	*Thymelicus lineola*
Common blue	*Polyommatus icarus*
Red admiral	*Vanessa atalanta*
Painted lady	*Vanessa cardui*
Comma	*Polygonia c-album*
Small heath	*Coenonympha pamphilus*
Meadow brown	*Maniola jurtina*
Ringlet	*Aphantopus hyperantus*
White-legged damselfly	*Platycnemis pennipes*
Azure damselfly	*Coenagrion puella*
Southern hawker	*Aeshna cyanea*
Common green grasshopper	*Omocestus viridulus*
Common field grasshopper	*Chorthippus brunneus*
Common meadow grasshopper	*Chorthippus parallelus*
Roesel's bush cricket	*Metrioptera roeselii*
Long winged conehead	*Conocephalus fuscus*
Dark bush cricket	*Pholidoptera griseoaptera*
Dusky cockroach	*Ectobius lapponicus*
Red-tailed bumblebee	*Bombus lapidarius*
Buff-tailed bumblebee	*Bombus pascorum*

Dock bug	*Coreus marginatus*

No evidence of hedgehogs or other priority species of mammal was found during the survey, although on one occasion a female roe deer *Capreolus capreolus* and her fawn was encountered. Short tailed field vole *Microtus agrestis*, bank vole *Myodes glareolus* and wood mouse *Apodemus sylvaticus* were found during reptile and dormouse surveys, with evidence of burrowing European mole *Talpa europaea* 'molehills' also found across all areas of the site. The introduction of year-round grazing will have reduced the site's capacity to support large populations of these species, and the site is probably no longer suitable for harvest mouse *Micromys minutus*. However, the European hedgehog could still be present upon the site, sheltering in the tree lines, scrub and hedgerows by day and foraging across the expanse of short grassland sward at night.

3.9.2 Pre-existing Records

SxBRC provided eight records for European hedgehog *Erinaceus europaeus* in the search area (date range 1972-2007). Of the recent records, the closest was located approximately 500m to the south of Land North of Borers Arms Road. They also provided a long list of records of moths listed on Section 41 of the NERC Act (2006). These relate to a small number of residential garden sites and probably represent a large dataset produced by moth trapping enthusiasts at home. SBIC provided no invertebrate records and one hedgehog record approximately 1km to the north of Land North of Borers Arms Road, dated 2005.

3.9.3 Interpretation

The invertebrate assemblage is poorly recorded at Land North of Borers Arms Road; however, the site supports a range of habitats including a mosaic of botanically diverse and undisturbed grassland types, together with scrub, bramble and bracken edge transitional habitats backed with mature trees and woodland. Based on the quality of these habitats and the SNCI designation, Land North of Borers Arms Road and the proposed habitat compensation area combined could potentially support invertebrate assemblages that are important at up to **county level**. The habitats contained within the Copthorne Bank part of the site offer limited value to invertebrates and it is probably not important beyond **local level**.

3.10 Invasive Non-native Species

3.10.1 Survey Results/Incidental Observations/Habitat Potential

The northern boundary of Land North of Borers Arms Road supports Rhododendron *R. ponticum* growing out of the earth bank forming the boundary feature with Clay Hall Lane. This species is listed on Schedule 9 of the Wildlife and Countryside Act (1981) as amended, making it an offence to cause the spread of this species into the wild. No other non-native invasive (INNS) species were recorded during any of the surveys at Land North of Borers Arms Road.

3.10.2 Pre-existing Records

No records for INNS were supplied by either the SxBRC or SBIC for the search areas around Land North of Borers Arms Road.

3.10.3 Interpretation

Rhododendron ponticum is a plant listed under Schedule 9 of the UK Wildlife and Countryside Act 1981 as it can outcompete native species; therefore, steps should be undertaken to eradicate/control its spread to ensure that significant adverse effects on native flora do not occur and to comply with legislation and best practice measures.

4 IMPACT ASSESSMENT

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

This assessment is based on the most up to date available plan shown on '2512-PL08 Rev J Illustrative Coloured Masterplan' as supplied by Paul J Hewitt Chartered Architect, on behalf of Fairfax Acquisitions Ltd in October 2025.

The proposed scheme comprises the development of 252 residential housing units with associated access roads, hard and soft landscaping, private garden space and areas of public open space. The scheme includes the retention and restoration of three separate land parcels to the north and east of Land North of Borers Arms Road (see Figure 1) to provide some compensation for the loss of existing grassland habitats to the development. These parcels were subject to separate ecological baseline surveys in 2019, and updated where appropriate in 2023 as described in the preceding section of this document.

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

Construction:

- indirect impacts on adjacent habitats from pollution, noise, lighting, dust, 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 loss of semi-natural grassland mosaic and part of the SNCI designated site habitats
- increased recreational use of adjacent habitats leading to soil compaction, human/dog disturbance, littering, physical damage to trees and vegetation.
- chronic disturbance from noise, lighting and the movement of people, vehicles on-site; risk of traffic collisions on the developed site
- increase in numbers of people and pets on site.

4.1 Designated Sites

4.1.1 Impact Characterisation

Land North of Borers Arms Road lies some distance from all statutory designated nature conservation sites (SSSIs, NNRs, SACs, SPAs, Ramsar). In terms of potential significant adverse effects resulting from the proposed development, these designated sites are outside the zone of influence in all cases.

However, Land North of Borers Arms Road falls within the Copthorne Meadows SNCI. The proposed development will therefore result in the permanent loss of more than a third of the area contained within this designated site[14].

The increased human population resulting from the proposed development will lead to increased recreational pressure and associated disturbance, physical damage such as vegetation and soil compaction, collection of dead wood, littering and local nutrient enrichment through deposition of dog waste, affecting the remaining areas of the designated site. The proximity of residential development may also increase the risk of introduction of invasive non-native species.

4.1.2 Significance of Effects

In the absence of mitigation, the direct loss of a substantial proportion of the designated site and damage to the remaining areas of Copthorne Meadows SNCI is a certain negative impact that would be significant at **county level** and would conflict with Tandridge District Council's Local Plan (TLP 35)[20].

4.2 Priority Habitats

4.2.1 Impact Characterisation

The proposed housing development is situated on the western part of the Land North of Borers Arms Road site, and the whole of Copthorne Bank. Copthorne Bank comprises intensively grazed modified grassland of low ecological importance, but the area of development upon Land North of Borers Arms Road includes a mixture of grassland types including lowland meadow and other neutral grassland, all of which falls under the SNCI designation. Lowland meadow is also listed as a 'priority habitat' under Section 41 of the NERC Act 2006.

The proposed scheme layout avoids some of the better quality lowland meadow grassland towards the eastern side of the Land North of Borers Arms Road site and retains almost all the existing tree lines and hedgerows, apart from short sections where access roads will pass through the development site.

However, a significant proportion of the lowland meadow and neutral grassland would be permanently lost if the proposed scheme is granted permission to proceed. The quantity of habitat lost to the proposed scheme has been measured in accordance with the statutory requirements under the Biodiversity Net Gain condition, see Biodiversity Offset Calculation, Section 6 of this document). Overall, the total area of the site is 31.68ha (16.48ha developed area and 15.20ha compensatory area). Taken from these calculations, the proposed scheme would result in the permanent loss of the following natural habitats:

- 5.47 ha Lowland meadow
- 3.90 ha 'other' neutral grassland
- 2.4 ha modified grassland

[20] TLP 35 of Our Local Plan (Tandridge District Council submitted to the planning inspectorate in January 2019) states that "*proposals within or outside an SSSI, LNR, SNCI or pSNCI which would be likely to adversely affect the designated site (either individually or in combination with other developments) will not be permitted unless the benefits of the development clearly outweigh both the adverse impacts on the designated site and any adverse impacts on the wider biodiversity network. Where adverse impacts are unavoidable, they must be adequately and proportionately mitigated. If full mitigation cannot be provided, compensation will be required as a last resort.*"

- 0.126 ha lowland mixed deciduous woodland
- 1.4 ha Bracken
- 0.005ha of Pond (non-priority habitat)
- 0.17 km Line of trees
- 0.181 km of non native/ornamental hedgerow

In addition to the direct loss of habitat, the indirect impacts described in section 4.1.1 apply to the remaining habitats and this could result in a gradual deterioration in the condition of the grassland sward and loss of botanical diversity in the remaining part of the site, in the absence of mitigation.

4.2.2 Significance of Effects

As the lowland meadow supported at Land North of Borers Arms Road is designated as important to nature conservation at a county level, and the proposed scheme will result in both the direct loss of a proportion of this habitat and could lead to gradual deterioration in condition of the remainder, it follows that, in the absence of mitigation, the impact of the proposed development on grassland habitat will be significant at **county level**.

[redacted]

4.4 Bats

4.4.1 Impact Characterisation

The light industrial building located at the proposed entrance to the development site will be demolished. The surveys indicate that whilst this building has potentially suitable roosting features, it is not likely to be important to roosting bats. Based on the data collected in 2018, the proposed development is likely to require the felling of one tree identified as having moderate potential to support roosting bats. This tree (T4, see Figure 14, Section 3.4.1 and Appendix 5) is an English oak classified as 'moderate potential' - a limb scar that leads into a cavity extending upwards for approximately 30cm. All other trees with identified potential roost features will be retained. However, this assessment will require updating prior to commencement as the condition of trees may change in time and if the proposed scheme layout is modified in any way.

This scheme 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 permanent loss of the grassland habitats that could be an important source of insect prey for bats. Any large-scale residential development also brings with it an increased level of human disturbance, and increased predation risk by domestic cats on local bat populations.

4.4.2 Significance of Effects

Suitable alternative foraging habitat for bats does exist around the proposed development to the north, east and west, and this loss of habitat represents a small proportion of the total resource available. Furthermore, residential gardens have potential to offer replacement suitable foraging habitat for less sensitive species such as common pipistrelle, which makes up most of the existing assemblage. The introduction of buildings brings potential opportunities for roosting bats, which could potentially benefit common pipistrelle and serotine bats.

Since the activity surveys did not reveal use of the site by large numbers of foraging bats or the frequent occurrence of rare species on the proposed development site, the impacts upon the foraging bat assemblage is not considered to be significant beyond **local level**.

The loss of the light industrial building will have a negligible impact on bats, and the impact on tree-roosting bats is uncertain but not likely to be significant at more than **local level**, based on available information.

4.5 Breeding Birds

4.5.1 Impact Characterisation

The proposed development site supports a limited breeding bird assemblage comprising common and widespread species. The loss of existing trees and shrubs used for nesting is limited in extent to the small sections where access roads pass through the tree-lined field boundaries, which are largely incorporated into the design. If undertaken insensitively, clearance of this vegetation has potential to result in the destruction of nests, eggs and young of nesting bird species.

The existing site does not currently support ground-nesting farmland birds such as skylark and meadow pipit. As such, construction on the grassland habitats will not result in direct impacts on breeding birds. However, once the residential development is occupied, there is potential for longer term indirect impacts on the breeding bird assemblage through the loss of foraging habitat, and indirect impacts through human disturbance and

increased predation from domestic pets.

4.5.2 Significance of Effects

Based on the breeding bird survey results, the loss of these habitats is limited to a small number of birds, and there is suitable alternative habitat for these species retained as part of the scheme and across the local landscape. As such, the effects of habitat loss on individual species and the breeding bird assemblage is not considered to be significant beyond **local level.**

4.6 Common Dormice

4.6.1 Impact Characterisation

Most of the existing tree lines and scrub will be retained throughout the proposed development, and suitable habitat loss for dormice is limited to short sections that must be removed to allow construction of the access roads across the site. However, this could lead to direct impacts on dormice and their nests during vegetation clearance, and could result in an impact on habitat interconnectivity. The proximity to residential housing could lead to indirect impacts on dormice including artificial light spill and increased risk of predation by domestic cats, together with habitat degradation and disturbance.

4.6.2 Significance of Effects

The loss of a small amount of suitable dormouse habitat is probably not significant as it represents a very small proportion of the total habitat available, and only affects the suboptimal habitat where dormice were not found during surveys. It is difficult to predict the significance of the severance of these linear features on dormouse as their movements across this landscape is not known, but alternative routes are available and the average distance across each gap is smaller than the gaps that they are known to be capable of crossing.

The indirect impacts caused by proximity of housing is more widespread across the site and probably lead to the most severe effects on the dormouse population, although simple mitigation measures will reduce these to an acceptable level relatively easily. Overall, the impact of the proposed scheme on the dormouse population is not considered to be significant beyond **local level**.

4.7 Reptiles

4.7.1 Impact Characterisation

Land North of Borers Arms Road supports a population of grass snake and common lizard; the permanent loss of grassland habitat to the proposed scheme could result in significant effects on these populations through direct harm to individual animals (high risk of killing and injury which would be a breach in wildlife legislation) during vegetation clearance and site preparation for construction, permanent loss of foraging habitat and severance/fragmentation of habitat across the landscape.

4.7.2 Significance of Effects

Based on the number of gras snakes found during surveys in 2023 and the scale of the proposed development, the impact of the proposed scheme is predicted to be significant up to **local level**.

4.8 Other Notable Species

4.8.1 Impact Characterisation

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. However, the proposed development retains the tree lines and scrub, and a substantial proportion of the surrounding habitat will remain intact. The lost 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 compensate for the habitat lost to some extent. 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.

The grassland habitat lost to the proposed development is likely to impact on the existing invertebrate assemblages they support. However, a substantial part of the more botanically rich grasslands, which probably support the greatest invertebrate diversity, will be retained and while the area of habitat available is reduced, populations of many species will probably persist despite the development upon the site. The indirect impacts related to recreational pressure described above will probably also apply to invertebrate assemblages.

4.8.2 Significance of Effects

The hedgehog has suffered dramatic declines in population in recent decades, although it remains widespread and has declined less in urban areas than rural areas[16]. There is a high degree of uncertainty of impacts occurring on hedgehogs but based on the degree of habitat lost to the development compared to that retained and potentially replaced by residential gardens, the impact on hedgehogs is not likely to be important beyond **district level.**

As for hedgehogs, there is a high degree of uncertainty regarding the impact on invertebrate assemblages. However, based on the information available and the quality of habitat that would be lost versus that retained, the proposed development is probably unlikely to be significant beyond **district level**.

4.9 Invasive Non-native Species

4.9.1 Impact Characterisation

Since the existing site does not support INNS apart from Rhododendron in a few localised places on the boundary of the development site, the proposed scheme is not likely to result in the spread of INNS to other sites. However, the introduction of construction activity and residential development upon the site brings with it a high risk of introducing new INNS onto the site through imported soil material, contaminated vehicles or deliberately/inadvertently as part of the landscape planting or garden stocking. Once established on the development site, there is a risk that INNS could spread into the retained semi-natural habitats and wider landscape.

4.9.2 Significance of Effects

The probability of this impact occurring is low, but introduction of INNS could result in the gradual displacement of native species and habitat degradation of the retained areas of semi-natural habitat that could potentially be significant at up to **local level**.

5 MITIGATION PROPOSALS

5.1 Designated Sites and Priority Habitats

5.1.1 Impact Avoidance

The proposed development layout has been designed to minimise habitat loss. The current scheme is situated upon Copthorne Bank and the western side of Land North of Borers Arms Road. It therefore avoids most of the existing botanically rich grassland, which tends to be found in the eastern part of Land North of Borers Arms Road. The existing linear features (treelines and hedgerows) are largely retained by the scheme, although a small amount of clearance is unavoidable to allow the passage of access roads through the development. However, the proposed scheme is situated upon the Copthorne Meadows SNCI, and the direct loss of a substantial part of the designated grassland habitat is unavoidable.

5.1.2 Mitigation Measures

It is not possible to mitigate for the direct loss of grassland habitat, although mitigation will be put in place to prevent harm to protected species during site clearance and construction activity. Indirect impacts on the remaining habitat during construction will be mitigated by implementing standard best practice construction methods, including dust suppression techniques and enforcing site rules on root protection zones and preventing encroachment, for example, by vehicles or site staff into sensitive habitat areas or storage of materials outside the construction site limits.

Post-construction, the effects of recreational pressure on the remaining habitats will be mitigated by establishing defined footpaths through parts of the site that focus and direct public access away from the most sensitive grassland habitats, while also allowing the benefits to the local community that arise with improved connectivity to natural greenspace to be realised. The biodiversity value supported by these habitats will be communicated through information panels and signage. Dog waste bins and prohibition signs (e.g. no cycling, motorised vehicles, lighting fires/BBQs, ball games) will be used to encourage appropriate recreational use of the site.

5.1.3 Residual Effects

Despite the retention of the most botanically important parts of the site, the unavoidable loss of part of the designated site and the mixed grassland habitat remains a residual impact that is significant at district level, for which compensation is required. Thus, habitat compensation measures are required to satisfy the Biodiversity Net Gain Condition which came into force in February 2024. The current scheme includes some areas on site and off site that will be enhanced to go some way to meeting this requirement, as outlined below, but in addition it requires a substantial biodiversity offset as, despite this, it does not yet meet the 10% net gain mandatory requirement (see Biodiversity Offset Calculation, Section 6).

5.1.4 Compensation Measures

The current scheme brings into management the three separate land parcels to the north-east and east of the development site. These areas also fall within the SNCI designation and have been subject to the same baseline ecological surveys in 2019 and 2023 as the Land North of Borers Arms Road site. These existing habitats will be subject to habitat management intervention aimed at restoring and enhancing their value to nature conservation into the future. The management interventions proposed for these two compartments are

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

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- [redacted]
- [redacted]
- [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

5.2.3 Residual Effects

There are no residual effects.

5.2.4 Compensation Measures

No compensation is required.

5.3 Bats

5.3.1 Impact Avoidance

The proposed scheme has been designed to minimise impacts on foraging and commuting bats and all linear features are retained as far as possible. However, the loss of grassland and scrub as foraging habitat for bats is unavoidable. The loss of a building with low potential to support roosting bats is also unavoidable.

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 shall include measures to create 'dark corridors' through the development site along the retained hedgerows and tree lines, and measures to minimize light spill onto all semi-natural habitats. All street lighting 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.

5.3.2 Mitigation Measures

As no bats have been identified emerging from or entering roosts during surveys, it is considered highly unlikely that the features identified in the initial survey associated with the industrial building are regularly used by roosting bats. However, the highly transitory nature of many bat species means that it is not possible to completely dismiss this possibility as the potentially suitable features may be used infrequently. As a precautionary measure, the following mitigation should be put in place:

- in advance of demolition works of the industrial building to the south of Land North of Borers Arms Road, the feature should first be inspected by a qualified ecologist to update on the condition of the building and potential for roosting bats.

- The emergence surveys will be updated in response to changes in the building's condition prior to the start of construction.
- If evidence of roosting bats is found, an appropriate mitigation strategy will be produced and if required, an application for a European Protected Species Licence will be obtained. All mitigation measures would be in accordance with current best practice guidance in proportion with the number, species and type of roost found.
- All trees including tree T4 that must be felled to facilitate the development will be reassessed for their bat roost potential in advance. Further surveys and mitigation, either by using precautionary felling techniques or exceptionally under an EPS licence if required, will be undertaken in accordance with best practice guidance. the potential for impacts and need for EPS licencing will be reassessed.

5.3.3 Residual Effects

These impact avoidance and mitigation measures will reduce the impact of the proposed development to an acceptable level so that the residual effects are not considered significant beyond site level in the long-term.

5.3.4 Compensation Measures

The habitat management measures put in place to compensate for the loss of part of the SNCI and priority grassland habitats to the development are designed to restore botanical diversity (see Biodiversity Offset Calculation, Section 6). This will in turn encourage invertebrate diversity that will bring benefits to bats through improved prey availability and foraging opportunities.

As a specific enhancement feature for bats, the new buildings of the residential development should incorporate bespoke bat roosting features into the integrity of the building. This will provide new roosting opportunities for bats that use the site for foraging.

5.4 Breeding Birds

5.4.1 Impact Avoidance

The proposed development has been designed to retain most of the existing tree lines and hedgerows and therefore avoids significant nesting habitat loss for breeding birds. However, the loss of grassland habitats that are potentially used for foraging by the breeding bird assemblage cannot be avoided in order to make way for the development.

5.4.2 Mitigation Measures

To prevent direct impacts on nesting birds and comply with legislation, all vegetation removal, including felling of trees, clearance of scrub and bramble, and building demolition shall be timed outside of the nesting bird season (typically 1 March to 31 August inclusive).

It is important to note that the site is likely to support breeding mistle thrushes, which are known to breed much earlier than other common species and can be incubating eggs as early as mid-February. It is therefore strongly recommended to plan ahead so that tree felling works are undertaken before the end of January.
Small areas of scrub and single trees can only be felled during the bird nesting season if all features can first be thoroughly searched by a suitably qualified ecologist and no active nests are found.

5.4.3 Residual Effects

The unavoidable habitat loss to the development represents a residual impact on breeding birds as it cannot be mitigated for. However, based on the baseline survey findings, the effects on individual species and the breeding bird assemblage are not likely to be significant beyond site level.

5.4.4 Compensation Measures

The landscape planting scheme includes new lines of trees planted around the perimeter of the residential parcels around the scheme. These new habitats will compensate for the loss of short sections of tree lines that are lost to the scheme (see Biodiversity Offset Calculation, Section 6).

The introduction of appropriate management to the remainder of the SNCI, including grass cutting and grazing, will result in improved foraging habitat for some species, especially mistle thrush in early spring when the sward height is low and seed-eating finches later in the season when wildflowers are left to set seed.

The new buildings on the residential development should incorporate bespoke nesting opportunities such as sparrow terraces and swift boxes to encourage these species into the site. This will be specified in detail in a detailed Landscape and Ecology Management Plan (LEMP) for the development scheme to be approved by the local planning authority under reserved matters.

5.5 Common Dormouse

5.5.1 Impact Avoidance

As for nesting birds, the proposed development has been designed to retain most of the existing tree lines and hedgerows and therefore avoids significant habitat loss for dormice. The proposed clearance of invading scrub, sapling trees and bramble is proposed to restore species rich grassland as compensation for the loss of grassland to the development in the north-east habitat compensation parcel. While this is avoidable, the habitat affected is of low ecological value and probably not important to dormice; the benefits to other species will outweigh the potential impact on this species.

5.5.2 Mitigation Measures

Based on the survey results, it is reasonable to assume that dormice may be present in all areas of woodland, scrub and tree lines where it is connected across the landscape. Since the proposed scheme involves removal of this habitat, a European Protected Species (EPS) licence must be obtained from Natural England for the development to legally proceed.

Details of the mitigation measures will be set out in a method statement submitted with the licence application at an appropriate time before construction and habitat restoration works commence. In accordance with standard best practice guidance, this is likely to involve timing clearance operations in winter during the hibernation period for dormice, followed by excavation/stump removal, where necessary, the following spring. This work should be preceded by fingertip searches for dormouse nests of all potentially suitable features (e.g. coppice stools, accumulations of leaf litter, log piles and debris) by a suitably qualified ecologist.

5.5.3 Residual Effects

The above mitigation measures address immediate risks of harm to individual dormice, but the loss of habitat remains a residual impact. To obtain an EPS licence, compensation measures must be offered to ensure that there is no net loss of suitable habitat for dormice.

5.5.4 Compensation Measures

The proposed scheme includes new lines of trees landscape planting around the new residential areas that compensate for the loss of this habitat. It shall also include new hedgerow planting and uses native shrub planting to enhance and improve biodiversity value of the retained tree lines through the development site. These measures will provide compensation for the loss of small areas of habitat for dormice and are separate from that proposed in the current Biodiversity Net Gain calculation (see Biodiversity Offset Calculation, Section 6).

5.6 Reptiles (and Amphibians)

5.6.1 Impact Avoidance

The scheme retains a substantial proportion of the existing SNCI habitats used by grass snakes and common lizard, but loss of suitable grassland habitat supporting this population is unavoidable.

5.6.2 Mitigation Measures

Based on the updated survey information, full reptile trapping and translocation from the construction zone will not be necessary and would be disproportionate to the population affected. Grass snakes are highly mobile species with large home ranges and translocation to another site would not be appropriate. However, safeguards are necessary to prevent harm to these animals and comply with legislation (these measures will also safeguard any common amphibians). Before commencement, the grassland construction zone will be cut or grazed heavily to produce a short sward height during warm conditions when reptiles are active and can take evasive action. This removes the vegetation cover and makes the construction zone unattractive to reptiles, encouraging them to move away. At the same time, suitable tall grassland habitat will be maintained in the adjacent retained grassland part of the site. The mowing regime will be carried out slowly in such a way that progressively larger areas will be cut over a period of several days to allow reptiles to move out of the construction zone and towards the alternative habitat, rather than cutting the whole site in one go.

5.6.3 Residual Effects

Based on the survey findings, the habitats lost to the scheme at Land North of Borers Arms Road do not support important numbers of reptiles and sufficient habitat shall be retained and be enhanced. As such, it is reasonable to assume that the habitat loss as a residual impact is not significant beyond site level for reptile conservation.

5.6.4 Compensation Measures

The habitat management measures put in place to compensate for the loss of part of the SNCI and priority grassland habitats to the development are designed to restore botanical diversity. This will in turn encourage invertebrate diversity that is potentially beneficial to common reptiles (and amphibians) through improved prey availability and foraging opportunities. However, the introduction of a management regime that includes

mowing and grazing the grassland to reduce course grasses and improve botanical diversity, also has the counter effect of reducing suitable cover for reptiles. The management plan will therefore aim to create a mosaic of grassland types, maximizing structural diversity by creating some marginal areas left uncut and allowed to develop a tussock forming tall sward structure with scattered scrub to provide some cover for reptiles; this will also benefit invertebrates and mammals such as hedgehogs, harvest mice and other priority species.

5.7 Other Notable Species

5.7.1 Impact Avoidance

As described above, the development has been designed to retain the best areas of grassland habitat, and existing tree lines and hedgerows to minimise habitat loss. These areas are likely to be the most ecologically important for invertebrates and other notable species. However, the proposed development will result in the direct loss of grassland habitats that also potentially support notable invertebrate species and hedgehog that would be unavoidable.

5.7.2 Mitigation Measures

The mitigation measures (progressive mowing/heavy grazing) put in place to prevent harm to common reptiles will also reduce the risk of harm to hedgehogs during the construction of the residential development.

Secondly the soft landscaping within the development site includes hedge planting to define the residential gardens where possible, in place of 'hard' fencing. This will provide potentially suitable resting places and maintain permeability through the urban landscape for hedgehogs. These hedges will also provide nesting habitat and cover for garden birds, suitable for the priority species dunnock, house sparrow and song thrush.

5.7.3 Residual Effects

As for other species the impact avoidance and mitigation measures described above do not address the net loss of suitable grassland habitat for notable invertebrates and this remains a residual impact that is potentially significant at up to **district level**.

5.7.4 Compensation Measures

The habitat management measures put in place to compensate for the loss of part of the SNCI and priority grassland habitats to the development are designed to restore botanical diversity (see Biodiversity Offset Calculation, Section 6). This will in turn encourage invertebrate diversity that will compensate for the loss of habitat to the proposed development. The management plan will aim to accommodate measures to encourage the priority species of invertebrate that have been recorded on the site (e.g. dingy skipper and small heath butterflies) together with maximizing the value of habitats for invertebrates.

5.8 Invasive Non-native Species

5.8.1 Impact Avoidance

The existing site is relatively clear of invasive non-native species apart from some ornamental rhododendron along the northern boundary of Land North of Borers Arms Road. Consideration shall be given throughout the

life of the development to avoid the introduction of non-native species. This includes ensuring that all machinery and imported materials are free from contamination and that the soft landscape scheme does not include non-native ornamental species with potential to escape and become invasive (e.g. buddleia, cotoneaster, Japanese rose, rhododendron).

5.8.2 Mitigation Measures

To prevent the spread of invasive non-native species it is recommended that the rhododendron shrubs along the northern boundary on Clay Hall Lane are removed. They can be replaced with native species such as holly, hazel and hawthorn.

5.8.3 Residual Effects

There are no residual effects.

5.8.4 Compensation Measures

No compensation is required.

6 BIODIVERSITY IMPACT CALCULATIONS

The Ecology Co-op was commissioned to undertake a 'Biodiversity Impact Calculation' for the proposed scheme at Land North of Borers Arms Road and Copthorne Bank in 2019. The calculation used a version of the Environment Bank's metric calculator which assigns 'biodiversity units' to the pre-existing habitats contained within a proposed development site and those that are predicted to be lost, restored and/or created once the development has been constructed. The methodology and detailed results for Land North of Borers Arms Road and Copthorne Bank were presented in a separate report[21]. The calculation demonstrated that the proposed scheme results in a net loss of biodiversity units (-14.17 units) and for 'linear habitats' (hedgerows and tree lines), the calculation demonstrated a net gain in biodiversity units (+8.93). For a scheme to be delivering net gain, the calculated gain must exceed 10% of the gross loss of biodiversity units calculated for the site. In this case, that means that an off-site biodiversity credit should be sought that exceeds 20.11 units.

The aim of the biodiversity offset calculation is to provide an objective measure of the losses and gains in biodiversity resulting from the current layout and compensation package and determine whether the overall scheme results in a net gain or net loss in biodiversity. Any net loss in biodiversity can be offset by contributing towards habitat creation or restoration at another off-site location.

Since 2019 the concept of Biodiversity Net Gain has progressively evolved and in February 2024, became a mandatory requirement for all planning applications (with minor exemptions). The current scheme layout has been run through the latest statutory biodiversity metric calculator to update on the original one through the Environment Bank. The results of this exercise are reported in a separate report[22] that should be read in conjunction with this document. The outcome of the updated calculation is summarized below:

[21] Bennett, D. Crawshaw, O., (2019) Biodiversity Impact Calculation; Land North of Borers Arms Road, Copthorne. Unpublished report prepared by The Ecology Co-op on behalf of Fairfax Properties Ltd. Dated 22nd October 2019.
[22] Ecology Co-op (2025) Biodiversity Impact Calculation; Land North of Borers Arms Road, Copthorne. Unpublished report prepared by The Ecology Co-op on behalf of Fairfax Properties Ltd. Dated October 2025.

- A net loss of 49.40 habitat units, which equates to -22.69% loss in biodiversity
- Net gain of 1.12hedgerow units, which equates to +13.72%.

7 CONCLUSIONS

A summary of the EcIA process is presented in Table 18 below.

Table 18. EcIA summary table

Ecological feature	Importance	Impact characterisation	Significance & confidence	Outline mitigation	Residual impact	Compensation
Copthorne Meadow SNCI	County	Direct loss of more than a third of SNCI	County - certain	Avoidance of the most botanically rich areas	District	Inclusion of 'habitat compensation site' –restoration of the retained parts of the SNCI; and Biodiversity offset at another separate site.
Priority habitats	County	Loss of grassland mosaic including some lowland meadow	County	Avoidance of the most botanically rich areas	District	Inclusion of 'habitat compensation site' –restoration of the retained parts of the SNCI; and Biodiversity offset at another separate site.
Linear features	District	Loss of short sections of tree lines totalling 70m	Local	Retention of features into the scheme design where possible.	Local	Enhancement of retained linear features and new hedgerow planting.
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Bats: Foraging and commuting	Local	Temporary loss of foraging habitat and change of habitat characteristics	Local - uncertain	Sensitive lighting design, soft landscape design	Site/ negligible	None required but habitat compensation site will benefit foraging bats.
Bats: Roosting in buildings	Site	Loss of existing industrial building with low roost potential; introduction of large number of new residential buildings.	Site - likely	Incorporating integral bat roosts into new buildings.	Positive enhancement	None required
Bats: Roosting in trees	Local	Loss of one tree with moderate potential	Local - uncertain	Advance checks following best practice	Site/ negligible	None required

				guidance to prevent immediate harm.		
Breeding birds	Local	Loss of nesting sites small extent	Local	Vegetation clearance timed outside breeding season; replacement through soft landscape design	Site/ negligible	None required but habitat compensation site will benefit breeding birds. Incorporation of sparrow terraces and swift boxes into buildings represents an enhancement.
Common dormouse population	Local	Direct loss of linear features and woodland habitat; severance of linear feature connectivity; disturbance and deterioration in habitat condition through proximity to residential development.	Local	Standard mitigation secured through EPS licence; sensitive lighting design	Site/ negligible	Replacement habitats provided by soft landscape planting into linear features and new hedgerow planting
Great crested newts	No impacts identified.					
Common reptiles: low numbers of grass snake only	Site	Risk of harm to individual grass snakes is possible during site clearance works	Site – likely	Staged vegetation cutting to displace them into retained suitable habitat .	Site/ negligible	Management of habitat compensation site to incorporate suitable reptile habitat.
Other notable species: European hedgehog. Invertebrate assemblage	Uncertain; County	Grassland habitat loss; change of habitat characteristics for hedgehogs from grassland to residential gardens.	Uncertain; District	Staged vegetation cutting in conjunction with reptiles; no mitigation available for invertebrate assemblage.	District level	Inclusion of 'habitat compensation site' –restoration of the retained part of the SNCI; and Biodiversity offset at another separate site.

APPENDIX 1 – LEGISLATION AND POLICY

Introduction

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

The 'Birds Directive', 'Habitats Directive' and 'Natura 2000 Sites'

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

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

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

The 'Habitats Regulations'

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

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

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

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

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

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

Wildlife and Countryside Act (1981) as amended

The Wildlife and Countryside Act (1981)[23] remains one of the most important pieces of wildlife legislation in the UK. There are various schedules to the Act protecting birds (Schedule 1), other animals including insects (Schedule 5), plants (Schedule 8), and control of invasive non-native species (Schedule 9).

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

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

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

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

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

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

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

The NERC Act (2006)[24] places a statutory duty under Section 40 on all public bodies, including planning

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

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

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]

National Planning Policy Framework

The National Planning Policy Framework (NPPF 2024)[26] 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 priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue*

[25] [redacted]

[26] 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.

opportunities for securing measurable net gains for biodiversity."

The Office of the Deputy Prime Minister (ODPM) Circular 06/2005, 2005)[27]. 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)[28], and a progress update was provided in July 2013 (Defra 2013)[29].

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

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

Birds of Conservation Concern (BoCC)

In 1996, the UK's leading non-governmental bird conservation organisations reviewed the conservation status of all bird species in the UK against a series of criteria relating to their population size, trends and relative importance to global conservation. The lists, known as the 'Red', 'Amber' and 'Green' lists (in order of decreasing concern) are used to inform key conservation policy and decisions. The lists are reviewed every five years and are a useful reference for determining the current importance of a particular site for birds. The most recent review was undertaken in 2021[30] (Stanbury et al, 2015), which provides an up to date assessment of the conservation status of birds in the UK.

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[27] 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.

[28] 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.

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

[30] 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 - IMPORTANCE OF ECOLOGICAL FEATURES

Table 19. 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 3 - BOTANICAL ASSESSMENT OF GRASSLANDS

Table 20. Botanical Survey findings in 2018. Species list and abundance (DAFOR Scale – D=dominant; A=abundant; F=frequent; O=occasional; R=rare) in each habitat compartment. AWI= Ancient Woodland indicator species; SCH 9=invasive non-native species listed on Schedule 9 of the Wildlife and Countryside Act (1981) as amended.

English name	Scientific name	A	B	C	D	E	F	G
English oak	*Quercus robur*							
Silver birch	*Betula pendula*							
Downy birch	*Betula pubescens*							
Ash	*Fraxinus excelsior*							
Grey/goat willow	*Salix cinereal/caprea*							
Sweet chestnut	*Castanea sativa*							
Hornbeam	*Carpinus betulus*							
Beech	*Fagus sylvatica*							
Alder	*Alnus glutinosa*							
Elder	*Sambucus niger*							
Bramble	*Rubus fruiticosus*							
Hazel	*Corylus avellana*							
Field maple	*Acer campestris*							
Honeysuckle	*Lonicera periclymenum*							
Hawthorn	*Crataegus monogyna*							
Midland hawthorn	*Crataegus laevigata*[AWI]							
Holly	*Ilex aquifolium*[AWI]							
Rhododendron	*Rhododendron ponticum*							
Ivy	*Hedera helix*							
Cleavers	*Galium aparine*							
Common nettle	*Urtica dioica*							
Dock spp.	*Rumex* spp.							
Herb robert	*Geranium robertianum*							
Wood avens	*Geum urbanum*							
Bugle	*Ajuga reptans*							
Dog's mercury	*Mercurialis perennis*							
Enchanter's nightshade	*Circaea lutetianna*							
Lords-and-ladies	*Arum maculatum*							
Primrose	*Primula vulgaris*							
Common figwort	*Scrophularia nodosa*							
Water figwort	*Scrophularia auriculate*							
Great willowherb	*Epilobium hirsutum*							
A starwort	*Callitriche* sp.							
Varigated yellow archangel	*Lamiastrum galeobdolon subsp. Argentatum*[SCH 9]							
Bluebell	*Hyacinthoides non-scripta*[AWI]							
Opposite-leaved golden saxifrage	*Chrysosplenium oppositifolium*							
Yellow pimpernel	*Lysimachia nemorum*[AWI]							
Wood speedwell	*Veronica montana*[AWI]							
Wood sorrel	*Oxalis acetosella*[AWI]							
Remote sedge	*Carex remota*[AWI]							
Pendulous sedge	*Carex pendula*[AWI]							

Wood sedge	*Carex sylvatica*[AWI]							
Smooth sedge	*Carex laevigata*[AWI]							
Hairy sedge	*Carex hirta*							
Field woodrush	*Luzula campestris*							
Slender rush	*Juncus tenuis*							
Hard rush	*Juncus inflexus*							
Soft rush	*Juncus effusus*							
Creeping bent (grass)	*Agrostis stolonifera*							
Hairy brome	*Bromopsis ramosa*							
Tufted hair-grass	*Deschampsia cespitosa*							
Broad buckler fern	*Dryopteris dilatata*							
Male fern	*Dryopteris filix-mas*							
Bracken	*Pteridium aquilinum*							
Total species recorded								
Total AWI species								

Table 21. Updated botanical survey findings in 2023. Species list and abundance (DAFOR Scale – D=dominant; A=abundant; F=frequent; O=occasional; R=rare) in each habitat compartment. AWI= Ancient Woodland indicator species; SCH 9=invasive non-native species listed on Schedule 9 of the Wildlife and Countryside Act (1981) as amended.

Unique polygon reference>>		**7b**	**7e**	**7d**	**7c**	**7a**	**6b**	**7f**	**7g**
UKHab code>>		**g3a**	**g3a**	**g3a**	**g3a**	**g3a**	**g3c**	**g3a**	**g3a**
English name	**Scientific name**								
Aspen (suckers)	*Populus tremula* [AWI]								
Betony	*Betonica officinalis* [AWI, Unimp SNCI]	D	R	O	D				O
Bird's-foot trefoil	*Lotus corniculatus* [SNCI]	A	O	O	O	D	O	R	R
Bittersweet	*Solanum dulcamara*	R							
Blackthorn	*Prunus spinosa*	R							
Bluebells	*Hyacinthoides non-scripta* [AWI]								
Bracken	*Pteridium aquilinum*	D					R		
Bramble	*Rubus fruiticosus*	A	R	A	O	R		R	
Broad-leaved dock	*Rumex obtusifolius*	R							
Brown bent	*Agrostis vinealis*						R	O	
Bugle	*Ajuga reptans*	O	R	R	R				
Carnation sedge	*Carex panicea*			F				A	O
Cleavers	*Galium aparine*	O							
Cocksfoot grass	*Dactylis glomerata*	R	R			O			
Common bent	*Agrostis capillaris*	O	F	F	A	D	F		
Common cow wheat	*Melampyrum pratense* [AWI]								
Common dandelion	*Taraxacum officinale*	R							
Common fleabane	*Pulicaria dysenterica*						R		
Common knapweed	*Centaurea nigra*	D	D	F	A	A	F	F	O

Unique polygon reference>>		**7b**	**7e**	**7d**	**7c**	**7a**	**6b**	**7f**	**7g**
UKHab code>>		**g3a**	**g3a**	**g3a**	**g3a**	**g3a**	**g3c**	**g3a**	**g3a**
English name	**Scientific name**								
Common marsh bedstraw	*Gallium palustre*							R	
Common milkwort	*Polygala vulgaris*	R			R				
Common mouse-eared chickweed	*Cerastium fontanum*	R	R		R				
Common nettle	*Urtica dioica*	R							
Common ragwort	*Jacobaea vulgaris*	O	O	R	O	A	O		
Common sorrel	*Rumex acetosa* SNCI	F	O	O	R	A	O		R
Common spotted orchid	*Dactylorhiza fuchsii*	R	O	R	O	R		R	R
Common vetch	*Vicia sativa*					R			
Compact rush	*Juncus conglomeratus* SNCI								
Creeping bent grass	*Agrostis stolonifera*	O	O	A	O		F		
Creeping buttercup	*Ranunculus repens*	R	A	O	O	F	A		F
Devil's bit scabious	*Succisa pratensis* *Unimp.*, SNCI								
Downy birch	*Betula pubescens*						O	F	A
English oak	*Quercus Robur*	A	R						
Eyebright	*Euphrasia sp* **SNCI**	R		O					
False oat grass	*Arrhenatherum elatius*	O	R			O			
Field woodrush	*Luzula campestris*	D		F	A	R	R		
Floating sweet-grass	*Glyceria fluitans*			R					
Foxglove	*Digitalis purpurea*								
Germander speedwell	*Veronica chamaedrys*	O	R			O			
Glaucous sedge	*Carex flacca* SNCI								
Goldilocks buttercup	*Ranunculus auricomus*					R			
Greater birds foot trefoil	*Lotus pedunculatus* SNCI		O	R		O	R	F	O
Ground ivy	*Glecoma hederacea*								
Heath-grass	*Danthonia decumbens*			O	A		R	R	
Heath speedwell	*Veronica officinalis*	R				R			
Heath spotted orchid	*Dactylorhiza maculata* **SNCI**								
Heath woodrush	*Luzula multiflora* *SNCI*								
Hedge bindweed	*Calystegia sepium*	R	R						
Herb bennet	*Geum urbanum*	R							
Holly	*Ilex aquifolium*	R							
Imperforate St John's Wort	*Hypericum maculatum* Unimp SNCI	R	R			O	R		
Jointed rush	*Juncus articulatus* SNCI		R	O	R		A		

Unique polygon reference>>		**7b**	**7e**	**7d**	**7c**	**7a**	**6b**	**7f**	**7g**
UKHab code>>		**g3a**	**g3a**	**g3a**	**g3a**	**g3a**	**g3c**	**g3a**	**g3a**
English name	**Scientific name**								
Lady's smock	*Cardamine pratensis*		R						
Lesser hawkbit	*Leontodon saxatilis*	R			R				
Lesser spearwort	*Ranunculus flammula*		R	R	R		R	A	R
Lesser stitchwort	*Stellaria graminea* SNCI	A	O	O	F	A	F		R
Marsh bedstraw	*Galium palustre* SNCI								
Marsh pennywort	*Hydrocotyle vulgaris* **SNCI**		R						
Marsh thistle	*Cirsium palustre*	R	F	A	R		O	A	O
Meadow buttercup	*Ranunculus acris*		R		R	F	O		
Meadow vetchling	*Lathyrus pratensis* Unimp SNCI		R			O			
Mouse-eared hawkweed	*Pilosella officinarum*				R		R		
Oval sedge	*Carex leporina* Unimp SNCI		R	R			R		
Oxeye daisy	*Leucanthemum vulgare*	R					R		
Pedunculate oak	*Quercus robur*								
Purple moor grass	*Molinia caerulea*							F	
Quaking grass	*Briza media* Unimp, SNCI	R		R	R				
Red campion	*Silene dioica*	R							
Red clover	*Trifolium pratense*					R			
Red fescue	*Festuca rubra*	D	F	A	D	D	A		
Ribwort plantain	*Plantago lanceolata*	D	O	F	O	F	O		
Rough meadow grass	*Poa trivialis*		R						
Rowan	*Sorbus aucuparia*	R							
Sallow	*Salix spp*	R						F	O
Selfheal	*Prunella vulgaris*				R	R			
Sharp flowered rush	*Juncus acutiflorus* SNCI							D	O
Sheep's fescue	*Festuca ovina* Unimp., SNCI								
Silver birch	*Betula pendula*			R					
Sneezewort	*Achillea ptarmica*							O	R
Smooth meadow grass	*Poa pratensis*							R	
Soft rush	*Juncus effusus*	R		R	R			F	
Spear thistle	*Cirsium vulgare*								
Spring sedge	*Carex caryophyllea*Unimp.,						O		
Sweet vernal grass	*Anthoxanthum odoratum* SNCI	D	A	D	A	D	F	R	O
Thyme leaved speedwell	*Veronica serpyllifolia*								
Toad rush	*Juncus bufonius*	R	R	F	O	R	F	F	O
Tormentil	*Potentilla erecta* SNCI	R		O				A	O
Trailing St John's	*Hypericum humifusum*				R		R		

Unique polygon reference>>		**7b**	**7e**	**7d**	**7c**	**7a**	**6b**	**7f**	**7g**
UKHab code>>		**g3a**	**g3a**	**g3a**	**g3a**	**g3a**	**g3c**	**g3a**	**g3a**
English name	**Scientific name**								
wort									
Trailing tormentil	*Potentilla anglica* *unimp.*	R		F	F		A	A	F
Tufted vetch	*Vicia cracca*	R	R			F	R		
Velvet bent	*Agrostis canina*							A	A
Water mint	*Mentha aquatica*		R						
White clover	*Trifolium repens*	R	R			R	R	R	F
Wood speedwell	*Veronica montana* *AWI*								
Yellow rattle SNCI	*Rhinanthus minor* Unimp *SNCI*								
Yellow sedge	*Carex demissa* **SNCI**	R			O			F	O
Yorkshire fog	*Holcus lanatus*	F	D	F	O	D	A	O	R
Total species									
Total SNCI species									

APPENDIX 5 – BAT SURVEY RESULTS TABLES AND FIGURES

Table 22. Bat roost potential in trees, results of detailed ground based and climbing inspections on 15th May 2019. **Trees outside of the development site (T1 to T19) are highlighted with an *.**

Tree Ref.	Species	Potential Roost Features/evidence of bats	Assessment of roost potential from ground	Climbed inspection completed?	Revised Assessment after climbing inspection
T1	Semi-mature English oak	Snapped limb at approximately 6m on W aspect.	Low	N	Low
T2	Young silver birch	Vertical split at 1.5m extending up S aspect of stem. Entrance at top of split (approximately 7cm in diameter), cavity extends upwards approximately 60cm and has an approximate diameter of 4cm.	Moderate	Y	Moderate
T3	Semi-mature English oak	Rot hole at 6m on SE aspect of stem, entrance hole measures approximately 6cm in diameter but does not lead into cavity.	Moderate	Y	Negligible
T4	Semi-mature English oak	Woodpecker hole at 7m on SE aspect of forked limb, entrance measuring approximately 7cm in diameter, does not create a cavity (negligible potential). Limb scar at 6m on N aspect of stem. Entrance hole measures approximately 10cm in diameter and leads into a cavity which extends upwards for approximately 30cm (moderate potential).	Moderate	Y	Moderate
T5	Semi-mature English oak	Knot hole at 2.5m on SW aspect of stem. Entrance hole measures approximately 4cm in diameter but does not lead into a cavity.	Moderate	Y	Negligible
T6	Semi-mature English oak	2 x woodpecker holes at 5m on E aspect of stem. The entrances to both holes measure approximately 4cm in diameter but do not lead into a cavity.	Moderate	Y	Negligible
T7	Semi-mature English oak	Cavity at base of stem's S aspect. Entrances at base (0.3m above ground) (40cm x 10cm) and top (2.5m above ground) (5cm x 3cm). Two entrances connected by cavity chamber with internal diameter approximately 5cm in diameter.	Moderate	Y	Moderate
T8	Dead oak	Peeling bark on various limbs	Moderate	N	Moderate
T9	Semi-mature English oak	Multiple woodpecker holes at 8m on SW and W aspect of limb, entrances approximately 4cm in diameter.	Moderate	N	Moderate
T10	Semi-mature English oak	Split in limb at 6m on N aspect. Entrance measures approximately 60cm x 2cm.	Moderate	N	Moderate
T11	Semi-mature oak	Rot hole at 3.5m on W aspect of stem. Entrance measures approximately 3cm in diameter but does not lead into a cavity.	Moderate	Y	Negligible

T12	Semi-mature English oak	Vertical split in snapped limb at 3m on SE aspect. Entrance measures approximately 20cm x 3cm and leads into cavity which extends upwards for 20cm with and internal diameter of 3cm.	Moderate	Y	Moderate
T13	Semi-mature English oak	Cavity at base of stem's NE aspect, entrance measures approximately 10cm x 5cm and leads into cavity which extends upwards for >1.2m. Cavity diameter narrows from approximately 10cm.	Moderate	Y	High
T14	Dead silver birch	Various areas of flaking bark and several associated shallow cavities created by rotten heartwood	Moderate	Y	Low
T15	Dead willow	Hollow main stem, entrance at 1m on NE aspect measuring approximately 10cm in diameter. Cavity extends upwards for 1m with internal diameter of approximately 20cm. Open at top of feature. Smaller hollow chamber, entrance at 1m on E aspect measuring approximately 5cm in diameter. Cavity extends upwards for approximately 1m with internal diameter of 5cm. Open at top of feature.	Moderate	Y	Low
T16*	Mature hazel	Several limbs have grown against each other, no obvious accessible crevices.	Low	N	Low
T17*	Mature beech	Cavity at approximately 12m, at base of V fork, on E aspect of stem. Entrance dimensions approximately 12cm x 5cm	Moderate	N	Moderate
T18*	Young sycamore	Several areas of rot, no cavities created (negligible) Limbs growing against each other at 2.5m on W aspect, no obvious crevice.	Low	N	Low
T19*	Mature sycamore	Mature ivy stems covering tree.	Low	N	Low

Table 23. Bat emergence survey of building south of Land North of Borers Arms Road; survey conditions and results.

Date	**Survey start time/end time**	**Temp. degrees centigrade, weather conditions**	**Surveyors**	**Bat activity**
26 June 2019	21:00 – 22:50 Sunset: 21:19	Max/Min temp.: 17-16°C 100% cloud cover, moderate breeze, dry.	Dan Bennett, BSc, MCIEEM, James Rowland BSc Federico Ghittoni	No bat observations.
15 July 2019	20:55-22:40 Sunset: 21:10	Max/Min temp: 18-13°C 20% cloud, light breeze, dry.	Dan Bennett, BSc, MCIEEM Jess Burkitt BSc James Rowland BSc	Intermittent foraging by a single common pipistrelle along field boundary to the north of building starting approximately 50 minutes after sunset; single distant pass of noctule bat approximately 20minutes after sunset.

Table 24. Copthorne Bank bat activity surveys 2017 – walked transect metadata: dates, times, temperature, weather conditions.

Date	Survey start time/end time	Temp. and weather conditions	Surveyors
10 April 2017	19:40-21:15 Sunset: 19:48	Max/Min temp.: 11-9°C 30% cloud cover, calm, dry.	Paul Whitby, BSc, MCIEEM, CEcol Class license: 2015-15959-CLS
5 July 2017	21:09-22:48 Sunset: 21:13	Max/Min temp: 23-22°C 0% cloud, calm, dry.	Paul Whitby BSc MCIEEM, CEcol
13 Oct 2017	17:55-19:50 Sunset: 18:13	Max/Min temp: 13-10°C 80% cloud, light breeze, dry.	Paul Whitby BSc MCIEEM, CEcol

Table 25. Land North of Borers Arms Road bat activity surveys 2018 – walked transect metadata: dates, times, temperature, weather conditions.

Date	Survey start time/end time	Temp. degrees centigrade, weather conditions	Surveyors
8 May 2018	20:20-22:04 Sunset: 20:34	Max/Min temp.: 18-15°C 0% cloud cover, calm, dry.	Dan Bennett, BSc, MCIEEM, Class licence: 2017-27499-CLS James Rowland BSc Jess Lewis BSc Simon Rayburn BSc
24 May 2018	21:00-22:30 Sunset: 20:55	Max/Min temp: 14-13°C 100% cloud, light breeze, rain all day clearing by dusk, hence slightly delayed start time	Dan Bennett, BSc, MCIEEM, Jess Burkitt BSc Hamish Muirden BSc Simon Rayburn BSc
18 June 2018	20:55-22:50 Sunset: 21:17	Max/Min Temp.: 19-15°C 25% cloud cover, moderate breeze, dry.	Dan Bennett, BSc, MCIEEM, James Rowland BSc Hamish Muirden BSc Simon Rayburn BSc
16 July 2018	21:00-23:00 Sunset: 21:16	Max/Min Temp.: 23-20°C 10% cloud cover, light breeze, dry.	Dan Bennett, BSc, MCIEEM, Paul Whitby BSc MCIEEM CEcol. Jess Burkitt BSc Hamish Muirden BSc
14 Aug 2018	20:10-22:10 Sunset: 20:25	Max/Min Temp.: 21-16°C 60% cloud cover, light breeze, dry.	Dan Bennett, BSc, MCIEEM, Sam Lunn BSc Hamish Muirden BSc James Rowland BSc
13 Sept 2018	19:00-20:50 Sunset: 19:14	Max/Min Temp.: 15-14°C 0% cloud cover, calm, dry.	Dan Bennett, BSc, MCIEEM, James Rowland BSc Hamish Muirden BSc Sam Lunn BSc

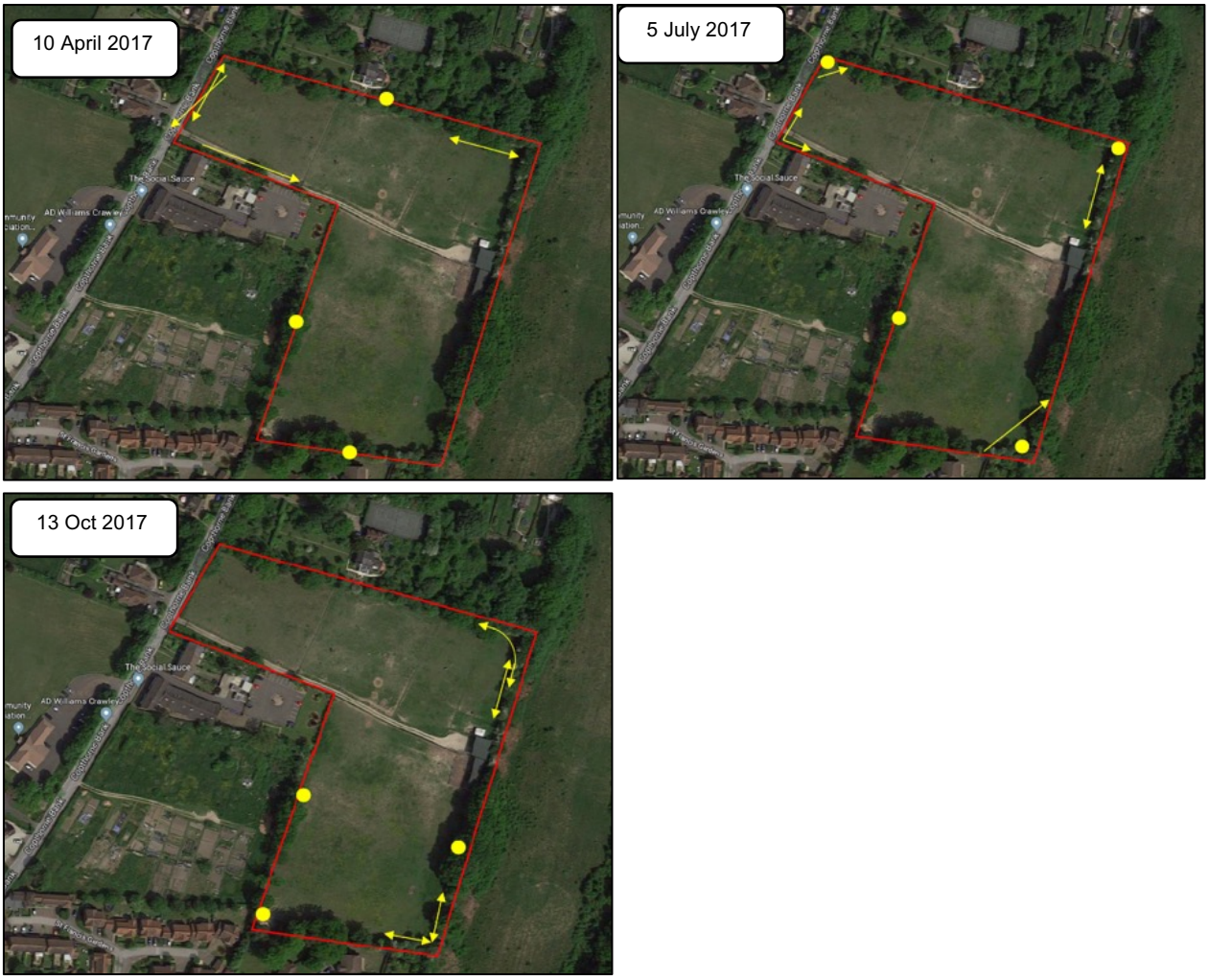


Figure 18. Approximate distribution of bats detected during each walked transects survey on **Copthorne Bank**. Yellow dots represent foraging common pipistrelle bats and commuting activity is indicated by yellow directional lines.

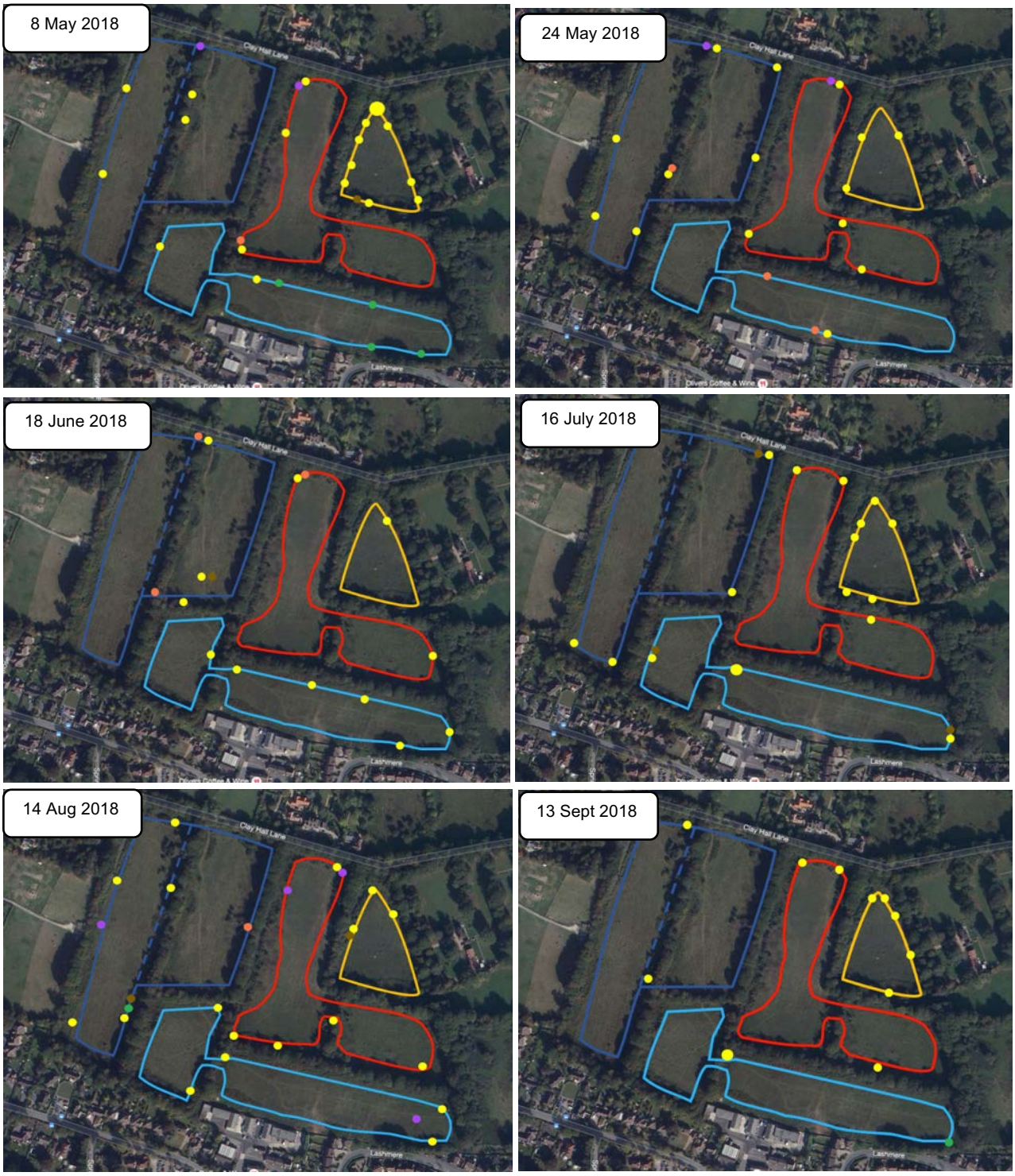


Figure 19. Approximate distribution of bats detected during each walked transects survey on **Land North of Borers Arms Road** in 2018. Coloured dots represent bat activity. Yellow = common pipistrelle, blue = soprano pipistrelle, brown = brown long-eared bat, purple = Myotis spp., orange = serotine bat and green = noctule bat. The size of the dot indicates the intensity of activity: Small dot = a single pass of one bat; medium dot = several passes on two to three separate occasions; large dot = activity recorded continuously on four or more occasions at that location during the night.

Table 26. Bat activity surveys 2023 walked transect of Land North of Borers Arms Road and Copthorne Bank; survey conditions and findings.

Date	Survey start time/end time	Temp. degrees centigrade, weather conditions	Surveyors
15 May 2023	20:46-22:46 Sunset: 20:46	Max/Min temp.: 11-9°C 5% cloud cover, calm, dry.	Federico Ghitonni Julian Browning Libby Morris Victoria Mercier
12 June 2023	21:16-23:16 Sunset: 21:16	Max/Min temp: 23-13°C 0% cloud, calm, dry	Josh Harwood Julian Browning Libby Morris Victoria Mercier

Figure 20. Approximate distribution of bats detected during each walked transects survey in 2023. Coloured dots represent bat activity. Yellow = common pipistrelle, blue = soprano pipistrelle, brown = brown long-eared bat, purple = Myotis spp., orange = serotine bat and green = noctule bat. The size of the dot indicates the intensity of activity: Small dot = a single pass of one bat; medium dot = several passes on two to three separate occasions; large dot = activity recorded continuously on four or more occasions at that location during the night.

APPENDIX 6 – COMMON DORMOUSE SURVEY RESULTS

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

Table 27. Results of dormouse checks on Land North of Borers Arms Road 2018.

	May	**June**	**July**	**August**	**September**	**October**
Date	10/5/18	18/6/18	18/7/18	20/8/18	25/9/18	31/10/18
Start time	10:40	17:38	17:35	13:08	9:00	9:00
Weather conditions	0% cloud cover and no wind	20% cloud cover and a light breeze	15% cloud cover and a light breeze	90% cloud cover and no wind	40% cloud cover and light breeze, sunny	30% cloud cover, light breeze, sunny
Temp/°C	15	21	23	23	17	16
1	E	E	E	E	E	E
2	E	E	E	E	E	E
3	F	E	E	E	E	E
4	nf	nf	nf	E	E	E
5	E	E	N	E	E	E
6	E	nf	nf	E	E	E
7	E	nf	nf	N	E	E
8	E	E	E	E	E	E
9	E	E	E	F	E	E
10	E	E	E	F	E	E
11	E	F	E	E	E	E
12	E	E	E	E	E	E
13	E	E	E	E	E	E
14	E	E	E	E	E	E
15	E	E	E	E	E	E
16	E	E	E	E	E	E
17	E	E	E	E	E	E
18	E	E	E	E	E	E
19	E	E	E	E	E	E
20	E	E	E	E	E	E
21	E	E	nf	E	E	E
22	E	E	E	E	E	E
23	E	E	nf	E	E	E
24	Missing	Missing	Missing	Missing	Missing	Missing
25	E	E	E	E	E	E
26	E	E	E	E	E	E
27	E	E	E	E	E	E
28	E	E	E	E	E	E
29	E	E	E	E	E	E
30	E	E	E	E	E	E

31	E	E	E	E	E	E
32	E	E	E	E	E	E
33	E	E	E	E	E	E
34	E	E	E	E	E	E
35	E	E	E	E	E	DM Nest
36	E	E	E	E	E	E
37	E	E	E	E	E	E
38	E	E	E	E	E	E
39	N	N	E	E	E	E
40	E	E	E	E	E	E
41	E	E	E	E	E	E
42	E	E	E	E	E	E
43	E	E	E	E	E	E
44	E	E	E	E	E	E
45	E	E	E	E	E	E
46	E	E	E	E	E	E
47	E	E	E	E	E	E
48	E	E	E	E	E	E
49	E	E	E	E	E	E
50	E	E	E	E	E	E
51	E	E	E	E	E	E
52	E	E	E	E	E	E
53	E	E	E	E	E	E
54	E	E	E	E	E	E
55	E	E	E	E	E	E
56	E	E	E	E	E	E
57	E	E	E	E	E	E
58	E	E	E	E	E	E
59	E	E	E	E	E	E
60	E	E	E	E	E	E
61	E	E	E	E	E	E
62	E	E	E	E	E	E
63	E	E	E	E	E	E
64	E	E	E	E	E	E
65	E	E	E	E	E	E
66	E	E	E	E	E	E
67	E	E	E	E	E	E
68	E	E	E	E	E	E
69	E	E	E	E	E	E
70	E	E	E	E	E	E
71	E	E	E	E	E	E
72	E	E	E	E	E	E
73	E	E	E	E	E	E
74	E	E	E	E	E	E

75	E	E	E	E	E	E
76	E	E	E	E	E	E
77	E	E	E	E	E	E
78	E	E	E	E	E	E
79	E	E	E	E	E	E
80	E	E	E	E	E	E
81	E	E	E	E	E	E
82	E	F	E	E	E	E
83	E	E	E	E	E	E
84	E	E	E	E	E	E
85	E	E	E	E	E	E
86	E	E	E	E	E	E
87	E	E	E	E	E	E
88	E	E	E	E	E	DM Nest
89	E	N	E	E	E	E
90	N	N	E	E	E	E
91	E	E	E	E	E	E
92	E	E	E	E	E	E
93	E	E	E	E	E	E
94	E	E	E	E	E	E
95	E	E	E	E	E	E
96	E	E	E	E	E	E
97	E	E	E	E	E	E
98	E	E	E	E	E	E
99	E	E	E	E	E	E
100	E	E	E	E	E	E

Table 28. Results of dormouse checks. On the separate habitat compensation areas inn 2019.

	August	**September**	**October**
Date	30/08/19	27/09/19	28/10/19
Start time	AM	AM	AM
Weather conditions	BF1, Sunny, scattered clouds	BF2, scattered clouds	BF0, Sunny
Temperature/°C	18	17	9
1	E	DM - AD	ODN
2	DM -AD	E	ODN
3	E	E	E
4	WM - AD	E	E
5	E	N	WM
6	E	E	DMN
7	E	E	DMN
8	E	E	E
9	DM - AD	E	ODN
10	E	E	E

11	E	E	E
12	E	E	E
13	E	E	E
14	E	E	E
15	E	E	TDM
16	E	E	E
17	E	E	ODN
18	E	E	E
19	E	E	E
20	E	E	E
21	E	E	E
22	E	E	E
23	NM	NM	E
24	E	E	E
25	E	E	E
26	E	E	E
27	E	N	E
28	E	E	E
29	E	E	E
30	E	DM -ADTJUV	E
31	E	E	F
32	E	N	E
33	E	E	E
34	WM -AD	E	E
35	E	E	E
36	E	E	E
37	N	E	E
38	E	E	E
39	E	E	E
40	E	E	E
41	E	E	E
42	E	E	E
43	E	E	E
44	E	E	E
45	E	E	E
46	E	E	E
47	E	E	E
48	E	E	E
49	E	E	E
50	E	E	E
51	E	WM-AD	E
52	E	E	WM-AD
53	E	E	E
54	E	E	E

55	E	E	E
56	E	E	WM-AD
57	E	NM	F
58	E	E	E
59	E	E	E
60	E	E	E
61	E	E	E
62	E	E	E
63	E	E	E
64	E	E	E
65	E	E	E
66	E	E	E
67	E	E	E
68	E	E	E
69	N	NM	E
70	E	E	E
71	E	E	E
72	E	E	E
73	E	E	E
74	E	E	E
75	E	E	E
76	E	E	E
77	E	WM - AD	E
78	E	E	E
79	E	E	E
80	E	E	E
81	E	E	E
82	E	E	E
83	E	E	E
84	E	E	E
85	E	E	E
86	E	E	E
87	E	E	E
88	E	E	E
89	E	E	E
90	E	E	E
91	E	E	E
92	WM – AD	E	E
93	E	E	E
94	E	E	E
95	E	E	E
96	E	E	E
97	E	E	E
98	E	E	E

99	E	E	E
100	E	E	E

Table 29. Full site dormouse presence/absence survey results 2023.

Completion date	**31 May 2023**	**4 August 2023**	**28 August 2023**	**25 September 2023**	**26 October 2023**	**9 October 2018**
Temp/ºC	**18**	**15**	**19**	**19**	**15**	**12**
Cloud cover	**100%**	**100%**	**0%**	**40%**	**10%**	**100%**
Precipitation	**None**	**Light drizzle**	**Dry**	**Dry**	**Dry**	**Dry**
1	E	E	E	E	E	E
2	E	E	E	E	E	E
3	E	E	E	E	nf	E
4	E	E	E	E	E	WM + nest
5	E	E	E	E	nf	E
6	E	E	E	E	E	E
7	E	nf	E	E	nf	E
8	E	E	E	E	E	E
9	E	E	E	E	E	E
10	E	E	nf	E	nf	E
11	E	E	E	E	nf	E
12	E	E	E	E	E	E
13	E	FC	E	E	E	E
14	E	NM	E	E	NM – loose leaves	E
15	E	E	E	E	E	E
16	E	E	E	E	E	E
17	E	E	E	E	E	E
18	E	E	E	E	E	E
19	E	E	E	E	E	nf
20	E	E	E	E	E	nf
21	E	FC	E	E	E	E
22	E	FC	E	E	nf	E
23	E	E	E	E	E	E
24	E	E	E	E	E	E
25	E	E	E	E	Probable DM Nest - Old	Probable DM Nest – slightly degraded
26	E	E	nf	E	nf	E
27	E	E	E	E	E	E
28	E	E	E	E	E	E
29	E	E	E	E	E	E
30	E	nf	nf	E	nf	E
31	E	E	E	E	E	E
32	E	E	E	E	E	E
33	E	E	E	E	E	E
34	E	E	E	E	FC	E
35	E	E	E	E	E	E

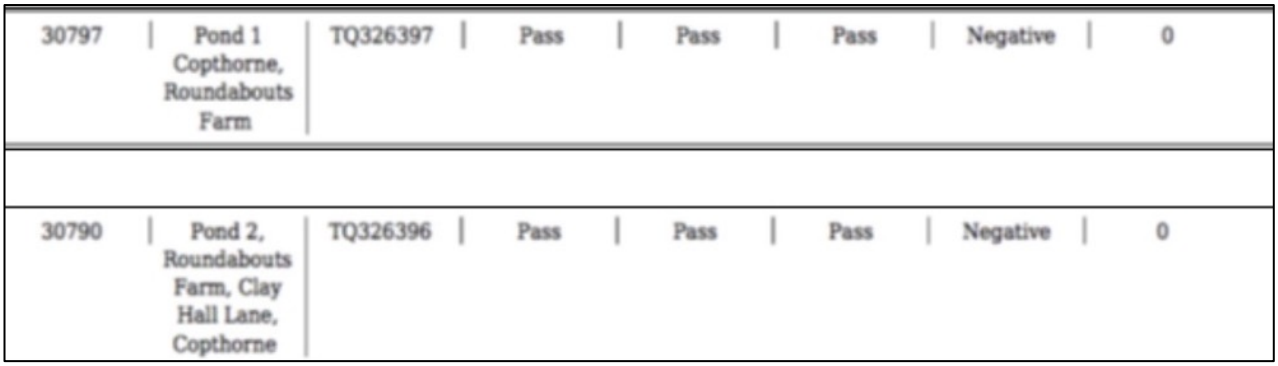
36	E	E	E	E	E	E
37	E	E	E	E	FC	WM + Nest
38	E	E	E	E	E	E
39	E	nf	E	E	E	E
40	E	FC	E	E	E	E
41	E	E	E	E	E	E
42	E	E	E	E	E	E
43	E	FC	E	E	E	E
44	E	E	E	E	E	E
45	E	E	E	E	E	E
46	E	E	E	E	E	E
47	E	E	E	E	E	E
48	E	E	E	FC	E	E
49	E	E	E	E	E	E
50	E	E	E	E	E	E
51	E	FC	E	FC	E	E
52	E	E	E	E	E	E
53	E	E	E	FC	FC	E
54	E	E	WM	E	E	E
55	E	E	E	E	E	E
56	E	E	E	E	E	E
57	E	E	E	E	E	E
58	E	E	E	E	E	E
59	E	E	E	E	E	E
60	E	E	E	E	E	E
61	E	E	E	E	E	E
62	E	E	E	E	E	E
63	E	E	E	E	E	E
64	E	E	E	E	E	E
65	E	E	E	E	E	E
66	E	E	E	WM + Nest	E	E
67	E	E	E	NM - Green leaves, old, damp	E	E
68	E	E	E	E	E	E
69	E	E	E	E	E	E
70	E	E	E	NM – Green leaves, old, damp	E	E
71	NM	E	E	WM + Nest	E	E
72	E	FC + NM	E	FC	E	E
73	E	E	E	E	E	E
74	E	E	NF	E	E	E
75	E	FC	E	FC	E	E
76	E	E	E	FC	E	E
77	E	E	E	E	E	E
78	E	E	E	E	E	E
79	NM	E	E	E	E	E
80	E	E	E	E	E	E

81	E	E	E	E	E	E
82	E	nf	E	E	nf	E
83	E	E	E	E	E	E
84	E	E	E	E	E	E
85	E	E	E	NM	E	E
86	E	E	E	E	E	E
87	E	E	E	E	E	E
88	E	E	E	E	E	E
89	E	E	E	E	E	E
90	E	E	E	E	E	E
91	E	E	E	E	E	E
92	E	E	E	E	E	E
93	E	E	E	NM – Loose green leaves	E	E
94	E	E	E	E	E	E
95	E	E	E	E	E	E
96	E	E	E	E	E	E
97	E	E	E	E	E	E
98	E	FC	E	E	E	E
99	E	FC	E	E	E	E
100	E	E	E	E	E	E
101	E	E	E	E	E	E
102	E	E	E	E	E	E
103	E	E	E	E	E	E
104	E	E	E	E	E	E
105	E	E	E	E	E	E
106	E	E	E	E	E	E
107	E	E	E	E	E	E
108	E	E	E	E	E	E
109	E	E	E	E	E	nf
110	E	E	E	E	E	E
111	E	E	E	E	E	nf
112	E	E	E	E	E	nf
113	E	E	E	E	E	nf
114	E	E	E	E	E	E
115	E	E	E	E	E	E
116	E	E	E	E	E	E

APPENDIX 7 - GREAT CRESTED NEWT SURVEY RESULTS

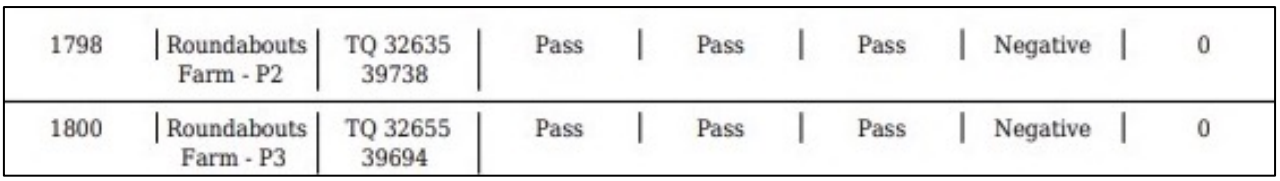
Table 30. HSI calculation for ponds assessed during the 2018 survey.

	Pond 1		**Pond 2**		**Pond 3**	
NGR	**TQ 321 396**		**TQ 326 397**		**TQ 326 396**	
SI attribute	**SI value**	**Notes**	**SI value**	**Notes**	**SI value**	**Notes**
Location	1.00	A	1.00	A		A
Pond area	0.03	25m²	0.09	45m²	0.22	110m²
Pond drying	0.50	Rarely	0.10	Frequent	1.00	Rarely
Water quality	0.33	Moderate	0.67	Moderate	0.67	Moderate
Shade cover	1.00	0%	0.40	90%	0.80	70%
Waterfowl	0.67	Minor	1.00	Absent	1.00	Absent
Fish presence	1.00	Absent	1.00	Absent	1.00	Absent
No. ponds	0.4	0.49	0.4	0.49	0.40	0.49
Terrestrial habitat	0.33	Moderate	1.00	Good	1.00	Good
Macrophytes	0.61	0%	0.32	1%	0.50	15%
H.S.I. value	**0.48**	**'poor'**	**0.46**	**'poor'**	**0.70**	**'average'**



30797	Pond 1 Copthorne, Roundabouts Farm	TQ326397	Pass	Pass	Pass	Negative	0
30790	Pond 2, Roundabouts Farm, Clay Hall Lane, Copthorne	TQ326396	Pass	Pass	Pass	Negative	0

Figure 21. Extract from SureScreen Scientific results table in 2018. Note that "pond 1" is pond 2 and "pond 2" is pond 3 in this report.



1798	Roundabouts Farm - P2	TQ 32635 39738	Pass	Pass	Pass	Negative	0
1800	Roundabouts Farm - P3	TQ 32655 39694	Pass	Pass	Pass	Negative	0

Figure 22. Extract from SureScreen Scientific result table in 2023. Note that "pond 1" is pond 2 and "pond 2" is pond 3 in this report.

APPENDIX 8 - ARTIFICIAL LIGHTING AND WILDLIFE

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

Guidelines issued by the Bat Conservation Trust[31] should be referred to when designing the lighting scheme. Note that lighting designs in very sensitive areas should be created with consultation from an ecologist and using up-to-date bat activity data where possible. The guidance contains techniques that can be used on all sites, whether a small domestic project or larger mixed-use, commercial or infrastructure development. This includes the following measures:

Avoid lighting key habitats and features altogether

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

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

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

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

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

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

Demonstrate compliance with illuminance limits and buffers

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

Lighting Fixture Specifications

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

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

Further reading:

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

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

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

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

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

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

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

Voigt, C.C., Azam, C., Dekker, J., Ferguson, J., Fritze, M., Gazaryan, S., Hölker, F., Jones, G., Leader, N., Lewanzik, D. and Limpens, H., 2018. *Guidelines for consideration of bats in lighting projects*. Unep/Eurobats. Available at: https://cdn.bats.org.uk/uploads/pdf/Resources/EUROBATSguidelines8_lightpollution.pdf?v=1542109376