

ECOLOGICAL IMPACT ASSESSMENT
LAND SOUTH OF COWARDS LANE, CODICOTE

carried out by



commissioned by

HAWRIDGE STRATEGIC LAND LTD.

JULY 2025



ECOLOGICAL IMPACT ASSESSMENT

LAND SOUTH OF COWARDS LANE, CODICOTE

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Project title:	Land South of Cowards Lane, Codicote		
Document title:	Ecological Impact Assessment	Project number:	9155
Client:	Hawridge Strategic Land Ltd.	Author:	Bryan Tan
Version:	1.0	Issued on:	11/07/25
Quality Assurance	Checked by:	Approved by:	
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The information, data and advice which has been prepared and provided is true and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions. This report and its contents remain the property of Clarkson and Woods Ltd. until payment has been made in full.



EXECUTIVE SUMMARY

- Clarkson and Woods Ltd. was commissioned by Hawridge Strategic Land Ltd. to conduct an Ecological Impact Assessment of the land south of Cowards Lane, Codicote to inform a proposed planning application.
- This report details the ecological constraints and opportunities associated with the Site and provides an assessment of the likely impacts resulting from the proposed development. Measures to reduce/avoid the impacts during construction and operational phases of development have been outlined.
- The development proposals for the Site comprise a residential development of up to 30 units with associated parking and gardens, access roads, public open space and landscaping.
- A UKHab Survey was undertaken on 17th Jun 2025, and categorised all habitats on Site according to the UK Habitat Classification criteria. Species-specific surveys e.g. breeding birds in May-June 2025, and bats since May 2025 and remain ongoing until October 2025.
- The Site comprised a grassland field (fenced into separate sections and managed via horse grazing or mowing), a small area of scrub vegetation, scattered individual trees, and access road to the Site. The fields were bounded by a network of three hedgerows. A fourth hedgerow was located to the north of Cowards Lane.
- The Meadow North-West of First Spring Local Wildlife Site, lies adjacent to and within the redline boundary, and will be partially lost as a result of the development proposals. This loss will be mitigated by creating and managing a higher quality grassland that better represents the designation criteria.
- The Site was considered suitable to support a variety of wildlife, including badger, bats, amphibians including great crested newt (GCN), reptiles, invertebrates, hedgehog, hare, and nesting birds. A precautionary approach to Site clearance activities will be taken to avoid impacts to any badgers, reptiles, amphibians and nesting birds within the Site.
- Bat surveys remain ongoing. At the time of writing this assessment, the Site was found to be used for foraging and commuting by at least six bat species, including barbastelle, common pipistrelle, soprano pipistrelle, *Myotis sp.*, *Nyctalus sp.*, and brown long-eared bat. The buildings, limited to a timber stable and shed, were considered to be of



Negligible day roosting potential but possibly suitable as a night roost for species such as long-eared bats. A single deployment of a static bat detector within Building 1 (assessed as Low potential) will be undertaken to confirm the presence absence of roosting bats and to identify if a licence is required to facilitate the removal of these buildings. No trees assessed as having potential bat roosting features will be directly impacted by the proposed development. New planting will provide opportunities for foraging bats within the developed site. The results of the remaining surveys will be provided in an addendum report to this EclA to inform the planning application. It is recommended that a sensitive lighting strategy accompany the planning application.

- The presence of GCN cannot be ruled out from within the Site and, therefore, participation in a District Level Licensing (DLL) Scheme is proposed to ensure works do not result in a breach in legislation, and an outline risk avoidance method statement (RAMS) is provided.
- A detailed assessment on Biodiversity Net Gain (BNG) will be provided in a separate report. The proposed scheme is anticipated to result in a loss of 4.78 Habitat Units (-48.53%) and a gain of 0.28 Hedgerow Units (+24.91%). The purchase of off-site BNG credits will be required, this can be secured via a condition of the planning permission.
- A Construction Ecological Management Plan: Biodiversity and Landscape and Ecological Management Plan will be provided for the Site, which will detail sensitive working methods for clearance of habitats and buildings to avoid potential impacts on protected species, protection of all retained habitats during the construction phase and management of all retained and newly created habitats in the long-term.
- Several ecological enhancements are recommended, including creation of biodiverse habitats and provision of habitat features such as bird and bat boxes, hedgehog access holes through residential fencing, and hibernacula.
- Provided the recommendations and mitigation measures detailed within this report are implemented, the proposals are not anticipated to have a significant residual impact on any ecological features that may be present within the Site.



1 INTRODUCTION

- 1.1.1 Clarkson and Woods Ltd. was commissioned by Hawridge Strategic Land Ltd. to carry out an Ecological Impact Assessment at land south of Cowards Lane, Codicote, Hertfordshire (nearest postcode SG4 8UN) hereafter referred to as 'the Site'.
- 1.1.2 This Impact Assessment discusses the likely effects of the Proposed Development on the ecology of the Site using information collected during a UKHab and further Phase 2 surveys carried out by Clarkson and Woods Ltd on 16 June 2025. An initial ecological walkover was undertaken by Ethos Environmental Planning (Ethos) on 01 April 2025 and was used to inform the scope of surveys and this assessment.
- 1.1.3 The assessment has been prepared by an experienced ecologist and subject to a two-stage quality assurance review by appropriately experienced senior consultants who are members of the Chartered Institute of Ecology and Environmental Management (CIEEM).
- 1.1.4 Information on the presence of species collected during the surveys will be passed to the county biological records centre in order to augment their records for the area. This is in line with the CIEEM code of professional conduct¹.
- 1.1.5 If no action or development of the Site takes place within twelve months of the date of this report, then the findings of the assessment and supporting surveys should be reviewed. An update of the surveys and/ or assessment may be required.

1.2 Report Aims

- 1.2.1 The aims of this report are:
- To establish, as far as possible, the baseline ecological conditions existing on Site at the time of survey and to identify any likely future changes in the baseline conditions up to the point of commencement.
 - To determine likely significant effects resulting from the proposals upon the ecological features identified within the assessment.
 - To assess whether the proposals are likely to be in accordance with relevant nature conservation legislation and planning policies, including Biodiversity Net Gain.
 - To identify where further surveys to establish baseline conditions, inform assessment or develop mitigation or compensatory measures are required.
 - To identify how mitigation or compensation measures will be secured, maintained and monitored.
 - To identify ecological enhancements to be carried out and how they will be implemented, maintained and monitored.

1.3 Site Description Summary

- 1.3.1 The Site comprises of horse-grazed grasslands with scrub, mature trees and native hedgerow boundaries and horse stables, and is located at the southern end of Codicote, a small village in the North Hertfordshire district of Hertfordshire.
- 1.3.2 The approximate centre of the Site was at Ordnance Survey Grid Reference TL 21600 17859, and the location of the site is shown in Figure 1.
- 1.3.3 The development Site is approximately 1.35 hectares (ha) in size. An aerial photo of the Site and surrounding area is provided in Figure 2.

¹ Code of Professional Conduct. CIEEM, January 2019.

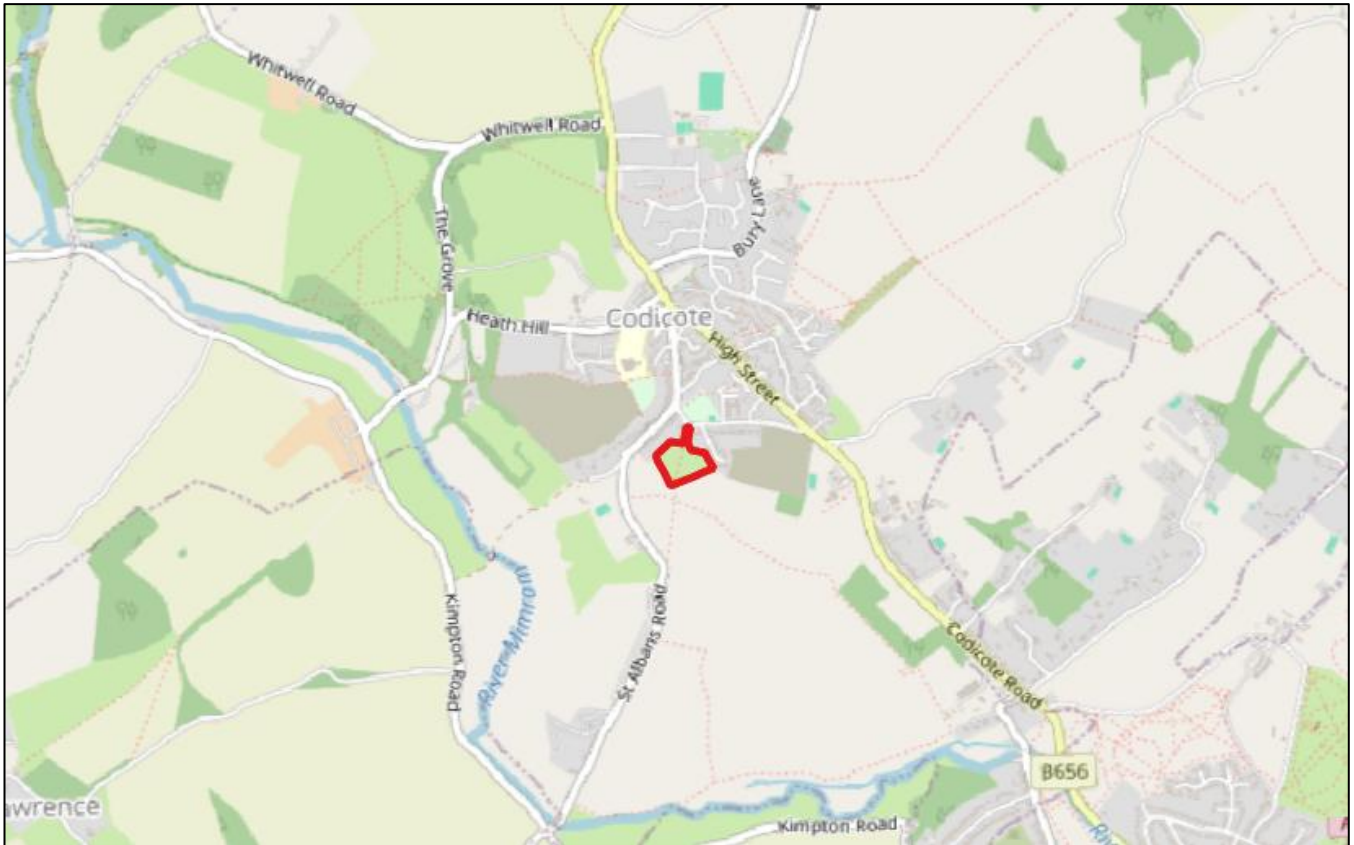


Figure 1: Ordnance Survey Map Showing Location of Site (©2025 Bing Maps)



Figure 2: Aerial Photograph of Site Boundary (©2025 Google)



1.4 Development Proposals

- 1.4.1 The proposed works comprise the development of the Site into residential housing (up to 30 units) with associated roads, landscaping and associated infrastructure. The proposals will result in the loss of all grassland habitat in Fields 1-3 and scrub in S1 (refer to Figure 6 for habitat parcel reference), and the demolition of all existing buildings within the Site. All of the existing hedgerow network will be retained and enhanced. In addition, a new hedgerow and sustainable drainage system will be created from this development. This assessment has been informed by the following plans:
- Concept Masterplan – 01. Cowards Lane, Codicote (HAWR.250206)(10.07.25). Insitu Design
 - Illustrative Landscape Strategy. Lands South of Cowards Lane, Codicote (edp9241_d007a) (7th July 2025). EDP.
- 1.4.2 It should be noted that this is an outline planning application for residential development with means of access for consideration and all other matters reserved for subsequent approval; demolition of all existing structures; associated landscaping, drainage, car parking; infrastructure and all ancillary and enabling works. Therefore the master layout plan prepared for the outline application is indicative only. Any changes to the building design and layout and landscaping made subsequent to publication of this report will be issued to Clarkson and Woods Ltd. for review. Ecological impacts and mitigation opportunities may be affected by any such changes.

1.5 Quality Assurance

- 1.5.1 All ecologists employed by Clarkson and Woods are members of the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow the Institute's Code of Professional Conduct² when undertaking ecological work.
- 1.5.2 The competence of all field surveyors has been assessed by Clarkson and Woods with respect to the CIEEM Competencies for Species Survey (CSS)³. The surveyors have been assessed under the Clarkson and Woods QA processes as competent to complete the survey.
- 1.5.3 This report has been prepared in accordance with the relevant British Standard: *BS42020: 2013 – Biodiversity: Code of Practice for Planning and Development*⁴. The report has been subject to a two-stage quality assurance review by appropriately experienced ecologists who are members of CIEEM.

1.6 Assessment Scope

- 1.6.1 This assessment will consider impacts arising from the construction and operation phases of the development, in order to encompass its entire lifespan as far as can reasonably be anticipated.
- 1.6.2 The Zone of Influence of the Development will vary according to the impact or Site feature being assessed. For example, waterbodies such as rivers and the wider catchment are considered in relation to runoff and pollution. Terrestrial habitats within and surrounding the red line are also considered in relation to construction and operational impacts.

² CIEEM (2013). *Code of Professional Conduct*. www.cieem.net/professional-conduct.

³ CIEEM (2013). *Competencies for Species Survey (CSS)*. www.cieem.net/competencies-for-species-survey-css.

⁴ The British Standards Institution (2013). *BS42020: 2013 – Biodiversity: Code of Practice for Planning and Development*. BSI Standards Ltd.



2 BASELINE CONDITIONS

2.1 Introduction

- 2.1.1 This section sets out the results of the Desk Study and ecological field surveys along with an evaluation of their relative importance to inform the Impact Assessment. The methodologies associated with the baseline assessment are summarised with each ecological feature's subheading below.
- 2.1.2 The specific surveys carried out were chosen based on the likelihood, in our considered opinion, of each protected species or Species of Conservation Concern being present on or within the vicinity of the Site. This is informed by the Site's geographic location and the habitat types present on and around the Site. The following species-specific baseline surveys were chosen: badgers; bats; amphibians; birds; invertebrates and other species of conservation concern including non-native invasive species.
- 2.1.3 Details of the legislative protection afforded to those protected species which have been identified as occurring or potentially occurring on the Site are given in Appendix A. Species of Conservation Concern are defined as those appearing in any of the following; Priority Habitats and Species under Section 41 of the Natural Environment and Rural Communities Act (2006); red or amber-listed birds within the British Trust for Ornithology's Birds of Conservation Concern (2021); and any specific local conservation priority species such as those listed in Red Data Books.

2.2 Evaluation Methodology

- 2.2.1 Each recorded ecological feature, whether it is a species, a habitat or a site designated for nature conservation, is described in turn in this section to provide the pre-development baseline conditions on Site. Subsequently, an evaluation of each feature's 'ecological importance' is made. The evaluation of ecological importance is informed by the criteria provided within the CIEEM Guidelines for Ecological Impact Assessment (2018)⁵.
- 2.2.2 With due consideration to the criteria, each feature is classified on a geographical scale of ascending importance as follows; Negligible, Site, Local, District, County, National and International. The chosen geographic level of importance is considered that which best represents the scale at which the loss of the Site's area or population of the feature would have the greatest impact. Where sufficient survey information not available to determine the importance of a species or habitat present on the Site, the importance of the receptor is marked as 'uncertain' and based upon the professional judgement of the author together with available relevant desk study information.
- 2.2.3 Once importance has been determined for each feature, those of Local importance or above will be considered Important Ecological Features (IEFs). Non-IEFs will typically not be considered further within the impact assessment. However, where a feature does not qualify as an IEF but is afforded specific legal protection or coverage under a particular legislation or planning policy it will also be assessed to ensure the scheme's legal and policy compliance.

2.3 Desk Study

Methodology

- 2.3.1 Statutory designated sites for nature conservation were identified using the Natural England/Defra web-based MAGIC map database (<http://magic.defra.gov.uk>). International-level sites such as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) within 5km from the Site were searched for. National-level sites such as National Nature Reserves (NNRs) and Sites of Special Scientific Interest (SSSIs) within 2km of the Site were searched for.
- 2.3.2 The Hertfordshire Environmental Records Centre (HERC) was consulted for records of protected species and species of conservation concern within 2km of the Site as part of a Preliminary Ecological Appraisal undertaken in April 2025. HERC was also asked to provide details of locally-designated and non-statutory sites for nature conservation within 2km of the Site.

⁵ CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Chartered Institute of Ecology and Environmental Management. www.cieem.net



- 2.3.3 Clarkson and Woods' own database of ecological records derived from past survey work was also consulted for further locally-relevant data.
- 2.3.4 The Natural England/Defra web-based MAGIC map database was also consulted for records of European Protected Species (EPS) licences issued for mitigation projects concerning EPS within 2km of the Site, as well as any priority habitats present onsite and within 2km of the Site.
- 2.3.5 The North Hertfordshire Local Plan 2011-2031 was consulted for details of planning policies relevant to designated sites, protected species and habitats, and general ecological and environmental protection.
- 2.3.6 The Local Biodiversity Action Plan (BAP) for Hertfordshire (2006) and Hertfordshire's Ecological Network (2013) were consulted for information on conservation priority species and habitats which may require further consideration and weight within Ecological Impact Assessments.
- 2.3.7 Herts and Middlesex Wildlife Trust was consulted for the selection criteria for designating Local Wildlife Sites in Hertfordshire⁶.
- 2.3.8 Ordnance Survey maps (1:25,000) and aerial images of the Site were examined online (bing.com/maps and maps.google.co.uk) to allow a better understanding of the context of the Site and its connections to potentially important habitats, known species records and protected sites.
- 2.3.9 The data presented within this report constitutes a summary of the data obtained from the local records centre. Should additional detail be required on any of the records described within this report Clarkson and Woods Ltd. should be contacted.

Limitations

- 2.3.10 No specific limitations to the desk study were encountered.
- 2.3.11 The data presented within this report constitutes a summary of the data obtained from the local records centre. Should additional detail be required on any of the records described within this report Clarkson and Woods Ltd. should be contacted.
- 2.3.12 It should be noted that the data obtained from within the search area will not constitute a complete record of habitats and species present within the search area. It is therefore possible that protected species may occur within the vicinity of the proposed development site that have not been identified within the desk study.

Desk Study Findings

Designated Sites

Statutory Designated Sites

- 2.3.13 No internationally and nationally statutory designated sites were identified within 5km and 2km, respectively, of the Site.
- 2.3.14 Two locally statutory designated sites for nature conservation were identified within the desk study and are summarised in Table 1 below. A map of these sites can be found in Figure 3.
- 2.3.15 Given the distance between the Site and the designated sites, and lack of hydrological links to any watercourses, it is considered that the proposed development will have no adverse impacts upon the condition of the above sites, nor the species populations for which the above sites are designated. Impacts upon the designated sites are not considered further within this report.

⁶ The Hertfordshire Local Wildlife Sites Partnership (2023). *Selection Criteria for Local Wildlife Sites in Hertfordshire (14th Version)*.



Table 1: Summary of Statutory Designated Sites for Nature Conservation

Site Name	Size, Distance and Direction from Site	Reason for Designation
Singlers March Local Nature Reserve (LNR)	6.5ha, 1.3km south-east of the Site	Comprises a section of a regionally important chalk river and lowland flood meadows. Mosaic of grassland, willow scrub and mature trees attract a wide range of wildlife.
Danesbury Park LNR	24.5ha, 1.3km south-east of the Site	Flower-rich grasslands and mature trees that support local biodiversity. Rare-breed cattle are grazed on site.

Non-statutory Designated Sites

- 2.3.16 Twenty-seven non-statutory designated sites for nature conservation were identified within the desk study. Those within closer proximity to the site (500m) are summarised in Table 2 below. A map of all sites can be found in Figure 4.
- 2.3.17 The main habitat within the Cowards Lane Site consists of Other Neutral Grassland (see section 3.4) and is absent of any watercourse within at least 10m of the Site (Approx. 580m from River Mimram and 25m from nearest ditch). For these reasons, only impacts on the Meadow North-West of First Spring Local Wildlife Site (LWS) and Hollards Farm Meadow LWS have been assessed, with the rest of the non-statutory designated sites scoped out from further assessment.
- 2.3.18 A detailed appraisal of the on-site LWS has been undertaken based upon the findings of the UKHab survey completed by Clarkson and Woods on the 16th June 2025. The Meadow North-West of First Spring LWS notes the presence of indicator species for both semi-improved and damp grassland within its reasons for designation. Referring to the criteria for designation of LWS in Hertfordshire several important observations can be noted:
- Criteria and a list of indicator species for the citing of LWS for semi-improved grassland has been removed from the LWS selection criteria. As such it is assumed that designation on the basis of semi-improved grassland plants can no longer be relied upon. Potentially old neutral grasslands might be used as a proxy for this habitat type and list of indicator species although the habitats are not completely analogous.
 - For the site to meet the criteria for designation for old wet grassland 5 or more indicator species for wet grasslands should be present within the sward.
 - The grassland on site is well drained and shows little prospects of being characteristic of wet grassland. Only a single indicator species listed within the LWS selection criteria was recorded on site during the botanical survey (marsh thistle).
- 2.3.19 It is clear therefore that the habitat on site does not currently meet the criteria for designation as a LWS. It should be clearly stated however that this does not preclude the possibility that with appropriate restoration works and a significant change in the habitat management which occurs on the site, there would not be the possibility of the restoration of habitat which might more closely align with the reasons for designation. Further the site has not been deregistered from the local LWS register and so should continue to be treated as a designated site. However the degraded condition of the habitat and the limited potential for establishment of the qualifying habitats at present is relevant to the assessment of impacts and the design of mitigation.

Table 2: Summary of Local and Non-statutory Designated Sites for Nature Conservation

Site Name	Size, Distance and Direction from Site	Reason for Designation
Meadow North-West of First Spring Local Wildlife Site (LWS)	Forms part of the development Site	Presence of indicators for semi-improved/damp grassland



Hollards Farm Meadow LWS	Adjacent to the Site's south-eastern boundary	Presence of grassland and woodland indicator species
Codicote Bottom Farm Meadow LWS	330m north-west of the Site	Calcareous grassland

Hertfordshire Ecological Network (HEN)

- 2.3.20 The area of the development site is classified as semi-improved neutral grassland within the HEN assessment. Opportunities exist within this habitat to enhance it for the benefit of the ecological network.

Priority Habitats

- 2.3.21 There are several parcels of Priority Habitat within 2km of the development site including deciduous woodland, traditional orchard, good quality semi-improved grassland and coastal and floodplain grazing marsh (Figure 5). The nearest area of deciduous woodland lies 200m from the site towards the south-east. There are no Priority Habitats within the development site or immediately adjacent to it.
- 2.3.22 There are two parcels of ancient woodland located within 2km of the development site – Hurstlings Wood (1.7km of the Site) and Node Wood (1.9km north-west of the Site) (Figure 3). Given the considerable distance from these habitats, adverse impacts resulting from the development proposal was considered unlikely and have therefore not been considered further within this report.

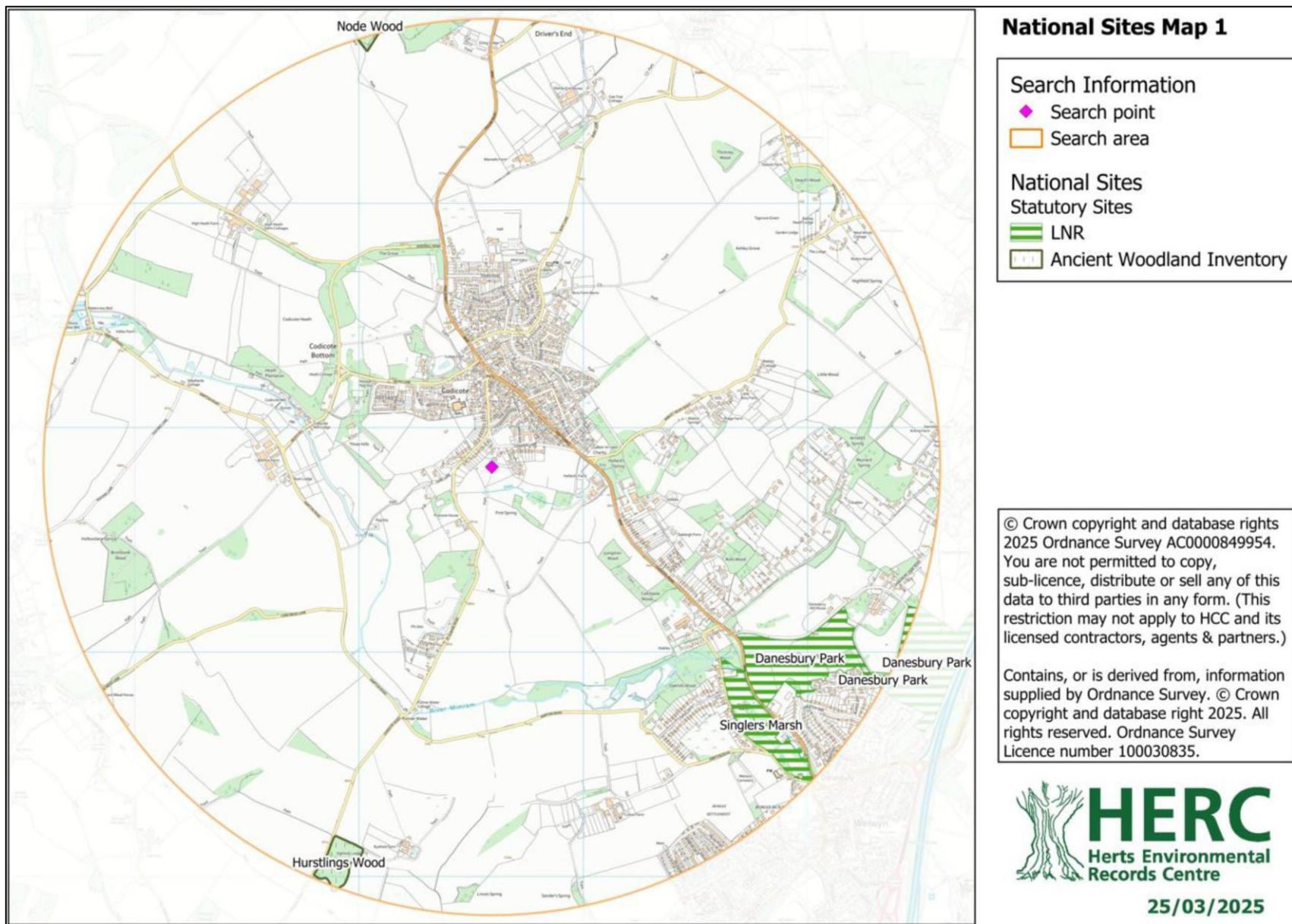


Figure 3: Designated Sites within 2km of the Site

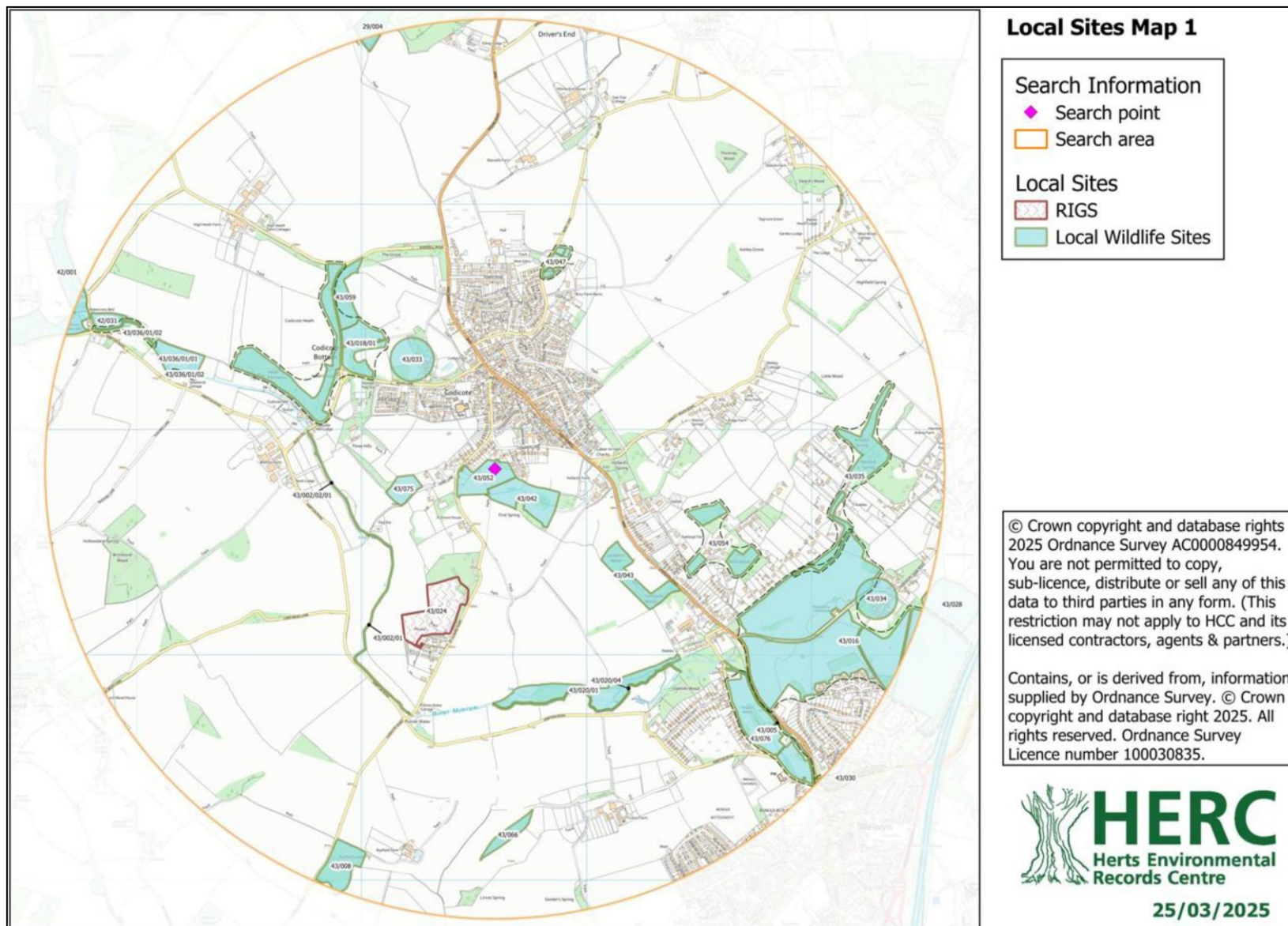
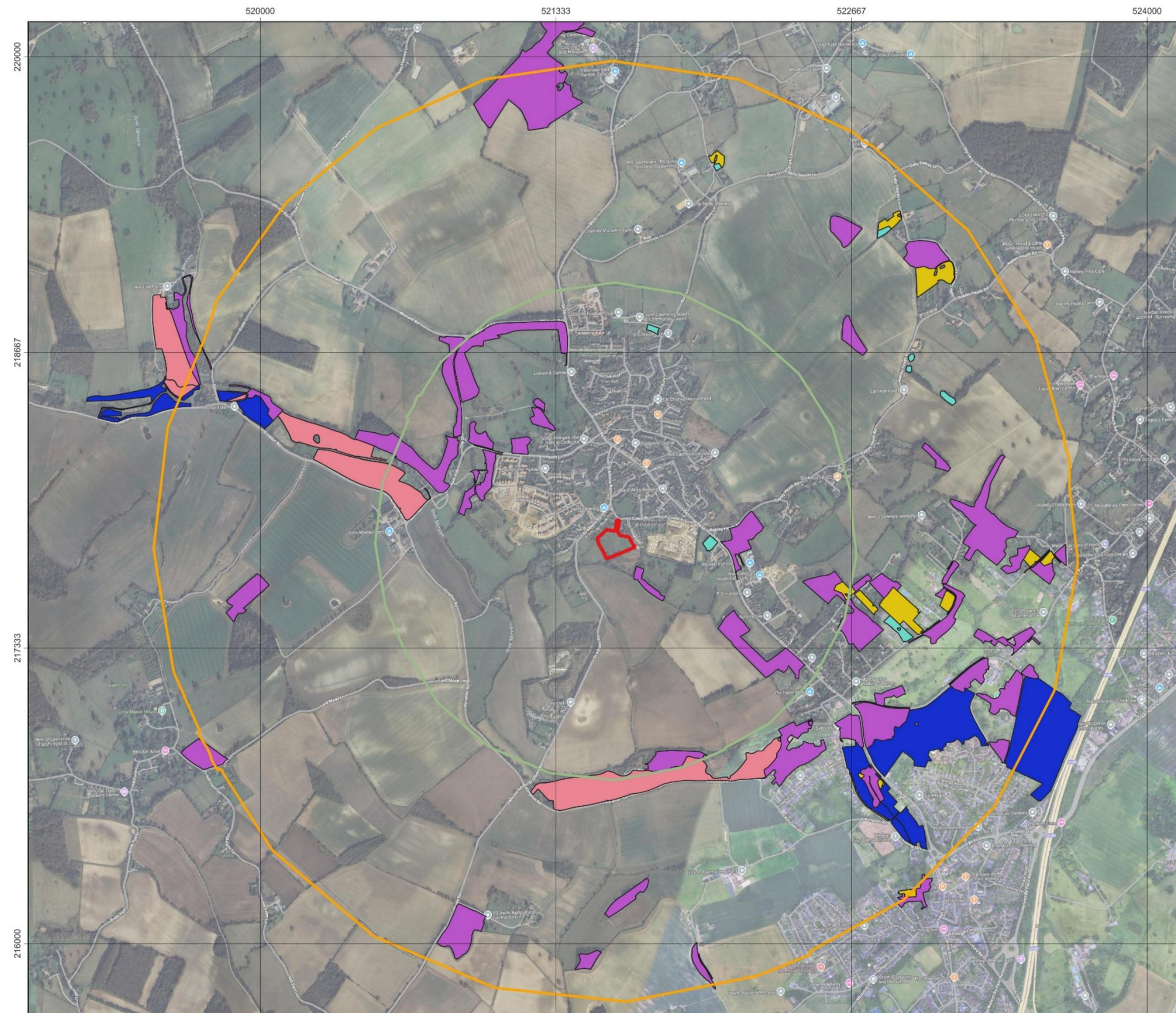


Figure 4: Non-designated sites within 2km of the Site



Title: Priority Habitats within 2km

Project: Land South of Cowards Lane

Drawing no.: v1 **Date:** 09/07/2025

Legend:

- Red Line Boundary
- 1.0km buffer
- 2.0km buffer
- Coastal and floodplain grazing marsh
- Deciduous woodland
- Good quality semi improved grassland
- No main habitat but additional habitats present
- Traditional orchard

Data:
Base Maps: © Crown copyright and database rights 2024 Ordnance

Co-ordinate system: OSG836 / British National Grid
Scale: 1:16000 @ A3

Figure 5: Priority Habitats within 2km of the Site



Local BAP

2.3.23 The Local Biodiversity Action Plan (BAP) for Hertfordshire (2006) outlines actions plans for the following priority habitats and species that have been identified as relevant to the Site:

Habitats:

- Farmland
- Neutral grassland
- Wetlands
- Urban

Species:

- Natterer's Bat
- Common dormouse
- Song thrush
- Great-crested newt

Planning Policy

2.3.24 The following policies have been identified within the North Hertfordshire Local Plan 2011-2031, which is considered relevant to the Site;

Policy NE5: New and Improved public open space and biodiversity

Planning permission will be granted for relevant development proposals that:

- a. provide high quality, on-site, fully publicly accessible open space having regard to the Council's open space standards;
- b. incorporate an open space buffer(s) where necessary for landscape, visual, ecological or air quality reasons;
- c. contribute to net gains for biodiversity, ecological networks and the water environment and/or restores degraded or isolated habitats; and
- d. submit a long term maintenance and management plan, and where required phasing plans, to demonstrate delivery.

Any proposed facilities within open space must be small scale and ancillary to the primary use. Financial contributions towards the provision of open space as an exception to criterion (a) will be considered only in exceptional circumstances and where it can be demonstrated that the requirements of policy NE4 part (b)(ii) are met. Where a development is phased, or a site is either divided into separate parts or otherwise regarded as part of a larger development, it will be considered as a whole.

Policy NE6: Designated biodiversity and geological sites

Planning permission will only be granted for development proposals affecting designated sites that:

- e. protect, enhance and manage designated sites in accordance with the following hierarchy of designations:
 - Internationally designated sites
 - Nationally designated sites
 - National Planning Policy Framework sites
 - Locally designated sites



- b. submit an ecological survey and demonstrate that adverse effects can be satisfactorily minimised by following the hierarchy below:
 - i. locating on an alternative site with a less harmful impact;
 - ii. providing adequate mitigation measures; or
 - iii. as a last resort compensated for.
- c. manage construction impacts by:
 - i. demonstrating how existing wildlife habitats will be retained, safeguarded and managed during construction; and
 - ii. providing a buffer of complimentary habitat for all connective features for wildlife habitats or priority habitats.
- d. provide a long term management plan including mitigation measures as necessary.

Development proposals on non-designated sites that include important habitats and species will be expected to meet parts (b) to (d) of this policy. Local Geological Sites are ratified by the Herts & Middlesex Wildlife Trust (HMWT) and are afforded the same protection as Wildlife Sites.

2.4 Habitat Survey

Habitat Survey Methodology

- 2.4.1 A habitat survey was carried out based on standard field methodology set out in the UK Habitat Classification System⁷ (UKHab). In order to inform a Biodiversity Net Gain baseline for the Site, habitat condition assessments were undertaken of each habitat during the field survey using the criteria set out within Defra's Statutory Biodiversity Metric⁸⁹. Each habitat was allocated a Poor, Moderate or Good habitat condition.
- 2.4.2 The offsite grassland that formed part of the Meadow North-West of First Spring LWS was also surveyed to compare its condition with the onsite grassland.
- 2.4.3 The UKHab survey, habitat condition assessments, ground level tree assessments, and internal and external building inspections were completed by Henry Sturgess, MCIEEM, and Charlie Durigan, ACIEEM, while assisted by Bryan Tan, a qualifying member of CIEEM, and Holly Chapman-White. Henry has 11 years' experience undertaking ecological surveys, has a BSc in relevant subjects and holds a Level 4 FISC certification. Charlie has 11 years' experience undertaking ecological surveys, has a BSc, PgCert and MSc in relevant subjects and holds a licence for the survey of bats (NE Level 1 Reg. No. 2020-44777-CLS-CLS) and great crested newts (NE Level 2 2022-10553-CLS-CLS). Bryan has over 2 years' experience undertaking ecological surveys and holds an MBiolSci in Zoology. Holly has 1 years' experience undertaking ecological surveys, and has an MSc in Global Wildlife Health and Conservation and BSc in Environmental Management and Sustainability. Henry and Charlie have been assessed under the Clarkson and Woods QA processes as competent to complete the survey.
- 2.4.4 The results of the UKHab survey are included in map form on Figure 6 using UKHab symbology. Habitats are described in turn in this Section using the naming conventions of the UKHab system. Target Notes (Table 4) are used to describe habitats not readily conforming to recognised types and evidence of, or potential for, protected species and species of conservation concern. Photographs of the Site are provided in Appendix C at the end of this report.
- 2.4.5 Botanical names follow Stace (1997)¹⁰ for higher plants and Edwards (1999)¹¹ for bryophytes.

Habitat Assessment Limitations

- 2.4.6 No limitations were encountered during the survey.

⁷ UKHab Ltd (2023) *UK Habitat Classification System Version 2.0*. Available at: <https://ukhab.org>

⁸ Defra (2024). *The Statutory Biodiversity Metric: User Guide*. London

⁹ Defra (2024). *The Statutory Biodiversity Metric: Technical Appendix 1 – Condition Assessment Sheets and Methodology*. London

¹⁰ Stace, C. (1997). *New Flora of the British Isles Second Edition*. Cambridge University Press

¹¹ Edwards, S.R. (1999). *English Names for British Bryophytes*. BBS, Cardiff



Grassland (Other Neutral Grassland)

Desk Study Information

- 2.4.7 The Site falls under the Meadow North-West of First Spring LWS, with one of its LWS criteria including the presence of grassland indicator species for semi-improved/damp grassland. The Hertfordshire Ecological Network also classified the habitat as semi-improved neutral grassland and would present enhancement opportunities to benefit the ecological network of the county.
- 2.4.8 Indicator species listed in Appendix 5 of the LWS selection criteria⁶ would need to meet a minimum threshold to distinguish between types of old semi-natural grasslands (Section 2. Grassland); 8 or more species for old neutral grasslands, and 5 or more species for old wet grasslands.

Field Survey Results

- 2.4.9 The majority of the onsite habitat was comprised of short-grazed horse pasture (F1). This field consisted of relatively high bare ground coverage (10%) due to overgrazing, and high botanical species diversity (see Photograph C1, Appendix C). Species present were perennial rye grass *Lolium perenne*, common bent *Agrostis capillaris*, creeping bent *Agrostis stolonifera*, red fescue *Festuca rubra*, rough meadow grass *Poa trivialis*, Yorkshire fog *Holcus lanatus*, creeping buttercup *Ranunculus repens*, greater plantain *Plantago major*, meadow buttercup *Ranunculus acris* and white clover *Trifolium repens*. Indicator species of more diverse grassland were also recorded, such as marsh thistle *Cirsium palustre*, red clover *Trifolium pratense*, selfheal *Prunella vulgaris* and yarrow *Achillea millefolium*.
- 2.4.10 The offsite portion of the LWS also consisted of horse pasture, but with paddocks delineated by electric fences across the field. This parcel recorded consistently high proportion of characteristic indicator species of more diverse grassland such as agrimony *Agrimonia eupatoria* birds-foot trefoil *Lotus corniculatus*, black knapweed *Centaurea nigra*, and hairy sedge *Carex hirta*.
- 2.4.11 Both the onsite and offsite fields were assessed as being Other Neutral Grassland (ONG). However, the onsite ONG had a lower average species diversity (10 species per m²; 7.83 species per m² after excluding sub-optimal species) than the offsite ONG, which had an average of 11 species per m² (9.4 species per m² after excluding sub-optimal species). In addition, combined cover of species indicative of sub-optimal condition (e.g. creeping buttercup and creeping thistle *Cirsium arvense*) and area of physical damage by horse grazing were more than 5% in both fields, though the onsite field presented a higher percentage (15%).
- 2.4.12 According to the Hertfordshire's LWS selection criteria⁶, indicator species recorded within Meadow North West of First Spring LWS were very limited, and fewer indicator species were recorded within the onsite field than offsite. For the onsite field, recorded indicator species for old neutral grassland included common bent, meadow buttercup and red clover (3 species), whilst indicators of old wet grassland only included marsh thistle (1 species). For the offsite field, recorded indicator species for old neutral grassland included common bent, crested dogs tail *Cynosurus cristatus*, agrimony, birds-foot trefoil, black knapweed, and meadow buttercup (6 species), and no indicators of old wet grassland were observed.
- 2.4.13 Quadrat data (with type of indicator species) and grassland condition assessment for both onsite and offsite grasslands were presented in Appendix B.

Evaluation

- 2.4.14 Between the onsite and offsite fields belonging to the Meadow North-West of First Spring LWS, the onsite field was in a poorer condition than the adjacent offsite field. This degradation was likely caused by intensive horse grazing as evident with the higher proportion of bare ground and less-palatable botanical species e.g. buttercup, ragwort, and creeping cinquefoil. Species more commonly found in Modified Grassland e.g. perennial rye grass and rough meadow grass were also more prevalent within the onsite grassland. However with favourable management scheme the onsite field has the potential to be restored back to a better quality grassland. As a result, this habitat is considered of no more than **Local** importance.

Grassland (Modified Grassland)

Desk Study Information

- 2.4.15 No results pertaining to grassland of low distinctiveness were returned from the desk study.



Field Survey Results

- 2.4.16 F2 comprised of short-mown grassland and was fenced off from horse grazing. This parcel had low botanical diversity, including perennial rye grass, rough meadow grass, common bent, creeping bent, Yorkshire fog, and white clover.
- 2.4.17 F3 also comprised of short-mown grassland located at the entrance of the LWS. This parcel contained 10% bare ground cover and presented similar species composition of low diversity, such as perennial rye grass, rough meadow grass, creeping bent, Yorkshire fog, daisy *Bellis perennis*, dandelion *Taraxacum agg.*, and white clover.

Evaluation

- 2.4.18 The modified grasslands were frequently mown and of low botanical interest, although these fields do provide habitat of limited suitability for foraging by a range of widespread wildlife. The modified grassland is considered to be of **Site** importance.

Mixed Scrub

Field Survey Results

- 2.4.19 An area of overgrown scrub (approx. 550m²) was recorded surrounding the existing public right of way in the southernmost corner of the Site (Photograph C5). Horse grazing had resulted in a less developed edge between the scrub and adjacent Field 1. Species comprised blackthorn, hawthorn and bramble with occasional elder.

Evaluation

- 2.4.20 The habitat has some suitability for nesting birds, amphibians including great crested newt (GCN), widespread reptiles, and mammals. However, the habitat is widespread within the local landscape and is not significant in extent, and is therefore considered to be of **Site** level importance.

Individual Trees

Field Survey Results

- 2.4.21 27 Rural Trees (2 small, 23 medium, 2 large) were present within the redline boundary. The trees largely consisted of native species e.g. silver birch *Betula pendula*, grey poplar, hawthorn, field maple, ash. A non-native species group of 18 Lawson cypress *Chamaecyparis lawsoniana* (G1) were located immediately south of Cowards Lane.

Evaluation

- 2.4.22 Given the trees assessed as having bat roosting potential are unimpacted, individual trees offer opportunities for nesting birds and roosting bats, thereby is considered to be of **Site** level importance.

Developed Land; Sealed Surface

Field Survey Results

- 2.4.23 The northern-most section of the Site consists of existing hardstanding road that runs through the Cowards Lane and driveway for offsite residential houses (see Figure 6 below).

Evaluation

- 2.4.24 The developed land; sealed surface is considered to be of **Negligible** importance.

Hedgerows

Desk Study Information

- 2.4.25 Hedgerows are habitats of principal importance under the NERC Act.

Field Survey Results

- 2.4.26 Three hedgerows were recorded within the redline boundary and detailed in Table 3 below, all of which bounded Field 1 (H1-3) (Figure 6 refers).



Table 3: Hedgerow Descriptions

Hedgerow Number	Physical Characteristics	Description/Species
H1	Type: Native hedgerow Condition: Good Height: 2m Width: 1.5m Ground to hedgerow base gap: <0.5m for >90% of its length Gaps in hedgerow: No gaps of >5m present Undisturbed ground: Undisturbed ground present on southern aspect (off site) Nutrient enriched perennial vegetation: Creeping thistle, cow parsley <i>Anthriscus sylvestris</i> and curled dock <i>Rumex crispus</i> dominate the undisturbed ground within site. Non-native and neophyte species: Invasive non-native species absent Damage: >90% of hedgerow and ground is free of damage by human activities	Hedgerow 1 runs along the south-east boundary of the Site (see Photograph C6, Appendix C). Species present include: Ash <i>Fraxinus excelsior</i>, blackthorn <i>Prunus spinosa</i>, elder <i>Sambucus nigra</i> and hawthorn <i>Crataegus monogyna</i>.
H2	Type: Native hedgerow Condition: Poor Height: 3m Width: 1m Ground to hedgerow base gap: Gap between ground and base of canopy is up to 1m Gaps in hedgerow: Gaps make up 25% of total length, with canopy gaps >5m Undisturbed ground: Horse grazing on both sides Nutrient enriched perennial vegetation: Common nettle <i>Urtica dioica</i> dominate 25% of the undisturbed ground Non-native and neophyte species: Invasive non-native species absent Damage: >90% of hedgerow and ground is free of damage by human activities	Hedgerow 2 runs along the south-west boundary of the Site and comprises (see Photograph C7, Appendix C). Species present include: Blackthorn, elder, hawthorn and pedunculate oak <i>Quercus robur</i>.
H3	Type: Native hedgerow Condition: Poor Height: 2.5m where present, but big gaps present Width: 1.5m where present, but big gaps present Ground to hedgerow base gap: Gaps between ground & canopy base <0.5m for 50% length Gaps in hedgerow: Gaps make up 50% of total length Undisturbed ground: 0.2 m undisturbed ground present on both sides Nutrient enriched perennial vegetation: Common nettle and curled dock dominate 80% of the undisturbed ground Non-native and neophyte species: Invasive non-native species absent Damage: <90% of hedgerow and ground is free of damage by human activities	Hedgerow 3 runs along the north-west boundary of F1 and comprises a defunct and gappy hedge (see Photograph C8, Appendix C). Species present include: Blackthorn, elder, hawthorn and an unidentified species.

Evaluation

2.4.27 All hedgerows are suitable for nesting birds, bats in flight, amphibians, including great crested newt (GCN), invertebrates, widespread reptiles and mammals, and provide local ecological connectivity to the surrounding countryside such as the adjacent Hollards Farm Meadow LWS. These linear features are therefore considered to be of **Local** importance.



Title: Baseline Habitat Plan

Project: Cowards Lane

Drawing no.: v2 **Date:** 09/07/2025

Legend:

- Red Line Boundary
- Target Note
- Existing Large Rural Tree
- Existing Medium Rural Tree
- Existing Small Rural Tree
- Native hedgerow
- Developed land; sealed surface
- Mixed scrub
- Modified grassland
- Other neutral grassland

Data:
Base Maps: © Crown copyright and database rights 2024

Co-ordinate system: OSGB36 / British National Grid
Scale: 1:700 @ A3

0 14 28 42 m

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Figure 6: Baseline Habitat Map



Table 4: Target Notes (Figure 6 refers)

No.	Description
TN1	Tree with Bat Roosting Potential. Common hawthorn with dead limbs with knothole that appears hollow, access hole at elbow approx. 1.5x2cm gap at southern aspect. See Photograph C9.
TN2	Tree with Bat Roosting Potential. English oak with 3 knot holes on same limb & aspect (north-east), at 5, 6 & 7m. Likely superficial. All small (c.5cm diameter). Weld further up, but appears sealed. See Photograph C10.
TN3	Dung pits attributed to badger. See Photograph C11.

2.5 Protected Species Survey and Species of Conservation Concern

Badger

Methodology

- 2.5.1 A search was made for badger *Meles meles* setts, and any sett entrances found were checked for signs of use by badgers or other mammals. Where found, setts were classified into the following categories: Main, Subsidiary, Annexe or Outlying¹². Any sett entrances were counted and mapped to record tunnel direction and their relative level of usage.
- 2.5.2 Field signs such as 'snuffle holes' (holes dug by badgers when searching for invertebrates), pathways through vegetation, 'latrines' and 'dung-pits' (small pits in which badgers deposit their faeces) and 'day nests' (nests of bedding material made by badgers for sleeping above ground) were also mapped, if found.

Limitations

- 2.5.3 Areas with dense ground cover, particularly at the base of hedgerows and within areas of scrub, were examined closely. If impenetrable vegetation prevented entry then the perimeter was examined in order to detect badger paths suggesting a hidden sett within the area. It cannot be guaranteed that all the entrances have been located, especially if a small sett is currently inactive or used seasonally and concealed in an area of thick scrub. Badgers may dig new holes and create new setts in a very short space of time.

Desk Study Information

- 2.5.4 There were 87 records returned in the data search for badger, 48 of which were from the last ten years. The most recent record was in 2020 and the closest record was located 1.9km north-west of the Site.

Field Survey Results

- 2.5.5 Dung pits attributed to badger were identified during the UKHab survey suggesting they are using the Site or nearby habitat for occasional foraging. No other signs of badger activity was recorded during the surveys.

Evaluation

- 2.5.6 Badgers are considered to be of **Site** Importance. No setts were located but the site likely forms a small part of a larger foraging territory for a social group of badgers.

Bats

Methodology

- 2.5.7 The assessment of the suitability of the Site for foraging and roosting bats was based on current guidance set out by the Bat Conservation Trust¹³.

¹² Lewns, P., Clarkson, T. & Lewns, D. (2019). *Badger Survey and Mitigation Guidelines (The Mammal Society Mitigation Guidance Series)*. Eds. Fiona Mathews and Paul Chanin. The Mammal Society, London. (as yet unpublished)

¹³ Collins, J. (ed) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn)*. The Bat Conservation Trust, London. ISBN-13 978-1-7395126-0-6.

Trees

- 2.5.8 An inspection of trees on Site was carried out from the ground, using binoculars, to record any signs of use of the tree by bat species. Features such as frost cracks, rot cavities, flush cuts, split or decaying limbs (including hazard beams), loose bark and dense plates of ivy were recorded where observed. Trees were assigned a category according to suitability of the features for roosting bats or need for further assessment (i.e. PRF-L, PRF-M or FAR) in accordance with the current survey guidelines.

Habitat

- 2.5.9 The habitats within the Site were appraised for their suitability for use by foraging and commuting bats. In particular, the connectivity of the habitats on Site to those lying beyond was taken into account. Vegetated linear features are typically important for many species to navigate around the landscape, while the presence of woodland, scrub, gardens, grassland and wetland features increases a site's foraging resource value to bats. The potential for noise or lighting disturbance which may affect commuting links was also recorded.

Static Detector Survey

- 2.5.10 In order to establish the use of the Site by bats, four automated full spectrum bat detectors (SongMeter (SM) Mini) were deployed to record over at least five consecutive nights per month (May to October, inclusive). Between early and late May 2025, bat activity was recorded for a total of ten nights on Site. Deployments from the month June to October 2025 are scheduled and once data has been collected it will be analysed and reported in an addendum to this EclA.
- 2.5.11 Detectors were located to focus on key habitat features identified during the walkover survey. The detectors were programmed to start recording 30 minutes before sunset until 30 minutes after sunrise. The deployment dates and details of weather conditions are given in Table 5 overleaf and the location of the detectors are shown on Figure 7 below.
- 2.5.12 Data downloaded from the static detectors was processed using Wildlife Acoustics' Kaleidoscope Pro automatic species recognition software. Subsequently the outputs from the automated analysis were manually verified using the Kaleidoscope software. Manual checks were made of all non-identified files and up to 10% of the noise files were examined to ensure significant numbers of bat calls had not been missed. Rare species were also manually checked to ensure these were correctly identified.



Figure 7: Static Bat Detector Locations

**Table 5: Details of Static Detector Deployment**

Date Deployed/Collected	Number of Detectors	No. of Nights Surveyed	Weather Conditions
01/05/2025 – 06/05/2025	4	5/5	Minimum overnight temp: 5-18°C Average wind (1-3B)
28/05/2025 – 02/06/2025	4	5/5	Minimum overnight temp: 13-16°C Average wind (13B)

Nighttime Bat Walkover Survey

- 2.5.13 Nighttime bat walkover (NBW) surveys are being undertaken according to the Bat Conservation Trust's Bat Surveys: Good Practice Guidelines¹³ (2023) and involved static monitoring of bats followed by the walking of a transect by two surveyors considered by Clarkson and Woods to be competent to undertake the survey and experienced in the use of bat detectors and in carrying out bat activity surveys.
- 2.5.14 Surveys are to be undertaken once per season (spring, summer and autumn) and will be completed when weather conditions were suitable for bats to emerge and to feed, i.e. little or no rain, no strong wind and air temperatures above 8°C.
- 2.5.15 The spring and summer survey were carried out by Bryan Tan (a qualifying member of CIEEM) and Mark Jermy. Bryan has over 2 years' experience undertaking ecological surveys and holds an MBiolSci in Zoology. Mark has 14 years' experience conducting ecological surveys and holds a Level 1 Natural England licence for the survey of bats (2024-12278-CL17-BAT). Both surveyors have been assessed under the Clarkson and Woods QA processes as competent to complete the survey.
- 2.5.16 Autumn survey will be undertaken, with survey data analysed and reported in an addendum to this EclA.
- 2.5.17 The NBW survey included surveyors being positioned on potential flight lines close to potential roost sources at sunset, remaining in position to record commuting and foraging bats for up to an hour after sunset. The surveyors then commenced a transect route around the Site, walked at a slow pace until at least two hours after sunset. The transect route covered a variety of habitat features spread across the Site.
- 2.5.18 Surveyors documented the results by noting the time, bat species and behaviour onto pre-designed survey sheets and plans. Commuting bats and their direction of travel were easily observed immediately following sunset when light levels were high. As light levels dropped, observation of bat behaviour was often not possible and therefore behaviour such as: 'pass'; 'foraging'; or simply 'heard not seen' was recorded. Foraging was only recorded if feeding buzzes were heard or bats were observed catching or attempting to catch prey. Single bat passes were defined as bat calls that separated from other bat calls by at least one second.
- 2.5.19 Surveyors were equipped with handheld bat detectors Echo Meter Touch with an iPad Mini (Wildlife Acoustics), which feature integrated recorders. The survey recordings were later analysed on a computer using Kaleidoscope (Wildlife Acoustics) software to confirm or identify species. Table 6 below provides the dates, weather conditions, sunset times, survey start and end times for each of the NBW surveys.

Table 6: NBW Survey Details

Date	Surveyor	Survey Timings	Weather Conditions
28/05/2025	Bryan Tan & Mark Jermy	21:05 – 22:38	Start: 17°C, 0 Bf, 7 Okta End: 14°C, 1 Bf, 0 Okta
02/07/2025	Bryan Tan & Mark Jermy	21:23 – 23:23	Start: 15°C, 3 Bf, 0 Okta End: 12°C, 1 Bf, 0 Okta



Limitations

- 2.5.20 *Roost Inspections*: Not all features in trees or buildings suitable for use by bats are visible from the ground and there can be no external evidence of use of features by bats; consequently, it is only possible to make a best effort when carrying out such a survey.
- 2.5.21 Those trees which bounded the Site and were backed on to residential properties could not be fully assessed all the way around, although a best effort was made to assess as much of each tree as possible to reduce this limitation wherever possible.
- 2.5.22 *Bat Detecting Software and Equipment*: Bat detectors are known to be more sensitive to certain bat calls than to others for reasons such as varying bat call loudness and directionality of certain calls. For example, a call from a horseshoe bat is directional and a bat detector will only be able to record the call if the bat echo-locates directly at the detector whereas a common pipistrelle call is less directional and can be recorded even when the call is aimed away from the microphone. This can result in certain bat species (notably horseshoe bats and long-eared bats) being under-recorded due to the limitations of the current bat detectors. The difference in recording efficiency may therefore bias any results and this has been taken into account where possible during any assessment of the results.
- 2.5.23 Static detector data has been analysed using the latest Kaleidoscope Pro automated analysis software. This software has been specifically designed to automatically classify the known bat calls of Britain and Ireland.
- 2.5.24 The programme automatically identifies bat calls using various algorithms and provides statistical levels of confidence associated with each classified call. The confidence levels reflect the fact that there will be certain classification errors related to every classified bat call. With experience of using the software it appears that, on the whole, it is reliable when identifying certain bat calls (common and soprano pipistrelles, noctule, serotine, Leisler's, lesser and greater horseshoe bats) but less reliable when identifying other species (long-eared and barbastelle bat species).
- 2.5.25 The software does not distinguish between the various myotis species and simply classifies them to genus level (ie *Myotis* sp.). This is in line with classification that would be achieved by manual identification due to the similar nature of *Myotis* calls making species classification subject to a high degree of error.
- 2.5.26 Steps have been taken to compensate for the inherent under or over recording of some species; all records of barbastelle, myotis and long-eared species identified by the automated software have been manually verified and where appropriate the call identity corrected. The Kaleidoscope classifications have been presented unaltered but with the addition of a note (where applicable) below the data outlining the results of any manual verification/correction.
- 2.5.27 Where the software is unsure of a bat call, it will classify the call as 'NoID'. Where a relatively high number of calls are classified as NoID (more than 10% of a data set), these calls were also manually verified by an experienced ecologist. NoID results are included within this report.
- 2.5.28 In conclusion, the classification data produced from Kaleidoscope, along with any manual verification of certain problem/important species, is considered to provide an accurate record of the bat species recorded by a static bat detector and as such has been used with confidence within this report.
- 2.5.29 *Static Detector Survey*: Due to the timing of our instruction detectors were deployed in early May rather than April (01/05/2025 – 06/05/2025). The weather conditions were however reflective of the preceding weeks of April and it was not considered that the slightly late timing of the survey constituted a limitation which prevents an accurate assessment of the importance of the site for foraging and commuting bats during early Spring.
- 2.5.30 *Nighttime Bat Walkover Survey*: The spring survey was finished slightly earlier than 2hr after sunset. Given the size of the site it was considered that a thorough survey had been completed and levels of activity within the site had dropped off considerably. The summer survey was however continued for 2 hours as the levels of activity later during the survey remained higher.

Desk Study Information

- 2.5.31 There were over 200 records for bats returned in the data search, all within 2km of the Site, 42 of which were from the last ten years. Species included were common pipistrelle (*Pipistrellus pipistrellus*), serotine (*Eptesicus serotinus*), Natterer's bat (*Myotis nattereri*), brown long-eared bat (*Plecotus auritus*) and Daubenton's bat (*Myotis daubentonii*).

- 2.5.32 A Natterer's Bat species action plan is outlined in the Local BAP, in which Objective 2 highlights that roost sites, and suitable connecting and feeding habitats should be protected, enhanced and created. Mostly, Natterer's are found in old barns and buildings in Hertfordshire of which none are present within the Site.
- 2.5.33 One granted European Protected licence for bats were found within 2km of the Site, which allows for the damage and destruction of a resting place of brown long-eared bat 760m north of the Site during 14/12/2017 – 07/12/2022 (2017-32287-EPS-MIT).

Field Survey Results

Habitat

- 2.5.34 Habitats within the Site were considered to provide suitable foraging opportunities for bats; the grassland (subject to horse grazing) and scrub were likely to support a range of invertebrate prey.
- 2.5.35 Street lighting at the northern entrance to the Site (off Cowards Lane) and security lighting from offsite neighbourhood buildings (lasting ~2.5 hours past sunset) likely impacted the onsite habitats and their value to light-sensitive bat species in particular.
- 2.5.36 Hedgerows within and bounding the Site form a network of linear features that extend into the wider landscape, which are considered likely to form commuting corridors for bats that may be using the Site and within the local area.

Buildings

- 2.5.37 The buildings on Site are described in Table 7 below alongside an assessment of each building's potential to support roosting bats.
- 2.5.38 Building 1 cannot be ruled out for occasional use by individual bats, therefore this was considered to have low suitability for day-roosting, individual crevice-dwelling bats and a night-roosting, individual void-dwelling bats e.g. brown long-eared bat. A static detector will be deployed within this building in the summer months to confirm the presence or likely absence of roosting bats.

Table 7: Results of Building Inspections

Building Ref.	Description and Survey Evidence	Bat Roost Potential/ Assessment	Photo
1	A single-storey structure comprising two adjoining stables. Approx. 5m in length, by 3m deep. A single-skinned, timber clad construction with modern timber frame. Single-pitched roof with corrugated cement/ asbestos covering. Unlined. Structure in a reasonable state of repair. Timbers generally tightly fitting. Few gaps/ holes in timbers, although none associated with any crevice features. Separate ridge feature on roof may provide potential for individual crevice-roosting bats. Building fully inspected; no evidence of use by bats (or birds) observed.	Low; individual crevice roosting bats only. Night roosting potential.	



Building Ref.	Description and Survey Evidence	Bat Roost Potential/ Assessment	Photo
2	Small shed at northern end of stable (B1), approx. 1.5m by 2m. Timber, single-skinned structure. Flat, bitumen-covered roof. Tightly fitted glazed window on NE aspect adjacent to door. Building not accessible, but fully visible internally through window. Bright internally. Generally in good state of repair. Access limited to small (max 1.5" wide) gap above door. No free-flight access and no crevice roosting potential. No evidence of use by bats.	Negligible.	

Trees

- 2.5.39 Two trees with bat roosting potential were recorded whilst on Site (TN1 and TN2 on Figure 6 refer). These comprised a mature hawthorn and English oak, which were assessed as PRF-I and PRF-M (respectively). Further survey of these features will be required to determine their use by bats, and therefore inform the need for a licence and mitigation, should they be impacted by the proposed development.
- 2.5.40 No others trees were noted to have potential features suitable for roosting by bats at the time of the survey.

Statics Detector Surveys

- 2.5.41 Table 8 below provides a detailed summary of the number of calls per species for each detector location during the static surveys.
- 2.5.42 The static detectors identified a total of 3357 bat passes (combined) over the ten recording nights. This represents an average of 335.7 bat passes per night over the entire survey period.
- 2.5.43 At least six bat species were recorded during the static detector surveys. The *Nyctalus sp.*, and *Myotis sp.* bats, whose calls are often too difficult to separate when analysing recordings, may comprise more than one species. The following (minimum) species were recorded during the surveys:
- Common pipistrelle *Pipistrellus pipistrellus*
 - Soprano pipistrelle *Pipistrellus pygmaeus*
 - Barbastelle *Barbastella barbastellus*
 - *Myotis* bats *Myotis sp.* – an aggregation of common *Myotis* species is likely to include Daubenton's bat *Myotis daubentonii*, Natterer's bat *Myotis nattereri*, Brandt's bat *Myotis brandtii* and whiskered bat *Myotis mystacinus*.
 - *Nyctalus* bats – likely to include both noctule *Nyctalus noctula* and Leisler's bat *Nyctalus leisleri*.
 - Brown long-eared bat *Plecotus auritus*
- 2.5.44 Four additional species were recorded during the static detector surveys that were not recorded during the NBW surveys. This includes rarer species such as barbastelle; the presence of this species, despite low numbers recorded at the time of writing the assessment, is considered significant given their elevated conservation concern.

Table 8: Summary of the data collected during the static detector surveys

Month	Location	Barbastelle	Myotis sp.	Nyctalus sp.	Common pipistrelle	Soprano pipistrelle	Brown long-eared	Total Passes	
May 2025	1	1	1	2	382	0	0	386	1544



Month	Location	Barbastelle	Myotis sp.	Nyctalus sp.	Common pipistrelle	Soprano pipistrelle	Brown long-eared	Total Passes	
5 nights	2	4	1	1	619	4	2	631	
	3	1	1	7	93	2	1	105	
	4	4	0	4	413	1	0	422	
May/June 2025 5 nights	1	3	3	14	382	9	10	421	1813
	2	1	6	11	926	8	6	958	
	3	0	3	31	257	8	7	306	
	4	0	4	13	106	2	3	128	

Table 9: Average number of bat passes per night recorded by the static detectors per month

Species	Average number of bat passes per night per species			Percentage of total passes
	Early May 2025	Late May/ Early June 2025	Late June – October 2025	
Barbastelle	2	0.8	TBC	0.42%
Myotis sp.	0.6	3.2	TBC	0.57%
Nyctalus sp.	2.8	13.8	TBC	2.47%
Common pipistrelle	301.4	334.2	TBC	94.67%
Soprano pipistrelle	1.4	5.4	TBC	1.01%
Brown long-eared	0.6	5.2	TBC	0.09%
Total average no. passes	308.8	362.6	TBC	100%

Nighttime Bat Walkover Surveys

- 2.5.45 Table 10 below provides a summary of bat species, and the total number of bat passes (foraging and commuting combined) recorded during the NBW surveys. The number of bat passes given is the combination recorded during the observation points and walked transects. Recorded bat flight patterns and existing artificial lightings are shown in Figure 8 overleaf.

Table 10: Number of bat passes recorded during each NBW survey

Species	Month and number of bat passes recorded per species			
	May (Spring)	July (Summer)	September (Autumn)	Total
Common pipistrelle	19	86	TBC	105
Brown long-eared	1	0	TBC	1
Total no. passes	20	86	TBC	106

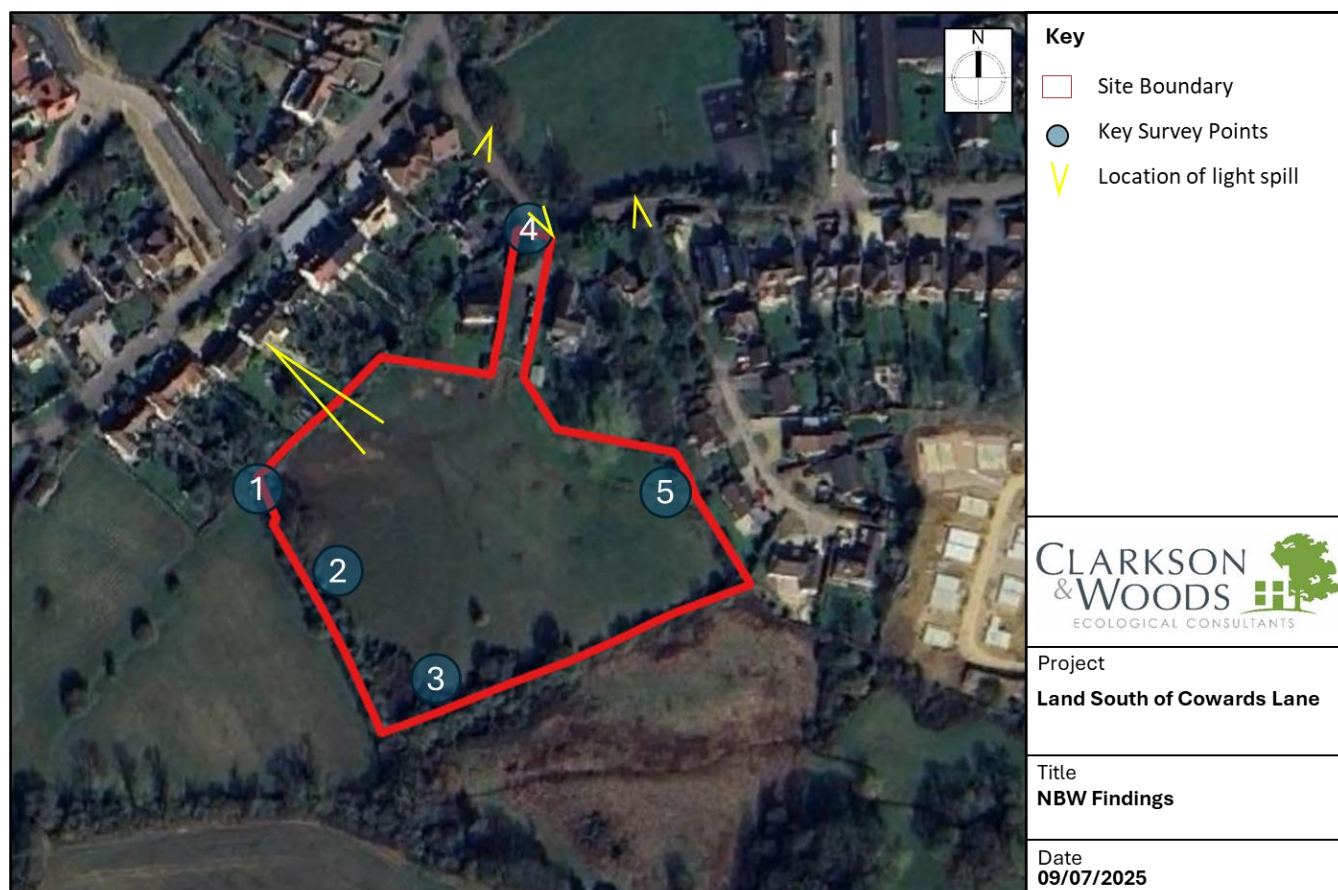


Figure 8: Findings from Spring And Summer NBW Surveys

2.5.46 *Spring NBW survey:* Generally, very low levels of bat activity were recorded near boundary features i.e. hedgerows and scrub.

- Survey Point 1: Out of the 19 recorded common pipistrelle passes, one was seen commuting towards southwest into the wider landscape of the Site. A single commuting pass by a brown long-eared was heard but not seen.
- Survey Point 5: Approx. 5 foraging calls by a single pipistrelle were heard, but not seen.

2.5.47 *Summer NBW survey:* moderate bat activity level was recorded near boundary features, but to a greater extent.

- Survey Point 1: Consistent foraging passes (>20) by a common pipistrelle was recorded beyond the onsite hedgerow at 21:50 and lasted for 45 minutes, but was not seen emerging from the onsite Buildings 1 and 2.
- Survey Point 2: Several foraging passes (approx. five) from one common pipistrelle
- Survey Point 3: Several foraging passes (approx. five) from one common pipistrelle
- Survey Point 4: A single pipistrelle was seen foraging at Cowards Lane consistently throughout the survey.
- Survey Point 5: A single commuting pass was by a common pipistrelle but not seen.

Evaluation

2.5.48 *Roosting:* Prior to the deployment of a static bat detector within Building 1, roosting bats are considered likely to be of **Site** Importance, if present.

2.5.49 *Activity:* Prior to completion of a full season's surveys, commuting and foraging bats were considered to be of **Local-District** Importance due to the diversity of species recorded within the Site, including those that are rare i.e. barbastelle. The importance of the site for foraging and commuting bats requires a full seasons data on activity levels and behaviour before firm conclusions can be drawn on the importance of the site.



Otter

Desk Study Information

- 2.5.50 There were three records for otter (*Lutra lutra*) returned in the data search, all of which were historic, located 620m north-west adjacent to the River Mimram. There are no waterbodies on the site. There is a ditch and associated pond 35m south of the development site boundary and the River Mimram is located 603m south-west of the site.

Field Survey Results

- 2.5.51 No features suitable for otter were identified on or adjacent to the Site. There was a lack of connectivity to major watercourses in the surrounding landscape.
- 2.5.52 It was considered likely that otter are absent from the Site, and this species is therefore not considered further in this impact assessment.

Evaluation

- 2.5.53 Otter was considered to be of **Negligible** Importance.

Water Vole

Desk Study Information

- 2.5.54 There were sixty-nine records of water vole returned in the data search, with fifteen of these records from the last ten years and the most recent record from 2023. The closest record for water vole was located 630m north-east of the site and the most recent record in 2023 was located 920m north-east of the site. As previously mentioned, the only waterbodies relevant are the ditch and associated pond 35m south of the development site boundary and the River Mimram is located 603m south-west of the site.

Field Survey Results

- 2.5.55 No features suitable for water vole were identified on or adjacent to the Site. There was a lack of connectivity to major watercourses in the surrounding landscape.
- 2.5.56 It was considered likely that water vole is absent from the Site, and this species is therefore not considered further in this impact assessment.

Evaluation

- 2.5.57 Water vole was considered to be of **Negligible** Importance.

Dormouse

Desk Study Information

- 2.5.58 No records of dormice were returned by HERC within 2km of the Site since 2012, or during a search of Clarkson and Woods own in-house records. No granted EPS licence applications were identified within at least 2km of the Site. Hertfordshire has historically low numbers of hazel dormouse with only scattered populations recorded.

Field Survey Results

- 2.5.59 Although the habitats present on site, namely the hedgerows and scrub, may be suitable for foraging and nesting dormouse, it was considered likely that dormouse is absent from the Site due to its rarity in Hertfordshire, and this species is therefore not considered further in this impact assessment.

Evaluation

- 2.5.60 Dormouse was considered to be of **Negligible** importance.

Amphibians

Methods

- 2.5.61 All waterbodies within 500m of the Site were identified using Ordnance Survey maps and aerial imagery.



- 2.5.62 Where suitable water bodies were identified on accessible land a Habitat Suitability Index (HSI) score was calculated for each one following the methodology described by Oldham et al¹⁴. HSI scores give a relative indication of the likelihood that a water body would support breeding great crested newts.
- 2.5.63 Terrestrial habitats were also assessed for their suitability for foraging and sheltering great crested newts. This species requires habitats such as grassland, scrub, woodland and hedgerows for dispersal and hibernation. Further hibernation features include buried rubble and logs, or mammal burrows.

Desk Study Information

- 2.5.64 There were 12 records for amphibians returned in the data search, all of which were for common toad (*Bufo bufo*) with six of these records from the last ten years. The most recent record was from 2023 and the closest record was located 210m east of the Site.
- 2.5.65 No great crested newt (GCN) records were retrieved from the data search. However, comments from the LPA ecologist for an adjacent approved development (50m east, planning ref: 17/01464/1) revealed recent presence of GCN recorded in several ponds within 250m of the adjacent site by the Hertfordshire Amphibian and Reptile Group.
- 2.5.66 The Site is located within Amber zone of Natural England-led great crested newt district level licensing scheme.
- 2.5.67 There is a pond located 35m south of the development Site with a further six ponds within 250m of the site and six more ponds within 500m of the Site.

Field Survey Results

- 2.5.68 No ponds are present within the Site itself. Seven ponds are located within 250m of the Site, the locations of which are shown in Figure 9 below. However, due to lack of access permissions these have not been surveyed.
- 2.5.69 The field boundary habitats at the Site, in the form of hedgerows and scrub, offer suitable habitat for amphibians during their terrestrial phase.

Evaluation

- 2.5.70 The habitats within the redline boundary are suitable for the presence of GCN and other amphibians such as common toad, for which recent records were returned.
- 2.5.71 Given the lack of waterbodies present on Site, widespread amphibians, such as common toad, were assessed as being of **Site** importance.
- 2.5.72 Given previous recordings of GCN present locally, these species cannot be ruled out from within the Site. Due to their possible presence within the terrestrial habitats on Site, they are considered to be of **Local** importance.

¹⁴ Oldham, R.S., Keeble L., 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.



Figure 9: Ponds identified within 500m of the Site Boundary



Reptiles

Methods

- 2.5.73 Features on Site were assessed for their potential to provide suitable habitats for use by reptile species. These include rough, tussocky grassland, scrub, disturbed land or refugia such as wood piles, rubble or compost heaps. Where present, suitable existing refugia were inspected for sheltering reptiles, and the ground was scanned whilst walking to look for basking species.
- 2.5.74 Although suitable habitat for reptiles was present within the Site (namely, southern scrub area), further surveys to confirm presence/likely absence were not undertaken due to the small area extent of this habitat (approximately 0.04ha).

Desk Study Information

- 2.5.75 There were nine historical records for reptiles returned in the data search; two for common lizard (*Zootoca vivipara*) with the closest record 410m south-east of the Site; three for grass snake (*Natrix helvetica*) with the closest record located 180m west of the Site and four for slow worm (*Anguis fragilis*), with the closest record located 180m east of the Site.

Field Survey Results

- 2.5.76 The majority of the habitats on Site were considered to be of limited suitability to reptiles. The grassland within the field was varied in sward height, but not tussocky, and managed through grazing. Limited suitable areas included the existing boundary hedgerows and the southern scrub area, however the onsite grassland margins from the hedgerows were uniform and disturbed, and the scrub area was considered too small to support any significant reptile populations, although they could not be entirely ruled out from moving around the Site if present in the wider area.

Evaluation

- 2.5.77 Reptiles, if present, are considered to be of **Site** importance.

Birds

Methodology

- 2.5.1 Vegetation on Site was surveyed for signs of use by nesting birds and any birds seen or heard during the survey were noted. The Site's potential to support bird species of particular conservation concern (i.e. Schedule 1, NERC S41 and Red List species) was assessed, taking into consideration the bird species assemblage observed during the survey, the habitats present on and around the Site, the context of the Site in the wider landscape and the results of the desk study. Based on the initial Site assessment, two scoping breeding bird surveys were recommended.

Breeding Bird Surveys

- 2.5.2 The breeding bird surveys were undertaken by James Gilbert CEnv MCIEEM. James has 20 years' experience undertaking ecological surveys and has an MSc in relevant subjects. James has been assessed under the Clarkson and Woods QA processes as competent to complete the survey.
- 2.5.3 Two scoping breeding bird surveys were undertaken in May and June 2025. Survey timings, weather conditions and personnel are described in Table 11 below.

Table 11: Breeding bird survey dates, personnel and weather conditions

Survey Number	Date	Surveyors	Time	Weather Conditions
1	20/05/2025	James Gilbert	05:15 – 05:40	7°C, dry and calm with good visibility. Damp underfoot.
2	05/06/2025	James Gilbert	04:45 – 05:10	12°C, overcast with a light breeze and drizzle. Visibility moderate.



- 2.5.4 The purpose of the surveys was to record the bird species present, their abundance and breeding status, assess the likelihood that an important breeding bird assemblage was present, and determine the need for further survey. No further surveys beyond the initial scoping surveys were undertaken during the breeding survey season; a full suite of breeding bird surveys was not deemed necessary due to the low level of bird activity recorded during the scoping surveys.
- 2.5.5 The survey methodology followed British Trust for Ornithology (BTO) Common Birds Census (CBC) guidelines and the Bird Survey Guidelines – Breeding Bird Survey Methodology¹⁵. The surveyor walked through the survey area, ensuring that all points were visited to within 50m. The location, abundance and behaviour of all birds and flocks of birds seen were noted on large-scale survey maps. Standard BTO CBC symbology and species codes were used to record species, abundance and behaviour. The surveyor was equipped with binoculars to aid identification.

Limitations

- 2.5.6 Weather conditions during the second survey were slightly suboptimal, with light drizzle throughout the survey. This may have reduced bird activity during the visit, where birds sought shelter. However, the survey methodology ensures each location is visited to within 50m and the majority of birds should therefore have been recorded, as suggested by the recorded assemblage of species being similar in both surveys.
- 2.5.7 The bird surveys provide only a series of 'snapshots' of bird activity recorded on the Site. It takes no account of any species which might occur at other times of the day and on other days. Similarly, a lack of signs of any particular species does not confirm its absence, merely that there was no indication of its presence during this survey.

Desk Study Information

- 2.5.8 The data search returned over 4000 records for birds within the last 10 years, within 2km of the Site. Of these, 46 are recognised by the British Trust for Ornithology (BTO) as Red/Amber listed species of conservation concern, 19 are Species of Principal Importance (SPI), and 13 are listed as Schedule 1 birds. The styling for Table 12 is provided in Table 13 below.

Table 12: Bird Species Records Returned within 2km of the Sites

Common Name	Scientific Name	Common Name	Scientific Name
Barn Owl 1	<i>Tyto alba</i>	Mistle Thrush	<i>Turdus viscivorus</i>
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	Moorhen	<i>Gallinula chloropus</i>
Brambling 1	<i>Fringilla montifringilla</i>	Peregrine 1	<i>Falco peregrinus</i>
<u>Bullfinch</u>	<i>Pyrrhula pyrrhula</i>	Red Kite 1	<i>Milvus milvus</i>
Cetti's Warbler 1	<i>Cettia cetti</i>	Redpoll	<i>Acanthis flammea</i>
Common Gull	<i>Larus canus</i>	Redwing 1	<i>Turdus iliacus</i>
<u>Corn Bunting</u>	<i>Emberiza calandra</i>	<u>Reed Bunting</u>	<i>Emberiza schoeniclus</i>
Crossbill 1	<i>Loxia curvirostra</i>	<u>Ring Ouzel</u>	<i>Turdus torquatus</i>
<u>Dunnock</u>	<i>Prunella modularis</i>	Sedge Warbler	<i>Acrocephalus schoenobaenus</i>
Fieldfare 1	<i>Turdus pilaris</i>	Short-eared Owl	<i>Asio flammeus</i>
Firecrest 1	<i>Regulus ignicapilla</i>	<u>Skylark</u>	<i>Alauda arvensis</i>

¹⁵ Available at: <https://birdsurveyguidelines.org/methods/survey-method/>



Common Name	Scientific Name	Common Name	Scientific Name
<u>Grasshopper Warbler</u>	<i>Locustella naevia</i>	Snipe	<i>Gallinago gallinago</i>
Green Sandpiper 1	<i>Tringa ochropus</i>	<u>Song Thrush</u>	<i>Turdus philomelos</i>
Greenfinch	<i>Chloris chloris</i>	Sparrowhawk	<i>Accipiter nisus</i>
<u>Grey Partridge</u>	<i>Perdix perdix</i>	<u>Spotted Flycatcher</u>	<i>Muscicapa striata</i>
<u>Hawfinch</u>	<i>Coccothraustes coccothraustes</i>	<u>Starling</u>	<i>Sturnus vulgaris</i>
<u>Herring Gull</u>	<i>Larus argentatus</i>	Stock Dove	<i>Columba oenas</i>
Hobby 1	<i>Falco subbuteo</i>	Swift	<i>Apus apus</i>
House Martin	<i>Delichon urbicum</i>	Tawny Owl	<i>Strix aluco</i>
House Sparrow	<i>Passer domesticus</i>	Teal	<i>Anas crecca</i>
Kestrel	<i>Falco tinnunculus</i>	<u>Tree Pipit</u>	<i>Anthus trivialis</i>
Kingfisher 1	<i>Alcedo atthis</i>	Whitethroat	<i>Sylvia communis</i>
<u>Lapwing</u>	<i>Vanellus vanellus</i>	Wigeon	<i>Anas penelope</i>
Lesser Black-backed Gull	<i>Larus fuscus</i>	Willow Warbler	<i>Phylloscopus trochilus</i>
<u>Lesser Spotted Woodpecker</u>	<i>Dryobates minor</i>	Woodcock	<i>Scolopax rusticola</i>
<u>Linnet</u>	<i>Carduelis cannabina</i>	Wren	<i>Troglodytes troglodytes</i>
Little Ringed Plover 1	<i>Charadrius dubius</i>	<u>Yellow wagtail</u>	<i>Motacilla flava</i>
Mallard	<i>Anas platyrhynchos</i>	<u>Yellowhammer</u>	<i>Emberiza citrinella</i>
Meadow Pipit	<i>Anthus pratensis</i>		

Table 13: Key for Styling in Tables 12 above and 14 below.

Style	Meaning
<u>Underline</u>	Listed under Section 41 of the NERC Act 2006 (Species of Principal Importance - SPIs) or UK Biodiversity Action Plan species
1	Listed under Schedule 1 species under the Wildlife and Countryside Act 1981 (as amended)
Red fill	'Red listed' species according to BTO/RSPB Birds of Conservation Concern 2021
Orange fill	'Amber listed' species according to BTO/RSPB Birds of Conservation Concern 2021

Field Survey Results

Habitat Assessment

- 2.5.9 Overall, the habitats within the Site were considered to be suboptimal for a variety of bird species. The grassland habitats on Site was considered to offer very limited potential for ground-nesting species such as skylark due to the largely close-cropped structure of the sward (resulting from grazing pressure from livestock), and the small open field being surrounded by tall trees, which reduces sightlines for ground nesting birds to



monitor for predators. The hedgerows, scrub and trees also provide foraging and nesting opportunities for a range of species typical of urban and agricultural habitats.

Breeding Bird Survey

- 2.5.10 The results of the breeding bird surveys are displayed in Table 14 below. Visit(s) that recorded the higher peak count for each species were highlighted.

Table 14: Bird Species Recorded During the Field Survey

Common Name	Scientific Name	Visit 1	Visit 2
Barn owl 1	<i>Tyto albo</i>		1
Blackbird	<i>Turdus merula</i>	2	
Carrion crow	<i>Corvus corone</i>	1	
Chaffinch	<i>Fringilla coelebs</i>	1	
Chiffchaff	<i>Phylloscopus collybita</i>	1	1
Collared dove	<i>Streptopelia decaocto</i>	1	
Goldcrest	<i>Regulus regulus</i>		1
Goldfinch	<i>Carduelis carduelis</i>	1	
Grey heron	<i>Ardea cinerea</i>	1	
Jackdaw	<i>Corvus monedula</i>	3	2
Lesser whitethroat	<i>Sylvia curruca</i>	1	
Magpie	<i>Pica pica</i>	2	2
Red kite 1	<i>Milvus milvus</i>		1
Red-legged partridge	<i>Alectoris rufa</i>	1	
Robin	<i>Erithacus rubecula</i>	2	2
<u>Song thrush</u>	<i>Turdus philomelos</i>	1	1
Whitethroat	<i>Sylvia communis</i>		1
Woodpigeon	<i>Columba palumbus</i>	5	6
Wren	<i>Troglodytes troglodytes</i>	3	3

- 2.5.11 In total, 19 bird species were recorded during the two survey visits; the breeding bird assemblage within the Site was considered to be of low diversity. Of the species recorded, four are recognised by the British Trust for Ornithology (BTO) as Red/Amber listed Species of Conservation Concern (SoCC), one is a Species of Principal Importance (SPI) and two are listed as Schedule 1 species. Species comprised those typically recorded within grassland and hedgerow habitats in urban/suburban locations.
- 2.5.12 Species were typically recorded in low numbers, with mostly only individual birds recorded. The majority of bird species recorded were associated with the boundary habitats within the Site. The distribution of birds within the hedgerow boundaries was relatively well spread, with a concentration of species in the southern corner of the Site, associated with an area of scrub in this location.



2.5.13 A barn owl and a red kite, both listed as Schedule 1 species, were recorded flying over the Site during the second survey.

2.5.14 The breeding bird assemblage recorded was low and comprised largely common and widespread species associated with hedgerows in urban and suburban habitats. No ground nesting birds were recorded within the Site, with the exception of a single red legged partridge, and the majority of species were associated with boundary features on both surveys.

Evaluation

2.5.15 Based on the generally low numbers of birds recorded overall, no further dedicated breeding bird surveys were considered to be necessary based on the findings of the scoping surveys.

2.5.16 The bird species associated with the Site are considered to be of **Site** importance overall.

Invertebrates

Methods

2.5.17 Any notable invertebrates identified during the survey were recorded. The habitat was also assessed for its suitability for notable invertebrates, including the presence of specific species known to be foodplants or larval plants or habitats which may be favoured by invertebrates (such as bare ground, deadwood or grass tussocks). The habitat structure was also considered, such as mosaics, brownfield or unmanaged areas.

Desk Study Information

2.5.18 Within the last 20 years, HERC returned a number of records of butterfly and moth species listed under Section 41 of the NERC Act 2006 within 2km of the Site. The list of species returned include:

- Brown-spot Pinion *Anchoscelis litura*
- Centre-barred Sallow *Atethmia centrargo*
- Cinnabar Tyria jacobaeae
- Deep-brown Dart *Aporophyla lutulenta*
- Mouse Moth *Amphipyra tragopoginis*
- Small Heath *Coenonympha pamphilus pamphilus*

2.5.19 A single record of Roman snail *Helix pomatia* was located 210m east of the Site, within the adjacent Hollards Farm Meadow LWS in 2015. This species is protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and illegal to intentionally kill, injure, take, or possess a Roman snail without a license.

Field Survey Results

2.5.20 Invertebrate species recorded on Site during surveys included comma *Polygonia c-album*, meadow brown *Maniola jurtina* and small white *Pieris rapae*, which are common and widespread species. Species recorded in the adjacent, offsite field included large skipper *Ochlodes sylvanus*, marbled white *Melanargia galathea*, meadow brown and small heath (species under Section 41 of NERC Act 2006), which are generally associated with grassland habitats.

2.5.21 The grasslands, scrub, and hedgerow habitats within the Site form a mosaic of habitats suitable to support a range of common invertebrate species.

2.5.22 No signs of Roman snail were recorded. Though the scrub and hedgerows are suitable habitats, the grassland was considered suboptimal for Roman snail due to the lack of botanical species indicators for calcareous grassland.

Evaluation

2.5.23 Invertebrates were considered to be of **Site** Importance.

Other Protected Species and Species of Conservation Concern

Methods

2.5.24 Habitats were assessed for their suitability for Species of Conservation Concern (SoCC), including non-native species.



Desk Study Information

- 2.5.25 Twelve records of West European hedgehog *Erinaceus europaeus* were returned, with the nearest record 270m north west of the Site sighted in 2019.
- 2.5.26 Ten records of brown hare *Lepus europaeus* was returned within the last 20 years within 2km of the Site, two of which were recorded within the Site in 2015 and 2016.

Field Survey Results

- 2.5.27 Hedgehogs may be present at the Site, particularly given the hedgerow and scrub habitats, which provide good foraging, nesting and sheltering habitat, however the heavily grazed fields themselves would be of low value for hedgehogs.
- 2.5.28 The open grassland habitat on Site was considered suitable for brown hare, although only in combination with additional offsite fields. The Site itself represents a small proportion of habitat suitable for hare, which can hold territories of up to 300ha.
- 2.5.29 No invasive species, nor evidence other species of conservation concern were noted during the surveys.

Evaluation

- 2.5.30 Brown hare and hedgehog are considered to be of **Site** Importance.



2.6 Summary of Ecological Importance

2.6.1 Table 15 below gives all the identified ecological features on Site and their individual assessment of importance. Those coloured green are considered to be Important Ecological Features and will form the basis of the Assessment of Effects in Section 3. Those coloured yellow will be included on the basis of their specific legal protection or applicable planning policies.

Table 15: Summary of Ecological Importance

Feature	Importance
Designated Sites	
Meadow North-West of First Spring LWS	Local
Hollards Farm Meadow LWS	Local
Habitats	
Other Neutral Grassland	Local
Modified Grassland	Site
Mixed Scrub	Site
Individual Trees	Site
Developed Land; Sealed Surface	Negligible
Hedgerows	Local
Species	
Badger	Site
Bats	Local
Otter	Negligible
Water Vole	Negligible
Dormouse	Negligible
Great Crested Newt	Local
Amphibians (excl. GCN)	Site
Reptiles	Site (if present)
Birds	Site
Invertebrates	Site
Brown Hare	Site
Hedgehog	Site



3 ASSESSMENT OF EFFECTS

3.1 Methodology

- 3.1.1 Continuing from the valuation of Important Ecological Features (IEFs), this section lists each IEF in turn together with a characterisation of any potential impacts upon them likely to arise from the proposals. This takes into consideration any measures inherent to the designed scheme which seek to avoid such impacts altogether. Next, any agreed mitigation measures chosen to reduce likely impacts are then set out, along with the mechanism(s) through which these would be secured.
- 3.1.2 Residual effects, being those effects which would likely still arise despite any avoidance measures or agreed mitigation efforts, are subsequently discussed. Residual effects are determined to be either significant or not significant and any significant residual effects are given a geographical scale at which they might be felt. This assessment methodology is in accordance with that set out in the CIEEM Guidelines for Ecological Impact Assessment, 2018.
- 3.1.3 Where residual effects are identified compensatory measures may be proposed to make up for the loss or permanent damage to an IEF, as far as possible. If applicable, recommendations are provided for any further work that might be required to determine baseline conditions, to help identify impacts or determine the necessary mitigation. This document should be updated to reflect the new findings and their implications as they arise. Monitoring or management schemes which may be necessary to ensure the long-term achievement of all intended mitigation and compensation are discussed.
- 3.1.4 Where potential for cumulative impacts upon IEFs in association with other proposed or ongoing local development are identified these are described as appropriate for the affected IEF. The Zone of Influence for each IEF, together with their level of ecological importance will be of relevance when considering the scope of a cumulative impact assessment.
- 3.1.5 Ecological enhancement measures that will be incorporated into the development are given in line with the National Planning Policy Framework.

3.2 Summary of Development Proposals and Sources Potential of Impacts

- 3.2.1 The proposals comprise an outline planning application for the residential development of up to 30 units and associated infrastructure and access. The proposals will result in the loss of habitats ranging from Site to Local importance to facilitate construction, which will include the following:
- Other Neutral Grassland (1.13ha)
 - Modified Grassland (0.12ha)
 - Mixed Scrub (0.06ha)
 - Individual Trees (0.32ha)
- 3.2.2 Subject to detailed lighting scheme, it is anticipated artificial lighting associated with the development, such as street lighting and external lighting affixed to individual units will increase across the Site as a result of the scheme. The southern PROW and southeastern boundary would likely be the least affected areas.

Inherent Avoidance Measures

- 3.2.3 The design retains a development-free buffer zone of varying width along the existing boundary hedgerows during the construction and operational phases, avoiding potential adverse impacts to these habitats. The hedgerows will also be maintained outside of private ownership to ensure management practices that will provide benefits to wildlife for the lifetime of the development.
- 3.2.4 Construction works will be timed appropriately to avoid impacts to protected species as far as possible, details of which are provided in Section 3.6 below.

New Habitat Creation/ Enhancement

- 3.2.5 Based on the landscape information provided in the Illustrative Landscape Strategy (Drawing No.: edp9241_d007) for the Site, newly created habitats to be delivered within the scheme include the following:
- Developed land; sealed surface (comprising units, access roads and other associated infrastructure) (0.56ha)



- Mixed scrub (0.05ha)
- Modified grassland (0.02ha)
- Other neutral grassland (0.36ha)
- Vegetated gardens (0.30ha)
- Species-rich hedgerows (0.43km)
- Sustainable drainage system (SuDS) (0.12ha)
- Urban trees (~64 small trees, 0.26ha)

3.2.6 It is assumed that the majority of existing habitats will be lost to facilitate creation of the proposed habitats on Site, rather than enhancement of baseline habitat conditions. This is particularly in reference to the onsite Other Neutral Grassland habitat. Half the area of scrub and all hedgerow habitats will be retained.

3.2.7 One of the retained hedgerows, H3, will be enhanced through in-fill planting with native species and individual trees where possible to increase habitat distinctiveness and integrity of hedgerow structure.

Generic Measures

3.2.8 A Construction Environmental Management Plan (CEMP): Biodiversity will be prepared to detail how the habitats and species within and surrounding the Site should be protected during the construction phase. The CEMP will include details of appropriate fencing to restrict access into key ecological areas; information on any timing restrictions; and measures to prevent damage to sensitive ecological habitats and protected species. Creation of new wildlife features (such as bat and bird boxes) will also be included. Typically the preparation of a CEMP will be a conditional requirement of the planning permission.

3.2.9 A Landscape and Ecological Management Plan (LEMP) will be prepared for the operational Site that will cover how retained habitats and newly planted areas should be managed so as to maximise their biodiversity value and achieve the objectives of ecological mitigation and compensation. The LEMP should also set out any measures necessary to ensure protected species are appropriately accommodated within the operational Site.

3.3 Biodiversity Net Gain Assessment

3.3.1 A detailed Biodiversity Net Gain Assessment will be presented in a separate report and submitted with the planning application, using the Statutory DEFRA metric. The value of existing habitats on-Site will be calculated using the Baseline Habitats Map (Figure 6) and habitat descriptions in this report, and the value of proposed habitats will be calculated using the latest soft landscaping proposals.

3.3.2 The proposed scheme will result in a loss of 4.78 Habitat Units (-48.53%) and a gain of 0.28 Hedgerow Units (+24.91%).

3.4 Designated Sites

Non-statutory Designated Sites

3.4.1 The desk study revealed two non-statutory designated sites: Meadow North-West of First Spring LWS designated for its presence of indicators for semi-improved/damp grassland, part of which is located on Site, and Hollards Farm Meadow LWS designated for its presence of grassland and woodland indicator species, located adjacent to the Site's south-eastern boundary.

3.4.2 Between the onsite and offsite fields belonging to the Meadow North-West of First Spring LWS, the onsite field was in a poorer condition than the adjacent offsite field. This degradation was likely caused by intensive horse grazing as evident with the higher proportion of bare ground and less-palatable botanical species e.g. buttercup, ragwort, and creeping cinquefoil. Species more commonly found in Modified Grassland e.g. perennial rye grass and rough meadow grass were also more prevalent within the onsite grassland.

3.4.3 It should be noted that the diversity of indicator species recorded within both the fields of Meadow North-West of First Spring LWS did not meet the criteria for wet grasslands. There are no available criteria for semi-improved grasslands, and as such it remains unclear if this reason for designation is valid. If old neutral



grasslands is taken as a proxy for semi-improved grasslands then the diversity of plant species on site still does not appear to meet the threshold for designation.

- 3.4.4 It should however be clearly stated that in spite of the failure of the habitats on site to currently meet the designation criteria the site remains a designated local wildlife site and this designation must be afforded some weight within the determination of the application. However, in view of the condition of habitats on site and, the poor potential for restoration of habitats at this site under the ongoing management, it is considered possible that the loss of extent may be mitigated for by the provision of a smaller area of higher quality habitat, managed to promote the species for which the site was designated.

Potential Impacts

- 3.4.5 Half of the Meadow North-West of First Spring LWS was located within the Site and this half would largely be lost as a consequence of the development proposal, resulting in a reduction in the extent of the LWS. Whilst the damage of the LWS and its loss of extent is counter to local planning policy NE6 the assessment of this portion of the wildlife site is a poor exemplar of the LWS with only a small number of indicator species typical of damp grasslands. The adjacent field which also forms part of the LWS is being retained and this portion of the LWS supported a higher diversity of plant species and was generally considered to be in better condition and managed in better manner than the intensive horse grazing which was recorded on the application site.
- 3.4.6 Hollards Farm Meadow LWS that lies adjacent to the Site, was segregated by existing hedgerows which would be retained and subjected to a no-works buffer, therefore construction phase activities are not considered likely to have any significant, direct impacts on this LWS.
- 3.4.7 During operation, there is potential for increased recreational pressure (in combination with the approved development applications in the wider area of the Site) on the adjacent Hollards Farm Meadow LWS which is connected by an existing PROW. Recreational disturbance is likely to be relatively limited given the lack of public access into the LWS, although an increase in the use of the footpath crossing through the edge of the LWS might be anticipated.

Mitigation, Compensation, Enhancement and Monitoring

- 3.4.8 A small portion of the habitat that represented the designation description (i.e. Other Neutral Grassland, see section 3.5) would be reinstated around the boundaries of the development area. Whilst this area will be smaller than the current extent of site, positive management can be put in place to ensure that the habitat present on site is of better quality and condition than the existing onsite habitat. An appropriate seed mix containing indicator species of wet grassland (as associated with the designation; e.g. black knapweed, marsh marigold *Caltha palustris*, meadowsweet *Filipendula ulmaria*, sedges etc.) should be sought to establish a higher quality habitat. The addition of a SuDS feature (accompanied by seeding with species tolerant of inundation) would also further improve the habitat to better represent that of a wet grassland. As such whilst the extent will be substantially reduced there is potential to secure an improvement in the condition of wet grassland habitats within open and undeveloped spaces within the site.
- 3.4.9 To ensure that any indirect construction related pollution impacts are avoided, a CEMP will be prepared which will provide details on pollution control.
- 3.4.10 The scheme has been designed to offer areas of public open space in the form of biodiverse amenity areas and a LEAP. This will, to a degree, reduce the recreational pressure that results from the proposed development upon the adjacent LWS.

Residual Effects

- 3.4.11 The housing nature of the development would result in the loss of Meadow North-West of First Spring LWS extent. Considering its relatively poor condition and the manner with which the site is currently managed it is not thought that at present the existing site is an exemplar of either semi-improved grassland or damp grassland, therefore provided the proposed mitigation is adhered to, it is considered the development scheme would result in minimal residual adverse effect upon the conservation objectives of the LWS.
- 3.4.12 Upon full adherence to the CEMP, it is not anticipated that the Hollards Farm Meadow LWS will be subject to significant impacts during the construction phase.
- 3.4.13 During the operational phase the footpath through Hollards Farm Meadow is likely to be subject to increased levels of public use. Whilst this increase in the use of the path is likely to have an adverse effect upon the



LWS its effect would be significantly limited in extent as the remainder of the LWS remains inaccessible. Further the habitats within this LWS do not lend themselves to unauthorised recreational use such as dog walking. As such whilst a residual adverse effect might be anticipated it is considered **Not Significant** to the conservation objectives which likely exist for this LWS.

3.5 Habitats

Other Neutral Grassland

- 3.5.1 The majority of the Site comprised of Other Neutral Grassland in Poor condition, and was in a poorer condition than the offsite Other Neutral Grassland (belonging to the Meadow North-West of First Spring LWS). Details on the potential impacts, mitigation measures and residual effects have been discussed in section 3.4.

Hedgerows

- 3.5.2 Hedgerows bound the majority of the Site's boundaries and will be retained within proposals. Hedgerows are habitats of principal importance under the NERC Act.

Potential Impacts

- 3.5.3 All of the hedgerows identified will be unaffected by the development proposals.
- 3.5.4 In the absence of mitigation, during construction the retained hedgerows and trees may be accidentally damaged through physical damage by machinery (damage to limbs or to roots via soil compaction), or through accidental pollution. There is also the potential for debris from the construction phase to be deposited within the hedgerows or tree canopies, damaging them and impacting on root systems.
- 3.5.5 Once operational, the hedgerows may be mismanaged or degraded, resulting in a poorer structure and lower overall biodiversity value.

Mitigation, Compensation, Enhancement and Monitoring

- 3.5.6 During construction, a Biodiversity Protection Zone (BPZ) delineated by appropriate protective fencing and signage in line with British Standard 5837: 2012 'Trees in relation to design, demolition and construction', will be established to protect the retained hedgerows and trees. The details of these measures will be set out in a CEMP for the Site, alongside appropriate pollution control measures. BPZs will be established at a minimum of 5m from hedgerows, but will be increased if root protection zones dictate.
- 3.5.7 In addition to enhancing the existing H3 by planting trees and infill plant with native hedgerow species, new hedgerow planting will be included within the scheme, which will be planted with native species of local provenance and will include standard trees along its length. Hedgerow whips will also include fruiting and flowering species, to provide a foraging resource for a range of species.
- 3.5.8 All hedgerows will be maintained outside of private ownership, and therefore subject to management specifications to be set out within the LEMP for the Site. Retained and newly created hedgerows will be managed to maximise their biodiversity value and promote a dense vegetation structure in order ensure their functionality as ecological corridors.

Residual Effects

- 3.5.9 Provided the above mitigation measures are adhered to, no residual significant negative impacts on the retained hedgerows and trees are anticipated as a result of the development. Once operational, the establishment of new hedgerow planting and enhancement of existing hedgerows will result in an overall positive effect on this feature, as a result the increase in extent and quality of hedgerows at the Site.

3.6 Protected Species and Species of Conservation Concern

Badger

- 3.6.1 No setts were recorded within the Site during the surveys, however possible field signs of badger foraging were recorded within F1. In general, the habitats on Site were considered suitable foraging habitat for badger, with areas of scrub, diverse grassland and traditional orchard being particularly valuable.



Potential Impacts

- 3.6.2 *Habitat Loss:* Although the scheme design includes the removal of intensely grazed pasture, the creation of new housing, and therefore increase in domestic pets, footfall and vehicular movement within the Site, may exclude badger from much of the Site post-development. However, given the small scale of the Site in the context of the wider landscape, any habitat loss is anticipated to represent a small portion of a larger territory and, given that no setts have been identified, is considered Not Significant in this instance and cannot reasonably be avoided.
- 3.6.3 *Disturbance:* In the event that any new setts are excavated within the Site prior to the commencement of works, the proposed development may result in the disturbance of badgers while in their setts, or direct damage to a sett.
- 3.6.4 *Physical Harm to Badgers during Construction:* During construction works, if deep trenches are left open overnight or pipes are kept open overnight there is potential for incidental injury or mortality to badgers crossing or exploring the Site during the night.
- 3.6.5 Killing, injuring or disturbing badgers and their setts would result in offences under the Wildlife and Countryside Act (1981) and The Protection of Badgers Act 1992 and as such mitigation is essential to minimise adverse impacts and ensure the scheme is compliant with legislation

Mitigation, Compensation, Enhancement and Monitoring

- 3.6.6 New proposed planting will include the reinstatement of grassland habitat, new planting of scrub area and hedgerow and enhancing existing hedgerow. This will maintain the value of the Site for a variety of invertebrates as well as foraging opportunities in the form of fruiting woody species.
- 3.6.7 All measures to prevent impacts to the badger sett will be detailed in the CEMP: Biodiversity. If found, any badger setts on Site will be safeguarded through implementation of a no-works 30m exclusion zone during construction. This will be delineated by temporary but robust fencing with warning signs attached. Where this is not possible, a licence for the exclusion of the sett will be sought from Natural England.
- 3.6.8 No vehicle movements, works by heavy machinery or material storage will be permitted without consent from the Ecological Clerk of Works (ECOW). The CEMP: Biodiversity will outline measures to be taken to reduce the probability of incidental physical harm to badgers, including the installation of planks or earth ramps in any excavations which are left open overnight.
- 3.6.9 A pre-construction badger survey will be completed by an experienced ecologist within 6 weeks prior to the commencement of construction, to confirm that no additional badger setts have been excavated which could be disturbed by site activities.
- 3.6.10 Provision of undeveloped wildlife corridors around the Site will ensure that badgers can continue to commute around the Site.

Residual Effects

- 3.6.11 Provided the above mitigation measures are implemented, the proposals will not result in any significant adverse effects on badgers on Site, if present, or locally.

Bats

- 3.6.12 Two trees within the Site were considered to offer potential for roosting bats, and are not expected to be impacted as a result of the development proposals.
- 3.6.13 No evidence of roosting bats was recorded during the inspections of Buildings 1 and 2, which were assessed as being of Low and Negligible suitability for roosting bats, respectively. Although unlikely, individual day roosting bats and night-roosting brown long-eared bats cannot be ruled out from within the Site. Further survey is underway to confirm the presence/ absence of this species.
- 3.6.14 The Site provides suitable foraging and commuting habitat, with at least six species identified during the static detector surveys, including barbastelle, common pipistrelle, soprano pipistrelle, *Myotis* sp., *Nyctalus* sp., and brown long-eared bat. Presence of barbastelle (likely commuting through the Site between more suitable habitats in the wider landscape) is considered significant given their elevated conservation concern. At present, ahead of the conclusion of further survey, foraging/ commuting bats are assessed as being of Local to District Importance.



Potential Impacts

- 3.6.15 Direct impacts on day-roosting bats are unlikely to occur due to their anticipated likely absence from the Site (subject to further survey), although the removal of the stable may result in the loss of a night-roosting feature.
- 3.6.16 Prior to any works, contractors will be briefed on the potential for bats being encountered during the works and advised on the correct procedure to take, in the unlikely event that bats are encountered. This briefing will be undertaken as part of a toolbox talk covering other ecological constraints associated with the Site and will be detailed within the CEMP: Biodiversity.
- 3.6.17 Should proposed further survey (Table 16 refers) indicate the use of Building 1 as a bat roost, a licence for its demolition will be sought from Natural England prior to any works taking place.
- 3.6.18 Further surveys of trees may be required where any removal is required beyond those trees currently identified.
- 3.6.19 The introduction of night-time and security lighting within the new development scheme could result in light pollution of retained and new habitats within and adjacent to the Site. The majority of bat species, particularly barbastelle, long-eared and *Myotis* species, which have been recorded within the Site, will actively avoid lit areas due to the increased risk of predation. Artificial light can create a physical barrier to bat movement within the landscape. Several species including common and soprano pipistrelle (and occasionally *Nyctalus* sp.), however, will forage for insects attracted to white mercury streetlamps (i.e. those containing Ultra Violet [UV] elements). This is often to the detriment of other light sensitive bat species as insect food becomes scarcer in surrounding darker areas as a result.
- 3.6.20 Light pollution can result in a significant change in how bats utilise a landscape. If, for example, a flight path between a roost and foraging habitat is affected by light pollution, the roost may be abandoned if it is no longer energetically viable for the bats to remain there (i.e. they would need to fly for longer to reach seasonal foraging habitat). Light pollution can, therefore, have a significant detrimental impact on individual bats and potentially colonies.

Mitigation, Compensation, Enhancement and Monitoring

- 3.6.21 To maintain the commuting value of the Site, an undeveloped buffer will be maintained along the Site boundaries and alongside existing hedgerows, although this may vary in width. A minimum 5m buffer (from the hedgerow's outer edge) will be maintained along all Site boundaries and retained hedgerows from any built development/roads.
- 3.6.22 In order to minimise the impact of increased artificial light upon bat populations, a detailed lighting strategy should be prepared by a suitably qualified lighting engineer to ensure that existing features and habitats of value to bats remain unlit. The lighting strategy should demonstrate that the important foraging and commuting routes identified around the Site are not directly illuminated as a result of street lighting for access roads, security lighting and/or lighting transmitted from within the proposed development. It is recommended that the adoption of a sensitive lighting strategy is made a condition of the planning permission. The aim of a sensitive lighting plan will be to minimise light spill onto new and retained habitats, which will need to be based on the Bats and Lighting Guidance Note 8¹⁶. In principle, the following parameters, which will ensure bats are not affected by the proposals and can continue to navigate around the Site, will need to be adhered to:
- Low-level lighting of access routes to be controlled by dimming and / or motion triggers creating a light attenuation zone with no more than 3lux at 0m;
 - Lamp height will be carefully considered to ensure minimal light spill is achieved;
 - A warm light spectrum (<2700 Kelvin) will be adopted to reduce impacts of blue light upon wildlife;
 - Luminaires with an Upward Light Ratio above zero will not be used; and
 - If external security lighting is provided, the specification will be agreed with an ecologist and set on motion-sensors/timers to decrease the light pollution impacts. These will be directed away from retained

¹⁶ <https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/>



hedgerows and trees, be hooded/cowled where necessary, and be of the lowest intensity/brightness necessary for their purpose.

- 3.6.23 To mitigate for the loss of suitable foraging habitat, species-rich grassland will be created, alongside scrub planting. The attenuation feature may support further bat foraging when wet.

Residual Effects

- 3.6.24 Provided the above mitigation measures are implemented, the proposals will not result in any significant adverse effects on foraging and commuting bats.

Great Crested Newts

- 3.6.25 Although no waterbodies are present within the Site, seven ponds were identified within 250m of the site boundary. GCN presence is known within the wider landscape.

Potential Impacts

- 3.6.26 No ponds or suitable waterbodies will be lost as a result of the development.
- 3.6.27 The proposals will result in the loss of suitable terrestrial habitat for GCN and other amphibian species, which may provide habitat links between waterbodies in the local area. This includes the removal of several suitable hibernation features; destruction of these features and removal of suitable habitat has the potential to result in harm to individual amphibians that may be sheltering therein.
- 3.6.28 There is potential for GCN and other widespread amphibians to move within the construction area during works, resulting in killing or injury to individuals

Mitigation, Compensation, Enhancement and Monitoring

- 3.6.29 To compensate for the loss of suitable terrestrial habitat for newts, the developer will seek to register the Site with the Natural England led District Level Licensing (DLL) Scheme for Hertfordshire.
- 3.6.30 The DLL scheme will provide sufficient off-site habitat within the Hertfordshire area to offset the proposed loss of terrestrial habitat for newts which are known to be present within 250m of the Site. The DLL will fully compensate for impacts to GCN which will result from the proposals and ensure the development is in line with legislation and local planning policy with regard to the conservation of this European protected species.
- 3.6.31 Following receipt of the GCN DLL, a precautionary approach to clearance of suitable habitats within the Site will likely be taken, as per Natural England's DLL guidance document and carried out under guidance from an appointed ECoW, details of which will be provided within a CEMP: Biodiversity for the Site.
- 3.6.32 Development proposals include the creation of an attenuation feature within the Site, which may increase the availability of suitable aquatic habitat for GCN within the operational site.
- 3.6.33 Habitats within the POS will provide suitable terrestrial habitat, namely species-rich grassland and scrub, with connectivity to retained hedgerows on Site. Ensuring suitable ecological corridors are maintained within the Site, and between waterbodies, will enable GCN to move within and onto the Site from adjacent land. Establishment of diverse grassland will also provide improved foraging opportunities for GCN in their terrestrial phase.
- 3.6.34 As a further enhancement, it is recommended that two hibernacula, comprising partially buried logs and rubble, will be provided within the Site. These features will provide additional sheltering and hibernation opportunities for GCN and other amphibians, the location of which will be provided within the LEMP and CEMP: Biodiversity for the Site.

Residual Effects

- 3.6.35 Implementation of suitable mitigation, through entry into Natural England's DLL Scheme, will ensure no significant negative residual effects on GCN result from the development and the favourable conservation status of the local GCN population will be maintained. The provision of suitable terrestrial habitat and hibernation features within the Site will ensure that the residual impacts resulting from the development are at least Neutral and Not Significant.



Widespread Amphibians and Reptiles

- 3.6.36 The Site represents low suitability habitat for widespread amphibian and reptile species, such as common toad, common lizard, grass snake and slow-worm, which are known to be present in the wider landscape. If present within the Site these species are likely to be limited to areas of boundary vegetation, such as hedgerows and scattered scrub.

Potential Impacts

- 3.6.37 Widespread amphibian and reptile species receive protection under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to intentionally kill or injure these animals. Although areas of suitable habitat are largely being retained and protected during construction, removing the 0.05ha of Mixed Scrub could potentially cause physical harm to amphibians or reptiles, if present.
- 3.6.38 Although the development proposals will result in the removal of grazing pasture from the Site, the housing development is likely to result in an increase in disturbance resulting from domestic pets, i.e. cats and dogs, and footfall within the Site.

Mitigation, Compensation, Enhancement and Monitoring

- 3.6.39 All measures to prevent impacts to widespread amphibians and reptiles will be detailed in the CEMP (Biodiversity). The hedgerow network will be safeguarded through implementation of a no-works buffer of at least 5m during construction. No vehicle movements, works by heavy machinery or material storage, will be permitted without consent from the ECoW.
- 3.6.40 It is recommended that vegetation removal be undertaken during winter months and the Site maintained as low suitability prior to the commencement of works. Where this is not possible, a ECoW may be required on site during vegetation removal. A toolbox talk will be delivered to key contractors prior to the commencement of works, which will detail the potential for protected species to be present and actions to take should they be discovered (i.e. halt works and contact the ECoW for advice).
- 3.6.41 Providing dropped curbs where access roads intersect grassland corridors and hedgerows will minimise physical barriers to amphibian and reptile movement within the Site. It is also recommended that traffic calming measures are implemented within the Site to reduce the likelihood of road traffic collisions.

Residual Effects

- 3.6.42 Due to the removal of horse grazing from the Site and inclusion of soft landscaping, residual effects have been classified as Neutral and Not Significant at the Site level for widespread amphibians and reptiles, assuming they are present.

Birds

- 3.6.43 The Site was assessed as suitable to support bird species typical of urban and agricultural habitats within the boundary vegetation, whilst several schedule 1, SPI and red and amber listed species were recorded.

Potential Impacts

- 3.6.44 There is potential for accidental injury/killing of nesting birds, their eggs or young during Site clearance.
- 3.6.45 The removal of scrub habitat will result in the reduction in the extent of available nesting habitat, and the removal of grassland on Site will also result in a loss of foraging habitat for certain bird species.

Mitigation, Compensation, Enhancement and Monitoring

- 3.6.46 It is recommended that, wherever possible, all vegetation removal and removal of stables be timed to avoid the key bird nesting season (March to August inclusive). If this is not possible, a check to confirm the absence of nesting birds should be carried out by a suitably experienced ecologist no more than 48 hours prior to the demolition taking place. This approach will be further detailed within the CEMP: Biodiversity.
- 3.6.47 An inspection of all mature trees and the stable buildings for barn owl which have not been found to be roosting on site to date but have been recorded flying over the site, should be completed prior to construction commencing in the interests of avoiding harm to this species.
- 3.6.48 Measures will be implemented to ensure the protection of retained hedgerows, and trees therein, during construction are outlined in Section 3.5 above.



- 3.6.49 The creation and management of diverse grassland habitat, new scrub, tree and hedgerow planting within the proposals will provide additional nesting and foraging opportunities for birds, including song-thrush which is a local BAP targeted species. Sympathetic management of these habitats to benefit wildlife will be detailed within the LEMP.
- 3.6.50 In line with BS 42021:2022, one integrated nest box will be installed for each new dwelling. As per the standard, this may result in more than one box being installed on a single unit. Integrated boxes should target species such as swifts and house sparrows. Details of the installation and maintenance of these features will be provided in the CEMP: Biodiversity and LEMP.

Residual Effects

- 3.6.51 Overall, no residual negative effects on birds are anticipated as a result of the proposals, provided the above mitigation measures are implemented.

Invertebrates

- 3.6.52 No notable invertebrates were recorded, however the range of different habitat types within the Site, including hedgerows, scrub and grassland, provide suitable habitat. A single sighting of Roman snail was recorded in the adjacent Hollards Farm Meadow LWS during 2015.

Potential Impacts

- 3.6.53 The proposals will result in the loss of suitable habitat for a range of invertebrate species, particularly species associated with grassland habitats, such as the small heath butterfly.
- 3.6.54 Roman snail receives protection under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to intentionally kill, injure, take, or possess this species. Although areas of suitable habitat are largely being retained and protected during construction, removing the 0.05ha of Mixed Scrub could potentially cause physical harm to Roman snail, if present.

Mitigation, Compensation, Enhancement and Monitoring

- 3.6.55 All measures to prevent impacts to Roman snail will be detailed in the CEMP (Biodiversity). A similar approach to the protection of Roman snail was adopted from an adjacent development scheme (planning ref. 17/01464/1), such that the hedgerow network will be safeguarded through implementation of a no works buffer of at least 5m during construction. No vehicle movements, works by heavy machinery or material storage, will be permitted without consent from the ECoW. A precautionary approach to clearance of suitable habitats within the Site will be undertaken under guidance from an appointed ECoW, details of which will be provided within a CEMP: Biodiversity for the Site.
- 3.6.56 The creation of habitats, including diverse grassland (using seed mix containing fine grass species e.g. fescues and meadow grasses to benefit small heath), mixed scrub, hedgerows and SuDS, will provide ecologically valuable habitat for a range of invertebrate species, including aquatic species when SuDS is wet.
- 3.6.57 Provision of log/brush piles, also suitable for reptiles and amphibians, will deliver further enhancement for all invertebrates.

Residual Effects

- 3.6.58 No residual negative effects on invertebrates are anticipated as a result of the development.

Hedgehog

- 3.6.59 The Site boundary habitats represent suitable habitat for commuting and foraging hedgehogs, which are known to be present in the wider area.

Potential Impacts

- 3.6.60 If present, hedgehogs could be disturbed, killed or injured during scrub removal. Hedgehogs could also be at risk of injury or death by falling into excavations within the construction Site. The removal of grassland habitat will decrease foraging opportunities for hedgehogs in the short-term.
- 3.6.61 Increased traffic within the Site presents a risk to hedgehogs from vehicular collision, potentially resulting in injury or mortality. However, given the slow vehicle speeds expected this is unlikely to be a significant risk.



- 3.6.62 Creation of new waterbodies i.e. SuDS within the Site may, when wet, increase the risk of drowning, in the absence of mitigation.

Mitigation, Compensation, Enhancement and Monitoring

- 3.6.63 The CEMP: Biodiversity will outline sensitive working measures for clearance of any habitats of value to hedgehogs. This will be in line with mitigation measures for other protected species.
- 3.6.64 Provision of undeveloped wildlife corridors around the Site will ensure that hedgehogs can continue to commute around the Site. Providing dropped curbs where access roads intersect grassland corridors and hedgerows will minimise physical barriers to hedgehog movement within the Site. It is also recommended that traffic calming measures are implemented within the Site reduce the likelihood of road traffic collisions.
- 3.6.65 During removal of hedgerows and scrub, the ECoW will first inspect the habitats to ensure no hedgehogs are present. If a hedgehog is found, it will be relocated into retained habitat outside the construction zone.
- 3.6.66 Any new open waterbodies will be designed with wildlife in mind with shallow sloping margins where possible, allowing egress for any species which enter them.
- 3.6.67 Proposed species-rich grassland, residential gardens, scrub and hedgerows will provide additional foraging opportunities for hedgehogs.
- 3.6.68 The creation of 13 cm x 13 cm access holes (or custom-made gravel boards) will be provided within new fences bounding residential gardens will allow hedgehogs to access the new gardens and move around the operational Site.
- 3.6.69 It is recommended that log/brush piles are created within the public open spaces, which will provide additional sheltering opportunities for hedgehog.

Residual Effects

- 3.6.70 Provided the above mitigation measures are implemented, no significant residual, negative effects on hedgehog are anticipated as a result of the development.

Brown Hare

- 3.6.71 Open grassland habitat that dominated the Site was considered suitable for brown hare.

Potential Impacts

- 3.6.72 Construction may result in accidental killing/injury of brown hare during clearance of the field.
- 3.6.73 Proposals will result in the loss of grassland habitat suitable for brown hare, which may result in the displacement of this species from the Site in the absence of mitigation.

Mitigation, Compensation, Enhancement and Monitoring

- 3.6.74 A CEMP: Biodiversity will be prepared to detail sensitive habitat clearance measures and timescales to minimise direct mortality impacts on brown hare.
- 3.6.75 Creation of diverse grassland habitat will provide limited habitat for brown hare. This area of POS would be used frequently by residents and dog walkers, and so is unlikely to be suitable for the species.

Residual Effects

- 3.6.76 No significant residual, negative impacts on brown hare are anticipated during construction. The proposals will result in the loss of suitable habitat for brown hare. However, given the availability of optimal, more rural habitat in the wider landscape, the impact on brown hare resulting from loss of habitat within the Site is not considered to be significant.

3.7 Recommended Further Survey to Establish Baseline

- 3.7.1 Table 16 below summarises further work which is underway and will be completed during the determination period with the findings presented to the LPA in the form of an addendum to this ecological impact assessment.

Table 16. Summary of Recommended Further Work



Habitats/Species	Scope of Work	Timescale
Bats (Roosting)	Static detector deployment within Building 1	Single survey in summer months
Bats (Activity)	Ongoing bat activity surveys	Monthly (through to October)



4 CONCLUSIONS

- 4.1.1 The proposed development has the potential to cause adverse impacts upon a number of ecological features ranging from District to Site importance. However, avoidance and mitigation measures have been proposed to ensure that these adverse impacts are reduced as far as possible.
- 4.1.2 These measures include:
- A CEMP: Biodiversity will be prepared to detail all construction-phase habitat protection, supervision and impact avoidance measures to be adopted, including:
 - Sensitive working methods during Site clearance and construction to avoid impacts to protected species; and
 - Installation and maintenance of BPZs during construction to protect retained habitats;
 - A LEMP will be produced which will detail operation phase mitigation, compensation, enhancement, management and monitoring measures;
 - Maintenance of undeveloped buffer zones at Site boundaries and along retained hedgerows during construction and operational phases;
 - Ensure retained and newly created hedgerows remain outside of private ownership and are managed sympathetically for wildlife;
 - Creation of diverse grassland habitat, attenuation features and residential gardens, new hedgerow, scrub and tree planting, enhancement and infill planting of existing hedgerow providing a range of habitats for different species;
 - Participation in a District Level Licence Scheme administered by Natural England to adequately compensate for impacts on Great Crested Newts; and
 - A sensitive lighting strategy which preserves dark corridors and protects sensitive habitats.
- 4.1.3 The results of the remaining bat surveys will be provided in an addendum report to this EclA to inform the planning application, however it is anticipated to have minimal changes to the proposed mitigation, compensation, enhancement measures for bats.
- 4.1.4 The proposed development will result in the loss of part of a local wildlife site, the Meadow North West of First Spring LWS. It has been shown that the habitats within the site which form part of the LWS do not meet the criteria for designation. Nevertheless the site remains designated and should be treated as such. The impacts of loss of extent of the LWS this are mitigated by the retention and management of other neutral and wet grassland habitats within open spaces on the site. The partial loss of the local wildlife site can be considered in line with Policy NE6 of the local plan where it can be demonstrated that the loss has been minimised as far as possible, where mitigation measures, such as the favourable management of retained areas of other neutral and wet grassland are secured.
- 4.1.5 Habitat creation and enhancement measures are proposed, and a separate Biodiversity Net Gain Assessment report has been prepared to identify whether the proposed development delivers a net gain for biodiversity, or whether additional off-site habitat creation/enhancement is required.
- 4.1.6 Additional ecological enhancement measures include:
- Provision of a range of bat and bird boxes, and log piles;
 - Provision of hedgehog access gaps in fences; and
 - Enhancement and in-fill planting of the boundary hedgerows.
- 4.1.7 Assuming the successful implementation of the measures, including the mitigation measures for the loss in extent of the local wildlife site, the proposed development can be considered in line with North Hertfordshire Local Plan 2011-2031, as the scheme includes measures to retain and protect important ecological features and ensure their favourable management in the long-term. The proposals also include detailed measures to avoid potential impacts on protected species during the construction and operational phases of the development, as well as providing enhancements to both habitats and species on Site.



APPENDIX A: WILDLIFE LEGISLATION & SPECIES INFORMATION

BADGER

Badgers and their setts are protected under the Protection of Badgers Act 1992 (as amended) against damage or destruction of a sett, or disturbance, death or injury to the badgers. The Act defines a sett as "any structure or place which displays signs indicating current use by a badger". The definition of current use is subject to considerable debate. Natural England have produced guidance on the definition of current use. (*Badgers and Development – A guide to best practice and development* . Natural England 2011). Given the ambiguity surrounding the definition in all circumstances we would recommend an assessment of current use is always undertaken by a qualified ecologist. Natural Resources Wales (NRW) have a slightly different definition of current use. Please see the NRW website for further information. Penalties for offences against badgers or their setts include fines of up to £5,000 and/or up to six months in prison.

Disturbance of badgers could be caused by any digging activity or scrub clearance within 30 metres of an occupied sett and therefore every case needs to be assessed individually. Felling of trees close to a badger sett may also cause disturbance in some situations. Some activities such as pile driving may cause disturbance at even greater distances, and should be discussed with Natural England or NRW.

Licences are issued by Natural England (or NRW in Wales) to allow the disturbance of badgers, and the destruction of their setts in certain circumstances, in relation to development. Full planning permission must be obtained before a licence application will be considered. Although licences can be applied for at any time of year, disturbance of badgers or exclusion of badgers from a sett can only take place between 1 July and 30 November, to avoid the breeding season when dependant young may be underground. This restriction may be relaxed in some cases where a sett is seasonal and badgers can be shown to be absent from a sett at that time of year.

This report contains information of a confidential nature relating to the location of badger setts. Public access to this data should be restricted to those who have a legitimate need to assess the information and to know the exact situation of the setts rather than simply that badgers are present.

BATS

All 17 species of bat known to breed in England and Wales, and their roost sites, are protected under the Conservation of Habitats and Species Regulations 2017, known as the 'Habitats Regulations'. This makes it an offence to deliberately kill or injure a bat, or to deliberately disturb a bat such that its ability to hibernate, breed or rear young, or such that the species' distribution, were significantly affected. It is also an offence to damage or destroy any breeding site or resting place. Intentional or reckless disturbance of bats in their resting places, and damage to or obstruction of resting places are also offences under the Wildlife and Countryside Act 1981 (as amended). Under UK law a bat roost is "any structure or place which any wild [bat]...uses for shelter or protection". As bats tend to reuse the same roosts, legal opinion is that the roost is protected whether or not the bats are present at the time. Penalties for offences against bats or their roosts include fines of up to £5,000 and/or up to six months in prison.

As a result, development works which are likely to involve the loss of or alteration to roost sites, or which could result in killing of or injury to bats, need to take place under licence. Works which could disturb bats may also be licensable, though this needs to be assessed on a case by case basis, as bats' sensitivity to disturbance varies depending on normal background levels, and the definition of disturbance offences under the Habitats Regulations is complex. In practice this means that works involving modification or loss of roosts (typically in buildings, trees or underground sites) or significant disturbance to bats in roosts are likely to be licensable.

Licences can be obtained from Natural England or the Welsh Government to permit works that would otherwise be illegal, provided it can be demonstrated that the proposed works are needed to protect public health or safety, or for other reasons of overriding public interest including social and economic reasons. It is also necessary to demonstrate that there is no satisfactory alternative to the proposed works, and that the conservation status of bats in the area will be maintained. Appropriate mitigation and post-construction monitoring are therefore a requirement of all licences.

AMPHIBIANS

Great Britain supports seven native amphibian species. The four most widespread species; smooth and palmate newts, common frog, and common toad, receive partial protection under the Wildlife and Countryside Act 1981 (as amended) which prohibits sale, barter, exchange, transporting for sale and advertising to sell or to buy. The great crested newt, pool frog and natterjack toad are also fully protected in England and Wales under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Penalties for offences against amphibian species include fines of up to £5,000 and/or up to six months in prison.

Four amphibian species (great crested newt, pool frog, common toad, natterjack toad) are listed as priority species under the UK Biodiversity Action Plan, and are therefore considered to be Species of Principal Importance in England and Wales (excluding the pool frog, which does not occur in Wales) under the Natural Environment and Rural Communities (NERC) Act 2006. All public bodies including local and regional authorities have a duty under this legislation to have regard for the conservation of biodiversity.



GREAT CRESTED NEWT

Great crested newts are protected in England and Wales under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, known as the 'Habitats Regulations'. This makes it an offence to deliberately kill or injure a great crested newt, or to deliberately disturb a great crested newt such that its ability to hibernate, breed or rear young, or such that the species' distribution, were significantly affected. It is also an offence to damage or destroy any breeding site or resting place for great crested newts. Intentional or reckless disturbance of great crested newts in places of shelter (ponds or terrestrial refuges), and damage to or obstruction of places of shelter are also offences under the Wildlife and Countryside Act 1981 (as amended). Penalties for offences against great crested newts include fines of up to £5,000 and/or up to six months in prison.

As a result, development works which are likely to involve the loss of ponds or terrestrial habitat, or which could result in killing of or injury to great crested newts, need to take place under licence. Works which could disturb great crested newts may also be licensable, though this is rarely the case unless loss of great crested newt habitat is also proposed, and should be assessed on a case by case basis. In practice this means that works involving any removal of or significant modification to ponds or terrestrial habitats (typically rough grassland, scrub, hedgerow bases and woodland) supporting great crested newts are likely to be licensable.

Licences can be obtained from Natural England or the Welsh Government to permit works that would otherwise be illegal, provided it can be demonstrated that the proposed works are needed to protect public health or safety, or for other reasons of overriding public interest including social and economic reasons. It is also necessary to demonstrate that there is no satisfactory alternative to the proposed works, and that the conservation status of great crested newts in the area will be maintained. Appropriate mitigation and post-construction monitoring are therefore a requirement of all licences.

BIRDS

All British birds, their nests and eggs (with certain exceptions) are protected under the Wildlife & Countryside Act 1981 (as amended) which makes it an offence to: intentionally kill, injure or take a wild bird; intentionally take, damage or destroy nests which are in use or being built; intentionally take or destroy birds' eggs; or possess live or dead wild birds or eggs. A number of species receive additional protection through inclusion on Schedule 1 of the Wildlife and Countryside Act; for these it is also an offence to intentionally or recklessly disturb birds while nest building, or at a nest containing eggs or young, or to disturb the dependant young of such a bird. Penalties for offences against bird species include fines of up to £5,000 and/or up to six months in prison.

General licences for control of some bird species are issued by Natural England and Natural Resources Wales in order to prevent damage or disease, or to preserve public health or public safety, but it is not possible to obtain a licence for control of birds or removal of eggs/nests for development purposes. Consequently if nesting birds are present on a development site when works are programmed to start it is usually necessary to delay works, at least in the areas supporting nests, until any chicks have fledged and left the nest. It is usually possible, once chicks have hatched, for an experienced ecologist to predict approximately when they are likely to fledge, in order to inform programming of works on site.

ROMAN SNAIL

Roman snails have been introduced to the United Kingdom and are rare and restricted to few localities, originating from previous activity by the Romans. They are relatively sedentary and solitary, sheltering for much of the day and most often emerging after rain. They hibernate within friable soils for an extended period over winter (approx. September until April) and prefer to lay their eggs in rough ground. Roman snail, also known as Burgundy snails, *Helix pomatia* is on the IUCN Red List of Threatened Species (International Union for Conservation of Nature). They are included as Least Concern (at a European level) and stable population trends.

Under Schedule 5 of the Wildlife & Countryside Act (and Provision 9), 1982 (as amended), it is illegal to intentionally kill, injure, take or possess this species (live or dead or offer to sell) in the wild in England or Wales. It is not an offence to disturb Roman snails or to damage or destroy breeding places or resting places of this species. However, although disturbance is not an offence, a licence is needed to handle Roman snails, however briefly, because it is protected against 'taking'. Therefore, it is necessary to obtain a licence from Natural England for the purposes of science and education to allow Roman snails to be picked up, examined and moved.

Where Roman snails occur within areas that are to be affected by development proposals, such that there is a need to move them to avoid killing or injuring of individuals, any intentional movement of Roman snails must be licensed or should be covered by a relevant defence in the legislation, because moving Roman snails, even short distances, constitutes 'taking'.

Licences can only be issued for specific purposes under the Wildlife and Countryside Act. There is no licensing purpose for development works. However, Natural England will consider issuing a licence for conservation purposes in certain circumstances. Any conservation licence application for Roman snails will need to demonstrate that the work proposed is essential and the impacts to the species cannot be avoided in any way. It would also need to demonstrate that the work will have some conservation benefit for the species.

There is no standard methodology currently available for dealing with Roman snails and each licence application will be considered by Natural England on a case-by-case basis.



PLANNING POLICY IN RELATION TO BIODIVERSITY

The National Planning Policy Framework (NPPF), was published in March 2012 and revised in July 2021. Additional guidance can be found online at <http://planningguidance.planningportal.gov.uk/blog/guidance/>. The NPPF simplifies and collates a number of previous planning documents and outlines the government's objective towards biodiversity.

The NPPF identifies ways in which the planning system should contribute to and enhance the natural and local environment (Paragraph 174), including:

- (a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- (b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- (d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- (e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- (f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate. protecting and enhancing valued landscapes, geological conservation interests and soils;

It also emphasises the importance of conserving biodiversity and areas covered by landscape designations (Paragraph 176):

Great weight should be given to conserving landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to landscape and scenic beauty. The conservation of wildlife and cultural heritage are important considerations in all these areas, and should be given great weight in National Parks and the Broads. The scale and extent of development within all these designated areas should be limited, while development within their setting should be sensitively located and designed to avoid or minimise adverse impacts on the designated areas.

When determining planning applications, the NPPF states that local planning authorities should aim to conserve and enhance biodiversity (Paragraph 175) by applying principles including:

- (a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- (b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- (c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons⁶ and a suitable compensation strategy exists; and
- (d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate..

The following should be given the same protection as habitats sites:

- (a) potential Special Protection Areas and possible Special Areas of Conservation;
- (b) listed or proposed Ramsar sites⁷; and
- (c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

There is a general presumption in favour of sustainable development within the NPPF. It is noted in Paragraph 182 that this presumption does not apply where the plan or project is likely to have a significant effect on a habitat site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

The Natural Environment and Rural Communities Act (2006) states that a public authority must, "in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity; Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat". DEFRA issued further guidance on implementation of this act in the document; Guidance for Local Authorities on Implementing the Biodiversity Duty (May 2007), which notes that "Conserving biodiversity includes restoring and enhancing species populations and habitats, as well as protecting them".

The Environment Act (2021) was passed into law in November 2021. This Act is comprised of 8 Parts and sets out targets for conservation and environmental betterment along with a system for their implementation, including the creation of a new Office for Environmental Protection (OEP). Of particular pertinence to Ecology is Part 6 – Nature and biodiversity, which includes a mandatory requirement for developments to deliver a minimum 10% biodiversity net gain (as quantified through an approved metric such as the Defra 3.0 metric). Such gains must be secured for a minimum of 30 years post-completion of development.



For most schemes, Net Gain shall be secured through an amendment to the Town and Country Planning Act, which is likely to be passed into law in 2023. Nationally Significant Infrastructure Projects (NSIPs) will also be subject to this requirement, but this will be secured through the Planning Act 2008, which means that for NSIPs the mandatory net gain requirement will not be in place until 2025. Certain small schemes are exempt from the requirement for delivering net gain.

It is important to note that in the meantime, Local Planning Authorities across the country have already adopted their own, differing policies regarding net gain. Several stipulate no net loss as a minimum, whilst others have 10% or even 20% requirements.

ECOLOGICAL ENHANCEMENTS

The Natural Environment and Rural Communities Act (2006) states that a public authority must, "in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity; Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat". DEFRA issued further guidance on implementation of this act in the document; Guidance for Local Authorities on Implementing the Biodiversity Duty (May 2007), which notes that "Conserving biodiversity can include restoring or enhancing a population or habitat".

In England, the National Planning Policy Framework (NPPF), issued in July 2021, states that the planning system should contribute to "minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures". It also states that "opportunities to incorporate biodiversity in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity".

UK BIODIVERSITY ACTION PLANS

The UK Biodiversity Action Plan (UK BAP) 2011 is a policy first published in 1994 to protect biodiversity and stems from the 1992 Rio Biodiversity Earth Summit. The policy is continuously revised to combine new and existing conservation initiatives to conserve and enhance species and habitats, promote public awareness and contribute to international conservation efforts. Each plan details the status, threats and unique conservation strategies for the species or habitat concerned, to encourage spread and promote population numbers.

Species or habitats identified as priorities under the UK Biodiversity Action Plan receive some status in the planning process through their identification as Species/Habitats of Principal Importance in England and Wales, under the Natural Environment and Rural Communities (NERC) Act 2006 (as amended).

Current planning guidance in England, the National Planning Policy Framework, does not specifically refer to Species or Habitats of Principal Importance, though it includes guidance for conservation of biodiversity in general. Supplementary guidance is available online at <http://planningguidance.planningportal.gov.uk/blog/guidance/> and this guidance indicates that it is 'useful to consider' the potential effects of a development on the habitats or species on the Natural Environment and Rural Communities Act 2006 section 41 list.

PROTECTED PLANTS

All wild plants receive some protection under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence for any unauthorised person to intentionally uproot any wild plant. Additionally, certain rare species of plants listed on Schedule 8 of the Act are given greater protection. For these species, it is an offence to intentionally pick, uproot or destroy them, or to possess or sell them (live or dead), or anything derived from them. Penalties for offences under this legislation include fines of up to £5,000 and/or up to six months in prison.

Schedule 8 of the Act is reviewed every 5 years, but currently it includes 185 species or sub-species of vascular plants, bryophytes (mosses, liverworts and hornworts), lichens and stoneworts (see www.jncc.gov.uk for current list), all protected due to their rarity and/or restricted distributions.

Works which could result in uprooting or destruction of plants listed on Schedule 8 of the Act could result in an offence being committed, unless measures are taken to minimise the risk of this occurring. Any inadvertent impacts on Schedule 8 plants despite these mitigation measures being in place, and impacts on other plant species during development works, would be considered an 'incidental result of an otherwise lawful operation' which 'could not reasonably have been avoided' and therefore not an offence.

In practice, the mitigation measures required on the very rare occasions when Schedule 8 plants are affected by development proposals will be determined by the ecological requirements of the species concerned, and any mitigation strategy should be agreed in advance with Natural England or Natural Resources Wales.

THE HEDGEROWS REGULATIONS

In England and Wales the Hedgerows Regulations (1997) as amended confer a level of protection on hedgerows (though hedgerows within or bordering domestic gardens are excluded), particularly those hedgerows classified as 'Important' under the legislation. The Regulations require those wishing to remove hedgerows to submit a Hedgerow Removal Notice to the Local Planning Authority (LPA), which will then determine whether the hedgerow affected is classified as 'Important' under the Regulations. If it is,



the LPA will either approve the proposed hedgerow removal, or issue a retention notice. It is an offence to remove or destroy a hedgerow which is subject to a retention notice, or to remove one without a removal notice.

Routine management of hedgerows, removal of hedgerows for development which has been granted planning consent, and certain other situations are allowed under the Regulations, which also specifically exclude hedgerows within or bordering domestic gardens. Determination of whether a hedgerow should be classified as 'Important' is based on a number of criteria including assessment of its likely historic value (e.g. old parish boundary or part of an ancient monument), ecological value (e.g. presence of protected species, and/or diversity of tree/shrub species in the hedgerow), and landscape value (e.g. associated with a public footpath, or being associated with hedgebanks, ditches, hedgerow trees etc).

Ancient and species-rich hedgerows are listed as a priority habitat in the UK Biodiversity Action Plan (2011)



APPENDIX B: BOTANICAL DATA OF ONSITE AND OFFSITE FIELDS

Botanical Quadrats

Species Recorded		Indicator species of old grassland habitat types in Hertfordshire	Onsite Field						Offsite Field				
Common Name	Scientific Name		Q1	Q2	Q3	Q4	Q5	Q6	Q1	Q2	Q3	Q4	Q5
Annual meadowgrass	<i>Poa annua</i>		5										
Cock's foot	<i>Dactylis glomerata</i>			7	4					7	10		
Common bent	<i>Agrostis capillaris</i>	Neutral		16		14	16					21	
Creeping bent	<i>Agrostis stolonifera</i>		16					12	26	15	13		12
Crested dogs tail	<i>Cynosurus cristatus</i>	Neutral									5		
Knotgrass	<i>Polygonum aviculare</i>			10									
Lesser quaking-grass	<i>Briza minor</i>										5		
Perennial rye grass	<i>Lolium perenne</i>		35	11	15	17	15	15	6	11		10	
Red fescue	<i>Festuca rubra</i> agg.				12	15	12	4	36	5		17	
Rough meadow grass	<i>Poa trivialis</i>		16	27		13	11	15	1	10	5	7	14
Small timothy	<i>Phleum bertolonii</i>									7	7		12
Timothy	<i>Phleum pratense</i>												11
Yorkshire fog	<i>Holcus lanatus</i>				12	13	21	29	34	34	14	18	24
Hairy sedge	<i>Carex hirta</i>												52
Agrimony	<i>Agrimonia eupatoria</i>	Neutral/Calcareous							1		5		
Birds foot trefoil	<i>Lotus corniculatus</i>	Neutral/Calcareous							24				
Black knapweed	<i>Centaurea nigra</i>	Neutral/Calcareous								19	12		
Canadian fleabane	<i>Conyza canadensis</i>							2					
Common mouse-ear	<i>Cerastium fontanum</i>							1					
Common ragwort	<i>Senecio jacobaea</i>					1	1	3					
Creeping buttercup	<i>Ranunculus repens</i>		16	16			11	14	2			18	
Creeping cinquefoil	<i>Potentilla reptans</i>				15	16		7		3	7	5	8
Creeping thistle	<i>Cirsium arvense</i>									4	5	5	
Curled dock	<i>Rumex crispus</i>						3						
Field bindweed	<i>Convolvulus arvensis</i>								9	4			
Greater plantain	<i>Plantago major</i>		4	13									
Marsh thistle	<i>Cirsium palustre</i>	Wet						16					
Meadow buttercup	<i>Ranunculus acris</i>	Neutral			31	36	9	9	5	3	7	9	
Red clover	<i>Trifolium pratense</i>	Neutral/Calcareous				8							
Self heal	<i>Prunella vulgaris</i>		7			2	4						
White clover	<i>Trifolium repens</i>		23	14	9	10	8	9	1	15	16	9	
Yarrow	<i>Achillea millefolium</i>				5	4				3			
Bramble	<i>Rubus fruticosus</i>												6
Total Number of Species			8	8	8	12	11	13	11	14	13	10	7
Average Number of Species			10						11				



Condition Assessment Sheet: GRASSLAND Habitat Type (medium distinctiveness)
Grassland - Other Neutral Grassland

BNG Condition Assessment		Onsite	Offsite
A	The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type (and relative to Footnote 3 suboptimal species which may be listed in the UKHab description). Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.	N	Y
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Y	Y
C	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	N	N
D	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	N	Y
E	Combined cover of species indicative of suboptimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species (as listed on Schedule 9 of WCA5) are present, this criterion is automatically failed.	N	N
Additional Criterion – must be assessed for all non-acid grassland types			
F	There are 10 or more vascular plant species per m2 present, including forbs that are characteristic of the habitat type (species referenced in Footnote 3 and 5 cannot contribute towards this count). Note - this criterion is essential for achieving Good condition for non-acid grassland types only.	N	N
Condition		Poor (1/6 not incl. essential criterion A)	Moderate (3/6 incl. essential criterion A only)

Condition Assessment Result	Condition Assessment Score
Passes 5 or 6 criteria, including essential criteria A and additional criterion F	Good (3)
Passes 3 or 4 criteria, including essential criterion A	Moderate (2)
Passes 0, 1 or 2 of 6 criteria; OR Passes 3 or 4 criteria excluding criteria A and F	Poor (1)

Notes
Footnote 1 - Professional judgement should be used alongside the UKHab description. Footnote 2 – For example, this could include small, scattered areas of bare ground allowing for plant colonisation, or localised patches not exceeding 5% cover. Footnote 3 - Species indicative of suboptimal condition for this habitat type include: creeping thistle <i>Cirsium arvense</i>, spear thistle <i>Cirsium vulgare</i>, curled dock <i>Rumex crispus</i>, broad-leaved dock <i>Rumex obtusifolius</i>, common nettle <i>Urtica dioica</i>, creeping buttercup <i>Ranunculus repens</i>, greater plantain <i>Plantago major</i>, white clover <i>Trifolium repens</i> and cow parsley <i>Anthriscus sylvestris</i>. There may be additional relevant species local to the region and or site. Footnote 4 – Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, by applying professional judgement. Footnote 5 – Wildlife and Countryside Act 1981 (as amended)."

APPENDIX C: PHOTOGRAPHS OF SITE FEATURES



Photograph C1: Field 1 (Onsite Meadow North-West of First Spring LWS)



Photograph C2: Offsite Field Belonging to the Meadow North-West of First Spring LWS



Photograph C3: Field 2



Photograph C4: Field 3



Photograph C5: Mixed scrub S1 and S2, with an existing PROW running in between the scrub



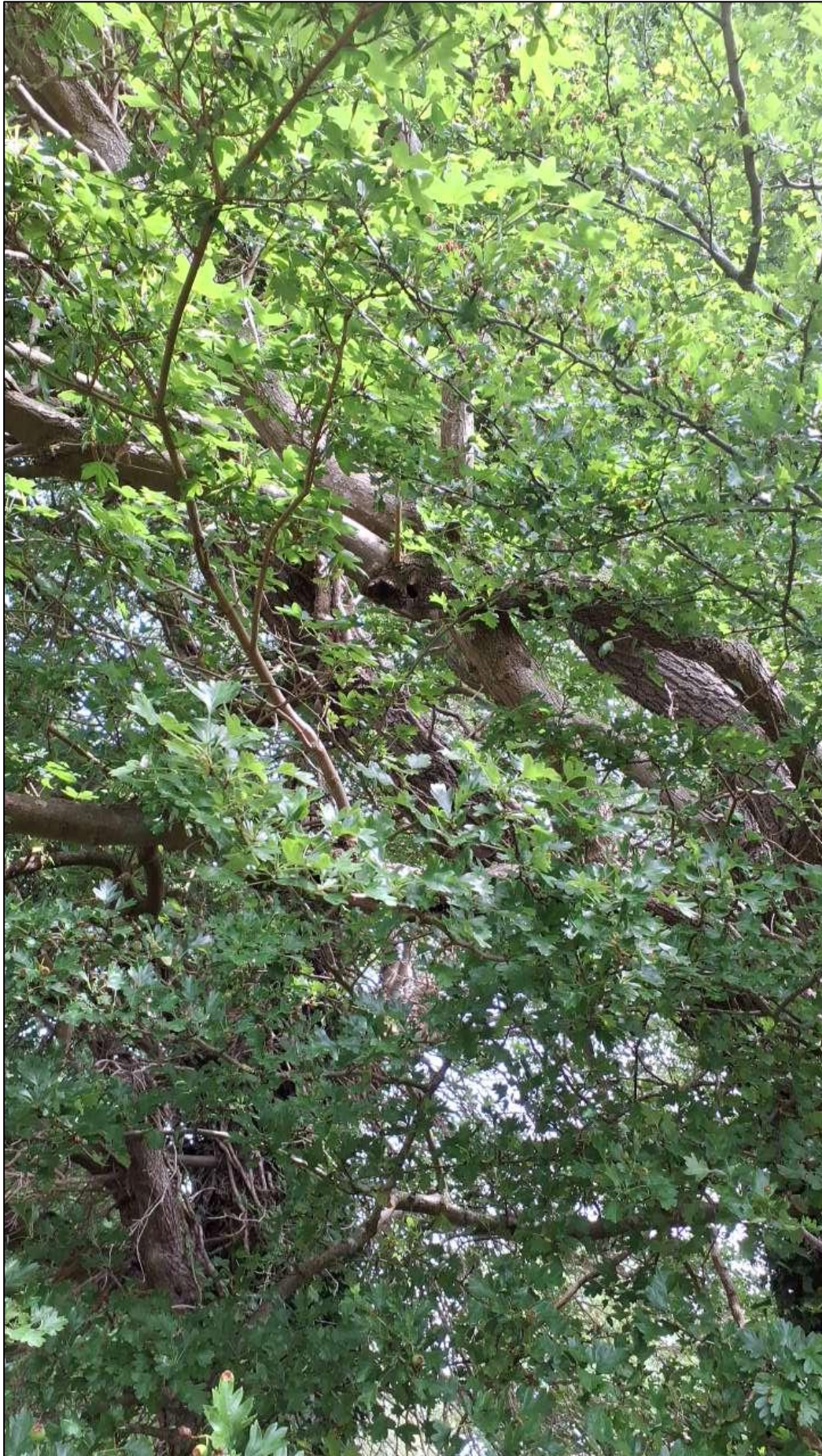
Photograph C6: Hedgerow 1



Photograph C7: Hedgerow 2



Photograph C8: Hedgerow 3



Photograph C9: TN1



Photograph C10: TN2



Photograph C11: TN3

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