PRELIMINARY ECOLOGICAL APPRAISAL

THORESBY BRIDGE FARM, NORTH COTES, LINCOLNSHIRE
for
CHESTERFIELD POULTRY LTD

(March 2024)
(Contract number 450)

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PROJECT DATA

Site Address	Thoresby Bridge Farm, North Cotes, Lincolnshire DN36 5TY
Project Proposed	Redevelopment of a poultry farm
Boundary as Specified by Client	Yes
Site Area (Hectares)	Approximately 1.2 ha
Central Ordnance Survey Grid Reference	TF 33745 99656
Survey Date	27 February 2024
Date Report Issued	12 March 2024
Report Version	Version 1

SUMMARY

This report has been prepared by Craig Emms and Linda Barnett who were contracted by Chesterfield Poultry Ltd to undertake a preliminary ecological appraisal of land at Thoresby Bridge Farm, North Cotes, Lincolnshire, hereafter referred to as 'the site'. The site and its immediate surroundings were surveyed for their ecological interest by means of a desk study and field survey on 27th February 2024. The survey was required to inform a planning application for the redevelopment of a poultry farm on the site. The walk over survey was carried out to characterise the habitats and identify any fauna or habitats requiring further assessment or protection because of the proposed development.

The site is part of a farm and is for the most part, surrounded by arable land, with angling ponds to the west and south. Habitats on and adjacent to the site include buildings, hardstanding, grassland, ephemeral/short perennial vegetation, tall ruderal herb, arable land and a hedgerow. There are no ponds on the site and three ponds within 500m of the site, one of which was not accessible during the survey.

An annotated Phase 1 Habitat Map is provided for the site. As a whole the survey revealed that the site's habitats which will be affected by works are common and widespread and are considered to be of low intrinsic biodiversity value. The site is not of sufficient ecological value to warrant whole-scale protection from development.

Recommendations

Recommendations which will reduce the risk of harm to any wildlife in the lead up to construction on the site and during the development itself are provided.

Proposed biodiversity enhancements for wildlife include the creation of a new attenuation pond, the planting of new native species hedgerows, the sowing of flower-rich grassland and the erection of bat boxes on suitable buildings within the curtilage of the site.

Once applied and carried out, the recommended ecological protection and enhancements will provide assurance that there is no net loss to biodiversity and no unacceptable adverse impact on ecosystem services.

Under the Environment Act 2021, all planning permissions granted in England (with a few exemptions) have to deliver at least 10% biodiversity net gain (BNG). BNG will be measured using Defra's statutory biodiversity metric and habitats will need to be secured for at least 30 years. A biodiversity net gain assessment for this development is currently being prepared.

INTRODUCTION

Craig Emms and Linda Barnett were instructed by Chesterfield Poultry Ltd to undertake a preliminary ecological appraisal of land at Thoresby Bridge Farm, North Cotes, Lincolnshire, hereafter referred to as 'the site'. The area considered by this assessment includes the land within the red line boundary as well as adjacent areas of land where relevant.

Chesterfield Poultry Ltd intend to submit a planning application to redevelop a poultry farm. The purpose of the survey was to identify any ecological constraints to and opportunities for the development in order to inform master planning, so that any adverse ecological effects can be avoided or minimised wherever possible.

The survey and ecological assessment of the site follows the approach set out in guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017).

PLANNING POLICY AND LEGISLATION

The regulatory context of this survey and report includes the Wildlife & Countryside Act (1981) as amended, the Environmental Protection Act (1990), the Countryside and Rights of Way Act (2000), the Protection of Badgers Act (1992), the Hedgerows Regulations (1997), the Habitats Directive (1992), the Birds Directive (2009), the Berne Convention (1982), Bonn Convention (1985), Natural Environment and Rural Communities (NERC) Act (2006), the Environment (Wales) Act (2016), the Wildlife and Natural Environment (Scotland) Act (2011), the Convention on Biological Diversity (1992) and the Conservation of Habitats and Species Regulations, 2017 (with amendments).

Please note that there is complex and strict legislation protecting many species and habitats in the United Kingdom. For European Protected Species (including bats, great crested newt, dormouse and otter) there is no longer a clear defence against harm being caused as an incidental result of an otherwise lawful operation. If you are in any doubt about the status of species or habitats on your site, please be sure to contact us before undertaking any site work.

METHODOLOGY – DESK STUDY

A search for ponds and other water bodies within 500m and sites with statutory protected site designations within a 2 km radius of the development was conducted using MAGIC (Multi-Agency Geographic Information for the Countryside - www.magic.gov.uk). MAGIC was also used to establish whether any European Protected Species (EPS) licences have been granted within 2 km of the proposed scheme and whether Natural England have surveyed ponds containing great crested newts within a 2 km radius.

METHODOLOGY – FIELD SURVEY

A preliminary ecological appraisal, comprising an extended Phase 1 habitat survey and a protected species assessment was undertaken by appropriately licenced, qualified and experienced personnel during February 2024. It followed the methodology contained in the Handbook for Phase 1 Habitat Survey (JNCC, 2010) and the current guidance on survey methods from the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017).

Extended Phase 1 Habitat Survey

An extended Phase 1 habitat survey was undertaken to assess the ecological value of the site. During this survey the site and its immediate surroundings were evaluated by walking over them at a uniform pace, whilst making a note of the habitats and species present. Habitat descriptions for each habitat type are provided in this report as well as target notes (if applicable) to identify areas of interest or concern.

In addition, a search was made for evidence of native weeds (*e.g.* common ragwort), non-native invasive species (*e.g.* Japanese knotweed and muntjac) and serious plant diseases/pathogens (*e.g.* ash dieback). Any hedgerows present on the site were assessed for their importance under the Hedgerows Regulations, 1997.

Protected Species Assessment

As part of the preliminary ecological assessment, the site was also evaluated for its potential to contain protected or notable species, and any incidental evidence of such species was recorded if encountered. The evaluation of the site was made based on the habitats present and their suitability for protected species including, but not limited to, the species listed below:

[redacted]

Bats;
Dormice;
Great crested newts;

Nesting birds (including barn owls);
Otters;
Reptiles;
Water voles.

Bat Roosts

A preliminary roost assessment of all buildings/structures on the site was undertaken (Collins, 2023). This involved a detailed external and internal inspection specifically for potential or actual bat access points and roosting places and any direct evidence of bats, including:

Live or dead bats
Droppings
Urine splashes
Fur-oil staining
Squeaking noises

In addition, a preliminary ground level tree assessment of all trees and bushes on the site was undertaken when potential bat roosting features (adapted from BTHK, 2018) were searched for, including:

Woodpecker-holes
Squirrel-holes
Knot-holes
Pruning-cuts
Tear-outs
Wounds
Cankers
Compression-forks
Butt-rots
Lightning-strikes
Hazard-beams
Subsidence-cracks
Shearing-cracks
Transverse-snaps
Welds
Lifting-bark
Desiccation-fissures
Frost-cracks
Fluting
Ivy
Bat, bird or dormouse boxes

Any buildings/structures, and bushes were then attributed a grade of none, negligible, low, moderate or high suitability to support roosting bats according to Bat Conservation Trust guidelines criteria following Collins (2023). Appendix 3 provides a more detailed explanation of the preliminary roost assessment and preliminary ground level tree assessment criteria. If evidence of bats is found further surveys may be necessary.

Dormice

The habitats within the site's boundaries were assessed for their suitability for dormice based on vegetation structure, connectivity and species composition following both Bright *et al* (2006) and Chanin and Woods (2003). In addition, direct evidence of dormice was searched for, including:

Gnawed hazel nuts
Nests
Dormice nest boxes

If direct evidence of dormice is found, or the habitats on the site (if they are to be removed/damaged/disturbed because of the development) are assessed as suitable for dormice, further surveys may be necessary. A full dormouse survey was not undertaken.

Great Crested Newts

There are no ponds on the site and three ponds within 500m of the site, one of which was not accessible during the survey. The relative suitability of the ponds for great crested newts was evaluated using the Habitat Suitability Index (HSI) methodology (ARG UK, 2010). If the ponds are found to be suitable for breeding great crested newts further surveys may be necessary.

The relative value of the terrestrial habitats within the site's boundaries for great crested newts and other amphibians was noted, although a detailed assessment was not carried out. A full great crested newt survey was not undertaken.

Nesting Birds (including Barn Owls)

The relative value of the habitats within the site's boundaries for nesting birds and foraging barn owls was noted, although a detailed assessment was not carried out. A full breeding bird survey was not undertaken.

Potential barn owl nesting/roosting sites and barn owl field signs were searched for in any buildings/structures on the site following the guidelines in Barn Owl Trust (2012). If nesting/roosting sites or evidence of barn owls is found further surveys may be necessary. A full barn owl survey was not undertaken.

Otters

There are no suitable waterways/waterbodies either on or adjacent to the site. A full otter survey was not undertaken.

Reptiles

The relative value of the terrestrial habitats within the site's boundaries, including potential basking areas, refugia and hibernation places for reptiles was noted, although a detailed assessment was not carried out. A full reptile survey was not undertaken.

Water Voles

There are no suitable waterways/waterbodies either on or adjacent to the site. A full water vole survey was not undertaken.

Hedgerows

Any hedgerow adjacent to land in agricultural/horticultural use on the site which will be directly affected by the development proposals was assessed for its importance under the Hedgerows Regulations. This is because if a hedgerow is classed as 'important', Local Planning Authorities have the power to either prevent the removal of a hedgerow, or to require appropriate mitigation/compensation to replace lost 'important' hedgerow habitat.

The assessment considers several factors including the age of the hedge and number of woody species present, its location, the physical structure of the hedge (including the number of gaps and proximity of nearby features such as ditches, banks and connectivity to woodland and ponds) and the number of valuable ground flora species it supports (Defra, 2007).

Details of the hedgerow assessment methodology which include a list of the woody species, features and valuable ground flora recognised by the Hedgerows Regulations are provided in Appendix 2.

A hedgerow may also be classified as 'important' due to the presence or recorded presence of a protected animal and plant species (Schedules 1, 5 and 8 of the Wildlife and Countryside Act, 1981) within the last five years, and archaeological/historical features.

LIMITATIONS

The survey results should not be seen to give a complete list of the possible flora and fauna species that could be using the site at different times of the year. The report presents the current state of the site and its potential for protected species use at the time of surveying. It should be noted that a single visit to a site will inevitably miss species not visible on the date of survey by reason of seasonality, mobility, habits or chance. The month of February is a sub-optimal survey period for many taxa of nature conservation interest in this part of the United Kingdom. This ecological survey may not be sufficient on its own for planning application purposes where notable habitats/species are present or potentially present, especially regarding European Protected Species.

The authors have undertaken the site survey with reasonable skill, care, and diligence, within the terms of the contract that has been agreed with the client. The actions of the surveyor(s) on site, and during the production of the report, were undertaken in accordance with the Code of Professional Conduct for the Chartered Institute of Ecology and Environmental Management. The latest good practice guidelines put in place by Natural England or the relevant statutory conservation bodies have been followed by the surveyor(s) on site. If those methodologies fail to identify a protected species during the survey efforts, no responsibility can be attributed to the authors. If any of these guidelines are adapted between the date(s) of the surveys being undertaken and the submission of this report, then the authors take no responsibility for this.

The survey was undertaken during the winter months which can limit botanical identification as it is outside of the main plant growing season. However, what remains of vegetative growth is generally sufficient to allow an experienced surveyor to make a general assessment about the habitat composition and quality of a site and identify the potential for any notable or protected species. Similarly, some fauna is less active/dormant at this time of the year. Again, this constraint can be addressed by an experienced surveyor identifying potential presence from the habitat composition of the site and neighbouring landscape, and the identification of any field signs present. Nonetheless, the surveyor(s) cannot guarantee that all invasive plant species, such as Japanese knotweed or Himalayan balsam, will be observed at the time of the site visit. A full survey of invasive species potentially present on the site should be commissioned separately and conducted during the growing season when any invasive plants which may be present will be visible.

A full data search was not commissioned for this preliminary ecological appraisal. However, because of the small scale of the proposals and the limited risk of impacts in the immediate

surroundings and away from the site, this aspect was not considered to be a major constraint to the project (CIEEM, 2017).

The interior of the poultry sheds on the site could not be inspected for biosecurity reasons as the poultry farm is operational.

No constraints were such that they affect the overall conclusions and recommendations made in the report.

BASELINE ECOLOGICAL CONDITIONS – DESIGNATED SITES

The desk study showed that there is one known site with statutory protected site designations within a 2 km radius of the development. This protected site is Tetney Blow Wells Site of Special Scientific Interest (SSSI),) located approximately 1.61 km north-west of the proposed development.

This site is considered sufficiently distant for it not to be directly affected by the development proposals.

BASELINE ECOLOGICAL CONDITIONS - HABITATS

GENERAL DESCRIPTION

The site (central OS Grid Ref: TF 33794 99696) is part of a farm located in Lincolnshire.

It is approximately 1.2 ha in extent and situated within an agricultural landscape dominated by arable land, with angling ponds to the west and south. Habitats on and adjacent to the site include buildings, hardstanding, grassland, ephemeral/short perennial vegetation, tall ruderal herb, arable land, and a hedgerow. There are no ponds on the site and three ponds within 500m of the site, one of which was not accessible during the survey.

HABITAT DESCRIPTIONS

A list of all plant species recorded during this survey, their scientific names and where relevant their DAFOR scale of abundance is presented in Table 1 in Appendix 1.

Access to the Site: The project will use the existing farm access point (see Figure 1 and Plate 1) which joins Fen Lane (A1031) in the north of the site. The current access point consists of hardstanding.

Plate 1: the existing farm access point where it joins Fen Lane. Photograph taken from the north-west.

Buildings: There are currently five poultry units, three barns and a residential property on the site. One of the barns (Target Note 1 and Plate 2) and the residential property (Target Note 2 and Plate 3) are being retained undamaged and *in situ* during the project and therefore have not been assessed for their potential to support roosting bats or nesting birds. The remaining buildings (Target Notes 3 – 5, and Plates 4 – 9), which will all be demolished, have all been assessed to have 'no' potential to support roosting bats as there are no potential bat roosting features present (refer also to the section on Bats below).

Plate 2: the low barn (Target Note 1). Photograph taken from the north. This barn will be retained undamaged and *in situ* during the project.

Plate 3: the residential property (Target Note 2). Photograph taken from the south-east. This house will be retained undamaged and *in situ* during the project.

Plate 4: a view of the large barn on the site (Target Note 3). Photograph taken from the south-east. This barn will be demolished and has been assessed to have 'no' potential to support roosting bats.

Plate 5: the interior of the large barn (Target Note 3).

Plate 6: a view of the small barn on the site (Target Note 4). Photograph taken from the north-east. This barn will be demolished and has been assessed to have 'no' potential to support roosting bats.

Plate 7: the interior of the small barn (Target Note 4).

Plate 8: a view of one of the poultry sheds on the site (Target Note 5). These sheds will be demolished and have been assessed to have 'no' potential to support roosting bats.

Plate 9: another view of one of the poultry sheds on the site (Target Note 5).

Amenity Grassland: This habitat is present adjacent to the residential property in the north-western corner of the site see (Figure 1 and Plate 10). Plant species recorded in the grassland include only widespread and common species. Most of this habitat will be retained undamaged and *in situ* during the project.

Plate 10: a view of the amenity grassland to the west of the residential property.

Ephemeral/Short Perennial Vegetation: This habitat is present between some of the poultry sheds and along the tracks on the southern and western edges of the site. It is impossible to accurately show the extent of this habitat on Figure 1 as it grades into the Tall Ruderal Herb (see below) in many places (see Figure 1 and Plate 11). Plant species recorded in this habitat include only widespread and common species. This habitat will be lost during the project.

Plate 11: a view of one of the small areas of ephemeral/short perennial vegetation between two of the poultry sheds.

Tall Ruderal Herb: This habitat is present on the site's southern and western boundaries. It is impossible to accurately show the extent of this habitat on Figure 1 as it grades into the Ephemeral/Short Perennial Vegetation in many places (see above, Figure 1 and Plate 12). Plant species recorded in this habitat include only widespread and common species. This habitat will be lost during the project.

Plate 12: a view of the tall ruderal herb on the site's western boundary. Photograph taken from the south.

Native Species-poor Intact Hedge: This hedgerow is found on the site's north-western boundary (see Figure 1 and Plate 13). The hedgerow is approximately 1.5m in height and 1.5m in width at the base. The only woody species present in this hedge is hawthorn. Plant species recorded in the hedge are shown in Table 1 in Appendix 1. They include only widespread and common species. This hedge has not been assessed according to the Hedgerows Regulations, 1997 as it is within the curtilage of the residential property. It has been judged to have no potential to support roosting bats as no bat roosting features were observed. All of this hedgerow will remain undamaged and *in situ* during the project.

Plate 13: a view of the hedgerow on the site's north-western boundary. Photograph taken from the north-east. This hedgerow has been judged to have no potential to support roosting bats. All of this hedgerow will remain undamaged and *in situ* during the project.

Ponds: There are no ponds on the site and three ponds within 500m of the site, two of which were accessible during the survey (see Plates 14 and 15). Both ponds have been assessed to have 'poor' habitat suitability for great crested newts as they are angling ponds with large populations of waterfowl (refer also to the Great Crested Newts section below and Table 3 in Appendix 1 for details of the survey results).

Plate 14: Pond 1, located approximately 5m west of the development site and assessed to have 'poor' habitat suitability for great crested newts due to the presence of stocked fish and waterfowl.

Plate 15: Pond 2, located approximately 7m south of the development site and assessed to have 'poor' habitat suitability for great crested newts due to the presence of stocked fish and waterfowl.

TARGET NOTES:

Target Note 1: This is a single storey barn which will be retained undamaged and *in situ* during the project (see Plate 2).

Target Note 2: This is a residential property that will be retained undamaged and *in situ* during the project (see Plate 3).
Target Note 3: This is a large barn that will be demolished during the project (see Plates 4 and 5).
Target Note 4: This is a barn that will be demolished during the project (see Plates 6 and 7).
Target Note 5: these are five poultry sheds that will be demolished during the project (see Plates 8 and 9).

BASELINE ECOLOGICAL CONDITIONS – SPECIES AND SPECIES GROUPS

PLANTS

Only widespread and common species were observed on the site. A list of all plant species recorded during this survey, their scientific names and where relevant their DAFOR scale of abundance is presented in Table 1 in Appendix 1.

MACRO-INVERTEBRATES

None were observed on the site.

FISH

No fish were observed during the survey. There are no aquatic habitats on the site.

GREAT CRESTED NEWT

No great crested newts were observed on the site. There are no ponds on the site and three ponds located within 500m of the site, two of which were accessible during the survey (see Plates 14 and 15). Based on the terrestrial range of individual great crested newts (generally less than 250m, occasionally more than 500m, and rarely up to 1 km from their breeding site), it was considered reasonable to conclude that only ponds within 500m of the site are relevant to the survey. One pond was not accessible during the survey (located at central Ordnance Survey Grid Reference: TF 33542 99894 – 100m north-west of the development).

The two surveyed ponds have been assessed to have 'poor' habitat suitability for great crested newts (see Table 3 in Appendix 1 for details of the survey results), as they are both angling ponds and have large populations of waterfowl present.

The habitats covering most of the development site (buildings, hardstanding, closely mown amenity grassland and ephemeral/short perennial vegetation) are considered to be very poor habitats for great crested newts during their terrestrial phase.

It is generally accepted that where suitable habitat is present the majority of a great crested newt population will use terrestrial habitats within 50m of the breeding pond (Jehle, 2000).

English Nature (Natural England's predecessor) published findings of a research report into great crested newt mitigation schemes (Cresswell and Whitworth, 2004) which states that:

"*The most comprehensive mitigation, in relation to avoiding disturbance, killing or injury is appropriate within 50m of a breeding pond. It will also almost always be necessary to actively capture newts 50-100m away. However, at distances greater than 100m, there should be careful consideration as to whether attempts to capture newts are necessary or the most effective option to avoid incidental mortality. At distances greater than 200-250m, capture operations will hardly ever be appropriate."*

According to MAGIC no great crested newt development licences have been granted within 2 km of the proposed scheme.

MAGIC also indicated that no ponds surveyed by Natural England and containing great crested newts are present within 2 km of the site.

As the habitats covering the majority of the site are considered to be very poor for terrestrial great crested newts and the surveyed ponds within 500m of the site are considered to have poor habitat suitability for great crested newts, it is recommended that no further surveys are required. However, if great crested newts are discovered during site preparation, clearance, enabling or construction phases of the project, then all works must stop until the advice of a professional/suitably qualified ecologist and Natural England is obtained, including the need for a licence (see Recommendations below).

OTHER AMPHIBIANS

No amphibians were observed during the survey. There are no aquatic habitats on the site. No further surveys are required.

REPTILES

The tall ruderal herb on the site is a suitable habitat for low numbers of common lizard *Zootoca vivipara* and slow worm *Anguis fragilis*. All British reptiles are protected from killing or injury (though their habitat is not specially protected) and this could occur as an incidental result of construction. During the survey the above habitat was searched for evidence or indication of reptiles. The habitat is considered to be of limited value to reptiles due to the paucity of potential basking areas, refugia and hibernacula though it is possible that some reptiles are present. However, it is considered unlikely that there is a significant population given the limitations of the habitat that is present. Barred grass snakes *Natrix helvetica* and adders *Vipera berus* may hunt within the site as part of much wider home ranges.

Mitigation activities to reduce the risk of harm to any reptiles in the lead up to construction are given in the Recommendations section. After mitigation, significant impacts to reptiles are unlikely. No further surveys are required.

BIRDS

A typical range of birds commonly associated with the above habitats were recorded during the survey. These included no Red Listed species and no Amber Listed species. The Red and Amber Lists refer to Birds of Conservation Concern (Stanbury *et al*, 2021). Red Listed birds are of high conservation concern and Amber Listed birds are of medium conservation concern.

Bird species recorded during the survey included pied wagtail, feral pigeon, carrion crow and magpie.

Red-listed Birds

None were observed on site.

Amber-listed Birds
None were observed on site.

The breeding assemblage is considered to be typical of the habitats present in the geographic location.

Active Nests Found
None were observed on site (the survey was conducted outside of the breeding season).

There were no potential barn owl roosting places or nest sites observed on the site. The habitats covering the majority of the site are not suitable habitats for foraging barn owls as they do not contain a litter layer.

It is likely that some common farmland and woodland birds may breed each year in the hedgerow on the site. This is being retained undamaged and *in situ* during the project.

BATS
There are currently five poultry units, three barns and a residential property on the site. One of the barns (Target Note 1 and Plate 2) and the residential property (Target Note 2 and Plate 3) are being retained undamaged and *in situ* during the project and have therefore not been assessed for their potential to support roosting bats or nesting birds.

Target Note 3 is a large barn constructed of a combination of bricks, slatted timber and single-skin corrugated sheeting (see Plates 4 and 5). It has a double pitched roof of single-skin corrugated sheeting with skylights. There are large permanent openings on the southern elevation. The interior framework is constructed of concrete. This barn was considered to have no potential to support roosting bats as no bat roosting features were observed during the survey.

Target Note 4 is a barn constructed of a combination of old railway sleepers and single-skin corrugated metal sheeting (see Plates 6 and 7). It has a pitched roof of single-skin corrugated metal sheeting. There is a large permanent opening on the eastern elevation. The interior framework is constructed of steel and timber. This barn was considered to have no potential to support roosting bats as no bat roosting features were observed during the survey.

Target Note 5 consists of five poultry sheds (see Plates 8 and 9). The sheds are constructed of concrete block and timber walls with covered ventilation fans. The roofs are pitched, constructed with corrugated metal sheeting and also have covered ventilation fans. The interior frameworks are constructed of timber. These buildings have been subjected to regular disinfection and fumigation after every poultry cycle during their operational lifetimes and are therefore considered to be totally unsuitable for roosting bats. In addition, they are considered to have no potential to support roosting bats as no bat roosting features were observed during the survey.

All bushes in the hedgerow on the site were considered to have no potential to support roosting bats as no bat roosting features were observed during the survey.

Common species of bats are likely to forage within the site to some extent, especially along the hedgerow. However, this habitat is remaining *in situ* and will be undamaged during the project. Thus the development is unlikely to have a significant impact on the local bat population, especially given that bats are highly mobile animals.

Nonetheless, since a bat's movement across a landscape can be affected and possibly impaired by artificial light spillage certain aspects of the construction will require controls and constraints. These are described in the Constraints section to minimise such impacts.

According to MAGIC no bat development licences have been granted within 2 km of the proposed scheme.

The addition of bat roosting boxes on suitable buildings within the curtilage of the site (see Recommendations below) will provide new potential roosting places for bats.

No further bat surveys are required.

OTTERS

No otters or field signs of otters were observed on the site. There are no aquatic habitats present. The adjacent ponds are protected with otter-proof fencing. No further surveys are required.

WATER VOLES

No water voles or field signs of water voles were observed on the site. There are no aquatic habitats present. The adjacent ponds are fenced. No further surveys are required.

DORMICE

Dormice are not present in this area (see Crawley *et al*, 2020). No further surveys are required.

[redacted]

OTHER MAMMALS

Red foxes, stoats, weasels, hedgehogs, deer, brown hares, rabbits, grey squirrels, mice, voles, shrews and moles probably use the habitats on site.

INVASIVE PLANTS

There were none observed on the site. However, please also refer to the section within Limitations above.

WEEDS ACT NATIVES
Broad-leaved dock, curled dock, common ragwort, and spear thistle were observed on site.

INVASIVE ANIMALS
Rabbits probably use the site.

SERIOUS PLANT DISEASES/PATHOGENS
None observed on the site.

ECOLOGICAL CONSTRAINTS AND OPPORTUNITIES

FEATURES THAT SHOULD BE RETAINED IF POSSIBLE

All of the hedgerow on the site's north-western boundary should and will be retained *in situ* within the project.

CONSTRAINTS

To comply with national planning policy framework paragraph 125, unnecessary negative impacts of new lighting at night should be avoided *e.g*. on plants, bats, invertebrates and astronomy. Possible negative impacts of new lighting should also be minimised by keeping the hours when lighting is used as short as possible, avoiding light spillage by using directional down-lighting, reducing the brightness of necessary illumination and keeping light from shining on bat roost entries, bat flyways and foraging areas, and other mammal holes. Luminaires (light sources, lamps, LEDs and their fittings) come in a myriad of different specifications which a lighting professional can help to select. However, the following should be considered when choosing luminaires and their potential impact on Key Habitats and features (BCT and ILP, 2023 and ILP, 2021):

All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used;

LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability;

A warm white light source (2700Kelvin or lower) should be adopted to reduce blue light component;

Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone *et al*, 2012);

Internal luminaires can be recessed (as opposed to using a pendant fitting) where installed in proximity to windows to reduce glare and light spill;

Waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges;

Column heights should be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards;

Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered - See ILP, 2021;

Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt;

Where appropriate, external security lighting should be set on motion-sensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1- or 2-minute timer is likely to be appropriate;

Use of a Central Management System (CMS) with additional web-enabled devices to light on demand;

Use of motion sensors for local authority street lighting may not be feasible unless the authority has the potential for smart metering through a CMS;

The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where the lighting professional and project manager are able to resolve these issues;

Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely.

Ecological impacts during construction should also be minimised by generally avoiding unnecessary disturbance and pollution. If there are any steep-sided excavations created during construction, they should be covered/filled/provided with ramps to prevent any mammals becoming trapped.

OPPORTUNITIES

Native planting (preferably of local origin) should be used in all landscaping if possible. Where exotic ornamental species are planted, invasive species should always be avoided. Wildlife friendly species and varieties which provide food (seeds, berries, fruit and nectar) or shelter should be chosen.

In line with best practice and in order to comply with government policy on biodiversity protection and enhancement, habitats and features of ecological interest and wildlife value should generally be retained within the site. New wildlife habitats should be created in these areas that are appropriate to the site's context, *e.g.* through the use of log piles, "wild" corners and native planting.

RECOMMENDATIONS FOR MITIGATION AND FURTHER SURVEY

RECOMMENDATIONS

To reduce the risk of harm to reptiles in the lead up to construction the vegetation in the construction and planting zones on the site should be kept short in accordance with the precautionary methods outlined below (adapted from Forest of Dean District Council, 2012). This will reduce the amount of favourable habitat within the site where the works will take place and passively move any reptiles into suitable habitat outside of the development footprint. If the land falls out of management before the commencement of construction on the site, consideration should be made for actively managing the above habitats to prevent them becoming more suitable for these species.

In general:

1) The site owner/site manager will ensure that anyone undertaking construction works on the site (including sub-contractors) is made aware of the potential for the site to support common reptiles, where to expect them, their protected status and the procedure (see 2 below) to follow in the unlikely event that common reptiles are discovered during works. Where applicable this advice will be given through site inductions, tool box talks or similar. A copy of this precautionary method of working will be kept on site and available for inspection at all times;
2) Should any common reptiles be discovered during construction, which are likely to be affected by the development, works will cease immediately. The owner/site manager will then seek the advice of a suitably qualified and experienced ecologist and works will only proceed in accordance with the advice they provide.

Within the development's construction and planting zones the following methods of working will be adopted:

3) Clearance of rock piles, logs, brash, stones, rocks or piles of similar debris will be undertaken carefully and by hand;
4) Clearance of tall vegetation should be undertaken using a strimmer or brush cutter with all cuttings raked and removed the same day. Cutting will only be undertaken in a phased way which may either include:
   4a) Cutting vegetation to a height of no less than 30mm, clearing no more than one third of the site in anyone day or;
   4b) Cutting vegetation over three consecutive days to a height of no less than 150mm at the first cut, 75mm at the second cut and 30mm at the third cut.
5) Following removal of tall vegetation using the methods outlined in 4 the remaining vegetation will be maintained at a height of 30mm through regular mowing or strimming to discourage common reptiles from returning;

6) Ground clearance of any remaining low vegetation (if required) and any ground works will only be undertaken following the works in 4 above;
7) Any trenches left overnight will be covered or provided with ramps to prevent common reptiles from becoming trapped;
8) Any building materials such a bricks, stone *etc.* will be stored on pallets to discourage reptiles from using them as shelter. Any demolition materials will be stored in skips or similar containers rather than in piles on ground.

A pre-clearance finger-tip search of the development site using a suitably licenced, qualified and experienced ecologist should be conducted immediately prior to site stripping and any vulnerable taxa removed to safety.

If great crested newts are discovered during site preparation, clearance, enabling or construction phases, then all works must stop until the advice of a professional/suitably qualified ecologist and Natural England is obtained, including the need for a licence.

It is possible that bird's nest in the hedgerow on the site. As a precaution, appropriate and pragmatic measures should be taken to avoid committing the offence of killing or injuring a wild bird or damaging or destroying an active nest; all birds, their nests and eggs are protected by the Wildlife & Countryside Act of 1981. This makes it an offence, with certain exceptions, to deliberately take, damage or destroy the nest of any wild bird while it is in use or being built. It is also illegal to take or destroy the egg of any wild bird.

Any operations that may disturb nesting habitat should be conducted outside the main bird nesting season. The main bird nesting season is usually taken as the beginning of March to the end of September inclusive in this part of Britain. If this is unavoidable, a pre-clearance inspection by a suitably experienced ornithologist will be required immediately prior to construction works to identify whether any nests are present, and ensure appropriate action is taken. If the latter approach is taken and nesting is encountered there is a risk of delay since an 'exclusion zone' may need to be set up around active nests until the young have fledged. Please be aware that some species of bird may occasionally be found nesting outside of the main bird nesting season as detailed above (*e.g.* barn owl, tawny owl, long-eared owl, mistle thrush, robin, yellowhammer, corn bunting, stock dove, feral pigeon, woodpigeon and collared dove *etc*.). Always check potential nesting habitat for signs of nesting birds (*e.g.* look for singing males or birds making strident alarm calls) before disturbing potential nesting habitat when outside of the main nesting season. If you believe that nesting birds *may* be present, instruct a suitably experienced ornithologist to conduct an inspection.

To enhance the site for bats, four bat roosting boxes of mixed designs should be erected on suitable buildings within the curtilage of the site.

FURTHER SURVEYS

No further surveys are required.

CONCLUSIONS

As a whole the survey revealed that the site's habitats which will be affected by works are common and widespread and are considered to be of low intrinsic biodiversity value. The site is not of sufficient ecological value to warrant whole-scale protection from development.

Providing the recommendations noted herein are fully implemented, there are no obvious ecological counter indications to the proposed project at this stage. The recommended biodiversity protection and enhancements, including the creation of a new attenuation pond, the planting of new native species hedgerows, the sowing of flower-rich grassland, and the erection of bat roosting boxes will provide assurance that there is no net loss to biodiversity and no unacceptable adverse impact on ecosystem services.

Under the Environment Act 2021, all planning permissions granted in England (with a few exemptions) have to deliver at least 10% biodiversity net gain (BNG). BNG will be measured using Defra's biodiversity metric and habitats will need to be secured for at least 30 years. A biodiversity net gain assessment for this development is currently being prepared.

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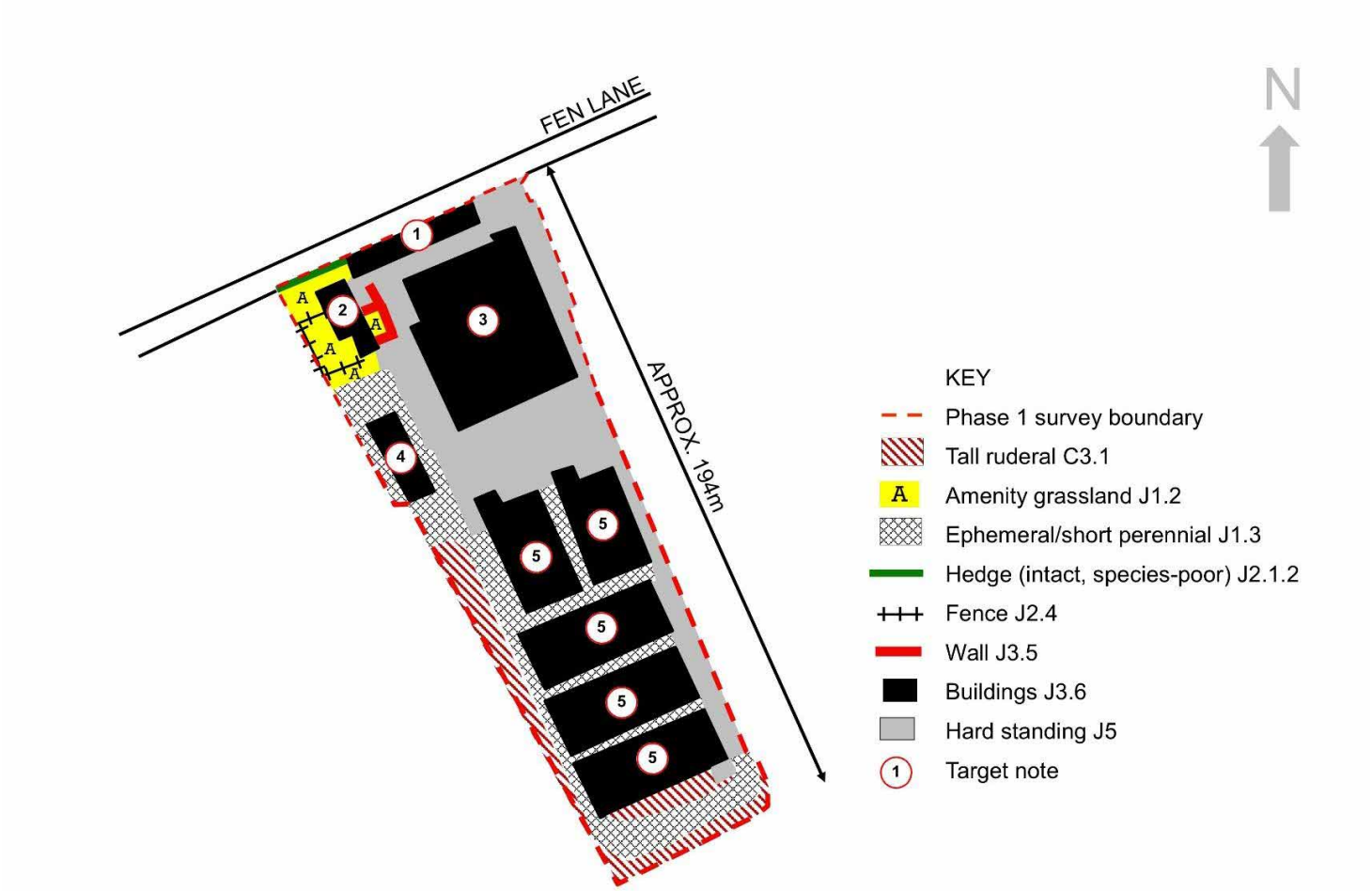
FIGURE 1: SITE PLAN



Please note: This plan is intended to indicate the approximate location of features and should therefore, not be treated as an accurate scale plan.

APPENDICES

APPENDIX 1 - SURVEY DATA

Table 1: Botanical Species List on 27th February 2024
Weather conditions: dull and cloudy (Max. 5˚C)

Common Name	***Status***	**Scientific Name**	Amenity Grassland	Ephemeral/Short Perennial	Tall Ruderal Herb	Hedgerow
Annual Meadow-grass	Native species	*Poa annua*	F			
Bramble	Native (Apomictic species)	*Rubus fruticosus* agg.			X	
Bristly Oxtongue	Archaeophyte	*Helminthotheca echioides*	O	X	X	
Broad-leaved Dock	Native species	*Rumex obtusifolius*		X	X	
Broad-leaved Willowherb	Native species	*Epilobium montanum*		X	X	
Cleavers	Native species	*Galium aparine*	R		X	
Cock's-foot	Native species	*Dactylis glomerata*		X	X	X
Common Feather-moss	Native species	*Eurhynchium praelongum*			X	
Common Field Speedwell	Neophyte	*Veronica persica*	R		X	
Common Liverwort	Native species	*Marchantia polymorpha*		X		
Common Nettle	Native species	*Urtica dioica*		X	X	
Common Ragwort	Native species	*Senecio jacobaea*			X	
Creeping Buttercup	Native species	*Ranunculus repens*	LF		X	
Curled Dock	Native species	*Rumex crispus*			X	

Daisy	Native species	*Bellis perennis*	O			
Dandelion	Apomictic (most species native, some Neophyte)	*Taraxacum officinale* agg.	O	X	X	
False Oat-grass	Native species	*Arrhenatherum elatius*			X	
Greater Plantain	Native species	*Plantago major*	R			
Groundsel	Native species	*Senecio vulgaris*	LF	X	X	
Hawthorn	Native species	*Crataegus monogyna*				X
Hemlock	Archaeophyte	*Conium maculatum*			X	
Perennial Rye-grass	Native species	*Lolium perenne*	D	X	X	
Perennial Sow-thistle	Native species	*Sonchus arvensis*		X		
Petty Spurge	Archaeophyte	*Euphorbia pelpus*			X	
Red Dead-nettle	Archaeophyte	*Lamium purpureum*		X	X	
Ribwort Plantain	Native species	*Plantago lanceolata*			X	
Scentless Mayweed	Archaeophyte	*Tripleurospermum inodorum*		X	X	
Spear Thistle	Native species	*Cirsium vulgare*		X	X	
Teasel	Native species	*Dipsacus fullonum*			X	
Tufted Hair-grass	Native species	*Deschampsia cespitosa*			X	
Wavy Bittercress	Native species	*Cardamine flexuosa*		X	X	
White Clover	Native species	*Trifolium repens*		X		
Key to Ephemeral/Tall Herb/Hedgerow	X = present					
DAFOR scale	**D**ominant, **A**bundant, **F**requent, **O**ccasional, **R**are (**L** = locally)					

Note 1: the above status refers to (Preston *et al*, 2002): native species – a species present in Britain as the result of only natural processes, with no human intervention; archaeophyte – a species that was introduced in 'ancient' times (*i.e.* before 1500), but is now considered to be fully naturalised; neophyte – a species that was introduced in 'recent' times (*i.e.* after 1500); apomictic – a species that produces viable seed without fertilisation, these germinating into seedlings that are identical to the parent. These often have large numbers of 'micro-species' and no attempt has been made to identify these; hybrid – a result of mixing, through sexual reproduction, of two different species.

Note 2: the above vegetation coverage descriptions make reference to the DAFOR scale (Dominant, Abundant, Frequent, Occasional or Rare); this scale describes the coverage in the area being studied and is not a reference to the national status of the species in question (*i.e.* a 'rare' attribute above refers to the species being uncommon on the proposed development site, not that it is of national conservation value).

Habitat Suitability Index

A Habitat Suitability Index (HSI) is a numerical score where 0 indicates unsuitable habitat and 1 represents optimal habitats. The HSI for the great crested newt incorporates ten suitability indices, all of which are factors believed to affect this species.

Categorisation of HSI Scores and proportion of ponds occupied by newts taken from: ARG UK advice note 5 (Amphibian and Reptile Groups of the United Kingdom, 2010):

Table 2: HSI scores and suitability of ponds for great crested newts

HSI Score	Classification of Pond Suitability for Great Crested Newts	Proportion of Ponds Occupied by Great Crested Newts
<0.5	Poor	0.03
0.5 – 0.59	Below average	0.20
0.6 – 0.69	Average	0.55
0.7 – 0.79	Good	0.79
> 0.8	Excellent	0.93

Table 3: Habitat Suitability Indices for Great Crested Newts

Pond ref	Pond 1	Pond 2
OS Grid ref	*TF 33745 99656*	*TF 33854 99568*
Size of pond (m^2)	*9,975*	*2,170*
Distance and direction from site	*5m west*	*7m south*
SI1 - Location	1.0	1.0
SI2 - Pond area	-	-
SI3 - Pond drying	0.9	0.9
SI4 - Water quality	0.33	0.33
SI4 - Shade	1.0	1.0
SI6 - Waterfowl	0.01	0.01
SI7 - Fish	0.01	0.01
SI8 - Ponds	1.0	1.0
SI9 - Terrestrial habitat	0.33	0.33
SI10 - Macrophytes	0.33	0.37
HSI	*0.28*	*0.29*
	Poor	*Poor*

APPENDIX 2 – HEDGEROW ASSESSMENTS WITH REGARD TO THE HEDGEROWS REGULATIONS, 1997 (DEFRA, 2007)

ASSESSING HEDGEROWS

These Regulations only apply to hedgerows adjacent to land in agricultural/horticultural use.

A hedgerow can be defined as any boundary line of trees or shrubs that is more than 20m long and less than 5m wide between major woody stems at the base. Hedgerows can be classified as 'important' for archaeological/historical reasons or according to wildlife and landscape criteria. If a hedgerow is classed as 'important', local planning authorities have the power to prevent the removal of the hedgerow (Hedgerows Regulations, 1997).

To be classified as 'important' under the wildlife and landscape criteria, the hedgerow must be over 30 years old, completely in a rural setting and should comprise one of the following:

Contain at least 7 woody species per 30m;

Contain at least 6 woody species per 30m and have at least 3 features present;

Contain at least 6 woody species per 30m, including any one of the following: Black Poplar, Wild Service Tree, Small-leaved Lime or Large-leaved Lime;

Contain at least 5 woody species per 30m and have at least 4 features present;

Or, if adjacent to a bridleway/public footpath, contain at least 4 woody species per 30m and have at least 2 features present.

Table 4: The woody species recognised by the Hedgerows Regulations:

English name	**Scientific name**
Alder	*Alnus glutinosa*
Alder Buckthorn	*Frangula alnus*
Ash	*Fraxinus excelsior*
Aspen	*Populus tremula*
Beech	*Fagus sylvatica*
Bird Cherry	*Prunus padus*
Black Poplar	*Populus nigra* ssp *betulifolia*
Blackthorn	*Prunus spinose*
Box	*Buxux sempervirens*
Broom	*Cytisus scoparius*
Buckthorn	*Rhamnus catharticus*
Butcher's-broom	*Ruscus aculeatus*
Common Juniper	*Juniperus communis*
Crab Apple	*Malus sylvestris*
Dogwood	*Cornus sanguinea*
Downy Birch	*Betula pubescens*
Dwarf Gorse	*Ulex minor*
Elder	*Sambucus nigra*
Elm	*Ulmus* sp(p)
Field maple	*Acer campestre*

Gooseberry	*Ribes uva-crispa*
Gorse	*Ulex europaeus*
Grey Poplar	*Poplus* x *canescens*
Guelder Rose	*Viburnum opulus*
Hawthorn	*Crataegus monogyna*
Hazel	*Corylus avellana*
Holly	*Ilex aquifolium*
Hornbeam	*Carpinus betulus*
Large-leaved Lime	*Tilia platyphyllos*
Midland Hawthorn	*Crataegus laevigata*
Osier	*Salix viminalis*
Pear	*Pyrus communis*
Pedunculate Oak	*Quercus robur*
Rose	*Rosa* sp(p)
Rowan	*Sorbus aucuparia*
Sea-buckthorn	*Hippophae rhamnoides*
Sessile Oak	*Quercus petraea*
Silver Birch	*Betula pendula*
Small-leaved Lime	*Tilia cordata*
Spindle	*Euonymus europaeus*
Spurge-laurel	*Daphne laureola*
Walnut	*Juglans regia*
Wayfaring-tree	*Viburnum lantana*
Western Gorse	*Ulex gallii*
White Poplar	*Populus alba*
Whitebeam	*Sorbus* sp(p)
Wild Cherry	*Prunus avium*
Wild Privet	*Ligustrum vulgare*
Wild Service-tree	*Sorbus torminalis*
Willow	*Salix* sp(p)
Yew	*Taxus baccata*

Note 1: To count the number of woody species in a hedgerow, a 30m section should be selected:

If the hedgerow is less than 100m long, the middle 30m should be selected;

If it is between 100-200m, the middle 30m of each half should be surveyed and the number of woody species divided by two.

Where the hedgerow exceeds 200m, the number of woody species in the middle 30m of each third of the hedgerow should be counted and the total divided by three.

Note 2: If the hedgerow is situated wholly or partly in one of the following areas of northern England (and upland Wales and Scotland) the number of woody species required for the hedgerow to be classed as important should be reduced by one:

City of Kingston upon Hull;
Cumbria;
Darlington;
Durham;
East Riding of Yorkshire;

Hartlepool;
Lancashire;
Middlesbrough;
North East Lincolnshire;
North Lincolnshire;
Northumberland;
North Yorkshire;
Redcar and Cleveland;
Stockton-on-Tees;
Tyne and Wear;
West Yorkshire, or
York

Table 5: Features recognised by the Hedgerows Regulations

Feature	Notes
Bank/wall	The hedgerow must be supported along at least half of its length by a bank/wall
Intact	The hedgerow must contain less than 10% gaps in total along its length
Trees	The hedgerow must support at least one standard tree per 50m length of hedgerow (standard trees are defined as those which when measured at 1.3m above ground level have a diameter of at least 20cm, or 15cm for multi-stemmed trees)
Rare trees	The hedgerow must support one of the following species of rare tree: Black Poplar, Wild Service Tree, Small-leaved Lime or Large-leaved Lime
3 valuable ground flora species	The hedgerow must support at least three of the valuable ground flora species defined by the Regulations. The hedgerow is considered to support a plant if it is rooted within 1m (in any direction) of the hedgerow
Ditch	There is a ditch along at least half of the length of the hedgerow
Parallel hedge	A parallel hedgerow is present within 15m
Bridleway/Public Footpath	This does not normally include roads
Connections (≥4 points)	A hedgerow must score 4 or more 'connection points', where connections with an adjoining hedgerow(s) score 1 point each, and a connection with a pond or woodland (in which the majority of the trees are broad-leaved) scores 2 points each. A hedgerow is considered to be connected if it meets the feature, or if it has a point within 10m of it and would meet if the line of the hedgerow continued

A hedgerow may also be classified as 'important' due to the presence or recorded presence of a protected animal and plant species (Schedule1, 5 and 8 of the Wildlife and Countryside Act, 1981) within the last 5 years and archaeological/historical features.

Table 6: Valuable ground flora species recognised by the Hedgerows Regulations

English name	Scientific name
Barren Strawberry	*Potentilla sterilis*
Bluebell	*Hyacinthoides non-scripta*
Broad-leaved Helleborine	*Epipactis helleborine*
Bugle	*Ajuga reptans*
Common Cow-wheat	*Melampyrum pratense*
Common Dog-violet	*Viola riviana*
Dog's Mercury	*Mercrialis perennis*

Early Dog-violet	*Viola reichenbachiana*
Early-purple Orchid	*Orchis mascula*
Enchanter's Nightshade	*Circaea lutetiana*
False Brome	*Brachypodium sylvaticum*
Giant Bellflower	*Campanula latifolia*
Giant Fescue	*Festuca gigantea*
Goldilocks Buttercup	*Ranunculus auricomus*
Greater Wood-rush	*Luzula sylvatica*
Hairy Brome	*Bromopsis ramose*
Hard Shield-fern	*Polystichum aculeatum*
Hard-fern	*Blechnum spicant*
Hart's-tongue	*Phyllitis scolopendrium*
Heath Bedstraw	*Galium saxatile*
Herb Paris	*Paris quadrifolia*
Herb-robert	*Geranium robertianum*
Lady-fern	*Athyrium filix-femina*
Lord's-and-Ladies	*Arum maculatum*
Male-fern	*Dryopteris filix-mas*
Moschatel	*Adoxa mochatelina*
Narrow Buckler-fern	*Dryopteris carthusiana*
Nettle-leaved Bellflower	*Campanula trachelium*
Oxlip	*Primula elatior*
Pignut	*Conopodium majus*
Polypody	*Polypodium vulgare*
Primrose	*Primula vulgaris*
Ramsons	*Allium ursinum*
Sanicle	*Sanicula europaea*
Scaly Male-fern	*Dryopteris affinis*
Small Cow-wheat	*Melampyrum sylvaticum*
Soft Shield-fern	*Polystichum setiferum*
Sweet Violet	*Viola odorata*
Toothwort	*Lathraea squamaria*
Tormentil	*Potentilla erecta*
Wild Strawberry	*Fragaria vesca*
Wood Anemone	*Anemone nemorosa*
Wood Avens	*Geum urbanum*
Wood Horsetail	*Equisetum sylvaticum*
Wood Meadow-grass	*Poa nemoralis*
Wood Melick	*Melica uniflora*
Wood Millet	*Milium effusum*
Wood Sage	*Teucrium scorodonia*
Wood Sedge	*Carex sylvatica*
Wood Sorrel	*Oxalis acetosella*
Wood Speedwell	*Veronica montana*
Wood Spurge	*Euphorbia amygdaloides*
Woodruff	*Galium odoratum*
Yellow Archangel	*Lamiastrum galeobdolon*
Yellow Pimpernel	*Lysimachia nemorum*

APPENDIX 3 – BAT ROOST ASSESSMENTS

Table 7: Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement.

Potential suitability	**Description**	
	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 the 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 the 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	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 amount 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 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 hibernating bats).	Habitat that could be used by small numbers of bats such as a gappy hedgerow or un-vegetated stream but isolated *i.e.* not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure with one or more potential roost sites 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 or 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,	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths

	protection, conditions and surrounding habitat. These structures have the potential to support high conservation status roosts e.g. maternity or classic cool/stable hibernation site.	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. Site is close to and connected to known roosts.

Note: Adapted from Collins, 2023.

Table 8: Guidelines for assessing the potential suitability of trees on proposed development sites for bats, to be applied using professional judgement.

Suitability	**Description**
None	Either no potential roost features in the tree or highly unlikely to be any.
Further Assessment Required	Further assessment required to establish if potential roost features are present in the tree.
Potential Roost Feature	A tree with at least one potential roost feature present.

Note: Adapted from Collins, 2023.

APPENDIX 4 - RELEVANT LEGISLATION AND POLICY

LEGISLATION

The Natural Environment & Rural Communities (NERC) Act 2006 (replaced by the Environment (Wales) Act, 2016 in Wales) places a duty on authorities to have due regard for biodiversity and nature conservation during the course of their operations.

BATS

There are 18 resident species of bat in Britain (Mammal Society, 2018). All species of bat in Britain are 'European Protected Species' and are protected under the Conservation of Habitats and Species Regulations 2017, and the Wildlife and Countryside Act 1981, as amended by the Environmental Protection Act 1990 and the Countryside & Rights of Way Act 2000. These pieces of legislation combine to give substantial protection to bats and their habitats, making it an offence to:

Deliberately capture, injure or kill a bat;
Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats;
Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time);
Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat;
Intentionally or recklessly obstruct access to a bat roost.

COMMON REPTILES

In Britain there are four relatively widespread native species of reptile: the adder; grass snake; common lizard and slow worm. These species are protected via part of Section 9(1) of the Wildlife & Countryside Act 1981 (as amended) against:

Intentional killing and injuring;
Selling, offering or exposing for sale.

Two other species of reptile: the sand lizard and smooth snake are 'European Protected Species'. It is illegal to injure, kill, disturb, capture, keep or sell them, or to damage or destroy the habitats in which they live.

DORMICE

In the British Red List dormice are categorised as 'Vulnerable' in England and Wales and are not recorded in Scotland (Mammal Society, 2018). The hazel dormouse is a 'European Protected Species' and is fully protected under national and European legislation. It is listed on Annex IVa of the Habitats Directive and the Directive is transposed into UK law through the Conservation of Habitats and Species Regulations 2017. They are also protected by the Wildlife and Countryside Act 1981, as amended by the Environmental Protection Act 1990 and the Countryside & Rights of Way Act 2000. Dormice are also listed as a Species of Principal Importance under the Natural Environment and Rural Communities (NERC) Act (2006). These pieces of legislation combine to give substantial protection to dormice and their habitat, making it an offence to:

Intentionally kill, injure or take a dormouse;
Possess or control any live or dead specimen or anything derived from a dormouse (unless it can be shown to have been legally acquired);
Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a dormouse;
Intentionally or recklessly disturb a dormouse while it is occupying a structure or place which it uses for that purpose.

GREAT CRESTED NEWTS

The great crested newt is a 'European Protected Species' and is listed on both Annex II and IV of the EC Habitats Directive. The Directive is transposed into UK law through the Conservation of Habitats and Species Regulations 2017. They are also protected by the Wildlife and Countryside Act 1981, as amended by the Environmental Protection Act 1990 and the Countryside & Rights of Way Act 2000. These pieces of legislation combine to give substantial protection to great crested newts and their breeding ponds and terrestrial habitat, making it an offence to:

Deliberately capture, injure or kill a great crested newt;
Intentionally or recklessly disturb a great crested newt in a structure or place that they use for shelter or protection or deliberately disturb a group of a great crested newts;
Damage or destroy a great crested newt resting place/shelter (even if they are not occupying it at the time);
Possess or advertise/sell/exchange a great crested newt (dead or alive) or any part of a great crested newt (including eggs and all life-stages);
Intentionally or recklessly obstruct access to a great crested newt resting place/shelter.

HEDGEHOGS

In the British Red List hedgehogs are categorised as 'Vulnerable' in the UK (Mammal Society, 2018). The population of hedgehogs in Britain is suffering from a serious decline. The most recent analysis of the research done through the combined work of the British Hedgehog

Preservation Society and the People's Trust for Endangered Species indicates that urban populations have fallen by up to 30% and rural populations by between a third and three-quarters nationally since the turn of the century (Wembridge *et al*, 2022). The Mammal Society have estimated that the population of hedgehogs in the UK have declined by as much as 73% between 1995 and 2010 (Mammal Society, 2018).

Currently, hedgehogs have only limited legal protection in the UK. They are listed on schedule 6 of the Wildlife and Countryside Act (1981) which makes it illegal to kill or capture wild hedgehogs. They are also listed under the Wild Mammals Protection Act (1996), which prohibits cruel treatment of hedgehogs.

New planning guidelines state that small holes (of 13cm²) must be included in the base of all fences in new developments, creating 'highways' that enable hedgehogs to roam freely between properties to forage.

NESTING BIRDS

All wild bird nests are protected under The Wildlife and Countryside Act 1981 (as amended), making it an offence to:

> Intentionally kill, injure or take any wild bird or their eggs or nests (with certain exceptions) and disturb any bird species listed under Schedule 1 to the Act, or its dependent young while it is nesting.

BARN OWLS

The barn owl is included in the list of strictly protected fauna and appears in Appendix II of the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats). They are also afforded protection under Schedule One of the Wildlife and Countryside Act (1981). This act has been amended on several occasions, most recently by the Countryside and Rights of Way (CRoW) Act 2000, the Natural Environment and Rural Communities (NERC) Act 2006 and by the Conservation of Habitats and Species Regulations 2010 and 2017, making it an offence to:

> Intentionally and recklessly disturb barn owls whilst they are building a nest or are in, on or near a nest containing eggs or young, or to disturb their dependent young.

OTTERS

The European otter is the only native UK otter species. In the British Red List otters are categorised as 'Least Concern' in England, and 'Vulnerable' in Wales and Scotland (Mammal Society, 2018). Otters are a European protected species (EPS) and are also fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). It is an offence to:

> Capture, kill, disturb or injure otters (on purpose or by not taking enough care);
>
> Damage or destroy a breeding or resting place (deliberately or by not taking enough care);
>
> Obstruct access to their resting or sheltering places (deliberately or by not taking enough care);

Possess, sell, control or transport live or dead otters, or parts of otters.

WATER VOLES

In the British Red List water voles are categorised as 'Endangered' in England, 'Critically Endangered' in Wales, and 'Near Threatened' in Scotland (Mammal Society, 2018). Water voles are protected in the UK under the Conservation of Habitats and Species Regulations, 2017 and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This legislation makes it an offence to:

Intentionally kill, take or injure a water vole;
Possess or control any live or dead water vole, or any part or derivative (not including water voles bred in captivity under licence);
Intentionally or recklessly damage, destroy or block access to a water voles place of shelter or protection (on purpose or by not taking enough care);
Intentionally or recklessly disturb a water vole whilst it is occupying a structure or place which it uses for shelter or protection (on purpose or by not taking enough care).

POLICY

NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

The National Planning Policy Framework (NPPF) states that the planning system should contribute to and enhance the natural and local environment by:

Recognising the wider benefits of ecosystem services;
Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

Other key principles of the NPPF relating to biodiversity are:

The conservation of International and National statutorily designated sites;
Protection of ancient woodland and veteran trees;
The creation, protection, enhancement and management of networks of biodiversity and green infrastructure;
The preservation, restoration and recreation of priority habitats and ecological networks;
The recovery of priority species populations.

HABITATS AND SPECIES OF PRINCIPAL IMPORTANCE

The NERC Act, 2006 requires the Secretary of State to publish lists of habitats and species which are of principal importance for the conservation of biodiversity in England, Wales and Scotland. The lists replace the UK Biodiversity Action Pans (UK BAP) and have been drawn up in consultation with Natural England, Natural Resources Wales and NatureScot as required by the Act. Section 7 of the Environment (Wales) Act, 2016 has now replaced the duty in section 41 of the NERC Act in relation to Wales, with a duty on public authorities to seek to maintain and enhance biodiversity.

The lists are used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 41 of NERC Act and section 7 of the Environment (Wales) Act, 2016, to have regard to the conservation of biodiversity when carrying out their normal functions.

HABITATS OF PRINCIPAL IMPORTANCE

Habitats of principal importance (HPI) are included on the lists. These are all the habitats in England, Wales and Scotland that were identified as requiring action in the UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework.

SPECIES OF PRINCIPAL IMPORTANCE

Species of principal importance (SPI) are included on the lists. These are the species found in England, Wales and Scotland which were identified as requiring action under the UK BAP and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework.

QUALITY ASSURANCE

This report format is designed to comply with statutory authority (*e.g.* Natural England, Natural Resources Wales and NatureScot) and the Chartered Institute of Ecology and Environmental Management relevant standing advice. Further studies may be required where there is evidence of protected species or if other notable ecological factors are found.

Craig Emms MSc, MCIEEM
Linda Barnett BSc (Hons), PhD, MCIEEM
Craig and Linda are professional ecologists with over 65 years of combined practical experience in nature conservation, wildlife research and management and ecological consultancy, gained from working in the UK and overseas. Craig has a MSc. in Ecosystems Analysis and Governance and Linda has a PhD in Genetics. Together they have carried out original academic research on a broad range of wildlife; insects, amphibians, reptiles, birds and mammals (including bats), and published the results as scientific papers in a number of international peer-reviewed journals. Linda co-authored the Species Action Plans for Britain's eight most endangered butterflies while working for Butterfly Conservation, and has supervised students in research projects on hazel dormouse, great crested newts and moths whilst she was co-ordinating and lecturing on a Masters course in Analytical Biology at the University of Warwick. Craig was also a lecturer in ecological methods on two Masters courses at the University of Warwick. Linda and Craig are skilled and practiced field ecologists, especially with regard to wildlife and countryside management. They are licenced by Natural England as bat and great crested newt surveyors (and are former volunteer bat roost visitors/handlers for Natural England, and former registered bat carers for the Bat Conservation Trust with 15 years of experience) and have an extensive and broad experience of a great variety of field surveys including mammals (otter, badger, water vole, hedgehog, small mammals and bats), birds, reptiles, amphibians, dragonflies, butterflies and moths. Both have undergone training in the use of eDNA methodology and field sample collection and are licensed by the British Trust for Ornithology as bird nest recorders. Craig is also licenced by Natural Resources Wales as a bat and great crested newt surveyor, and has been the named ecologist and clerk of works on many bat mitigation and compensation (development) licences.

Please be aware that ecological reports generally have a limited period of currency. Many statutory authorities now regard one year as the maximum time that should elapse before a report will need to be updated. Where a European Protected Species licence is to be applied for once planning permission has been granted, a walk-over of the site should be carried out within three months of an application being submitted to check that the habitats have not changed significantly since the survey was carried out.

It is a requirement under the CIEEM code of practice to provide recorded data to biological record centres. For certain records (*i.e.* data obtained under a government survey licence) we also have a legal obligation to forward such data.

If you have special cause to restrict the distribution of this data (which will be in the public domain), please contact us to discuss this further within one month of the issue of this report.

Any information relating to legal matters, designs, specifications, advice, suggestions, or comments written or verbal in this report is provided in good faith and for consideration only and does not purport in any way to give any advice on or interpretation of the law whatsoever. Professional legal advice should always be sought.

Note. Whilst all due and reasonable care is taken in the preparation of reports, Craig Emms and Linda Barnett accept no responsibility whatsoever for any consequences of the release of this report to third parties. Please be aware that site surveys inevitably miss species not apparent on the date of visit(s) by reason of seasonality, mobility, habits or chance. Results are indicative and given in good faith, but they are not a guarantee of presence or absence of any particular taxa.

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