GEOSPHERE ENVIRONMENTAL

Preliminary Ecological Appraisal Report and Protected Species Surveys

REPORT NUMBER: 7277,EC,AR,DS,PEA,AS,AC,KL,04-12-23,V1

SITE: Land East of High Road, High Cross SG11 1AZ

DATE: 04/12/2023

DOCUMENT CONTROL SHEET

Report Number:	7277,EC,AR,DS,PEA,AS,AC,KL,04-12-23,V1
Client:	M Scott Properties Limited
Project Name:	Land East of High Road, High Cross SG11 1AZ
Project Number:	7277,EC,AR,DS
Report Type:	Preliminary Ecological Appraisal & Protected Species Surveys
Status:	FINAL
Date of Issue:	04 December 2023

Issued By:

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Version Record:

Version	Date	Document Details	Prepared By	Admin
DRAFT	18-10-23	Original Version	AS	CD
V1	04-12-23	Changes to site boundary and text	AS	HP

Executive Summary

Report Description		This report has been prepared by Geosphere Environmental Limited for M Scott Properties Limited and relates to the proposed residential development of the site at Land East of High Road, High Cross SG11 1AZ. The report also summarises former protected species surveys that have been undertaken onsite and the results of updated eDNA surveys regarding great crested newt. The purpose of this report is to identify potential ecological constraints to development, particularly in relation to potential legally protected species onsite, confirm the need for further survey work to confirm all current baseline ecological conditions, if necessary, and highlight opportunities for ecological enhancement.
Summary of Main Findings		The site comprises mostly of other neutral grassland verge, arable field margins, arable land, native hedgerow and sealed surface (access road). The findings of the survey confirm that the habitats onsite have the potential to support reptiles, breeding birds, bats, hedgehog, [redacted] The site is not considered suitable for water vole, otter, hazel dormouse or rare or notable invertebrates and plants. There is unlikely to be a presence of great crested newts within the site boundary.
Ecological Constraints		The constraints to development will be the removal of, or impacts to, habitats considered suitable for protected species, including arable fields, mature trees and hedgerows suitable for foraging bats and breeding birds.
Avoidance measures & Timings of Works to reduce impact		**Birds**: Given the onsite presence of potential bird nesting habitat, any clearance of vegetation that support suitable nesting features, should be timed to avoid the bird breeding season (March-August inclusive). If this is not possible, these habitats can only be removed following confirmation by a suitably qualified Ecologist that they are not in active use by nesting birds. **Bats:** The trees and buildings are recommended to be retained to avoid impact, including a sensitive lighting scheme within the design. **Hedgehog:** Any hibernation habitat (hedgerow and log pile) cleared over winter necessitates an ECoW. [redacted]
Further Survey Work Required		The following are recommended at the appropriate time of year to establish an ecological baseline: • Breeding bird surveys (between March and July); • Bats in Trees: Further GLTA over winter with further bat roost surveys if needed (May to September) • Foraging Bats: Seasonal nighttime bat walkover and static monitoring (Spring, Summer and Autumn) • Updated reptile presence/absence surveys (between March and October)

Biodiversity Enhancement Opportunities		The following has been recommended for consideration within the final development scheme: Native plant species beneficial to wildlife, bat and bird boxes and log piles should be included within the final development design to improve the site for birds, bats and reptiles.
Conclusions		Provided the recommendations within this report are followed and the mitigation hierarchy of avoidance, mitigation, compensation and enhancement is implemented throughout the detailed design process, potential negative effects from development on important ecological features will be negligible.

CONTENTS

CONTENTS

TABLES

CONTENTS

FIGURES

1. INTRODUCTION

1.1 Purpose

This Preliminary Ecological Appraisal (PEA) and Protected Species Report has been prepared by Geosphere Environmental Limited for M Scott Properties Limited and relates to the proposed residential development of the site at Land East of High Road, High Cross SG11 1AZ for which detailed planning permission will be sought. The report also summarises former protected species surveys that have been undertaken onsite and the results of updated eDNA surveys regarding great crested newt.

The purpose of this report is to:

Identify if important ecological features are present that may be affected by development proposals;
Determine if further survey work is necessary, and if so, provide detailed scope for any further survey and assessment that may be required to support a planning application;
Highlight opportunities for ecological enhancement.

Any limitations and conditions pertaining to the report are stated within Appendix 1, with a full list of technical references provided within Appendix 2.

1.2 Site Description

The site occupies an area of approximately 7.75 hectares (ha) and is located around National Grid Reference TL365188. The indicative development boundary is shown on Figure 1 below:

Figure 1 - Indicative Site Boundary

2. LEGISLATIVE AND POLICY CONTEXT

2.1 Current UK Legislation

The main legislation that applies to ecological issues within England and Wales is as follows:

The Environment Act 2021 Act became law on 9 November 2021 and introduces a framework to improve and protect the natural environment, overseen by the newly created Office for Environmental Protection. The Act introduces new statutory requirements, including the duty for local authorities to create new local nature recovery strategies. The Act also introduces a new mandatory requirement for developments to achieve measurable biodiversity net gain;

The Conservation of Habitats and Species Regulations 2017 (as amended) transposes European Union Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (formally the EC Habitats Directive) into national law. Under the regulations, public bodies have a duty in exercising their functions to provide for the protection of 'Habitats Sites' and 'European Protected Species' (EPS);

The Wildlife and Countryside Act 1981, (WCA) (as amended) provides detail on a range of protection and offences relating to wild birds, other animals, and plants. The level of protection depends upon which Schedule of the Act the species is listed on. Licences are available for specific purposes to permit actions that would otherwise constitute an offence in relation to species;

The Natural Environment and Rural Communities, (NERC), Act 2006 imposes an obligation on all public bodies, including local authorities, to consider whether their activities can contribute to the protection of wildlife. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England and states that: "Every 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."

Species-specific conservation legislation is detailed within Appendix 4.

The reader is referred to the original legislation for definitive interpretation.

2.2 Planning Policy

The recommendations of this report are in line with the key principles of the Ministry of Housing, Communities and Local Government (MHCLG) (2021) National Planning Policy Framework (NPPF) (ref. R.1) and Government Circular 05/06: Biodiversity and Geological Conservation (ref. R.2).

Local planning policies relating to ecology are invariably based upon the conservation of species protected under the above legislation, including species and habitats of principal importance listed under Section 41 of the NERC Act 2006 and the protection of designated sites.

All these features are considered within the scope of this report, and therefore any recommendations made herein are likely to be in line with this policy.

3. METHODOLOGY

3.1 Technical Approach

The report has been undertaken following guidelines provided by CIEEM's Guidelines for Preliminary Ecological Appraisal, (ref. R.3), and BS 42020: 2013 Biodiversity standards, (ref. R.4) to provide an indication of the ecological value of the site and the potential for the site to be used by protected species.

Scientific names and common names of plant species identified are as they appear in Stace, (ref. R.5).

The conclusions and recommendations for further works are in accordance with current legislation and guidance.

3.2 Personnel

This report was produced by Ariana Segura BSc (Hons) MSc (Graduate Ecologist), who is experienced in ecological consultancy including surveys and mitigation for a range of protected species and in producing preliminary ecological appraisals and impact assessments. All surveyors used to establish baseline information are suitably qualified and experienced; surveyors' names and qualifications are stated under each survey heading below. This report was reviewed by Alanna Cooper BSc (Hons) CEnv CSci C.WEM MCIEEM MCIWEM (Principal Ecologist) and approved by Katie Linehan BSc (Hons) MSc PIEMA MCIEEM (Technical Director), who is experienced in ecological consultancy including the production of preliminary ecological appraisals and impact assessments.

3.3 Ecological Desk Study

A data search was conducted of freely available biological records. The sources of information included:

The Multi-Agency Geographic Information for the Countryside (MAGIC) online database (ref. R.6) was consulted to obtain geographic information on key statutory designated nature conservation sites and other ecological features of relevance to the site.

Herts Environmental Records Centre (HERC) was contacted to provide details of legally protected species and non- statutory designated conservation sites within 2km of the site. Only records of protected species from within the last ten years are considered within this report.

Ordnance survey maps were used to identify ponds/ditches within 500m of the site to assess the potential for great crested newt (Triturus cristatus) (GCN) within the immediate vicinity of the site.

A desk-based search for ponds within 500m of the site was undertaken using the MAGIC online database base maps (ref. R.6).

A summary of the previous survey reports in relation to this proposed development is provided below in Table 1.

Table 1 – Previous Survey Reports

Report and Reference	Report Description	Summary of Relevant Findings
Preliminary Ecological Appraisal (ref. R.7)	Ecological walkover survey undertaken on 13 March 2017.	This PEA covered a wider survey area. The habitats comprised of arable land, with semi-improved grassland margins, species-poor hedgerow, and scattered trees. The features onsite are suitable for roosting and foraging bats, great crested newt, birds, and reptiles.
Arboricultural Survey (ref. R.8)	Arboricultural survey undertaken on 13 March 2017.	This survey covered a wider survey area. A total of twenty trees and eleven groups of trees were surveyed. Five trees were classed as category A, seven trees and six groups were classed as category B and eight trees and five groups of trees were classified as category C.
Great Crested Newt eDNA Letter Report (ref. R.9)	eDNA sampling survey undertaken on 31 May 2017.	The eDNA results came back as negative, therefore GCN were not detected, and no further surveys were required.
Reptile Survey Report (ref. R.10)	Reptile presence/absence survey undertaken between 8 June and 18 July 2017.	No reptiles were encountered during the survey, suggesting little negative impact to the local population of reptiles from the proposed development.
Breeding Bird Survey (ref. R.11)	Breeding bird survey undertaken on 19 April 2018 and 21 May 2018.	This survey covered a wider survey area. A total of twenty-seven species were recorded onsite, with twenty-one considered to hold breeding territories. Barn owl droppings were noted onsite.
Arboricultural Survey (ref. R.12)	Updated Arboricultural survey undertaken on 26 September 2023.	A total of twenty-one trees and sixteen groups were surveyed. Four trees and no groups were classed as Category A trees. Five trees and no groups were classified as Category B trees. Nine trees and sixteen groups were classified as Category C trees. Three trees were categorised as Category U trees.

Wherever the above reports prepared by Geosphere Environmental are summarised, this should not be taken a comprehensive synopsis of all findings, and the full report should be consulted for a definitive interpretation of the results.

The previous PEA reports are completely superseded by this updated report and all relevant findings are reported herein.

3.4 Preliminary Ecological Appraisal

The surveys used to inform the PEA comprise a habitat survey and protected species scoping survey. The PEA considers findings of the outcome of the survey work alongside any features highlighted by the desk study.

The site survey was undertaken on 28 June 2023 by Ariana Segura and Tom Cox HND TechArborA QualCIEEM (Senior Ecological and Arboricultural Consultant). The weather conditions at the time of the survey were partly sunny and an approximate temperature of 20°C.

A list of plant species was compiled in accordance with methodology required to establish UK Habitat Classification types (ref. R.13) aiming to record to level 4, ensuring habitats were recorded to at least level 3 where it was not possible to record to level 4.

The frequency and cover of each species identified as they are distributed in each habitat is estimated using the DAFOR scale, (ref. R.14), as follows:

Dominant - >75% cover.
Abundant – 51-75% cover.
Frequent – 26-50% cover.
Occasional – 11-25% cover.
Rare – 1-10% cover.
Locally dominant (LD), abundant (LA) and frequent (LF) is also used where the distribution is patchy.

Where relevant, habitats are compared to UK BAP definitions to determine if they meet the criteria to be considered habitats of principal importance (ref. R.15).

The site was assessed for its suitability to support protected species and other species of conservation importance, which could pose a planning constraint. All signs and areas of habitat considered suitable for protected species or those of conservation interest, were recorded and photographed. These include burrows, droppings, footprints / paths, hairs, refuges and particular habitat types, such as ponds, known to be used by certain class of fauna. Sites are taken in the context of their surroundings and so include the immediate environs outside of site boundaries, where appropriate.

Any mammal paths found were noted down and followed where possible.

All ponds within 500m of the site were also assessed for their suitability for GCN if the ponds were publicly accessible or if access had been granted prior to the survey. This includes a habitat suitability index (HSI) assessment (ref. R.16) which assesses the pond based upon a number of factors including the size, water quality, permanence, shading, presence of fish, the number of nearby ponds and macrophyte cover. A score between 0 and 1 is given; where 0 represents poor suitability and 1 represents excellent suitability.

There was one building located adjacent to the southwestern boundary. A Daytime Bat Walkover (DBW) was undertaken as part of the Biodiversity and Ecology survey report to identify the suitability of the adjacent building to provide potential roost space for bats, in line with the Bat Conservation Trust (BCT) survey guidelines (ref. R.17). This was an external assessment only to confirm whether any potential roost features (PRFs) were visible site side of the build.

All established trees that could be accessed onsite were inspected during a DBW and underwent a ground level tree assessment (GLTA) to assess their suitability. The categories are: none (negligible), FAR (further assessment required) or PRF (potential roost feature) being a tree with at least one PRF present. Where possible, an approximation of the PRF categorisation has been provided as PRF-I (whereby the PRF is only considered suitable for individual bats either due to size or lack of suitable surrounding habitats) or PRF-M (PRF is suitable for multiple bats and may therefore be used by a maternity colony), in line with the Bat Conservation Trust (BCT) survey guidelines (ref. R.17).

3.5 eDNA Sampling

An eDNA sample was collected from pond 1 (closest to site) by Tom Cox HND, TechArborA Great Crested Newt class survey licence ref. 2021-19003-CLS-CLS, on 28 June 2023. The eDNA sampling kits (one per water body sampled) were received in April 2023, from SureScreen Scientifics. Water samples were collected from the water body on 28 June 2023, following SureScreen Scientifics' instructions for the sampling of Great Crested Newt eDNA. This collection method is in line with the guidance within DEFRA's 'Analytical and methodological development for improved surveillance of the Great Crested Newt – WC1067 Appendix 5' (ref. R.18).
One eDNA kit was used for each water body during eDNA sampling. Water samples were collected from 20 sampling points. Sampling points were as evenly distributed as possible considering areas of reduced accessibility such as edges with dense scrub preventing access.

Samples collected did not contain significant suspended sediment or other particular matter, and water clarity was almost entirely clear within the whirly-pak (bag in which all water samples are mixed together during sample collection).

Following the collection of the samples, they were refrigerated until dispatched via courier to SureScreen Scientifics on 31 June 2023. Kits were received by the lab on 1 July 2023.

Artificial DNA is placed into the eDNA kits when they are created, to ensure that once samples have been collected and returned to the laboratory for analysis, the DNA within the samples has not suffered degradation to the point that any GCN DNA can't be detected. All laboratory work undertaken on the eDNA samples are in accordance with DEFRA's 'Analytical and methodological development for improved surveillance of the Great Crested Newt - WC1067 Appendix 5' (ref. R.18).

3.6 Ecological Evaluation

The ecological evaluation detailed below is based upon CIEEM Guidelines for Ecological Impact Assessment in the United Kingdom, (ref. R.19).

CIEEM Guidelines state that the value or potential value of an ecological resource or feature should be determined within a defined geographical context as follows:

On an international scale, e.g., Ramsar, Special Area of Conservation (SAC) or Special Protection Area (SPA) site.
On a UK scale, for example a Site of Special Scientific Interest (SSSI) or a National Nature Reserve, (NNR).
On a national scale, e.g., a reserve of importance to England/Northern Ireland/Scotland/Wales.
On a regional scale, e.g., a local site with important regional habitats of principal importance (HoPI) or good populations species of principal importance (SoPI).
On a county scale, e.g., a local site with a habitat that is characteristic of the county or rare on a county scale, or with local HoPI/SoPI.
On a district scale, e.g., a site with wildlife corridors likely to improve the biodiversity of the area.
On a local or parish scale, e.g., areas of green space in a predominantly urban environment.

The potential for protected species to use the habitats onsite contributes significantly towards the potential value of the habitats onsite.

3.7 Site-specific Limitations

Access to some of the ponds at the time of the survey was not possible, and therefore no eDNA or HSI assessment of these waterbodies was undertaken.

The trees were in leaf when the GLTA was undertaken. As such, it was not possible to confirm whether all PRF have been identified.

4. RESULTS

4.1 Designated Sites

All relevant desk study data relating to designated sites is attached in Appendix 5.

There are no designated sites within the site boundary.

Consultation of the MAGIC online interactive mapping tool confirms the presence of two internationally important statutory designations within 13km of the site boundary. These include Lee Valley (Ramsar and Special Protection Area (SPA) and Wormley-Hoddeson Park Woods (Special Area of Conservation (SAC).

There is one nationally important statutory site present within a 2km search radius of the site boundary. This is Plashes Wood Site of Special Scientific Interest (SSSI).

HERC has confirmed the presence of twenty-six non-statutory designations within the 2km search radius.

Designations that have good habitat connectivity to the site, or whose qualifying features have the potential to make use of habitats present at the site, are considered important ecological features that may be affected by development. These designated sites are:

Great Southey Wood and Ash Plantation, Local Wildlife Site (LWS), approximately 340m east from site;
Sutes Wood, LWS, approximately 330m north-east from the site.

4.2 Habitats

The results of the habitat survey and protected species scoping survey are detailed below and annotated on Figure 2 overleaf.

Where possible, tree and hedgerow reference numbers are as shown in the previous Arboricultural Survey (ref. R.8).

A search of Magic Map (ref. R.6) identified the following for habitats of principal importance near the site:

Within 340m of the site is 10.4ha of deciduous woodland, with a further 2.44ha parcel of deciduous woodland northeast of the site by 330m. This is sectioned off from the site by the A10;
North of the site boundary by approximately 340m there is 18.84ha of good quality semi-improved grassland, however this is separated from the site by a single carriage way road.

Figure 2 - Habitat Survey Plan

The following area-based habitat types were recorded within the survey area:

Other neutral grassland – g3c;
Arable and horticulture – c1;
Arable field margins – c1a;
Developed land; sealed surface – u1b.

Linear habitats recorded within the survey area include:

Hedgerow, native – h2a.

Offsite habitats recorded include:

Hedgerow, native, with trees – h2a 11;
Hedgerow, native, with a dry ditch – h2a 191;
Buildings – u1b5;
Ponds – r1a.

4.2.1 Other Neutral Grassland

The other neutral grassland onsite is a field margin that separates the access road that borders the site boundary and the northern arable field. Species within the grassland include abundant soft brome (Bromus hordeaceus) and perennial ryegrass (Lolium perenne); frequent cock's-foot (Dactylis glomerata) and creeping cinquefoil (Potentilla reptans); occasional crested dog's tail (Cynosurus cristatus), creeping buttercup (Ranunculus repens), bristly ox-tongue (Helminthotheca echioides), yarrow (Achiella millefolium) and common mallow (Malva sylvestris); and rare occurrences of field speedwell (Veronica agrestis).

Within the grassland there are two small cherry (Prunus spp.) trees.

4.2.2 Arable Field and Field Margin

At the time of the survey the arable field was bare ground.
The arable field margin on the western edge of the south parcel of arable land consisted of species such as dominant false oat grass (Arrhenatherum elatius); abundant bramble (Rubus fruticosus) and broad-leaved dock (Rumex obtusifolius); with frequent creeping thistle (Cirsium arvense), Yorkshire fog (Holcus lanatus) and cock's-foot; occasional common hogweed (Heracleum sphondylium) and rare occurrences of bindweed (Convolvulus spp.).

4.2.3 Hedgerows

The hedgerow lining the northwestern edge of the site boundary (H1) is made up of species including blackthorn (Prunus spinosa), elder (Sambucus nigra), field maple (Acer campestre) and hazel (Corylus avellana). The vegetation underneath consisted of dominant ox-eye daisy (Leucanthemum vulgare), false oat grass and bristly ox-tongue, frequent perennial ryegrass with occasional) and Bromus spp., and rare occurrences of ragwort (Jacobaea vulgaris).

4.2.4 Habitats Outside the Development Zone

A row of residential properties borders the west and further along the southern edge (behind an established tree belt), connected to the site by a fence-line, arable field margin and scattered trees. To the north and east of the site boundary, the arable field extends providing good connectivity to the boundary.

Northeast of the site boundary, there is an area of hardstanding, buildings, and vegetated garden, including a pond. These have good connectivity to the site as the landscape is open.

Towards the south of the site, outside of the site boundary, three separate lines of native hedgerow are present, both consisting of species such as hawthorn (Crataegus monogyna), elder and hazel with dominant stinging nettle (Urtica dioica), false-oat grass and soft brome lining the vegetation underneath. The western portion of the southern hedgerow is associated with a ditch, overgrown with species such as bramble, broad-leaved dock and false oat grass.
The very southwestern line of hedgerow with trees consists of mainly hawthorn, field maple and hazel species in the hedge with ash (Fraxinus excelsior) trees.

4.3 Species

Descriptions of the target notes (TN) and relevant photographs are included in Appendix 7. The location of target notes and other features relevant to protected or otherwise notable species is included on Figure 3 overleaf.

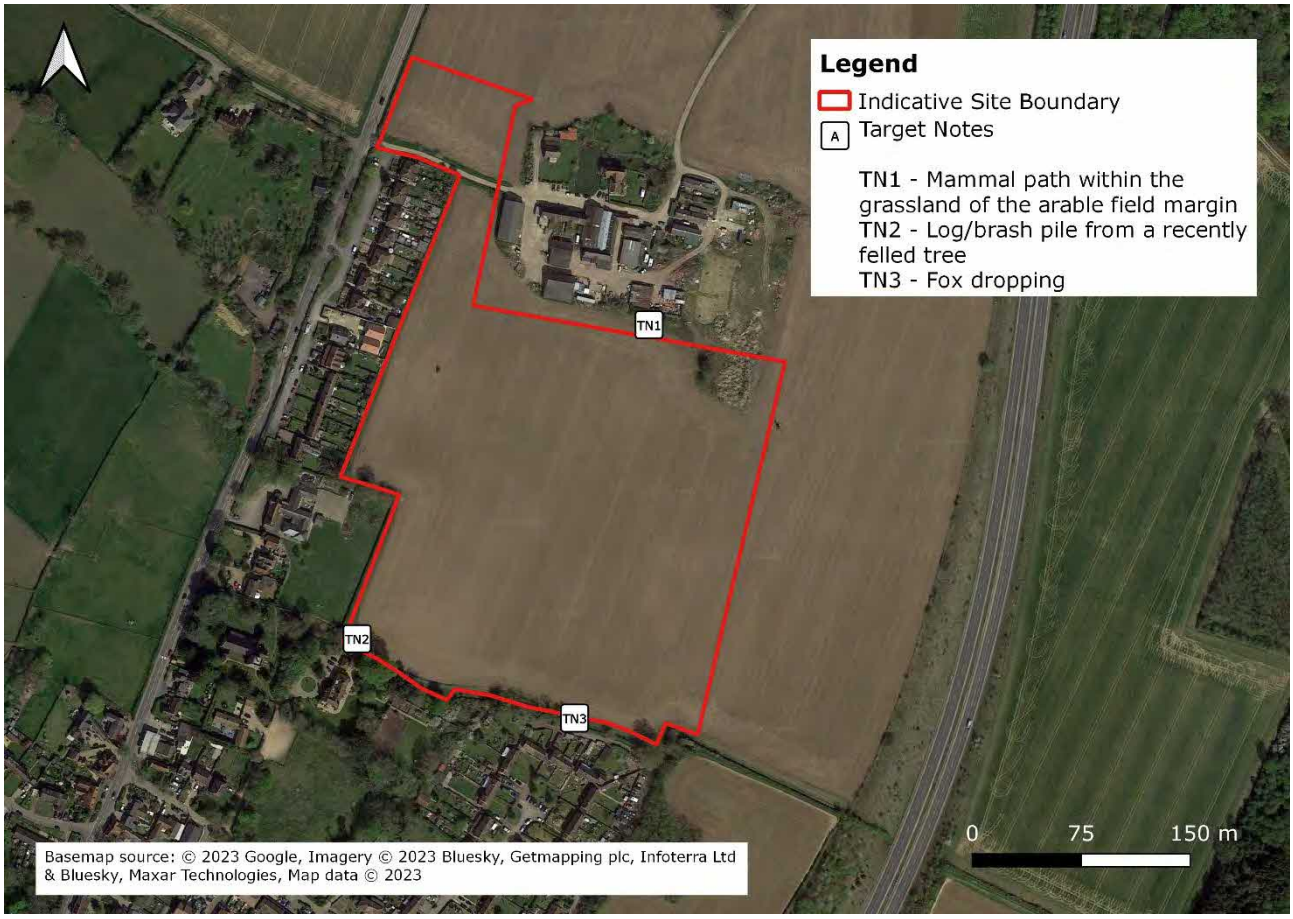

Figure 3 - Target Notes and Species-specific Features

4.3.1 Species Discounted from Further Consideration

Legally protected species for which there is no suitable habitat onsite include water vole (Arvicola amphibius) and otter (Lutra lutra).

These species are therefore not considered further in this report.

4.3.2 Plants

HERC has returned 18 records of rare or otherwise notable plants recorded in the last 10 years within 2km of the site. This includes species such as bluebell (Hyacinthoides non-scripta), field scabious (Knautia arvensis) and dwarf spurge (Euphorbia exigua) that may be present in the other neutral grassland or field margins at the site.

No records of rare plants were returned within biological records and no evidence of any rare plants was noted during the site survey. One bee orchid (Ophrys apifera) was noted in the residential garden located within 50m of the site boundary to the north-east, however, the habitat present onsite is predominately poor condition arable land with thin field margins overgrown with tall ruderal plants, likely due to enrichment by fertiliser application. As such, there is limited suitable habitat for notable plant species, and they are not expected within the affected areas.

4.3.3 Invertebrates

HERC has returned 76 records of invertebrates recorded in the last 10 years within 2km of the site. This includes species such as white-letter hairstreak butterfly (Satyrium w-album), grizzled skipper butterfly (Pyrgus malvae) and shaded broad-bar moth (Sctopterys chenopodiata) that could make use of the trees, grassland and field margins present onsite. During the site survey, cinnabar moth (Tyria jacobaeae), small tortoiseshell butterfly (Aglais urticae) and marbled white butterfly (Melanargia galathea) were recorded.

Although trees, grassland and hedgerow habitats have the potential support assemblages of notable invertebrates, these habitats are unlikely to be impacted by the proposed development. The majority of areas to be impacted are of low species diversity, including field margins with tall ruderal vegetation and are unlikely to support an assemblage of rare invertebrates. Therefore, invertebrates are not considered further within the constraints section of this report.

4.3.4 Great Crested Newt

HERC has returned 4 records of great crested newt recorded in the last 10 years within 2km of the site. The closest record is 600m from the site.

4.3.4.1 Ponds Within 500m

5 ponds are located within 500m of the site, referenced ponds 1 to 5 and shown on Figure 4 overleaf. Ponds 2 to 5 were not accessible.

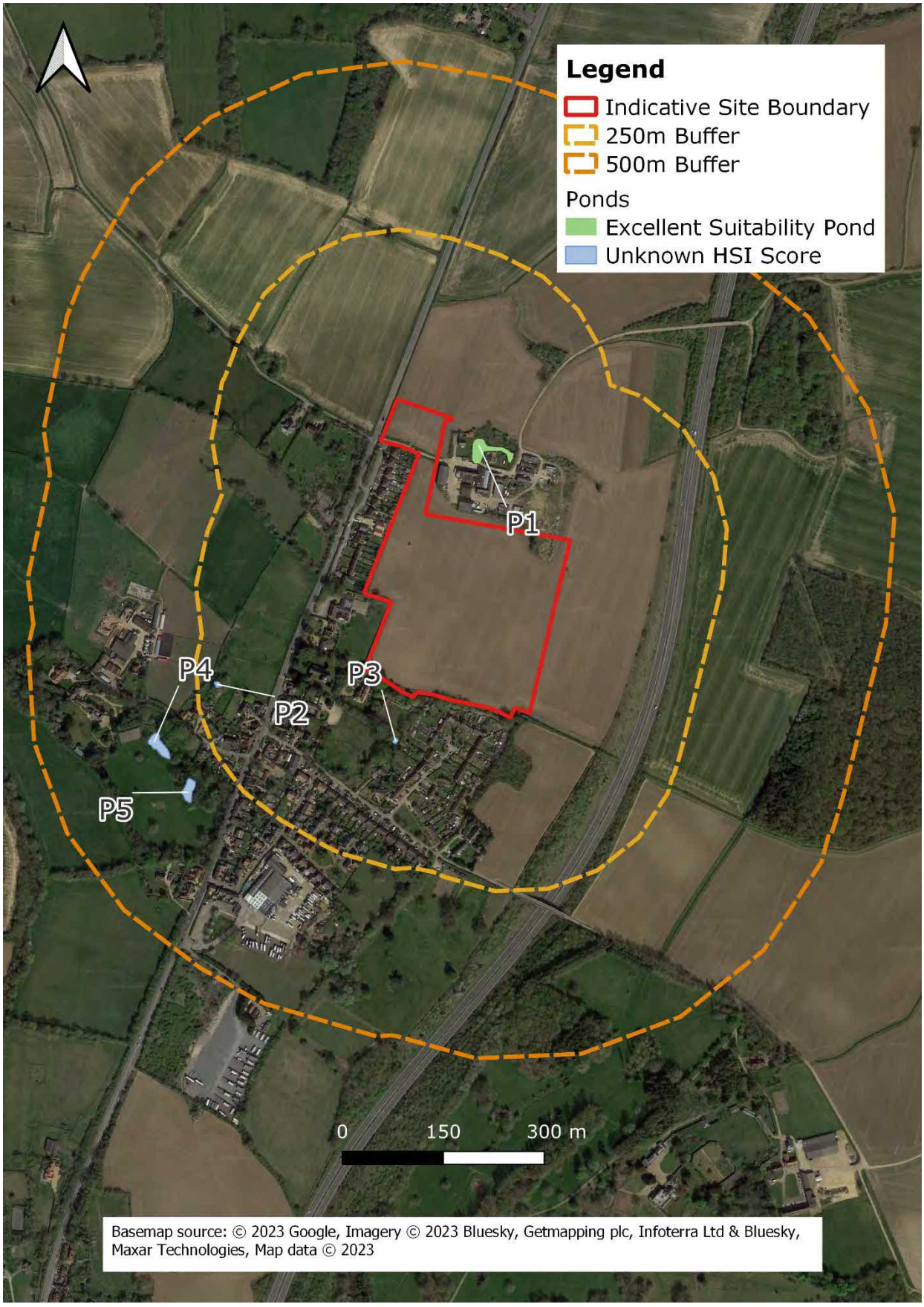

Figure 4 - Ponds within 500m of the Site Boundary

4.3.4.2 Habitat Suitability Index & eDNA Analysis

A Habitat Suitability Index (HSI) assessment was undertaken where access was possible to assess the suitability of each pond to support great crested newt. A score between 0 and 1 is given; where 0 represents poor suitability and 1 represent excellent suitability. The results are provided in Appendix 8 and summarised in Table 2 below:

Table 2 – HSI Scores of Ponds

Pond	Distance from Site	Connected or Separated from Site	Pond Size (m^2)	HSI Score	Pond Suitability for Great Crested Newts
1	50m east	Connected to site by a vegetated garden with hedgerow and trees.	901	0.8	Excellent – eDNA sampling undertaken
2	212m southwest	Separated by residential properties, a single carriageway road and arable fields.	57	Unknown as it could not be accessed.	Aerial photographs show this pond to be situated within a residential garden, with suitable connectivity to the surrounding arable fields. It is therefore considered suitable for GCN.
3	60m south	Separated from site by residential properties, including fencing and trees.	38	Unknown the pond was dry at time of survey.	This pond is situated within a new residential development, and due to the fact, it was dry at time of survey, it is considered unlikely to support large populations of GCN.
4	312m southwest	Separated from site by a single carriageway road, residential blocks with vegetated gardens.	536	Unknown as it could not be accessed.	From aerial photographs, this pond seems to be situated within semi-natural habitat with good connectivity to the surrounding grassland and woodland. It is therefore considered suitable for GCN.
5	297m southwest	Separated from site by a single carriageway road, residential blocks with vegetated gardens.	407	Unknown as it could not be accessed.	From aerial photographs, this pond seems to be situated within semi-natural habitat with good connectivity to the surrounding grassland and woodland. It is therefore considered suitable for GCN.

The detailed results of the eDNA sample laboratory analysis relating to accessible ponds are attached to this report as Appendix 9. Table 3 overleaf provides an overview of the results:

Table 3 – Overview of the Results						
Date Sample Collected	Pond Ref.	HSI Score	Positive/Negative	No. of positive replicate reactions	Inhibition control	Degradation control
01/07/2023	Pond 1	Excellent	Negative	0	Pass	Pass

Pond 1 is a residential pond with good connectivity to the site boundary. Fish were observed within the pond at the time of the survey. Despite the waterbody achieving an excellent HSI score, the lack of nearby recent biological records for the species, as well as the present of fish indicate there is a low chance of great crested newt present. Based on the eDNA results tabulated above, great crested newt DNA was not present in the waterbody (Pond 1) sampled. This pond also produced a negative result in 2017 (ref. R.9).

Pond 2 (separated by residential properties, a single carriageway road and arable fields) is a small garden pond which, if GCN were present, would unlikely support a large population of GCN.

Pond 3 is a small waterbody situated in the landscaping of a new residential development. It is considered unlikely to support a population of GCN due to the fact that it was dry at the time of surveying and a lack of connectivity to surrounding semi-natural habitat.

Ponds 4 and 5 (beyond 250m and separated from site by a single carriageway road and residential blocks with vegetated gardens) appear to be medium sized waterbodies surrounded by semi-natural habitat with good terrestrial habitat surrounding them. As such, it is suitable habitat for GCN.

The habitats onsite and in the immediate locality consist of predominantly large expanses of intensively farmed land, which is typically sub-optimal terrestrial habitat for great crested newts. There are no aquatic habitats for GCN onsite with very low counts of biological records for this species within 2km in the last 10 years. The closest pond (P1) to the site boundary had confirmed absence of GCN present, and the next closest pond (P3) has low suitability for a GCN population. Where pond 2 has suitable habitat for GCN, there is a lack of suitable connecting habitat such as hedgerows or ditches directly to the site. Whilst ponds 4 and 5 have suitability for GCN, they are over 250m in distance from the site boundary. These factors suggest that there is unlikely to be a presence of great crested newts within the site boundary.

4.3.5 Reptiles

HERC has returned 2 records of reptiles recorded in the last 10 years within 2km of the site. Records include a slow-worm (Anguis fragilis) and grass snake (Natrix helvetica). The closest is a grass snake recorded 450m from the site.

The reptile presence / absence survey conducted in 2017 (ref. R.10) confirmed absence of reptiles using the site. However, due to the survey data collected being six years old, it is unsuitable as an indication of the current population of reptiles onsite, as the arable field margins with consists of overgrown grass and tall ruderal still provide suitable habitat for reptiles.

4.3.6 Birds

HERC has returned 2173 records of birds recorded in the last 10 years within 2km of the site. This includes species such as cetti's warbler (Cettia cetti), hobby (Falco Subbuteo) and bittern (Botaurus stellaris) that have been recorded within 0km, presumably within or near the site boundary, although it is unlikely bittern was recorded within the site boundary, as there is no suitable habitat for this species onsite, or near to site. In addition, none of these species were detected during breeding bird surveys undertaken in 2018 (ref.R.11).

Table 4, shows the species of birds that were noted during the survey:

Table 4 – Birds Identified During the Survey

Common Name	Scientific Name	Status*	Location Notes
Blackbird	Turdus merula	Green	Seen onsite.
Buzzard	Buteo buteo	Green	Seen flying over the site to the west offsite.
Carrion crow	Corvus corone	Green	Heard and seen flying over the site.
Chiffchaff	Phylloscopus collybita	Green	Heard offsite within the trees.
House martin	Delichon urbicum	Red	Nest observed in building adjacent to Pond 1, 50m east from the site.
Magpie	Pica pica	Green	Seen and heard onsite.
Red kite	Milvus milvus	Green	Seen flying over site.
Skylark	Alauda arvensis	Red	Heard and seen flying over the site and adjacent arable to the east.
Song thrush	Turdus philomelos	Amber; SOPI	Heard offsite in an unknown direction.
Woodpigeon	Columba palumbus	Amber	Seen and heard onsite.
Wren	Troglodytes troglodytes	Amber	Heard adjacent offsite to the southwest.
Yellowhammer	Emberiza citrinella	Red / SOPI	Heard along the boundary of the site to the south.

Status abbreviations:
Red / Amber / Green: Birds of Conservation Concern 5 (BoCC 5) status (ref. R.20)
SOPI: species of principal importance, listed on section 41 of the NERC Act 2006
Sch 1: protected species listed on schedule 1 of the WCA 1981 as amended

Suitable habitats for birds are the arable fields, hedgerow, trees, and grassland present onsite.

4.3.7 Bats

HERC has returned 115 records of bats recorded in the last 10 years within 2km of the site. Records include barbastelle bat (Barbastella barbastellus), Natterer's bat (Myotis nattereri), noctule bat (Nyctalus noctula),

soprano pipistrelle (Pipistrellus pygmaeus), common pipistrelle (Pipistrellus pipistrellus), brown long-eared bat (Plecotus auritus) and Daubenton's bat (Myotis daubentonii).

Some trees onsite, as well as a single building offsite are suitable for roosting bats; the boundary hedgerows are suitable for foraging and commuting bats. These features are discussed in further detail below.

4.3.7.1 Buildings

There are no buildings onsite. However, there is a building offsite near to the southwestern site boundary, and the aspect of the building adjacent to the site was surveyed for potential bat roost potential. The building subject to an external Preliminary Roost Assessment is referenced B1 as shown on Figure 5.

Figure 5 - Building References for the Preliminary Roost Assessment

Selected photographs of the scoping survey are included in Appendix 10 and details of the potential roost features identified and their suitability are provided in Table 5 below:

Table 5 – Bat Roost Suitability of Buildings			
Ref. No.	Building Description	Potential Roost Feature	Bat Roost Suitability*
B1	Single building with gable ends and aged roof tiles.	The roost feature includes lifted roof tiles along the far edge of the building, creating a void where bats could fly in.	Low
*based upon external PRA unless stated otherwise			

Based on the Southern Boundary Buffer Plan, Drawing ref. 70-07A included within Appendix 3, there will be an appropriate soft landscape buffer of approximately 52.3m from building B1 to the proposed development area. The buffer along the southern boundary ranges from 33.6m to 37.8m as you move east to west.

4.3.7.2 Trees

The GLTA of the established trees either onsite or along the boundary of the site identified 6 trees of low or higher suitability to support roosting bats. The location of these trees is shown in Figure 6 below.

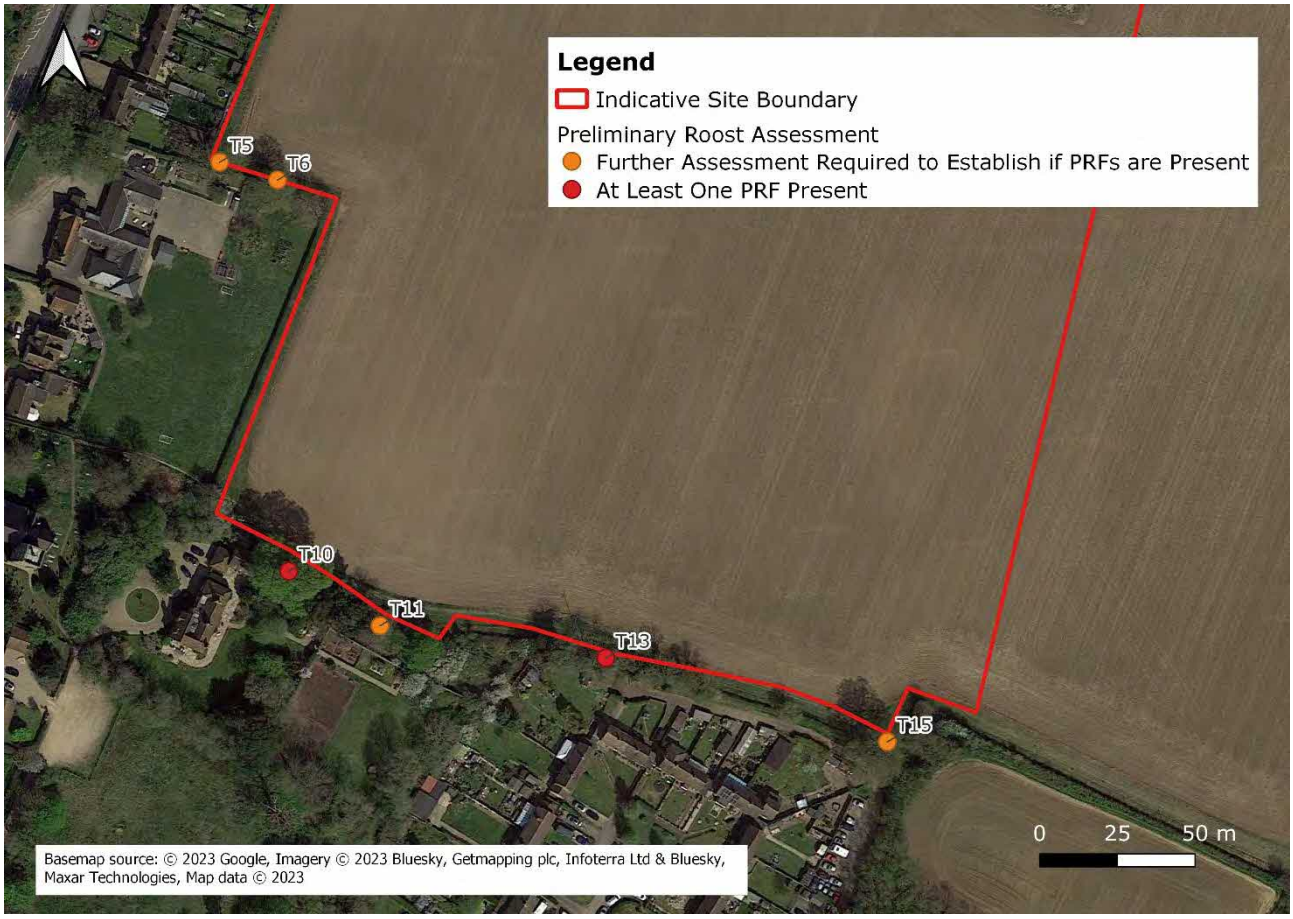

Figure 6 - Trees Identified as Having Bat Roost Potential

Selected photographs of the scoping survey are included in Appendix 10 and details of the potential roost features identified in these trees and their suitability are provided in Table 6 below:

Table 6 – Bat Roost Suitability of Trees (Ground Level Assessment)

PEA Ref. No.	Arb survey No. (ref. R.12)	Onsite or Offsite	Species	Potential Roost Feature/ direction and height on tree	Bat Roost Suitability*
T5	T9	Onsite	Pedunculate Oak	A mature tree covered in dense ivy, possibly obscuring roost features.	FAR
T6	T10	Onsite	Pedunculate Oak	A mature tree covered in dense ivy, possibly obscuring roost features.	FAR
T10	T12	Offsite	Pedunculate Oak	A mature tree covered in dense ivy with deadwood present.	PRF
T11	T13	Offsite	Ash	A mature tree covered in dense ivy, possibly obscuring roost features.	FAR
T13	T15	Offsite	Pedunculate Oak	A mature tree covered in dense ivy with deadwood present including lifted bark.	PRF
T15	T17	Offsite	Pedunculate Oak	A mature tree covered in dense ivy with deadwood present.	FAR

*FAR = Further assessment required to establish if PRFs are present.
*PRF = A tree with at least one PRF present.

Based on the Southern Boundary Buffer Plan, Drawing ref. 70-07A included within Appendix 3, there will be a soft landscape buffer ranging from 33.6m to 37.8m from the offsite trees (PEA ref. T10 – T15) to the proposed development.

4.3.7.3 Foraging and Commuting Habitat

Scattered trees and hedgerow offer suitable commuting routes and foraging habitat for bats. The connectivity of the site with surrounding suitable habitats is not optimal, given the large amount of arable with fragmented hedgerows. The foraging and commuting habitat onsite is considered to be of low suitability.

4.3.8 Hazel Dormouse

No records of hazel dormouse within the last 10 years were returned in the desk study. The most recent record of hazel dormouse within 2km of the site is dated 1997. The connectivity of the trees and hedgerow provide suitable habitat within the site boundary, however, given the lack of biological records noted within the area recently and lack of largely connective habitat, it is unlikely that the site could support a population of hazel dormouse.

4.3.9 Hedgehog

The site provides suitable foraging habitat for hedgehog (*Ericanceus europaeus*) in the grassland and hedgerow and suitable nesting and hibernating habitat in the hedgerow and log/brash pile (see TN2 in the Target Notes as Appendix 7).

The site is open with good connectivity to the adjacent arable fields.

4.3.11 Other Fauna

Evidence of fox *(Vulpes vulpes)* activity was noted in the southern grass field margin, (see Target Note TN2 within Appendix 7).

The site is suitable for brown hare (*Lepus europaeus*), a species of principal importance, and recent records of this species in the area were returned by HERC.

5. EVALUATION, CONSTRAINTS AND RECOMMENDATIONS

5.1 Proposed Development Area

The report relates to proposed residential development of the site as shown in the Illustrative Concept Master Plan, Drawing ref. SCOT230616 ICMP-01 P1 included within Appendix 3. The proposed developable area is shown on the southern boundary buffer plan, referenced 70-07A in Appendix 3, along with the distance from the proposed development and the boundary features along the southern boundary.

The proposed development includes the construction of up to 95 units, with access roads stretching throughout the site, and designated play areas. The proposed landscaping involves a wildflower planting area, low level planting, new tree planting and SuDS. An area has been sectioned off that is dedicated to the primary school expansion development. There will also be areas dedicated to a cemetery extension and proposed allotments.

5.2 Nature Conservation Sites

The desk study identified one nature conservation sites with statutory designation, and twenty-six non- statutory designated nature conservation sites within 2km radius of the site. Two internationally protected sites, Lee Valley SPA and Ramsar and Wormley-Hoddeson Park Woods SAC, were noted within 13km of the site boundary. The proposed development site is within a SSSI risk zone for Plashes Wood SSSI, a national protected site. Though the residential development may anticipate increased visitor pressure on this SSSI, it is not expected to have any direct effects on these statutory designated sites.

The development site does not contain any habitats which could support the important species associated with either the statutory or non-statutory sites Lee Valley SPA and Ramsar, Wormely-Hoddeson Park Woods SAC, Plashes Wood SSSI, Great Southey Wood and Ash Plantation LWS and Sutes Wood LWS. There is potential habitat connectivity between the site and the statutory sites Great Southey Wood and Ash Plantation and Sutes Wood.

It is considered unlikely, given the distance from the survey area and localised nature of the proposed development works, that the Nature Conservation sites listed above will be directly affected by any construction activity on the surveyed area.

5.3 Habitats

The ecological constraints regarding general habitats onsite are detailed within Table 7 overleaf, along with associated recommendations for avoidance and/or mitigation to reduce likely impact:

Table 7 – Habitat Constraints and Recommended Actions			
Habitat	Value/Importance	Potential Impact/Effect	Recommended Actions (Avoidance Measures or Recommendations to Reduce Impact)
Mature Trees	Mature trees have intrinsic ecological value, in particular as dispersal routes for wildlife as well as foraging and roosting potential for birds and bats.	Loss of foraging and resting habitat suitable for notable and protected species. Loss of a habitat of principal importance.	Mature trees should be retained where possible. Any trees that are removed during development should be replaced within the landscaping of the final development using similar species. Protection measures should be implemented according to BS 5837: 2012 'trees in relation to design, demolition and construction' (ref. R.21).
Hedgerows	Habitat of principal importance. Wildlife resource for foraging/commuting local wildlife.	Loss of foraging and resting habitat suitable for notable and protected species. Loss of a habitat of principal importance.	Retain and/or enhance where possible. The loss of any sections of hedgerow should be compensated for by planting new hedgerows onsite to maintain habitat corridors across the site.

5.4 Legally Protected and Notable Species

The ecological evaluation for protected species is detailed Table 8 overleaf:

Table 8 – Protected Species - Ecological Constraints and Recommended Actions					
Ecological Constraint/ Receptor	Biological Records Within 2km	Value of Supporting Feature	Potential Impact/Effect	Recommended Actions (Avoidance/mitigation/compensation Measures and Recommendations for Further Works)	Timing Restrictions
Breeding Birds	No	Habitats including hedgerow and trees offer value to breeding birds for common passerine birds. Arable land suitable for ground nesting species such as skylark.	Loss of habitat for breeding and foraging birds Destruction of active nest sites.	As the arable land is to be impacted by the development, then a breeding bird survey should be undertaken to assess the likely effect of development on farmland birds.	Six survey visits between March and July.
				To ensure that no offences occur under the WCA, it is recommended that any vegetation clearance work is undertaken outside of the bird nesting season. If it is not possible to undertake clearance works outside of the breeding bird season, a suitably qualified ecologist should be employed to determine if nesting birds are using the site prior to works commencing, to avoid negative impact on protected species. Any active nests that are found would need to be provided with a minimum of a 10m buffer (depending on species and site conditions) which would have to be left until the young have fledged.	Clearance during September to February only unless supervised by an Ecologist.
				Measures such as habitat retention and protection of hedgerows and mature trees should be designed into the scheme to minimise negative impact.	N/A
Reptiles	Yes	Habitats onsite are considered suitable to support a good population of widespread species of reptiles. Grassland onsite is suitable for foraging reptiles, the log/brash pile within southern hedgerow with trees boundary and arable field margins are suitable for hibernating reptiles.	Reduction in breeding / foraging / hibernation habitat for reptiles. Death or injury of reptiles.	Avoidance measures are not possible as it is likely most of the grassland will be impacted by development. Although the former reptile survey confirmed absence, the data is now considered too old to rely on. As such an updated survey should be undertaken confirm the current status of reptiles on the site.	Baseline survey between March and October inclusive (weather dependent)
Bats: Roosting habitat- Buildings B1(offsite) Trees T5, T6 (onsite) T10, T11, T13 and T15 (offsite)	Yes	Potential Roost Features (PRF and FAR) offsite along the southern boundary: on B1, T10, T11 and T13. T5 and T6, have substantial age and presence of ivy to potentially be obscuring roost features, and as such, further assessment required (FAR).	Loss of roosting habitat. Destruction of a resting place for bats. Death or injury to bats.	Avoidance: The features offsite south of the site boundary (B1, T10, T11 and T13) are located between 32.2m and 52.3m from the proposed development area as shown in drawing 70-07A in Appendix 3. It should be possible to avoid impact on PRF features through the design of a sensitive lighting scheme in coordination between a qualified lighting engineer and a suitably qualified Ecologist, according to current best practice guidelines (ref. R.22). Reduction measures in terms of noise and vibration during construction phase should be detailed within a Construction Method Statement (CEMP) which should be secured as an approved planning condition. Further survey effort: If any of the trees with roost suitability require tree works, removal, or may be affected by artificial lighting, further consideration will be required to avoid effects on roosting bats. For trees T5 and T6, further assessment is required to confirm whether features present can be categorised as PRF-I or PRF-M. An updated GLTA should be undertaken over winter when the trees are no longer in leaf so PRFs are more visible. The findings of this will determine whether tree climbing, or emergence surveys will be required to confirm presence.	GLTA over winter.
Bats: Foraging and commuting habitat	Yes	Hedgerows and trees around the margins of the site are suitable habitat for foraging and commuting bats. The foraging and commuting habitat onsite is considered to be of low suitability. Boundary vegetation offers suitable commuting routes for bats, and as there is currently no bat data for the site it is unknown how the proposed lighting associated with the development would affect these routes.	Loss of foraging and commuting habitat that is of local/county importance. Severance of commuting routes for the local bat population. Abandonment of roost sites. Reduction in foraging availability reducing breeding success.	Avoidance measures should be designed into the scheme where possible to avoid negative impact. This should include: Retention and protection of all trees currently around the boundaries of the site. Design of a sensitive lighting scheme in coordination between a qualified lighting engineer and a suitably qualified Ecologist, according to current best practice guidelines (ref. R.22), and details of the lighting strategy provided at detailed design stage.	N/A
				If avoidance of effects on foraging/commuting habitat by artificial lighting cannot be demonstrated at the pre-planning stage (e.g., through comparison of existing lux levels and proposed lux level plans, showing no net increase in lux levels at the tree canopy/hedgerows), additional survey effort will be required to confirm baseline conditions. Transect and remote monitoring surveys should be carried out to determine the importance of the foraging/commuting habitat around the site boundaries assemblages of bat species in the local area. This will enable an ecological risk assessment to determine the level of effect, if any, additional artificial lighting will have on foraging and commuting bats, and design mitigation and/or compensation measures that may be necessary to address the effect.	One nighttime bat walkover (NBW) survey for each season, spring (April to May) summer (June to August) and autumn (September to October) supported by static monitoring.
Hedgehog	Yes	The hedgerow and grassland around the margins of the site are suitable habitat for hibernating, foraging and commuting hedgehogs.	Loss of foraging and commuting habitat. Loss of hibernation habitat. Severance of commuting routes. Injury or death to hedgehogs.	Reduction of impact: If hibernation habitat (hedgerow or any log piles formed since time of survey) is cleared over winter (November to February) an Ecological clerk of works should be present to supervise works, to ensure Hedgehogs are not harmed during the works. Excavations during development or ground investigation works should be covered overnight to prevent entrapment of Hedgehogs. Mitigation: Hedgehog friendly fencing should be incorporated into the final design to allow Hedgehogs to continue to commute and forage in the local area. A 15cm diameter hole should be placed at the base of each fence, allowing all gardens and greenspace to be accessible to Hedgehog.	None – clearance can be undertaken at any time, but it is subject to ECoW over winter.

Table 8 – Protected Species - Ecological Constraints and Recommended Actions					
Ecological Constraint/ Receptor	**Biological Records Within 2km**	**Value of Supporting Feature**	**Potential Impact/Effect**	**Recommended Actions (Avoidance/mitigation/compensation Measures and Recommendations for Further Works)**	**Timing Restrictions**
[redacted]					

6. OPPORTUNITIES FOR ECOLOGICAL ENHANCEMENT

The following general enhancements have been recommended to be included within the final development Scheme:

Planting of native plant species beneficial to wildlife should be incorporated into the final design. This will provide additional habitat for invertebrates, which will in turn provide a food source for reptiles, birds, bats, and hedgehog.

The final development plan should incorporate bat and bird boxes into the scheme. This will provide additional roosting and nesting habitats for bats and birds post-development.

Log piles should be placed in connectivity to the boundary vegetation onsite, enhancing the habitats onsite for both reptiles and invertebrates post-development.

Examples of potential enhancement features are included as Appendix 11.

7. CONCLUSIONS

The proposed development will not adversely affect any statutory or non- statutory designated nature conservation sites.

None of the habitats that occur within the survey area were considered to have high ecological importance on an international, national, regional or county scale. The habitats onsite are of local significance only.

The findings of the habitat survey and protected species scoping survey confirm that the habitats onsite have the potential to support reptiles, foraging and roosting bats, breeding birds, hedgehog [redacted] It is considered unlikely that GCN would be using the site. The recommendations within Section 6 of this report should be implemented to reduce the potential impact on protected species.

If avoidance measures are not possible, additional surveys for reptiles, breeding birds and bats will be required to confirm baseline use of the site by protected species. If present, a detailed mitigation strategy will be required to be provided to the Local Planning Authority prior to the determination of a planning application. Recommendations for mitigation should be in-line with CIEEM guidance (ref. **R.19**) for ecological impact assessment.

Opportunities exist for the provision of ecological enhancements in the form of integrated bat and bird boxes, log piles for invertebrates and the incorporation of locally sourced native plant species, or those of known wildlife benefit, into the landscape strategy.

Provided the recommendations within this report are followed and the mitigation hierarchy of avoidance, mitigation, compensation and enhancement is implemented throughout the detailed design process, potential negative effects from development on important ecological features will be negligible.

APPENDICES

Appendix 1 – Report Limitations and Conditions

General Limitations and Exceptions

This report was prepared solely for our Client for the stated purposes only and is not intended to be relied on by any other party or for any other use. No extended duty of care to any third party is implied or offered. Third parties should not rely on the facts, matters or opinions set out in this report without the express written permission of Geosphere Environmental Ltd.

Geosphere Environmental Ltd does not purport to provide specialist legal advice.

The Executive Summary, Conclusions and Recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon until considered within the context of the whole report.

Interpretations and recommendations contained within the report represent our professional opinions, which were arrived at in accordance with currently accepted industry practices at the time of reporting and based upon current legislation in force at that time.

Ecology Limitations and Exceptions

Any limitations associated with the report will be stated. The consequences of any limitations, findings and/or recommendations in the report are made clear in line with CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine, Chartered Institute of Ecology and Environmental Management, Winchester, and BSI (2013) BS 42020:2013 Biodiversity – 'Code of practice for planning and development'.

This report is prepared and written in the context of the proposals stated in the introduction to this report and should not be used in a differing context.

The wildlife and habitats present on any site are subject to change over time. Surveys of this kind can have limited validity, with the possibility of behaviour patterns and territory boundaries varying over time, due to the dynamics of adjacent populations.

New information, improved practices and legislation may necessitate an alteration to the report in whole or in part after its submission. Therefore, with any change in circumstances or after the expiry of one year from the date of the report, the report should be referred to us for re-assessment and, if necessary, re-appraisal.

It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation can ensure the complete characterisation of the natural environment.

The scoping survey does not assess the presence or absence of a species but is used to assess the potential for habitat to support them. Additional surveys may be recommended if, based on the preliminary assessment or during subsequent surveys, it is considered reasonably likely that protected species may be present.

If bats or any other European protected species are found to be present onsite, and the proposed activities will cause disturbance or destruction of a roost site then this report will only summarise the potential requirements. For works to continue a detailed mitigation plan with appropriate compensation measures would be required and a development licence would need to be sought from Natural England.

This survey does not constitute an invasive species survey and should not be treated as such.

Owing to seasonal variances and prevailing weather, conditions may sometimes be sub-optimal for surveying, and this may delay or disrupt planned survey programmes. If applicable, full details are given in the report.

Geosphere Environmental Ltd may not be aware of information that could be held by other organisations or individuals, and it is always possible for features of nature conservation interest to be unrecorded during surveys.

Scientific survey data will be shared with local biological records centre in accordance with the CIEEM professional code of conduct.

Appendix 2 – References

R.1. Ministry of Housing, Communities and Local Government (MHCLG) (2021) National Planning Policy Framework (NPPF).

R.2. ODPM (2005) Government Circular: Biodiversity and Geological Conservation – statutory obligations and their impact within the planning system.

R.3. CIEEM, (2017). Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

R.4. BSI (2013) BS 42020:2013 Biodiversity – Code of practice for planning and development. BSI Standards Limited 2013.

R.5. Stace, C. A. (2010).New Flora of the British Isles (third edition), Cambridge University Press.

R.6. Magic [accessed June 2023] Site Check Report. www.magic.gov.uk.

R.7. Geosphere Environmental Ltd (March 2017), Preliminary Ecological Appraisal, ref. 2336,EC,AR,DS/PEA/LT-,AS/31-03-17/V1.

R.8. Geosphere Environmental Ltd (April 2017), Arboricultural Survey, ref. 2336,EC,AR,DS/ARB/RF,AS/25-04-17/V1

R.9. Geosphere Environmental Ltd (June 2017), Great Crested Newt Edna Letter Report, ref. 2495,EC/GCN Ltr/LS,AS/30-06-17/V1

R.10. Geosphere Environmental Ltd (July 2017), Reptile Survey Report, ref. 2495,EC/REP/TC,AS/19-07-17/V1

R.11. Geosphere Environmental Ltd (May 2018), Breeding Bird Survey, ref. 2495,EC/BIRD.ZK,KL/29-05-18/V1

R.12. Geosphere Environmental Ltd (October 2023), Arboricultural Survey, ref. 7277,EC,AR,DS/ARB/TC,KL/11-10-23/V1

R.13. Butcher, B., Carey, P., Edmonds, R., Norton, L. and Treweek, J. (2020). The UK Habitat Classification User Manual Version 1.1. http://www.ukhab.org/

R.14. Goldsmith, B. (1991). Monitoring for Conservation and Ecology, Chapman & Hall.

R.15. BRIG (ed. Ant Maddock). UK Biodiversity Action Plan; Priority Habitat Descriptions. https://jncc.gov.uk/our-work/uk-bap-priority-habitats/

R.16. Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the great crested newt (Triturus cristatus). Herpetological Journal 10 (4), 143-155.

R.17. BCT (2023). 'Bat Surveys for Professional Ecologists – Good Practice Guidelines' Bat Conservation Trust, London, 4th Edition.

R.18. Biggs, J. et al (2014) Analytical and methodological development for improved surveillance of the great crested newt. Defra Project WC1067, Freshwater Habitats Trust: Oxford

R.19. CIEEM (December 2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.

R.20. Stanbury A. et. al. (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114: 723-747. Available online at https://britishbirds.co.uk/content/status-our-bird-populations

R.21. BS 5837: (2012), 'Trees in Relation to Design, Demolition and Construction'.

R.22. Institution of Lighting Professionals (2018) Bats and artificial lighting in the UK, Bats and the Built Environment series – Guidance Note 08/18

Appendix 3 – Drawings

Illustrative Concept Master Plan, Drawing ref. SCOT230616 ICMP-01 P1

Southern Boundary Buffer Plan, Drawing ref. 70-07A

Romsey
T: 01794 367703
F: 01794 367276

Portishead
T: 01275 407000
F: 01794 367276

Camberley
T: 01276 749050
F: 01794 367276

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Rev	Description	Date	Au	Ch
P1	Re-issue with Amended Drawing Name	20.11.23	AA/--	--/--

Project	Land East of High Road, High Cross
Drawing	Illustrative Concept Master Plan - 01
Client	SCOTT PROPERTIES
Job no.	SCOT230616
Dwg no.	ICMP-01
Date	20.11.23
Rev.	P1
Author	AA/--
Checked	--/--
Scale	1:1000@A0
Status	PRELIMINARY
Office	Romsey
Client ref.	-

thrive. architects

N

HIGH ROAD

PROPOSED DEVELOPMENT AREA

33.6 m

37.8 m

SOUTHERN BOUNDARY BUFFER PLAN

LAND EAST OF HIGH ROAD, HIGH CROSS

DATE : 06.10.2023

SCALE: A3 1:1,250 DRAWN : DW

DRAWING NO: 70-07 REV : A

0m 10m 20m 30m 40m 50m

SCOTT PROPERTIES

Appendix 4 – Species Specific Legislation

Introduction

This is a summary only. The reader is referred to the original legislation for definitive interpretation.

Badger

The Protection of Badgers Act 1992 exists for welfare reasons, to protect badgers from cruelty. Under the act it is a criminal offence to wilfully kill, injure, take, possess, or cruelly ill-treat a badger, or to attempt to do so, or to intentionally or recklessly interfere with a sett.

Bats

All bat species are protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017. It is illegal to kill or injure bats, cause disturbance at their resting places or to block access to, damage or destroy their roost sites.

Great Crested Newts

Great crested newts are protected under the Wildlife and Countryside Act 1981 (as amended) Section 5 and the Conservation of Habitats and Species Regulations 2017. It is illegal to intentionally or deliberately kill, injure or capture great crested newts or intentionally, deliberately, or recklessly damage or destroy their breeding and resting places or obstruct access to their place of shelter or protection.

Hazel Dormouse

Hazel dormice are protected under the Wildlife and Countryside Act 1981 (as amended) Schedule 5 and the Conservation of Habitats and Species Regulations 2017. It is illegal to intentionally or deliberately kill, injure or capture a hazel dormouse or intentionally, deliberately or recklessly disturb a hazel dormouse, or damage its breeding or resting place or obstruct its place of shelter or protection.

Birds

Wild birds are protected under the Wildlife and Countryside Act 1981 (as amended). It is illegal to take or harm them, their nests (whilst in use or being built) or their eggs.

Additionally, for some species listed under Schedule 1 of the Act, it is an offence to intentionally or recklessly disturb the adults while they are in and around their nest or intentionally or recklessly disturb their dependent young.

Reptiles

Common reptiles include slow-worm, adder, grass snake and common lizard. These are protected under the Wildlife and Countryside Act 1981 (as amended) Schedule 5, Sections 9 (1) & 9 (5) only. It is illegal to kill or injure them.

It is not illegal to capture, disturb or to damage their habitats. However, the reptiles themselves are protected so any works to damage their habitat could risk causing harm to reptiles and hence could be illegal.

Rare reptiles which include sand lizard and smooth snake are restricted to a few locations in Britain and are fully protected under the Wildlife and Countryside Act 1981 (as amended) Schedule 5, Section 9 and the Conservation of Habitats and Species Regulations 2017. It is illegal to kill, injure or intentionally disturb them whilst occupying a 'place used for shelter or protection' and destruction of these places.

Appendix 5 – Desk Study Data

Site Check Report Report generated on Fri Jun 23 2023
You selected the location: Centroid Grid Ref: TL36591885
The following features have been found in your search area:

Ramsar Sites (England)

Name	LEE VALLEY
Reference	UK11034
Hectares	451.3

Name	LEE VALLEY
Reference	UK11034
Hectares	451.3

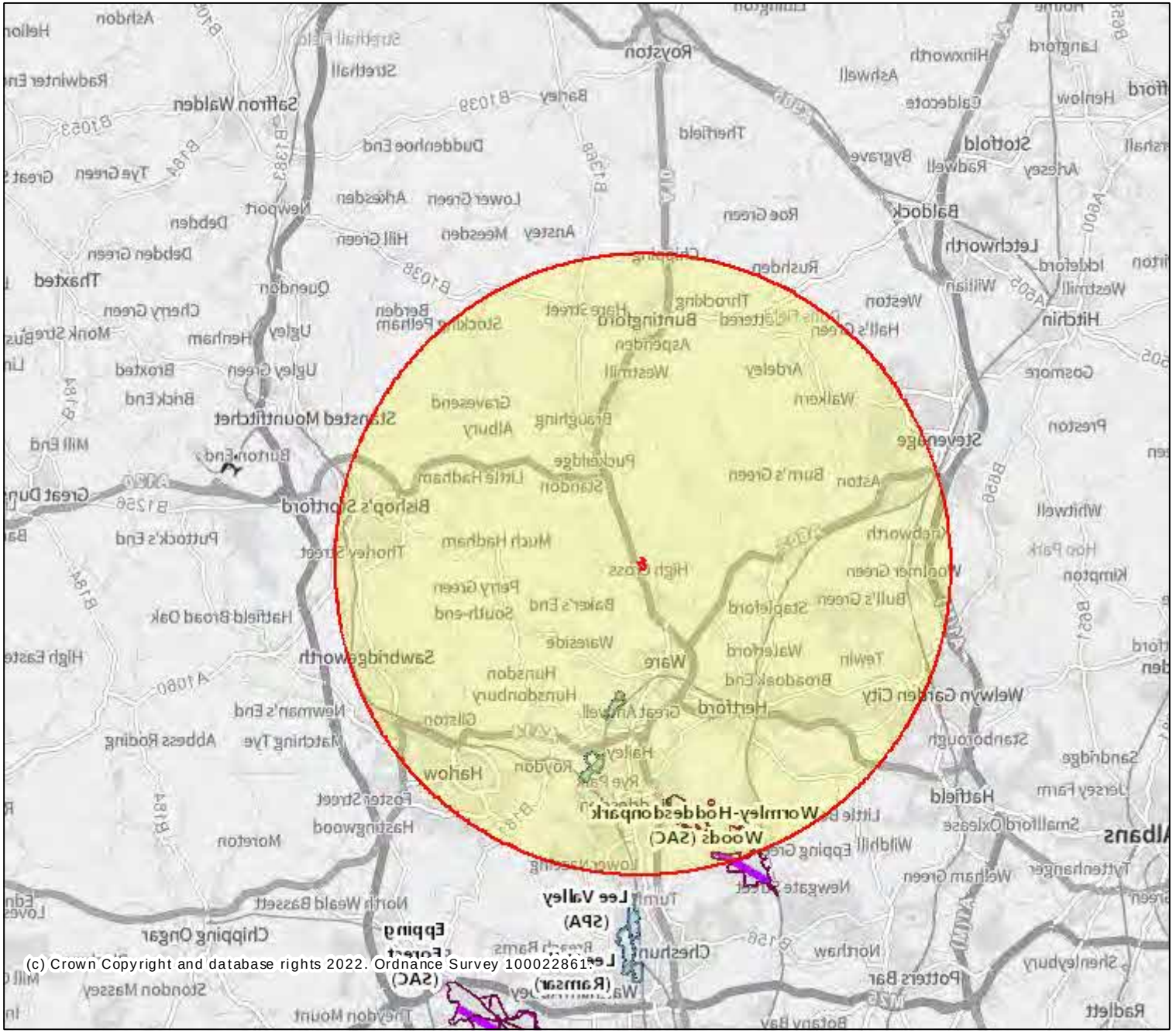
Special Areas of Conservation (England)

Name	WORMLEY-HODDESDONPARK WOODS
Reference	UK0013696
Hectares	335.99
Hyperlink	http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?eucode=UK0013696

Special Protection Areas (England)

Name	LEE VALLEY
Reference	UK9012111
Hectares	451.3

Nationally Important Statutory Sites 13km



Legend

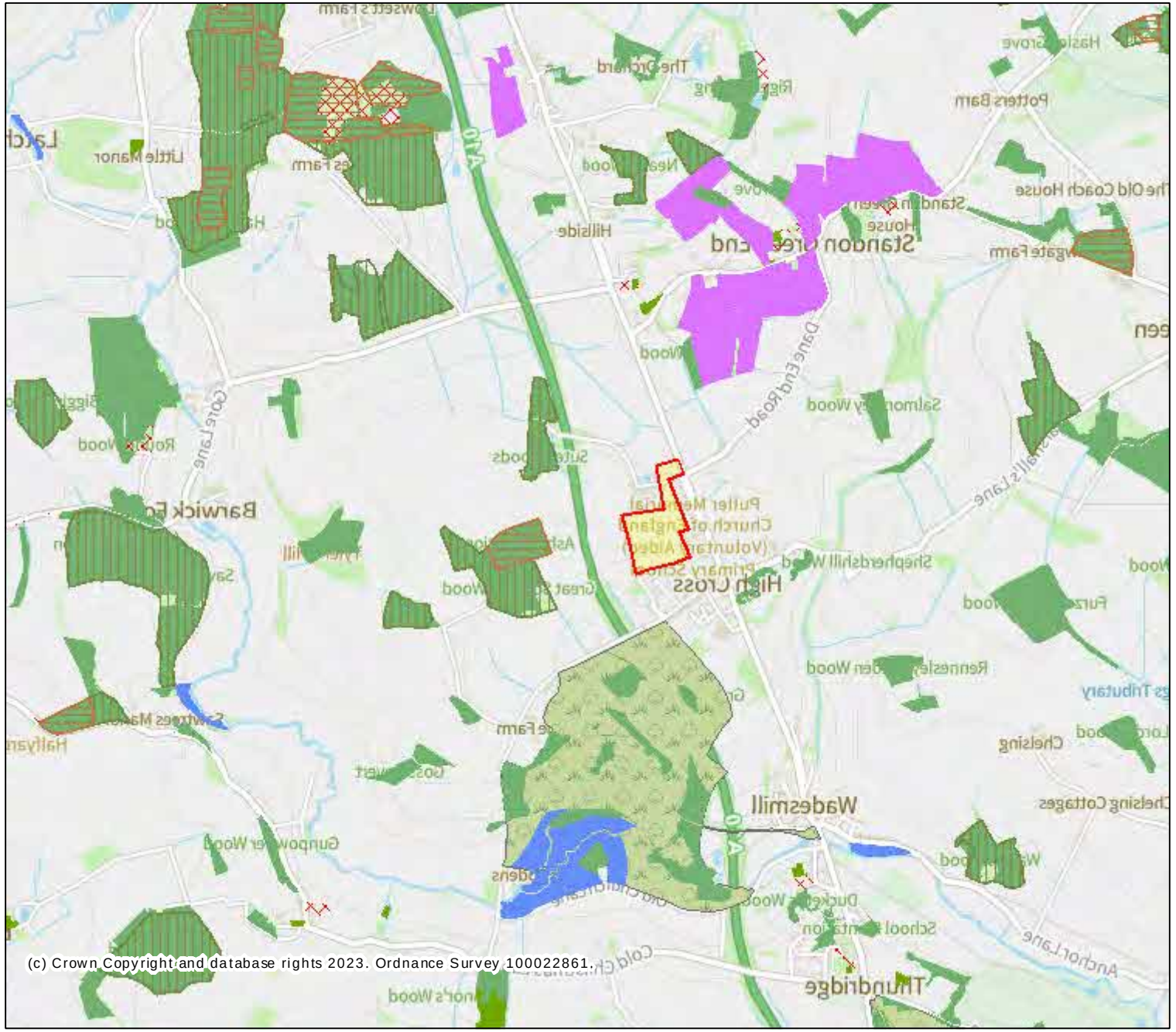
- Ramsar Sites (England)
- Proposed Ramsar Sites (England)
- Special Areas of Conservation (England)
- Possible Special Areas of Conservation (England)
- Special Protection Areas (England)
- Potential Special Protection Areas (England)

Projection = OSGB36
xmin = 476000
ymin = 189300
xmax = 601900
ymax = 252500

0 5 10
km

Map produced by MAGIC on 17 October, 2023.

Priority Habitats



Legend

- Priority Habitat Inventory - Coastal and Floodplain Grazing Marsh (England)
- Priority Habitat Inventory - Good quality semi-improved grassland (Non Priority) (England)

Ancient Woodland (England)

- Ancient and Semi-Natural Woodland
- Ancient Replanted Woodland
- Priority Habitat Inventory - Deciduous Woodland (England)
- Priority Habitat Inventory - Traditional Orchards (England)
- Woodpasture and Parkland BAP Priority Habitat (England)
- Priority Habitat Inventory - No main habitat but additional habitat exists (England)

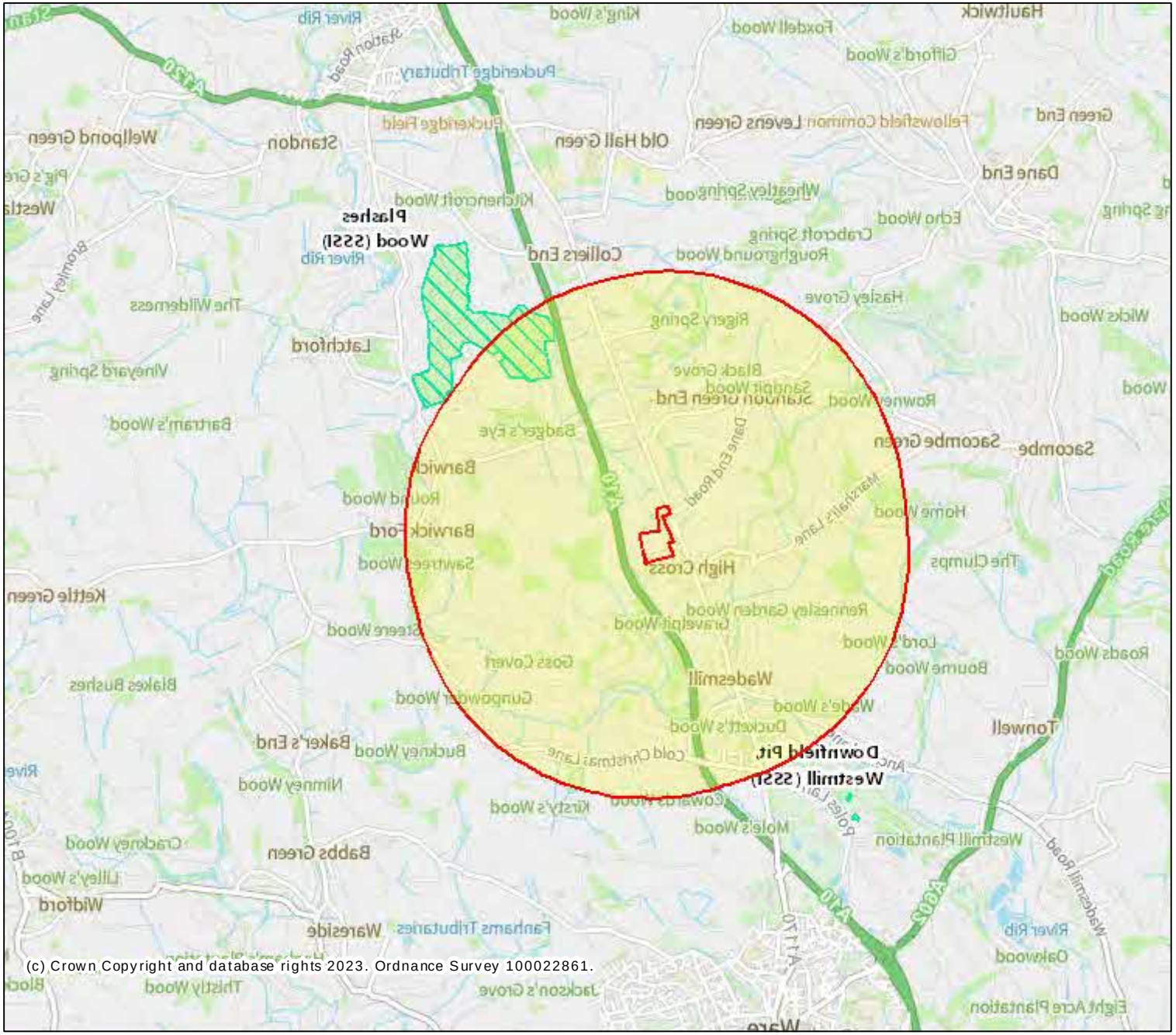
Projection = OSGB36
xmin = 530600
ymin = 215700
xmax = 543200
ymax = 222000

0 0.5 1
km

Map produced by MAGIC on 23 June, 2023.

Site Check Report Report generated on Fri Jun 23 2023
You selected the location: Centroid Grid Ref: TL36591884
The following features have been found in your search area:
Sites of Special Scientific Interest (England)
Name
Plashes Wood SSSI
Reference
1002726
Natural England Contact
ANDREW MILLS
Natural England Phone Number
0845 600 3078
Hectares
73.21
Citation
1001628
Hyperlink
http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1001628

Statutory Sites 2km



Legend

- Areas of Outstanding Natural Beauty (England)
- Local Nature Reserves (England)
- National Nature Reserves (England)
- Ramsar Sites (England)
- Proposed Ramsar Sites (England)
- Sites of Special Scientific Interest (England)
- Special Areas of Conservation (England)
- Possible Special Areas of Conservation (England)
- Special Protection Areas (England)
- Potential Special Protection Areas (England)

Projection = OSGB36
xmin = 524600
ymin = 212700
xmax = 549800
ymax = 225300

0 1 2
km

Map produced by MAGIC on 23 June, 2023.

Appendix 6 – Site Photographs

Photograph 1

Photograph 2

Photograph 3

Photograph 4

GEOSPHERE ENVIRONMENTAL

DESCRIPTION

Photograph 1

Arable field margin along the northern boundary of the site.

Photograph 2

View of the southern arable field facing south.

Photograph 3

View of the southern arable field margin facing north.

Photograph 4

Arable field margin and hedgerow bordering the residential gardens.

PROJECT

LAND EAST OF HIGH ROAD, HIGH CROSS SG11 1AZ

PROJECT NUMBER

7277,EC,AR,DS

TITLE

Selected Photographs Relating To Preliminary Ecological Appraisal

DATE

11/07/2023

Photograph 5

Photograph 6

Photograph 7

Photograph 8

GEOSPHERE ENVIRONMENTAL

DESCRIPTION

Photograph 5
Corner of the field margin in the southern arable field.

Photograph 6
View of the southern arable field facing east.

Photograph 7
View of the condition of the arable fields on site.

Photograph 8
Hedgerow with scattered trees and a wide grassland margin along the southern boundary.

PROJECT

LAND EAST OF HIGH ROAD, HIGH CROSS SG11 1AZ

PROJECT NUMBER

7277,EC,AR,DS

TITLE

Selected Photographs Relating To Preliminary Ecological Appraisal

DATE

11/07/2023

Photograph 9

Photograph 10

Photograph 11

Photograph 12

GEOSPHERE ENVIRONMENTAL

DESCRIPTION

Photograph 9
Hedgerow with scattered trees and a wide grassland margin along the southern boundary.

Photograph 10
Footpath extending along the southern edge of the side, viewing westwards.

Photograph 11
A tree growing between the pylons which has been partially felled.

Photograph 12
Felled tree at the bottom of the pylon.

PROJECT

LAND EAST OF HIGH ROAD, HIGH CROSS SG11 1AZ

PROJECT NUMBER

7277,EC,AR,DS

TITLE

Selected Photographs Relating To Preliminary Ecological Appraisal

DATE

11/07/2023

Photograph 13

Photograph 14

Photograph 15

Photograph 16

GEOSPHERE ENVIRONMENTAL

DESCRIPTION

Photograph 13
Building B1 situated along the southern boundary.

Photograph 14
View of the trees and hedgerow along the southern boundary.

Photograph 15
View of the long grass field margins.

Photograph 16
View of the overgrown ditch.

PROJECT

LAND EAST OF HIGH ROAD, HIGH CROSS SG11 1AZ

PROJECT NUMBER

7277,EC,AR,DS

TITLE

Selected Photographs Relating To Preliminary Ecological Appraisal

DATE

11/07/2023

Appendix 7 – Target Notes

Target Note 1

Target Note 2

Target Note 3

NOTE

Target Note 1
Mammal path present within the grassland on the arable field margin.

Target Note 2
Brash/log pile of recently felled tree present in the south of the site.

Target Note 3
Fox dropping noted towards the south of the site.

PROJECT

LAND EAST OF HIGH ROAD, HIGH CROSS SG11 1AZ

PROJECT NUMBER

7277,EC,AR,DS

TITLE

Ecological Target Notes Relating to Preliminary Ecological Appraisal

DATE

18/10/2023

Appendix 8 – Habitat Suitability Index

HSI SCORES

Project Number: 7277,EC,AR,DS

Surveyor: Tom Cox

Project Name: LAND EAST OF HIGH ROAD, HIGH CROSS

Date: 28/06/2023

Pond Ref:	SI1	SI2	SI3	SI4	SI5	SI6	SI7	SI8	SI9	SI10	HSI	Suitability
	Location	Pond Area	Pond Drying	Water quality	Shade	Fowl	Fish	Ponds	Terr'l Habitat	Macrophytes		
1	1	0.95	1	0.33	1	1	0.33	1	1	1	0.80	Excellent

HSI Score	Pond suitability
<0.5	Poor
0.5-0.59	Below average
0.6-0.69	Average
0.7-0.79	Good
>0.8	Excellent

Appendix 9 – eDNA Results

Folio No: E18583
Report No: 1
Purchase Order: 2542
Client: GEOSPHERE ENVIRONMENTAL
Contact: Tom Cox

TECHNICAL REPORT

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

SUMMARY

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

RESULTS

Date sample received at Laboratory: 01/07/2023
Date Reported: 11/07/2023
Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
5248	High Cross Pond 1	TL 3662 1900	Pass	Pass	Pass	Negative	0

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

Reported by: Chris Troth **Approved by:** Gabriela Danickova

METHODOLOGY

The samples detailed above have been analysed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample which then undergoes DNA extraction. The extracted sample is then analysed using real time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. True positive controls, negative controls and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added security.

SureScreen Scientifics Ltd is ISO9001 accredited and participate in Natural England's proficiency testing scheme for GCN eDNA testing. We also carry out regular inter-laboratory checks on accuracy of results as part of our quality control procedures.

INTERPRETATION OF RESULTS

SIC: **Sample Integrity Check** [Pass/Fail]
When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results.

DC: **Degradation Check** [Pass/Fail]
Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.

IC: **Inhibition Check** [Pass/Fail]
The presence of inhibitors within a sample are assessed using a DNA marker. If inhibition is detected, samples are purified and re-analysed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.

Result: **Presence of GCN eDNA** [Positive/Negative/Inconclusive]
Positive: GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.
Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.
Negative: GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.

Appendix 10 – Selected Photographs of External Bat Scoping

Photograph 1

Photograph 2

Photograph 3

Photograph 4

GEOSPHERE ENVIRONMENTAL

DESCRIPTION

Photograph 1

T5, classified as low potential due to presence of dense ivy.

Photograph 2

T6, classified as low potential due to presence of dense ivy.

Photograph 3

T10, classified as moderate potential due to presence of deadwood and dense ivy.

Photograph 4

T10, classified as moderate potential due to presence of deadwood and dense ivy.

PROJECT

LAND EAST OF HIGH ROAD, HIGH CROSS SG11 1AZ

PROJECT NUMBER

7277,EC,AR,DS

TITLE

Selected Photographs Relating To Bat Scoping Survey

DATE

11/07/2023

Photograph 5

Photograph 6

Photograph 7

Photograph 8

GEOSPHERE ENVIRONMENTAL

DESCRIPTION

Photograph 5
T13, classified as moderate potential due to presence of ivy and lifted bark.

Photograph 6
T13, classified as moderate potential due to presence of ivy and lifted bark.

Photograph 7
T15, classed a low potential due to presence of ivy and deadwood.

Photograph 8
T15, classed a low potential due to presence of ivy and deadwood.

PROJECT

LAND EAST OF HIGH ROAD, HIGH CROSS SG11 1AZ

PROJECT NUMBER

7277,EC,AR,DS

TITLE

Selected Photographs Relating To Bat Scoping Survey

DATE

11/07/2023

Photograph 9

Photograph 10

GEOSPHERE ENVIRONMENTAL

DESCRIPTION

Photograph 9

T10, classified as moderate potential due to presence of deadwood and dense ivy.

Photograph 10

B1, classified as low potential due to presence of lifted roof tiles.

PROJECT

LAND EAST OF HIGH ROAD, HIGH CROSS SG11 1AZ

PROJECT NUMBER

7277,EC,AR,DS

TITLE

Selected Photographs Relating To Bat Scoping Survey

DATE

11/07/2023

Appendix 11 – Example Enhancement Features

EXAMPLE BAT BRICKS AND BOXES

Integrated Bat Box: Ibstock Enclosed Bat Box 'B'

Large 215 x 290mm

The Ibstock Enclosed Bat Box 'B' is designed for integration into the wall of new buildings or conservation projects and is intended to provide summer roosting space for pipistrelles specifically. It provides a discrete home for bats, with several roosting chambers to provide zones of differing temperatures within the box. The bats are contained within the box itself and the entrance at the bottom allows droppings to fall out, meaning that the box is maintenance free.

SOURCE
https://www.nhbs.com/ibstock-enclosed-bat-box-b

Integrated Bat Box: Standard bat Box

Bat boxes can be supplied in brick fronted, half bond and quarter bond brickwork or alternatively with a stainless-steel mesh fitted to the front. The mesh is designed for optimum adhesion in render and stonework applications. A basic version can be fitted directly behind weatherboarding or into studwork.

These bat boxes are best positioned in sunlit clusters, at a height of 3-6 metres and ideally facing a variety of aspects as bats will move around a building as the seasons change.

This product makes an ideal bat house for most of the UK's bat species, including Pipistrelles, who will use it for roosting, hibernating and (in maternity roosts) bringing up their young. The entrance hole and internal design can be tailored to suit different species of bat e.g. Bechstein's and Serotine.

The box is self-cleaning. The bat boxes are supplied with a non-removable front as standard.

SOURCE
http://www.birdbrickhouses.co.uk/brick-nesting-boxes/bat-box/

TITLE
Example Bat Bricks and Boxes

DATE
18/10/2023

Integrated Bat Box: Ibstock Enclosed Bat Box 'C'

The Enclosed Bat Box 'C' from Ibstock is designed for the pipistrelle bat. It is ideal for new builds as it can be integrated directly into the brickwork to produce a discrete but attractive home for bats.

The box has an attractive bat motive on the front and is both durable and fully frost resistant. The inside of the box is designed to create several roosting zones which are ideal for crevice dwelling bats. The bottom entrance means that no maintenance is required as droppings will simply fall out the bottom..

Specification
Small Box

- Height: 215mm
- Width: 215mm
- Depth: 105mm
- Weight: 6.7kg

Large Box

- Height: 290mm
- Width: 215mm
- Depth: 105mm
- Weight: 9.2kg

SOURCE
https://www.nhbs.com/ibstock-enclosed-bat-box-c

Integrated Bat Box: Vivara Pro Build-in WoodStone Bat Box

The Vivara Pro Build-in WoodStone Bat Box has been specifically designed to fit into the cavity of house walls. It features a slim sized entrance hole which can sit flush in a course of bricks to provide a discreet entry way for bats.

It is manufactured from hard-wearing woodstone and plywood with removable side panels so that several boxes can be placed side by side. Position the box at least 2m above ground level away from artificial light sources. Woodstone is a mixture of sawdust from FSC wood sources and concrete, and it is designed to last for years. It is breathable so there will be no problems with condensation and maintains a consistent temperature inside, providing excellent insulation for roosting bats.

Specification

- Height: 500mm
- Width: 210mm
- Depth: 150mm
- Weight: 5.6kg
- Material: WoodStone

SOURCE
https://www.nhbs.com/vivara-pro-build-in-woodstone-bat-box

TITLE
Example Bat Bricks & Boxes

DATE
18/10/2023

External Bat Box: 1FE Schwegler Bat Access Panel

On its own, the 1FE Access Panel provides access for bats to existing roost sites. With a specially shaped entrance hole and open back, bats can crawl through the entire panel. This is particularly useful when renovation or conservation work is being undertaken in buildings already containing bat roosts. With an overall depth of just 8 cm, it is easily integrated within masonry or insulation. If necessary it can also be attached to the underlying structure using two screws. The light grey material can be over-painted as required using air-permeable exterior wall paint. The design includes a silhouette of a bat which is both decorative and informative. Alternatively the 1FE can be set into masonry and rendered so that only the entrance is visible.

The 1FE Bat Access Panel is made from Schwegler wood-concrete; an exceedingly durable, rot-proof and breathable natural material designed to mimic the properties of natural nest sites. The design is maintenance-free with a sloping shelf to allow droppings to fall out. The 1FE can also be fixed to the underlying structure using two screws (not included).

SOURCE
https://www.nhbs.com/1fe-schwegler-bat-access-panel

External Bat Box: 1FF Schwegler Bat Box with Built-in Wooden Rear Panel

The Schwegler 1FF bat box is spacious enough for bats to use as a summer roost or nursery site and is open at the bottom, allowing droppings to fall out so it does not need cleaning. The 1FF is, therefore, especially suitable for hanging in inaccessible places such as high in trees, or on steep slopes and house walls.

The 1FF is manufactured from long-lasting Woodcrete, which is a blend of wood, concrete and clay which will not rot, leak, crack or warp, and will last for at least 20 - 25 years, making it suitable for long-term mitigation projects.

The inner dimensions of the 1FF have a reducing width making it ideal for bat species which inhabit crevices such as pipistrelle and noctule bats. For conservation projects and studies, the entire front of the box can be easily swung open for inspection purposes.

The 1FF bat box can be sited in trees or on buildings and is best positioned at a height of between 4 to 6 metres.

SOURCE
https://www.nhbs.com/1ff-schwegler-bat-box-with-built-in-wooden-rear-panel

TITLE
Example Bat Bricks and Boxes

DATE
18/10/2023

External Bat Box: 2F Schwegler Bat Box with Double Front Panel

This box has a front panel and a second inner wooden panel fitted to it to create a cavity wall. This provides ideal quarters for bats that inhabit crevices, such as Nathusius' Pipistrelle (Pipistrellus nathusii), Daubenton`s Bat (Myotis daubetonii) and the Common Pipistrelle (Pipistrellus pipistrellus).

It has been designed as a summer roosting space for bats and has a simple entrance hole at the front. The Schwegler 2F double front panel is removable and can be converted in to a bird nest box using a replacement 1B front panel if there is no evidence of bat activity after a couple of years. The 2F Double Front Panel is manufactured from long-lasting Woodcrete, which is a blend of wood, concrete and clay which will not rot, leak, crack or warp, and will last for at least 20 - 25 years, making it suitable for long-term mitigation projects. Woodcrete is breathable and maintains a stable temperature inside the box and the 2F is painted black to absorb warmth. It also provides a good rough surface for bats to cling on to and climb.

The 2F Double Front Panel bat box can be sited in trees or on buildings and is best positioned at a height of between 3 to 6 metres.

SOURCE
https://www.nhbs.com/2f-schwegler-bat-box-with-double-front-panel

External Bat Box: Vincent Pro Bat Box

This attractive bat box has been designed by leading bat researcher, Collin Morris, based on a tried and tested design from the Vincent Wildlife Trust.

The box features three vertical chambers of different sizes, providing ideal roosting space for a variety of species. Beneath the crevice entrances is a ladder which provides a rough surface for bats to land.

Proven with seven UK species: Barbastelle, Leisler's, common pipistrelle, soprano pipistrelle, brown long-eared, Natterer's and whiskered bat.

SOURCE
https://www.nhbs.com/vincent-pro-bat-box

Please note that once bats have inhabited a roost (integrated or external box) they may only be disturbed by licensed bat workers.

GEOSPHERE ENVIRONMENTAL

TITLE
Example Bat Bricks and Boxes

DATE
18/10/2023

EXAMPLE BIRD BOXES

External Bird House: 1B Schwegler Bird Nest Box (General)

These Woodcrete nest boxes last for at least 20-25 years. Woodcrete is a breathable blend of wood, concrete and clay which will not rot, leak, crack or warp, whilst preventing condensation and maintaining more constant temperatures inside than wooden boxes.

Schwegler bird boxes are backed by conservation organisations, government agencies and forestry experts and experiments have shown that the highest density if bird populations (i.e. breeding pairs per hectare) is achieved with Schwegler nest boxes.

They are carefully designed to provide a stable environment and to mimic natural nest and roost sites with internal brood chamber dimensions that are similar to natural woodpecker cavities. Schwegler have a patented method of installation on trees that prevents the tree trunk from growing over the hanger from which the box is suspended.

SOURCE
https://www.nhbs.com/1b-schwegler-nest-box

External Bird House: Vivara Pro Barcelona WoodStone Open Nest Box

These attractive nestboxes are manufactured from WoodStone which is a mix of concrete and FSC certified wood fibres. Unlike a traditional wooden nest box, these boxes will not rot away or deteriorate and are guaranteed for 10 years. This robust material safeguards against attacks from predators such as woodpeckers, cats and squirrels, whilst also providing a well-insulated interior with a more consistent internal temperature than an ordinary wooden box. This is especially important during the breeding season and ensures that young birds have a greater chance of survival. Nesting sites have become rare for cavity nesting birds due to changes in woodland management practices, so you can provide much-needed space for rearing chicks and birds that are roosting overwinter with these durable, long-lasting nest boxes.

These open nest boxes are suitable for wrens, robins, spotted flycatchers, pied and grey wagtails, song thrushes and blackbirds, and they are available in brown, green or grey to complement both natural woodland and garden settings.

The best height for your nest box is between 1.5m and 3m high, and open nest boxes should be sited in undergrowth such as ivy to provide cover for the nest.

These nest boxes have a removable front panel for easy cleaning.

SOURCE
http://www.birdbrickhouses.co.uk/brick-nesting-boxes/nesting-boxes/

TITLE
Example Bird Boxes for Trees

DATE
18/10/2023

External Bird House: NHBS Wooden Bird Nest Box

Our own range of wooden bird nest boxes have been custom designed and manufactured from substantial 2cm thick FSC-certified wood. These simple, breathable wooden bird boxes have a sloping roof and four drainage holes and are ideal for providing crucial nesting spaces for the smaller garden birds. Nest boxes also provide vital roosting spaces for birds during the cold winter months and the thick walls of these nest boxes will ensure that roosting birds stay warm.

The boxes can be expected to last 5-10 years and are constructed using stainless steel staples which will not rust. These boxes can be installed on a tree or wall and should be placed 2-4m above ground. There should be a clear flight path to the entrance hole and the boxes should be placed so that the entrance is not exposed to strong sunlight or winds.

The 32mm entrance hole is suitable for general garden birds, and the 25mm entrance hole is suitable for the smaller tit species such as blue and coal tits.

Dimensions: 245mm x 135mm x 185mm (H x W x D)
Entrance hole: 25mm or 32mm
Height of backplate: 325mm
Material: FSC-certified wood

SOURCE
https://www.nhbs.com/nhbs-wooden-bird-nest-box

External Bird House: NHBS Wooden Bird Nest Box

This nest box consists of a weatherproof outer shell made from UV stabilised 100% recycled plastic. Inside the outer shell is a wooden nest box to provide the ideal environment for birds to nest in. The wooden box has drainage holes in the base and can be removed from the plastic case. The outer shell has been precision cut and uses an ingenious system of tabs to hold it together. This further extends the lifespan by ensuring that there are no metal fixings that could rust or degrade over time.

The internal compartment is constructed from FSC-Certified Oriented Strand Board, which is made from flakes of wood waste or from saplings thinned from forests to make space for larger trees. If you need to check or clean the box, simply twist the fastening at the bottom and the wooden nesting chamber will slide out. The outer shell is made from recycled board which is itself made from discarded bale wrap, fertiliser bags and other plastic waste, gathered mostly from farms across the UK.

These nest boxes are available with a choice of three hole sizes: 25mm, 28mm and 32mm. The 25mm hole is primarily suitable for the smallest tit species such as blue tits, coal tits and marsh tits. The 28mm hole will attract all of these species as well as great tits, crested tits and tree sparrows. The larger 32mm hole will attract a large range of species including blue tits, coal tits, marsh tits, house sparrows, great tits, nuthatches and pied flycatchers.

Fixing to the wall or tree is easy using the three concealed mounting holes in the back of the box (located opposite the entrance hole for easy access). Often this is the only fixing needed, but a further hole is provided at the base if required for stability. The easiest way to mount the box is to remove the inner compartment, fix the outer shell onto the tree or wall then slide the inner roost chamber back into the box and secure it in place

Materials: Recycled LDPE plastic and FSC Certified OSB
Finish: Non-toxic water-based stain and preservative
Dimensions: 26cm x 17cm x 17xcm (H x W x D)
Weight: 1.1kg
Fixing: Three concealed keyholes and further fixing hole at base

SOURCE
https://www.nhbs.com/eco-small-bird-box

TITLE
Example Bird Boxes for Trees

DATE
18/10/2023

Integral Bird Box: WoodStone Build-in Invisible Swift Box

The WoodStone Build-in Invisible Swift Box is constructed from FSC certified WoodStone. The box is designed to be incorporated into the wall and then covered with building materials that form the building's outer skin. An entrance hole of at least three centimetres tall and six centimetres should be left, by leaving a slightly larger entrance, around 3.5cm will encourage other species such as house sparrows to occupy the nest. Leaving most of the entrance exposed and siting the box below five metres will encourage robins, wagtails and black redstarts to occupy the nest box. For swifts the nest box should be sited at least five metres high and not south facing.
Swifts usually breed in social colonies so it is recommended to site multiple boxes together but they must be at least 40cm appart.

Specification

- Manufactured to UK brick size
- Width: 44cm
- Height: 14cm
- Depth: 15cm
- Material: FSC certified WoodStone

SOURCE
https://www.nhbs.com/woodstone-build-in-invisible-swift-box

Integral Bird Box: Bird Brick Houses Brick fronted swift box

This box has a crescent shaped hole in the swift brick to one side of the box, allowing swifts access but restricting use by starlings. Inside, a rough floor makes it easier for the birds to move around. The centre of the floor has a raised nest cup to assist the birds' nest building. The ideal internal depth of a swift box is 140 mm, however if cavity width is limited, boxes can be manufactured with a reduced depth (minimum 100 mm). Please specify requirements at the point of order.

Non-combustible, and alternative cladding options are available

SOURCE
https://www.birdbrickhouses.co.uk/brick-nesting-boxes/swift-boxes/

TITLE
Integral Bird Boxes

DATE
18/10/2023

Integral Bird Box: Manthorpe Swift Brick

The Manthorpe Swift Brick has been developed with the help of conservation experts and is designed to provide a safe and spacious area for swifts to nest within the modern home. Available in six different colours, the box is designed to blend into the brickwork and so provides an aesthetically pleasing addition to any new build or development. Manufactured from PVC and Polypropylene, this nest box is designed to last for an extremely long time and will not rot or degrade.

Specification:

- Width: 347mm
- Depth: 200mm
- Height: 153mm
- Dimensions of protruding "brick" section: 80 x 227mm
- Entrance hole: Obround; 29 x 65mm
- Weight: 0.71kg
- Materials: PVC (base); Polypropylene (top)
- Available colours: Terracotta, Slate Gray, Antique Red, Buff, White, Black
- Manufacturing: Injection moulded

SOURCE
https://www.nhbs.com/manthorpe-swift-brick?bkfno=242169

Integral Bird Box: PRO UK Rendered Build-In Swift Box

This build-in nest box is designed to be integrated into the cavity of a building, constructed from long-lasting WoodStone and built to match standard UK brick dimensions.

Specification:

- Width: 44cm
- Height: 14 cm
- Depth: 15cm
- Material: WoodStone

SOURCE
https://www.nhbs.com/vivara-pro-rendered-build-in-swift-box-uk-brick-size

TITLE
Integral Bird Boxes

DATE
18/10/2023

GEOSPHERE ENVIRONMENTAL

Ec Ecology.

Fr Flood Risk.

Ge Geotechnical.

En Environmental.

Kw Knotweed.

GEOSPHERE ENVIRONMENTAL LTD
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