

GREENFIELD SERVICE STATION

A505 Baldock Road, ROYSTON, SG8 9NN

Preliminary Ecological Appraisal

Prepared by:

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Report Reference: GSS-IS-SJ-001_PEA

Issue Date: August 2024

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Report Information

Site Address:	GREENFIELD SERVICE STATION A505 Baldock Road, ROYSTON, SG8 9NN
Central Grid Reference:	TL 30897 38863
Report Revisions:	V1 – 21/08/2024

Phase 2 Survey Recommendations

Protected Species/ Reports	Recommended Phase II Surveys	Timings
Roosting Bats	Buildings 1 and 2 will require one presence/absence survey.	May–August <i>(Due to low suitability surveys can be carried out in September)</i>
Badger	Detailed Badger Survey	Any time of year but are best conducted between February–April or September–November
Badger	21-day camera trapping survey	Any time of year but are best conducted between February–April or September–November
Roman Snail	Detailed Roman Snail Survey	April – September
Ecological Impact Assessment	–	Any time of year

Executive Summary

Indigo Surveys was commissioned by C+A Design to undertake a Preliminary Ecological Appraisal of Greenfield service station, A505 Baldock Road, Royston, SG8 9NN. Planning consent is to be sought from North Herts Council to replace the existing canopy, reconfiguration of forecourt pumps to create additional HGV lane and changes to parking arrangements on site. A Preliminary Ecological Appraisal was undertaken in August 2024 consisting of a desk study and field survey following the Preliminary Ecological Appraisal Guidelines (CIEEM, 2017) and standard methodology published in the UK Habitat Classification User Manual (UK Habitat Classification Working Group, 2018).

The red line boundary is approximately 0.45 hectares and is predominantly made up of sealed surfaces and buildings. The site also has a line of trees along the southern boundary and a hedgerow with bioswale along the northern boundary. The site is on the A505 dual carriageway approximately 5km from the town of Royston, in the civil parish of North Hertfordshire. The surrounding environment includes arable land, tree lines and hedgerows that are well-connected to the wider landscape.

There are no known ponds within 500m of the site, though the site does sit <50m away from a drainage channel which runs down the centre reservation of the A505 to capture surface water off the carriageway, which was dry at the time of the survey. The habitats have the potential to support protected and/or notable species, and this report outlines important measures to protect species during site clearance. Recommendations to improve the biodiversity status of the site post development have been included. A full description of the recommendations can be found starting on Page 27.

This report has been produced by a suitably experienced and qualified ecologist; the results and recommendations contained within this report are the view of the report author and the report is based on the information provided by the client, the proposed development and the results of the desk study / survey.

Summary of Ecological Recommendations and Timings

Habitats

A Biodiversity Net Gain Assessment has been produced. This includes a biodiversity metric as well as a baseline habitat plan.

Refer to document: GSS-IS-SJ-001_BNG.

The design should seek to retain habitats of greater value. This should be carried out during the design phase. Construction and Environmental Management Plan (CEMP) to safeguard retained and adjoining habitats (e.g., hedgerows) during clearance and construction. This can be secured as a planning condition.

Landscape and Ecological Management Plan (LEMP) to ensure the successful establishment and long-term management of newly created habitats. This can be secured as a planning condition.

The location and substrate are deemed strategically significant as part of the Chalk Character Area, as outlined in the Hertfordshire Ecological Network Map (Appendix 8).

Breeding Birds

Reasonable Avoidance Measures are recommended during site clearance and construction. Any vegetation removal (e.g., hedgerows, ivy, shrubs, trees) and building demolition / conversion must avoid the nesting bird season (typically March to September inclusive) or otherwise be checked by a suitably qualified ecologist immediately prior to clearance / construction to check for nesting birds if undertaken during the nesting season.

A minimum of four boxes should be erected on or within the buildings post-development or trees within the site. Suggestions for bird boxes

include sparrow boxes (e.g., Schwegler 1SP), swift boxes (e.g., Ibstock Eco-Habitat for Swifts), starling boxes (e.g., Woodstone Starling Nest) and generalist boxes (e.g., Woodstone Build-In Box) (see Appendix 7).

Roosting Bats

Due to the low suitability of Buildings 1 and 2 for roosting bats, they will require one presence/absence surveys to be conducted between May and August.

A minimum of four bat boxes (e.g. Schwegler 1FR Bat Tube or Integrated Eco Bat Box Crevice) should be placed on or within the buildings post-development or trees within the site in accordance with the retailer's instructions (see Appendix 5). The boxes should be at least 4m above ground level, away from lights and not placed above / near windows.

Foraging and Commuting Bats

Given the proposed removal of a large bank that runs beneath a line of trees suitable for commuting bats work should be sympathetic to this group of species including the provision of a sensitive lighting scheme, as detailed on Page 24. The lighting scheme should be produced during the design scheme and implemented during and post-construction.

While no direct or indirect impacts to the line of trees are anticipated from the development, potential effects from dust, noise, and light pollution must be carefully considered.

Badgers

Given the presence of potential badger activity, a detailed badger survey and a badger camera trapping survey is recommended to monitor any potential sett's over a 21-day period. If badgers are found to be using the holes on-site, a license from Natural England will be required to destroy the sett. These surveys can be conducted at

any time of year but are best conducted between February and April or September to November, as these are the times when setts are less likely to be obscured by vegetation and badgers are most active.

During the construction period, precautionary mitigation measures should be implemented to avoid potential harm to badgers. These measures should include:

- Storing oils, fuels, and chemicals in sealed containers and ensuring they are not left out overnight.
- Covering any trenches overnight or providing a means of escape for any animals that may fall in, such as a ramp.
- Capping any open or exposed pipework to prevent animals from gaining access.

These recommendations aim to protect badgers and ensure compliance with legal obligations during the development process.

Amphibians and Reptiles

The proposed development, including site clearance and construction phases must proceed under reasonable avoidance measures provided within the recommendations section which are applicable to reptiles, amphibians and small mammals (e.g., hedgehogs).

Roman Snails

It is recommended that a Roman snail survey be conducted within the zone of influence of the site. This survey should involve walking over the site, assessing the habitats, and looking for any signs of current or past activity, as well as the presence of the snails themselves, to confirm the presence or absence of Roman snails. Surveys should be conducted between late April and September in warm, humid conditions with nighttime temperatures above 8 degrees.

General Recommendations

The Reasonable Avoidance Measures are recommended for mammal species of principal importance (e.g., for foraging / commuting hedgehogs and badgers) and herpetofauna during site clearance and construction.

A number of biodiversity enhancements have been suggested that could be implemented in order to promote biodiversity at the site and these include enhancements targeted at local priority species. These include but are not limited to installing habitat piles and invertebrate boxes / towers, bird and bat boxes, deadwood habitat piles. The site could also incorporate green infrastructure such as green roofs and living walls and blue infrastructure such as ponds and sustainable drainage systems (SuDS).

Ecological Impact Assessment

Due to the multiple protected species potentially present on site and in line with revised guidance (CIEEM, 2019), an Ecological Impact Assessment will be required to assess impacts of the development and to detail appropriate ecological mitigation for all species and habitats present at the site. This will be informed by the surveys recommended as part of this assessment.

Introduction

Purpose of the Report and Ecological Context

Indigo Surveys was commissioned by C+A Design to undertake a Preliminary Ecological Appraisal of Greenfield service station, A505 Baldock Road, Royston, SG8 9NN. This report has been produced by a suitably qualified ecologist. The results and recommendations contained within this report are the view of the author and the report is based on the information provided by the client, the proposed development and the results of the desk study / survey.

The red line boundary is approximately 0.45 hectares and is predominantly made up of sealed surface and buildings. The site also has a line of trees along the southern boundary and a hedgerow with a bioswale along the northern boundary. (see Appendix 2).

The site is on the A505 dual carriageway approximately 5km from the town of Royston, in the civil parish of North Hertfordshire. The surrounding environment includes arable land, tree lines and hedgerows that are well-connected to the wider landscape.

Planning consent is to be sought from North Herts Council to replace the existing canopy, reconfiguration of forecourt pumps to create additional HGV lane and changes to parking arrangements on site (see Appendix 3 for the indicative site layout). The proposals are currently indicative and may be subject to change. If the site layout changes, then an ecologist should be consulted and this report updated with any additional survey requirements, if applicable.

Survey Aims and Methodology

Survey Purpose and Aims

The purpose and aims of the survey were to:

- To undertake a Preliminary Ecological Appraisal (including third-party data search) to determine the potential for protected species and/or habitats of conservation value.
- Analyse the results of a third-party biological record search to identify any protected / notable records and nature conservation designations within the local vicinity.
- Determine how the proposed works may impact on these species, habitats, designated sites or areas of nature conservation interest.
- Identify the requirement for further survey work, mitigation, compensation and / or assessment where necessary and propose suitable enhancements.

Desk Study Methodology

Existing ecological and nature conservation data relevant to the site was collated from various sources including the Multi Agency Geographic Information for the Countryside (MAGIC) online database and Hertfordshire Environmental Records Centre (HERC) provided information regarding bat and great crested newts within a 2km radius and non-statutory sites and all other protected / notable records within a 2km radius. As a portion of the boundary extends into Cambridgeshire, a request for biological data was also submitted to the Cambridgeshire & Peterborough Environmental Records Centre (CPER). MAGIC Maps was used in August 2024 to undertake a 2km search for statutory designated sites for nature conservation and European Protected Species Mitigation Licences. MAGIC Maps was also used in August 2024 to assess whether the site may fall within a Site of Special Scientific Interest (SSSI) Impact Risk Zone (IRZ). All sites and record locations are given at an approximate distance from the site and coarse resolution records have not been analysed. Some

records have been given at approximate distances or not included in the report where they are considered confidential; however, none of these records are relevant to the proposed development site.

The Ecological Survey Methodology

The survey was carried out on the 2nd of August 2024 arriving at 14:00. The weather was 22°C, sun with scattered clouds and light winds (1/2 Beaufort Scale). No precipitation was encountered during the survey.

The survey was completed in accordance with the Preliminary Ecological Appraisal Guidelines (CIEEM, 2017) and standard methodology published in the UK Habitat Classification User Manual (UK Habitat Classification Working Group, 2018). The survey involved walking over the site, mapping the main habitat types (in accordance with minimum mappable habitat sizes) and compiling a botanical species list and target notes to identify particular areas of interest or concern. Observations on the presence, or potential presence, of other certain protected species (e.g., badgers, nesting birds, reptiles and dormouse) and invasive / non-native species were recorded also. Riparian species (e.g., otter, water vole and white-clawed crayfish) have not been included in the assessment as there are no suitable water features on or adjacent to the site to support these species. The survey does not aim to be a comprehensive assessment of the presence or otherwise of all protected species on the site. There are a wide range of protected species, many of them can occur on one site and most require specialist expertise to locate them and / or seasonally constrained survey techniques to confirm their presence, and this is outside of the scope of this instruction. Phase 2 assessments and surveys have been recommended where appropriate.

Hedgerows on the site were assessed following methodology provided in the Hedgerow Survey Handbook (DEFRA, 2007). Where relevant, a native hedgerow was defined as species-rich if the structural species included at least five native woody species in a surveyed 30m section of the hedgerow. The results were then compiled and assessed against qualifying criteria provided within the Hedgerow Regulations (1997) and the UK Biodiversity Action Plan / NERC Act (2006). Further information regarding legislation, policy and

methodology for species relevant to this site and provided in full within Appendix 1 of this report. This is not considered to be an exhaustive list and it may be misleading to rely upon them as the information provided may not be up to date at the time of reading. Where there is doubt as to the current legal position then it is best to seek expert legal advice.

Zone of Influence

The zone of influence refers to the geographic extent of potential impacts of a proposed development. Given the small-scale nature of the development, the zone of influence is considered to be 250m from the application boundary for amphibians and reptiles, 30m for terrestrial mammals such as badgers, and within the area of impact for birds and bats. All other impacts are considered within the site boundary unless otherwise specified.

Site Evaluation

Following the preliminary survey, the site can be classified into one of six groups to establish whether the site is considered to hold ecological value at an international, national, regional, county, district or local / site scale (see Table 1). Targeted survey work is usually required to establish the significance of protected species within the site and this evaluation is only a guide.

Table 1. This table has been constructed following the CIEEM EcIA Guidelines (CIEEM, 2018). It contains definitions of the evaluation brackets thereby indicating the importance of each habitat type and their possible habitat status.

Ecological Value	Description / Example
International	An internationally designated site or candidate site. This includes habitats or species listed within Special Areas of Conservation, Special Protection Areas, Ramsar Sites, listed under Annex 1 of the Habitats Directive.
National	Sites that are designated at a UK level. This includes Sites of Special Scientific Interest, supporting nationally threatened or rare species.
Regional	Can include a significant population or number of any nationally important species at a regional level.
Country	Can include a feature identified as of critical importance within Section 41 of the NERC Act (2006).
District	Can include a regularly occurring, locally significant population or number of a regionally important species. A Key Habitat type included within the Biodiversity Action Plan or NERC Habitat of Principal Importance.
Local / Site	Designated sites for nature conservation such as Local Wildlife Sites or viable habitat / species populations considered of value at a county level (Local Biodiversity Action Plan species).

Survey Limitations

There are a small number of limitations, but it is considered that an accurate assessment of the site has been obtained:

- The desk study and field survey does not produce a comprehensive plant or animal species list as this will be limited by factors that influence their presence (such as activity and dormancy periods). However, an assessment can be made of the habitats within the survey area particularly given that the majority of the habitats are considered to be modified. It has also been possible to ascertain their corresponding nature conservation value and the potential for them to support any protected or priority species.
- As a portion of the boundary extends into Cambridgeshire, a request for biological data was also submitted to the Cambridgeshire & Peterborough Environmental Records Centre (CPERC). However, despite a reasonable amount of time passing to allow the request to be fulfilled, there has been no response or data provided to date.

Report Lifespan

Given the transient nature of the subject, the survey results are considered valid for up to 12 months.

Survey Results and Evaluation

Desk Study – Statutory Sites

Hertfordshire Environmental Records Centre (HERC) and MAGIC maps returned one record for statutory sites for nature conservation within a 2km radius of the proposed site.

Table 2. Summary of Designated Sites within a 2km Radius of the Application site.

Site Name	Status	Designation Reason	Distance / Direction from site
Therfield Heath	Sites of Special Scientific Interest (SSSI) & Local Nature Reserve (England)	Biological	1.1km E

Given the small-scale nature of the proposed development site, and the planned implementation of best practice measures for construction (e.g., water and dust pollution measures), no impacts are predicted to any designated sites for nature conservation. The Natural England Site of Special Scientific Interest (SSSI) Impact Risk Zones layer (available on MAGIC) was also reviewed to determine whether the site falls within any of the risk layers and therefore could impact SSSIs (or the SSSI components of SACs/SPAs etc.). The site may fall within an SSSI Impact Risk Zone that will require consultation with Natural England for the proposed development.

Desk Study – Non-Statutory Sites

Hertfordshire Environmental Records Centre (HERC) and MAGIC maps returned four records for non-statutory designated sites for nature conservation within a 2km radius of the proposed site.

Table 3. Summary of Non-Statutory Sites within a 2km Radius of the Application site.

Site Name	Status	Designation Reason	Distance / Direction from site
Road Verge near Gallows Hill	Local Wildlife Sites (LWS)	Biological	1.6km SE
Crouch Hill Road, Verge	Local Wildlife Sites (LWS)	Biological	1.4km SW
Coombe Bottom, Thrift Farm	Local Wildlife Sites (LWS)	Biological	1.4km SW
Icknield Way, A505, North of Gallows Hill	Local Wildlife Sites (LWS)	Biological	400m W

Desk Study – Priority Habitats

Hertfordshire Environmental Records Centre (HERC) and MAGIC maps returned four records for priority habitat sites for nature conservation within a 1km radius of the proposed site.

Table 4. Summary of Priority Habitats within a 2km Radius of the Application site.

Site Name	Status	Designation Reason	Distance / Direction from site
Land off Coombe Road	Priority Habitat	Lowland Calcareous Grassland	0.3km SE
Land off Baldock Road	Priority Habitat	Lowland Calcareous Grassland	1.1km E

Woodland N of site in surrounding area	Priority Habitat	Deciduous Woodland	0.7km N
Woodland S of site in surrounding area	Priority Habitat	Deciduous Woodland	0.8km S

Desk Study – Protected Species Assessment

Data supplied from HERC included records for protected species. A summary of the closest / most relevant records can be seen in Table 5.

Table 5. Summary of Relevant Protected and Priority Species Records (Bats, Great Crested Newts and all other notable / protected species – 2km).

Species (Common and Scientific Name)	Description (Number of Records, Closest Location / Direction and Corresponding Date)
Mammals	
Western Barbastelle <i>Barbastella barbastellus</i>	One record / Location not available – 2020
Pipistrelle <i>Pipistrellus pipistrellus</i>	Three records / 1.5km E – 2006
Brown Long-eared Bat <i>Plecotus auritus</i>	One record / Location not available – 1985
Hedgehog <i>Erinaceus europaeus</i>	Two records / 380m SW – 2011
Eurasian Badger <i>Meles meles</i>	49 Records / 170m N – 2018

Herpetofauna	
Great crested newt <i>Triturus cristatus</i>	1 record / 900m SW – 1984
Birds	
The Barn Owl <i>Tyto alba</i>, Fieldfare <i>Turdus pilaris</i>, Redwing <i>Turdus iliacus</i>, Red-backed Shrike <i>Lanius collurio</i>, Brambling <i>Fringilla montifringilla</i>, Quail <i>Coturnix coturnix</i>, Hobby <i>Falco subbuteo</i>, Peregrine <i>Falco peregrinus</i>, Merlin <i>Falco columbarius</i>, Mediterranean Gull <i>Ichthyaeetus melanocephalus</i>, Stone-curlew <i>Burhinus oedicephalus</i>, Red Kite <i>Milvus milvus</i>, Montagu's Harrier <i>Circus pygargus</i>, Pallid Harrier <i>Circus macrourus</i>, Hen Harrier <i>Circus cyaneus</i>, Marsh Harrier <i>Circus aeruginosus</i>, Ring Ouzel <i>Turdus torquatus</i>, Wood Warbler <i>Phylloscopus sibilatrix</i>, Tree Sparrow <i>Passer montanus</i>, House Sparrow <i>Passer domesticus</i>, Spotted Flycatcher <i>Muscicapa striata</i>, Tree Pipit <i>Anthus trivialis</i>, Grasshopper Warbler <i>Locustella naevia</i>, Hawfinch <i>Coccothraustes coccothraustes</i>, Reed Bunting <i>Emberiza schoeniclus</i>, Yellowhammer <i>Emberiza citrinella</i>, Skylark <i>Alauda arvensis</i>, Grey Partridge <i>Perdix perdix</i>, Cuckoo <i>Cuculus canorus</i>, Turtle Dove <i>Streptopelia turtur</i>, Curlew <i>Numenius arquata</i>, Lapwing <i>Vanellus vanellus</i>, Song Thrush <i>Turdus philomelos</i>, Tawny Owl <i>Strix aluco</i>, Short-eared Owl <i>Asio flammeus</i>, Mistle Thrush <i>Turdus viscivorus</i>, Wren <i>Troglodytes troglodytes</i>, Whitethroat <i>Curruca communis</i>, Starling <i>Sturnus vulgaris</i>, Dunnock <i>Prunella modularis</i>, Willow Warbler <i>Phylloscopus trochilus</i>, Marsh Tit <i>Poecile palustris</i>, Willow Tit <i>Poecile montanus</i>, Whinchat <i>Saxicola rubetra</i>, Redstart <i>Phoenicurus phoenicurus</i>, Wheatear <i>Oenanthe oenanthe</i>, Nightingale <i>Luscinia megarhynchos</i>, Yellow Wagtail <i>Motacilla flava</i>, Meadow Pipit <i>Anthus pratensis</i>, House Martin <i>Delichon urbicum</i>, Bullfinch <i>Pyrrhula pyrrhula</i>, Linnet <i>Linaria cannabina</i>, Greenfinch <i>Chloris chloris</i>, Common Redpoll <i>Acanthis flammea</i>, Corn Bunting <i>Emberiza calandra</i>, Rook <i>Corvus frugilegus</i>, Moorhen <i>Gallinula chloropus</i>, Kestrel <i>Falco tinnunculus</i>, Woodpigeon <i>Columba palumbus</i>, Stock Dove <i>Columba oenas</i>, Woodcock <i>Scolopax rusticola</i>, Snipe <i>Gallinago gallinago</i>, Lesser Black-backed Gull <i>Larus fuscus</i>, Common Gull <i>Larus canus</i>, Herring Gull <i>Larus argentatus</i>, Black-headed Gull <i>Chroicocephalus ridibundus</i>, Grey Plover <i>Pluvialis squatarola</i>, Swift <i>Apus apus</i>, Mallard <i>Anas platyrhynchos</i>, Sparrowhawk <i>Accipiter nisus</i>, Little Owl <i>Athene noctua</i>, Green Woodpecker <i>Picus</i>	

viridis, Great Spotted Woodpecker *Dendrocopos major*, Nuthatch *Sitta europaea*, Goldcrest *Regulus regulus*, Coal Tit *Periparus ater*, Great Tit *Parus major*, Blue Tit *Cyanistes caeruleus*, Stonechat *Saxicola rubicola*, Robin *Erithacus rubecula*, Pied Wagtail *Motacilla alba yarrellii*, Great Grey Shrike *Lanius excubitor*, Swallow *Hirundo rustica*, Goldfinch *Carduelis carduelis*, Treecreeper *Certhia familiaris*, Golden Plover *Pluvialis apricaria*, Canada Goose *Branta canadensis*, Buzzard *Buteo buteo*, Grey Heron *Ardea cinerea*, Egyptian Goose *Alopochen aegyptiaca*. The closest known location records are for a location 170m north of the site and these are for multiple species.

Desk Study – Magic Maps (MAGIC)

MAGIC Maps revealed no Granted European Protected Species Applications within a 2km radius of the site.

UK Habitat Classification Survey and Habitat Evaluation

The results of the UK Habitat Classification Survey are presented below. A UK Habitat Classification Map can be seen in Appendix 5. Photographs that display some of the habitats can be seen in Appendix 6. The habitats on the site have been evaluated as having site value in relation to the immediate surroundings and a regional context.

It was noted during the survey that areas of habitat had been recently felled. To verify this, Google Street View was checked, revealing areas of habitat that had recently been removed. According to the user guide, retrospective habitats that have been removed should use a pre-degradation habitat type as the site's baseline. This means that if a habitat was cleared, destroyed, or degraded, the baseline should reflect the type of habitat that existed before the degradation. This baseline is then recorded as lost within the biodiversity metric tool. The guide specifies that this backdating applies to situations where evidence of the pre-degradation habitat type and condition can be established and documented. The

habitats noted below have been retrospectively recorded based on this guidance.

A search was also conducted using the Hertfordshire Habitat Inventory, and the HEN maps have been suggested as a suitable basis for determining Strategic Significance in Biodiversity Net Gain calculations (appendix 8). The Site is in the Northern Hertfordshire Chalk Character Area, which is known for its unique chalk grassland habitats. Although the Site's previous habitat was mainly mixed scrub.

Mixed Scrub (h3h)

Areas of mixed scrub on the chalk bank to the south of the site were evident on Google Street View as being present in November 2021 but have since been noted as recently removed. The species included Barberry *Berberis*, Birch *Betula*, Hazel *Corylus avellana*, Skogholm Cotoneaster *Cotoneaster skogholm*, Ivy *Hedera*, Hawthorn *Crataegus monogyna*, Pine *Pinus*, Dog Rose *Rosa canina*, and Small-leaved Lime *Tilia cordata*. The area was likely composed of over 80% native species, featuring a variety of seedlings, saplings, young shrubs, and mature specimens, with a well-developed edge and tall grassland forbs. Evidence also suggests the presence of possible Schedule 9 invasive species.

While this habitat is of poor quality and not a priority habitat like *chalk grassland*, the soil and substrate of this area are considered strategically significant as part of the Chalk Character Area, as defined in the Hertfordshire Ecological Network Map (Appendix 8).

Non-Native Hedgerow (h2b)

A linear non-native hedgerow runs the length of the site between the main buildings and the carriageway. The hedgerow features a variety of non-native species, including Bukhara fleecflower *Persicaria bungeana*, brambles *Rubus fruticosus*, cherry laurel *Prunus laurocerasus*, cotoneaster *Cotoneaster spp.*, common lilac *Syringa vulgaris*, and wintergreen barberry *Berberis julianae*.

Line of trees (3)

A linear line of trees, consisting of approximately 6–7 mature species along the western boundary of the site, was evident on Google Street View as being present in November 2021 but has since been noted as recently removed. Potential species include Ivy *Hedera*, Hawthorn *Crataegus monogyna*, Pine *Pinus*, Dog Rose *Rosa canina*, Sweet Briar *Rosa rubiginosa*, and Small-leaved Lime *Tilia cordata*. The area is evidenced as being continuous with no gaps, with the trees in healthy condition, though it does not feature an undisturbed vegetated strip on either side. The site also features a line of 20 Sycamore, Cypress trees along with western boundary at the top of the chalk bank.

Individual Trees (u1)

The site features individual trees along the northern boundary near the carriageway, including Cypress *Cupressus*, *Cupressaceae* and Ash *Fraxinus*, *Oleaceae*. Additionally, a group of six trees along the western boundary includes Hawthorn *Crataegus*, *Rosaceae*.

Bioswale (849)

The site features a bioswale along the main carriageway on the northern boundary of the site, with vegetation consisting of (modified grassland *G4*), gently sloped to manage runoff water from the carriageway.

Bareground (510)

An area of bare ground along the southern boundary shows some vegetation growth, including Coralberry *Symphoricarpos orbiculatus*, Dandelion *Taraxacum officinale*, Common Hawkbit *Leontodon hispidus*, Bluebell Bellflower *Campanula rotundifolia*, and Multiflora Rose *Rosa multiflora*. This area is characterised by sparse plant coverage, with pockets of these species establishing in the otherwise exposed soil, indicating early stages of colonisation in a predominantly bare substrate.

Developed Land; Sealed Surface (Buildings) (U1b5)

The site includes two building typologies: a shop and a site office with a storage facility, as well as the main forecourt canopy that covers the majority of the hard surface.

Developed Land; Sealed Surface (Hardstanding) (U1b6)

The site primarily consists of a hardstanding concrete forecourt for the filling station, which includes parking bays, entrance and exit roads, and service areas for deliveries.

Invasive Weeds Assessment

An assessment was made to establish whether the site has any invasive weeds listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). Cotoneaster was found at the site, specifically in the mixed scrub and non-native hedgerow. This plant group is challenging to identify due to the presence of over one hundred naturalised species in Britain. Birds consume the fruits of this genus and disperse the seeds into the wild. Identifying the species requires seed examination. Since five Cotoneaster species are listed on Schedule 9, and it is not possible to confirm which species is present, we recommend treating this plant as a Schedule 9 species for control purposes as a precaution.

Site Assessment and Evaluation for Protected and Notable Species

Bats

Suitability for Roosting Bats

Trees and buildings were categorised based on their suitability to support roosting bats (Collins, 2023). Brief descriptions of the trees and their associated features for supporting roosting bats are summarised in Table 6 and 7. Trees were categorised as negligible (including hedgerows trees, not separately described), PRF-I (suitable for individual bats or small numbers), and PRF-M (suitable for multiple bats, including maternity colonies) based on the presence of Potential Roost Features (PRFs), in accordance with the recommendations within the new bat survey guidelines (Collins, 2023) (see Appendix 1).

Table 6. Descriptions of the Buildings and Their Corresponding Suitability for Roosting Bats (Collins, 2023).

Feature	Description	Suitability for Roosting Bats (Collins, 2023)
B1	Building 1 (B1), which is the main canopy covering the forecourt, was observed to have one or more features that could be used by individual bats opportunistically at any time of the year. However, these potential roost features do not offer the appropriate conditions (such as space, protection, or shelter) and/or suitable surrounding habitat to be used regularly or by larger numbers of bats. This makes it unlikely for the site to be used as a maternity roost or a classic cool/stable hibernation site, though it could potentially be used by individual hibernating bats. These	Low

	features include small holes / cracks in the canopy facade.	
B2	Building 2 (B2), the shop building with associated storage and office areas, was observed to have one or more potential features that could be used by individual bats opportunistically at any time of the year. However, these potential roost features do not provide the necessary conditions, such as space, protection, or shelter, nor is the surrounding habitat suitable for regular use or by larger numbers of bats. Consequently, it is unlikely that the site would be used as a maternity roost or a classic cool/stable hibernation site, though it could potentially be used by individual hibernating bats. These features include a missing fascia board.	Low

Table 7. Descriptions of the Trees and Their Corresponding Suitability for Roosting Bats (Collins, 2023).

Feature	Description	Suitability for Roosting Bats (Collins, 2023)
T1	A small-medium sized Cypress; Cupressus, Cupressaceae including features dense ivy growing up the stem/trunk of the tree. The ivy is unlikely to support roosting bats itself but may be concealing features of value behind for roosting bats.	PRR-I
T2	A medium sized Ash; Fraxinus, Oleaceae, lacks obvious habitat features suitable for bat roosting.	Negligible

G1	A group featuring small-medium Sycamore, Cypress lacks obvious habitat features suitable for bat roosting.	Negligible
G2	A group featuring Hawthorn; Crataegus, Rosaceae, features dense ephemeral growth. The ephemeral growth is unlikely to support roosting bats itself but may be concealing features of value behind for roosting bats.	PRF-I

The current proposals indicate that the buildings may be renovated or demolished. Due to the low suitability of Buildings 1 and 2 for roosting bats, they will require one presence/absence surveys to be conducted between May and September.

T2 and G1 has been categorised as negligible and therefore no further surveys are required. T1 and G2 have been categorised as PRM-I; therefore, were considered to possess features suitable for use by individual or low numbers of bats. For trees to be impacted directly or indirectly (e.g., by lighting), an endoscope inspection of potential roost features is recommended immediately prior to any works. Any areas around retained trees should consider appropriate buffering by suitable habitat and the minimisation of lighting through a sensitive lighting strategy.

Suitability for commuting and/or foraging bats

An assessment was made of the habitat surrounding the survey area and its suitability for foraging and commuting bats. The landscape around the site provides a good habitat for commuting and foraging bats due to its connectivity to the wider landscape.

Given the proposed removal of a large bank that runs beneath a line of trees suitable for commuting bats work should be sympathetic to this group of species including the provision of a sensitive lighting scheme, as detailed on Page 24. The lighting scheme should be

produced during the design scheme and implemented during and post-construction.

While no direct or indirect impacts to the line of trees are anticipated from the development, potential effects from dust, noise, and light pollution must be carefully considered.

Mitigation measures have been provided in the next section which details the requirements for any new artificial lighting to ensure minimal impact to foraging and commuting bat species. Native species planting including trees, shrubs and hedgerows will also provide additional benefits for bats.

Amphibians and Reptiles

The site has a small number of habitats suitable for great crested newts and other herpetofauna during their terrestrial phases, such as a bioswale with an associated ditch along the northern boundary and less managed areas. Habitats like closely mown modified grassland, hardstanding, buildings are considered sub-optimal for these species. Most of the habitat within the site is unsuitable for great crested newts. The associated ditch, which runs along the northern boundary, was dry and appeared to have been for some time. As this ditch remained dry during the peak GCN breeding season; it was not considered this ditch had potential breeding suitability; therefore, a habitat suitability index (HSI) was not conducted. There are no known ponds within 500m of the site, and none within 250m of the site of the application boundary (Appendix 4). It is therefore unlikely that herpetofauna would be able to disperse and utilise the site.

The site is located 50 meters away from a known associated ditch that runs along the central reservation of the dual carriageway, collecting surface runoff water. However, the dual carriageway and associated ditch are considered barriers to amphibian dispersal, limiting the movement of amphibians between habitats.

The site has a negligible potential to support the rarer reptiles such as adder, smooth snakes and sand lizards. No further survey work is

recommended given the low likelihood of encountering reptiles and amphibians. Reasonable avoidance measures have been provided within the recommendations section which are applicable to reptiles, amphibians and small mammals (e.g., hedgehogs).

Badgers

A potential badger sett was identified just outside the site boundary at the top of the chalk bank along the southern boundary. Several holes were present, with at least one large enough to potentially support badgers. However, these holes were in a very exposed location with no vegetation cover, making them vulnerable to disturbance. Additionally, another area of potential sett-building habitat was found along the northeast corner of the site, which also provides ideal foraging grounds for badgers.

Badgers and their setts are protected under the Protection of Badgers Act 1992. It is an offence to wilfully kill or injure a badger, or to interfere with badger setts, including damaging or destroying a badger sett or any part of it, obstructing access to, or any entrance of, a badger sett, or disturbing a badger when it is occupying a sett.

Given the presence of potential badger activity, a detailed badger survey and a badger camera trapping survey is recommended to monitor the potential sett over a 21-day period. If badgers are found to be using the holes on-site, a license from Natural England will be required to destroy the sett.

Birds

The assessment was undertaken during the active breeding bird season. One species was seen and / or heard incidentally during the survey (see Table 8).

Table 8. Bird Species Recorded During the Ecological Survey.

Bird Species	Conservation Concern (Eaton et al., 2021)
Common wood-pigeon <i>Columba palumbus</i>	Amber

The hedgerow and trees provide an area suitable for nesting birds. The site is unlikely to support ground nesting birds given the nature of the site, frequent disturbance and the number of predator perches (e.g., fence posts and trees). Nesting birds should be considered further for their legal protection only. Any clearance / demolition / renovation should ideally be timed to avoid the nesting bird season (typically March to September inclusive). Further recommendations for mitigation and enhancements measures relating to nesting birds has also been provided.

Hazel Dormouse

There are no hazel dormouse *Muscardinus avellanarius* records within a 2km radius of the site. There are no granted European Protected Species (EPS) Mitigation Licences for hazel dormouse on MAGIC within a 2km radius of the site. The hedgerow on the northern boundary may provide some sub-optimal habitat for dormice but it is not well connected to habitats of wider and larger value (e.g., woodland). No direct evidence of dormice, such as nests or individuals, was found during the survey. The existing hedgerow will be retained and protected throughout the development (including a buffer zone) and no impacts are predicted to the hedgerow. Based on the above, no further survey work is considered necessary.

Invertebrates

The peripheral habitats (e.g., hedgerows), and less managed areas may support some common and widespread invertebrate assemblages. The site is unlikely to impact rare and / or notable invertebrates due to the limited diversity of plants and number of

modified habitats. No other triggers were identified to suggest that the development will impact any protected or notable assemblage of invertebrates. Native species planting and providing additional gains for biodiversity are likely to encourage an increased use of the site by an array of invertebrates. They are not considered further in this report other than for possible enhancements.

Other Species

Hedgehogs may utilise the site for foraging and commuting with preference likely given to the vegetated areas and boundary habitats (e.g., hedgerows). No evidence of hedgehogs was observed during the surveys and the site is only likely to support a very small number. Precautionary working methods are considered sufficient for small mammals including hedgehogs and this will ensure there are no breaches in legislation during site clearance/construction activities; the precautionary working methods will allow dispersal to the surrounding environs. Enhancements have been provided in the following section which are suitable for hedgehogs and other species.

A potential rabbit warren was identified at the top of the chalk bank, just outside the boundary of the site. While rabbits and their warrens are not protected by specific legal provisions, it is still important to ensure that no cruel or wilful harm comes to these animals or their habitat. Precautions should be taken to ensure that the rabbit warren remains unharmed during any site activities. This can include avoiding disturbance to the area, especially during construction, and ensuring that any heavy machinery or equipment is kept at a safe distance from the warren. Protecting the warren aligns with good practice in wildlife conservation and animal welfare, helping to avoid unnecessary suffering or habitat destruction.

Roman Snails

Given the site's location in Hertfordshire, Roman snails *Helix pomatia* should be considered as part of the survey. The chalk calcareous area to the south of the site provides suitable conditions for Roman snail populations, and during the survey, empty shells were identified. While the Roman snail is a common species within its native range

and is classified as Least Concern by the IUCN Red List, it is listed in Annex V of the EU's Habitats Directive and is protected by law in several countries to regulate harvesting from wild populations. In the UK, Roman snails are protected under Section 9 of the Wildlife and Countryside Act 1981 (as amended), making it illegal to kill, injure, collect, or sell these snails. Schedule 5 of the Act further confirms their protection under sections 9.

It is recommended that a Roman snail survey be conducted within the zone of influence of the site. This survey should involve walking over the site, assessing the habitats, and looking for any signs of current or past activity, as well as the presence of the snails themselves, to confirm the presence or absence of Roman snails.

Recommendations

Recommendations for measures for the avoidance of impacts on identified features of nature conservation interest and opportunities are outlined below. The survey results can be used to guide future development proposals.

Habitats / Biodiversity Net Gain

In line with local and national policy, the proposed development should seek opportunities to incorporate ecological enhancements. A measurable 10% biodiversity net gain must be achieved as a result of amendments to the Town and Country Planning Act 1990 (Schedule 7A) by the Environment Act (2021). The retention of habitats of higher value (e.g., scattered trees and hedgerows) must occur where possible and be protected during development by measures set out within a Construction and Environment Management Plan (CEMP), secured as a condition of planning. Dust prevention measures must also be detailed in a CEMP to ensure no adverse effects to adjacent habitats.

The development must also ensure that best practice measures are effectively implemented to ensure the protection of adjoining habitats. Chemicals must be securely stored on areas of hardstanding / another sealed surface, following COSHH guidelines. All those working on the site should have access to spill kits and appropriate training in their use.

The inclusion of green and blue infrastructure habitats within the development and creation of habitats of value would offer substantial enhancements to the site. This could include bioswales, ponds, SuDS, rain gardens, species-rich grassland, hedgerows, green roofs, living walls, mixed scrub, and tree planting. To ensure any proposed enhancements are effectively delivered end to ensure the long-term management for biodiversity, a Landscape and Ecological Management Plan (LEMP) should also be developed and secured as a planning condition.

It is recommended that the loss of trees is avoided as far as possible. Where this is not possible, losses should be minimised and compensated for appropriately by way of replacement tree planting elsewhere on the Site. As far as possible trees should be of native species, local provenance and appropriate to the soil/drainage conditions on the Site. Replacement of trees should be designed to maintain connectivity around and/or within the Site, in particular for bats and birds which are likely to be using the area, and as far as possible should be unlit.

The location and substrate are deemed strategically significant as part of the Chalk Character Area, as outlined in the Hertfordshire Ecological Network Map (Appendix 8). Priority habitats should be considered and prioritised for delivery.

Roosting Bats

The current proposals indicate that the buildings may be renovated or demolished. Due to the low suitability of Buildings 1 and 2 for roosting bats, they will require one presence/absence surveys to be conducted between May and August (September for low suitability).

T2 and G1 has been categorised as negligible and therefore no further surveys are required. T1 and G2 have been categorised as PRM-I; therefore, were considered to possess features suitable for use by individual or low numbers of bats. For trees to be impacted directly or indirectly (e.g., by lighting), an endoscope inspection of potential roost features is recommended immediately prior to any works. Any areas around retained trees should consider appropriate buffering by suitable habitat and the minimisation of lighting through a sensitive lighting strategy.

A minimum of four bat boxes (e.g. Schwegler 1FR Bat Tube or Integrated Eco Bat Box Crevice) should be placed on or within the buildings post-development or trees within the site in accordance with the retailer's instructions (see Appendix 7). The boxes should be at least 4m above ground level, away from lights and not placed above / near windows.

Foraging and Commuting Bats

The site contains some habitats to support commuting / foraging bats. The requirements of any future lighting must be assessed and implemented in line with best practice guidance to inform a sensitive lighting strategy. Such guidance should include construction work being limited between the hours of dawn and dusk, site specific lighting practices (e.g., low-light levels and use of timers) and the avoidance of light spill onto boundaries and adjoining habitats.). These documents contain further information: BCT and ILP (2023) and Matthews et al. (2015).

The planting and buffering of existing habitats, including hedgerows and nectar-rich species, is encouraged and should be incorporated into any landscape plans. Species for linear features could include hawthorn, blackthorn, hazel, field maple and spindle. Night flowering plants such as honeysuckle, evening primrose, field scabious and vervain will benefit the invertebrate prey of bats.

Badgers

Given the presence of potential badger activity, a detailed badger survey and a badger camera trapping survey is recommended to monitor the potential sett over a 21-day period. If badgers are found to be using the holes on-site, a license from Natural England will be required to destroy the sett.

During the construction period, precautionary mitigation measures should be implemented to avoid potential harm to badgers. These measures should include:

- Storing oils, fuels, and chemicals in sealed containers and ensuring they are not left out overnight.
- Covering any trenches overnight or providing a means of escape for any animals that may fall in, such as a ramp.
- Capping any open or exposed pipework to prevent animals from gaining access.

These recommendations aim to protect badgers and ensure compliance with legal obligations during the development process.

Amphibians and Reptiles

Given the small-scale nature of the site and the ability to manipulate the site to reduce the likelihood of encountering great crested newts (e.g., through phased clearance and eliminating places of shelters), no further survey work is necessary. The proposed development, including site clearance and construction phases must proceed under a Reasonable Avoidance Measures Document for great crested newts to avoid a breach in legislation. The site has a negligible potential to support the rarer reptiles such as adder, smooth snakes and sand lizards. The site only has the ability to support a small number of common and widespread reptiles, and the RAMs will be sufficient for all herptiles as well as small mammals (e.g., hedgehogs). In the event of encountering a great crested newt, then works should cease and the advice of a suitably qualified ecologist should be sought.

Breeding Birds

Any vegetation removal (e.g., hedgerows, ivy, shrubs, trees) and building demolition / conversion must avoid the nesting bird season (typically March to September inclusive) or otherwise be checked by a suitably qualified ecologist immediately prior to clearance / construction to check for nesting birds if undertaken during the nesting season. If any nests or evidence of nesting is found then suitable buffer zones will have to be implemented until the chicks have fledged or until the nest has been confirmed as redundant. The netting of any suitable bird nesting habitat is prohibited (CIEEM and RSPB, 2019).

A minimum of four boxes should be erected on or within the buildings post-development or trees within the site. Suggestions for bird boxes include sparrow boxes (e.g., Schwegler 1SP), swift boxes (e.g., Ibstock

Eco-Habitat for Swifts), starling boxes (e.g., Woodstone Starling Nest) and generalist boxes (e.g., Woodstone Build-In Box) (see Appendix 5).

Roman Snails

It is recommended that a Roman Snail survey be conducted within the zone of influence of the site by walking over the site, assessing the habitats and looking for any signs of current or past activity and the snails themselves and to confirm the presence/absence of Roman Snails.

General Recommendations

Planting additional trees, hedgerows and shrubs as part of a landscaping scheme should comprise native and locally appropriate species. If possible, species that provide pollen, nectar and fruit should form part of the landscaping to provide a food source for common birds. Species which could be considered include hazel, hawthorn, blackthorn, dog-rose, wayfaring tree, sweet-briar, dogwood, common buckthorn and guelder rose. Any hedgerows and trees to be retained must be protected in line with the British Standard: Trees in Relation to Design, Demolition and Construction (BS5837:2012).

These working methods are appropriate for mammal species of principal importance including hedgehogs as well as other species (e.g., herpetofauna):

- Any taller vegetation must be strimmed in a phased manner prior to work commencing. All vegetated areas should be checked as it is cleared to ensure there are no protected / notable species. After the vegetation is cleared, the vegetation must then be kept close to ground level and must be maintained in that condition until the development is complete.
- Prior to works commencing, any log piles, brash piles and stone piles must be removed carefully. If any species are discovered,

then an ecologist should be contacted to advise or relocate the animal(s) to a suitable location, where appropriate.

- Work on the site may create rubble piles which may have the potential to be utilised as places of rest or shelter. Such debris must be removed from the site immediately or placed into skips prior to removal, or on pallets if to be reused.
- Escape routes must be provided within any pits dug for the foundations. Such ramps must be no steeper than 45 degrees in angle and must be constructed using rough wooden planks. Any excavations left open overnight must be checked first thing in the morning prior to works recommencing.
- Any exposed open pits should be capped to prevent hedgehogs and other small mammals from gaining access.
- Undertake clearance and construction work between dawn and dusk in daylight hours.
- All vegetation and piles (e.g., brash, wood and deadwood) should be checked by hand prior to clearance / removal.
- If burning any cleared vegetation, carry this out immediately after piling to prevent hedgehogs from moving in prior to burning.
- If protected species are unexpectedly discovered, works must cease immediately, and a suitably qualified ecologist must be contacted. An appropriate protection / mitigation strategy will need to be designed and submitted to the local planning authority. A European Protected Species Mitigation (EPSM) licence application may also be required.

Habitat piles and invertebrate boxes / towers should be incorporated into the design plans to offer invertebrates valuable places of shelter and help to encourage their presence on the site (see Appendix 5). These should be preferably placed in south-facing locations. These can be built to any size and provide overwintering sites for a range of invertebrates such as solitary wasps, lacewings and red mason bees which are essential for pollination and pest control in most ecosystems. Hedgehog highways are recommended to be incorporated into fences, along with the installation of hedgehog shelters, to facilitate safe movement and provide suitable habitats for hedgehogs within the site.

Ecological Impact Assessment

Due to the multiple protected species potentially present on site and in line with revised guidance (CIEEM, 2019), an Ecological Impact Assessment will be required to assess impacts of the development and to detail appropriate ecological mitigation for all species and habitats present at the site. This will be informed by the surveys recommended as part of this assessment.

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Appendix 1 – Planning Policy, Legislation and Survey Methodology

Please note, the below legislation and planning policy is not exhaustive, and this does not constitute legal advice.

Bats

Bats are a European Protected Species. Individual bats and their roosts have strict protection and are listed in Annex IV of the EC Habitats Directive 1992 (transposed into law through the Conservation of Habitats and Species Regulations 2017). Some bats have a higher conservation concern in Europe. The habitats supporting these species can be designated as Special Areas of Conservation and the bat species concerned are then listed under Annex II of the Habitats Directive. Species listed on Annex II include the barbastelle, Bechstein's bat, greater horseshoe and lesser horseshoe.

Substantial penalties, which include fines and custodial sentences, are now in place for offenders under the Conservation of Habitats and Species Regulations 2017. The actions and activities that are prohibited are:

- Deliberate capture, injury or killing of a bat,
- Damage or destruct a breeding site or resting place (even if currently vacant),
- Possess, control, transport, sell or exchange, or offer for sale or exchange, of any bat or any part of a bat or anything derived from one, and
- Deliberate disturbance of a bat, in particular disturbance which is likely to impair their ability to: survive, breed or reproduce; rear or nurture their young; hibernate; migrate; or affect the local distribution or abundance of the species.

The Wildlife and Countryside Act 1981 (as amended), which is the primary legislative Act covering wildlife in the UK, affords protection to all the species of bats in the UK. Various amendments have been made to the Act and recent changes include an offence for the reckless damage of roosts or disturbance of bats. Legal precedence also ensures that roost sites are protected on a regular basis year on year regardless of whether bats are present at the time of inspection.

Many bats are described as being of principal importance for the purpose of conserving biological diversity under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. The NERC Act places a biodiversity duty upon local and national government departments to ensure the conservation of biodiversity. The National Planning Policy Framework (NPPF) also sets out the government's planning policies within England and this aims to promote and ensure sustainable development.

An assessment of any structures and trees within the site was also conducted. The assessment of the structures and trees follows best practice guidelines and techniques and the report has been written in line with recommendations within the new bat survey guidelines (Collins, 2023).

Any structures are initially assessed to have either high, moderate, low, negligible or no suitability to support roosting bats. This is based on the presence of suitable roosting features and also includes an assessment for bat evidence (e.g., feeding remains, staining, bat droppings and individual bats). The categories are allocated irrespective of the presence of a roost. For example, if a bat roost is confirmed to be present then the categorisation still stands but confirmed roost should be added (e.g., high suitability – confirmed roost). Structures assessed to have none or negligible roosting potential do not usually need further surveys. However, those with Low, Moderate or High potential or Confirmed will require additional

surveys to confirm if bats are present and to characterise the roost. Buildings are categorised as follows:

- No ('none') suitability – no habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels). No further surveys necessary.
- Negligible suitability – no obvious features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use and apparently unsuitable features on occasion. No further surveys necessary.
- Low suitability – a structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide appropriate conditions (i.e., space, protection, shelter) and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e., unlikely to be used as a maternity roost and not a classic cool/stable hibernation site but could be used by individual hibernating bats). One presence / absence survey between May and August.
- Moderate suitability – a structure with one or more potential roost sites that could be used by bats due to their appropriate condition (i.e., size, shelter, protection) and surrounding habitat. However, it is unlikely to support a roost of high conservation value (with respect to roost type only such as maternity or hibernation). Two presence / absence surveys, which have to be three weeks apart, between May and September with at least one surveys between May and August.

- High suitability – a structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their conditions (i.e., size, protection, shelter) and surrounding habitat. These structures have the potential to support high conservation roosts e.g., maternity or classic hibernation site. Three presence / absence surveys (including for confirmed roosts), which have to be three weeks apart, between May and September with at least two surveys between May and August.

A Ground Level Tree Assessment (GLTA) for bats was also conducted which searches for potential roosting features within trees from the ground. This is a baseline survey only that determines whether there is an available roosting resource (e.g., woodpecker holes, natural holes, knotholes loose bark, cracks and splits) and the need for further survey and/or mitigation. Any Potential Roosting Features (PRFs) are then categorised as either negligible (no noteworthy potential roosting features) or:

- PRF-I – PRF suitable for individual bats or very small numbers of bats either due to the size or lack of suitable surrounding habitats (not a confirmed bat roost). No further surveys are necessary but precautionary method of works for removal and provision of roosting compensation is necessary.
- PRF-M – PRF suitable for multiple bats and may therefore be used by a maternity colony or known roost i.e., known roost present for example, through local records, evidence and sightings. Three climbing inspection surveys, at minimum three week intervals, are required for PRF-M features which should be undertaken May to September with at least two surveys between May and August. If climbing and inspection is not possible, then three dusk emergence surveys with night-vision aids will be required between May and September, with three–

week minimum intervals), with at least two surveys between May and August. If a maternity colony is identified, then less invasive methods, such as dusk emergence surveys with night-vision aids should be employed.

The assessment of the site to support commuting and foraging bats follows best practice guidelines and techniques and the report has been written in line with recommendations within the new bat survey guidelines (Collins, 2023). The site is categorised as follows:

- Negligible suitability – no habitat features on site likely to be used by commuting or foraging bats. No survey effort required to establish the habitat value.
- Low suitability – habitats that could be used by low numbers of commuting bats such as an isolated gappy hedgerow or suitable, yet isolated, habitat that could be used by foraging bats such as individual trees. Survey efforts includes one Night-time Nat Walkover survey per active season (Spring – April/May, Summer – June/July/August and Autumn – September/October) and static automated surveys which include data collected over a five-night period in each aforementioned season.
- Moderate suitability – habitats that are well connected to the wider landscape that could be used by commuting bats such as tree lines and hedgerows or by foraging bats such as open water and scrub. Survey efforts includes one Night-time Nat Walkover survey per active season (Spring – April/May, Summer – June/July/August and Autumn – September/October) and static automated surveys which include data collected over a five-night period in each month from April to October.

- High suitability – habitats that are well connected to the wider landscape that are highly conducive to commuting bats such as river valleys and woodland edge or by foraging bats such as broadleaved woodland and grazed parkland. Survey efforts includes one Night-time Bat Walkover survey per active season (Spring – April/May, Summer – June/July/August and Autumn – September/October) and static automated surveys which include data collected over a five-night period in each month from April to October.

Badgers

Badgers and their setts are afforded strict protection under the Protection of Badgers Act 1992. This Act consolidates past badger legislation and, in addition to protecting the badger itself, makes it an offence to damage, destroy or obstruct badger setts. Badgers are also protected under Schedule 6 of the Wildlife and Countryside Act 1981 (as amended), and listed under Appendix III of the Bern Convention, as a species that is in need of protection but may be hunted in exceptional instances. Only badger setts that are currently in use are covered by wildlife legislation.

Surveys are undertaken in line with guidance in Surveying Badgers by Harris *et al.* (1989). A 30-metre zone of influence is considered appropriate for this species based on their known tolerance for disturbance. Any evidence (e.g., badger setts, latrines and snuffle holes) and suitability is noted by the surveyor as well as any disused holes.

Birds

All wild birds in the UK are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or to take, damage or destroy the nest or its eggs.

Some bird species, such as the barn owl, are listed in Schedule 1 of the 1981 Act and receive further protection, making it an offence to

intentionally or recklessly disturb these birds whilst building a nest or in, on or near a nest containing eggs or young; or to disturb dependent young of such a bird.

The NERC Act (2006) inserts a new schedule into the Wildlife and Countryside Act (1981) to protect the nests of some bird species that regularly re-use their nests, even when the nests are not in use. This protection currently applies to golden eagle, white-tailed eagle and osprey.

Bird surveys are carried out in accordance with Bird Monitoring Methods (RSPB) (Gilbert *et al.*, 1998).

Reptiles

All British reptiles are listed under schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are therefore protected from intentional killing or injury. This is largely as a consequence of a national decline in numbers associated with habitat loss.

Two scarcer native British reptiles (smooth snake and sand lizard), are afforded 'full' protection. This legislation makes it an offence to intentionally or recklessly kill, injure, disturb, take, possess or sell these species (in all life stages). It is also illegal to damage, destroy or obstruct access to places they use for breeding, resting, shelter and protection.

All species of reptile are priority species in the UKBAP and have been adopted as Species of Principal Importance under Section 41 of the NERC Act (2006) in England (Section 42 in Wales).

Assessments consider information and methodology provided within the Reptile Habitat Management Handbook (Edgar *et al.*, 2010) and the Herpetofauna Workers Manual (Gent and Gibson, 2003).

Amphibians

Great crested newts and their habitats are fully protected by the Conservation of Habitats and Species Regulations (2017) and partially protected under the Wildlife and Countryside Act 1981 (as amended). This legislation makes it an offence to kill, injure or capture great crested newts, their young or eggs, or destroy / damage their ponds or places of shelter used for breeding or protection. The great crested newt is also a Priority species in the UK Biodiversity Action Plan (UKBAP) and had been adopted as a Species of Principle Importance in England under Section 41 of the NERC Act 2006.

The natterjack toad is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of The Conservation of Habitats and Species Regulations 2017 making it a European Protected Species. The natterjack toad is also a priority species under the UK Biodiversity Action Plan.

The pool frog is protected under the Conservation (Natural Habitats &C.) Regulations 1994 (as amended). As a European protected species, the deliberate capturing, disturbing, injuring or killing of this species is prohibited, as is damage or destruction of its breeding sites or resting places. The pool frog is also a priority species under the UK Biodiversity Action Plan due to a 100% decline over 25 years (1980–2005).

Common toads are also designated UKBAP species due to a serious decline of populations across large areas of southern, eastern and central England, thought to be mainly due to changes in habitat management, mortalities on the roads, and climate change.

Great crested newt site assessments are undertaken in accordance with English Nature (2001) and Langton *et al.* (2001). Any aquatic and terrestrial habitats on the site and in the immediate vicinity were assessed for their suitability for use by great crested newts. Great crested newts have been known to travel up to 500m between breeding ponds and suitable habitats. However, they are more likely to remain between the breeding pond and up to 250m away if there

are suitable terrestrial habitats. Therefore, a desk-based search was undertaken prior to the ecological survey for ponds up to 250m from the site using aerial imagery and OS mapping. The terrestrial habitat between the site and these ponds, and therefore connectivity to the site, was also considered (if applicable). Major barriers such as major roads or fast-flowing watercourses are likely to prevent dispersal of great crested newts to the wider environment.

Habitat Suitability Index (HSI) assessments provide a mechanism by which the suitability of a pond to support great crested newts can be objectively assessed in order to assist the identification of ponds potentially supporting this species (Oldham *et al.*, 2000). For the HSI assessment, the locations of waterbodies within a 250m radius of the site were identified from online aerial photographs and a 1:10,000 scale OS map. A HSI assessment was undertaken on each waterbody with ecological connectivity. To make the HSI assessment, the standing waterbody is scored in relation to 10 suitability indices: location, waterbody area, pond drying, water quality, shade, waterfowl presence, fish presence, number of standing waterbodies in the local area, terrestrial habitat, and macrophyte cover. Each of these features is awarded a score between 0 and 1, and a final score is calculated, also between 0 and 1. This final score enables the standing waterbody to be ranked in terms of its suitability (poor <0.5, below average 0.5 – 0.59, average 0.6 – 0.69, good 0.7 – 0.79 or excellent > 0.8) and an estimate made of the predicted presence of great crested newts within the standing waterbody. The presence of any great crested newt eggs or individual great crested newts were also recorded if applicable as well as the descriptions of the aquatic and surrounding terrestrial habitats. Further surveys, in the form of eDNA surveys or traditional methods (e.g., bottle trapping) may be required, if presence / absence and a population assessment is required. A general assessment for other amphibians was also undertaken.

Dormice

Common dormice and their habitats are fully protected by both the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations (2017). This legislation makes it an offence to kill, injure, disturb or capture dormice, or destroy or obstruct their resting or breeding places.

The dormouse is also a priority species under the UK Biodiversity Action Plan and has been adopted as a species of Principal Importance in England under Section 41 of the NERC Act 2006 (section 42 in Wales) and so is protected from any adverse effects as a result of development.

Hedgehogs

Hedgehogs are UK Biodiversity Action Plan (BAP) species, and therefore must be taken into consideration as part of development planning.

All Mammals

The Wild Mammals (Protection) Act 1996 offers protection to all wild species of mammal, irrespective of other legislation, and focuses on animal welfare, rather than conservation. Unless covered by one of the exceptions, one is guilty of an offence if they mutilate, kick, beat, nail or otherwise impale, stabs, burns, stones, crushes, drowns, drags or asphyxiates any wild mammal with intent to inflict unnecessary suffering. Its application is typically restricted to preventing deliberate harm to wildlife in general during construction works and similar.

The Wildlife and Countryside Act 1981 (as amended)

The Act and its various amendments have been created from pre-existing legislation and support the Conservation of Habitat and Species Regulations (2017, as amended) in implementing the Berne Convention (1979) and Directive 2009/147/EC on the conservation of wild birds. The schedules within this Act provide a list of protected species and habitats as well as prohibited actions. The Act also contains measures for controlling invasive non-native species under Schedule 9 and amendments to a number of laws including public rights of way. Further details have been provided above for specific species.

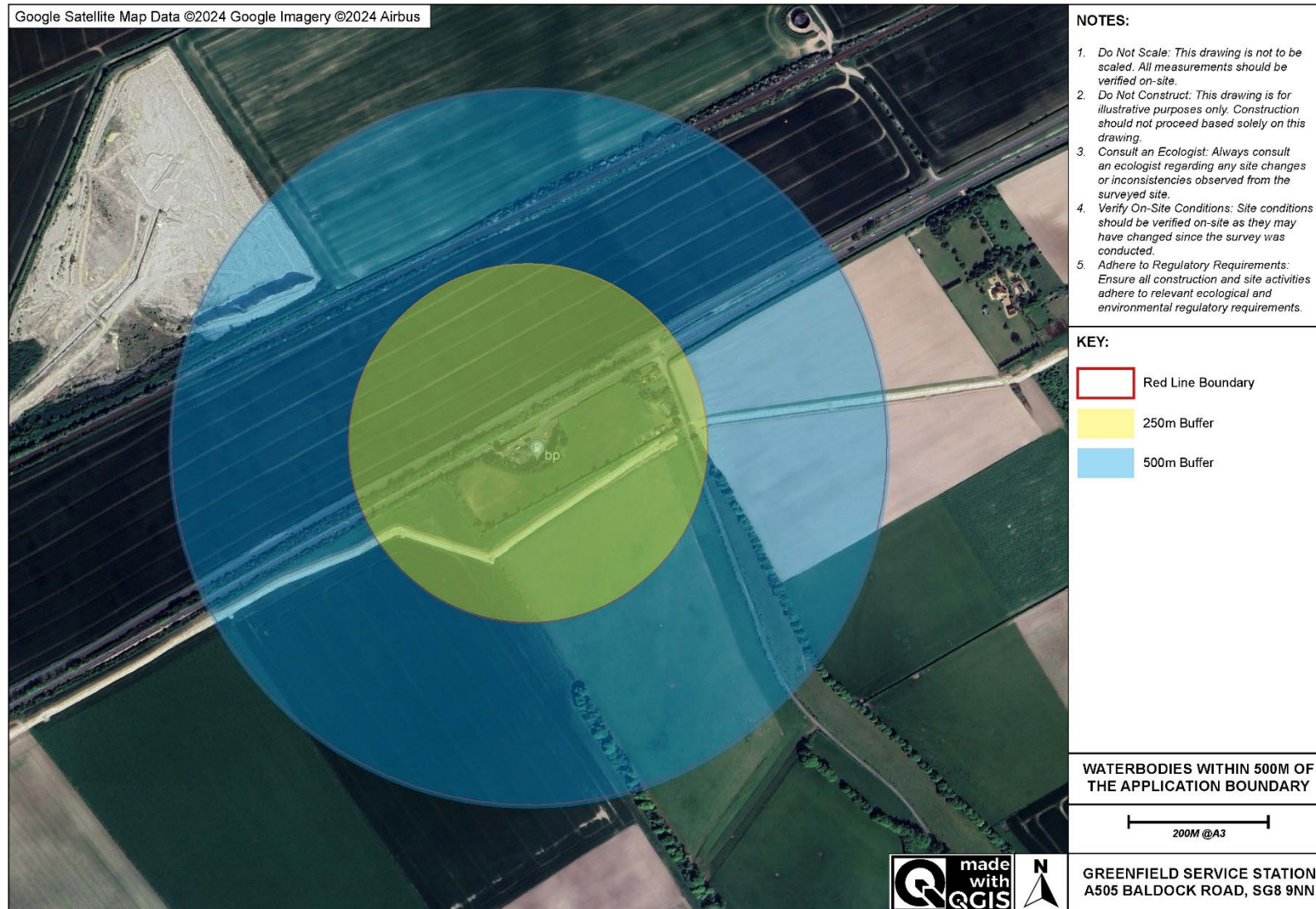
The Conservation of Habitats and Species Regulations 2017 (as amended)

These Regulations are the primary method by which the Council Directive 92/43/EEC under Conservation of Natural Habitats and of Wild Fauna and Flora (the 'Habitats Directive') is transposed for England and Wales and their territorial seas. These Regulations form the basis for implementation of Europe's nature conservation policy through habitat and species level protection. It also requires the designation of European sites known as Special Areas of Conservation (SAC). Taken collectively with the Special Protection Areas (SPAs), which are underpinned by the Birds Directive, these form the Natura 2000 Network of protected sites. Public bodies must exercise their nature conservation responsibilities in order to ensure compliance with these Regulations. These Regulations also require conservation of natural habitats and habitats of species through selection process which are afforded protection under the Habitats Directive. The Regulations contain provision for the appropriate management of sites such as the control of damaging operations special nature conservation orders and restoration orders. The Regulations offer strict protection to European Protected Species under Schedule 2 and plants under Schedule 5. Such offences may include the deliberate capture, killing, disturbance or trade of these animals. Similarly, plants listed under schedule five are typically protected from picking, collection, cutting destruction or trade.

Appendix 2 – Site Location Plan



Appendix 4 – Ponds within 500m and 250m of the site boundary



Appendix 5 – UK Habitat Classification



Appendix 6 – Site Photographs



North facing the southern boundary



North facing the western boundary



View along the eastern/southern boundary



View along the southern boundary



North facing the southern boundary



West facing the eastern boundary

Appendix 7 – Ecological Enhancements



WoodStone Build-In Open Nest Box



Schwegler 1SP Sparrow Terrace



Ibstock Eco-Habitat for Swifts



Integrated Eco Bat Box, Crevice



Schwegler 1FR Bat Tube



Invertebrate Tower / Log Pile

Appendix 8 – North Herts Ecological Maps

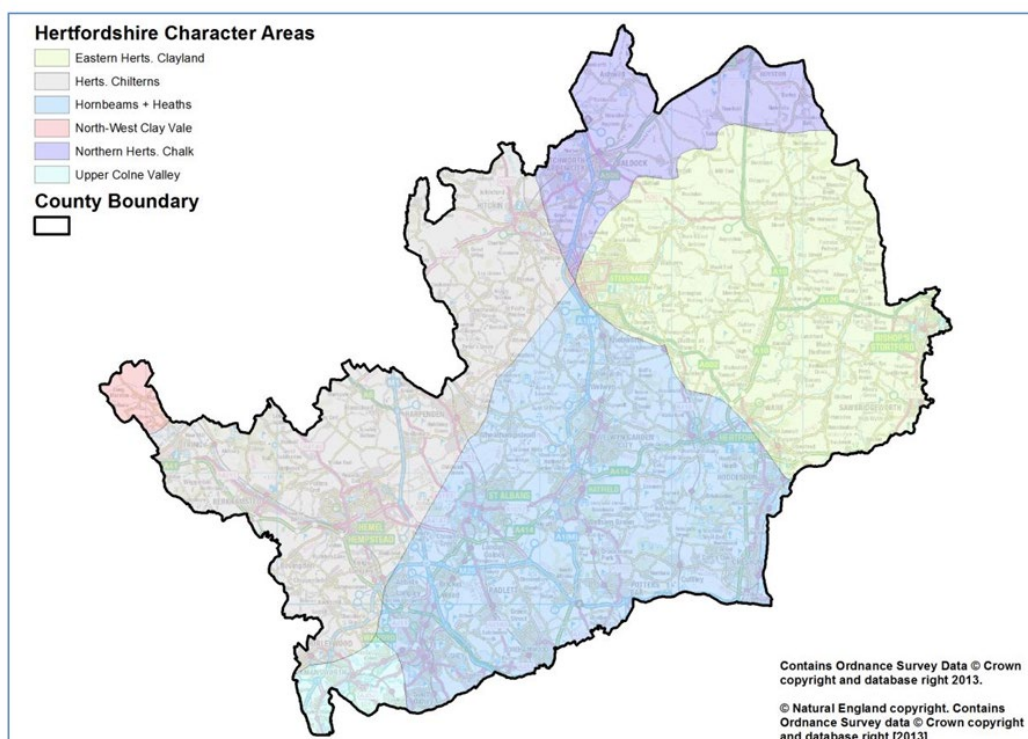
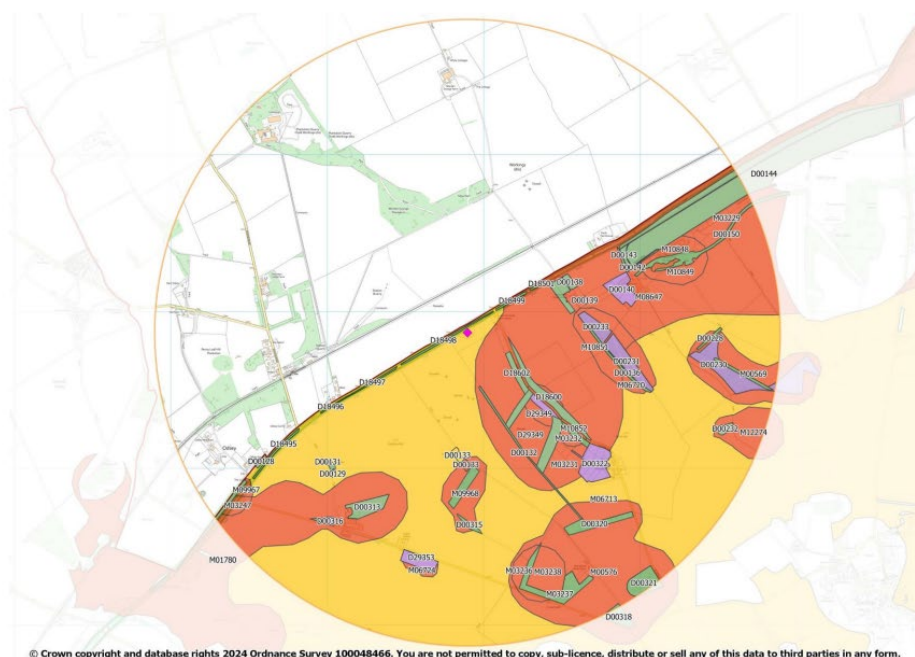


Figure 2. Map of Hertfordshire showing its constituent components of Natural England's National Character Areas. These are locally interpreted versions with Hertfordshire-specific names and boundary realignment, as detailed in the report.



END OF REPORT

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