

Ecological Impact Assessment

for

Chalkstream House, Ickleford

September 2025

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Non-technical summary

The Landscape Partnership was commissioned by Stewart Scott to undertake an Ecological Impact Assessment (EclA), comprising the findings of the Preliminary Ecological Appraisal and recommended further protected species surveys for plants and reptiles together with an assessment of the impacts of the proposed development.

The objectives of the appraisal were to identify the habitats and species present or potentially present and evaluate their importance, assess the impact of the development proposal and describe any measures necessary to avoid impacts, reduce impacts or compensate for impacts so that there is no net harm to ecological features.

The UK Habitat Classification survey involved classifying and recording habitat types and features of ecological interest and identified the potential for protected species to be present by assessing habitat suitability for those species. The botanical survey consisted of a single visit to site by an experienced botanist to produce a full plant species list for the site. The reptile survey consisted of seven visits to previously laid reptile refugia to ascertain whether reptiles were present or absent within the site. The surveys were undertaken by appropriately qualified and experienced personnel.

The site comprised a grassland field, bordered on all sides by off-site unmanaged native hedgerows and trees. The grassland is no longer used for cattle grazing and is now mown for hay approximately once every three years (*pers. comms. with landowner*). A wet ditch that was associated with a hedgerow was located adjacent to the northern boundary. This ditch was connected to the River Hiz 950m east of the site. A disused cattle barn lies in the north-western corner. Collectively the habitats within the proposed development site are assessed as being of **Lower** value at the **Parish** level.

Based on the habitat types present, it is considered that the site has potential to support the following protected species or groups of species: breeding birds, aquatic mammals and foraging/commuting bats.

The proposed development is to build a new environmentally friendly National Planning Policy Framework (NPPF) Paragraph 84 house of exceptional design quality. The development will endeavour to minimise environmental impact and maximise benefits to biodiversity, given it is situated within a greenbelt.

The results of the detailed botanical survey indicated that the grassland was not a priority habitat and that no protected, priority, or rare plant species were present on site. The results of the reptile survey indicated that reptiles were not present in detectable quantities within the site.

In the absence of mitigation, the proposed development could give rise to the following impacts: potential destruction of birds' nests, terrestrial mammals and aquatic mammals, potential lightings impact upon foraging/commuting bats and a potential disturbance to foraging/commuting bats. This would give rise to a **Minor Adverse** impact upon habitats, breeding birds, terrestrial mammals, aquatic mammals and foraging/commuting bats. Mitigation has been proposed, including removal of vegetation and demolition of the building outside the nesting bird season or following a nest check, retention of the off-site boundary hedgerows, safeguards during the construction phase for terrestrial mammals, buffers to all boundary vegetation and ditch, and if external lighting is proposed, provision of a sensitive lighting scheme. This mitigation would reduce the impacts of the development proposals upon the habitats and species present, to give rise to an overall **Neutral** impact. No further surveys are recommended at this stage.

A number of **ecological enhancements** have been proposed, which would improve the quality of the site for native flora and fauna, including a habitat pile, bat box, swift box, native planting, hedgerow management, and a contribution to the 'B-Lines' project. Delivery of these enhancements would lead to an overall **Minor Beneficial** impact.

A Biodiversity Net Gain (BNG) assessment is required under The Environment Act 2021 for most planning applications. This requires there to be a net gain of at least 10% which should be calculated using the Statutory Metric. However, as the development is for a self-build dwelling and the area of the site is less than 0.5ha, it is exempt from mandatory BNG, in line with guidance. In order to demonstrate the significant benefit to biodiversity of the proposed development, as per the ethos of a Paragraph 84 house, a BNG metric calculation has been carried out, despite its qualification for exemption. The results demonstrated a net gain of 33.27% in Habitat Units, with all trading rules met.

1 Introduction

1.1 Commission

- 1.1.1 The Landscape Partnership was commissioned by Stewart Scott to carry out an Ecological Impact Assessment (EcIA), comprising the findings of the Preliminary Ecological Appraisal and recommended further protected surveys for plants and reptiles together with an assessment of the impacts of the proposed development.

1.2 Legislation and policy background

- 1.2.1 There is a range of protection given to sites and species. Sites may be designated for local, national, or global importance for nature conservation. Species may be protected by varying levels of national regulation.
- 1.2.2 The Local Planning Authority has a policy to protect features of nature conservation value within its Local Plan. Other regulators have policies relating to the consents issued by them.
- 1.2.3 Further information is given in Appendix 1.
- 1.2.4 Assessment was undertaken against current legislation and planning policy, and in accordance with standard guidance. Further information is given in Section 2 and Appendix 2.
- 1.2.5 Biodiversity Net Gain (BNG) is required for most developments under The Environment Act 2021 unless exempt. This development is for a self-build dwelling and the area of the site is less than 0.5ha, and is therefore considered exempt from BNG, in line with guidance.

1.3 Site location and context

- 1.3.1 The site is located 500m north-west of Ickleford in Hertfordshire, and is bordered by arable land to the north, east, and south, and the A600 to the west. Entrance to the site is via the A600 to the west.
- 1.3.2 The site comprised a grassland field, surrounded by off-site native hedgerows. The site is thought to have previously been used for cattle grazing but has not been grazed for the past few years. The site is now largely unmanaged, with the grassland being mown for hay approximately once every three years (*per. comms. with landowner*). A disused cattle barn lies in the north-western corner of the site.
- 1.3.3 The majority of the site boundaries were demarcated by stock fencing, with the exception of the northern boundary which was demarcated by barbed wire fencing with timber posts. A wet ditch associated with the northern boundary hedgerow, was linked to the River Hiz approximately 950m east of the site.
- 1.3.4 The wider landscape consisted of pasture and arable land, with pockets of woodland. The closest area of deciduous woodland was approximately 500m southeast of the site. The site is located within the greenbelt.
- 1.3.5 The Ordnance Survey Grid Reference for the approximate centre of the proposed development site is TL 1762 3215. The location of the site is shown in Appendix 3. A plan showing the site is provided at Figure 01.

1.4 Description of the project

- 1.4.1 It is proposed to build a new environmentally friendly National Planning Policy Framework (NPPF) Paragraph 84 house of exceptional design quality. The development will endeavour to minimise environmental impact and maximise benefits to biodiversity, given it is situated within a greenbelt. The residential curtilage of the proposed dwelling is located to the north of the site (pink line in Appendix 3), with the south of the site located outside of this curtilage.
- 1.4.2 Proposed landscaping includes retention of all off-site boundary hedgerows, enhancement of existing grassland, creation of an ecological pond, and planting of fruit trees. The landscape proposals are shown in Appendix 4.

1.5 Objectives of this appraisal

1.5.1 The purpose of this appraisal is to inform a planning application for the proposed development, as described above. Detailed objectives are to:

- identify the habitats and species present or potentially present and evaluate their importance;
- identify any ecological constraints to development;
- assess the impact of the development proposal;
- identify any opportunities available for integrating ecological features within the development;
- describe any measures necessary to avoid impacts, reduce impacts or compensate for impacts so that there is no net harm to ecological features;
- propose ecological enhancements.

1.6 Previous ecological studies

1.6.1 There are no known previous ecological studies of the site.

1.7 Duration of appraisal validity

1.7.1 The assessment, conclusions and recommendations in this appraisal are based on the studies undertaken, as set out in this report, and the stated limitations. This appraisal is based on the project as described and any changes to the project would need the appraisal to be reviewed. Unless otherwise stated, the assessment, conclusions and recommendations given assume that the site habitats will continue to be used for their current purpose without significant changes until development takes place. However, changes in use or management may occur between the time of the survey and proposals being implemented. Ecological features may change naturally at any time; for example, species may be lost from existing sites or colonise new areas. Our knowledge of the ecology of the site enables us to provide an estimate of the duration of the validity of the surveys carried out and hence the applicability of this appraisal, so that any future need for review and update of this appraisal, or the surveys described within it, and the date by which such updates would become necessary, can be identified.

1.7.2 The table below sets out a guide to duration of validity of each element of each information source. If the proposed development is delayed beyond the stated timescale, updated surveys or further investigations may be required. Provided a planning application is made and validated prior to the end of the period stated below there would not normally be a requirement for a further update survey except as indicated in Section 4.6.

Information source	Date undertaken	Guideline duration of validity from date undertaken	Notes
Desk study	4 th December 2024	2 years	Further data may become available.
UK Habitat Classification survey	4 th December 2024	2 years	The habitats on site may change especially if management changes.
Botanical survey	7 th July 2025	2 years	The species present on site may change if management changes.
Reptile survey	2 nd April 2025 – 2 nd May 2025	2 years	Providing management of the site is unchanged, no significant changes to reptile populations within 2 years are expected
Ground level bat tree roost assessment	4 th December 2024	2 years	Storm damage, tree felling, or other factors can change bat roost potential of trees.
Preliminary bat roost inspection: Buildings	4 th December 2024	2 years	Storm damage, maintenance, neglect or other factors can change bat roost potential of buildings.

2 Methodology

2.1 Desk study methodology

- 2.1.1 Hertfordshire Environmental Records Centre (HERC) and Bedfordshire and Luton Biodiversity Recording and Monitoring Centre (BRMC) were asked to provide records of protected, rare and/or priority species and details of statutory and non-statutory designated sites, within the site boundary and within a 2km radius site boundary. The data were received from HERC on 4th December 2024 and from BRMC on 5th December 2024.
- 2.1.2 The Magic website¹ was used to identify European sites within a 10km radius and national sites within a 5km radius. Sites of Special Scientific Interest designated for bats were also identified within a 10km radius. The Magic website was also used to identify any Priority Habitat Inventory habitats and Natural England mitigation licences or licence returns that were present within a 2km radius from the site boundary. The Magic website was accessed on 23rd September 2025.
- 2.1.3 In addition to the data search the Woodland Trust's Ancient Tree Inventory website² was used to identify veteran or ancient trees previously recorded on or within close proximity to the site. This website was accessed on 23rd September 2025.
- 2.1.4 Aerial photographs and OS maps were used to gain initial information about the site and the surrounding area. This gives an indication of the types of habitat and species likely to be present and the setting of the site within the landscape.
- 2.1.5 Water bodies within 250m of the site were identified from the relevant 1:25,000 Ordnance Survey map sheet, to establish the need for protected species scoping surveys, such as great crested newt Habitat Suitability Index surveys. Consideration was also given to the green infrastructure of the local area.
- 2.1.6 The potential for protected, rare and/or priority species to be present on site has been considered in this assessment, taking into account the nature of the site and the habitat requirements of the species in question. Absence of records does not constitute absence of a species. Habitats on the site may be suitable for supporting other protected species that have not previously been recorded within the search area. Conversely, presence of a protected species in the search area does not imply its presence on-site. Records of alien species, non-localised records (e.g. tetrad records) and records dated before 2000 have not been described in detail but are taken into account when considering likely species presence or absence.
- 2.1.7 The data supplied by the Records Centres were considered in the assessment of potential impacts below.

Limitations to desk study methodology

- 2.1.8 There were no significant limitations to the desktop study.
- 2.1.9 In accordance with BS42020 and advice from most Local Biological Record Centres, species lists are not appended to this report but are available to the Local Planning Authority on request.
- 2.1.10 Availability of records will vary in different locations, as many depend on the presence of local experts and survey effort within the local area. An absence of a record does not necessarily indicate the absence of that species.

¹ MAGIC: <https://magic.defra.gov.uk/MagicMap.aspx>.

² Ancient Tree Inventory ati.woodlandtrust.org.uk/

2.2 UK Habitat Classification survey methodology

2.2.1 The standardised UK Habitat classification and mapping methodology³ was followed. All habitats present and areas or features of ecological interest within such habitats were recorded and mapped. The survey methodology facilitates a rapid assessment of habitats, and it is not necessary to identify every plant species on site. Where given, scientific names of plant species follow Stace ed. 4⁴. The DAFOR scale was applied to each plant species found within the site and in each habitat type, as follows:

- **D:** Dominant - a percentage cover of greater than 75%
- **A:** Abundant – a percentage cover of 51-75%
- **F:** Frequent – a percentage cover of 26-50%
- **O:** Occasional – a percentage cover of 11-25%
- **R:** Rare - a percentage cover of 1-10%

2.2.2 The survey was also used to identify potential for protected, rare and/or priority species, for example bats, mammals, amphibians and reptiles, to occur on, or in the vicinity of, the proposed development site. Although the survey methodology is not intended for species survey, any protected, rare and/or priority species which were seen during the survey were noted.

2.2.3 The survey was undertaken on 4th December 2024 and the weather conditions were dry, with clear skies (0% cloud cover), a light air (Beaufort 1), and a temperature of 3°C.

Limitations to UK Habitat Classification survey

2.2.4 The UK Habitat Classification survey was undertaken outside the main flowering season for many species, including grassland flora, as well as being outside the seasons in which some invasive species would be visible, for example those that are annual, or which die back in winter. A botanical surveys has been undertaken and therefore this is not considered to be a significant limitation.

2.3 Detailed botanical survey

2.3.1 The site was surveyed by Jo Parmenter, a competent botanist, on 7th July 2025. Survey focussed on the grassland and hedgerow; more ruderal habitats around the cattle barn (Building 1) and gateway were not investigated in detail. It was apparent during the survey that the grass had not been mown or grazed in 2025 and so all plants present were readily identifiable. The weather for the duration of the survey was dry, warm and sunny, with light winds.

2.3.2 Vegetation was recorded as a single site species list. A grid reference was taken for each species on the first occurrence of that species and thereafter for every occurrence of each plant species considered to be of ecological importance:

- Local Species of Conservation Concern
- Wildlife and Countryside Act Sch8
- NERC Act Section 41
- UKBAP
- Nationally Scarce
- RedList_GB-Critically Endangered, Endangered, Vulnerable, Near-threatened, Lower Risk
- Any other notable species

2.3.3 JNCC's 'Taxon Designations' spreadsheet dated 6th December 2023⁵ was used to determine species status along with the Bedfordshire Rare Plant Register⁶.

2.3.4 The frequency of occurrence of each species was recorded using the DAFOR scale. The DAFOR scale is a system for estimating the abundance of plant species in a given area, using five categories: Dominant, Abundant, Frequent, Occasional, and Rare. These categories correspond

³ UKHab Ltd (2023). *UK Habitat Classification Version 2.0* (at <https://www.ukhab.org>)

⁴ Stace, C (2019) *New Flora of the British Isles*. C&M Floristics. 4th Edition.

⁵ <https://hub.jncc.gov.uk/assets/478f7160-967b-4366-acdf-8941fd33850b>

⁶ <https://www.bnhs.co.uk/2019/recorder/flora/doc/bedsreddatalist.php>

to estimated percentage cover as follows: Dominant (76-100%), Abundant (51-75%), Frequent (26-50%), Occasional (11-25%), and Rare (1-10%).

2.3.5 Scientific names of plant species follow Stace ed. 4⁷.

2.3.6 Due to the small size of the site, representative and homogeneous stands of vegetation were selected within the parcel for National Vegetation Classification survey, using the keys in Rodwell Volume 3 Grasslands and Montane Communities⁸, avoiding obvious vegetation boundaries or unrepresentative floristic or physiognomic features.

2.3.7 The results were then compared with tables of data in Rodwell (1992) and with the written description. This allowed the vegetation community to be determined by the report author; no computer data comparison programmes were used.

Limitations to botanical survey

2.3.8 There were no limitations to survey.

2.3.9 Formal National Vegetation Classification (NVC) survey was not carried out, as noted above, however this is not considered to be a constraint to survey.

2.4 Reptile survey

Rationale

2.4.1 The commoner species of reptile (slow worm, common lizard, grass snake and adder) are protected from intentional killing or injury, and it is also illegal to sell these species. The rare species, found primarily in heathland and dunes in the south of England, are smooth snake and sand lizard. These are European Protected Species and it is illegal to kill, injure, disturb, or take any of these species, or to damage or destroy a breeding site or resting place. Habitats used by reptiles include heathland, brownfield land, long grassland, scrub, including gorse and bramble scrub, the base of hedgerows and open (sunny) woodland. Most undisturbed (e.g. not regularly mown or closely grazed) areas of suitable size have the potential to support reptiles.

2.4.2 Possible hibernation sites, or hibernacula, (potentially occupied from late September to early April) include embankments, piles of cut logs or timber, fly-tipped material (including dumped tin sheets, rubble, tyres, turfs and mounds of soil), beneath tree roots, in mammal burrows and any other cavities or crevices above the winter water table.

Methodology

2.4.3 A presence-absence survey was undertaken in respect of reptiles in accordance with guidance⁹, in areas potentially suitable for reptiles. Twenty-six artificial refugia each measuring approximately 100cm by 50cm (0.5m²) were placed around the site in areas thought to have most potential to support reptiles, on 27th March 2025 and weather conditions were dry, with no wind (Beaufort 0), 0% cloud cover, and a temperature of 12°C. Locations for refugia were primarily located in areas of grassland adjacent to the boundary hedgerows, which were considered as suitable reptile habitat. Where possible, refugia were placed in inconspicuous locations to reduce the risk of interference. Refugia were made of heavy-duty bituminous roofing felt weighing 2.2kg/m². They were left in situ for a period of at least 1 week before survey visits were commenced.

2.4.4 Twenty-six refugia were placed in the 0.7ha (area of field as a whole) of suitable reptile habitat at a density which is higher than the recommended density of ten per hectare for more accurate results. The higher density was chosen to give a greater sample size and a greater likelihood of attracting reptiles compared to standard recommended density.

2.4.5 Seven survey visits were carried out in the early morning, during suitable weather conditions; avoiding heavy rain, strong wind and temperatures below 10°C or above 18°C. The visits started

⁷ Stace, C (2019) *New Flora of the British Isles*. Cambridge University Press. 4th Edition.

⁸ Rodwell, J.S. (ed.) 1992 *British Plant Communities Volume 3: Grasslands and montane communities*. Cambridge University Press

⁹ Froglife (1999) *Froglife advice sheet 10: reptile survey*. Froglife, London & Gent T & Gibson S (2003) *Herpetofauna Workers Manual*. JNCC, Peterborough.

on 2nd April 2025 and ended on 2nd May 2025 at which point the refugia were removed from site. On all visits, the temperature of the refugia was checked by hand to test if they were warm to the touch, and thus likely to be attractive to basking reptiles. This survey method can also identify presence or absence of terrestrial amphibians.

Limitations to reptile survey

- 2.4.6 There was no interference with the refugia and no significant limitations to the survey.

2.5 Bat Preliminary Ecological Appraisal methodology

- 2.5.1 The Preliminary Ecological Assessment for Bats, as described in the Bat Survey Guidelines¹⁰ was undertaken.
- 2.5.2 In addition to the desk-top study described above, aerial photographs and other available images were reviewed. The client was asked if any previous bat surveys had been carried out, who carried them out, what the recommendations were and why a new survey is needed. Copies of reports were requested if available. Other relevant literature was searched for, where relevant.
- 2.5.3 A Daytime Bat Walkover was carried out concurrently with the Habitat Survey as described above. Structures (buildings and other built structures e.g. bridges, and underground features) and trees were inspected to assess if they could be suitable for bats to roost in, and habitats were inspected to assess if they could be suitable for bats to commute, forage, or swarm in. Roosting and foraging habitats, and flight paths were recorded separately where they existed.
- 2.5.4 The categories of potential suitability are listed, and definitions are provided in Appendix 5, extracted from Table 4.1 of the Bat Survey Guidelines⁶. These categories were applied to the features seen.
- 2.5.5 The assessment of site features suitable for hibernation potential considered
- The suitability of features to support roosting bats or to allow access for roosting bats
 - the temperature and humidity conditions likely to be present within the structure during the winter period and the suitability in this respect for it to be used by hibernating bats
 - the surrounding habitat, in terms of its potential for use by bats outside of the hibernation period for commuting and/or foraging purposes (i.e. is it reasonable that bats are familiar with the area and therefore may be aware of suitable roosting locations within the site?)
 - the presence of known roosts within the structure, or adjacent structures, or surrounding area during the active season
- 2.5.6 If there were no or very limited potential roost features in a structure, and/or the temperature and humidity conditions were unsuitable, the structure would be assessed as low potential. A 'classic' hibernation site such as an underground feature, cellar or tunnel would be assessed as high potential with further surveys required. A 'non-classic' site with some features and temperature / humidity being reasonably suitable would be assessed as moderate potential, with consideration as to further survey work.
- 2.5.7 If the surrounding foraging / commuting habitat was poor quality or had poor connectivity, consideration would be given to reducing the potential level of a structure. Conversely, if the surrounding foraging / commuting habitat was good quality and had poor connectivity, consideration would be given to increasing the potential level. The presence of a known roost would lead to consideration of increasing the potential level, but the absence of a known roost would not lead to a reduction of potential level.
- 2.5.8 The potential suitability of trees was recorded as
- NONE – no potential roost features in the tree or highly unlikely to be any
 - FAR – further assessment required to establish if potential roost features are present in the tree
 - PRF – A tree with at least one potential roost feature present.

¹⁰ Collins J (ed) (2023) *Bat Surveys for Professional Ecologists Good Practice Guidelines*. Bat Conservation Trust

2.6 Ground level bat tree roost assessment methodology

Rationale

- 2.6.1 Bats are European Protected Species. Many roosts are within trees, and the protection given to roosts means that their presence or absence in trees on the proposed development site needs to be understood.
- 2.6.2 A ground level tree assessment (GLTA) is a detailed inspection of the exterior of a tree from the ground to look for potential roost features (PRFs) which could be used by bats for roosting. A GLTA is a preliminary assessment used to determine the available roosting resource and need for further survey or mitigation.
- 2.6.3 Trees chosen for survey were identified during the Preliminary Ecological Appraisal (PEA) for bats, detailed in Section 2.5.

Methodology

- 2.6.4 The standard Ground Level Tree Assessment (GLTA) methodology for trees¹¹ was followed. Trees within the proposed development area identified in the PEA as either requiring further assessment or with at least one potential roost feature present were inspected for the presence of features which may be suitable for use by roosting bats. All trees which were considered likely to be directly impacted (e.g. felled, limb/deadwood removal or crown reduction) or indirectly impacted (e.g. construction works or development leading to vibration, noise or illumination) were assessed, with particular attention given to older and mature trees.
- 2.6.5 A thorough and systematic inspection was undertaken, allowing adequate time in daylight hours for survey. A high-power torch (Cluson Clulite) was used to inspect cavities and shaded areas of the branch structure.
- 2.6.6 The trees which were assessed were individually numbered, their location recorded by GPS/OS Grid Reference and physiological attributes recorded to enable future identification. The type, location and aspect of any PRFs identified was recorded.
- 2.6.7 During the assessment the following signs and features indicative of bat roosts was searched for:
- woodpecker holes;
 - rot holes;
 - hazard beams;
 - other vertical or horizontal cracks and splits, such as frost cracks in stems or branches;
 - partially detached bark plates;
 - knot holes arising from naturally shed branches, or branches previously pruned back to the branch collar;
 - artificial holes (such as cavities that have developed from flush cuts) or cavities created by branches tearing out from parent stems;
 - cankers, caused by localised bark death, in which cavities have developed;
 - other hollows or cavities including butt-rots at the base of the tree;
 - potential cavities in the fork between double trunks ("compression forks"), where the wood has grown around sections of bark ("included bark");
 - gaps between overlapping stems or branches;
 - partially detached ivy with stem diameters in excess of 50mm;
 - bat, bird or dormouse boxes.
- 2.6.8 Signs of a bat roost, in addition to the visible presence of bats, include:
- bat droppings in or around a potential roost feature (PRF);
 - odour coming from a PRF;
 - audible bat squeaks at dusk or during the day in warm weather;
 - staining below the PRF.

¹¹ Collins, J. (ed.) (2023) *Bat surveys for professional ecologists: good practice guidelines*, Fourth Edition, Bat Conservation Trust.

2.6.9 Some signs, such as staining, odour or squeaking, may originate from other species, and staining may arise from wet rot which would preclude bat use. Bats or bat droppings are the only conclusive evidence of bat use, but many bat roosts have no external signs.

2.6.10 All identified features were categorised using professional judgement using the following suitability criteria

Suitability	Description
PRF-I	A PRF only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats
PRF-M	A PRF which is suitable for multiple bats and may therefore be used by a maternity colony

2.6.11 The assessment was undertaken on the same date as the UK Habitat Classification Survey on 4th December 2024.

Limitations to ground level tree assessment

2.6.12 The identification of bat tree roosts is acknowledged within guidelines as challenging. For example, surveys may be limited by the physical difficulties in viewing and assessing PRFs in larger or more complex trees from the ground and some features may be missed or their significance under or overestimated. Species which use trees for roosting may also exhibit 'roost-switching' behaviour and certain species breeding colonies may rely on over 50 trees. It is therefore inevitable that not all PRFs will be in constant or even regular use and so physical signs of presence may not remain or be visible. Trees are dynamic and constantly subject to physical and situational changes beyond the surveyed area and so the assessment may be considered a snap-shot in time only. Existing features may be lost, and new ones created in a short space of time.

2.6.13 A GLTA alone cannot therefore be used to determine with any confidence whether or not bats or bat roosts are present or absent and categorisation at this stage is an estimate of suitability only, intended to inform the need for further detailed survey.

2.6.14 GLTAs may be carried out at any time of the year however PRFs may be obscured or hidden by foliage in summer or lost in high contrast between a bright sky and canopy shade. The optimal period for GLTAs is between November and March when trees are not in leaf. The survey was carried out in December and therefore this was not considered to be a significant limitation.

2.6.15 There were no significant limitations to the survey.

2.7 Preliminary bat roost assessment methodology: Buildings

Rationale

2.7.1 Bats are European Protected Species. Many roosts are within building or other structures, and the protection given to roosts means that their presence or absence in buildings and other structures on the proposed development site needs to be understood.

2.7.2 A Preliminary Roost Assessment (PRA) is a detailed inspection of the exterior and interior of a structure to look for features that bats could use for entry/exit and roosting and to search for signs of bats.

2.7.3 Structures were chosen for survey based on the Preliminary Ecological Appraisal (PEA) for bats, detailed in Section 2.5.

Methodology

2.7.4 The standard Preliminary Roost Assessment (PRA) methodology for structures¹² was followed. This aims of this survey is to determine the actual or potential presence of bats and the need for further survey and/or mitigation. In many situations, it is not possible to inspect all locations

¹² Collins, J. (ed.) (2023) *Bat surveys for professional ecologists: good practice guidelines*, Fourth Edition, Bat Conservation Trust.

where bats may be present and therefore an absence of bat evidence does not equate to evidence absence.

2.7.5 The cattle barn (Building 1) was inspected internally and externally. A search was made for direct evidence of bat presence. A systematic search pattern was used in order to avoid missing parts of the building or built structure, although some may not have been visible from accessible parts of the building. During the survey, a search was made for live or dead bats, droppings, urine splashes, fur-oil staining and clean, cobweb-free gaps around potential entrance points and crevice roost sites. The sound of bats was listened for. Feeding remains such as moth wings were also searched for, particularly internally. Potential access points and roosting sites were recorded even if there was no direct evidence of use by bats. The inspection was thorough, and a consistent search effort was applied to all accessible parts of the buildings. Sometimes bats leave no visible signs of their presence in or outside a building, and rain can remove external signs.

2.7.6 In barns, features given particular attention, where present, included:

- gaps between ridge tiles and roof tiles, usually where the mortar had fallen out or the tiles were broken or lifted;
- the ridge area of the roof, particularly between the ridge beam and roofing material;
- lifted lead flashing associated with roof valleys, ridges and hips, or where lead flashing replaces tiles;
- spaces between external weatherboarding/cladding and the timber frame or wall;
- gaps behind window frames, lintels and doorways, including the main doors;
- mortise and tenon joints between truss beams and braces and the principal support columns;
- cracks and crevices in timber;
- gaps between stones or bricks, especially where purlins enter the wall and by the wall plate; and,
- surfaces such as the ground, ledges, windows, sills or walls, machinery or stored materials within the barn which might have bat droppings or urine stains.

2.7.7 Close inspection of cavities and behind timbers was aided by use of a powerful torch (Cluson Clulite) and binoculars (Nikon Prostaff P3 10x42). The roof was inspected from ground level only.

2.7.8 The survey of building(s) included an assessment of their potential to support bat roosts using the following categories.

Category	Description
None	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).
Negligible	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.
Low	A structure with one or more potential roost site that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by large numbers of bats (i.e. unlikely to be suitable for maternity and not a classic cool/stable hibernation site but could be used by individual hibernating bats).
Moderate	A structure with one or more potential roost site that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).
High	A structure with one or more potential roost site 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 size, shelter, protection, conditions and surrounding habitat.

Category	Description
	These structures have the potential to support high conservation status roosts, e.g. maternity or classical cool/stable hibernation site.
Unknown	Unable to survey fully, for example because part of the building is inaccessible.

2.7.9 The assessment was undertaken on the same date as the UK Habitat Classification Survey on 4th December 2024.

Limitations to preliminary bat roost assessment: buildings

2.7.10 Access to the lean-to on the northern elevation of the building was limited due to dense scrub; however, binoculars and a high-powered torch were used to examine the lean-to from a distance. This is not considered to be a significant limitation due to the construction of the lean-to and the lack of potential roosting features within.

2.7.11 There were no significant limitations to the survey.

2.8 Surveyor competencies

Survey(s) undertaken	Surveyor(s)	Experience (years)	Licences etc Held
UK Habitat Classification survey	Jess Grundy ACIEEM	3+	Great crested newt Class Licence CL08 (Level 1)
Bats: Ground level tree roost assessment			
Preliminary Roost Assessment: Buildings	Ellen Campbell	1+	-
Reptile surveys			
Reptile surveys	Jacob Heath	1+	-
Botanical survey	Jo Parmenter	35+	FISC 6

2.8.1 Staff undertaking surveys, or writing report sections, and who were still gaining experience with a particular topic to become capable (as defined by CIEEM competencies¹³) were supervised by staff who were at least capable or accomplished.

2.9 Assessment methodology

2.9.1 The assessment was undertaken in accordance with the Chartered Institute of Ecology and Environmental Management's Professional Guidance Series¹⁴.

2.9.2 More details of the assessment methodology are provided in Appendix 2, but, in summary, the impact assessment process involves:

- identifying and characterising impacts;
- incorporating measures to avoid and mitigate (reduce) these impacts;
- assessing the significance of any residual effects after mitigation;
- identifying appropriate compensation measures to offset significant residual effects; and
- identifying opportunities for ecological enhancement.

2.9.3 The hierarchical process of avoiding, mitigating and compensating for ecological impacts is explained further below.

2.9.4 In Ecological Impact Assessment (EclA) it is only essential to assess and report significant *residual* effects (i.e. those that remain after mitigation measures have been taken into account). However, it is considered good practice for the EclA to make clear both the potential significant effects

¹³ <https://cieem.net/resource/competency-framework/>

¹⁴ CIEEM (2016) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal*, Second Edition. Chartered Institute of Ecology and Environmental Management, Winchester.

without mitigation and the residual significant effects following mitigation, particularly where the mitigation proposed is experimental, unproven or controversial. Alternatively, it should demonstrate the importance of securing the measures proposed through planning conditions or obligations.

2.9.5 Assessment of the potential impacts of the proposed development takes into account both on-site impacts and those that may occur to adjacent and more distant ecological features. Impacts can be positive or negative. Negative impacts can include:

- direct loss of wildlife habitats;
- fragmentation and isolation of habitats through loss of connectivity;
- disturbance to species from noise, light or other visual stimuli;
- changes to key habitat features; and
- changes to the local hydrology, water quality, nutrient status and/or air quality.

2.9.6 Negative and positive impacts on ecological features are characterised based on predicted changes as a result of the proposed activities. In order to characterise the impacts on each feature, the following parameters are considered:

- the magnitude of the impact;
- the spatial extent over which the impact would occur;
- the temporal duration of the impact and whether it relates to the construction or operational phase of the development;
- the timing and frequency of the impact; and
- whether the impact is reversible and over what time frame.

2.9.7 Both short-term (i.e. impacts occurring during the site clearance and construction phases) and long-term impacts are considered.

Conservation status

2.9.8 The extent to which the proposed development may have an effect upon ecological features should be determined in the light of its expected influence on the integrity of the site or ecosystem. The integrity of protected sites is considered specifically in the light of the site's conservation objectives. Beyond the boundaries of designated sites with specific nature conservation designations and clear conservation objectives, the concept of 'conservation status' is used. Conservation status should be evaluated for a study area at a defined level of ecological value. The extent of the area used in the assessment relates to the geographical level at which the feature is considered important.

2.9.9 For habitats, conservation status is determined by the sum of the influences acting on the habitats and their typical species that may affect their long-term distribution, structure and functions, as well as the long-term survival of its typical species within a given geographical area. For species, conservation status is determined by the sum of influences acting on the species concerned and inter-relationships that may affect the long-term distribution and abundance of its populations within a given geographical area.

Confidence in predictions

2.9.10 It is important to consider the likelihood that a change or activity will occur as predicted and also the degree of confidence in the assessment of the impact on ecological structure and function.

- **Certain** probability estimated at above 95%
- **Probable** probability estimated above 50% but below 95%
- **Possible** probability estimated above 5% but below 50%
- **Unlikely** probability estimated as less than 5%

Cumulative impacts

- 2.9.11 Consideration is also given to the potential for the development proposal to give rise to significant negative impact in combination with other proposed developments in the local area.

Overall assessment

- 2.9.12 An overall assessment of value and impact is provided. This is based upon the highest level or value of any of the features or species present, or likely to be present on the site. Similarly, the overall assessment of impact is the impact of greatest significance.

2.10 Mitigation hierarchy

- 2.10.1 The following principles underpin EclA and have been followed, where applicable, in this assessment.

- **Avoidance** Seek options that avoid harm to ecological features (for example, by locating the proposed development on an alternative site or safeguarding on-site features within the site layout design).
- **Mitigation** Adverse effects should be avoided or minimised through mitigation measures, either through the design of the project or subsequent measures that can be guaranteed – for example, through a condition or planning obligation.
- **Compensation** Where there are significant residual adverse ecological effects despite the mitigation proposed, these should be offset by appropriate compensatory measures.
- **Enhancement** Seek to provide net benefits for biodiversity over and above requirements for avoidance, mitigation or compensation.

3 Results

3.1 Desk study results

European sites

- 3.1.1 There were no European sites in the search area.

Sites of national importance

- 3.1.2 The following site of national importance (Area of Outstanding Natural Beauty, Site of Special Scientific Interest, National Nature Reserve) was identified within the search area and is detailed within the table below.

Site	Distance from development site (approx.)	Direction	Key habitat/features of interest
Knocking Hoe NNR and SSSI	4.5km	W	This section of lower chalk escarpment, dissected by a flat-bottomed valley, still retains areas of unimproved calcareous grassland supporting a downland flora, which includes several nationally rare plants and other species rare in the county. Management practices aimed at preventing the spread of coarse grasses, particularly upright brome, ensure the continuation of Knocking Hoe's botanical interest. Sheep's fescue dominates the short springy turf and yellow-wort occurs in quantity, as does the native trailing form of sainfoin. Several species of orchids are known from this site, amongst which is pyramidal orchid, a typical chalk grassland plant.

- 3.1.3 None of the SSSIs within 10km from the site boundary were designated for bats.

- 3.1.4 The Chiltern Area of Outstanding Natural Beauty (AONB) lies approximately 2.7km south-west of the site boundary. This AONB is a landscape designation and is therefore outside of the scope of this survey.

Sites of local importance

- 3.1.5 The following sites of local importance (Local Wildlife Site, County Wildlife Site, Ancient Woodland, Local Nature Reserve) were identified within the search area and are detailed within the table below.

Site	Distance from development site (approx.)	Direction	Key habitat/features of interest
Westmill Lane, Ickleford LWS	800m	S	A country lane bordered by hedgerow and trees with buildings and environs important for protected species.
Lower Green, Ickleford LWS	900m	E	An area of moderately diverse rough grassland dissected by a road. Ditches, some planted trees, and a pond in the north corner add to the habitat diversity.
River Hiz, Ickleford North LWS	900m	E	Stretch of River Hiz important for water vole.
Cadwell Grove Meadows LWS	950m	E	Old damp meadows adjacent to the River Hiz supporting neutral marshy grassland. A ditch cuts through the meadows. Several species of sedge have also been noted.

Site	Distance from development site (approx.)	Direction	Key habitat / features of interest
Cadwell Marsh & Burymead Springs LWS	950m	SE	A mosaic site supporting a variety of habitats including derelict marshy meadows, scrub, reed beds, hazel coppice, willow plantation, a dismantled railway embankment, an old hedge (along the Icknield Way) and spring-fed pools (old borrow pits). The site is bordered by the Rivers Hiz and Purwell. Water voles have been recorded beside the Purwell and harvest mice within Burymead Springs.
Ickleford Common North LWS	1km	NE	Traditionally grazed pastures supporting unimproved neutral and wet acid grasslands, and a stretch of the River Hiz. The common is also important for its fauna with water vole, water shrew, and ant hills in abundance in the old pasture. Many breeding, passage and wintering birds also use the site.
Oughtonhead Common LNR and LWS	1.1km	S	Oughton Head consists of the main area of common in the south-east and the Wildlife Trust nature reserve to the north. The common supports marshy grassland with fen but with drier areas of neutral grassland, scrub and woodland. An unusual geology has resulted in a very diverse flora. Mixed wet woodland forms a belt of varying width along the north bank of the River Oughton which has its source at the western end. The site is one of the larger fen woodlands in Hertfordshire. The western sections are dominated by mature alder carr (an unusual habitat in Hertfordshire). The river itself supports aquatic plants of note and the area is important for a range of invertebrates, amphibians, reptiles, birds and mammals, with grass snake, harvest mouse, European hare and water voles recorded.
Cadwell Crossing LWS	1.1km	E	Scrubby railway banks by Icknield Way with records for great pignut, a possible Herts Vulnerable species.
River Hiz, Cadwell LWS	1.1km	E	Stretch of river with tall herbs, grassland and scattered trees providing important habitat for water vole.
Rivers Ivel and Hiz CWS	1.2km	NE	A short stretch of river and wet woodland area in the Bedfordshire boundary, adjacent to the Ickleford common. Habitats include marsh, ditches, and ponds on the east side of the river, as well as a large island dominated by neutral grassland. Upon a grey poplar, the only known Bedfordshire population of the micro moth <i>Ectoedemia turbidella</i> was recorded.
Cadwell Lane Gasworks Meadow LWS	1.3km	SE	Site dominated by dense hawthorn scrub in the south with open patches of herb rich communities on calcareous spoil. Some remnant old grassland is present at the northern end of the site. Two orchids, common spotted-orchid and southern marsh-orchid, have been recorded. Across the lower third of the site is an old boundary feature and there is a hedgerow to the eastern border. Protected species have been recorded from the site.
Icknield Way, Wilbury LWS	1.8km	E	Grass track running through arable fields with records for great pignut, a possible Herts Vulnerable species.

- 3.1.6 Further information and site locations relative to the proposed development site are shown in Appendix 6.

Priority habitats

- 3.1.7 Several priority habitats were located within the site or within the local area and these included:

- One area of traditional orchard, 800m east.
- Multiple areas of deciduous woodland, the closest of which is located approximately 450m southeast of the site.
- One area of reedbeds located 1.5km southeast of the site.
- One area of lowland fens, 1.1km northeast of the site.
- Lowland meadows, the closest of which is located 1.3km southeast.
- Coastal and floodplain grazing marsh located 900m east of the site adjacent to the River Hiz.

Protected, rare and/or priority species

- 3.1.8 A number of species records were returned for the search area. Records for protected, rare and/or priority species from within the search area are summarised below. In accordance with BS42020 and advice from most Local Biological Record Centres, species lists are not appended but are available to the Local Planning Authority on request.

Veteran trees

- 3.1.9 Two veteran willow *Salix* sp. tree records were returned by the Hertfordshire Environmental Records Centre (HERC) data search, both approximately 950m from the site. The closest veteran tree record returned from the Ancient Tree Inventory was located approximately 1.35km northeast of the site.

- 3.1.10 No veteran tree records were returned by the Bedfordshire & Luton Biodiversity Recording & Monitoring Centre (BRMC) data search.

Plants

- 3.1.11 HERC returned a number of protected, rare and/or priority plant species including cornflower *Centaurea cyanus*, great pignut *Bunium bulbocastanum*, red hemp nettle *Galeopsis angustifolia*, field gromwell *Lithospermum arvense*, henbane *Hyoscyamus niger*, whorl-grass *Carabrosa aquatica*, quaking-grass *Briza media*, sainfoin *Onobrychis viciifolia*, field scabious *Knautia arvensis*, ragged-robin *Silene flos-cuculi*, chicory *Cichorium intybus*, stinking chamomile *Anthemis cotula*, marsh willowherb *Epilobium palustre*, and bearded fescue *Vulpia ciliata*.

- 3.1.12 BRMC returned records for several species including basil thyme *Clinopodium acinos*, bee orchid *Ophrys apifera*, columbine *Aquilegia vulgaris*, dwarf spurge *Euphorbia exigua*, few-flowered garlic *Allium paradoxum*, field scabious *Knautia arvensis*, large-leaved lime *Tilia platyphyllos*, rough poppy *Papaver hybridum*, and white helleborine *Cephalanthera damasonium*.

- 3.1.13 Bluebell *Hyacinthoides non-scripta* was returned from both the HERC and BRMC data searches. Bluebell is declining nationally, but not uncommon in this part of England.

- 3.1.14 Dittander *Lepidium latifolium* is a nationally scarce salt-marsh plant which was returned with the data search from a few places in both the HERC and BRMC search areas.

- 3.1.15 A number of records of non-native species were also returned in the data search. Records for Himalayan balsam *Impatiens glandulifera*, and Japanese knotweed *Reynoutria japonica*, were returned from both record centres. Records for water fern *Azolla filiculoides*, and Canadian waterweed *Elodea canadensis* were also returned from BRMC. These species are listed on the Wildlife and Countryside Act (WCA) 1981, as amended, Schedule 9 list for invasive and non-native species.

Invertebrates

- 3.1.16 Butterfly and moth species recorded by HERC include marsh fritillary *Euphydryas aurinia*, sallow *Cirrhia icteritia*, brown-spot pinion *Anchoscelis litura*, mottled rustic *Caradrina morpheus*, large nutmeg *Apamea anceps*, feathered gothic *Tholera decimalis*, powdered quaker *Orthosia gracilis*, shoulder-striped wainscot *Leucania comma*, mouse moth *Amphipyra tragopoginis*, cinnabar *Tyria*

jacobaeae, blood-vein *Timandra comae*, small emerald *Hemistola chrysoprasiaria*, lackey *Malacosoma neustria*, adonis blue *Polyommatus bellargus*, purple emperor *Apatura iris*, fen tortrix *Acleris shepherdana*, and grey poplar dot *Ectoedemia turbidella*.

- 3.1.17 BRMC also returned a small number of butterfly and moth species including small blue *Cupido minimus*, small heath *Coenonympha pamphilus*, wall *Lasiommata megera*, small ranunculus *Hecatera dysodea*, and toadflax brocade *Calophasia lunula*.
- 3.1.18 Other invertebrate records returned from HERC, including Desmoulin's whorl snail *Vertigo moulinsiana*, shrill carder bee *Bombus sylvarum*, bee wolf *Philanthus triangulum*, drab wood-soldierfly *Solva marginata*, brown tree ant *Lasius brunneus*, white-legged damselfly *Platycnemis pennipes*, black colonel *Odontomyia tigrine*, poplar borer *Saperda carcharias*, musk beetle *Aromia moschata*, Adonis' ladybird *Hippodamia variegata*, and alder leaf beetle *Agelastica alni*.
- 3.1.19 BRMC returned records for the spiders *Alopecosa barbipes*, *Philodromus albidus*, *Porrhomma convexum*, and *Tetragnatha pinicola*; a millipede *Cylindroiulus parisorum*; a fly *Cleptes semiauratus*; and wasps *Ectemnius sexcinctus*, and *Priocnemis agilis*.
- 3.1.20 Stag beetle *Lucanus cervus* is relatively common in this part of the country¹⁵, although no records for this species were returned by either HERC nor BRMC.
- 3.1.21 One historic record for white-clawed crayfish *Austropotamobius pallipes* located 850m from the site was returned by HERC.
- 3.1.22 Numerous records for signal crayfish *Pacifastacus leniusculus* were returned from HERC. This species is listed on the WCA 1981, as amended, Schedule 9 list for invasive and non-native species.

Amphibians including great crested newts

- 3.1.23 The HERC data search returned a few records of common toad *Bufo bufo*.
- 3.1.24 BRMC returned no amphibian records.
- 3.1.25 A search on MAGIC maps for great crested newts (GCN) *Triturus cristatus* survey licence returns and mitigation licenses revealed that none were found within a 2km radius of the site boundary. In addition, no recent (last 25 years) records for GCN were returned in the data search from HERC or BRMC, though four historic records were found in Hertfordshire.

Reptiles

- 3.1.26 Records of slow worm *Anguis fragilis*, common lizard *Zootoca vivipara*, grass snake *Natrix helvetica*, and adder *Vipera berus* were returned from the HERC data search. The closest record was for a common lizard which was located approximately 400m from the site boundary.
- 3.1.27 BRMC returned one record of common lizard. This record was approximately 1.9km from the site boundary.

Birds

- 3.1.28 A number of bird records were returned from HERC, including barn owl *Tyto alba*, wryneck *Jynx torquilla*, fieldfare *Turdus pilaris*, redwing *Turdus iliacus*, brambling *Fringilla montifringilla*, Cetti's warbler *Cettia cetti*, quail *Coturnix coturnis*, hobby *Falco subbuteo*, peregrine *Falco peregrinus*, merlin *Falco columbarius*, kingfisher *Alcedo atthis*, black tailed godwit *Limosa limosa*, pintail *Anas acuta*, ring ouzel *Turdus torquatus*, spotted flycatcher *Muscicapa striata*, cuckoo *Cuculus canorus*, turtle dove *Streptopelia turtur*, treecreeper *Certhia familiaris*, little egret *Egretta garzetta*, grey heron *Ardea cinerea*, and black-headed gull *Chroicocephalus ridibundus*.
- 3.1.29 BRMC returned numerous bird records including blue tit *Cyanistes caeruleus*, buzzard *Buteo buteo*, coal tit *Periparus ater*, collared dove *Streptopelia decaocto*, dunlin *Calidris alpina*, fieldfare, great spotted woodpecker *Dendrocopos major*, house martin *Delichon urbicum*, linnet

¹⁵ https://ptes.org/wp-content/uploads/2018/06/SoBSB_2018.pdf

Linaria cannabina, nightingale *Luscinia megarhynchos*, water rail *Rallus aquaticus*, and yellow wagtail *Motacilla flava*.

- 3.1.30 Numerous records for Canada goose *Branta canadensis*, and ring-necked parakeet *Psittacula krameria* were also returned with the data search from HERC and BRMC. These species are listed on the WCA 1981, as amended, Schedule 9 list for invasive and non-native species.

Dormouse

- 3.1.31 No recent dormouse *Muscardinus avellanarius* records were returned, but one historic record was found from the HERC data search. BRMC returned no dormouse records.
- 3.1.32 A search on MAGIC maps for dormice mitigation licenses and licence returns revealed none within 2km of the site boundary.

Terrestrial Mammals including badgers

- 3.1.33 Badger *Meles meles* records were returned from both HERC and BRMC.
- 3.1.34 Records of brown hare *Lepus europaeus*, harvest mouse *Micromys minutus*, polecat *Mustela putorius*, stoat *Mustela ermine*, weasel *Mustela nivalis*, and hedgehog *Erinaceus europaeus* were returned from HERC.
- 3.1.35 Records of brown hare, harvest mouse, hedgehog, common shrew *Sorex araneus*, pygmy shrew *Sorex minutus*, European rabbit *Oryctolagus cuniculus*, fallow deer *Dama dama*, and roe deer *Capreolus capreolus* were returned from BRMC.
- 3.1.36 Numerous records of muntjac *Muntiacus reevesi*, and grey squirrel *Sciurus carolinensis* were returned from HERC and BRMC, which are listed on the WCA 1981, as amended, Schedule 9 list for invasive and non-native species.

Aquatic Mammals including water voles and otters

- 3.1.37 Records of otter *Lutra lutra*, water shrew *Neomys fodiens* and water vole *Arvicola amphibius* were returned from the HERC data search.
- 3.1.38 Records of otter and water shrew were returned from the BRMC data search.
- 3.1.39 The closest record of otter was 350m east of the site along the wet ditch bordering the northern edge of the site. The closest record of water vole was 930m east of the site along the River Hiz.
- 3.1.40 Records of American mink *Neogale vison* were also returned from HERC. This species is listed on the WCA 1981, as amended, Schedule 9 list for invasive and non-native species.

Bats

- 3.1.41 Records of barbastelle *Barbastella barbastellus*, brown long-eared *Plecotus auritus*, common pipistrelle *Pipistrellus pipistrellus*, noctule *Nyctalus noctula*, and soprano pipistrelle *Pipistrellus pygmaeus* were returned from HERC.
- 3.1.42 No bat records were returned from the BRMC data search.
- 3.1.43 A search on MAGIC maps for bat mitigation licenses and licence returns revealed two licences for common pipistrelle within a 2km radius of the site boundary.

3.2 UK Habitat Classification survey results

3.2.1 The UK Habitat types that were identified during the survey are shown on Figure 01 and each habitat is described below. Photographs of the habitats are shown in Figure 02a and Figure 02b. Primary habitat codes (levels 2-5) are listed below in bold. Secondary habitat codes and descriptions (essential and additional) are unbolded.

Management, setting and green infrastructure

3.2.2 The site comprised a cattle grazing field which is no longer in use and is now mown once every three years for hay (*pers. comms. with landowner*). The field is surrounded by unmanaged off-site native hedgerows and trees, the majority of which are expected to lie outside of the red-line boundary. A wet ditch runs off-site and is associated with the northern hedgerow. This ditch continues off-site, joining the River Hiz located approximately 900m east of the site.

3.2.3 A disused cattle barn lies in the north-western corner. The majority of the site boundary was demarcated by stock fencing, with the exception of the northern boundary which was demarcated by barbed wire fencing with timber posts.

3.2.4 Multiple areas of deciduous woodland lie in close proximity to the site. The closest woodland was approximately 500m southeast of the site. These woodlands are on the Priority Habitat Inventory. The site is located within the greenbelt.

Other neutral grassland g3c Tall forbs 16 Ruderal or Ephemeral 81

3.2.5 The majority of the site consisted of grassland that was not frequently managed. At the time of survey, sward height was approximately 15cm and uniform. The grassland is mown for hay on average once every three years, with the most recent mowing having occurred in the summer of 2024 (*pers. comms. landowner*). Whilst grasses dominated the majority of the habitat, there were dense patches of nettle on the eastern boundary and in the southern corner of the site, reaching approximately 1m in height.

3.2.6 Grassland species present included Yorkshire fog *Holcus lanatus*, with associated cock's-foot *Dactylis glomerata* and perennial rye grass *Lolium perenne* and red fescue *Festuca rubra*. Broad-leaved species within the grassland included frequent occurrences of creeping thistle *Cirsium arvense*, nettle *Urtica dioica*, these being most common to the site margins, and creeping buttercup *Ranunculus repens*, with occasional occurrences of dock *Rumex* sp., and ground ivy *Glechoma hederacea* and rare occurrences of bristly oxtongue *Helminthotheca echioides*, bramble *Rubus fruticosus* agg., cow parsley *Anthriscus sylvestris*, and dandelion *Taraxacum officinale* agg.

3.2.7 The grass had grown longer and was left unmanaged over the course of the seven reptile surveys. On the final survey, sward height was varied, between 7 and 20cm, and was slightly tussocky. Tall ruderal vegetation, up to 1m, dominated by nettle had grown towards the parcel edges, adjacent to the hedgerows. Additional plant species noted during the reptile surveys included rare occurrences of meadow foxtail *Alopecurus pratensis*, and meadow buttercup *Ranunculus acris*.

3.2.8 The results of the detailed botanical survey (Section 3.3) further support this classification of the grassland as 'Other neutral grassland'.

Buildings u1b5 Barn 833

3.2.9 One building was found on site, a disused cattle barn located in the north-western corner of the site. A full building description can be found below in Section 3.6.

3.2.10 Vegetation had begun to establish on the ground of the eastern elevation and inside the barn. Species present included nettle, hogweed *Heracleum sphondylium*, cut-leaf crane's-bill *Geranium dissectum*, and creeping thistle.

Off-site Native hedgerows h2a

3.2.11 Continuous hedgerows lined the entirety of the site boundary, all of which are located off-site. These hedgerows have been split into four for the purposes of this habitat survey and can be seen in Figure 01. All hedgerows appeared to be largely unmanaged and mammal push throughs were evident along every boundary.

Off-site Native hedgerow h2a Hedgerow with trees 11 Ditch 50

3.2.12 Hedgerow 1 (H1): A native hedgerow was located on the northern boundary and was approximately 3m high and 2m wide. The hedgerow was dominated by hawthorn *Crataegus monogyna*, with frequent occurrences of bramble, occasional occurrences of blackthorn *Prunus spinosa*, dog rose *Rosa canina*, and rare occurrences of ash *Fraxinus excelsior*. The ground flora of the hedgerow was dominated by ivy *Hedera helix* with nettle also present. Hedgerow 1 also contained three bird feeders, though these were empty at the time of survey.

3.2.13 The hedgerow covered a narrow, wet ditch approximately 50cm wide, located off-site. At the time of the survey, the water was flowing west to east and was approximately 20cm deep. During the botany survey, the ditch was dry, with no evidence of submerged or aquatic vegetation. It was subsequently concluded that the ditch is not likely to hold water for more than 4 months a year and has therefore not been classified as an individual watercourse.

Off-site Native hedgerow h2a Hedgerow with trees 11

3.2.14 Hedgerow 2 (H2): This was a native hedgerow with trees which was located on the northern half of the eastern facing boundary and was approximately 3m high and 2m wide. This hedgerow was a continuation of Hedgerow 1 and had the same species composition, with the addition of frequent occurrences of field maple *Acer campestre*.

Off-site Species-rich native hedgerow h2a5 Hedgerow with trees 11

3.2.15 Hedgerow 3 (H3): This was a species rich native hedgerow with trees which was located on the southern half of the eastern boundary and was approximately 4m high and 2m wide. Species present included abundant occurrences of hawthorn, including some *Crataegus laevigata* and bramble, frequent occurrences of field maple, occasional occurrences of blackthorn and dog rose, and rare occurrences of ash, elder *Sambucus nigra*, and elm *Ulmus x hollandica*. Ivy and nettle were also present within the ground flora of this hedgerow.

3.2.16 Hedgerow 4 (H4): This was a species rich native hedgerow with trees located on the western boundary and was approximately 4m high and 3m wide. Species present included abundant occurrences of hawthorn and bramble, frequent occurrences of field maple, occasional occurrences of blackthorn and dog rose, and rare occurrences of ash and apple *Malus* spp. Ivy and nettle were also present within the ground flora of this hedgerow.

3.3 Detailed botanical survey

3.3.1 Species data is provided in Appendix 07. A total of 58 plant species were recorded from the meadow, hedgerow and hedge-base.

3.3.2 No nationally or locally uncommon species were recorded.

3.3.3 The site comprised a rather species impoverished grassland dominated by Yorkshire fog *Holcus lanatus*, which was particularly abundant towards the site margins. The central part of the site featured abundant red fescue *Festuca rubra* with some meadow fescue *Schedonorus pratensis*. Coarser grasses such as false oat-grass *Arrhenatherum elatius* and cock's-foot *Dactylis glomerata* were infrequent. Grass species were reasonably diverse. Conversely, forb species were generally lacking, suggesting a possible herbicide treatment in the distant past. Despite a presumed history of long term grassland management on neutral to calcareous soils, very few indicators of older grassland or of a calcicolous grassland were present with the exception of the sedge, meadow fescue, bulbous buttercup *Ranunculus bulbosus* and meadow buttercup *Ranunculus acris*. The sward is therefore best considered to be a form of Neutral grassland.

3.3.4 No rushes were present, but a single plant of spiked sedge *Carex spicata* was found.

National Vegetation Classification of the grassland

3.3.5 The grassland community is consistent with the *Festuca rubra* subcommunity of MG1 *Arrhenatherum elatius* grassland, being a species poor largely grass-dominated sward with *Holcus lanatus* and *Festuca rubra* dominant around the margins and in the central part of the site, respectively. The relative scarcity of *Arrhenatherum elatius* is consistent with the *Festuca rubra* subcommunity and many of the broad-leaved species associated with the subcommunity, *Cirsium*

arvense, *Cerastium fontanum*, *Acheillea millefolium*, *Anthriscus sylvestris*, *Heracleum spondylium*, *Trifolium repens*, *Ranunculus acris*, *Ranunculus repens* and *Ranunculus bulbosus* are present in small numbers.

3.3.6 A correlation with an MG6 *Lolio-Cynosuretum* was also considered but discounted due to an absence of *Cynosurus cristatus*; a match with MG7 ley was also considered, but despite prominence of *Poa trivialis*, *Phleum pratense* is very uncommon on the site and *Lolium perenne* infrequent.

3.3.7 The MG1 grassland type is typically ungrazed, and is ubiquitous throughout lowland England. The MG1a *Festuca rubra* subcommunity is the most common of the sub communities (Rodwell, 1992). It is generally considered a species poor grassland of low nature conservation value, but it typically averages twelve species per quadrat. This is consistent with observations on site.

3.4 Reptile survey results

3.4.1 The results of the survey are given below in the table below and the location of records is shown on Figure 03.

Survey Date and time (BST)	Temp (°C)	Weather Conditions	Common Lizard		Slow worm		Grass snake		Adder	
			Ad	Juv	Ad	Juv	Ad	Juv	Ad	Juv
2 nd April 2025 9:47 - 10:18	10°C	Cloud cover: 0% Beaufort: 2 Dry	0	0	0	0	0	0	0	0
7 th April 2025 10:28 – 10:48	10°C	Cloud cover: 0% Beaufort: 1 Dry	0	0	0	0	0	0	0	0
14 th April 2025 9:38 – 10:07	11°C	Cloud cover: 5% Beaufort: 1-2 Dry	0	0	0	0	0	0	0	0
17 th April 2025 9:47 – 10:02	10°C	Cloud cover: 0% Beaufort: 1 Dry	0	0	0	0	0	0	0	0
25 th April 2025 10:18 – 10:39	11°C	Cloud cover: 60% Beaufort: 1 Dry	0	0	0	0	0	0	0	0
28 th April 2025 9:10 – 9:28	14°C	Cloud cover: 80% Beaufort: 1 Dry	0	0	0	0	0	0	0	0
2 nd May 2025 8:43 – 9:15	15°C	Cloud cover: 60% Beaufort: 2 Dry	0	0	0	0	0	0	0	0
Peak count			0		0		0		0	

3.4.2 No reptiles were found during the survey.

3.4.3 The survey technique employed for reptiles is also suitable for recording foraging amphibians. One juvenile common toad was found under Mat 22 on the final survey. The location of the common toad can be found in Figure 03.

3.4.4 A few small mammals were also found under refuges during Surveys 5 and 6 (peak count 2).

3.5 Bat Preliminary Ecological Appraisal results

Buildings and other structures

3.5.1 The potential use of buildings and other structures were assessed as shown in the table below.

Structure name and / or number	Potential (Appendix 5)	Description	Further survey needed?
Cattle barn – Building 1 (B1)	Negligible	A disused cattle barn constructed of wooden cladding and a corrugated metal roof. Gap into wall void visible.	Yes PRA

PRA – Preliminary Roost Assessment

Trees

3.5.2 The potential bat use of trees were assessed as shown in the table below.

Tree species and / or number	Potential (Appendix 5)	Description	Further survey needed?
Field maple - Tree 1 (T1) – off-site	Low	Located in Hedgerow 2. Tears in bark visible.	Yes GLTA
Field maple – Tree 2 (T2) – off-site	Low	A dead field maple covered in lichen and ivy with lifting bark. Located in Hedgerow 4.	Yes GLTA

GLTA – Ground-level Tree Assessment

Potential flight paths and foraging habitats

3.5.3 The potential value of habitats as flight paths and foraging habitats were assessed as described in the table below.

Habitat	Potential (Appendix 5)	Description	Further survey needed?
Off-site hedgerows	Low	Hedgerows border all sides of the site offering continuous lines of shade, protected flight paths, and invertebrate assemblage for foraging. Limited connectivity to surrounding landscape as hedgerow cover does not continue offsite.	No
Other neutral grassland	Low	As the grassland is infrequently mown, a good assemblage of invertebrates for foraging is likely to be present. Limited connectivity to suitable habitat in the surrounding area.	No

3.6 Ground level bat tree roost assessment results

3.6.1 Two trees were assessed and were categorised as having PRF-I features.

3.6.2 The results of the survey are shown in the table below and the location of the trees is shown in Figure 01.

Tree					Potential Roost Feature (PRF)				Bat Roost Potential	Comments
No.	Species	Height (m)	Dead / alive	Tree tag	Type	PRF Height	Facing	Stem / Limb		
T1	Field maple <i>Acer campestre</i>	5	A	-	1 x Tear out	0.5-1m	SW	S	PRF-I	Large tear out. Exposed with no ivy or vegetation covering tear.
T2	Field maple <i>Acer campestre</i>	6.5	D	-	1 x Lifting bark	2-2.5m	E	L	PRF-I	Large area of lifting bark. Limited protection from ivy, exposed.

3.7 Preliminary bat roost assessment results: Buildings

Plans of the buildings surveyed

- 3.7.1 The building which was surveyed is shown on Figure 01. Photographs of this building are shown in Figure 04.

Building 1 - Cattle barn

Exterior

- 3.7.2 The only building on site was a disused cattle barn located in the north-western corner. The barn comprised of two stables and a lean-to. The building was open fronted on the eastern elevation, which provided potential bat access into the building.
- 3.7.3 The external walls consisted of wooden cladding and telegraph poles. One bird box was mounted on the southern elevation.
- 3.7.4 The roof was flat and covered in corrugated metal sheeting. The roof showed some gaps where metal sheets overlapped; however, these gaps did not provide bat roost potential due to the gaps being too small for crevice dwelling bats. No windows were present in the cattle barn.
- 3.7.5 The lean-to was in poor condition, with part of the roof collapsing, was filled with hay and other materials, and was very cobwebby. One window was present on the northern elevation of the lean-to, constructed of wooden panes but lacking glass. No bats or evidence of bats was seen at the time of survey.

Interior

- 3.7.6 The interior walls were constructed of oriented strand board (OSB) and modern timber beams supported the roof. A hole in the southern wall exposed a cavity between the OSB boarding and timber cladding. A nest, or remnants of a nest, was visible within the hole. This cavity was inspected and was found to be very open and cobwebby, with no crevices or other roosting features, and it is unlikely that bats will use this feature frequently.
- 3.7.7 A gap was present between the internal timber roof beams and OSB boarding on the southern elevation. This gap was inspected and was found to be very cobwebby with no potential roosting features for bats.
- 3.7.8 No bats, or evidence of bats were found at the time of survey. This building provided multiple potential access points for bats; however, lacked any potential external or internal roosting features. This building was therefore assessed as providing negligible bat roost potential.

4 Evaluation of conservation status and impact assessment

4.1 Assessment rationale

- 4.1.1 The assessment is based on the ecological data presented within this report. Future changes in the wildlife present on site are beyond the scope of this report, unless specifically stated.

4.2 Evaluation of conservation status and assessment of designated sites

- 4.2.1 The ecological value of the site is considered below and evaluated using the methodology set out in Appendix 2 and in accordance with species legislation and planning policy, as outlined in Appendix 1.

European Sites and component Sites of Special Scientific Interest

- 4.2.2 There are no European sites within the search area. The impact of the proposed development upon European sites is therefore assessed as **Neutral**.

Sites of national importance

- 4.2.3 There are three sites of national importance within the search area. These sites are assessed as being of **High** importance for wildlife at the **National** scale. Sites of Special Scientific Interest which are within European sites are assessed above; there are no SSSI qualifying features separately to the European site designated features which would be assessed differently.

- 4.2.4 Sites of Special Scientific Interest (SSSI) Impact Risk Zones are used to assess the need for the Local Planning Authority (LPA) to consult Natural England on planning applications at varying distances from SSSIs. In accordance with the SSSI Impact Risk Zones User Guidance¹⁶ consultation with Natural England would be required for the proposed development site for:

- **Infrastructure:** Airports, helipads and other aviation proposals.
- **Minerals, Oil and Gas:** Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.
- **Air Pollution:** Livestock & poultry units with a floorspace > 500m², slurry lagoons > 750m² & manure stores > 3500 tonnes.

- 4.2.5 The proposed development does not fall within these categories and therefore does not require the LPA to consult Natural England.

- 4.2.6 The impact of the proposed development upon sites of national importance is considered to be **Neutral**, due to the distance of the proposed development from the designated sites, the reasons for the sites' designation and the character of the development within its local context.

Sites of local importance

- 4.2.7 Twelve sites of local importance lie within 2km of the site, the closest being located approximately 800m from the proposed site. These sites are assessed as being of **Medium** importance for wildlife at the **County** scale.

- 4.2.8 The construction works are not thought to directly impact the River Hiz given the distance between the site boundary and the river; however, due to the ditch on the northern boundary, contractors should ensure that the ditch is not impacted by the proposed works, particularly as the topography of the site is upstream towards the river. A Construction site Management Plan (CMP) will demonstrate that construction works will not impact the ditch directly or indirectly through dust, chemical spills and other construction impacts.

- 4.2.9 As long as a CMP is provided and adhered to during construction works, the impact of the proposed development upon sites of local importance is considered to be **Neutral**, due to the distance of the proposed development from the locally important sites, the reasons for the sites' designation and the character of the development within its local context.

¹⁶ Magic Maps www.magic.defra.gov.uk/MagicMap.aspx

4.3 Evaluation of conservation status and assessment of habitats and green infrastructure

Habitats

- 4.3.1 Habitats of moderate ecological value included the neutral grassland and off-site hedgerows.
- 4.3.2 The grassland present on-site is classified as Category 2 under the Hertfordshire Ecological Network map (Appendix 8) on account of the 'neutral grassland – semi-improved' present. As detailed in Section 3.3, the grassland on site was assessed as being consistent with the *Festuca rubra* subcommunity of MG1 *Arrhenatherum elatius* grassland and was not considered to be of high conservation value. This grassland type present is common both locally and nationally.
- 4.3.3 Subsequently, the value of the habitats within the site boundary were overall considered to be **Lower** at the **Parish** scale.
- 4.3.4 Under the landscape strategy, all off-site hedgerows will be retained. Whilst areas of grassland will be lost where the building, garage, and garden within the dwelling's curtilage is located, the majority of the grassland is expected to be retained and enhanced. At least 0.3ha of existing grassland is proposed for retention and enhancement with overseeding of a 100% wildflower seed mix. This area of enhanced grassland is located outside of the dwellings residential curtilage. Additional landscaping includes a green roof on the proposed building, fruit tree planting, and an ecological pond. In addition, the site layout has been carefully designed to include ecological buffers from all field boundary hedgerows and the wet ditch to the north of the site, where possible. Mitigation has been proposed in Section 5 to further protect these boundary habitats during the construction phase.
- 4.3.5 The impact of the proposed development is considered to be **Moderate Beneficial**, on account of the extent of the habitat creation and enhancements on-site which are included in the landscape strategy.

Green infrastructure

- 4.3.6 The site is surrounded by arable land but is poorly connected to areas of good quality habitat due to a lack of hedgerows and ecological connectivity in the surrounding landscape. The site is, however, connected to the River Hiz, located 900m east, by the wet ditch along the northern boundary.

4.4 Evaluation of conservation status and assessment of species

Veteran trees

- 4.4.1 There were no veteran trees on-site; however, two veteran trees were present within 2km of the site boundary, both located approximately 950m east of the site. Due to the distance of the proposed development from these trees, the value of the site for these willow trees is **Negligible** and the impact of the proposed development upon veteran trees is **Neutral**.

Plants

- 4.4.2 The value of the proposed development site for plants is considered to be **Lower** at the **Parish** scale on account of the species present and grassland community on-site. The site has little potential to support protected, rare, and/or priority plants in its current condition and the subsequent value of the development on plants is considered to be **Neutral**.

Invertebrates

- 4.4.3 One historic record of white-clawed crayfish was returned from the data search. This record was found approximately 850m from the site boundary and within a watercourse that was connected to the ditch at the northern site boundary. The ditch at the northern boundary was assessed as having poor suitability for white-clawed crayfish. There were some visible signs of pollution and the ditch substrate was covered in silt rather than stony, which these crayfish prefer. In addition, the ditch was obstructed by numerous areas of log and leaf build-up, did not appear to be regularly managed, and likely dries up in the summer as the ditch is less than 10cm in places, slow flowing, and muddy.

4.4.4 Records of signal crayfish, an invasive competitor of white-clawed crayfish, were returned in the data search, the most recent record being from 2016 and located 1km from the site. Signal crayfish displace white-clawed crayfish, which supports the lack of recent records of white clawed crayfish.

4.4.5 The character of the ditch recorded at the site and the invertebrate records returned for the local area, suggests that the site has no potential to support protected, rare and/or priority invertebrates. The value of the proposed development site for this group is **Negligible** and the impact of the proposed development is **Neutral**.

Amphibians including great crested newts

4.4.6 Natural England's *Method statement template for great crested newt mitigation licence*¹⁷ is used to determine the risk of great crested newts being harmed by the development. The area of the site is measured from OS maps and inputted into the great crested newts rapid risk assessment as part of the NE method statement. This informs the distance from the site boundary, whether that be 100m, 250m or 500m, required to identify that an offence to great crested newts is *highly unlikely*, see table below. A large-scale OS map is then inspected to identify any ponds within the buffer distance.

Distance of breeding pond (m)	Maximum area lost or damaged (hectares)		
	Green: <i>Offence highly unlikely</i>	Amber: <i>Offence likely</i>	Red: <i>Offence highly likely</i>
0 - 100	Up to 0.01	0.01-0.5	>0.5
100 - 250	Up to 0.5	0.5-10	>10
250+	Up to 5	>5	N/A

4.4.7 Guidance on risk assessment categories

- **'Green', offence highly unlikely:** indicates that the development activities are of such a type, scale and location that it is highly unlikely any offence would be committed should the development proceed. Therefore, no licence would be required. However, precautions may need to be taken to avoid an offence.
- **'Amber', offence likely:** indicates that the development activities are of such a type, scale and location that it is likely. Design plans for the development may need to be altered (location, layout, methods, durations or timings) to minimise the effect on great crested newts and if the scheme still results in a likely offence a licence may be required to carry out the works.
- **'Red', offence highly likely:** indicates that the development activities are of such a type, scale and location that it is highly likely. Design plans for the development should be altered (location, layout, methods, durations or timings) to minimise the effect on great crested newts and if the scheme still results in a likely offence a licence may be required to carry out the works.

4.4.8 The rapid risk assessment is a simplistic assessment and provides a general overview of a situation. The following factors should be considered when using the rapid risk assessment; population size, terrestrial habitat quality, presence of dispersal barriers, timing and duration of works, detailed layout of development in relation to places newts may use for shelter and dispersal routes. The following factors could increase the risk of committing an offence: large population size, high pond density, good terrestrial habitat, low pre-existing habitat fragmentation, large development footprint, and long construction period. The following factors could decrease the risk: small population size, low pond density, poor terrestrial habitat, substantial pre-existing dispersal barriers, small development footprint and short construction period.

¹⁷ <https://www.gov.uk/government/publications/great-crested-newts-apply-for-a-mitigation-licence>

4.4.9 The area of the site is approximately 0.5ha, therefore any developments within 250m of a breeding pond for great crested newt (GCN) would cause an *Amber: Offence likely* impact and a *Red: Offence highly likely* impact for ponds within 100m. There were no ponds within the site or within 250m of the site boundary.

4.4.10 Whilst the terrestrial habitats on site offer suitable sheltering and commuting habitat for GCN due to the dense hedgerows bordering the site, these habitats were isolated from suitable terrestrial and breeding habitats within the wider area. There were no ponds within 250m and the wet ditch on the northern boundary was not suitable for GCN as the water was flowing and acts as an ecological barrier. No GCN records or survey licences were returned with the data search.

4.4.11 There is no reasonable likelihood of great crested newts being present on site. The value of the proposed development site for this group is **Negligible** and the impact of the proposed development is **Neutral**.

4.4.12 Whilst carrying out reptile surveys, one common toad was found under refugia. Suitable terrestrial habitat for this species will be provided in the design proposals.

Reptiles

4.4.13 The site provides suitable sheltering and commuting habitat for reptile species, due to the dense, unmanaged hedgerows, presence of a wet ditch, and long sward height of the grassland. These habitats were, however, isolated from suitable reptile habitats within the wider area.

4.4.14 The results of the reptile survey indicated that reptile species were absent from the site. The value of the site for this group is therefore considered to be **Negligible** and the impact of the proposed development is **Neutral**.

Birds

Breeding birds

4.4.15 The site is likely to be used by common breeding bird species, both for nesting and foraging, with the hedgerows and building being of greatest value in this respect. Due to the relatively small size of the site, enclosed nature of the site as surrounded by hedgerows, and the length of the sward at the time of survey, there is a reduced likelihood of ground nesting birds, such as skylark, being present within the grassland. It is considered that the value of the site to breeding birds is **Lower** at the **Parish** scale.

4.4.16 The construction of the development is also likely to give rise to temporary disturbance impacts on birds nesting in the retained hedgerows, although the hedgerow buffers should allow this nesting habitat to remain undisturbed post construction. This unmitigated impact is considered to be **Minor Adverse**. Mitigation has been proposed to reduce impacts to **Neutral** and to avoid an offense being committed.

Wintering birds

4.4.17 There are no habitats present on site which might support significant populations of wintering birds, although the site does offer some limited foraging potential for small numbers of common species. The site is considered to be of **Negligible** value for this group and the impact of the proposed development is **Neutral**.

Dormice

4.4.18 There were no recent dormouse records returned for the site. The habitats present offered an inadequate resource for this species. The hedgerow did offer some food plants suitable for dormice, such as bramble and hawthorn; however, the site is not aerially connected to suitable breeding opportunities for dormice within the local area. The closest ancient woodland is approximately 3.7km from the site.

4.4.19 The site is therefore considered to be of **Negligible** value for this species and the impact of the proposed development is **Neutral**.

Terrestrial mammals including badgers

- 4.4.20 Recent badger records were returned for the local area in the data search. The hedgerows provided some cover for badger sett creation and the grassland offered foraging habitat for badgers and hedgehogs. Signs of mammal push throughs were visible in all hedgerows, but there was no evidence of active setts or other field signs of badgers within the site during the UK Habitat Classification survey or during subsequent species surveys, so these were likely attributed to other terrestrial mammals, such as deer, rabbits and/or foxes. The site is likely to be used for occasional foraging by badgers, hedgehogs and foxes.
- 4.4.21 The value of the site for terrestrial mammals is considered to be **Negligible**. The impact of the proposed development is therefore **Neutral**. Mitigation measures have been suggested in Section 5 to safeguard terrestrial mammals during the construction phase.

Aquatic mammals including water voles and otters

- 4.4.22 Otter, water shrew and water vole were recorded as being present in the area. In particular, otter were recently recorded approximately 350m east of the site along the same drainage ditch bordering the northern edge of the site. This ditch joins the River Hiz, located approximately 900m east of the site, which hosts good habitat for aquatic mammals, and which returned numerous records for otter and water vole in the data search. Upon inspection, the ditch on site had poor suitability for aquatic mammals as it was very shallow and was likely dry throughout the year, overshadowed by dense scrub and trees, showed some signs of pollution, and is likely disturbed by the presence of a public footpath adjacent to the ditch.
- 4.4.23 The terrestrial habitats within the site provided very limited opportunities for resting places for otter, given the lack of dead stumps, mature trees and woodland cover. The site did offer some suitable habitat for water voles as their preference is grassland fields in close proximity to a water source. No potential field signs of water voles, such as burrows in banks, were found during the walkover survey, although a full survey for this species was not undertaken, and the site visit occurred outside of the main survey season for this group. No evidence of otters or other aquatic mammals was found on site at the time of the survey.
- 4.4.24 The works proposed will not likely impact the River Hiz or its banks at this distance; however, as a precaution, contractors will follow pollution prevention measures to ensure that the ditch is not impacted by the proposed works, particularly as the topography of the site is downhill towards the ditch. A Construction site Management Plan (CMP) will be required to demonstrate the construction works will not impact the ditch directly or the River Hiz indirectly or through dust, chemical spills and other construction impacts.
- 4.4.25 The value of the site development site for water vole and otters is considered to be **Negligible**. The impact of the proposed development is considered to be **Neutral**. Mitigation measures have been suggested in Section 5 to safeguard aquatic mammals during the construction phase.

Bats

Roosting potential – Trees

- 4.4.26 Two off-site trees were assessed, and one PRF-I was identified on each tree, although these PRF-I features were not in occupation by bats through a visual inspection. The value of the site for bats roosting in trees is **Negligible**.
- 4.4.27 The current impact of the development upon bats roosting in trees is Neutral, as these trees with PRFs will be retained. If the proposed development is likely to give rise to any impact upon the trees with PRF-I, this tree would need to be re-assessed for suitability and any mitigation requirements will be provided at this later stage.

Roosting potential - Buildings

- 4.4.28 The building on site was assessed as providing **Negligible** bat roost potential due to the lack of suitable potential roosting features. The impact of the proposed development is considered to be **Neutral**.

Foraging/commuting potential

- 4.4.29 Based on the evidence gained during the UK Habitat Classification survey, the site is likely to be predominantly used for commuting and foraging purposes by relatively common and widespread bat species. The hedgerows bordering the site provided a potential flight corridor and sheltered foraging opportunities, while the grassland on site will afford some level of foraging potential. However, the site is isolated from other suitable bat habitat as the hedgerows do not extend into the surrounding arable land. The habitats on site are consequently assessed at being of **Lower** value at the **Parish** level for foraging/commuting bats.
- 4.4.30 The hedgerows are proposed for retention under current design plans. A sensitive lighting scheme to protect the boundary vegetation would also reduce the impact of the proposed development to **Neutral**.

4.5 Cumulative impacts

- 4.5.1 There are no known cumulative impacts.

4.6 Proposals for further survey or investigation

Surveys

- 4.6.1 No further surveys are required.

Biodiversity Net Gain calculations

- 4.6.2 A Biodiversity Net Gain (BNG) assessment is required under The Environment Act 2021 for most planning applications. This requires there to be a net gain of at least 10% which should be calculated using the Statutory Metric. However, as the development is for a self-build dwelling and the area of the site is less than 0.5ha, it is considered to be exempt from BNG, in line with guidance. In order to demonstrate the significant benefit to biodiversity of the proposed development, as per the ethos of a Paragraph 84 house, a BNG metric calculation has been provided, despite its qualification for exemption. The calculation resulted in a net gain of 33.27% in Habitat units, with all trading rules met. Hedgerows were located off-site and were not included in the assessment. The headline results tab of the BNG metric is shown in Appendix 9, and the post-development habitats is shown in Figure 05.

5 Mitigation hierarchy measures

5.1 Features with no impacts arising

- 5.1.1 No mitigation hierarchy measures are needed for the following ecological features, because no significant impacts have been identified: European sites; nationally important sites; locally important sites; veteran trees; invertebrates; great crested newts and other amphibians; reptiles; wintering birds; badgers; and dormice.

5.2 Avoidance measures

- 5.2.1 The following impact avoidance measures have been identified and will be delivered.

Sites of local importance

- Contractors will follow pollution prevention measures during the construction phase as a precaution to prevent any pollution to the ditch along the north of the site.
- A Construction site Management Plan (CMP) is required to demonstrate that construction works will not impact the wet ditch or the River Hiz directly or indirectly through dust, chemical spills and other construction impacts.

Habitats

- All site boundary features, including hedgerows and associated wet ditch at the periphery of the site, are to be protected in the built scheme and retained.
- During the construction phase, Heras or similar fencing should be deployed to ensure that the hedgerow corridors remains undisturbed for the duration of the development.
- Retention of at least 30% of the existing grassland. This grassland should be more regularly mown to improve its quality and encourage flowering.

Breeding birds

- Any vegetation removal or demolition of the existing building required for the construction phase should take place outside of the bird breeding season of March to August inclusive, to prevent disturbance to birds, or if removed in that period, only after a survey has shown that no active nests are present.

5.3 Proposed mitigation for known impacts

- 5.3.1 The following mitigation is required to reduce the impacts of the scheme to within acceptable limits.

Habitats

- Ensure that no works come closer than Root Protection Zones of trees and shrubs (as a minimum) in retained habitats.
- Buffers to the boundary vegetation and watercourse should be incorporated into the site design.

Terrestrial mammals including badgers

- Trenches should be filled in prior to the end of the working day, or a ramp left from the base of the trench to the surface, so that animals falling in can get out of the excavation.
- Pipework should be closed off at the end of each working day to avoid badgers and other animals becoming trapped.

Bats

- If the proposed development is likely to give rise to any impact upon the off-site trees with PRF-I, these trees would need to be re-assessed for suitability and any mitigation requirements will be provided at this later stage.
- Boundary habitats, i.e. the retained hedgerows, should not be illuminated, either directly or via light spill from adjacent buildings. If lighting is required for the site boundaries,

e.g. for security, it should be reduced to a minimum and designed in accordance with guidelines from the Bat Conservation Trust.¹⁸

5.4 Compensation for ecological impacts

5.4.1 The following compensation measures are required to provide replacement habitats to those which may be lost. Compensation in excess of no net loss will provide enhancement.

Habitats

- To compensate for the loss of grassland, it is recommended that areas of retained grassland are enhanced on site, for example through overseeding with a wildflower only seed mix, and managed appropriately.

5.5 Species licensing

5.5.1 Should it to be necessary to damage or destroy a badger sett whilst it is in use, or disturb a badger in a sett, a licence would be required under the Protection of Badgers Act 1992. At present this is unnecessary and only might be required if a new sett arises or an existing inactive sett comes into use prior to the construction period.

5.5.2 A European Protected Species licence would be needed to implement any impacts upon otter, bats or dormice such as damaging a place used for shelter or disturbing the species in its place of shelter. At present this is unnecessary and would only be needed if plans change and trees containing bat roosts would be felled.

5.5.3 It is not considered necessary to enter the NatureSpace District Licensing scheme for great crested newts given the lack of ponds within 250m of the site boundary.

¹⁸ See <https://www.bats.org.uk/news/2023/08/bats-and-artificial-lighting-at-night-ilp-guidance-note-update-released>

6 Enhancement measures

6.1 Ecological enhancement

6.1.1 Ecological enhancement aims to improve the quality of the site and the immediate vicinity for native flora and fauna. Such enhancements can also provide aesthetic appeal and can add value to the proposed development.

6.1.2 Enhancement opportunities specific to the development proposals for this site are provided below. It is not anticipated that all of these options would be utilised. The options are listed in order of priority, with habitat enhancements having most benefit to wildlife. Small-scale enhancements targeted at individual species, whilst valuable, are generally of less overall benefit than habitat enhancement measures.

6.2 Habitat enhancement

6.2.1 Wherever possible, planting would use native species, which support biodiversity significantly better than non-native plants. This is due to the numbers of flowers, fruits, seeds and berries that are produced by our native species and their different flowering and fruiting times throughout the year. Compensation that is in excess of no net loss will provide enhancement.

6.2.2 Habitat enhancements include the following.

- Wildflower overseeding of close-mown grassland within buffer zones adjacent to retained hedgerows using the broadleaved component of a general-purpose meadow mixture. This would also contribute to the 'B-Lines' project¹⁹.
- Flowering lawn creation in vegetated garden.
- Implementation of a green roof with native planting.
- Use of native flowering trees and shrubs in planting scheme.
- Good practice in hedgerow maintenance should be employed, including cutting alternate sides of hedges on alternate years, which will benefit hedgerow species such as breeding birds, small mammals and bats.

6.2.3 These enhancements would benefit common invertebrates, breeding birds, badger foraging, and bat foraging.

6.3 Small-scale species enhancement measures

6.3.1 Small-scale enhancements to benefit individual species/species groups would include the following.

- One integrated (not externally mounted) bat box (e.g. Vivara, Ibstock, Habibat or similar), suitable for a range of bat species, should be installed into the fabric of the proposed building. This box should be located on the south-eastern to south-western elevations and should be positioned at least 5m above ground level. Boxes should avoid being positioned above doors and windows.
- One swift box (e.g. Vivara, Ibstock or similar) should be installed into the fabric of the proposed building. This box should be located on the northern or eastern elevations and should be positioned at least 5m above ground level. Boxes should avoid being positioned above doors and windows.
- One habitat pile should be created, using woody cut material (brush) from vegetation clearance. This should be stacked in a quiet, sheltered corner of the site to form piles measuring approximately 2m x 1m x 0.5m (height). The southern corner would be most suitable given the thick vegetation and hedgerow protection.
- One invertebrate box (e.g. NHBS insect cabin or bug box) should be erected on retained trees or on poles within the proposed shrub habitats.

¹⁹ <https://www.buglife.org.uk/b-lines-hub>

7 Recommendations

7.1 Recommended reports

Lighting Strategy

- 7.1.1 If external lighting is proposed, it is recommended that a lighting strategy is prepared to minimise any impacts upon the hedgerows and wet ditch that are suitable for nocturnal species.

Construction site Management Plan

- 7.1.2 A Construction site Management Plan (CMP) is required to demonstrate that construction works will not impact the ditch or the River Hiz directly or indirectly through dust, chemical spills and other construction impacts.

7.2 Recommended conditions

- 7.2.1 It is recommended that the following conditions, based on model conditions in Appendix D of BS42020:2013, are applied to the planning permission.
- 7.2.2 No removal of vegetation or buildings shall take place between 1st March and 31st August inclusive, unless a competent ecologist has undertaken a careful, detailed check of vegetation for active birds' nests immediately before the vegetation is cleared and provided written confirmation that no birds will be harmed and/or that there are appropriate measures in place to protect nesting bird interest on site. Any such written confirmation should be submitted to the local planning authority.
- 7.2.3 Prior to occupation, a "lighting design strategy for biodiversity" for the proposed house shall be submitted to and approved in writing by the local planning authority. The strategy shall a) identify those areas/features on site to which bats are particularly sensitive and that are likely to cause disturbance in or around their breeding sites and resting places, or along important routes used to reach key areas of their territory, for example, for foraging, and b) show how and where external lighting will be installed (through the provision of appropriate lighting contour plans and technical specifications) so that it can be clearly demonstrated that areas to be lit will not disturb or prevent the above species using their territory or having access to their breeding sites and resting places. All external lighting shall be installed in accordance with the specifications and locations set out in the strategy, and these shall be maintained thereafter in accordance with the strategy. Under no circumstances should any other external lighting be installed without prior consent from the local planning authority.
- 7.2.4 No development shall take place (including demolition, ground works, vegetation clearance) until a Construction site Management Plan (CMP) has been submitted to and approved in writing by the local planning authority. This report should detail prevention measures to minimise dust, noise and light pollution during construction.

8 Conclusions

8.1.1 The purpose of this report was to inform a planning application for the proposed development.

8.1.2 The overall value of the site to wildlife is considered to be **Lower** at the **Parish** scale.

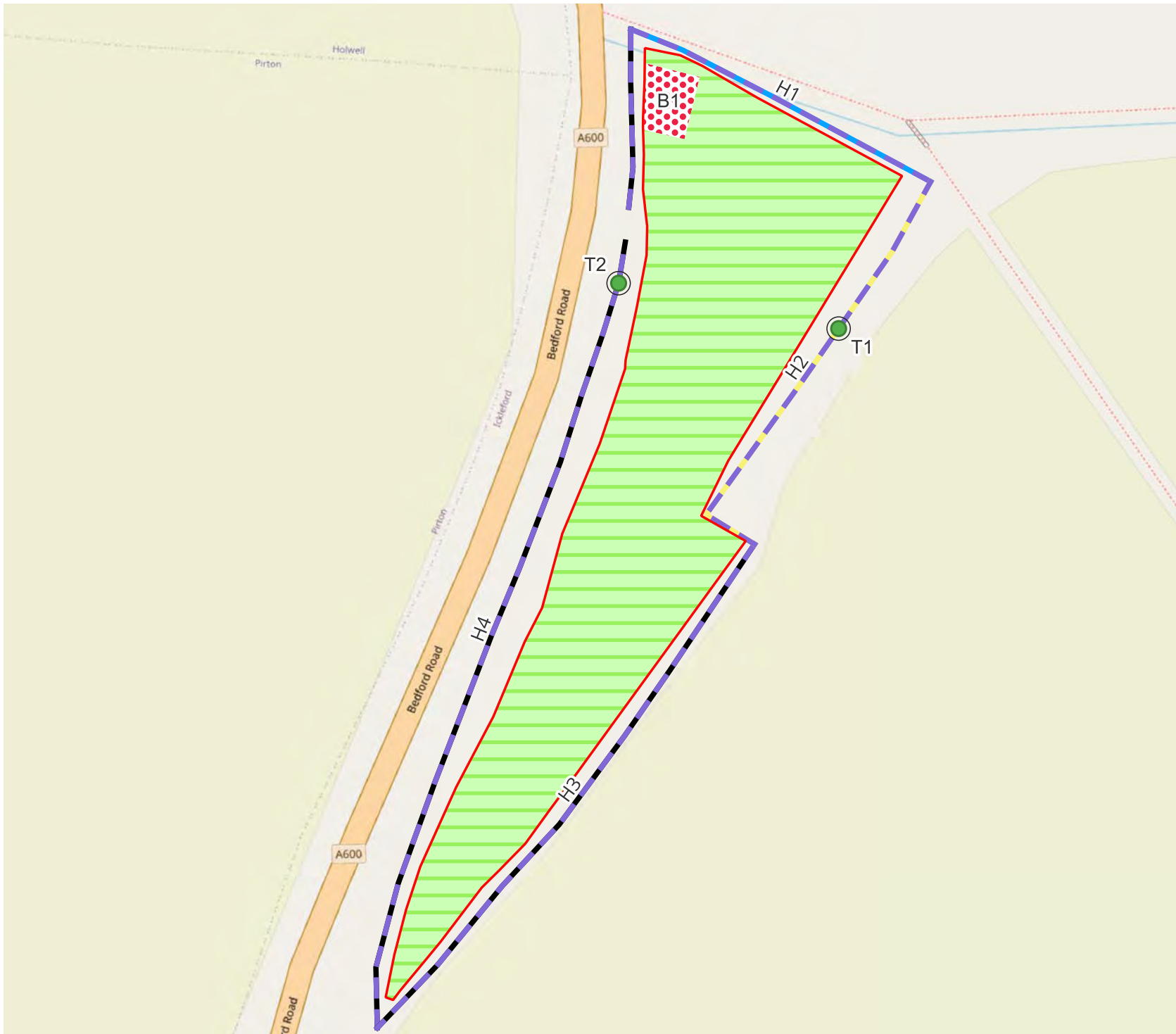
8.1.3 A summary of assessments of value and the impact of the proposed development without mitigation, and the residual significant effects following mitigation, is provided in the table below.

Feature	Level of value	Scale	Unmitigated impact	Confidence level	Mitigated impact
European Sites	Very High	European	Neutral	Certain	-
Sites of national importance	High	National	Neutral	Certain	-
Sites of local importance	Medium	County	Neutral	Certain	-
Habitats	Lower	Parish	Minor Adverse	Probable	Moderate Beneficial
Veteran trees	Negligible	-	-	-	-
Plants	Lower	Parish	Neutral	Certain	-
Invertebrates	Negligible	-	Neutral	Probable	-
Amphibians including great crested newts	Negligible	-	-	-	-
Reptiles	Negligible	-	Neutral	Probable	-
Breeding birds	Lower	Parish	Minor Adverse	Probable	Neutral
Wintering birds	Negligible	-	-	-	-
Dormice	Negligible	-	-	-	-
Terrestrial mammals including badgers	Negligible	-	-	-	-
Aquatic mammals including water voles and otters	Negligible	-	Neutral	Probable	-
Bats: roosting in trees	Negligible	-	-	-	-
Bats: roosting in buildings	Negligible	-	-	-	-
Bats: foraging/commuting	Lower	Parish	Neutral	Probable	-

8.1.4 The overall impact of the proposals is considered to be **Minor Adverse** in the absence of mitigation. The mitigated impact is considered to be **Neutral**.

8.1.5 The adoption of all or most of the enhancement measures detailed in Section 6 above would give rise to a **Moderate Beneficial** impact. Whilst considered exempt as a self-build dwelling, a BNG metric calculation resulted in a net gain of 33.27% in Habitat units, with all trading rules met. Hedgerows were located off-site and were not included in the assessment.

Figures



Key

- Red-line boundary
- Building u1b5 833
- Other neutral grassland g3c 16 81
- Native hedgerow with trees h2a 11
- Native hedgerow with trees and ditch h2a 11 50
- Species rich native hedgerow with trees h2a5 11
- Trees

B24078 Chalkstream House, Ickleford

Pre-development UK Habitat Classification Survey

Figure 01

Scale: NTS
September 2025





4th December 2024 - UK Habitat Classification Survey
Other neutral grassland g3c 16 81 and native hedgerow with trees and ditch h2a 11 50.



4th December 2024 - UK Habitat Classification Survey
Other neutral grassland g3c 16 81, native hedgerow with trees and ditch h2a 11 50, and barn u1b5 833.



4th December 2024 - UK Habitat Classification Survey
Other neutral grassland g3c 16 81, native hedgerow with trees and ditch h2a 11 50, and species-rich native hedgerow with trees h2a5 11.



4th December 2024 - UK Habitat Classification Survey
Other neutral grassland g3c 16 81 and native hedgerow with trees and species-rich native hedgerow with trees h2a5 11.

B24078 Chalkstream House, Ickleford

Photographs of Habitats

Figure 02a

December 2024



7th July 2025 - Detailed botanical survey
Other neutral grassland g3c 16 81 and native hedgerow with trees and ditch h2a 11 50.



7th July 2025 - Detailed botanical survey
Other neutral grassland g3c 16 81, species-rich native hedgerow with trees h2a5 11.



7th July 2025 - Detailed botanical survey
Other neutral grassland g3c 16 81, native hedgerow with trees and ditch h2a 11 50, and native hedgerows with trees h2a 11.



7th July 2025 - Detailed botanical survey
Other neutral grassland g3c 16 81 and native hedgerow with trees and species-rich native hedgerow with trees h2a5 11.

B24078 Chalkstream House, Ickleford

Photographs of Habitats

Figure 02b

July 2025



Key

- Red-line boundary
- 1 Reptile refugia location and number
- 1 Location of common toad

No reptiles were found during the survey

NB: *Locations of refugia and species are indicative*

B24076 Chalkstream House, Ickleford

Reptile survey

Figure 03

Scale: NTS
September 2025





Building 1
Eastern elevation
Photograph taken 04/12/2024.



Building 1
Eastern elevation with lean to on the northern elevation.
Photograph taken 04/12/2024.



Building 1
Southern elevation with bird box shown.
Photograph taken 04/12/2024.



Building 1
Interior view from southern elevation.
Photograph taken 04/12/2024.



Building 1
Interior view from southern elevation.
Photograph taken 04/12/2024.



Building 1
Interior view from eastern elevation.
Photograph taken 04/12/2024.



Building 1
Interior view of roof and southern elevation wall.
Photograph taken 04/12/2024.



Building 1
Interior view of roof and western elevation wall.
Photograph taken 04/12/2024.



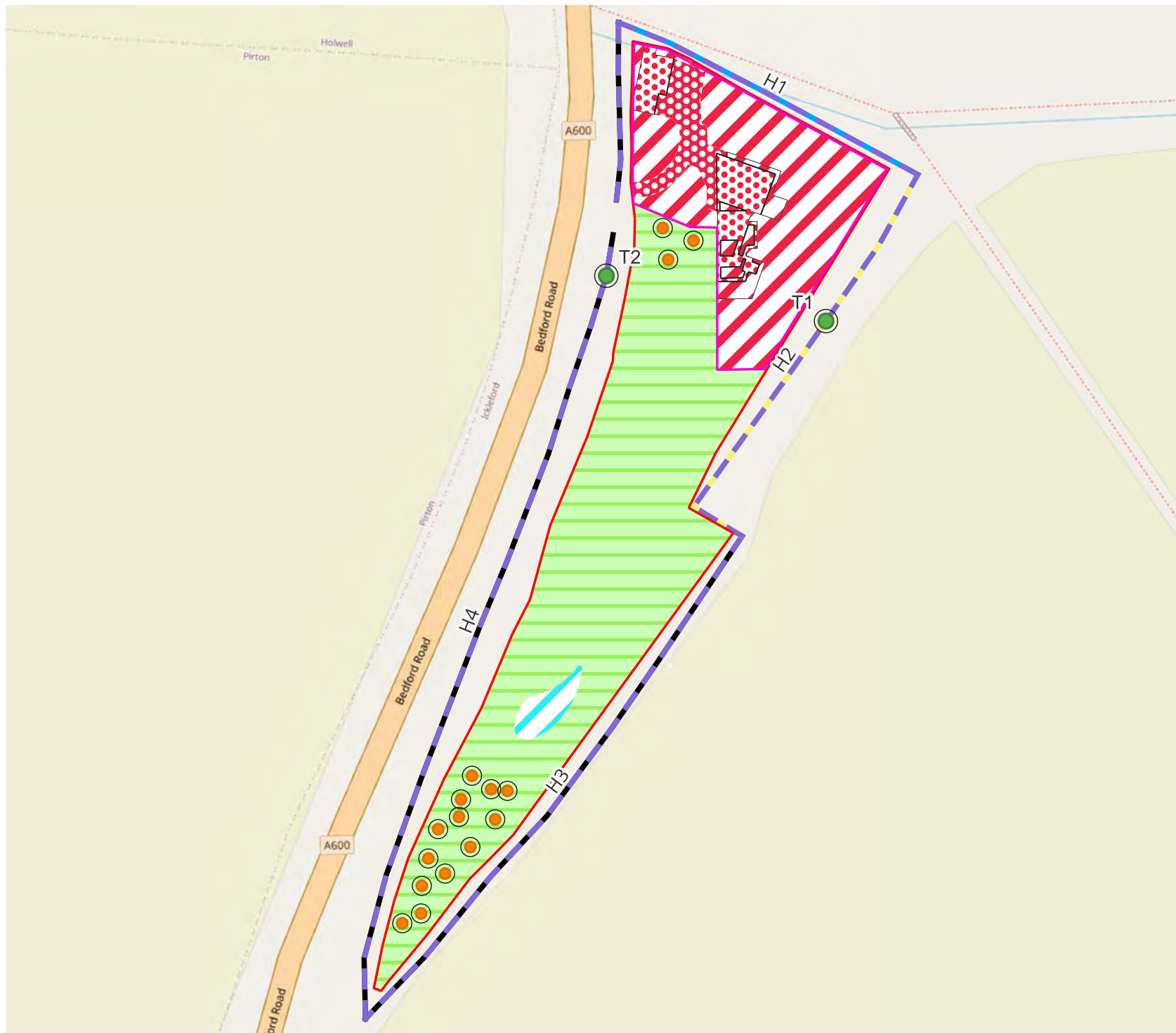
Building 1
Hole on southern interior wall with nest.
Photograph taken 04/12/2024.

B24078 - Chalkstream House, Ickleford

Photographs of Buildings

Figure 04

January 2025



Key

-  Red-line boundary
-  Proposed domestic curtilage
-  Other neutral grassland g3c
-  Pond (non-priority) r1g
-  Other green roof u1
-  Vegetated garden u1 828
-  Unvegetated garden u1 829
-  Buildings u1b5
-  Artificial unvegetated; unsealed surface u1c
-  Native hedgerow with trees h2a 11
-  Native hedgerow with trees and ditch h2a 11
-  Species rich native hedgerow with trees h2a
-  Proposed trees
-  Existing trees

B24078 Chalkstream House, Ickleford

Post-development UK Habitat Classification Survey

Figure 05

Scale: NTS
September 2025



Appendix 1

Legislative and policy context

There is a number of pieces of legislation, regulations and policies specific to ecology which underpin this assessment. These may be applicable at a National or Local level. References to legislation are given as a summary for information and should not be construed as legal advice.

Birds Directive

The European Community Council Directive on the Conservation of Wild Birds (79/409/EEC), normally known as the Birds Directive, sets out general rules for the conservation of all naturally occurring wild birds, their nests, eggs and habitats. It was superseded by the 'new' Birds Directive (2009/147/EC) which generally updated the previous directive.

Since the end of the Brexit transition period on 31st December 2020 the Birds Directive no longer is part of the UK legal system.

Habitats Directive

The European Community Council Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (92/43/EEC), normally known as the Habitats Directive, aims to protect the European Union's biodiversity. It requires member states to provide strict protection for specified flora and fauna (i.e. European Protected Species) and the registration and regulation of Special Areas of Conservation.

Since the end of the Brexit transition period on 31st December 2020 the Habitats Directive no longer is part of the UK legal system.

Conservation of Habitats and Species Regulations 2017

The Conservation of Habitats and Species Regulations 2017 generally follow the Birds Directive and Habitats Directive but unlike the Directives there is no role for the European Union; the UK Government has taken that role following the end of the Brexit transition period on 31st December 2020. For clarity, the following paragraphs consider the case in England only, with Natural England given as the appropriate nature conservation body. In Wales, the Countryside Council for Wales is the appropriate nature conservation body.

Special Protection Areas and Special Areas of Conservation are defined in the regulations as forming a national network of 'European sites'. The Regulations regulate the management of land within European sites, requiring land managers to have the consent of Natural England before carrying out management. Byelaws may also be made to prevent damaging activities and if necessary land can be compulsorily purchased to achieve satisfactory management.

The Regulations define competent authorities as public bodies or statutory undertakers. Competent authorities are required to make an appropriate assessment of any plan or project they intend to permit or carry out, if the plan or project is likely to have a significant effect upon a European site. The permission may only be given if the plan or project is ascertained to have no adverse effect upon the integrity of the European site. If the competent authority wishes to permit a plan or project despite a negative assessment, imperative reasons of over-riding public interest must be demonstrated, and there should be no alternative to the scheme. The permissions process in that case would involve the Secretary of State. In practice, there will be very few cases where a plan or project is permitted despite a negative assessment. This means that a planning application has to be assessed by the Local Planning Authority, based on information provided by the applicant, and the assessment must either decide that it is likely to have no significant effect on a European site or ascertain that there is no adverse effect upon the integrity of the European site.

Government policy is for Ramsar sites (wetlands of global importance) to be treated as if they were European sites within the planning process.

Appropriate Assessment

Appropriate Assessment is required in certain instances under the Conservation of Habitats and Species Regulations 2017. Regulation 63 says that:

63.— (1) A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which-

(a) is likely to have a significant effect on a European site or a European offshore marine site

(either alone or in combination with other plans or projects), and

(b) is not directly connected with or necessary to the management of that site,

must make an appropriate assessment of the implications for that site in view of that site's conservation objectives.

(2) A person applying for any such consent, permission or other authorisation must provide such information as the competent authority may reasonably require for the purposes of the assessment or to enable it to determine whether an appropriate assessment is required.

(3) The competent authority must for the purposes of the assessment consult the appropriate nature conservation body and have regard to any representations made by that body within such reasonable time as the authority specifies.

(4) It must also, if it considers it appropriate, take the opinion of the general public, and if it does so, it must take such steps for that purpose as it considers appropriate.

(5) In the light of the conclusions of the assessment, and subject to regulation 64, the competent authority may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site or the European offshore marine site (as the case may be).

(6) In considering whether a plan or project will adversely affect the integrity of the site, the authority must have regard to the manner in which it is proposed to be carried out or to any conditions or restrictions subject to which they propose that the consent, permission or other authorisation should be given.

Regulation 70 provides that Regulations 63 and 64 apply in relation to the grant of planning permission. Regulation 70(3) specifically addresses outline applications, saying that:

"Where [Regulations 63 and 64] apply, outline planning permission must not be granted unless the competent authority is satisfied (whether by reason of the conditions and limitations to which the outline planning permission is to be made subject, or otherwise) that no development likely adversely to affect the integrity of a European site or a European offshore marine site could be carried out under the permission, whether before or after obtaining approval of any reserved matters."

The tests under the Habitats Regulations are very strict. To exclude a likely significant effect under Regulation 63(1)(a) or to exclude an adverse effect on integrity under Regulation 63(5) a competent authority must be certain beyond a reasonable scientific doubt as to the absence of such effects.

Although not provided for under the Habitats Regulations, Government policy under paragraph 176(b) of the NPPF is for Ramsar sites (wetlands of global importance) to be treated as if they were European sites within the planning process.

The competent authority is typically the local planning authority, or an Inspector / Secretary of State for appeals. The appropriate assessment contains the information the council requires for the purposes of its assessment under the Habitat Regulations.

The Habitats Regulations also are applicable to local authority land use plans and policies. If a policy or plan is likely to have a significant effect upon a European site, the permission may only be given if the policy or plan is ascertained to have no adverse effect upon the integrity of the European site. This approach gives rise to a hierarchy of plans each with related appropriate assessments. For example, the appropriate assessment of a Regional Spatial Strategy will affect policies within a Core Strategy, which will then need its own appropriate assessment, and so on.

European Protected Species

European Protected Species of animals are given protection from deliberate capture, injury, killing, disturbance or egg taking/capture. Their breeding sites or resting places are also protected from damage or destruction, which does not have to be deliberate. A number of species are listed as European Protected Species, with those most likely to be considered in planning applications being bats, dormouse, great crested newt and otter. Natural England may give a licence for actions that are otherwise illegal, subject to them being satisfied

on the three tests of no alternative, over-riding public interest, and maintenance of the species in favourable condition.

European Protected Species of plant are also listed and given protection. These species are generally very rare and unlikely to be present in proposed development sites.

Wildlife and Countryside Act 1981

The Wildlife and Countryside Act 1981 has been amended many times, including by the Countryside and Rights of Way Act 2000. It contains provisions for the notification and regulation of Sites of Special Scientific Interest, and for protected species.

The Regulations regulate the management of land within Sites of Special Scientific Interest, requiring land managers to have the consent of Natural England before carrying out management.

All public bodies are defined as 'S28G' bodies, which have a duty to further the nature conservation of Sites of Special Scientific Interest in the undertaking of their functions. In practice, this prevents planning applications being permitted if they would harm Sites of Special Scientific Interest, as it would be a breach of that duty.

The Act makes it an offence intentionally to kill, injure, or take any wild bird, take, damage or destroy the nest of any wild bird, while that nest is in use or being built, or take or destroy an egg of any wild bird. Special penalties are available for offences related to birds listed on Schedule 1, for which there are additional offences of disturbing these birds at their nests, or their dependent young.

The Act makes it an offence intentionally to kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturbing animals occupying such places. Some species have lesser protection under this Act, for example white-clawed crayfish, common frog and toads are only protected from sale, and reptile species, other than smooth snake and sand lizard, are protected from intentional killing or injury, but they are not protected from disturbance and their habitat is not protected. It is also an offence intentionally to pick, uproot or destroy any wild plant listed in Schedule 8.

National Planning Policy Framework

The National Planning Policy Framework (NPPF) dated December 2023 provides Government Policy in relation to nature conservation and planning as well as other matters.

Chapter 15 paragraph 180(d) of the NPPF says that the planning system should contribute to and enhance the natural and local environment by minimising impacts on and providing net gains for biodiversity.

Paragraphs 181 and 182 relate to policy for designated sites of biodiversity or landscape importance. Local Plan policies should distinguish between the hierarchy of international, national and locally designated sites and allocate land with the least environmental or amenity value and maintain and enhance networks of habitats and green infrastructure. Further policy is within paragraph 185, where Local Planning Authorities should protect and enhance biodiversity within their Local Plans by:

- Identifying, mapping and safeguarding components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
- Promoting the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

When determining planning applications Local Planning Authorities should apply the following principles (paragraph 186):

- If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused,
- development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other

developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

- development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons, and a suitable compensation strategy exists; and
- development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

Paragraph 187 adds protection to candidate sites of European or International importance (Special Protection Areas, Special Areas of Conservation and Ramsar sites) and also to those sites identified or required as compensatory measures for adverse effects on habitats sites, potential SPA, possible SAC listed or proposed Ramsar sites.

Paragraph 188 clarifies that the presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a 'habitats' site, i.e. a European site, (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

Government circular 'Biodiversity and Geological Conservation – Statutory Obligations and their Impact Within the Planning System' referenced ODPM 06/2005 has not been replaced and remains valid. It sets out the legislation regarding designated and undesignated sites and protected species and describes how the planning system should take account of that legislation. It does however pre-date the NERC Act 2006 (see below), which includes a level of protection for a further list of habitats and species regardless of whether they are on designated sites or elsewhere.

Natural Environment and Rural Communities (NERC) Act 2006

This Act includes a list of habitats and species of principal importance in England. Local Authorities are required to consider the needs of these habitats and species when making decisions, such as on planning application.

Local Planning Authority's planning policy

The Local Planning Authority will have policies relating to biodiversity conservation.

Species Legislation

The following table provides an overview of legislation with regard to species.

Protected Species	Legislation			
	Wildlife & Countryside Act, 1981	The Conservation of Habitats and Species Regulations, 2017	Natural Environment & Rural Communities (NERC) Act, 2006	Protection of Badgers Act, 1992
Plants (certain 'rare' species)	✓	✓ ²⁰	✓	
Invertebrates (certain 'rare' species)	✓	✓ ²¹	✓	
White-clawed crayfish	✓		✓	
Great crested newt, natterjack toad, pool frog	✓	✓	✓	
Other amphibians	✓ ²²		✓	
Sand lizard, smooth snake	✓	✓ ²³	✓	
Other reptiles	✓ ²⁴		✓	
Breeding birds	✓	✓	✓	
Wintering birds (certain 'rare' species)	✓	✓	✓	
Bats	✓	✓	✓	
Dormouse	✓	✓	✓	
Water vole	✓		✓	
Otter	✓	✓	✓	
Badger				✓

²⁰ Nine species present in the UK, with very specialised habitat requirements, are European Protected Species.

²¹ Fisher's estuarine moth, large blue butterfly and lesser whirlpool ram's-horn snail are European Protected Species.

²² The four other native amphibian species (smooth and palmate newts, common frog and common toad) are only protected against trade under this act.

²³ Smooth snake and sand lizard are European Protected Species.

²⁴ The four other native reptile species (common lizard, slow worm, grass snake and adder) are protected against intentional killing, injury and trade under this act.

Appendix 2

Assessment Methodology: Valuing Ecological Features and Impact Assessment

The three-stage assessment method for determining ecological value is based upon assessment matrices published in the Handbook of Biodiversity Methods²⁵. It has been updated to comply with recent changes to planning policy and legislation. The three-stage process allows the value of ecological sites, habitats and populations, and the magnitude of the impact, to be cross-tabulated to identify impact significance.

Valuing ecological sites, habitats and populations: scale and level of value

Scale	Level of value	Sites, habitats and populations
Greater than national	Very High	Statutory sites designated under international conventions or related national legislation, in particular: - Wetlands of International Importance (Ramsar sites), - Special Areas of Conservation, - Special Protection Areas.
National	High	Statutory sites designated under national legislation, for example: - Sites of Special Scientific Interest (England, Wales, Scotland), - National Nature Reserves (UK). Significant viable areas of habitats, or populations or assemblages of species of principal importance for the conservation of biodiversity in England and Wales (Section 41 species and habitats)²⁶ of such size and quality as might qualify for SSSI designation. Populations or assemblages of red-listed, rare or legally protected species, as might qualify for SSSI designation, for example: - species of conservation concern, - Red Data Book (RDB) species, - birds of conservation concern (Red List species), - nationally rare and nationally scarce species, - legally protected species.
County	Medium	Statutory sites of lower conservation value designated under national legislation, for example Local Nature Reserves (UK). Non-statutory sites designated under local legislation, for example: - County Wildlife Sites, - Local Wildlife Sites, - Roadside Nature Reserves (protected road verges). Viable areas of habitat or populations of species of principal importance for the conservation of biodiversity in England and Wales (Section 41 species and habitats)²⁷ of such size and quality as might qualify for designation at the county level. Other non-designated sites which meet the criteria for designation at this level.

²⁵ Hill, D., Fasham, M., Tucker, G., Shewry, M., Shaw, P. (eds.) (2005) *Handbook of Biodiversity Methods: Survey, Evaluation and Monitoring*, Cambridge University Press.

²⁶ Listed under S41 of the Natural Environment and Rural Communities Act 2006 <http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx>.

²⁷ Listed under S41 of the Natural Environment and Rural Communities Act 2006 <http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx>.

District / Borough²⁸	Lower	Sites meeting criteria for metropolitan designations. Undesignated sites or features not meeting criteria for county designation, but that are considered to enrich appreciably the habitat resource within the local district or borough, for example: • ancient woodland, • diverse, ecological valuable and cohesive hedgerow networks, • significant clusters or groups of ponds, • veteran or ancient trees. Viable areas of habitat or populations of species of principal importance for the conservation of biodiversity in England and Wales (Section 41 species and habitats)²⁹ not qualifying for designation at the county level.
Parish	Lower	Areas of habitat considered to enrich appreciably the ecological resource within the context of the local parish. Small areas of habitat or populations of species of principal importance for the conservation of biodiversity in England and Wales (Section 41 species and habitats)³⁰.
Site only	Negligible	Ecological feature or resource not meeting any of the above criteria.

Note: there is much overlap in designations and lists of important species, and many sites, habitats and species appear on several. Where a site, habitat or species has multiple designations or levels of protection, normally the highest level would be the level at which impacts are assessed.

²⁸ Including metropolitan boroughs.

²⁹ Listed under S41 of the Natural Environment and Rural Communities Act 2006 <http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx>.

³⁰ Listed under S41 of the Natural Environment and Rural Communities Act 2006 <http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx>. Listed under S41 of the Natural Environment and Rural Communities Act 2006 <http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx>.

Definitions of impact magnitude

Magnitude (negative or positive)	Definition /trigger
Severe	Loss or severe degradation affecting over 75% of a site feature, habitat or population. Adverse change to, or reduced condition of, over 90% of a site feature, habitat or population, for example through disturbance or trampling.
Major	Loss or severe degradation affecting over 25% of a site feature, habitat or population. Adverse change to, or reduced condition of, over 50% of a site feature, habitat or population, for example through disturbance or trampling. For benefits, an impact equivalent in nature conservation terms to a gain of over 50% in a site feature, habitat or population.
Moderate	Loss or severe degradation affecting over 5% of a site feature, habitat or population. Adverse change to, or reduced condition of, over 10% of a site feature, habitat or population, for example through disturbance or trampling. For benefits, an impact equivalent in nature conservation terms to a gain of 10-50% in a site feature, habitat or population
Minor	Loss or severe degradation affecting up to 5% of a site feature, habitat or population. Adverse change to, or reduced condition of, 1-10% of a site feature, habitat or population, for example through disturbance or trampling. For benefits, an impact equivalent in nature conservation terms to a gain of up to 10% in a site feature, habitat or population.
Insignificant	No loss of or severe degradation to a site feature, habitat or population. Adverse change to, or reduced condition of, less than 1% of a site feature, habitat or population. No benefit to a site feature, habitat or population.

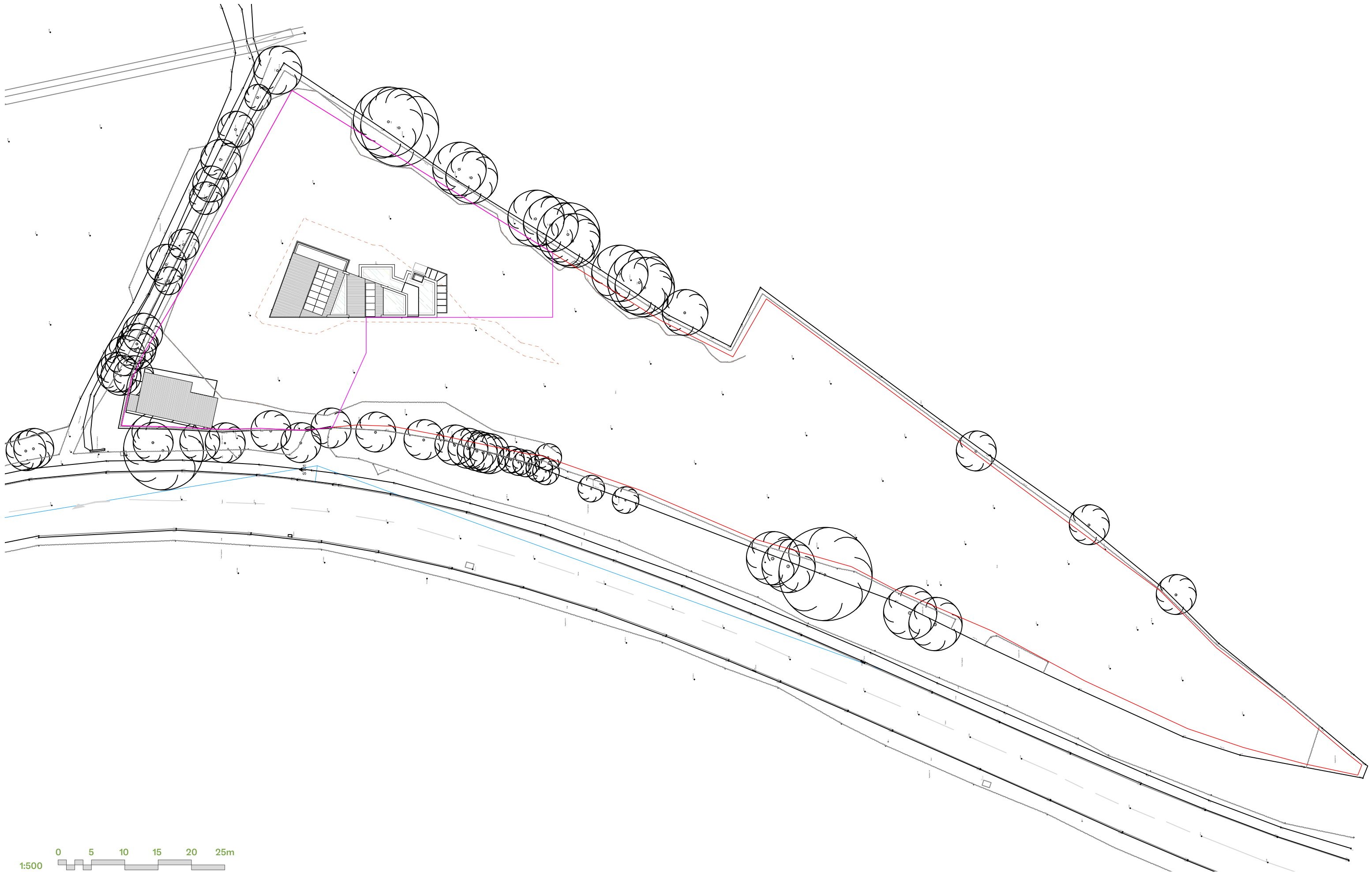
Impact significance

Value of site, habitat or population	Magnitude of impact							
	<i>Severe Negative</i>	<i>Major Negative</i>	<i>Moderate Negative</i>	<i>Minor Negative</i>	<i>Insignificant</i>	<i>Minor Positive</i>	<i>Medium Positive</i>	<i>Major Positive</i>
<i>Very High</i>	Severe Adverse	Severe Adverse	Major Adverse	Major Adverse	Neutral*	Major Beneficial	Major Beneficial	Major Beneficial
<i>National (High)</i>	Severe Adverse	Major Adverse	Major Adverse	Moderate Adverse	Neutral*	Moderate Beneficial	Major Beneficial	Major Beneficial
<i>County/Metropolitan (Medium)</i>	Major Adverse	Major Adverse	Moderate Adverse	Moderate Adverse	Neutral	Minor Beneficial	Moderate Beneficial	Major Beneficial
<i>District/Borough (Lower)</i>	Major Adverse	Moderate Adverse	Moderate Adverse	Minor Adverse	Neutral	Minor Beneficial	Moderate Beneficial	Moderate Beneficial
<i>Parish (Lower)</i>	Moderate Adverse	Moderate Adverse	Minor Adverse	Minor Adverse	Neutral	Minor Beneficial	Minor Beneficial	Moderate Beneficial
<i>Minimal/negligible</i>	Neutral	Neutral	Neutral	Neutral	Neutral	Minor Beneficial	Minor Beneficial	Moderate Beneficial

Where the impact significance falls below Minor Adverse, the term 'Neutral' is used.

*In some circumstances, some 'insignificant' impacts might fail legislative, or policy tests and the impact would be greater than Neutral.

Appendix 3



1:500



Key
Site boundary
Domestic curtilage

1. Contractors should not scale from this drawing. Use figured dimensions only.
2. All dimensions to be checked on-site before construction proceeds and prior to the fabrication of any component.
3. Any discrepancies shall be brought to the attention of Studio Bark for resolution before construction commences.
4. Structural and services information shown is indicative only. Refer to consultants' drawings for details and setting out.
5. All work and materials in accordance with current applicable statutory legislation and to comply with all relevant codes of practice and British standards.
6. Copyright is vested in Studio Bark and these drawings should not be copied or reproduced without the express written consent of Studio Bark.
7. Studio Bark confirm that that any structural, waterproofing and damp proofing elements are undertaken by specialists appointed directly by the insured's clients.

Rev	Date	Description	Drawn	Check

Chalkstream House		Status	Draft		
Site Block Plan					
Job Ref	Date	Scale	Paper Size	Drawing No.	Rev
A270	Sep 25	1:500	A3	0102	

Appendix 4



1. Access driveway, reflecting the nature of a rural gravel track.
2. Car port utilising the form of the existing agricultural building, with entrance turning circle.
3. Feature entrance space with locally relevant scrub planting to give the impression of the house emerging from a lost landscape.
4. Belts of new tree/scrub development, wrapping around the house, encouraging the visual of the landscape having a prominence on the site and enveloping the built form.
5. Formal lawn space hidden from view from the busy A600, looking instead onto the surrounding farmland.
6. Feature walls extending from the building, cutting into the landscape, blurring lines between landscape and built form.
7. Wildflower meadow, improving biodiversity and habitat value, with simple mown pathways.
8. New ecological ponds on site, connected via new waterways/scrapes, creating new habitat that can connect to the existing riparian corridors in the area.
9. Enhancement of existing boundary vegetation with additional tree cover and scrub layers, improving the green corridor connection with the wider landscape, as well as enhancing the screening value.
10. Drainage mound as part of the wider drainage strategy,
11. New orchard planting, using locally relevant species.

Key

Proposed residential curtilage

Gravel permeable driveway

Scrub planting

Lawn

Existing hedgerow with additional gapping up planting

Wildflower meadow

Paving

Water

Proposed tree



1. Access driveway, reflecting the nature of a rural gravel track with sett paving where it meets the highway.
2. Car port and gravel parking area utilising the form of the existing agricultural building.
3. Belts of new tree/scrub development, wrapping around the house, encouraging the visual of the landscape having a prominence on the site and enveloping the built form.
4. Feature entrance space with locally relevant scrub planting to give the impression of the house emerging from a lost landscape.
5. Lawn space for family amenity.
6. Attenuation pond for site wide water strategy.
7. Formal terraces tucked out of view from adjacent public areas.
8. Pollinator planting with a natural form to blend the emerging architecture into the setting.
9. Green roofs to soften the built form and to connect with the wider concept/setting.
10. Swale connecting the ponds and management of site wide surface water.
11. Wildflower meadow, improving biodiversity and habitat value, with simple mown pathways.

Key

- Proposed residential curtilage
- Gravel permeable driveway
- Scrub planting
- Lawn
- Existing hedgerow with additional gapping up planting
- Wildflower meadow
- Paving
- Water
- Proposed tree

Appendix 5

Guidelines for assessing potential suitability of proposed development sites for bats

Source: Collins J (ed) (2023) Bat Surveys for Professional Ecologists Good Practice Guidelines. Bat Conservation Trust

Potential Suitability	Roosting habitats in structures	Potential flight paths and foraging habitats
None	No habitat features on site likely to be used by any roosting bats at any time of year (i.e. a complete absence of crevices / suitable shelter at all ground / underground levels)	No habitat features on site likely to be used by any commuting or foraging bats at any time of year (i.e. no habitats that provide continuous lines of shade / protection for flight lines or generate / shelter insect populations available to foraging bats.
Negligible ³¹	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	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 enough space, shelter, protection, appropriate conditions ³² , and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity and not a classic cool / stable hibernation site but could be used by individual bats ³³).	Habitat that could be used by small numbers of bats as flight paths such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by another habitat
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions ⁴⁵ and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for flight paths such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	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 size, shelter, protection, conditions ⁴⁵ and surrounding habitat. These structures have the potential to support high conservation status roosts e.g. maternity or classic cool / stable hibernation site.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge. High quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland.

³¹ Negligible is defined as 'so small or unimportant as to be not worth considering, insignificant'. This category may be used where there are places that a bat could roost or forage due to one attribute, but it is unlikely that they actually would be due to another attribute.

³² For example, in terms of temperature, humidity, height above ground level, light levels, or levels of disturbance

³³ Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten et al 2016 and Jansen et al 2022). Common pipistrelle swarming has been observed in the UK (Bell 2022 and Tomlinson 2020) and winter hibernation of numbers of this species has been detected at Seaton Delaval Hall in Northumberland (National Trust 2018). This phenomenon requires some research in the UK, but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in prominent buildings in the landscape.

Appendix 6

Local Sites Map 1

Search Information

-  Search boundary
-  Search area

Local Sites

-  RIGS
-  Local Wildlife Sites
-  HMWT Nature Reserves

Administrative Area

-  Herts County Boundary



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National Sites Map 1

Search Information

-  Search boundary
-  Search area

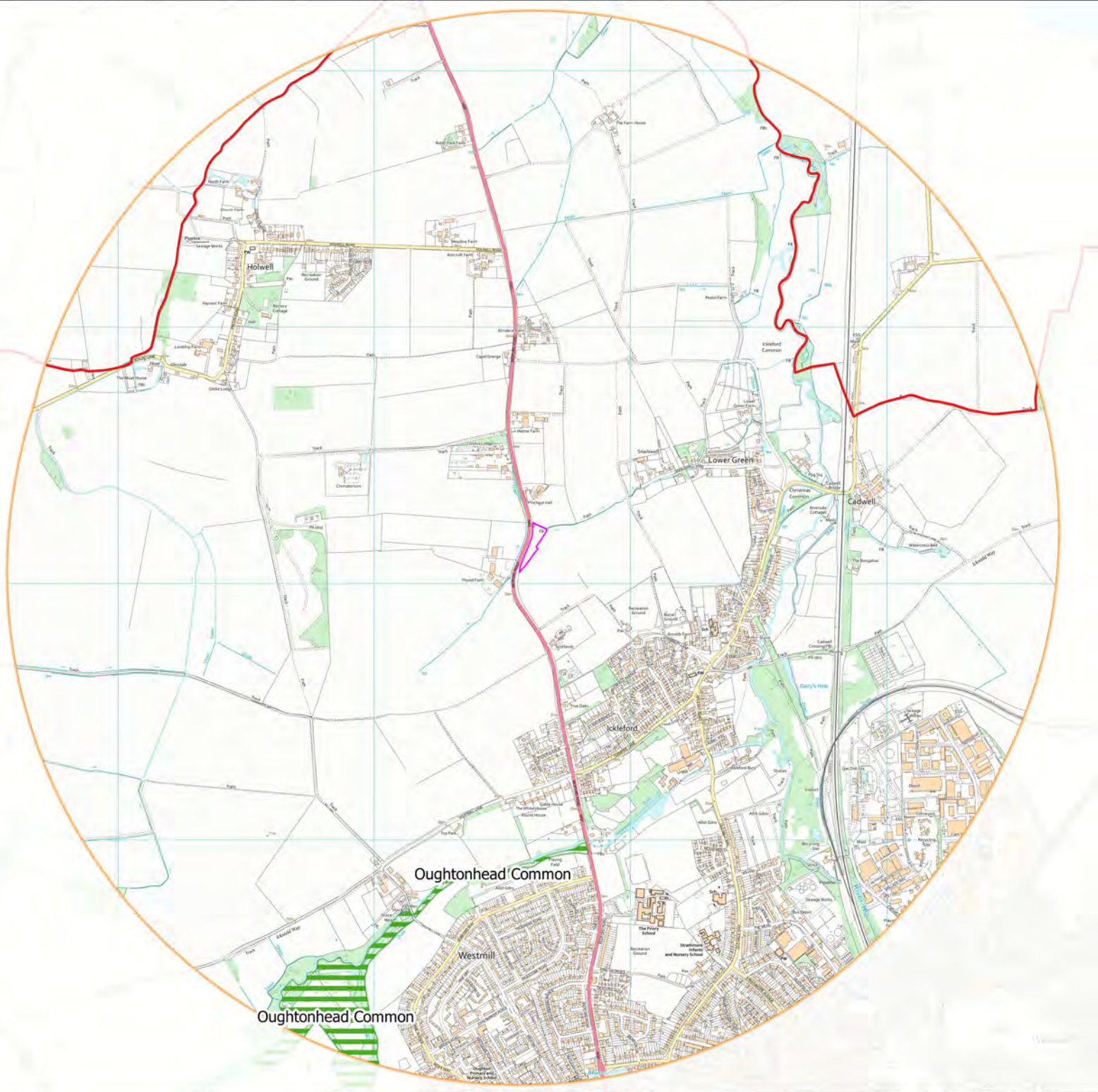
National Sites

Statutory Sites

-  LNR

Administrative Area

-  Herts County Boundary



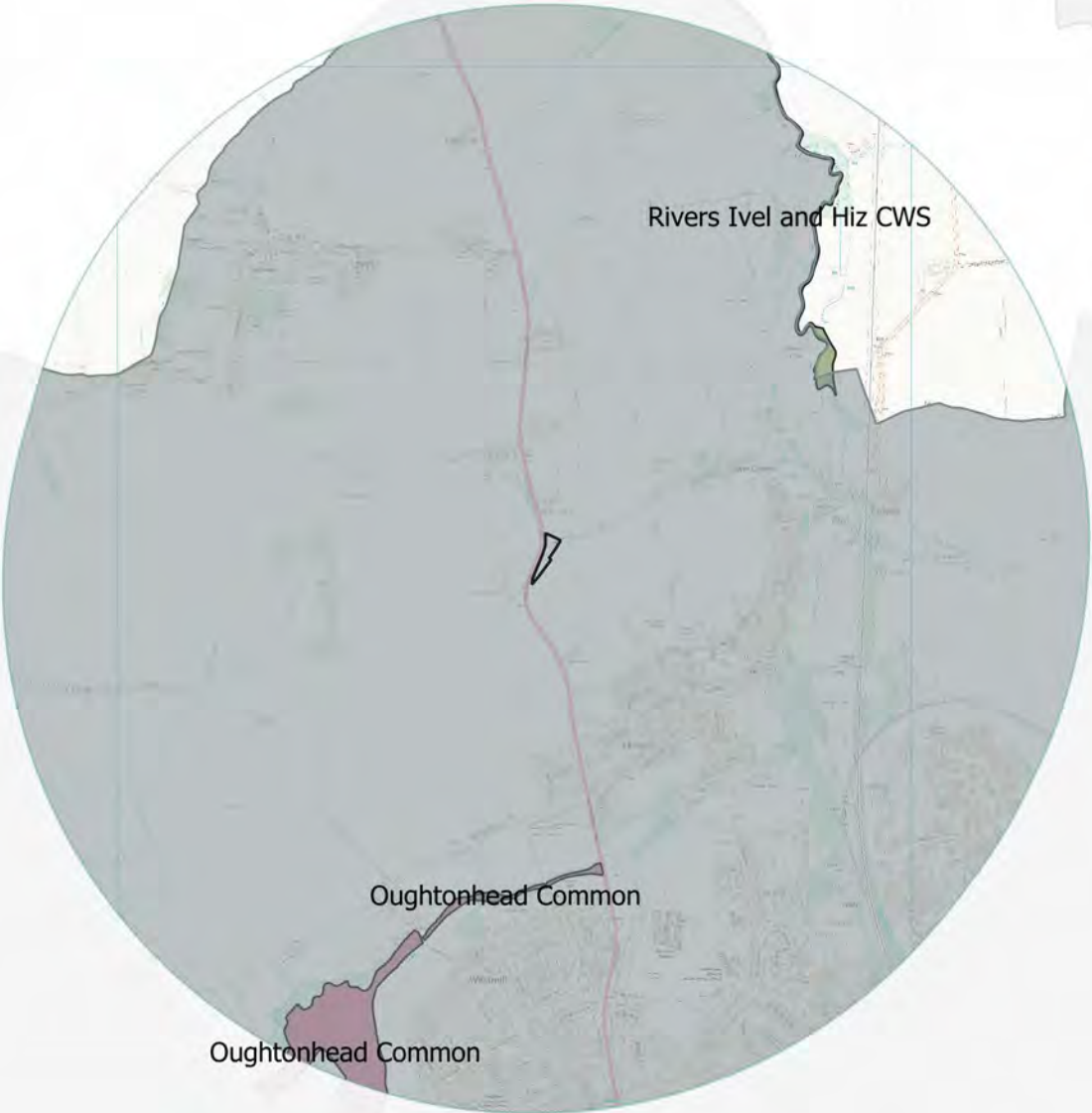
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Sites

-  Data Search Boundary
-  County Boundary
-  County Wildlife Site
-  District Wildlife Site
-  Roadside Nature Reserve
-  Local Geological Site
-  Local Nature Reserve
-  Site of Special Scientific Interest
-  Greensand Ridge NIA

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Rivers Ivel and Hiz CWS

Oughtonhead Common

Oughtonhead Common

Bedfordshire & Luton

**Biodiversity
Recording &
Monitoring
Centre**



Appendix 7

Results of the Detailed Botanical Survey

taxon	vernacular	gridref	habitat	DAFOR	stage
Achillea millefolium	Yarrow	TL1761532138	Meadow	Rare	
Agrostis stolonifera	Creeping Bent	TL1763332209	Meadow	Occasional	
Alopecurus pratensis	Meadow Foxtail	TL1762732198	Meadow	Occasional	
Anthoxanthum odoratum	Sweet Vernal-grass	TL1762632165	Meadow	Rare	
Anisantha sterilis	Barren Brome	TL1764832167	Hedge/Hedge-base	Rare	
Anthriscus sylvestris	Cow Parsley	TL1762732198	Hedge/Hedge-base	Rare	
Arctium minus s.s.	Lesser Burdock	TL1764432164	Hedge/Hedge-base	Rare	
Arrhenatherum elatius	False Oat-grass	TL1759232096	Meadow	Rare	
Arum maculatum	Lords-and-Ladies	TL1762532120	Hedge/Hedge-base	Rare	
Brachypodium sylvaticum	False Brome	TL1764632176	Hedge/Hedge-base	Rare	
Bryonia dioica	White Bryony	TL1762732206	Hedge/Hedge-base	Rare	
Carex spicata	Spiked Sedge	TL1762332153	Meadow	Rare	
Cerastium fontanum	Common Mouse-ear	TL1763032205	Meadow	Rare	
Cirsium arvense	Creeping Thistle	TL1763332209	Meadow	Occasional	
Cirsium vulgare	Spear Thistle	TL1764532177	Meadow	Rare	
Conium maculatum	Hemlock	TL1763332209	Meadow	Rare	
Convolvulus arvensis	Field Bindweed	TL1763332198	Meadow	Rare	
Crataegus laevigata	Midland Hawthorn	TL1762332113	Hedge/Hedge-base	Rare	fruiting
Crataegus monogyna	Hawthorn	TL1763332209	Hedge/Hedge-base	Occasional	
Dactylis glomerata	Cock's-foot	TL1763032207	Meadow	Rare	
Festuca rubra	Red Fescue	TL1763332187	Meadow	Occasional	
Fraxinus excelsior	Ash	TL1763332209	Hedge/Hedge-base	Occasional	
Galium aparine	Cleavers	TL1760132090	Hedge/Hedge-base	Rare	
Glechoma hederacea	Ground-ivy	TL1764532165	Hedge/Hedge-base	Rare	
Hedera helix s.s.	Common Ivy	TL1764332163	Hedge/Hedge-base	Rare	
Helminthotheca echioides	Bristly Oxtongue	TL1762932205	Meadow	Rare	
Heracleum sphondylium	Hogweed	TL1762732199	Meadow	Rare	
Holcus lanatus	Yorkshire-fog	TL1763332209	Meadow	Frequent	
Hordeum murinum	Wall Barley	TL1762632207	Meadow	Rare	
Jacobaea vulgaris	Common Ragwort	TL1763932177	Meadow	Rare	
Lepidium didymum	Lesser Swine-cress	TL1762732206	Meadow	Rare	
Lolium perenne	Perennial Rye-grass	TL1763432209	Meadow	Occasional	
Malus domestica	Apple	TL1759732083	Hedge/Hedge-base	Rare	
Malus sylvestris s.l.	Crab Apple	TL1764932169	Hedge/Hedge-base	Rare	
Phleum bertolonii	Smaller Cat's-tail	TL1763832157	Meadow	Rare	
Phleum pratense s.s.	Timothy	TL1762832208	Meadow	Rare	
Plantago major subsp. major	Broad-leaved Plantain	TL1762732206	Meadow	Rare	
Poa pratensis s.l.	Meadow-grass	TL1763832198	Meadow	Rare	
Poa trivialis	Rough Meadow-grass	TL1763232208	Meadow	Occasional	
Potentilla reptans	Creeping Cinquefoil	TL1762732208	Meadow	Rare	
Prunella vulgaris	Selfheal	TL1763232188	Meadow	Rare	
Prunus spinosa	Blackthorn	TL1764732167	Hedge/Hedge-base	Rare	
Quercus robur	Pedunculate Oak	TL1757932065	Hedge/Hedge-base	Rare	
Ranunculus acris	Meadow Buttercup	TL1763432209	Meadow	Occasional	
Ranunculus bulbosus	Bulbous Buttercup	TL1761132130	Meadow	Rare	
Ranunculus repens	Creeping Buttercup	TL1763332200	Meadow	Occasional	
Rhamnus cathartica	Buckthorn	TL1762332112	Hedge/Hedge-base	Rare	
Rosa canina s.s.	Dog-rose	TL1757832079	Hedge/Hedge-base	Rare	
Rubus ulmifolius	Elm-leaved bramble	TL1762632207	Hedge/Hedge-base	Occasional	
Rumex crispus	Curled Dock	TL1764332221	Meadow	Rare	
Rumex sanguineus	Wood Dock	TL1763432209	Hedge/Hedge-base	Occasional	
Sambucus nigra	Elder	TL1763232139	Hedge/Hedge-base	Rare	
Schedonorus arundinaceus	Tall Fescue	TL1764632218	Meadow	Rare	
Schedonorus pratensis	Meadow Fescue	TL1761532136	Meadow	Rare	
Sonchus asper	Prickly Sow-thistle	TL1758032070	Meadow	Rare	
Trifolium repens	White Clover	TL1763532178	Meadow	Rare	
Ulmus glabra x minor x plotii = U. x hollandica	Dutch Elm	TL1759132078	Hedge/Hedge-base	Rare	
Urtica dioica subsp. dioica	Nettle	TL1762732199	Hedge/Hedge-base	Occasional	

Appendix 8

Hertfordshire Ecological Network Mapping

Introduction

A project was carried out in 2011-2013 producing a new Hertfordshire habitat inventory with latest available data and then using these data to generate potential habitat network maps. Potential habitat network maps identify how our habitats are spatially related to each other and where the highest priorities are for expanding them and linking them together. This strategic approach ensures that efforts can be targeted to where they are of most potential benefit. It also ensures that the right combination of habitats are created in the right places, reflecting the historical context and physical factors and minimising unintended consequences of locking out the potential to restore functioning networks of one habitat for the sake of another.

The Hertfordshire Ecological Network mapping project was managed by a steering group that included representatives of the County Council and DEFRA bodies and the guidance document (below) has been approved by the Hertfordshire Local Nature Partnership Planning Task Group that includes representatives from Herts Ecology, the County Council, District Councils and landowners.

For more detail on the project, please visit <https://bit.ly/2tR5jYw>

How to interpret the maps

The guidance below is based on an advisory document, produced by the Hertfordshire Local Nature Partnership Planning Task Group, which is available here: <https://bit.ly/2MNDhUu>

The guidance below is based around identifying appropriate actions and principles to apply to the different areas on the map. For any development proposal the first stage is to identify how the different features within the dataset are distributed across the proposed development area. This will involve viewing the map component of the dataset and interrogating the associated data table for each of the map features within and around the proposed site. For ease of use, the map component of the dataset is colour-coded by the overarching categories in the first column of the data table.

Determining Strategic Significance from the HEN maps

In line with emerging guidance from Herts & Middlesex Wildlife Trust's Planning and Biodiversity Manager and Herts County Council, the HEN maps have been suggested as a suitable basis for determining Strategic Significance for Biodiversity Net Gain calculations, in the interim until the Local Nature Recovery Strategy and Nature Recovery Network map for Herts are published. Strategic scores can be applied based on the HEN map categories, where:

HEN Category	HEN Category Description	Strategic Significance Category	Multiplier
1	Existing S41 NERC Act Habitat	High	1.15
2	Existing habitat not currently qualifying under S41 NERC Act	High	1.15
3a	No known habitats present (high priority for habitat creation)	High	1.15
3b	No known habitats present (medium priority for habitat creation)	Medium	1.1
3c	No known habitats present (lower priority for habitat creation)	Low	1

For **small-scale developments** (as defined in guidance for using the Defra Statutory biodiversity metric calculation tool), strategic scores can be applied based on the HEN map categories as follows:

HEN Category	HEN Category Description	Strategic Significance Category	Multiplier
1	Existing S41 NERC Act Habitat	High	1.15
2	Existing habitat not currently qualifying under S41 NERC Act	High	1.15
3a	No known habitats present (high priority for habitat creation)	High	1.15
3b	No known habitats present (medium priority for habitat creation)	Low	1
3c	No known habitats present (lower priority for habitat creation)	Low	1

Green areas on the map (values of 1 in the first column of the data table)

- These patches contain habitats listed within S41 of the NERC Act and should be avoided by development and protected by the development management system.
- Adjacent or surrounding development should provide for the enhancement of these habitats through ongoing positive conservation management. The data table identifies the habitat type that must be maintained.
- Development causing significant harm to these patches should normally be refused. Where there is unavoidable harm in the context of overriding public interest, the mitigation hierarchy should be applied. Depending on the circumstances, all other areas on the map could potentially be candidate areas for applying appropriate compensation measures. The same actions described for restoring and creating habitats to enhance ecological networks equally apply to compensation measures. NB a simple 1:1 ratio of compensation for habitat area damaged is unlikely to be enough due to the poor success rate and risks involved in creating new habitats to the same standard as those lost. In reality the ratio is likely to be much higher, in some cases up to a 1:10 ratio of harm to compensation area. Other habitat types are considered irreplaceable (eg. ancient woodland) and can never be adequately compensated if lost.

Purple areas on the map (values of 2 in the first column of the data table)

- These patches contain habitats not currently qualifying under S41 of the NERC Act but with high potential to do so. Whilst not receiving the same level of statutory and policy-based protection as the green areas, they should nonetheless be avoided by development and protected by the development management system where reasonable to do so. This is because they are important components of ecological networks and it is much quicker, less risky and more cost-effective to restore these habitats than to create new ones elsewhere.
- Enhancements to the ecological network can be carried out through restoring these habitat patches to the most appropriate S41 NERC Act habitat type. This would be provided through a combination of one-off capital works and ongoing positive conservation management. The data table specifies the target habitat type most appropriate to restore these patches to.

Orange/yellow/cream areas on the map (values of 3a, 3b and 3c in the first column of the data table)

- These patches contain no mapped existing habitats of any significance. Therefore, in the context of the ecological networks dataset, these areas are suitable for appropriate development.
- These areas also form the potential for new habitat corridors to be created to improve ecological network integrity. The dataset identifies the relative priorities for habitat creation to form corridors and other links (eg. habitat 'stepping stones') between existing habitat patches. Orange areas are predicted to be of higher priority than yellow, which are predicted to be of higher priority than cream (values of 3a > 3b > 3c respectively in the first column of the data table). These relative priorities should be taken into account in the design of masterplans, by focusing habitat corridors primarily on the orange areas and then yellow and then cream, as appropriate. Development proposals containing large areas of orange on the map will need to plan the most sensitively and produce the greatest enhancements to the ecological network. The dataset simply predicts relative priority for habitat creation, not necessarily realistic sizes of such projects. Whilst it will normally be unlikely that whole areas coloured in orange on the map would be allocated for creating habitat, it is expected that where orange areas on the map exist, development should aim to provide ecologically functioning corridors from one end of their land to the other.
- There are no hard and fast rules for determining the scale of habitat corridors because it depends on the context and also the scale of development (with larger developments able to contribute the most). However, corridors should be of a scale to allow them to properly function ecologically. For example, a simple Green Infrastructure corridor consisting of a footpath with only a small verge of habitat is unlikely to function ecologically. As a general principle, the wider, larger and more continuous the corridor, the more it will contribute to the integrity of the ecological network.
- Opportunities for habitat creation projects to comprehensively link up existing habitats within and around the development envelope should be designed into the masterplan. This should be done at the earliest possible stage in the process, normally at the same time as other infrastructure, in order to ensure that contributions are both meaningful and cost-effective. If habitat corridors are designed into the masterplan as an afterthought, good opportunities will be missed and habitat creation projects are likely to be less appropriate and less cost-effective. Worst case scenario would be total and permanent severance of a network. It is highly recommended that expert ecological advice is sought in the earliest stages in the design of a masterplan.
- The dataset identifies the most appropriate predicted habitat types to focus on in any given area on the map. Habitat recommendations are found in the Target habitat type column of the table. Where more than one habitat type is recommended, it may be appropriate to focus on just one of

them or to try and combine all habitat recommendations into the habitat corridor being created. It is strongly recommended that expert ecological advice is sought in cases where more than one habitat type is recommended or where a soil test contra-indicates the recommended habitat type.

Appendix 9

Chalkstream House, Ickleford

Headline Results

Scroll down for final results [▲](#)

Return to
results menu

On-site baseline	Habitat units	2.25	
	Hedgerow units	0.00	
	Watercourse units	0.00	
On-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	3.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
On-site net change (units & percentage)	Habitat units	0.75	33.27%
	Hedgerow units	0.00	0.00%
	Watercourse units	0.00	0.00%

Off-site baseline	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site net change (units & percentage)	Habitat units	0.00	0.00%
	Hedgerow units	0.00	0.00%
	Watercourse units	0.00	0.00%

Combined net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	0.75	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Spatial risk multiplier (SRM) deductions	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	

FINAL RESULTS

Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	0.75	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	33.27%	
	Hedgerow units	0.00%	

(Working in on the 1 of the habitat creation, creation & enhancement)	<i>Watercourse units</i>	0.00%
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Trading rules satisfied?	Yes ✓
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Unit Type	Target	Baseline Units	Units Required	Unit Deficit
<i>Habitat units</i>	10.00%	2.25	2.48	0.00
<i>Hedgerow units</i>	10.00%	0.00	0.00	0.00
<i>Watercourse units</i>	10.00%	0.00	0.00	0.00

No additional area habitat units required to meet target ✓

No additional hedgerow units required to meet target ✓

No additional watercourse units required to meet target ✓