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Ecological Impact Assessment

Site Name

Land Adjacent Either Side of Batchelors Farm

Client

Fairfax Acquisitions Ltd

Issue Date

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Author

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About the Author

This report has been prepared by Sam Lunn, a Principal Ecologist at The Ecology Co-op, with 12 years of experience. He has a Level 2 bat survey licence, level 1 dormouse licence and level 1 great crested newt licence and has prepared numerous European Protected Species licences. As a Full member of the Chartered Institute for Ecology and Environmental Management (CIEEM), he is bound by their code of professional conduct.

About the Reviewer

This report has been reviewed by Paul Whitby, a Principal Ecologist at The Ecology Co-op, with 17 years' experience. He has a Level 2 bat survey license and has prepared numerous European Protected Species licenses for bats. As a Full member of the Chartered Institute for Ecology and Environmental Management (CIEEM) and as Chartered Ecologist through this body, he is bound by their code of professional conduct.

Report Summary

Purpose	The Ecology Co-op has been commissioned by Fairfax Acquistions Ltd to undertake a repeat Ecological Impact Assessment for a development on Land Adjacent Either Side of Batchelor's Farm, Burgess Hill. Following a Preliminary Ecological Appraisal, including UKHab mapping of the site by The Ecology Co-op in May 2023, further ecological surveys were undertaken across 2023, including protected species surveys and desk-top studies in order to provide sufficient baseline information for this assessment. This document presents the findings of these surveys, and a full Ecological Impact Assessment in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines to inform a planning application for 26 residential units.
Context	The site measures approximately 1.4ha, set within a semi-rural area on the southern outskirts of Burgess Hill. Batchelor's Farm Nature Reserve lies immediately adjacent to the west with pastoral fields to the north and south. The wider landscape includes a mix of pastoral and arable fields with boundary hedgerows to the west, south and east.
Impact on Protected Species	The protected species surveys identified low levels of foraging by common species of bats, dormice, a good population of slow worm and low populations of common lizard and grass snake. Additionally, great crested newts were identified breeding in ponds within 250m of the site. A European Protected Species licence would be required for dormice and a District Level Licence would be required for great crested newts. Three species of reptiles found wouldneed to be translocated to a suitable off-site receptor site.
Impact on Habitats	The proposed development would result in the permanent loss of other neutral grassland, bramble scrub and two sections of the eastern boundary hedgerow.
Biodiversity Net Gain	In line with the National Planning Policy Framework, the site's ecological value should be enhanced, this would be done through the creation of native mixed scrub and wildflower areas. The development would need to demonstrate that it can achieve a 10% net gain in biodiversity value, and this wouldneed to be through a combination of on-site habitat creation and off-site biodiversity credits. Further detail is provided in section 5.

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1 INTRODUCTION

1.1 Background

The Ecology Co-op was commissioned by Fairfax Acquisitions Ltd to undertake a repeat Ecological Appraisal of Land Adjacent Either Side of Batchelors Farm, Burgess Hill, West Sussex, RH15 0BQ. This report presents the findings of the repeat ecological surveys and desk study research, as well as summarising previous survey results, and assesses the likely impacts and significance of effects of the proposed works in relation to protected/notable species, habitats and designated sites.

A previous Ecological Impact Assessment[1] (EcIA) was produced in 2019 following an initial site walkover in January 2018 and a suite of ecological surveys between March 2018 and October 2018. The site of the original proposal included the Batchelor's Farm residential property and associated garden as well as the land to the west that surrounds it to the south, west and north. The previous proposal was for 33 units with associated hard and soft landscaping; the new red line boundary for the site has been reduced and does not include the Batchelor's Farm residential house and garden. Surveys for the following protected species were carried out in 2018:

- bat emergence surveys on the residential farmhouse and outbuilding.
- bat tree roost assessments
- bat activity surveys
- botanical assessment
- breeding bird surveys
- great crested newt *Triturus cristatus* population surveys
- common dormouse *Muscardinus avellanarius* presence/absence surveys
- reptile presence/absence surveys

Presence of reptiles (slow worm *Anguis fragilis*, common lizard *Zootoca vivipara* and grass snake *Natrix helvetica*) and dormice within the site was confirmed in 2018. A meta-population of great crested newts (GCN) was identified in the surrounding area. A solitary common pipistrelle *Pipistrellus pipistrellus* roost and solitary serotine *Eptesicus serotinus* roost were identified in Building 1 and a solitary brown long-eared *Plecotus auritus* roost was identified in Building 2. The bat activity surveys identified common and widespread species using the site in small numbers, with common pipistrelle the most commonly recorded and including small numbers of common noctule *Nyctalus noctula*, myotis *Myotis spp.* and serotine. A small number of breeding birds were confirmed included song thrush *Turdus philomelos* and dunnock *Prunella modularis.*

In 2023, a proposed development with a reduced number of units and larger wildlife area, was provided and the following protected species surveys were repeated in consideration of this new red line plan:

- bat activity

[1] The Ecology Co-op (2018) Phase 2 holding document Batchelor's Fm

- bat tree roost assessment
- breeding bird surveys
- great crested newt surveys
- reptile surveys

A dormouse presence/absence survey was not repeated as presence was confirmed in 2018 and the site has become more suitable for this species over time with a slow but steady encroachment of bramble scrub towards the centre of the site. Dormice are assumed to still be present as a result.

The two agricultural buildings in the southwestern corner of the site, which had a negligible suitability for roosting bats, have been demolished as part of a separate smaller application (DM/15/3955) and the rubble from these buildings is still present on site.

New plans were provided on 6th February 2025 for 26 units and the plan is illustrated in Figure 2. Further protected species surveys are not deemed necessary to inform an impact assessment based on these new plans as the 2023 surveys are considered to still be valid for this purpose.

An updated site walkover was undertaken on 27th February 2025 to conduct a repeat badger site walkover and to confirm no significant change in habitat conditions.

The site measures approximately 1.4ha, set within a semi-rural area on the southern outskirts of Burgess Hill. Batchelor's Farm Nature Reserve lies immediately adjacent to the west with pastoral fields to the north and south. Keymer Road runs along the eastern boundary with a small number of residential buildings all with large gardens directly adjacent. The wider landscape includes a mix of pastoral and arable fields with boundary hedgerows to the west, south and east. Burgess Hill lies to the north. Figure 1 shows the boundary of the site and local context and Figure 2 provides the indicative masterplan produced by Paul Hewett, Chartered Architect. Dwg no. 2501/PL.04 Rev A. Dated Feb '25.

1.2 Purpose of this Report

The Ecology Co-op undertook further protected species surveys in 2023 for bats, breeding birds, great crested newts and reptiles. The previous data collected for these species and others where presence was confirmed, such as common dormice, will also be included to inform this impact assessment.

The purpose of this report is to:

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

the proposed development. These are designed to ensure that the proposals contribute to both local and national biodiversity objectives.

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

The surveys and report were carried out and produced at the request of SDP Developers Ltd and supervised by Sam Lunn, MSc, MCIEEM who holds class survey licences for bats (level 2), dormice (level 1) and great crested newts (level 1).

1.3 Policy and Legislation

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

Where possible, this report provides information on how the development proposal will be designed to meet the requirements of both the National Planning Policy Framework (NPPF) and local planning policy. Details of the NPPF is provided in Appendix 1 and relevant local planning policy by Mid Sussex is provided in Appendix 2.

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

Figure 2. The illustrative masterplan produced by Paul Hewett, Chartered Architect. Dwg no. 2501/PL.04 Rev A. Dated Feb '25.

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, unless stated otherwise 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[2] and CIEEM Guidelines for Ecological Report Writing[3] Details of the ecological assessment methods are provided within section 2.11 below.

2.1 Desk Studies

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

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

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

2.2 Habitat Survey

A site walkover survey was undertaken on 10th May 2023, during which the habitats contained within the site were described and evaluated in accordance with standard UK Habitat Classification (UKHab)[4]. The dominant species and indicators of important habitat types such as ancient woodland or unimproved grassland, were recorded. A repeat visit on 27th February was made to confirm there were no significant changes to the habitats or their condition.

UKHab survey presents a standardised system for classifying and mapping wildlife habitats in all parts of Great Britain, including urban areas. The aim of the survey is to provide, relatively rapidly, a record of the vegetation and wildlife habitats present over large areas of countryside. The habitat classification

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

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

[4] The UK Habitat Ltd (2023). The UK Habitat Classification Version 2.0 (at https://www.ukhab.org)

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

Data was gathered through a site walkover survey and use of on-line aerial photography to broadly categorise the habitats present using the UKHab classifications[4]. The results are presented as a map showing the distribution of habitat categories across the site. Target notes are used to describe specific features of biodiversity interest and record indicator species where appropriate. In addition to this, notable habitats, such as habitats listed under the NERC Act, 2006 are highlighted.

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

As part of the Preliminary Ecological Appraisal, the site features were evaluated for their potential to support legally protected species and observations of any important plant communities, bird assemblages or other potentially valuable ecological features were recorded. Details of the preliminary survey methods for each legally protected species are given below and any specific limitations to the survey(s), such as access constraints, are set out in section 2.12.

2.3 Badgers

Badgers *Meles meles* tend to live in family groups with clearly defined territories with the main sett, used throughout the year, as a focal point. The territory often also contains a number of 'annex', 'subsidiary' and outlier setts that are used intermittently. Badgers can exist in a variety of habitats, but a mixed farmland landscape containing pasture and arable land, studded with woodland, scrub and hedgerows support the highest population density.

A comprehensive walkover survey of the site was undertaken on 10th May 2023 covering all field parcels and boundary features. Special attention was paid to boundary features such as hedgerows, woodland edge, earth banks, and fence-lines, where signs of badger activity are often concentrated. Surveyors searched for badger setts, latrines, foraging marks, footprints and worn pathways, and trapped hairs on fences and any other evidence of badger activity.

2.4 Bats

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

2.4.1 Natural Roost Features – Trees

All trees likely to be affected directly or indirectly by the proposed development were subject to a ground-based visual inspection to identify potential roost features, followed by climbing inspections where necessary and safe, to look for evidence of roosting bats and to further assess the suitability of the feature. The potential for roosting bats for each feature, or group of features was assessed as none, FAR (further assessment required) or PRF (Potential Roost Feature(s)) in accordance with best practice guidelines5.

Table 1. Guidelines for categorizing the potential suitability of PRFs[5]

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

2.4.2 Bat Activity Surveys – Walked Transects

Bat activity surveys followed best practice guidelines at the time of the surveys[6]. Pre-determined transect routes were followed by surveyors (Figure 3), focussing on all linear features within the site boundary (tree-lines 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 thirty minutes. All surveys were undertaken during weather conditions suitable for bat activity and at ambient temperatures above 10°C. The surveyors recorded bat activity using 'Echo Meter Touch' bat detectors featuring auto-identification of bat species and automatically triggered recording for later review. The locations of all bat 'registrations' was recorded onto a field map during the survey to correspond with all sound recordings.

2.4.3 Bat Activity Surveys – Automated Static Bat Detecting

One SM Mini static bat detector was deployed in the northeast corner of the site to cover the hedgerow being removed for the new access route (Figure 3) on three separate occasions, in May, June and September 2023, and left in the field for a minimum of five days – the expected maximum lifetime of the battery. Static bat detectors comprise a passive recording device with real-time full-spectrum calls that can be viewed in detail once downloaded on analysis software, allowing accurate identification of most bat calls to species level (or genus level in the case of *Myotis* and *Plecotus* spp.).

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

Figure 3. The transect route of surveyors with stops (white letters) and the position of the static bat detector deployed on the site (blue star). Images produced courtesy of Google maps (map data ©2023 Google).

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

2.5 Breeding Birds

The methods used for the breeding bird survey was adapted from a methodology developed by the Bird Survey and Assessment Steering Group (RSK Biocensus)[6]. This methodology requires six visits spread evenly between late-March and early-July. These surveys were carried out at sunrise with one of these visits conducted in the evening, extending past sunset. All bird surveys were only undertaken during favourable weather conditions for bird activity, with periods of persistent or heavy rain, high winds or fog avoided.

A pre-determined transect (Figure 4) was walked on each visit, during which the observer recorded all birds encountered. As recommended in the guidelines, the transect route was walked at a constant slow pace by a competent bird surveyor, stopping to check any priority habitat/features and causing minimum disturbance, recording all birds detected either by sight or calls/song. Notes regarding the behaviour of birds identified were made to determine their breeding status. Birds were said to be 'confirmed as breeding' if they were observed carrying nesting material, food or faecal pellets; or nests, eggs, or recently fledged young were discovered. Birds were recorded as 'likely breeding' if observed

[6] https://birdsurveyguidelines.org/methods/survey-method/

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[7], which includes behaviours and flight movements – new standards. A note was also made of the start and end time, sunrise/sunset time, temperature, wind (Beaufort scale) and precipitation levels.

Figure 4. Breeding bird survey transect routes for the six surveys. Images produced courtesy of Google maps (map data ©2023 Google).

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 would provide a range of fruit, nuts and insects. They hibernate during the winter – typically at ground level amongst leaf litter and mosses protected by coppice stools, tree stumps or piles of brash wood.

2.6.1 Nest Tube/Box Survey

Dormouse nest tube surveys were undertaken in 2018 in accordance with current best practice guidelines[8] and presence was confirmed in August 2018.

Dormouse surveys were undertaken by attaching purpose built 'nest tubes' on trees and shrubs in

[7] https://www.bto.org/sites/default/files/u16/downloads/forms_instructions/bto_bird_species_codes.pdf
[8] Bright, B., Morris, P., Mitchell-Jones, A.J. and Mitchell-Jones, T (1997) *The Dormouse Conservation Handbook*. English Nature.

suitable habitat such as woodland, scrub and hedgerows. Nest tubes are used by dormice as places of shelter and they will often construct their nests within them during their periods of activity (typically between April and November). In accordance with current best practice guidelines[9], a minimum of 50 nest tubes are deployed approximately 20m apart and left *in situ* for the survey season. These are checked on a monthly basis for a set period for presence of animals and evidence of dormouse presence (distinctively woven nests). 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 21 is normally accepted to establish 'likely absence' in the event that no signs of dormice are found during the survey. The scores may be doubled if the site is large enough to accommodate 100 or more nest tubes.

Table 2. Dormouse index of probability score

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

For this survey, a total of 50 dormouse nest tubes were installed along hedgerows and tree lines around the site (see Figure 5). Dormouse checks were undertaken in the mornings and commenced 1 month after the nest-tubes were positioned. Surveys were undertaken under the supervision of licensed surveyors Paul Whitby and Dan Bennett.

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

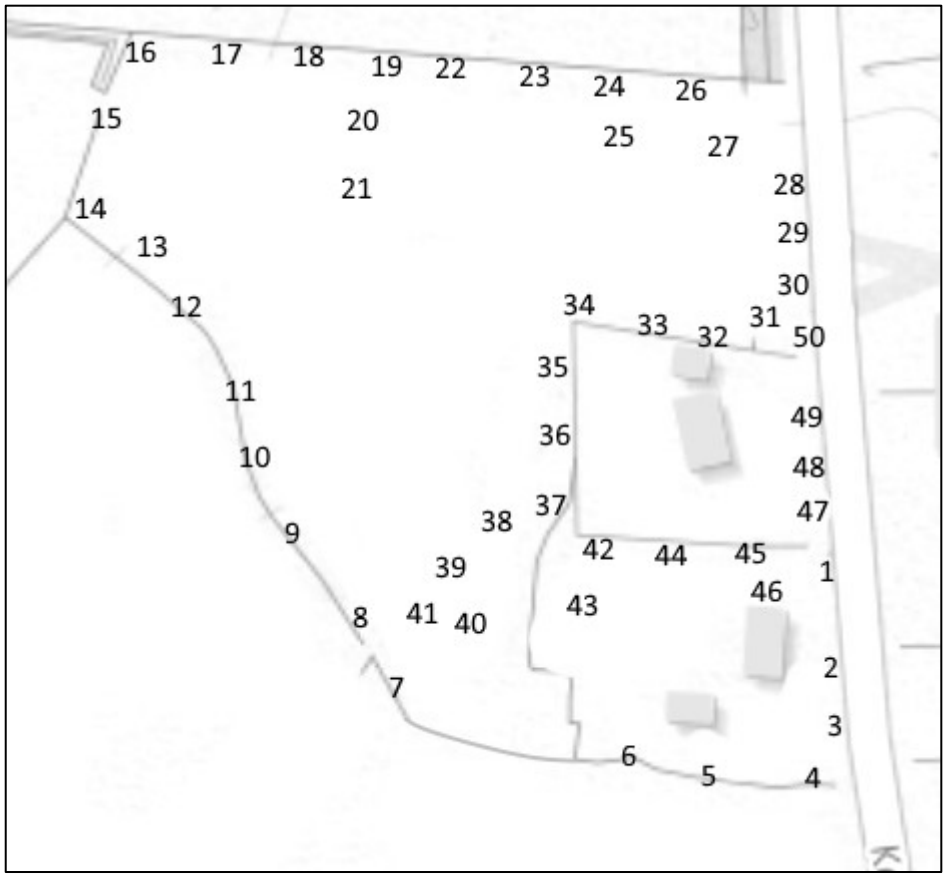

Figure 5. Dormouse nest tube locations across all suitable habitat for dormice.

The habitats on site have improved since with bramble scrub slowly encroaching towards the centre of the site providing more foraging and nesting habitat for the species. The species is therefore considered to still be present now.

2.7 Great Crested Newts and Other Amphibians

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

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

2.7.1 Habitat Suitability Assessment

The original phase 1 PEA identified eight ponds within 500m of the proposed development and of these, four were accessible for further surveys in 2018. A ninth pond was identified in 2023 due to the creation of a new pond being in association with a nearby development. 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)[10]

The HSI values were used in combination with professional judgement to select the ponds to be carried forward for the further surveys described below. In 2023, the Ecology Co-op was denied access to most ponds.

2.7.2 Environmental DNA Sampling and Analysis

This relatively new 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[11]. The samples are sent to an approved laboratory to isolate and determine presence of environmental DNA (eDNA) shed into the water by amphibians during the breeding season. The eDNA sample was taken on 27/04/2023.

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[12]. Four survey visits were undertaken using a combination of bottle-trapping, torchlight searching and egg searching during each survey visit. All surveys were undertaken during weather conditions suitable for great crested newts – above the minimum temperature of 5°C – and at least two of the survey visits were undertaken during the 'peak activity period' for breeding great crested newts (i.e. between 15 April and 15 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 with at least three visits during the 'peak activity'.

2.8 Reptiles

The common lizard, slow-worm, grass snake and adder 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.

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[10] Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). *Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus).* Herpetological Journal 10(4), 143-155

[11] Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F 2014. *Analytical and methodological development for improved surveillance of the Great Crested Newt.* Defra Project WC1067. Freshwater Habitats Trust: Oxford.

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

Standard reptile presence/likely absence surveys involve setting out artificial refugia (reptile 'mats' or 'tins') in potentially suitable habitat. Reptile mats are pieces of roofing bitumen felt and reptile tins are pieces of corrugated metal sheet approximately 1m x 0.5m in size, which absorb heat from the sun more rapidly than the surrounding vegetation and provide cover and basking places attractive to reptiles. These are then checked for presence of animals under suitable weather conditions. They are placed in areas of potentially suitable habitat at an approximate density of 20 per ha, or 20m apart along linear features. There are no up-to-date best practice guidelines for reptile surveys, but a minimum of seven survey visits under suitable weather conditions is generally considered to be adequate when determining their presence/likely absence.

A total of 38 roofing felt mats were used in this survey. The mats were left *in situ* for a minimum of ten days to 'bed in' and allow reptiles to locate them before the first check. The mats were checked at least seven times between April and September and all observations of reptiles were recorded, together with the weather conditions, temperature and time of day.

2.9 Other Notable Species

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

2.9.1 Brown hairstreak

Due to the presence of suckering blackthorn *Prunus spinosa* within the site, a winter egg search for this species was conducted on the 9th November 2023. All available and accessible suckering blackthorn aged between 1-3 years was inspected for brown hairstreak *Thecla betulae* eggs.

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)[2]. This involves evaluating the importance of an 'ecological feature' (habitat, vegetation community, population of a single species or assemblages of species) in terms of nature conservation priority, followed by the application of the 'mitigation hierarchy'.

2.11.1 Importance of Ecological Features

A level of importance was assigned to all existing ecological features through consideration of the rarity

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

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

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

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

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

2.11.2 Significance of Effects

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

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

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

- *cumulative impacts* – in combination with other plans/projects.

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

2.11.3 The 'Mitigation Hierarchy'

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

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

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

2.12 Constraints/Limitations to Surveys

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

Pond access was not granted for ponds 2, 3, 4, 5, 6, 7 and 8. However, historical survey data is available for all of these ponds ranging from surveys by arbeco in 2016, surveys by the Ecology Co-op in 2018 and survey data from completed adjacent developments.

The majority of suckering blackthorn within the development site was surrounded by bramble scrub and therefore it was not easily accessible to search for brown hairstreak butterfly eggs. However, some young blackthorn was located on the edges of the scrub and eggs were subsequently found confirming

presence.

3 ECOLOGICAL BASELINE

3.1 Designated Sites

There are no internationally designated sites within 10km of the site, however there is three nationally designated Sites of Special Scientific Interest within 5km (Table 3).

The South Downs National Park boundary lies approximately 420m to the southeast of the Batchelor's Farm site and Ditchling Common (SSSI) is the closest designated site located approximately 1.5km to the east. This site contains a range of grassland types and the flora present includes a number of locally uncommon plants, for which the site is designated.

There are four non-statutory designated sites within 2km of the site (Table 3), the closest of which is Brambleside Meadow – a local wildlife site (LWS) approximately 1.3km east of the site. There is also Batchelor's Farm Nature Reserve directly adjacent to the west boundary although it has no official designation. It measures approximately 33 acres on the southern edge of Burgess Hill. The nature reserve comprises mostly grassland managed as hay meadow and a central, tree-lined stream valley has wetland vegetation on its banks and there are patches of scrub on site.

The nearest woodland habitat lies approximately 140m east of the site behind several residential properties and the closest ancient woodland lies 150m south connected to the southeast corner of the site via a small woodland shaw along the road.

There is one granted EPS licence for mitigation projects within 1km of the site boundary. This EPS licence appears to be within 100m of the site and allows for the damage and destruction of a resting place between 26/06/2017 and 31/12/2022 (2017-29021-EPS-MIT).

Table 3. Statutory and non-statutory designated sites within 5km of the application site.

Site name	Designation	Features listed on citation	Proximity	Ecological importance
Statutory designated site				
South Downs	National Park (NP)	160 hectares of chalk grassland, scrub, mixed woodland and ancient yew forest	420m	National
Ditchling Common	Site of Special Scientific Interest	This site on Weald Clay contains a range of grassland types which have resulted from the wide variation in drainage conditions. The flora includes a number of locally uncommon plants.	1.5km	National
Clayton to Offham Escarpment	SSSI	This extensive site lies on the chalk escarpment and dip slope of the South Downs. The nationally uncommon chalk grassland habitat dominates much of the site but woodland and scrub is better represented here than on the other chalk sites in East Sussex. The site supports a rich community of breeding birds.	3.9km	National

Wolstonbury Hill	SSSI	The chalk downland of Wolstonbury Hill is rich in flowering plants and includes a number of uncommon species. Woodland is established in parts of the site.	4.3km	National
Non-Statutory designated site				
Keymer Tile Works	Local Wildlife Site (LWS	This is a working clay pit on the eastern outskirts of Burgess Hill. Keymer Tile Works supports a matrix of successional habitats ranging from temporary pools and bare clay through unimproved grassland to dense scrub, deciduous woodland and willow carr. It is a very varied site of particular importance for breeding amphibians and is also of high geological interest.	1.22km	Local
Keymer Tile Work	Local Geological Site (LGS)	Large clay pit in final stages of operation, exposing a section at the top of the lower Weald Clay. This is the only site in Sussex where this level is exposed. Main recent excavation (lower pit) is about 100m long, 60m wide and 12m deep. Next to this is a shallower partly overgrown upper pit (Red Pit) of similar area. The site is well known for its vertebrate and insect fossils.	1.27km	Local
Brambleside Meadow	LWS	This is a small, linear meadow adjacent to the B2112, just north of St. George's Retreat. The sward has not recently been managed and as a result it has grown long and rough and is becoming overgrown in places by scrub and rank species. However there still remains a rich variety of plants.	1.3km	Local
Burgess Hill Railway Lands	LWS	The site consists of a series of meadows which adjoin the railway near Wivelsfield Station on the edge of Burgess Hill. Much of the grassland is rough, but common herbs are well represented, and scrub, old hedges and woodland add to the interest of the site. The area is important as a semi-natural habitat in a heavily developed area.	1.6km	Local

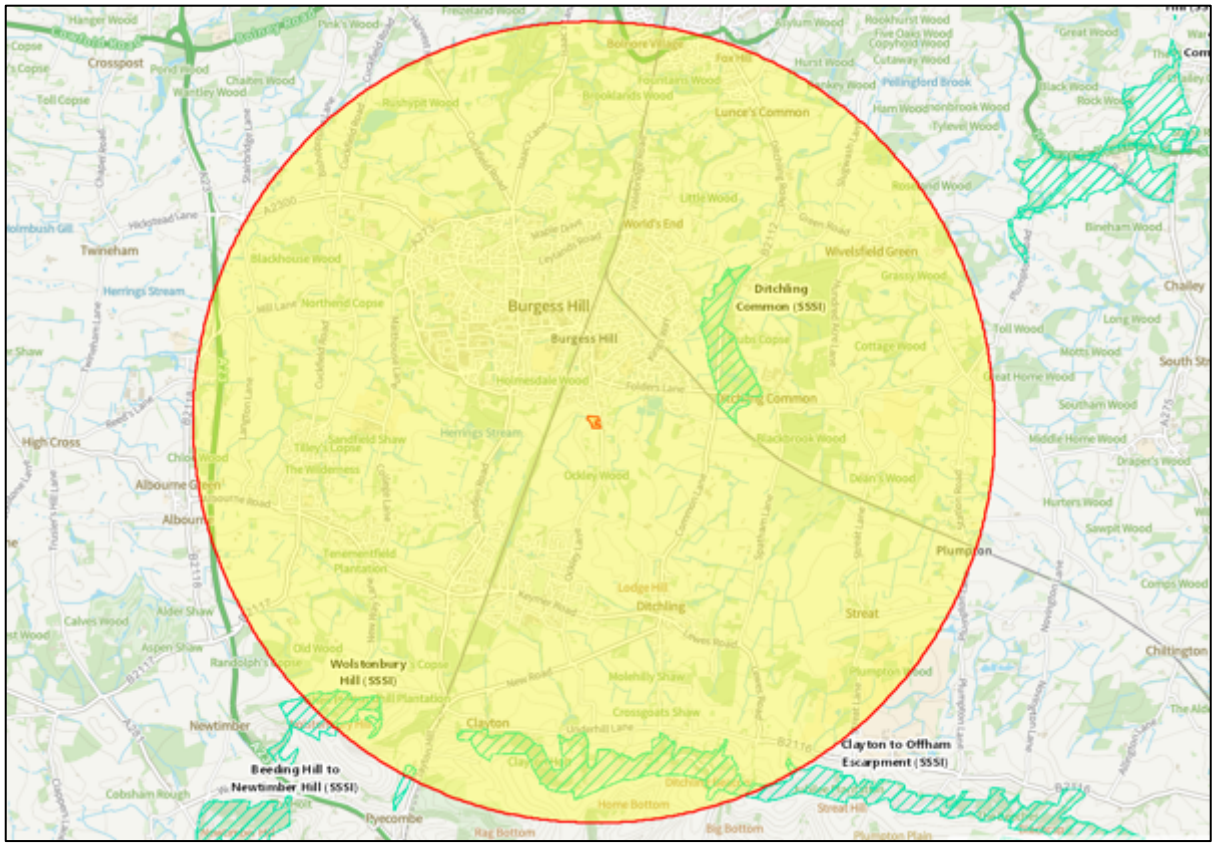

Figure 6. Statutory designated sites within a radius of 5km of the application site. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

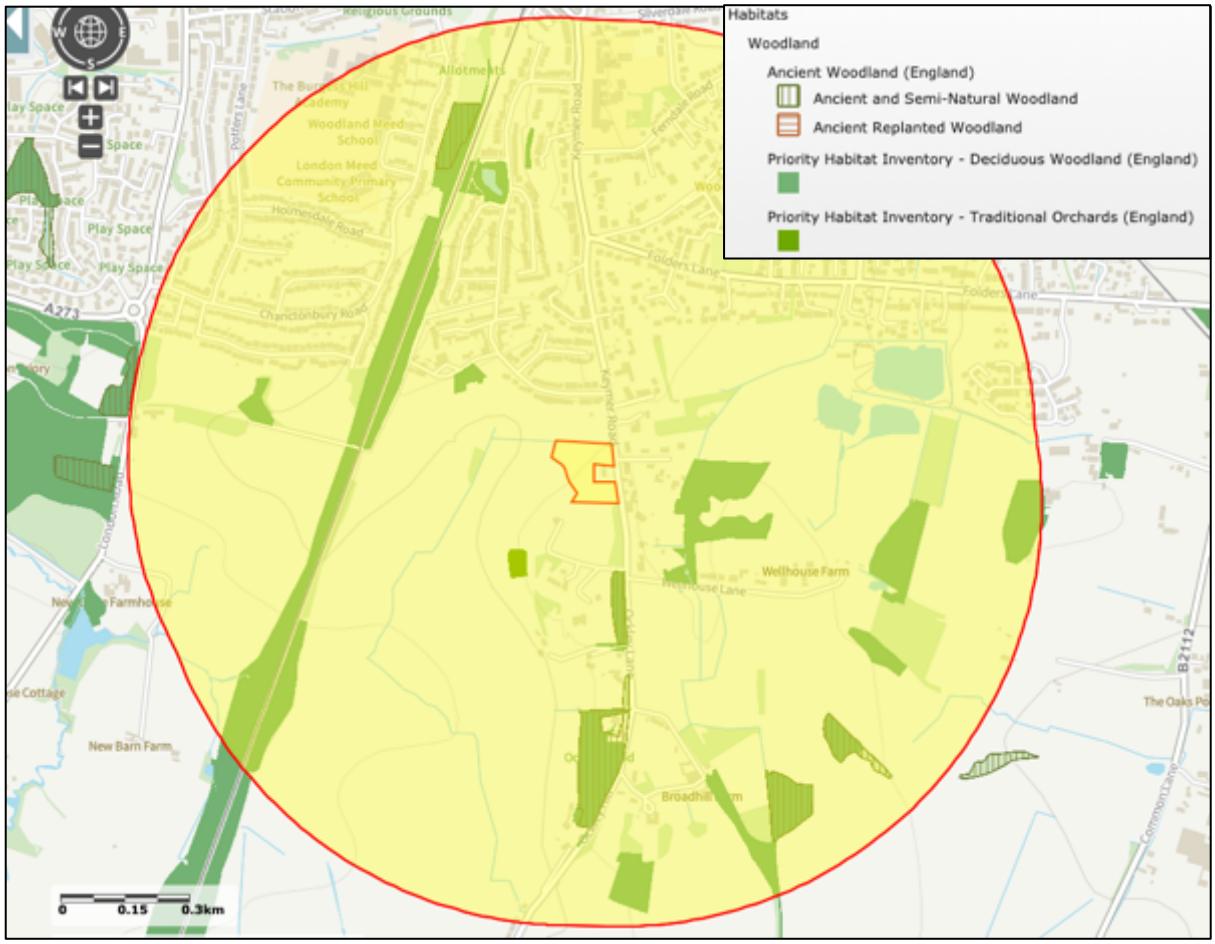

Figure 7. Priority Habitats contained by and adjacent to the application site within 1km. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

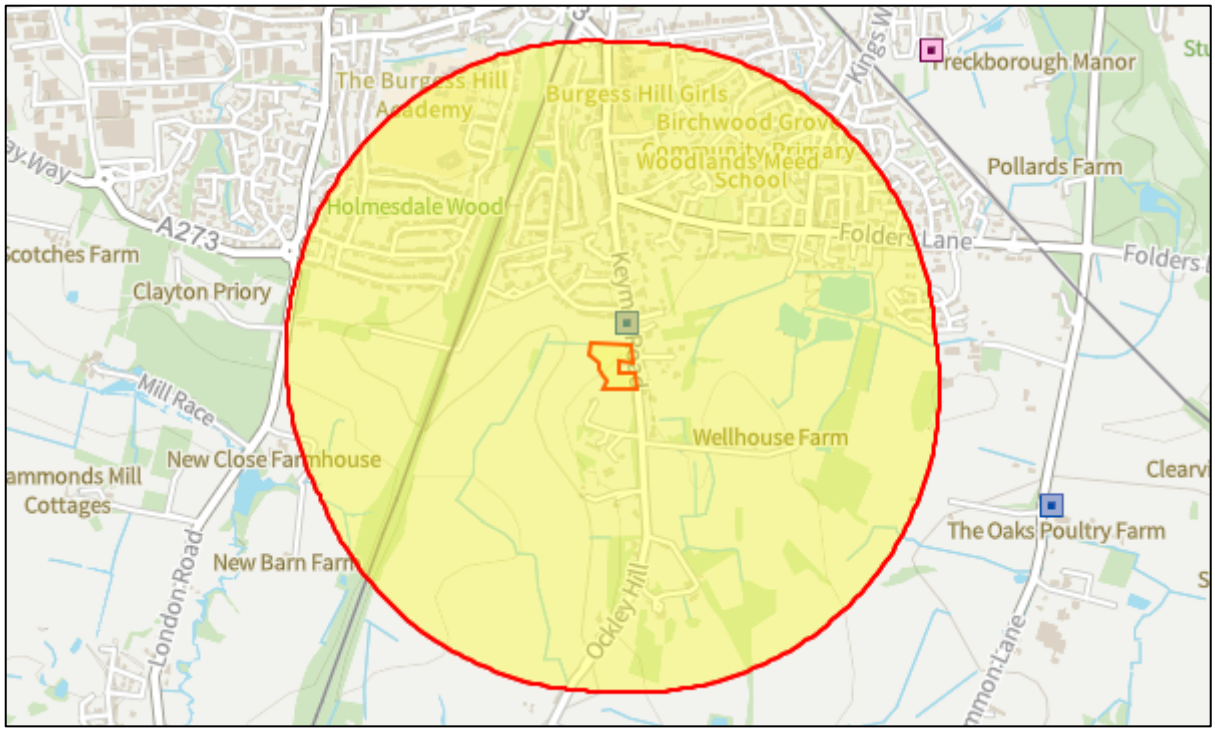

Figure 8. Granted EPS licences within 1km of the application site. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

3.2 Habitats

The site is comprised of other neutral grassland in the centre with small areas of ruderal/ephemeral habitat. The southern half of the site comprised hard-standing although pioneering species have begun to emerge. The boundaries consist of unmanaged species-rich hedgerows and lines of trees with dense bramble scrub in front that has slowly been encroaching into the centre of the site for several years. A small area of blackthorn scrub is also present in the southeast corner alongside the road. The site visit on the 27th February 2025 confirmed there were no significant changes to any of the habitats.

Table 4 below lists the UKHab habitats found at the site with the general species composition of these habitats. Note that detailed information on ponds with respect to great crested newts are presented in the following section. The habitat map for the site and key to the standard mapping symbols used is presented in Figure 9. Photographs of important areas of habitat are presented below.

Table 4. The UKHab habitats contained within the site.

Habitat type	UKHab Code	Area (ha)/ length (m)	Species composition	Ecological importance
Other neutral grassland (photograph 1)	g3c	0.314ha	Recently unmanaged grassland that is being encroached on by bramble scrub on all sides. Several grasses were present including Yorkshire fog *Holcus lanatus*, fescue *Festuca* sp. and *Poa* sp. as well as creeping buttercup *Ranunculus repens*, common mouse-ear *Cerastium fontanum*, common sorrel *Rumex acetosa* and thistles. The following species were also identified: cleavers *Gallium*	local

			aparine, bugle *Ajuga reptans*, common field speedwell *Veronica persica*, common nettle *Urtica dioica*, creeping buttercup *Ranunculus repens*, creeping thistle *Cirsium arvense*, cuckoo flower *Cardamine pratensis*, dock *Rumex* sp., garlic mustard *Alliaria petiolate*, Great willowherb *Epilobium hirsutum*, hoary ragwort *Senecio erucifolius*, lesser celandine *Ranunculus ficaria*, male fern *Dryopteris filix-mas,* meadow buttercup *Ranunculus acris*, red campion *Silene dioica*, soft rush *Juncus effusus*, thistle *Cirsium* sp. and wood forget-me-not *Myosotis sylvestris*.	
Bramble scrub (photograph 2)	h3	0.541ha	Dominated by bramble with frequent blackthorn throughout including suckering blackthorn.	site
Developed land; sealed surface (photograph 3)	u1b	0.268	Area of hard-standing where several derelict buildings have been demolished. Plant species present include nettles *Urtica dioica*, cleavers *Galium aparine*, fleabane sp., *Pulicaria sp.*, great willowherb, herb Robert *Geranium robertianum,* hybrid bluebell *Hyacynthoides Hispanica x H. non-scripta,* pendulous sedge *Carex pendula*, ragwort sp. *Senecio* sp., dock sp. *Rumex sp.*, teasel *Dipsacus follonum, Canary spurge Euphorbia mellifera, thistle sp. Cirsium sp. and wavy bitter-cress* Cardamine flexuosa.	site
Ruderal/Ephemeral (photograph 4)	s 81	0.115	area covered in nettles, great willowherb, teasel *ullonum*, creeping buttercup, R*umex* sp.*, Brassica* sp.*,* dandelion *Taraxacum* sp. and thistle *Cirsium* species.	site
Ruderal/Ephemeral	s 81	0.039	Area dominated by nettles and sparse bramble underneath a mature oak tree	site
Blackthorn scrub (photograph 6)	s 81	0.023	Area of scrub dominated by blackthorn close to the entrance	site
Line of trees	w 33	0.037m	This hedgerow runs along the southern half of the east boundary and includes spindle *Euonymus europaeus*, beech *Fagus sylvatica*, dogwood *Cornus sanguinea*, fruit tree sp, ash, sycamore *Acer pseudoplatanus*, horse chestnut *Aesculus hippocastanum* and hawthorn. It varies in height ranging from 3.5m to the section in front of the residential property which stands at 1.5m high.	site
Hedgerow	h2b	0.039m	Leyland Cypress hedgerow forming southern boundary that surrounds adjacent farmhouse property	site
Hedgerow (priority habitat	h2a	0.089m	Dominated by hawthorn with occasional beech, oak, spindle, and blackthorn. This feature extends along the north and western boundaries that surround the adjacent farmhouse	site

Line of trees (photograph 7)	w 33	0.045m	Contains elder, dogwood, spindle and hawthorn and borders the road	site
Line of trees	w 33	0.132	A defunct line of trees with several gaps along the northern boundary comprising hawthorn, blackthorn, English oak, silver birch and wild cherry	site
Line of trees (photograph 5)	w 33	0.163	Dominated by blackthorn and hawthorn with elder, wild cherry, English Oak and bramble also present. The average height is approximately 3m and can be up to 2m in thickness in places – western boundary	site
Line of trees	w 33	0.103	Dominated by hawthorn and bramble – southern boundary	site

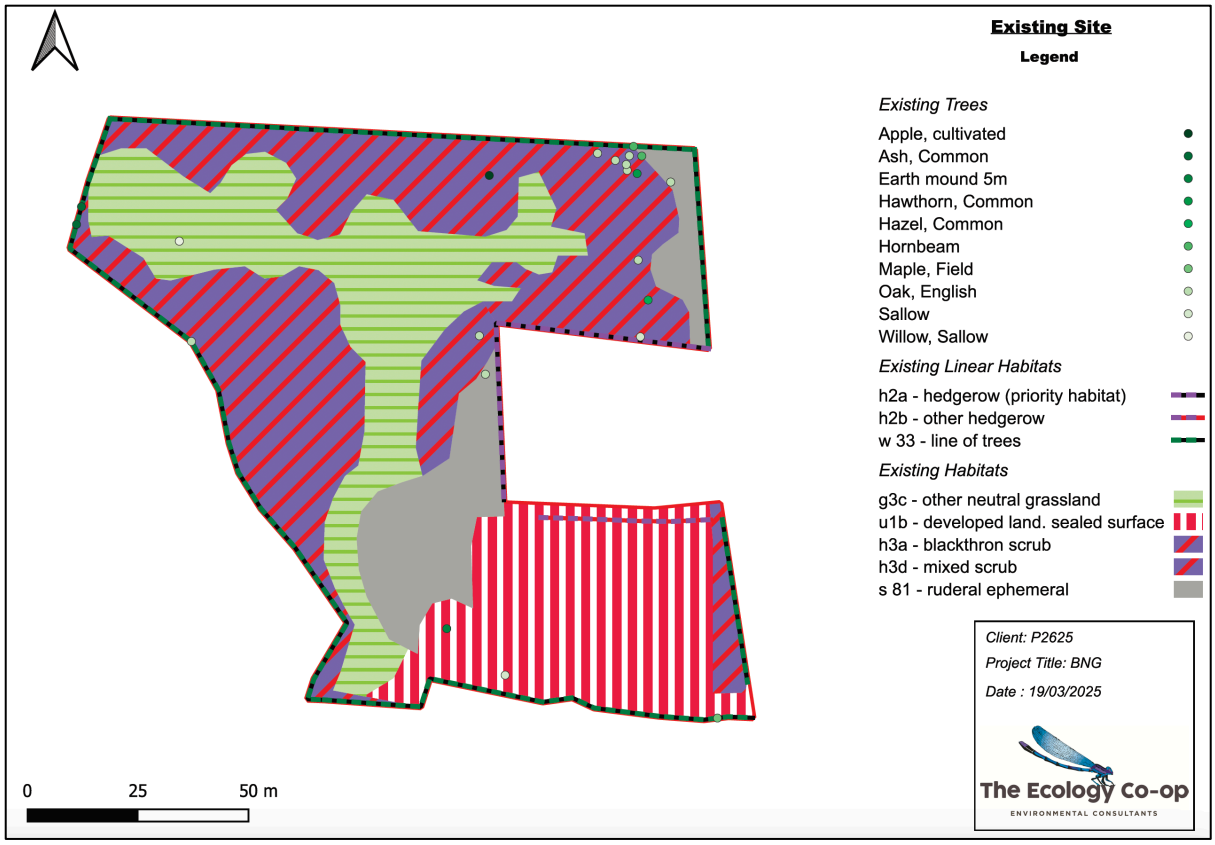

Figure 9. Habitat survey map of the site with the site boundary is outlined in red. Images prepared using QGIS version 3.16.3 - Hannover.

Photograph 1. Other neutral grassland within the centre of the site.

Photograph 2. Example of bramble scrub within Batchelor's Fm. View from centre of site looking at northeast boundary and mature oak (T1).

Photograph 3. Area of hard standing with remnants of previous agricultural buildings present.

Photograph 4. Area of ruderal to the west of the hard-standing in the southern half of the site looking towards the eastern boundary.

Photograph 5. A section of the southwestern boundary habitat.

Photograph 6. The blackthorn scrub along the southern part of the eastern boundary.

Photograph 7. View from the road looking in of approximate area to be removed to facilitate access road at the northern end of the eastern boundary.

3.3 Badgers

3.3.1 Survey Results

No evidence of a badger sett was found during the walkover survey in May 2023 or during any other surveys including the latest walkover survey on the 27th February 2025. However, there are habitats of value for this species within the site and surrounding landscape. It is likely that if any setts were situated within 30m of the site boundary, evidence of badger activity would have been identified.

3.3.2 Pre-existing Records

Records of badgers are not provided by the records centre, due to the sensitive nature of this information.

3.3.3 Interpretation

Badger populations have been rising for several decades and they are now a common and widespread species across most of the UK countryside. Badgers are therefore not currently considered to be of great conservation concern within the UK, although the UK supports a significant proportion of the global population.

Given the high suitability of the site to support foraging badgers and the dense scrub in places which could be obscuring signs of activity, the site is considered likely to be used by a small number of badgers as a foraging resource despite no obvious signs of activity. The site is not considered to be important to badgers beyond the site level.

3.4 Bats

3.4.1 Natural Roost Features – Trees

There is one tree within the Batchelor's Farm site with potential roost features for bats and this is the large mature oak in the northeastern corner of the site (Figure 10). The initial ground level tree assessment (GLTA) in 2018 considered the mature oak tree to have PRF-M suitability and the PRF inspection survey in May 2023 confirmed the presence of two potential roost features suitable only for individual bats (PRF-Is[13]) and three potential roost features suitable for multiple bats (PRF-Ms). Table 5 describes the five PRFs identified and assesses the potential for each feature. The mature oak tree was climbed and all features endoscoped on three occasions across the year on 28th June, 26th July and 15th September 2023 and the results after each inspection are also included in Table 5. Figure 11 shows an image of the tree and approximate locations of each feature.

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

Table 5. Description of features, potential for roosting bats and endoscope results for T1 (Mature oak) 2023.

Feature ref.	Feature	Height of feature (m)	Orientation of feature	Assessment of roosting potential	Notes	28/06/23	26/07/23	15/09/23
A	Tear out used	6	S	PRF-M	Used by squirrels – 45cm deep	No bats or evidence found	No bats or evidence found	No bats or evidence found
B	Branch wound	8	S	PRF-I	Two gaps, one up, one down (both superficial)	No bats or evidence found	No bats or evidence found	No bats or evidence found
C	Callus role	10	S	PRF-I	Top side of branch (superficial wound)	No bats or evidence found	No bats or evidence found	No bats or evidence found
D	Pruning wound	7	E	PRF-M	Goes back 15cm	No bats or evidence found	No bats or evidence found	No bats or evidence found
E	Branch cavity	6	S	PRF-M	Underside of branch 45cm deep, 7cm wide.	No bats or evidence found	No bats or evidence found	No bats or evidence found

Figure 10. Aerial image indicating the location of T1 (blue star) with PRF-Mbat roosting potential within the Batchelor's Fm application site. Image produced courtesy of Google maps (map data ©2023 Google).

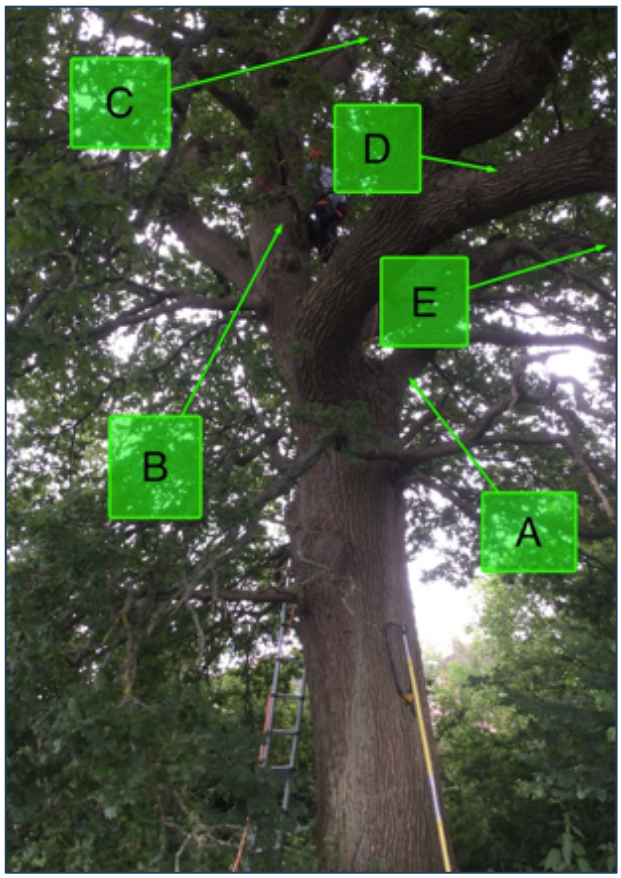

Figure 11. Approximate locations of features A-E as described in Table 5.

3.4.2 Bat Activity Surveys – Night-time bat walkover (NBW) surveys

The most common species of bat using the site across all three surveys in 2023 was common pipistrelle *Pipistrellus pipistrellus* with the northern tree line and northern half of the eastern treeline most frequently used. Only common pipistrelle bats were recorded during the May survey whereas small numbers of Nathusius' pipistrelle, common noctule and brown long-eared bats were also recorded during the June survey alongside common pipistrelle bats. In August, small numbers of common pipistrelle, myotis, soprano pipistrelle and common noctule were recorded in the northern half of the site and southeast corner. Overall, the bat activity on site was very low.

These results are consistent with the 2018 results which found across six surveys that common pipistrelle was by far the most frequent species with a peak of 37 passes (compared to a peak of 21 in 2023) although still low in numbers. Small numbers of Myotis sp., common noctule, serotine and brown long-eared were recorded in 2018.

Survey conditions and timings are presented in Table 6. The results of each walked transect survey is summarised in Figures 12, 13 and 14. This shows the distribution of all bat 'observations' on each walked transect, during which the route was covered at least three times in a session.

Table 6. Walked transect metadata: dates, times, temperature, weather conditions.

Date	Survey start time/end time	Temp. degrees centigrade, weather conditions	Surveyors
03/05/23	20:24–22:24:00 Sunset: 20:24	Max/Min temp.: 12-10°C 00% cloud cover, calm, dry.	Patrick Kitchenor Tom Francis
29/06/2023	21:20-23:20 Sunset: 21:20	Max/Min temp.: 20 - 18°C 70% cloud cover, calm, dry.	Patrick Kitchenor Josh Harwood
24/08/23	20:05-22:05 Sunset 20:05	Max/Min temp.: 21 - 18°C 70% cloud cover, calm, dry.	Patrick Kitchenor Josh Harwood

Figure 12 Approximate distribution of bats detected during 3rd May walked transect survey. Coloured dots represent bat activity. Image produced courtesy of Google maps (map data ©2023 Google).

Figure 13. Approximate distribution of bats detected during 29th June walked transect survey. Coloured dots represent bat activity. Image produced courtesy of Google maps (map data ©2023 Google).

Figure 14. Approximate distribution of bats detected during 24th August walked transect survey. Coloured dots represent bat activity. Image produced courtesy of Google maps (map data ©2023 Google).

3.4.3 Bat Activity Surveys – Automated Static Bat Detecting

The results of the automated static bat detector surveys are summarised in Table 7. With the exception of common pipistrelle bats in late August, all other species were recorded in relatively low numbers with

common pipistrelle the most commonly recorded. The number of common pipistrelle passes recorded in late August is significantly higher than any other species across the three logger deployments. However, the number of common pipistrelle bats recorded is still only moderate. Soprano pipistrelle bats were the second most recorded bat species although in low numbers. The total number of species recorded across the three deployments is six species and the myotis genus, although it should be noted that only one pass for Nathusius' bat was recorded across the three logger deployments.

Table 7. Mean number of passes recorded by the static detector (rounded to nearest whole number) per night in 2023.

Location	Date	Common pipistrelle	Soprano pipistrelle	Nathusius pipistrelle	Brown long-eared	*Myotis* sp.	Serotine	Noctule
North end of east boundary (new road access location)	May (5 nights)	14	1	<1	<1	<1	1	2
	June (5 nights)	10	29	-	<1	<1	-	16
	August (5 nights)	259	14	-	<1	4	<1	<1

These results are similar to those in 2018 as the six activity surveys that were conducted showed that there was a low level of activity across the site, mostly from common pipistrelle, although seven species in total were identified. No obvious commuting routes were identified. It is not possible to identify the species of Myotis without droppings for DNA analysis or the capture of a live animal.

The April static bat logger in 2018 on the east boundary to the north on a single day recorded 999 common pipistrelle passes however such high numbers were not replicated across the remaining two surveys in July and August. The 999 passes recorded are likely to be multiple passes by a smaller number of bats on a day of high invertebrate activity, though with seven bat species identified, there is a moderate diversity of bat species present using the site.

3.4.4 Pre-existing Records

The Sussex Biodiversity Record Centre provided 330 bat records in the search area comprising 11 identified species as well as more general genus identification. The number of records for each species is presented in Table 8. The closest of these were records associated with surveys at Batchelor's Farmhouse in 2018 between June and August including myotis sp., noctule bats, soprano pipistrelle, common pipistrelle, serotine and brown long-eared bats. The latter three species were recorded as having roosts within the farmhouse buildings.

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

Species	No. of records
Common pipistrelle *Pipistrellus pipistrellus*	100
Soprano pipistrelle *P. pygmaeus*	22
Brown long-eared *Plecotus auritus*	20
Serotine *Eptesicus serotinus*	24
Noctule *Nyctalus noctula*	22
Daubenton's Myotis *Myotis daubentonii*	2
Brandt's bat *M. brandtii*	1

Whiskered bat *M. mystacinus*	1
Natterer's bat *M. nattereri*	59
Nathusius' pipistrelle *P. nathusii*	3

3.4.5 Interpretation

Only one tree, the mature oak (T1) in the northeast corner was identified as having potential for supporting roosting bats and rated as PRF-Msuitability. Although the three surveys did not identify any bats or evidence of roosting, the features still provide roosting opportunities for bats in the future. This tree is to be retained but may be subject to indirect impacts from artificial lighting. The development site is not considered to be important to roosting bats beyond the **site level.**

The activity surveys have demonstrated that the habitats contained within the development site do support foraging bats, but in relatively low numbers of common species of bat. Bats are opportunistic and will exploit a range of habitats across the landscape in response to the rise and fall of insect populations. These surveys indicate that the habitats contained on the site are utilised intermittently as part of the wider landscape by common and widespread bat species. Activity was dominated by common pipistrelle during the May and August surveys, albeit in greater numbers for the latter survey. The June survey saw higher numbers of soprano pipistrelle and common noctule. Activity was greatest in the northern half of the site which is to be expected given the presence of other neutral rough grassland, scrub habitat and tree lines.

The static detectors confirmed that common pipistrelle are the highest recorded species on site, followed by soprano pipistrelle and then common noctule. The remaining species were recorded in very low numbers. The high pipistrelle numbers are likely to be accounted for by high foraging activity due to a peak in invertebrate prey rather than a commuting corridor as no bats were recorded commuting during the activity survey on the same day.

The development is therefore considered to be important to foraging bats up to the **local level** given the number of passes recorded in August for common pipistrelle along with the presence of several other species including serotine.

Table 9. Conservation status and distribution of bats recorded on site.[14]

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 bat	Least concern	Widespread
Noctule	Least concern	Widespread

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

3.5 Breeding Birds

3.5.1 Survey Results

In total, 20 species of bird were recorded during the survey; of these, two 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): dunnock *Prunella modularis,* house sparrow *Passer domesticus* and song thrush *Turdus philomelos*.

3.5.2 16th March 2023

A total of ten birds including five wren *Troglodytes troglodytes,* three dunnock, one blue tit *Cyanistes caeruleus* and one greenfinch *Carduelis chloris* were recorded singing within the field, which is an indication of territorial marking or mating calls. Six of those calls were along the southwest boundary: two wrens *Troglodytes troglodytes*, two dunnocks, a blue tit and a greenfinch, three in the northwest corner: two wren and a dunnock and one in the southeast corner; wren.

3.5.3 5th April 2023

A total of 14 birds including four dunnock, three robin , three wren, two chiffchaff *Phylloscopus collybita*, one great tit *Parus major* and one greenfinch were recorded singing within the field. Eight of those calls were along the south/southwest boundary: three dunnock, two wren, two robin *Erithacus rubecula* and a greenfinch, one on the north boundary; dunnock, three in the northwest corner: great tit, chiffchaff and wren, and two on the eastern boundary in the centre of the site: chiffchaff and robin.

3.5.4 27th April 2023

A total of 15 birds including four wren, three great tits, three robin, two dunnock, one blue tit, one chiffchaff, and one whitethroat *Sylvia communis* were recorded singing within the field, as well as two song thrush *Turdus philomelos* confirmed mating. In addition, one greenfinch was recorded singing just outside the northwest corner of the site and one great tit and one wren recorded singing just outside the southeast corner of the site. Out of the 15 calls, seven calls were along the south/southwest boundary: two robin, one chiffchaff, one dunnock, one whitethroat, one great tit, and one blue tit, three calls were on the northern boundary: two wren and one great tit, two call in the northeast corner and two in the southeast corner.

3.5.5 10th May 2023

A total of 18 birds including three chiffchaff, two wren, two robin, two blackcap *Sylvia atricapilla*, two blackbird *Turdus merula*, two dunnock, two greenfinch, one jackdaw *Coloeus monedula*, one garden warbler *Sylvia borin* and one whitethroat were recorded singing within the field. Eight of those calls were along the south/southwest boundary: two wren, one garden warbler, two robin, one jackdaw, one blackcap and one chiffchaff, one call in the southeast corner: blackbird, three calls along the eastern boundary in the centre: chiffchaff, dunnock and whitethroat, two calls in the northeast of the site: blackcap and greenfinch, and four calls along the northern boundary: greenfinch, blackbird, chiffchaff and dunnock.

3.5.6 31st May 2023 (evening survey)

Only three birds were recorded singing during the evening survey including two song thrush and a robin. One song thrush was on the southwest boundary and the other was in the northeast corner. The robin was on the northern boundary.

14th June 2023

A total of 23 birds including four wren, three blackcap, three goldfinch, two garden warbler, two blue tit, two robin, two blackbird, two greenfinch, one chiffchaff, one goldcrest and one song thrush were recorded singing within the field. Seven of those calls were along the south/southwest boundary: two goldfinch, one blackcap, one blue tit, one chiffchaff, one robin and one garden warbler, three calls in the southeast corner: robin, wren and blackbird, three calls on the eastern boundary in the centre: blackcap, wren and garden warbler, one call in the northeast corner: goldfinch, and nine calls along the northern boundary: two wren, one blackbird, one blue tit, one goldfinch *Carduelis carduelis*, one goldcrest *Regulus regulus*, one blackcap, one greenfinch and one song thrush.

From these results, the western boundary followed by the northern boundary appear to be the most suitable habitat for breeding birds although most parts of the site had birds singing. There were no confirmed nests across all six surveys, though nests are typically difficult to locate without detailed hand searches.

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

Table 10. Breeding bird survey summary list for Batchelor's Farm 2023.

RESULTS Species	**Mar**	**Apr**	**Apr**	**May**	**May**	**Jun**	**Breeding status**
Greenfinch	4	1	1	2	-	2	likely
House sparrow	-	-	-	-	-	1	possible
Dunnock	4	5	2	2	-	3	likely
Song thrush	-	-	2	-	2	1	likely
Stock dove *Columba oenas*	1	-	-	-	-	-	possible
Whitethroat	-	-	1	1	-	-	likely
Woodpigeon *Columba palumbus*	2	-	-	3	-	4	possible
Wren	5	3	5	2	-	4	likely
Blackbird	2	1	3	3	-	3	likely
Blackcap	-	-	-	3	-	4	likely
Blue tit	2	4	4	2	-	3	likely
Chiffchaff	-	3	1	2	-	2	likely
Garden warbler	-	-	-	1	-	2	likely
Goldcrest	-	-	-	-	-	2	likely
Goldfinch	2	-	-	-	-	3	possible

RESULTS **Species**	**Mar**	**Apr**	**Apr**	**May**	**May**	**Jun**	**Breeding status**
Great spotted woodpecker *Dendrocopos major*	-	-	-	1	-	-	possible
Great tit	1	4	4	1	-	1	likely
Jackdaw	-	-	-	1	-	2	likely
Jay *Garrulus glandarius*	-	-	1	-	-	-	possible
Magpie *Pica pica*	1	1	-	-	-	2	possible
Robin	-	3	3	3	2	3	likely

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

Date	Survey start time/end time	Temp. (°C), weather conditions	Surveyors
16/03/23	06:08 – 07:00 Sunrise: 6:14	Max/Min temp.: 9 100% cloud cover, BF1, dry.	Paul Whitby
05/04/23	05:49 – 07:20 Sunrise: 06:27	Max/Min temp.: 2 80% cloud cover, BF0, dry.	Paul Whitby
27/04/23	05:45 – 06:25 Sunrise: 05:43	Max/Min temp.: 6 100% light cloud cover, BF1, dry.	Paul Whitby
10/05/23	05:30 – 06:40 Sunrise: 05:20	Max/Min temp.: 11 60% light cloud cover, BF2, dry.	Libby Morris
31/05/23	21:10 – 21:40 Sunset: 21:06	Max/Min temp.: 14 80% light cloud cover, BF1, dry.	Paul Whitby
14/06/23	05:45 – 06:37 Sunrise: 04:46	Max/Min temp.: 15 00% light cloud cover, BF0, dry.	Libby Morris

3.5.7 Pre-existing Records

The SxBRC provided bird records for a total of 153 species. Most of these species are relatively common and widespread, but the list includes 27 species of principal importance for conservation (S41 NERC Act 2006), and 24 species listed on Schedule 1 of the Wildlife and Countryside Act. In addition, 33 species are red listed on the Birds of Conservation Concern lists.

In 2018, no ground-nesting birds were identified during any of the surveys across the site, however lesser spotted woodpecker and song thrush were observed and both species were red-listed. Song thrush has since been downgraded to amber. In addition, dunnock and bullfinch were identified in 2018 and these are amber listed.

3.5.8 Interpretation

Importantly, no ground-nesting birds were identified during any of the surveys across the site although greenfinch and house sparrow were recorded using the site and greenfinch were heard singing on several occasions by several different individuals. Both house sparrow and greenfinch are red listed. There has been a national decline in house sparrow numbers since the 1970s and overall populations

in rural areas had declined by 47% by 2000 and 60% in urban/suburban areas.[15] The greenfinch has experienced a major decline in the UK since the mid-2000s as a result of the disease Trichomonosis. It was only added to the UK red list in 2021.[13] In addition, six species currently on the amber list were also recorded using the site; dunnock, song thrush, stock dove, white throat, wood pigeon and wren.

Based on these findings, the breeding bird assemblage supported by Batchelor's Farm is considered to be important for the conservation of birds at the **local level** given the presence of likely nesting greenfinch, dunnock, wren, wood pigeon and song thrush.

3.6 Dormice

3.6.1 Nest-tube Survey

In 2018, a single dormouse nest and dormouse was identified within a nest tube. It was located on the western boundary of the site. Over the last five years the site has not been managed and subsequently the bramble scrub in front of boundary hedgerow has slowly crept inwards and grown in height and density in places. The site is now more suitable for dormice than in 2018 with a larger amount of foraging habitat available in the form of bramble scrub.

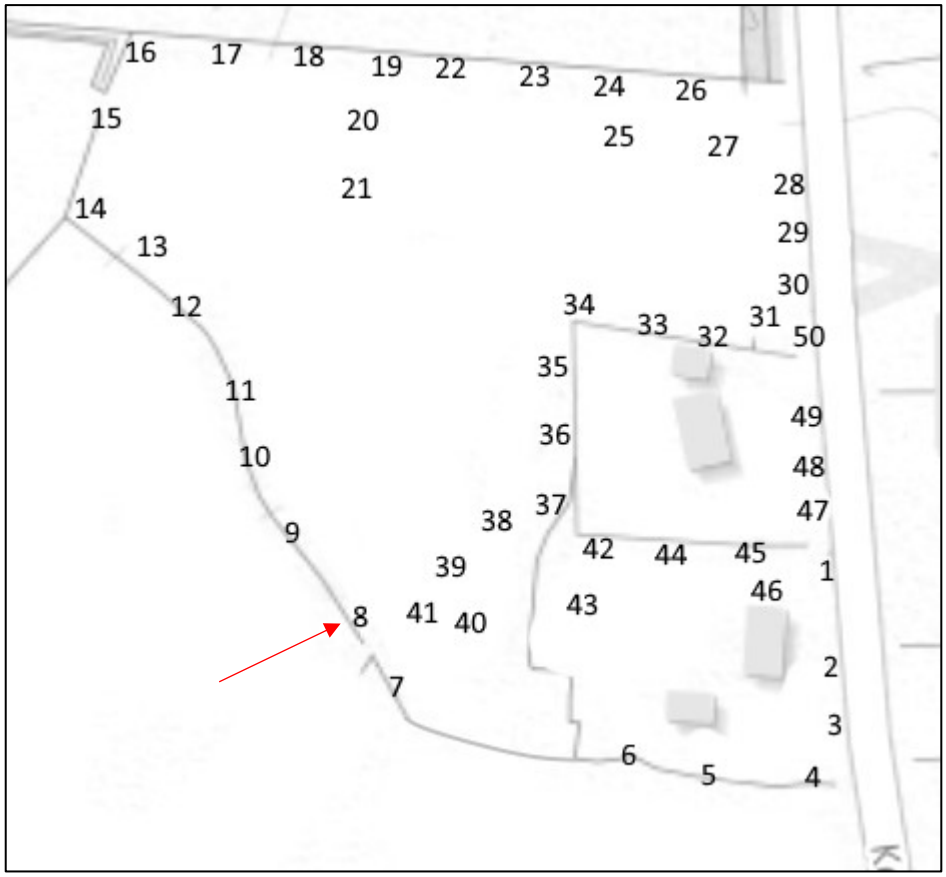

Figure 15. Dormouse survey results at Batchelor's Farm 2018. Red arrow indicates tube where dormouse and nest were found.

[15] British trust for Ornithology – bto.org

3.6.2 Pre-existing Records

The 2018 SxBRC dataset provided 3 dormouse records in the search area. The closest of these was for a location approximately 750m southwest from the boundary of the site in woodland that runs along the railway line. There is connectivity between the site and the railway line through boundary hedgerows.

3.6.3 Interpretation

The survey indicates that dormice are highly likely to be present within habitat that surrounds the site and habitat within the site, though the distribution of this species may be restricted. Dormice are a conservation priority species in the UK and a European protected species. In isolation, the site is too small to support a viable population however the site connects to similar fields with suitable boundary hedgerows to the north, west and south of the site and therefore in combination and as part of a larger network of habitats, the site is likely to contribute to supporting a low population of dormice and provide important foraging habitat for this species. Dormice are relatively common and widespread in south-east England, with Sussex containing a high density of mixed broadleaved woodland compared to the national average. The distribution of the species is however largely restricted to the southern half of England and Wales. Given that the population at the site probably represents a small proportion of the local population of this species, the site is considered to be important to dormice at a **local level**.

3.7 Great Crested Newts and Other Amphibians

3.7.1 Habitat Suitability, eDNA Testing and Field Survey Results

The initial PEA in 2018 identified eight ponds within 500m of Batchelor's Farm and by 2023, a ninth pond (pond 9) had been added as part of a completed development on a road called Willowhurst to the north of the site. This pond was known to have great crested newts (GCN) in due to surveys completed for another development application to the east of Keymer Road which was available to the public.

Letters were sent out to all the ponds however access was not granted for any ponds under private ownership. The only ponds that could be accessed due to being adjacent to public roads were ponds 1, 7 and 9. Pond 7 was dry throughout the whole 2023 survey season. Pond 1 underwent two presence/absence surveys before an e-DNA test confirmed a negative result for GCN and subsequently no further surveys were undertaken. Pond 9 underwent a full population survey of six visits.

The calculated HSI values, together with a brief description of the ponds and a summary of the full survey results is provided in Table 12 along with historical survey data collected.

No toads were recorded on site.

Table 12. Summary of habitat suitability and surveys carried out on ponds within 500m of the site.

Pond	NGR	Description	H.S.I value and Interpretation	Arbeco Survey (2016)	Ecology Co-op results (2017)	Ecology Co-op Survey (2018)	Ecology Co-op Survey (2023)
1	TQ 319173	Small roadside pond within woodland shaw.	0.47 Poor Suitability	N/A	N/A	e-DNA result - Negative	2 x presence/absence and e-DNA result – all negative
2	TQ 319174	Stream fed, enlarged area where stream has eroded bank over time	0.66 Newts unlikely to breed in fast flowing water	N/A	N/A	No further surveys required.	No access / no further surveys required
3	TQ 319174	Site visit not possible.	N/A Unknown	Full survey undertaken in 2016. Results: GCN present **medium** population.	N/A	No access	No access
4	TQ 319175	Site visit not possible.	N/A Unknown	Full survey undertaken in 2016. Results: GCN present, **low** population	N/A	No access	No access
5	TQ 319175	Large garden pond with minor wildfowl presence.	0.69 Average suitability	Survey undertaken in 2016, (five visits). Results: GCN present, **low** population	N/A	Full survey undertaken in 2018, Results: GCN present, **low** population	No access
6	TQ 320176	Site visit not possible – located within grassland field	N/A Unknown	Full survey undertaken in 2016, (four visits). Results: No GCN found.	N/A	No access	No access
7	TQ 318174	Small natural pond full of detritus. Pond had dried out.	0.38 Poor suitability	N/A	N/A	Water levels too low to survey	Pond was dry across whole survey season
8	TQ 316173	Site visit not possible.	N/A Unknown	N/A	Scoped out - surrounded by hard-standing & has very steep sides with no vegetation.	No further surveys required	No further surveys required / no access
9	TQ3181	Constructed pond as	0.84 - Excellent	n/a	n/a	n/a`	Full survey undertaken,

	78	part of development with suitable aquatic vegetation around the margins and in the pond					GCN present, **low** population

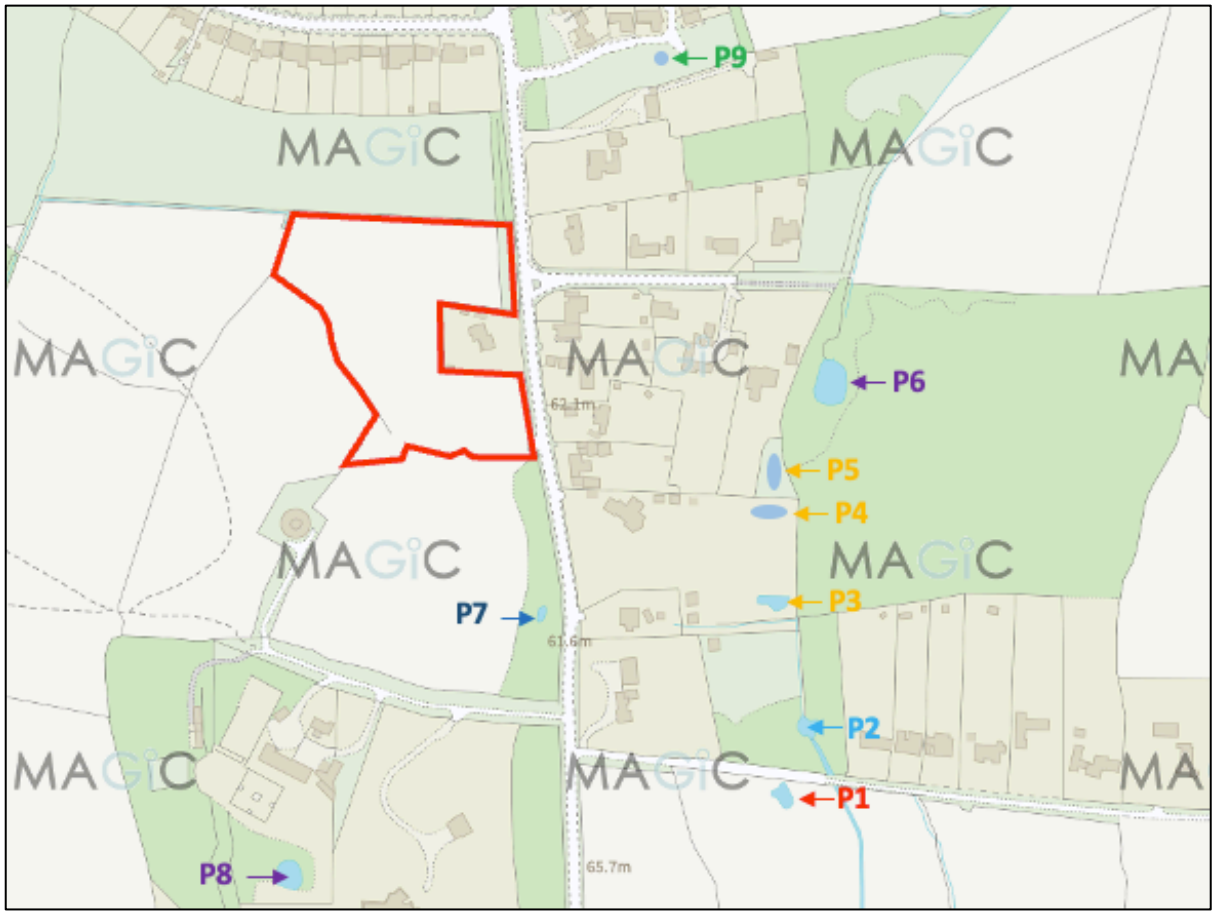

Figure 16. Ponds within 500m of the site (shown with red outline). Green = presence 2023, orange = historical presence, red = absence 2023, purple = historical survey + negative result, dark blue = unsuitable dry 2023, light blue = unsuitable fast flowing water. Image produced courtesy of Magic Maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

3.7.2 Pre-existing Records

The SxBRC provided 272 amphibian records in the search area. This included 43 records for great crested newt *Triturus cristatus*, 51 records for smooth newt *Lissotriton vulgaris*, 25 records for palmate newt *Lissotriton helvetica*, 117 records for common frog *Rana temporaria* and 36 records for common toad *Bufo bufo*.. The closest GCN record coincides roughly with pond 1 (Figure 16) and the closest amphibian record was at 100m from the boundary of the site, dated 2002.

3.7.3 Interpretation

Based on the current 2023 survey results and information provided by the 2016 Arbeco survey report, the 2017 Ecology Co-op report and the 2018 Ecology Co-op report, there is a medium meta-population of great crested newts in the local area. The ponds where great crested newts were found are located in the residential gardens of properties on the other side of Keymer Road, with rough grassland fields to the east providing high value suitable habitat and most recently approximately 100m northeast within a new residential estate with good connectivity to the site.

The Batchelor's Farm development site does not contain any ponds but does contain terrestrial habitat of value for great crested newts and Keymer Road is not considered to be a significant barrier to

movement. As a result, it is possible that terrestrially foraging or hibernating newts could be present. Great crested newts are a conservation priority species in the UK and a European protected species.

Using the GCN method statement rapid risk assessment tool the proposed development would be highly likely to cause an offence without appropriate mitigation.

Component	**Likely effect** (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	1 - 5 ha lost or damaged	0.4
Land >250m from any breeding pond(s)	0.5 - 1 ha lost or damaged	0.03
Individual great crested newts	Significant disturbance of newts	0.8
	Maximum:	0.8
Rapid risk assessment result:	RED: OFFENCE HIGHLY LIKELY	

Figure 17. Rapid risk assessment regarding impacts to great crested newts for Batchelor's Farm

This species is widely distributed throughout lowland England. However, the species has suffered huge declines with almost half of UK ponds lost in the 20th Century and around 80% of current ponds in a poor state[16]. The Batchelor's farm site could be used as part of a much wider terrestrial landscape for this species particularly if the meta-population is increasing. There is a lot of good quality terrestrial habitat to the east of all ponds identified, with no roads or other potential physical barriers present. Newts will likely utilise this habitat first before venturing further away from their breeding ponds and crossing Keymer Road to do so. Given that any newts found on the site are likely to represent a small proportion of the local population of this species, the site is considered to be important to great crested newts at a **local level**.

3.8 Reptiles

3.8.1 Survey Results

Below, Table 13 provides all of the weather data and findings from each reptile survey following the placement of survey sheets on the 20th March 2023.

The survey confirmed the presence of slow worm (peak adult count of 13), common lizard (peak adult count of three) and grass snake (peak adult count of one). Most of the reptiles were found in the northern half of the site where the rough other neutral grassland is present. A small number of slow worms were also found in the southwest corner and on the southern boundary. Common lizards were only found in the centre of the site close to a natural hibernacula.

16 https://naturalengland.blog.gov.uk/2019/12/17/natural-englands-geoportal-england-wide-data-for-great-crested-newts-now-available/

Table 13 Reptile survey results.

Date	Start time	Air temp. °C	Refugia temp. °C	Weather conditions	Results
04/04/23	10:10am	10	13-15	00%cc, BF2, dry	No reptiles found
27/04/23	09:10	18	22	100%cc, BF2, dry	2MSW, 2FSW, 1FGS
01/05/23	10:22	11	21	20%cc, BF2, dry	1MSW, 1FSW, 2MCL, 2FCL,
04/05/23	14:15	14	18	100%cc, BF1, dry	7MSW, 6FSW, 1MGS
29/08/23	10:40	18	21	25%cc, BF1, dry	1MSW, 9FSW
13/09/23	10:40	17	21	100%, BF2, dry	1MSW, 7FSW, 2MCL, 1FCL,
18/09/23	14:35	16	18	35%, BF1, dry	1MSW, 4FSW, 2MCL,1FCL

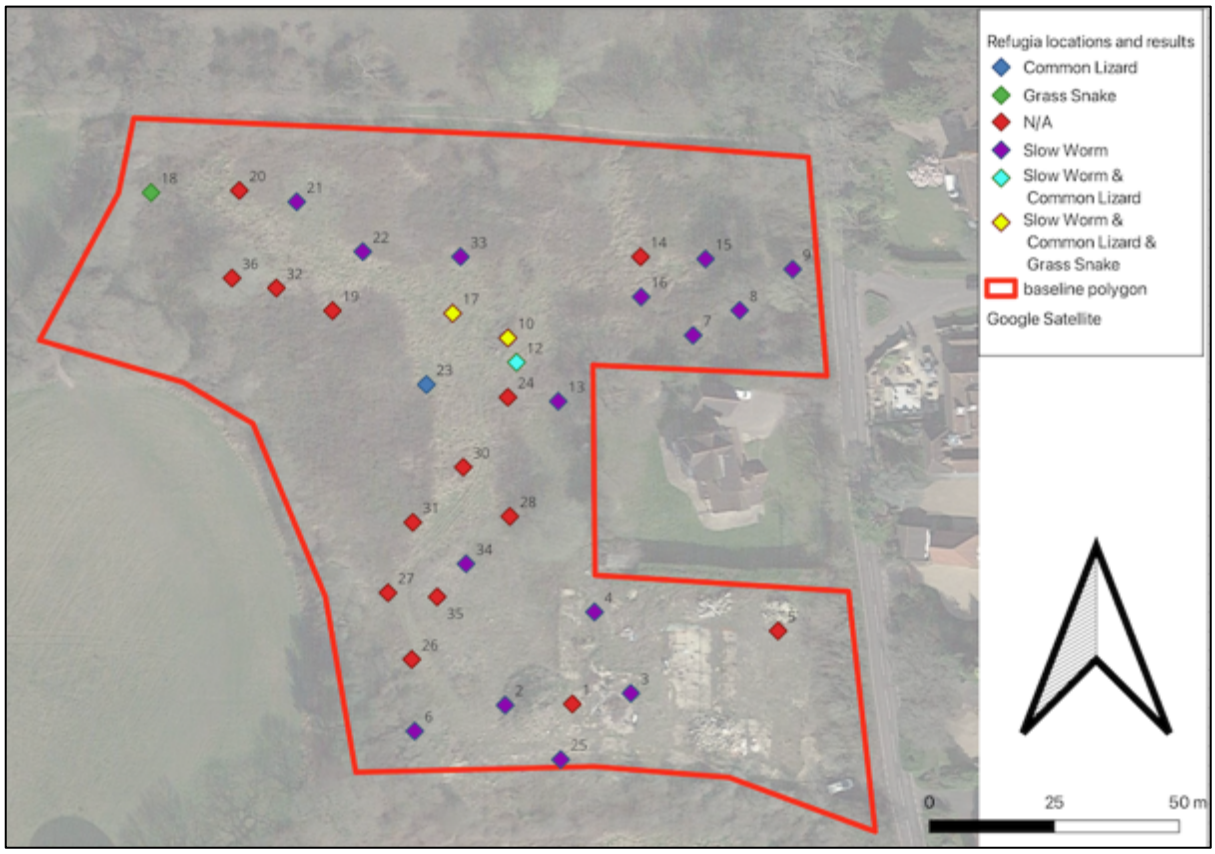

Figure 18. Reptile survey results for Batchelor's Farm 2023.

3.8.2 Pre-existing Records

The SxBRC provided 159 reptile records in the search area. The closest of these was at the Batchelor's Farmhouse in 2018 adjacent to the site boundary for slow worm.

3.8.3 Interpretation

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

Common lizards are common and widespread throughout the UK and south-east England found in grassland, heathland and woodland edges. Based on the small numbers involved and the small extent of habitat, the population contained within the development site is not considered important to common reptiles beyond the **site level**.

Grass snakes are common in the south-east of England, but are thought to be declining, with the Surrey Amphibian and Reptile Group (SARG) stating that the UK population is estimated to have reduced from 365,000 to 180,000 individuals[17], though it is accepted that the cryptic nature of this species makes population estimates and trends very difficult to ascertain. Grass snakes are a transient species that occupy large ranges and can be found in most areas of suitable habitat where there are water bodies present supporting favoured prey such as fish and amphibians. Based on the low population identified, the small extent of suitable grassland habitat, the population contained within the development site is not considered important to common reptiles beyond the **site level**.

Given the presence of three common species of reptiles within the site, all at low numbers, the site is therefore not considered important to common reptiles beyond the **local level.**

3.9 Other Notable Species

3.9.1 Survey Results/Habitat Potential

Brown Hairstreak Butterfly

The brown hairstreak survey found a total of seven eggs on young suckering blackthorn confirming the presence of this species within the site. Much of the suckering blackthorn could not be accessed due to bramble scrub and therefore the number of eggs likely to be present across the site is considered to be a lot higher.

Hedgehog

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

3.9.2 Pre-existing Records

The SxBRC provided 33 records of brown hairstreak butterfly in the search area. The closest of these was at 325m from the boundary of the site associated with the adjacent nature reserve to the west, dated 08/2020.

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

The SxBRC provided 79 records of European hedgehog in the search area. The closest of these was at 370m north of the site boundary dated 2018.

3.9.3 Interpretation

The brown hairstreak butterfly is locally distributed in southern Britain, restricted to three main centres; south-west Wales, Devon/Somerset and Surrey/Sussex and has declined by almost 50% since the 1970s due to hedgerow removal and annual flailing, which removes eggs. It is a section 41 species of principal importance under the NERC act in England and a UK BAP status: Priority species. As the site has not been managed for many years, there is a good amount of suckering blackthorn emerging within the site in between the encroaching bramble scrub. As a result, the site is considered important to brown hairstreak butterflies up to the **local level**.

The boundary habitats and scrub habitat within the site are of potential value to hedgehogs as part of a wider network of suitable habitat. The majority of the boundary habitat is being retained. Based on the presence of these habitats and an assumption that hedgehog are either found at the site or in close proximity to it, the site is considered to be important for hedgehogs up to the **local level**.

3.10 Invasive Non-native Species

3.10.1 Survey results/incidental observations/habitat potential

No evidence of invasive non-native species (INNS) was found during the walkover survey.

3.10.2 Pre-existing Records

The SxBRC provided 5 species of birds, 2 mammals and 19 species of higher plants in the search area. The closest of these was at 240m from the boundary of the site for Parrot's-feather *Myriophyllum aquaticum* dated 07/2005.

3.10.3 Interpretation

As no INNS were found within the site, the risk of spreading such plants outside of the site is considered negligible.

4 IMPACT ASSESSMENT

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

This assessment is based on the most up to date available proposed plan produced by Paul Hewett Chartered Architect, as provided in Figure 2.

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

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

Construction:

- direct harm from pollution, noise, lighting, vibration and the movement of people and construction machinery
- disturbance effects (for example to foraging bats and breeding birds) through noise, artificial lighting, vibration and the movement of people and construction machinery;
- potential protected species impacts through site preparation works, including disturbance and risk of killing or injury;
- soil compaction and other damage to retained habitats
- habitat severance caused by construction works on-site
- habitat destruction during site clearance activities

Post construction/operation:

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

4.1 Designated Sites

4.1.1 Impact Characterisation

The closest LWS is 1.22km from the Batchelor's Farm site and the closest SSSI is 1.5km. There are no internationally designated sites within 10km. In terms of significant adverse effects resulting from the construction phase of the proposed development, the designated sites are considered to be outside the zone of influence in all cases.

The adjacent Batchelor's Farm Nature Reserve would be indirectly impacted during both the construction and operational phases of the development. The construction phase is likely to produce dust, noise and air pollution at levels likely to result in an adverse impact on the adjacent nature reserve given its close proximity to the development site.

An increase in road traffic as a result of new roads can cause local air pollution impacts, though all designated sites are considered to be a sufficient distance from the site to ensure noise, dust and visual impacts would be minimal. Post construction, occupancy of the residential development could result in increased recreational pressure on the Local Wildlife Sites and Local Geological Site and the Ditchling Common SSSI, leading to risks such as trampling of vegetation, soil compaction, littering, fly tipping, damage to trees, disturbance to wildlife and increased nutrient levels from dog fouling.

The recreational pressures mentioned above would be greatest on the adjacent nature reserve which can be easily accessed via a public footpath that runs along the northern boundary of the site.

The other two SSSIs are considered to be far enough away that recreational pressures from the development are likely to be negligible given that the development would represent an increase of 62 peope based on an average of 2.4 people per household.

4.1.2 Significance of Effects

The Keymer Tile Works (LWS and LGS) is a working, operational clay pit that is not open to the general public and therefore additional recreational pressures from the development site would **likely** have a **negligible effect**.

Ditchling Common SSSI is open to the public and is therefore likely to already have in place measures to reduce impacts from high numbers of visitors associated with Burgess Hill, such as public footpaths, limitations on car parking close to the area and fencing off sensitive areas.

The potential increase in people is not considered to be significant and as a result, the additional pressures from the development, in the absence of mitigation, would **likely** result in a **negligible effect** on Ditchling Common SSSI.

Batchelor's Farm Nature Reserve is open to the public and used for informal recreation and therefore most recreational pressures will already exist and be mitigated for. However, the new development would add to this recreational pressure, and as a result, the additional pressures from the development, in the absence of mitigation, is likely to result in a **minor negative effect significant at the site level** only given the size of the development**.**

4.2 Priority Habitats

4.2.1 Impact Characterisation

The proposed development would result in the loss of the area of other neutral grassland, a large amount of newly established bramble scrub, several areas of tall ruderal and two lengths of hedgerow/tree line along the eastern boundary to create new access points. One existing access point would be planted up with native species.

Based on the current plans, the development would result in disturbance during the construction and operational phases on the retained boundary hedgerow/tree lines in the form of noise and light pollution. The development has been designed with a buffer between the retained hedgerow/tree lines and the development to be planted up with a native species-rich mix of trees and shrubs.

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

4.2.2 Significance of Effects

The boundary tree lines and hedgerows are the only priority habitats present within the site of which two sections would be removed along the eastern boundary to provide two access points. This loss, in the absence of mitigation, would **likely** result in a **negative effect** significant at the **site level** only, given that this habitat is fairly common throughout Sussex.

The area of other neutral grassland, a large proportion of the bramble scrub within the site and areas of ruderal habitat would be removed as part of the development. The loss of these habitats, in the absence of mitigation, would **likely** have an **adverse effect** at the **site level** only, given that these habitats are fairly common throughout Sussex.

4.3 Badgers

4.3.1 Impact Characterisation

Badgers are common and widespread in the UK and are not of conservation concern. However, it should be noted that the UK contains approximately 25% of the global population.

No setts were identified within 30m of the development site. However, the site does contain habitats of value to foraging badgers such as bramble scrub and rough grassland which would be lost. The presence of badgers on site during the construction phase cannot be ruled out and there is potential for badgers to become trapped/injured/killed during the construction phase without the adoption of precautionary measures.

Levels of disturbance would be increased during the operational phase of the development through noise pollution, increased footfall, as well as more frequent interactions with people and pets, exposure to poison and visiting occupied gardens.

4.3.2 Significance of Effects

The proposed development would result in a likely loss of foraging habitat, and increased footfall and domestic pets during the operational phase would result in a**possible adverse effect** on badgers that is significant at the **site level** only, in the absence of mitigation.

4.4 Bats

4.4.1 Impact Characterisation

There are no buildings contained within the site and no bats or evidence of bats was identified within any of the PRFs located on the mature oak in the north east corner. The oak tree is being retained and the PRFs could still support bats in the future and therefore there is potential for there to be indirect disturbance to these features from increased artificial lighting and noise both during the construction and operational phases.

The boundary vegetation across the site and where the bramble scrub meets grassland in the centre of the site supported the majority of bat foraging activity. However, activity levels were very low except for common pipistrelle numbers during the August static logger deployment in the northeast corner where the new road access is proposed. The majority of boundary habitats would be retained and strengthened except for a section in the northern half of the eastern boundary and a section in the southern half of the eastern boundary. The proposed development has potential to result in disturbance to commuting and foraging bats, both during construction and in the long term after completion, through increased artificial lighting, direct loss of rough grassland that could be a source of insect prey for bats and any management of boundary habitats that could lead to a reduction in bats hunting and/or a reduction of invertebrate prey.

4.4.2 Significance of Effects

As no trees with PRFs are being removed, the indirect impacts from lighting and noise would be to potential roost features identified on the oak in the northeast corner and any trees with PRFs located within the boundary tree lines being retained. The **negative effect** on roosting bats within trees would **likely** be significant up to the **local level only**, in the absence of mitigation, given the low levels of activity and presence of common and widespread bat species.

The site was used most frequently by common pipistrelle bats and a total of seven species were identified; common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, Myotis sp., common noctule, brown long-eared and serotine. With the exception of common pipistrelle, soprano pipistrelle and common noctule, the other four species were all recorded in very low numbers both during the activity survey and by static loggers. The **negative effect** on all seven recorded species of foraging and commuting bats is considered to be significant up to the **local level** only, in the absence of mitigation.

4.5 Breeding Birds

4.5.1 Impact Characterisation

Two species which are 'red' listed under the Birds of Conservation Concern (BoCC) and six which are 'amber' listed were recorded on site. This includes several greenfinch singing all within the northern half of the site. A large amount of newly established bramble scrub would be removed as part of the development although the vast majority of the boundary habitat would be retained and strengthened. There is likely to be indirect impacts during the construction phase including noise and dust as well as disturbance during the operational phase including disturbance by dogs and predation from domestic cats.

4.5.2 Significance of Effects

The majority of the boundary habitat would be retained except for two sections at either end of the eastern boundary and a large amount of the recently established bramble scrub would be removed. Although there would be a decrease in available nesting habitat, the majority would be the sub-optimal bramble scrub utilised by only a handful of species recorded. In the absence of mitigation, the **adverse effect** from the loss of potential nesting habitat is considered to be significant at the **site level** only.

4.6 Common Dormice

4.6.1 Impact Characterisation

The majority of the boundary habitat suitable for nesting dormice would beretained and the two sections of the eastern boundary to be removed would be adjacent to Keymer Road, reducing the likelihood of nesting dormice being present in these areas due to existing levels of noise and artificial light from cars and neighbouring properties. However, this would result in a loss of dormouse habitat.

Most of the suitable habitat for dormice to be removed would be the newly established bramble scrub that is slowly encroaching into the centre of the site. This habitat is most likely to be used as a foraging resource rather than breeding habitat.

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

The removal of a section of the eastern boundary at either end, in the absence of mitigation, would result in reduced connectivity between the central part of the eastern boundary and the northern part.

4.6.2 Significance of Effects

The loss of available dormouse habitat as part of the development would be considerable given the amount of bramble scrub within the site and the two sections of eastern boundary habitat which would also result in reduced connectivity. The **negative effect** of this on dormice i would be significant up to the **local level**.

The potential risks from domestic cats as well as disturbance from noise and light means the development, in the absence of mitigation, would likely have a **negative** impact on dormice up to the **local level**.

4.7 Great Crested Newts and Other Amphibians

4.7.1 Impact Characterisation

The development would not result in any breeding ponds being lost or damaged. However, the loss of the grassland habitat as well as the bramble scrub habitat would see a certain decrease in suitable terrestrial habitat within the development site. No 'core habitat' (50m from a pond) would be damaged

or destroyed as the closest pond supporting GCN is approximately 100m to the northeast.

There is a lot of high value terrestrial habitat and GCN breeding ponds on the other side of Keymer Road which means that the likelihood of large numbers of GCN being found within the development site is very low, although it is possible that small numbers may be present. There is therefore a potential risk of injury or death to individual newts during the construction phase.

Post development, the occupation of the residential properties would likely lead to an increase in domestic cats, which predate upon great crested newts and would lead to increased mortality should GCN be present within the site.

4.7.2 Significance of Effects

The loss of suitable terrestrial habitat for great crested newts would be considerable as all the grassland habitat and most of the bramble scrub habitat would be lost. However, given the small size of the site and the vast amount of suitable habitat in the surrounding landscape which includes breeding ponds, the loss of terrestrial habitat as a result of the proposed development would have a **negative effect** on the local population of GCN significant at the **site level** only.

The potential risks from domestic cats means the development, in the absence of mitigation, would likely have a **negative** effecton GCN up to the **local level**.

4.8 Reptiles

4.8.1 Impact Characterisation

The boundary vegetation would beretained. However, all of the high value habitat for reptiles such as the rough grassland, ruderal habitat and bramble scrub would be removed as part of the development resulting in either injury or death during the construction phase in the absence of mitigation. There is a large amount of high value grassland habitat directly adjacent to the site in the form of Batchelor's Farm Nature Reserve.

4.8.2 Significance of Effects

A low population of grass snake were identified during the reptile surveys and as this is a transient species, they would be likely to move between the site and suitable habitat within the surrounding landscape. A desktop assessment has indicated there is significantly more grassland habitat within the surrounding landscape than within the site and the importance of the site for this species is likely to be low. The development would therefore have a certain **negative effect** on grass snake that is **significant at a site level only**.

A good population of slow worm and low population of common lizard were identified and the development would result in a large proportion of available suitable terrestrial habitat being lost in the form of grassland habitat, bramble scrub and ruderal habitat. There is a lot of suitable grassland habitat in the surrounding landscape and therefore the importance of the site for these species is likely to be low in a wider context. The development would therefore have a **likely negative effect** on slow worm and common lizard populations that is significant at a **site level** only.

4.9 Other Notable Species

4.9.1 Impact Characterisation

Brown hairstreak butterfly

The development would result in a loss of suitable brown hairstreak egg laying habitat as most of the young suckering blackthorn is either part of the bramble scrub or growing up on the outskirts of the scrub habitat that is proposed to be removed. The boundary habitat which includes blackthorn along most boundaries would be retained. In the absence of mitigation, the removal of this habitat at the wrong time of the year would result in the loss of most/all of the brown hairstreak eggs which are mostly laid on suckering blackthorn between 1-3 years of age. However, as the timings may clash with those regarding dormice, the loss of some eggs may be unavoidable.

Hedgehog

The development has potential to impact on European hedgehog through habitat loss, although no evidence of this species was found during other survey fieldwork. The boundary habitat, scrub habitat and rough grassland are all moderate/high value habitats for this species as they provide foraging opportunities and shelter for resting hedgehogs. In the absence of mitigation, there remains a risk of direct harm to hedgehogs during construction activities, if present on the development site. In the long term, the proposed development could result in fragmentation of hedgehog foraging and resting areas as fencing between properties could restrict the movement of hedgehogs.

4.9.2 Significance of Effects

Brown hairstreak

The brown hairstreak butterfly has declined by almost 50% since the 1970s and is restricted to three main centres, one of which is Surrey/Sussex. The presence of suckering blackthorn is not common due to intense management practices of most hedgerow habitat and therefore, in the absence of mitigation, the development site, which contains a good amount of suckering blackthorn, would likely have an **adverse effect** on local brown hairstreak butterfly populations that is significant up to the **local level**.

Hedgehog

The hedgehog has suffered dramatic declines in population in recent decades, although it remains fairly widespread and has declined less in urban areas than rural areas[18]. There is a high degree of uncertainty of impacts occurring but based on the quality habitat contained on the site for hedgehogs, the proposed scheme is likely to result in **adverse effects** that are significant at the **local level**.

5 MITIGATION PROPOSALS

5.1 Designated Sites

5.1.1 Impact Avoidance

There are no identified mechanisms for direct impacts upon any statutory designated sites from the

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

proposed development, with Ditchling Common SSSI situated 1.5km to the northeast, however potential indirect impacts from increased footfall cannot be avoided should the development go ahead.

The Batchelor's Farm Nature Reserve is immediately adjacent to the west of the development. The west boundary of the development site would be retained and would be part of a retained wildlife area which would be fenced off from construction. This will create at least 50m between the construction zone and the adjacent nature reserve.

5.1.2 Mitigation Measures

In order to mitigate the impacts of increased footfall on the adjacent nature reserve, it is important that public green spaces are incorporated into the proposed scheme to provide attractive alternative areas for recreational purposes. The existing Batchelor's Farm nature reserve which can be accessed on foot provides a local alternative to Ditchling Common SSSI and the nature reserve has strengthened its capacity for higher numbers through new/ enhanced bridle paths as a direct result of the high numbers experienced during covid.

A public green space has been incorporated into the proposed scheme to provide an attractive alternative area for recreational purposes. This includes an area of modified grassland with natural play areas incorporated which is surrounded by rough wildflower meadow and additional tree planting located in the northeastern corner. Local bylaws concerning dog fouling should be enforced and signs would be erected together with dog waste bins to encourage people to pick up after their dog.

5.1.3 Residual Effects

With the implementation of the above mitigation measures, the potential for residual effects on the adjacent nature reserve is considered to be reduced to the **site level**, with some increased footfall risk to the adjacent nature reserve remaining**.**

5.1.4 Compensation Measures

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

In addition to this, management practices and timings should be shared between the Batchelor's Farm Nature Reserve and the development site to avoid too much habitat being cut back at any one time. This is particularly important where boundaries are shared between the two sites, as is the case within the wildlife area in the northwest corner of the development site.

5.2 Priority Habitats

5.2.1 Impact Avoidance

The proposed development has been designed to avoid directly impacting priority habitats wherever possible and most of the boundary habitat would be retained, with the exception of two sections of hedgerow to be removed to create new access roads into the site.

5.2.2 Mitigation Measures

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

Once the encroaching bramble scrub has been removed and the boundary habitats become accessible again, heras fencing would be used to fence off the existing boundary habitats being retained and this would include an additional buffer zone along some boundary habitats to be planted with a native species-rich scrub mix. Solid hoarding would be installed along the edge of the buffer zone to not only prevent construction staff and machinery from damaging the boundary habitat but also act to reduce noise and visual impacts upon the habitats.

The buffer zone would extend along the southern, western and northern boundary habitats and be planted with a native mix that is dominated by thorny species such as blackthorn and hawthorn and include at least four other woody species.

5.2.3 Residual Effects

Once the buffer zone planting has established, the potential indirect impacts on the existing boundary habitat during the operational phase would be reduced to **low/negligible** at the **site level**.

Two sections of boundary hedgerow/tree line would be removed to facilitate new access roads.

A large area of bramble scrub would be removed and the rough other neutral grassland within the centre of the site would also be lost.

5.2.4 Compensation Measures

The current existing access road into the site would be planted up with a species-rich native hedgerow and additional native hedgerow would be planted elsewhere within the site to compensate for the loss of the two sections including a species-rich native hedgerow that runs north to south between the development and the wildlife area to the west.

The species-rich native scrub mix to be planted in the buffer zone in front of the existing habitat boundaries would compensate for the loss of the monoculture bramble scrub a lot of which is only a few years old. The wildlife area to the west would also be planted up with mixed native scrub habitat.

The rough other neutral grassland in the centre of the site to be lost would be compensated in part through the creation of other neutral grassland that surrounds the play area.

5.3 Badgers

5.3.1 Impact Avoidance

There are no active setts within the development site although the site does contain foraging habitat which would be lost as part of the development.

5.3.2 Mitigation Measures

As is standard practice, construction site safeguarding measures are recommended during the construction period to prevent harm to foraging badgers:

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

5.3.3 Residual Effects

Loss of foraging habitat in the form of rough grassland and bramble scrub would still have a **likely adverse effect** at the **site level**.

5.3.4 Compensation Measures

As detailed in 5.2 above, scrub habitat to be lost would be compensated for within the buffer zone and wildlife area in the northwest corner and within the wildflower grassland surrounding the play area in the northeastern corner.

5.4 Bats

5.4.1 Impact Avoidance

The large oak (T1) in the northeast corner with PRFs would be retained within an area of public green space.

All of the boundary hedgerows would be retained except for two sections of the eastern boundary to create new road access.

5.4.2 Mitigation Measures

It is important that the proposed scheme incorporates a 'sensitive lighting plan' developed as part of the detailed design, in accordance with guidelines set out by the Bat Conservation Trust. (summarised in Appendix 6). This should include measures to create 'dark corridors' through the development site along the retained boundary hedgerows and tree belts as well as T1 where no light or low light measures are put in place where light levels must not exceed 2 lux. In addition, the lighting plan must include 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.

The buffer zones and wildlife areas would be included within the dark corridor network which would significantly reduce the potential indirect impacts from the development including light spill and noise to low/negligible at the site level.

5.4.3 Residual Effects

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

Two sections of hedgerow/ tree line are to be removed severing a potential commuting route and foraging route and foraging habitat in the form of rough grassland would be lost resulting in a **certain negative effect significant at the site level.**

5.4.4 Compensation Measures

New species-rich hedgerow would be planted to compensate for the two sections being removed along the eastern boundary and this includes a new species-rich hedgerow that runs north to south between the wildlife area and the development. This would provide a similar commuting route as that provided by the eastern boundary and would be of better quality as it would be away from the road, included in the dark corridor network and would also be in close proximity to existing and new mixed scrub habitat, and a new SuDS pond all of which wouldprovide an increase in invertebrate prey.

The majority of the wildlife area would be planted up with scrub plants to provide additional foraging habitat for bats.

5.5 Breeding Birds

5.5.1 Impact Avoidance

All of the boundary hedgerows would be retained except for two sections of the eastern boundary to create new road access.

The bramble scrub removal must be conducted outside of the breeding bird season (avoiding March to August inclusive).

5.5.2 Mitigation Measures

The sections of hedgerow to be removed on the eastern boundary to create two new road access routes should ideally be removed outside of the nesting bird season unless it can first be thoroughly searched by an experienced ecologist immediately prior to the works given the likelihood that this work would otherwise disturb or destroy active bird nests.

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

5.5.3 Residual Effects

Implementing these avoidance and mitigation measures should reduce the impacts on nesting birds. However, there would still be indirect impacts on nesting birds using the boundary habitat in the form of artificial light, noise, increased foot fall and domestic pets resulting in a **certain moderate negative impact significant at the site level**.

There would also be a loss of nesting bird habitat as a result of most of the bramble scrub being removed

and the two sections of the eastern boundary being removed which would result in a **certain negative effect on nesting birds that is significant at the site level.**

5.5.4 Compensation Measures

The buffer zone in front of the existing boundary habitat on the southern, western and northern boundaries would be planted up with a species-rich native scrub mix that would help to minimise any indirect impacts on the boundary habitats in the long term. The scrub mix would be dominated by 25% blackthorn and 25% hawthorn to reduce the risk of predation by cats and provide nesting habitat for smaller species such as dunnock and wren.

This buffer zone planting would compensate for the species-poor bramble scrub being lost and new species-rich native hedgerow would compensate for the two sections of the eastern boundary being lost. In addition, the wildlife area wouldalso be planted up with mixed native scrub plants as well. Over all these measures are **likely to have a long term positive effect on common nesting birds at the site level.**

5.6 Common Dormouse

5.6.1 Impact Avoidance

All of the boundary hedgerows would be retained except for two sections of the eastern boundary to create new road access. However, a relatively large proportion of bramble scrub likely used as foraging habitat would be lost to the footprint of the development.

5.6.2 Mitigation Measures

Given the amount of bramble scrub habitat to be removed as well as two sections of the eastern boundary, causing fragmentation of habitat, a dormouse European Protected Species Licence would be required for this development to legally proceed.

As part of the licence application, a mitigation method statement would need to be prepared to demonstrate the favourable conservation status of dormice would be maintained through the life of the project. The possible measures that would be required to safeguard dormice and achieve this are outlined below:

- Prepatory works – At least 10 Nest boxes for dormice are to be erected onto trees within the existing boundary habitat prior to any works commencing.
- Prepatory works – All areas of suitable dormouse habitat to be removed must be thoroughly checked for evidence of dormice by a licensed dormouse ecologist. Any dormice found must be gently captured and placed into one of the nest boxes erected within the existing boundary habitat.
- Timing - Above ground vegetation removal, to a height no lower than 300m, of all suitable dormouse habitat should be done between October/November and early March when dormice are in hibernation on the ground and to avoid the nesting bird season.
  Below ground/stump removal must then be undertaken in the following spring once dormice have emerged from their winter hibernation sites on the ground, often at the base of large tree trunks.

- Replacement habitat – A condition of the dormouse licence would be to ensure that habitat removed is replaced and enhanced and that existing habitat is strengthened or protected to ensure the favourable conservation status of dormice at the site.
- Lighting - The use of artificial lighting inappropriately can result in significant disturbance to dormice. The detailed design would include a lighting scheme that minimises these impacts and these would be in line with those put forward for foraging and commuting bats.

5.6.3 Residual Effects

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

There would also be a loss of dormouse habitat as a result of most of the bramble scrub being removed and the two sections of the eastern boundary being removed which would result in a **certain negative effect on dormice that is significant at the local level.**

5.6.4 Compensation Measures

The buffer zone in front of the existing boundary habitat on the southern, western and northern boundaries would be planted up with a species-rich native scrub mix that would help to minimise any indirect impacts on the boundary habitats in the long term. The scrub mix wouldbe dominated by 15% blackthorn and 25% hawthorn to reduce the risk of predation by cats by providing impenetrable areas of shelter.

This buffer zone planting would compensate for the species-poor bramble scrub being lost and new species-rich native hedgerow would compensate for the two sections of the eastern boundary being lost. The wildlife area would be planted with mixed native scrub planting focusing on plants beneficial to dormice. The composition must be 20%hazel, 20% hawthorn and 10% blackthorn, with other species included such as honeysuckle, yew, wayfaring tree, hornbeam andsweet chestnut,. Over all these measures are **likely to have a positive effect on common dormice at the site level.**

5.7 Great Crested Newts and Other Amphibians

5.7.1 Impact Avoidance

All of the boundary hedgerows would be retained except for two sections of the eastern boundary to create new road access. However, a relatively large proportion of bramble scrub and all of the rough grassland habitat in the centre of the site which is likely used as terrestrial foraging habitat would be lost as a result of the development.

5.7.2 Mitigation Measures

Given the amount of terrestrial habitat being removed from the site and the limited amount of grassland habitat being put back in as part of the development, it is recommended that a District Level Licence is applied for. A District Level Licence may be sought through the NatureSpace Partnership, who are the delivery partner for Mid Sussex under this licensing scheme. They would assess the potential impact to great crested newts from the proposed development using a Natural England approved metric. A fee is calculated to provide compensation towards great crested newt conservation which would help to

deliver a long-term, landscape-scale, great crested newt conservation strategy and does not focus on intensive trapping and translocation of individual newts, though reasonable avoidance measures are applied to minimise mortality where reasonably possible.

Six new hibernacula would be built within the wildlife area to be created in the northwest corner to provide more shelter and foraging opportunities;

5.7.3 Residual Effects

There would be a loss of terrestrial habitat on site as a result of the rough grassland and bramble scrub being removed.

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

5.7.4 Compensation Measures

The rough other neutral grassland in the centre of the site would be compensated for in part through the wildflower habitat to be created around the natural play area.

There would also be a SuDS pond in this area and although its primary purpose wouldbe for drainage, it would be planted with aquatic vegetation beneficial to great crested newts and provide a greater floral diversity to the area.

The species-poor bramble scrub would be replaced with a smaller area of species-rich native mixed scrub of higher quality. The mix would be dominated by 25% blackthorn and 25% hawthorn providing areas of shelter for this species.

5.8 Reptiles

5.8.1 Impact Avoidance

All of the boundary habitats wouldbe retained except for two sections of the eastern boundary to create new road access. However, a relatively large proportion of bramble scrub and all of the rough grassland habitat in the centre of the site which is likely used as terrestrial foraging habitat would be lost as a result of the development.

5.8.2 Mitigation Measures

A good population of slow worms, and low populations of common lizard and grass snake mean that there would not be sufficient retained habitat as part of the proposal to relocate the reptile species to. Instead, the populations within the site would need to be caught and relocated to an off-site receptor area within the local area.

A reptile mitigation strategy would be implemented to avoid killing/injury of reptiles and is likely to include the following:

- A suitable off-site receptor area would need to found. Ideally, this would be an area of

amenity/modified grassland or regularly mown grassland of a similar size to the area being lost within the development. This area would have to be secured in perpetuity and managed in a way that is beneficial to reptiles by allowing it to become rough, tussocky grassland. Additional hibernacula could be created to improve the carrying capacity of a site, if only small areas of land can be identified.

- The areas of suitable grassland habitat for reptiles within the development site would need to be fenced with a semi-permanent reptile proof fence. The fencing would need to remain in situ until all construction work that is deemed a risk to reptiles, has been completed i.e. earthworks and associated landscaping.
- In line with current guidelines outlined by the Amphibian and Reptile Group UK (ARGUK) and given the size of the reptile populations present, a target total of 60 translocation visits would be made between mid-March and October, with 'tins' (which can be bitumen and/or corrugated metal sheets) placed at a density of not less than 100 per hectare of suitable habitat, in line with ARGUK guidelines. Translocation visits would be undertaken as long as the temperature is between 10 and 18^{o}C in the morning or mid-afternoon and in the absence of wet or very windy weather.
- Although the translocation process would have a target of 60 trapping visits, the translocation effort would only be ceased once at least 10 visits in suitable weather conditions are made without identifying any reptile presence within the construction zone.
- Whilst the construction zone would be declared free of reptiles following 10 clear consecutive visits, an ecologist would still be present during the initial construction phases to undertake a 'watching brief' of all initial ground works with construction halted if any reptiles are identified within the construction zone. Site staff would be briefed prior to the commencement of construction on the importance of protecting the reptile fencing and contacting an ecologist in the event that any reptiles or other wildlife be identified within the construction zone
- All captured reptiles would be placed in a large smooth-sided bucket with some green hay at the bottom and then released at the proposed off-site receptor area. All translocation details would be recorded into a table and submitted to the council upon request as evidence of the work undertaken.

Several potential off-site reptile receptor areas have been identified and initial contact made including Mid Sussex golf course, Pyecombe golf course and Plumpton College. A reptile presence / absence survey on some of these sites to determine their suitability for receiving a population of reptiles may be required later this year and as such securing an off-site reptile receptor area could be made a condition of this development given the number of potential options available.

5.8.3 Residual Effects

With all reptiles translocated to the off-site receptor area there would be no residual effects to reptiles.

5.8.4 Compensation Measures

To provide additional shelter for reptiles that may be present in the wider surrounding,four hibernacula would be built within the wildlife area to provide additional shelter and foraging opportunities.

5.9 Other Notable Species

5.9.1 Impact Avoidance

Brown Hairstreak Butterfly

All of the boundary habitats would be retained except for two sections of the eastern boundary to create new road access. However, a relatively large proportion of bramble scrub and suckering blackthorn would be lost as a result of the development.

Hedgehog

The site has been designed to retain as much suitable habitat for hedgehogs as possible with only two sections of hedgerow being removed in total.

5.9.2 Mitigation Measures

Brown Hairstreak Butterfly

The suckering blackthorn within the site and the bramble scrub that often surrounds the young plants should be removed between September and October when the butterfly is in its adult stage, as this would also avoid the nesting bird season and this would allow the adults to move to adjacent suitable habitat to lay their eggs in the short term and hopefully return once the new mixed scrub has been planted. However, this timing may clash with the timings for dormice and therefore it is likely that clearance may have to be undertaken when eggs have already been laid. Some of the suckering blackthorn is easily accessible and these should be checked for eggs prior to removal and if eggs are present, the cuttings should be relocated to areas that won't be impacted by the scrub clearance to ensure some eggs have a better chance of surviving.

Hedgehog

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

Mitigation measures described to protect badgers in section 5.3 would also protect hedgehogs.

To ensure the free passage of hedgehogs through the proposed development, all residential boundaries would include permanent gaps under fences at regular intervals or using native hedgerow planting as an alternative to hard fencing solutions. The dimensions of such gaps would be designed to allow free passage of hedgehogs. Access points should be created such as an Eco Hedgehog Hole Fence plate. A hole measuring 13 cm by 13 cm should be made in any fence-lines throughout the proposed development and an Eco Hedgehog Hole Fence plate fixed to the fence. This would clearly highlight this access for hedgehogs and ensure the hole does not get blocked up.

5.9.3 Residual Effects

Brown Hairstreak Butterfly

There would be a loss of suckering blackthorn within the site which is the preferred location for this butterfly to lay its eggs.

Hedgehog

Loss of suitable habitat for foraging, shelter and commuting.

5.9.4 Compensation Measures

Brown Hairstreak Butterfly

The buffer zone in front of the existing southern, western and eastern boundaries would be planted up with a native species-mix that includes 25% of blackthorn which would provide opportunities for young suckering blackthorn to emerge. There would also be blackthorn planted within the main wildlife area and suckering blackthorn should emerge there too. It is important that all of the retained boundary habitats and scrub as well as the new native scrub mix is managed properly for the benefit of all species including the brown hairstreak butterfly. This management involves cutting on a rotation and in sections with each section cut every 3-4 years but staggered so that there is always some retained intact hedgerows present at any one time. Ideally the cutting wouldn't take place until February to allow any fruit / berries to be utilised by a range of wildlife throughout the winter months.

Hedgehog

The buffer zone in front of the existing boundary habitat on the southern, western and northern boundaries as well as the wildlife area would be planted up with a species-rich native scrub mix that would help to minimise any indirect impacts on the boundary habitats in the long term. The scrub mix would be dominated by 25% blackthorn and 25% hawthorn to reduce the risk of predation.

A detailed landscape and ecology management plan (LEMP) must be produced to cover the necessary works for each species and to make sure that all measures work together cohesively for all species involved.

6 BIODIVERSITY ENHANCEMENTS

To enhance the site for a range of species at least 10 bat boxes and 10 bird boxes would be erected onto the new dwellings. In addition, 10 bat boxes, 10 bird boxes and 5 dormouse boxes would be erected onto retained trees within the existing habitat boundaries. These boxes wouldbe in addition to any required for mitigation as detailed in the sections above. Three hedgehog homes would be placed within the wildlife area and new mixed scrub buffer zone. All enhancements would be detailed within an LEMP.

7 CONCLUSIONS

The most significant impacts as a result of the proposed development are the removal of two sections from the eastern boundary and the removal of a large amount of bramble scrub and rough other neutral grassland habitat which support foraging bats, nesting birds, dormice, great crested newts, reptiles and brown hairstreak butterflies. An EPS licence would be required for dormice and a District Level Licence would be applied for with regards tp great crested newts.

The creation of a buffer zone of native species-rich mixed scrub dominated by blackthorn and hawthorn as well as the creation of a wildlife area comprising mostly of mixed native scrub and wildflower grassland created around the play area to the east would provide compensation for the habitat losses described above. New species-rich hedgerows would compensate for the two sections of the eastern boundary hedgerow/ tree line being removed for access roads.

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

Table 14. EcIA summary table for Batchelor's Farm

Ecological feature	Importance	Impact characterisation	Level of significance	Mitigation	Residual effects	Compensation required? (Y/N)
Ditchling Common SSSI	National	Increased recreational pressure	No likely significant effects	None required	None	None
Clayton to Offham Escarpment SSSI	National	increased recreation pressure	No likely significant effects	None required	None	None
Wolstonbury Hill SSSI	National	increased recreation pressure	No likely significant effects	None required	None	None
Keymer Tile Works LWS & LGS	Local	none	negligible	None	None	none
Bramblesside Meadow LWS	Local	none	negligible	None	None	none
Burgess Hill Railway Lands LWS	Local	none	negligible	None	None	none
Batchelor's Farm Nature Reserve	local	Indirect impacts during construction such as dust, noise and air pollution Indirect impacts during operational phase such as increased recreational pressure	Negative at site level	Public green space within scheme	Likely increase in recreational pressure	Financial contribution towards management of nature reserve
Other neutral grassland	local	All grassland habitat lost	site	None	Loss of grassland habitat	Creation of other neutral grassland through BNG off-site credits
Boundary hedgerows	site	Two sections on eastern boundary to be removed for access roads	site	CEMP for scheme. Heras fencing along all retained boundary hedgerow	Loss of two sections of tree line/hedgerow	Current existing access to be planted up and more species-rich hedgerows to be planted including length of site north to south alongside wildlife area
Bramble scrub	site	Removal of large proportion of scrub	site	CEMP for scheme. Heras and solid hoarding to protect habitats	Loss of bramble scrub habitat	Species-rich native scrub mix to be planted in front of existing boundary habitat along south, west and north and wildlife area to the west also

Ecological feature	Importance	Impact characterisation	Level of significance	Mitigation	Residual effects	Compensation required? (Y/N)
						planted with mixed native scrub
Roosting bats	Local	Oak tree with features and boundary habitat to be retained but indirect impacts from light and noise	local	Sensitive lighting scheme Buffer zone planted with mixed scrub	Low levels of disturbance as buffer zone establish and severance of hedgerow boundary	n/a
Foraging bats	Local	Indirect impacts from noise and lighting Loss of foraging habitat through grassland and boundary sections being removed	local	Sensitive lighting scheme Buffer zone planted with mixed scrub	Loss of two sections of boundary vegetation and grassland habitat	more species-rich hedgerows to be planted including length of site north to south alongside wildlife area. Creation of native mixed scrub within wildlife area
Breeding birds	Local	Loss of nesting habitat (bramble scrub) Indirect impacts from construction and operational phases	site	Removal of habitat outside of nesting bird season Heras fencing around retained habitats	Indirect impacts from operational phase – light, noise, cats Loss of nesting bird habitat	Mixed scrub buffer zones dominated by 25% blackthorn and 25% hawthorn Buffer zone planting, new species-rich hedgerows and wildlife area planted with mixed scrub
Dormice	Local	Loss of dormouse habitat mostly foraging. Indirect from construction and operational phases	local	EPS licence Erection of nest boxes in retained habitat Timing of removal over winter Creation of new habitat Lighting scheme	Predation from domestic cats Loss of habitat	Buffer zone to be planted with 25% blackthorn and 25% hawthorn species-rich hedgerows to be planted including length of site north to south alongside wildlife area. Creation of native mixed scrub within wildlife area
Great crested newt	Local	Loss of terrestrial habitat	local	EPS licence Timing of works	Predation from	Buffer zone to be planted with 25% blackthorn

Ecological feature	**Importance**	**Impact characterisation**	**Level of significance**	**Mitigation**	**Residual** effects	**Compensation required? (Y/N)**
		Risk of killing/injury during construction Predation from domestic cats		Trapping and relocation to retained wildlife area where required under DLL	domestic cats Loss of habitat	and 25% hawthorn Creation of native mixed scrub within wildlife area
Reptiles	Local	Loss of terrestrial habitat Risk of killing/injury during construction Predation from domestic cats	site	Area fenced and reptiles trapped and relocated to off site receptor site	Reductio n in suitable habitat	Four hibernacula to be built to increase capacity.
Brown hairstreak butterfly	Local	Loss of egg laying habitat	local	Cut and relocate any suckering blackthorn with eggs to areas being retained	Loss of some egg laying habitat	Buffer zone planted with 25% blackthorn Management of suitable habitat through cutting on rotation every 3-4 years and in sections
Hedgehog	Local	Loss of habitat Risk of fragmentation of habitats	local	All features suitable for hedgehogs to be searched before being removed Hedgehog holes in all boundary fences to ensure connectivity	Loss of habitat	Buffer zone to be planted with 25% blackthorn and 25% hawthorn Creation of native mixed scrub within wildlife area

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)[19] 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,

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

poisoning with gas or smoke, or spot-lighting with vehicles for killing species listed on Schedule 6 of the Act (this includes all bat species, badger, otter, polecat, dormice, hedgehog and red squirrel).

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

The NERC Act (2006)[20] places a statutory duty under Section 40 on all public bodies, including planning authorities, to take, or promote the taking by others, steps to further the conservation of *habitats and species of principal importance for the conservation of biodiversity* in England (commonly referred to as the 'Biodiversity Duty'). This duty extends to all public bodies the biodiversity duty of Section 74 of the Countryside and Rights of Way (CROW) Act 2000, which placed a duty only on Government and Ministers. Section 41 lists the habitats and species of principle importance. This includes a wide range of species from mosses, vascular plants, invertebrates through to mammals and birds. It originates from the priority species listed under the UK Biodiversity Action Plan (UK BAP) with some omissions and additions.

Environment Act (2021)

The Environment Act sets a target of halting the decline in species through the inclusion of a legally binding 2030 species abundance target. Aiming to restore natural habitats and enhance biodiversity, the Act requires new developments to improve or create habitats for nature (through mechanisms such as mandatory Biodiversity Net Gain), and tackle deforestation. Going forwards, UK businesses will need to look closely at their supply chains as amongst other measures they will be prohibited from using commodities associated with wide-scale deforestation. Woodland protection measures are also strengthened through the Act.

The Act enables the reform of the Habitats Regulations and further improves protection for nature through the establishment of Local Nature Recovery Strategies that support national Nature Recovery Networks. In addition, the Act provides for the production of Protected Site Strategies and Species Conservation Strategies, aimed at supporting the design and delivery of strategic approaches to deliver better outcomes for nature.

Protection of Badgers Act (1992)

The Badger *Meles meles* is afforded specific legal protection in Britain under the Protection of Badgers Act (1992)[21], and Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) (see above).

Under this legislation, it is a criminal offence to:

- intentionally kill, injure, take, possess, or cruelly ill-treat, a Badger, or to attempt to do so;
- interfere with a sett, by damaging or destroying it;
- to obstruct access to, or any entrance of, a badger sett; or
- to disturb a badger when it is occupying a sett.

A licence may be obtained from Natural England to permit certain prohibited actions for a number of defined reasons including interference of a sett for the purpose of development, provided that a certain number of conditions are met. Note that licenses are not normally granted for works affecting badgers between the end of November and the start of July.

[20] Natural Environment and Rural Communities Act (2006). HMSO London.
[21] Protection of Badgers Act (1992). HMSO London.

National Planning Policy Framework

The National Planning Policy Framework (NPPF 2023)[22] sets out the Government's view on how planners should balance nature conservation with development and helps ensure that Government meets its biodiversity commitments with regard to the operation of the planning system.

Paragraph 179b, which states that council policies should "*promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity*." The Office of the Deputy Prime Minister (ODPM) Circular 06/2005, 2005) [23]. 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)[24], and a progress update was provided in July 2013 (Defra 2013)[25].

'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)

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

[23] 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.

[24] 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.

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

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

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

APPENDIX 2 – MID-SUSSEX DISTRICT COUNCIL –

Table 15. Mid Sussex District Plan 2014-2031 (March 2018)

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

APPENDIX 3 - IMPORTANCE OF ECOLOGICAL FEATURES

Table 16. Determining importance of an ecological feature.

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

APPENDIX 4 – BREEDING BIRD RAW DATA

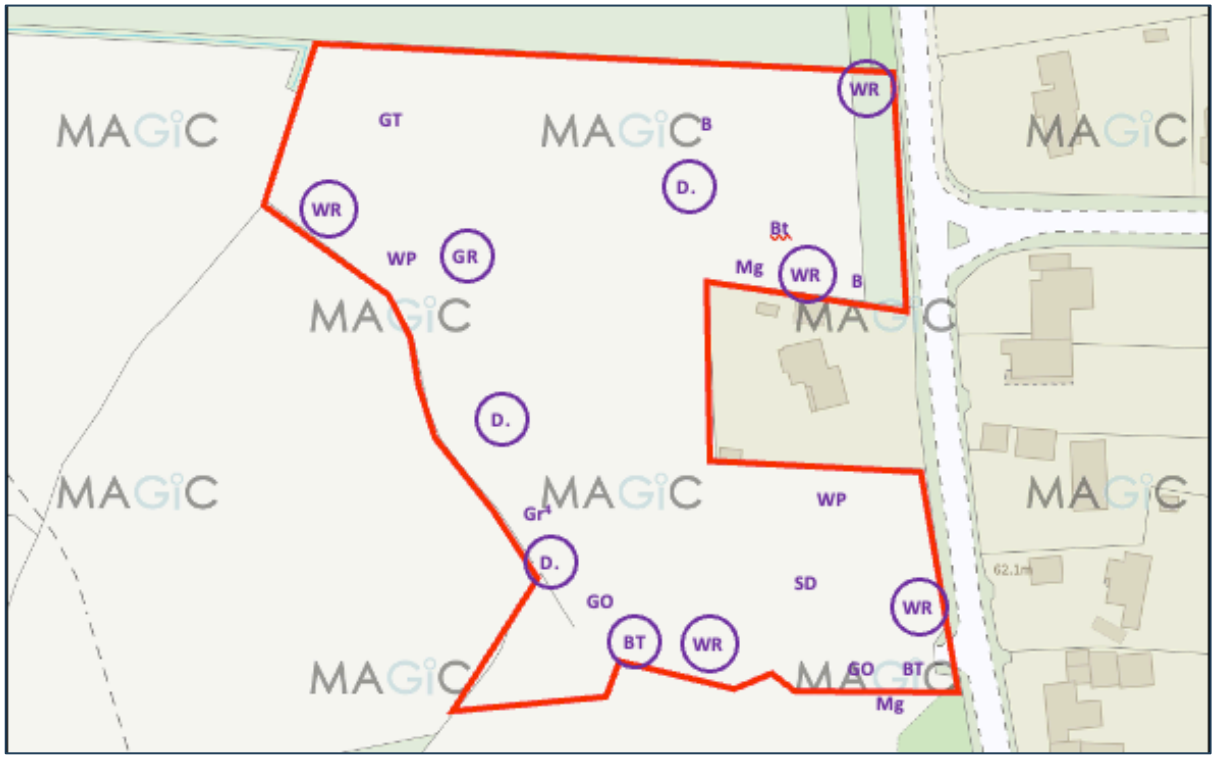

Figure 19. Breeding bird survey results for 16th March 2023 using standard BTO codes. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

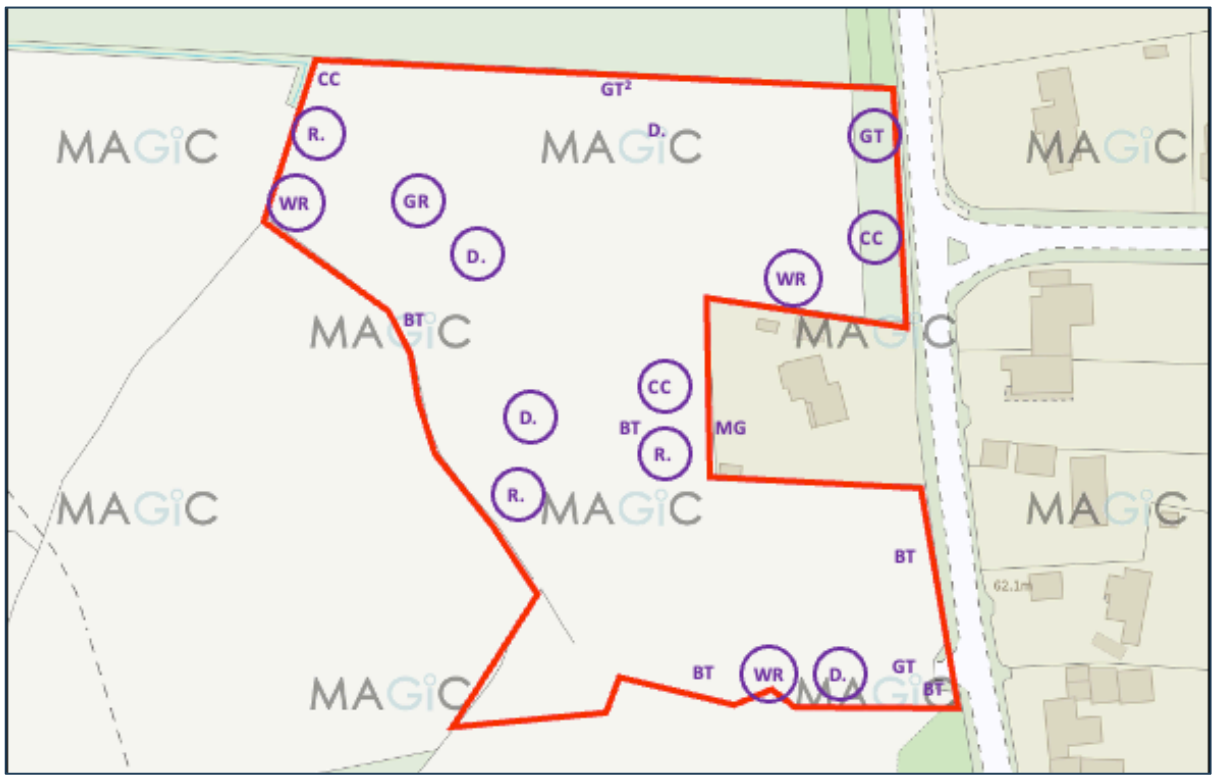

Figure 20. Breeding bird survey results for 5th April 2023 using standard BTO codes. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

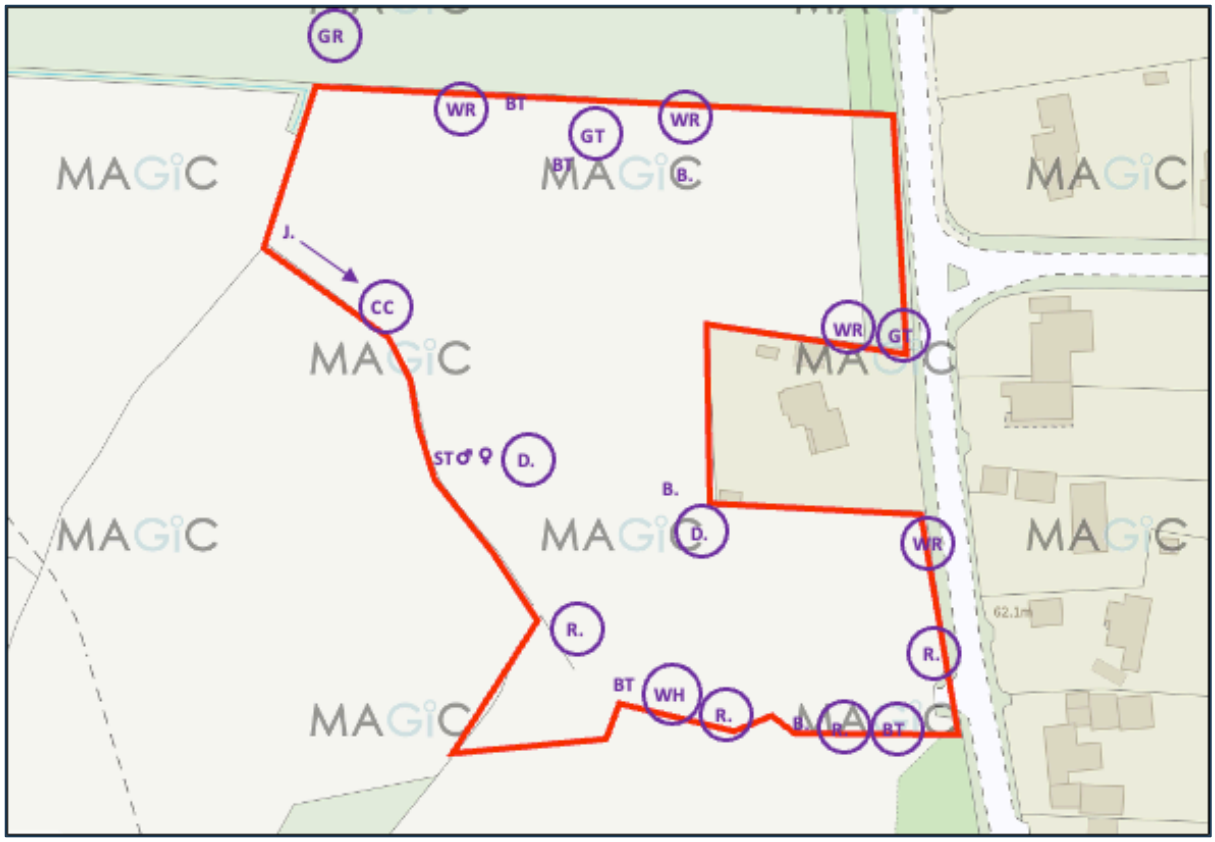

Figure 21. Breeding bird survey results for 27th April 2023 using standard BTO codes. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

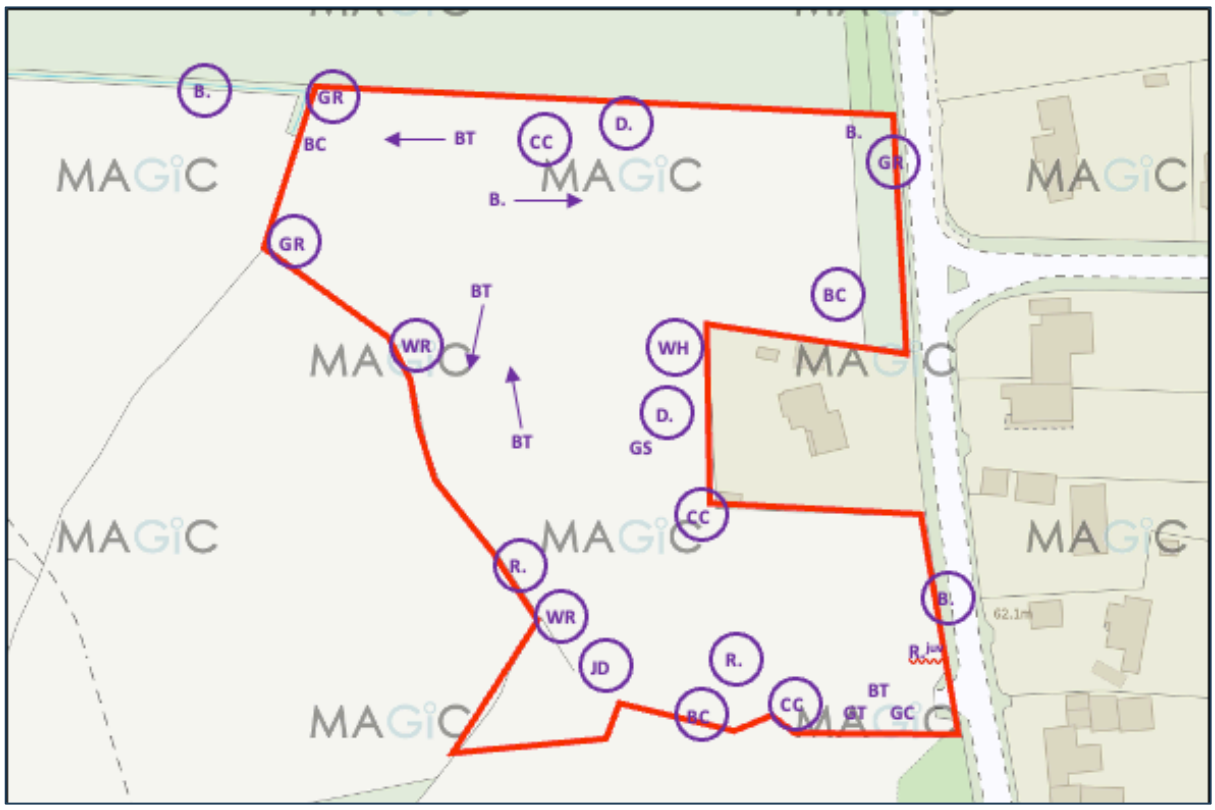

Figure 22. Breeding bird survey results for 10th May 2023 using standard BTO codes. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

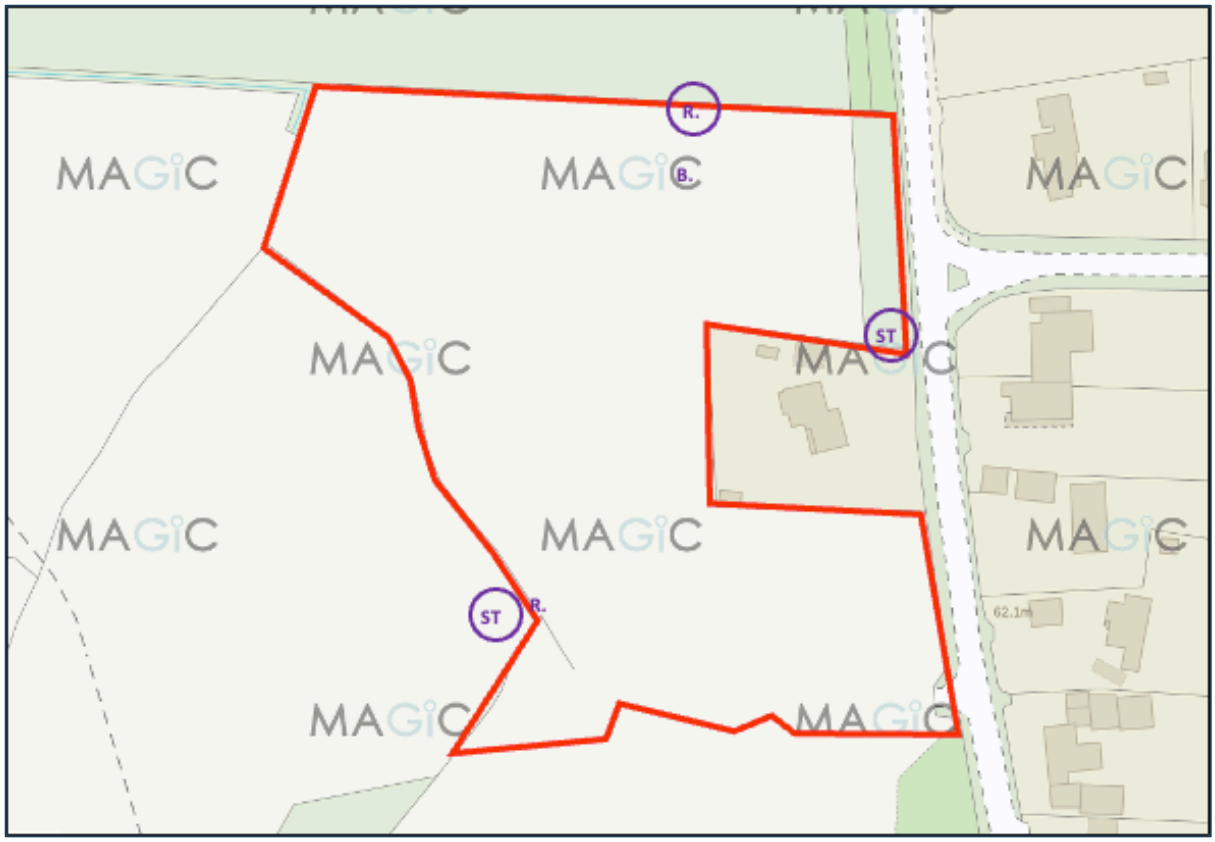

Figure 23 Breeding bird survey results for 31st May 2023 using standard BTO codes. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

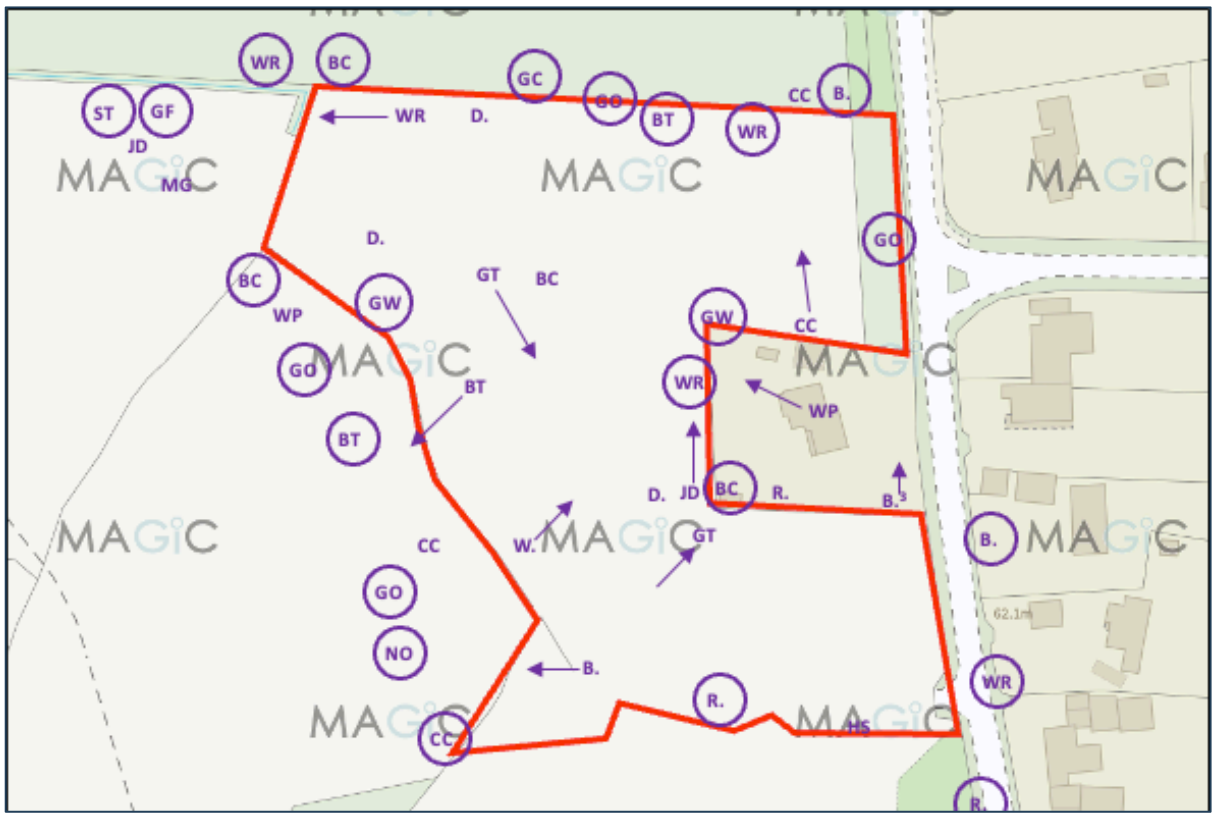

Figure 24 Breeding bird survey results for 14th June 2023 using standard BTO codes. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

APPENDIX 5 - GREAT CRESTED NEWT E-DNA RESULT

Folio No: E16619
Report No: 1
Purchase Order: P2625
Client: THE ECOLOGY CO-OP
Contact: Joshua Halwood

TECHNICAL REPORT

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

SUMMARY

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

RESULTS

Date sample received at Laboratory: 20/04/2023
Date Reported: 27/04/2023
Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
R131	Batchelors Farm - P2625 Pond	TQ 31988 17375	Pass	Pass	Pass	Negative	0

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

Reported by: Chris Troth **Approved by:** Jennifer Higginbottom

Forensic Scientists and Consultant Engineers
SureScreen Scientifics Ltd, Morley Retreat, Church Lane, Morley, Derbyshire, DE7 6DE
UK Tel: +44 (0)1332 292003 Email: scientifics@surescreen.com
Company Registration No. 08950940
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Table 17. Results of great crested newt field surveys.

Abbreviations: Tc=great crested newts; Lv=common newt *Lissotriton vulgaris*; Lh=palmate newt *Lissotriton helveticus*; Bb=common toad *Bufo bufo*; Rt=common frog *Rana temporaria*; ad=adult; spwn=spawn (toad or frog); td=tadpoles, ns=not surveyed. Turbidity/Veg cover: Use scale 0-5 where 0=clear, 5=completely turbid/obscured.

Pond 6 NGR: TQ 3930 3638	**Torching results: Tc numbers**				**Bottle trapping results: Tc numbers**				**Egg search**	**Other methods (netting, searches)**	**Other species/ observations**
Date (visit no.)	**Turbidity/ veg cover**	**M**	**F**	**Juv**	**No. traps**	**M**	**F**	**Juv**	**Present – Y/N**		
17/18 April 2023	2	2	1	0	2 nets	2	6	0	N	No	Lv and Lh present
26/27 April 2023	3	6	2	0	2 nets	0	1	0	N	No	Lv and Lh present
02/03 May 2023	3	4	1	0	3 nets	1	0	0	N	No	Lv and Lh present
23/24 May 2023	3	0	0	0	3 nets	1	2	0	N	No	none
13/14 June 2023	2	3	5	0	3 nets	1	0	0	N	No	Bb found
27/28 June 2023	2	0	0	0	3 nets	0	0	0	N	No	none

APPENDIX 6 - 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[27] 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

[27] 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/

and lighting professional determine there is a likely significant effect upon key bat habitat and features;

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

Demonstrate compliance with illuminance limits and buffers

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

Lighting Fixture Specifications

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

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

Further reading:

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

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

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

CPRE (2014) Shedding Light: A survey of local authority approaches to lighting in England. Available

at: http://www.cpre.org.uk/resources/countryside/dark-skies/item/3608-shedding-light

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

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

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