

# Preliminary Ecological Appraisal (PEA)

For

Church Barn ,

Long Green,

Wortham,

Diss ,

IP22 1RD

*For*

*Andrew Sadler*

December 2023



**DCS** **ECOLOGY**



M 07715345462

T 01473 621113

W dcsecology.com

E dcsecology@gmail.com

Revision	Remarks	Author	Date	Checked	Authorised
1	Draft	ET	11/ 12/ 23		
2	Final Draft	ET	14/ 12/ 23	DCS	DCS
3	Final	ET	08/ 01/ 24	DCS	DCS

This report has been prepared for the sole use of the commissioning party, and its contents remains the property of DCS Ecology Ltd. until payment has been received in full. This report may not be relied upon by any other party without the prior written permission of DCS Ecology Ltd. This report has been prepared in accordance with British Standards 42020:2013 and the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Report Writing and Code of Professional Conduct.

The authors and surveyors used to undertake the work are appropriately qualified for the tasks undertaken. The work undertaken while preparing this report has been carried out with due care, skill, and diligence.

© 2024 Copyright DCS Ecology Ltd. All rights reserved.

DCS Ecology Ltd. is a company registered in England. Company number: 13051825. Registered office: Kikambala, 69 Deben Avenue, Martlesham Heath, Suffolk, IP5 3QR.

Contents

1. Executive Summary .....	4
1.1 <i>Overview</i> .....	4
1.2 <i>Results</i> .....	4
2. Background to Commission .....	5
2.1 Overview.....	5
2.2 <i>Aims of Study</i> .....	5
2.3 <i>Site Description</i> .....	5
3. Methods .....	7
3.1 <i>Desk Study</i> .....	7
3.2 <i>Field Survey</i> .....	7
3.3 <i>Survey Limitations</i> .....	7
4. Results.....	8
4.1 <i>Data Search</i> .....	8
4.2 <i>Designated Sites Data</i> .....	8
4.4 <i>Field Survey Results</i> .....	15
5. Protected and Priority Species Within the Site.....	16
6. Potential Impacts and Obligatory Recommendations.....	21
7. Enhancement recommendations.....	24
8. Conclusions.....	26
9. Validation .....	28
10. References.....	28
11. Appendices .....	30

# 1. Executive Summary

## 1.1 Overview

DCS Ecology Ltd was commissioned by Andrew Sadler, to carry out a Preliminary Ecological Appraisal (PEA), for an application for the removal of two shiplap sheds and development of a cart lodge on the existing hardstanding footprint at Church Barn, Long Green, Wortham, Diss, IP22 1RD (central grid reference TM 07025 77504, hereby referred to as the Site).

The site is 413 square metres of hardstanding (concrete) with two shiplap sheds, amenity grassland, and gravel (22mm) driveway. The site is situated on the outskirts of Wortham village and 5.2km southwest of Diss.

The preliminary ecological appraisal was carried out on the 11<sup>th</sup> of December 2023 by Duncan Sweeting and Elizabeth Thurston of DCS Ecology Ltd, to assess the ecological value of the Site.

## 1.2 Results

The desk study found eight country wildlife sites:

- Bats
- Birds
- Amphibians (including great crested newts)
- Hedgehogs
- Other mammals- harvest mouse, water vole, otter, badger, and polecat
- Several protected plants and invertebrates of note including Suffolk rare species.

The habitats recorded onsite included two shiplap sheds, amenity grassland, hardstanding including gravel and concrete. Habitats within the construction area consisted of mainly hardstanding. Adjacent habitats included a dwelling which was timber clad, amenity grassland, improved grassland, a pond, wet ditches, and mature trees including a small area of woodland to the south of site.

The habitats onsite provided low potential to support protected species including great crested newts (*Triturus cristatus*). Adjacent habitats listed above, and features recorded adjacent to site provide potential habitat for breeding birds, bats, and small mammals. The site was within 250m of suitable habitat for great crested newts and sub-optimal suitable habitat for reptiles such as grass snakes.

## 2. Background to Commission

### 2.1 Overview

DCS Ecology Ltd was commissioned by Andrew Sadler, to carry out a Preliminary Ecologic Appraisal (PEA), for an application for the removal of two shiplap sheds and development of a cart lodge on the existing hardstanding footprint at Church Barn, Long Green, Wortham, Diss, IP22 1RD (central grid reference TM 07025 77504, hereby referred to as the Site).

### 2.2 Aims of Study

This report provides an ecological appraisal and roost assessment of the Site following the completion of a desk study and site visit. The aim of this study was to:

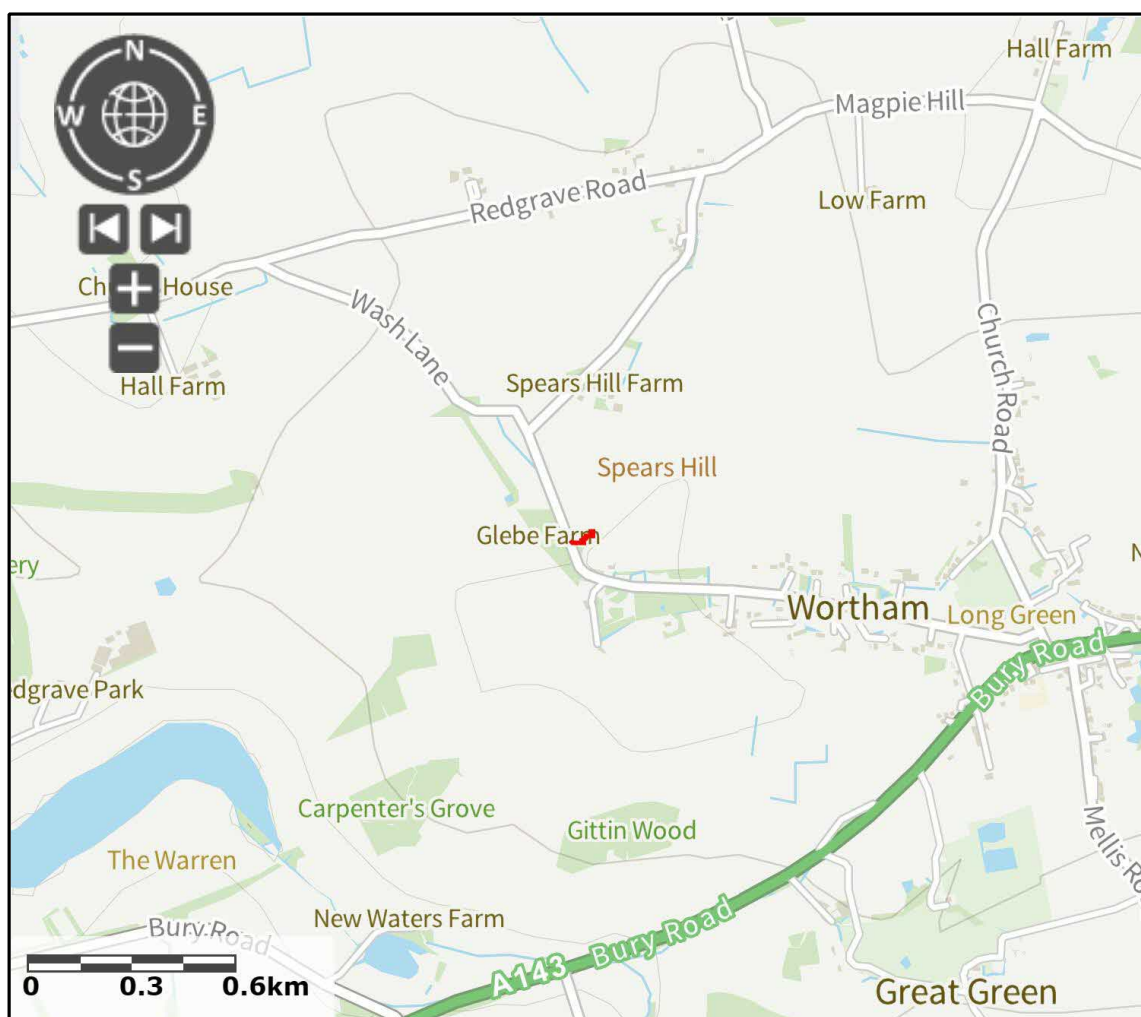
- Provide a description of existing habitat types;
- To determine the existence and location of any ecologically valuable areas;
- To identify the potential (or actual) presence of protected and/or notable species;
- To provide the legislative and/or policy protection afforded to any habitats present, or any species assessed as likely to be associated with the site; and
- To recommend any further ecological surveys considered necessary to inform mitigation requirements for the application within the Site.

### 2.3 Site Description

The site is 413 square metres of hardstanding (concrete) with two shiplap sheds, amenity grassland, and gravel (22mm) driveway. The site is situated on the outskirts of Wortham village and 5.2km southwest of Diss (see figure 1). Within the site boundary there were no habitats of ecological importance. The site lacked structures with potential roost features which could support species such as bats. Adjacent habitats had potential to support protected species such as bats and adjacent trees and woodland / mature trees was also found to support nesting birds. The majority of site was hardstanding including concrete and gravel with no ecological value.

The site was surrounded by habitats with ecological value however the site itself was small and contained habitats with negligible potential to support species of importance or concern. Adjacent to the site was a pond with the potential to support great crested newts however, this had good terrestrial habitat to the east and land between site and the pond consisted of short-mowed amenity grassland. There was improved grassland to the north and west of site. Directly adjacent to the south was a timber clad dwelling and beyond this was woodland. The woodland and land to the west is part of Wortham long green county wildlife site. The village of Wortham was to the east. Four ponds exist within 250m of site, HSI's on two of the ponds were conducted and descriptions of all these ponds can be found in section 5.

Beyond the site, the wider countryside consisted predominately of arable fields. These were sparsely bordered by hedgerows with mature trees and provide sub-optimal commuting and foraging habitat for bat species. Adjacent land to the site contains foraging habitat and the ponds, tall ruderal, mature trees, and hedges adjacent would be beneficial for foraging bats.



**Figure 1.** Site location (outlined in red). (1:25000) Based upon Ordnance Survey (c) Crown Copyright under licence A C0000853931.

### 2.3 Relevant Legislation

Protected species, as referred to within this report, are taken to be those protected under European Legislation (Conservation of Habitats and Species Regulations 2010, as amended) and UK legislation (Wildlife and Countryside Act 1981; Protection of Badgers Act 1992); and those of principle importance in England as listed in Section 41 of the NERC Act (2006).

The National Planning Policy Framework (NPPF) September 2023 places responsibility on Local Planning Authorities (LPAs) to aim to conserve and enhance biodiversity in and around developments. Section 40 of the NERC Act requires every public body to “have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity”. Biodiversity, as covered by the Section 40 duty, is not confined to habitats and species of principal importance but refers to all species and habitats. However, the expectation is that public bodies would refer to the Section 41 list (of species and habitats) through compliance with the Section 40 duty.

Appendix VI details legislation which protects species and groups relevant to the site (bats, reptiles, birds, and great crested newts).

## 3. Methods

### 3.1 Desk Study

Data obtained from the Suffolk (SBIS) was used to conduct a cross-county standard data search<sup>1</sup>, for any information regarding statutory and non-statutory sites, ancient-veteran-notable trees, and records of protected and priority species within a 2km radius of the Site. The data was received on the 4<sup>th</sup> of December 2023.

A 7km radius search for European Designated Sites, including Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar's was undertaken using MAGIC (<http://www.natureonthemap.naturalengland.org.uk/>). Past and current EPS licences and GCN pond survey results within a 7km radius were searched for using MAGIC on 22<sup>nd</sup> of November 2023.

### 3.2 Field Survey

A Preliminary Ecological Appraisal was carried out by Duncan Sweeting LCG (Natural England Great Crested Newt Class Survey Licence WML-CL08; Natural England Bat Class Survey Licence WML-CL18, Natural England Barn Owl Survey Licence WML-CLS29) and Elizabeth Thurston (undergraduate, Natural England Barn Owl Survey Licence WML-CLS29) on the 11<sup>th</sup> of December 2023 in accordance with standard best practice methodology for Phase 1 Habitat Surveys set out by the JNCC (2010). Weather conditions during the survey were cloudy (80% cloud cover), very light breeze (Beaufort scale 1) and a temperature of 8.2°C, with good visibility. The Site was traversed slowly by the surveyor, mapping habitats, and making notes on dominant flora and fauna within the site. The survey was extended to identify the presence of invasive species and included an assessment of the potential for the habitats in and around the site to support protected species.

### 3.3 Survey Limitations

No survey limitations were noted.

---

<sup>1</sup> The standard data search identifies designated sites including:- Ramsar; Special Areas of Conservation; Special Protection Areas; Sites of Special Scientific Interest; National Nature Reserves; Local Nature Reserves; County Wildlife Regionally Important Geological Sites; Ancient Woodland; and protected and priority species identified by the:- Wildlife & Countryside Act 1981 Schedules 1, 5 & 8; Conservation of Habitats & Species Regulations 2010 Schedules 2 & Protection of Badgers Act 1992; Bonn Convention Appendix 1 & 2; Bern Convention Annex 1 & 2; Birds Directive Annex 1; Habitats Directive Annex 2, 4 & 5; NERC Act 2006 Section 41; UKBAP (both local); Red List species; Red & Amber Bird List; Nationally Scarce / Rare; Locally Scarce / Rare; and Veteran trees.



## 4. Results

The following section details the results of the desk study and field survey. Consideration has been given to species likely to be found in the habitats recorded on site and potential impacts to designated sites within the local area. Several protected species have been 'scoped out' of the report, as the Site was not considered suitable to support them. Species scoped out were water voles, otters, and dormice.

Maps illustrating the following data are included in Appendix IV.

### 4.1 *Data Search*

The data search showed records of protected species in the area, which could potentially occur on the Site. These are detailed within the relevant sections below (section 5).

### 4.2 *Designated Sites Data*

The data search produced the following results:

In regard to Local/National European site, there are eight County Wildlife Sites Citations within 2km of the Site.

Within 10km of site there were two LNR, one NNR, one RS, twelve SSSI, one SAC, and one SPA. There were no biosphere reserves or AONB identified within the 10km search.

These are:

#### **County Wildlife Sites :**

**GITTIN WOOD** - Listed in English Nature's Ancient Woodland Inventory, Gittin Wood is one of several medieval woods situated in this part of Mid Suffolk. The woodland boundary is marked by a ditch and bank which is thought to be medieval in origin and is enclosed by a hedge of blackthorn, field maple, elder and hawthorn. Tall mature oaks and neglected ash coppice form the tree canopy over a large proportion of the wood. One section however is dominated by mature sycamore of which some have been coppiced in the past. Sycamore is regenerating freely in this area. Hazel coppice with lesser amounts of blackthorn, form a dense understorey in patches throughout the wood. Beneath the tree canopy, particularly along the wide rides which cross the wood, the field layer supports a species-rich woodland plant community. Primrose, early-purple orchid, bluebell, wood anemone, violet, bugle, ramsons and wild strawberry form a dense carpet which is a wonderful sight in the Spring. Gittin Wood is used extensively for pheasant rearing, an area in the western half of the wood has been cleared and a pheasant pen erected.

**WORTHAM LONG GREEN** - "Wortham Long Green is situated in the centre of the village and is crossed by a minor road which links Wortham with Redgrave. Whilst parts of the Green are kept short for recreational use, including the football pitch, other areas remain as unimproved grassland (Priority habitat) which is valued for its flora.

An area of acidic grassland at the eastern end of the green is particularly valuable, supporting a range of plants typically associated with this habitat including sheep's-fescue, mouse-ear hawkweed and heath bedstraw. Mat-grass, a rare and declining Suffolk grass of dry, infertile, acid soils, is also found here. The rest of the site comprises neutral grassland with scattered patches of scrub and ponds, providing further diversity and habitat



opportunities for a range of species. The ponds are a valuable part of the green, many supporting great crested newt." .

**THE MARSH** - The Marsh is an area of Common land situated to the east of Wortham village and comprises a mosaic of low-lying wet areas interspersed with drier grassland and patches of scrub. The scrub, of species such as hawthorn, goat willow, dog-rose and bramble, is found across the site and provides structural diversity and opportunities for nesting birds, invertebrates and amphibians. The grassland community supports a range of flowering plants, including southern marsh-orchid, lady's-smock, water avens and water mint in the wetter areas, whilst the dry areas contain a range of common meadow species such as cowslip, bird's-foot trefoil and selfheal. Of particular botanical interest is the presence of adder's-tongue fern, a scarce plant in Suffolk and a good indicator of unimproved grassland, which is a priority habitat.

**JACOBITES WOOD** - Jacobites Wood is a small woodland which is situated to the south east of the village of Botesdale, close to two large ancient woodlands namely Burgate Wood (SSSI) and Stubbing's Wood. The tree canopy is composed largely of ash and field maple with smaller amounts of hornbeam, wych elm and oak standards. The northern end of the wood consists largely of regenerating sycamore. Dense patches of hawthorn and elder scrub together with areas of neglected hazel coppice form the shrub layer of the wood. Despite its small size, the wood is noted for a number of scarce woodland species which it supports. These include herb-Paris, yellow archangel and goldilocks buttercup. Of particular importance is a population of spurge laurel which is considered to be one of the largest populations of this species in the County. Although Jacobites Wood is not listed in the Suffolk Inventory of Ancient Woodlands (English Nature), it is undoubtedly a fragment of medieval woodland which is of considerable wildlife importance and is therefore a valuable addition to the Register of County Wildlife Sites. Unfortunately, the wood will be severed during the construction of the Rickinghall-Botesdale bypass.

**REDGRAVE LAKE** - Redgrave Lake lies within the grounds of Redgrave Park, a 45 acre, privately owned estate between the villages of Redgrave and Wortham, to the north of the A143. This site represents valuable habitat for wildfowl and waders throughout the year. The lake and surrounding habitats offer over-wintering and breeding opportunities. It is also an important site for birds on passage. This site has excellent connectivity along streams, hedgerows and blocks of woodland in the surrounding landscape. The lake contains a good mix of aquatic vegetation around the edges with patches of scattered scrub and mature trees along the banks. Along the southern bank there is a wide swathe of species-rich grassland. There are also a number of veteran trees throughout the parkland and wood pasture and two areas of woodland to the west and east where there is a transition to wet woodland. Grass snake have been recorded. The site provides diverse habitat for a range of species.

**STUBBINGS WOOD** - Stubbing's Wood, listed in English Nature's Inventory of Ancient Woodland, is set amidst arable fields to the west of Burgate Great Wood which is scheduled as a Site of Special Scientific Interest. The tree canopy is dominated by oak standards and tall ash and field maple coppice. Hazel coppice with small amounts of hawthorn and spindle form the understorey. Although dominated by common woodland plants for example dog's mercury, bramble and ground ivy, the ground flora also supports a number of scarce woodland plants which are strongly associated with ancient woodland for example wood anemone and oxlip. A considerable amount of management work has

taken place recently in the wood. This has involved the clearing of a wide track from the entrance to a large newly coppiced area in the centre of the wood. Standard trees, mainly oak have been left. Small areas lying adjacent to this track have also been recently coppiced. Furthermore, a glade has been cleared, close to the entrance of the wood. This area supports a species-rich plant community, including a number of wetland plants, for example meadowsweet. In addition to the production of coppiced timber, Stubbing's Wood is used extensively for pheasant rearing. Two pheasant pens are located within the wood.

**BURGATE LITTLE GREEN** - "Burgate Little Green is an area of common land situated in the parish of Burgate. The grassland of the green is largely unimproved and is species-rich (Priority habitat) and contains species characteristic of ancient grassland, including ox-eye daisy, bird's-foot-trefoil, common knapweed, common twayblade, quaking grass, pepper saxifrage, spiny restharrow, lady's bedstraw and Nationally Scarce sulphur clover. The pond has gently shelving edges and diverse marginal vegetation including water mint, marsh bedstraw and false fox sedge, providing valuable habitat for amphibians and invertebrates.

Some patches of bramble and mixed scrub provide valuable additional habitat and opportunities for invertebrates and birds such as turtle dove (a Globally Threatened species) and whitethroat."

**BURGATE GREAT GREEN** - "Burgate Great Green is a large common comprised of mainly unimproved acidic grassland (Priority habitat) with wet winter flushes and some areas of neutral grassland.

The areas of dry acidic grassland are composed of a diverse plant community including sweet vernal grass, lesser stitchwort, sheep's sorrel, sheep's fescue, field wood-rush, heath bedstraw and tormentil. Mat grass and purple moor grass are present in small numbers, which are both scarce and declining species in Suffolk. Damper areas along old footdrains and in low-lying seasonally wet patches are characterised by plants such as black bog-rush, lesser spearwort, meadowsweet, fleabane, hairy sedge and tufted hair-grass. Smaller areas of neutral grassland are colonised by plants typical of this habitat including red clover, meadow vetchling, lady's bedstraw and bird's-foot trefoil. Some large mature oak, ash and birch are scattered across the Green, with bramble colonising beneath them, providing additional valuable habitat.

Three large ponds are located in the southern part of the Green, containing species such as marsh bedstraw, marsh pennywort, celery-leaved buttercup and water crowfoot. This provides additional opportunities for invertebrates and amphibians including Priority species great crested newt."

#### **Local nature reserves:**

**ROYDEN FEN** – In common with the other valley fens, Roydon is incredibly wet most of the time with the spring-fed, deep peat soils permanently water-logged. Reed & Sedge warbler, Woodcock, Harvest mouse and Toads can all be found in this reserve.

**THE PENNINGS, EYE** – The Pennings Nature Reserve is along the River Dove. Most of the site is managed as a 'hay meadow' and in the summer months there are abundant flowers and insects to be seen. A small pond has been recently restored. Kingfisher and water vole can be found along the River Dove, otter are rare visitors to the area.

### National nature reserves:

REDGRAVE AND LOPHAM FEN – Redgrave and Lopham Fen NNR is an extensive area of spring-fed valley fen in the headwaters of the River Waveney on the Suffolk/Norfolk border. It is the largest fen in lowland England. The reserve has a range of distinct habitats including the internationally important saw sedge beds and purple-moor grasslands. It is also home to one of only 2 British populations of the fen raft spider.

### Ramsar sites:

REDGRAVE AND SOUTH LOPHAM FEN – Description can be seen above.

### Sites of special scientific interest:

HOPTON FEN – Hopton Fen is one of a series of valley fens spanning the watershed between the headwaters of the Waveney and Little Ouse. It supports a variety of tall fen communities and is floristically rich. The site contains areas of reed-dominated fen, most of which is cut for thatching purposes, and other areas dominated by saw sedge. Associated fen species include blunt-flowered bush, large bird's-foot trefoil, marsh bedstraw, yellow loosestrife, and valerian. The sedge-dominated areas are generally less botanically diverse than the reed areas, reflecting the effect of the build-up of litter.

SHELFANGER MEADOWS – This site which lies in a tributary valley of the River Waveney is one of the most important areas of unimproved grassland in Norfolk, forming an outstanding example of traditionally managed, herb-rich, hay meadows. For several hundred years the grassland has received an annual hay-cut followed by grazing and this traditional management has ensured the survival of a rich and unusual flora. In addition, diverse marshy grassland has developed in seepage zones where springs emerge on the valley-side.

GYPSY CAMP MEADOWS – Gypsy Camp Meadows, representing one of the few remaining wet meadow sites in Suffolk, consists of a large and a smaller species rich wet meadow, situated on poorly drained Suffolk boulder-clay. The site supports several community types, ranging from base-rich marsh with Sharp-flowered Rush *Juncus acutiflorus*, Marsh Marigold *Caltha palustris* and Carnation Sedge *Carex panicea*, with Lesser Pond Sedge *C. acutiformis* and Marsh Arrow-grass *Triglochin palustris* to a wetter alluvial meadow type with Floating Sweet-grass *Glyceria fluitans*, Reed Canary-grass *Phalaris arundinacea* and Hairy Sedge *C. hirta*. A system of drainage ditches runs through the site and adds further diversity to the plant communities present.

MAJOR FARM, BRAISEWORTH – Major Farm Meadow is damp and species-rich, one of the few remaining unimproved hay meadows in Suffolk. The meadow is shallow-sloping, on boulder clay of low soil fertility, and characterised by an abundance of mole-hills.

WORTHAM LING – Wortham Ling is important for its lowland dry heath and acid grassland communities which have developed on a sandy, glaciofluvial drift deposit. Although the site is isolated from the Brecklands, lying as it does within a predominantly boulder clay area, the vegetation has close similarities with the Breck grass-heaths. The

heathland community is characterised by an abundance of heather *Calluna vulgaris* which is present in the full range of age-classes, from the classic 'pioneer' to 'degenerate' phases. Associated grasses are generally sparse here but include sheep's fescue *Festuca ovina*, common bent-grass *Agrostis capillaris* and occasionally wavy hair-grass *Deschampsia flexuosa*. In the open areas within the stands of heather the ground is occupied by carpets of mosses, mainly *Polytrichum spp.*, and lichens, particularly *Cladonia spp.* which are present in good numbers.

**BRECKLAND FOREST** – The clear fell areas and young plantations within Breckland Forest SSSI provide suitable breeding habitat for woodlark *Lullula arborea* and nightjar *Caprimulgus europaeus*, which occur in internationally important numbers. Breckland Forest supports five vascular plants listed on Schedule 8 of the Wildlife and Countryside Act: perennial knawel *Scleranthus perennis* subsp. *prostratus* (an English endemic restricted to the East Anglian Breckland), red-tipped cudweed *Filago lutescens*, maiden pink *Dianthus armeria*, Breckland mugwort *Artemisia campestris* and spiked speedwell *Veronica spicata* subsp. *spicata*, the last of which was introduced at this site but within the UK is restricted to Breckland. The forest also supports an important assemblage of Nationally Rare and nationally scarce vascular plant species, a number of which are largely restricted to East Anglia and occupy habitats characteristic of Breckland.

**BURGATE WOOD** – Burgate Wood is a particularly good example of the type of oak-hornbeam woodland characteristic of this part of Suffolk. It is ancient, with a coppice-with-standards structure and continues to support entirely semi-natural stands. Many giant coppiced stools are present which indicate its great antiquity. The ground flora is diverse and includes several species that are indicators of ancient woodland, including one rarity.

**REDGRAVE AND LOPHAM FENS** – This site consists of an extensive area of spring-fed valley fen at the headwaters of the River Waveney. It supports several distinct fen vegetation types, ranging from Molinia-based grasslands, mixed Sedge fen to Reed-dominated fen. There are small areas of wet heath, Sallow carr and Birch woodland. The invertebrate fauna is extensive and well studied and it is also home to one of only 2 British populations of the fen raft spider *Dolomedes plantarius*.

**WESTON FEN** – this site contains a very valuable example of a species-rich, spring-fed valley fen, with areas of fen grassland and relict heath. These are fringed by a wide variety of grassland scrub and woodland communities. Of all the fens in the Waveney/Ouse valley it has been least affected by drainage or water abstraction. The water-table remains high and stable throughout the year and this is reflected in the rich and varied flora of the site.

**BLO' NORTON AND THELNETHAM FENS** – This site is of interest mainly because of the plant communities associated with the remaining areas of open fen. Additional interest is provided by the areas of carr woodland and by some of the meadows adjacent to the fen. The areas of fen least affected by drainage still support calcareous valley fen vegetation with plants such as black bog rush *Schoenus nigricans*, saw sedge *Cladium mariscus*, which is dominant in some parts, and purple moor grass *Molinia caerulea*. A very large number of plant species are associated with these areas, notably 'Fen Orchid' *Dactylorhiza praetermissa*, devil's bit scabious *Succisa pratensis*, long-stalked yellow sedge *Carex lepidocarpa*, quaking grass *Briza media*, a small colony of grass of parnassus *Parnassia palustris* and a number of rare mosses.

**WESTHALL WOODS AND MEADOW** – Westhall Wood and Meadow lies 1.5 miles south-west of the village of Rickinghall. Westhall Wood is an ancient coppice-with-standards Pedunculate Oak-Hornbeam wood growing on heavy boulder clay overlain by sand and is one of the largest remaining intact Hornbeam dominated woodlands in Suffolk. The nearby Westhall Meadow is an unusually large unimproved species-rich meadow containing a community of meadow plants with affinities to both calcareous clay and calcareous loam grasslands.

**BUGG'S HOLE FEN** – Bugg's Hole is a small, spring-fed calcareous fen situated in the valley of the Little Ouse River. A wide range of habitats occur from mown grassland on the driest soils to tall fen vegetation on shallow fen peats. The diversity of vegetation types is reflected in the richness of the flora which includes a number of uncommon species.

#### **Special areas of conservation:**

**WAVENEY & LITTLE OUSE VALLEY FENS** – This site represents *Molinia caerulea* – *Cirsium dissectum* fen-meadow associated with spring-fed valley fen systems in East Anglia, where *Molinia* grassland is very rare. The *Molinia* meadows are found here in conjunction with *Schoenus nigricans* – *Juncus subnodulosus* mire and calcareous fens with *Cladium mariscus*. Where the fen-meadow is grazed it is more species-rich, with frequent southern marsh-orchid *Dactylorhiza praetermissa*. This site is one of several representing Desmoulin's whorl snail *Vertigo moulinsiana* in East Anglia. At Weston Fen populations of this snail occur in a valley fen.

#### **Special protection areas:**

**BRECKLAND** – The Breckland SPA is classified for birds including stone curlew. The remnants of dry heath and grassland which have survived these recent changes support heathland breeding birds, where grazing by rabbits and sheep is sufficiently intensive to create short turf and open ground. These breeding birds have also adapted to live in forestry and arable habitats. Woodlark *Lullula arborea* and nightjar *Caprimulgus europaeus* breed in clear-fell and open heath areas, whilst stone curlews *Burhinus oedicnemus* establish nests on open ground provided by arable cultivation in the spring, as well as on Breckland grass-heath.



### 4.3 MAGIC Map Data

**Table 1: MAGIC map system EPS licence applications within a 7km radius (see map in Appendix IV)**

EPS licence number	Species on the licence	Damage/ destruction of breeding site	Damage/ destruction of a resting place	Grid Reference	Nearest Location
2016-26657-EPS-MIT	CPIP, BLE, BARB	N	Y	TM07708401	Fæsfield
2018-36301-EPS-MIT-2	GCN	N	Y	TM12808031	Diss
2019-40511-EPS-MIT	GCN	N	Y	TM12808031	Diss
2015-7612-EPS-MIT	SPIP, BLE	N	Y	TM07888062	Diss
2015-7612-EPS-MIT-1	SPIP, BLE	N	Y	TM07888062	Diss
2016-25741-EPS-MIT	CPIP, BLE	N	Y	TM09817301	Thornham Parva
2018-37020-EPS-MIT	CPIP, SPIP, BLE, NATT, BARB	Y	Y	TM10887668	Thrandeston
2020-49983-EPS-MIT	GCN	N	Y	TM09687419	Mellis

The MAGIC data search returned 8 records of past and current EPS licences, 3 were for great crested newts, and 5 were for bats within a 7km radius. Including common pipistrelle, soprano pipistrelle, natterer's, brown long-eared, and barbastelle. The nearest record to site was a Great Crested Newt Class Survey Licence Return, located 1.6km to the southwest of site. There were 4 GCN class licence returns at 3 locations. There were 10 GCN pond surveys between 2017 and 2019 found in a 7km radius, 1 survey found GCN presence, while the other 9 found GCN to be absent.

#### **SBIS Ancient, notable, and veteran trees within a 2 km radius of the Site.**

Ancient trees, due to decay and biological damage from age, typically have more natural features (such as welds, trunk cavities, hollows, rot holes, bark crevices, cracks, fissures, and woodpecker holes) that could provide highly preferable roosting opportunities for bats. There were no records returned in the 2km SBIS data search.



#### **4.4 Field Survey Results**

The site consisted of concrete hardstanding with two shiplap sheds, amenity grassland, a gravel driveway/ parking area. Directly adjacent habitats included a timber clad barn conversion style dwelling, amenity grassland, a pond, mature trees near site which had the potential to provide foraging and roosting habitat. The site contained minimal areas of vegetation (For a full species list see appendix III). The surrounding area had arable fields to the north and east. The village of Wortham was to the east and to the south and west of site was woodland which is part of a county wildlife site. Within 10m of the site boundary there was a dwelling. More details and target notes can be found in appendix I and II.

The plant species within the site boundary were limited, within amenity grassland bordering two edges of the site (please see Appendix III for full plant list of species). This grassland will not be removed as development will be on the existing footprint of hardstanding however it will potentially be impacted by construction. A map showing the habitat types on Site can be seen in Appendix IV.

The proposed development includes removing the concrete to replace with new concrete this will happen on the existing footprint and will not impact any ecologically important habitats. Currently onsite around the shed are some old building supplies such as pan tiles which have the potential to be used by amphibians. Majority of these items found onsite such as wheelbarrows and carpet were lifted and no hibernating amphibians were found.

## 5. Protected and Priority Species Within the Site

### Flora

The desk study highlighted several species of rare plants have been previously recorded within 2km of the site, such as Stinking Chamomile (*Anthemis cotula*), Lesser Marshwort (*Apium inundatum*), Lesser Water-plantain (*Baldellia ranunculoides*), Slender Sedge (*Carex lasiocarpa*), Chicory (*Cichorium intybus*), Common Cottongrass (*Eriophorum angustifolium*), Water-violet (*Hottonia palustris*), Smooth Cat's-ear (*Hypochaeris glabra*), Tubular Water-dropwort (*Oenanthe fistulosa*), Marsh Lousewort (*Pedicularis palustris*), Common Butterwort (*Pinguicula vulgaris*), Flat-stalked Pondweed (*Potamogeton friesii*), Suffolk Lungwort (*Pulmonaria obscura*), Least Bur-reed (*Sparganium natans*), Marsh Stitchwort (*Stellaria palustris*), Heath Dog-violet (*Viola canina*), and Dwarf Spurge (*Euphorbia exigua*), which are listed as 'Vulnerable' on the England Red List. Annual Knawel (*Scleranthus annuus*) which is listed as "endangered" on the England red list.

Six orchid species were highlighted within the search including Pyramidal Orchid (*Anacamptis pyramidalis*), Early Spider-orchid (*Ophrys sphegodes*), Bee Orchid (*Ophrys apifera*), Southern Marsh-orchid (*Dactylorhiza praetermissa*), Marsh Orchid (*Dactylorhiza*), and Early-purple Orchid (*Ophrys sphegodes*).

There was also Bog Pimpernel (*Anagallis tenella*), Bottle Sedge (*Carex rostrata*), Long-stalked Yellow-sedge (*Carex viridula* subsp. *brachyrhyncha*), Common Yellow-sedge (*Carex viridula* subsp. *oedocarpa*), Small-fruited Yellow-sedge (*Carex viridula* subsp. *viridula*), Soft Hornwort (*Ceratophyllum submersum*), Meadow Thistle (*Cirsium dissectum*), Great Fen-sedge (*Cladium mariscus*), Heath-grass (*Danthonia decumbens*), Few-flowered Spike-rush (*Eleocharis quinqueflora*), Slender Spike-rush (*Eleocharis uniglumis*), Floating Club-rush (*Eleocharis fluitans*), Fine-leaved Water-dropwort (*Oenanthe aquatica*), Marsh Willowherb (*Epilobium palustre*), Greater Burnet-saxifrage (*Pimpinella major*), Common Milkwort (*Polygala vulgaris*), Small Pondweed (*Potamogeton berchtoldii*), Blunt-leaved Pondweed (*Potamogeton obtusifolius*), Bog Pondweed (*Potamogeton polygonifolius*), Lesser Pondweed (*Potamogeton pusillus*), Greater Spearwort (*Ranunculus lingua*), and Brookweed (*Samolus valerandi*) all of which are Suffolk rare plants.

No uncommon, rare, or protected plant species were recorded during the survey.

### Bats

The site and directly adjacent buildings were checked for signs of bats which included, urine stains, droppings, cracks and crevices with smooth rubbing or stain marks, feeding signs or living or dead animals. Any potential roost features were noted and are discussed below.

The two shiplap sheds onsite were searched and were well sealed and lacked any potential roost features. There were no cavities or crevices and no signs of bats internally such as droppings were found. Ridges were checked within both sheds and no bats were found.

Bordering the site boundary was a barn used for storage and as a workshop. This was a red brick barn with timber clad doors and a pantile roof. This was externally and internally inspected and had no signs of bats. The barn was subdivided by half wall partitions into three sections all of which were inspected. The section closest to site was completely partitioned off as above the half wall breathable membrane had been used to enclose the area. The barn was deemed as having low potential due to the building's construction however no signs of past or present bat presence was found.

Also checked for signs of bats was the timber clad gable end of the adjacent dwelling. The cladding was found to be well sealed and have negligible potential for bats. Other areas of this dwelling had low potential, but it was deemed as unlikely that the proposed development would affect any potential roosts or the flight path of these bats if they were present.

The SBIS data search returned 126 records of bats within 2km of the Site including common pipistrelle, soprano pipistrelle, nathusius pipistrelle, noctule, leisler's bat, natterer's bat, brown long-eared bat, serotine, daubenton's, western barbastelle, and unidentified myotis, pipistrelle and bat (*Chiroptera*) species.

## Fungi

No records of fungi were listed in the data search, and no rare fungi were found on site.

## Great Crested Newts

Habitats on site were unlikely to support amphibians, including great crested newts (GCN) (*Triturus cristatus*), during their terrestrial phase due to the habitat mainly consisting of hardstanding with an area of short amenity grassland lacking refugia for GCN. On site there were some items that could be used as refugia which had been left on the grass. This included carpet and two up-side down wheelbarrows, these were checked and no GCN were found. A pond adjacent to site had the potential to support breeding GCN however it had suitable terrestrial habitat to the east of the pond and habitat to the west between the site and the pond was short amenity grassland or the gravel driveway. Wet ditches a meter from the site boundary provided potential commuting pathways for GCN however it was deemed highly unlikely for these to venture onto site. A rapid risk assessment deemed the construction as highly unlikely for an offence to be committed (see table 4 for result).

There were four ponds present within a 250m radius of site:

Pond 1 – Located approx. 25m east of site and 160m<sup>2</sup>. A HSI was conducted (results in table below). The pond lacked emergent vegetation (further notes can be found in target notes).

Pond 2 – Located approx. 190m south of site and 370m<sup>2</sup>. A HSI was conducted (results in table below). The pond was surrounded by vegetation including Bulrush (*Typha latifolia*), brambles (*Rubus fruticosus*) and Rosebay willowherb (*Chamaenerion angustifolium*). With a lily species in the center and mature trees such as ash (*Fraxinus excelsior*), willow spp (*salix*) and English oak (*Quercus robur*).

Pond 3 – Located approx. 40m to the south of site and 850m<sup>2</sup>. No access was available for the survey. This is part of an old moat.

Pond 4 – Located approx. 260m to the north-west of site and 460m<sup>2</sup>. No access was available for the survey.

**Table 2:** GCN HSI Calculator. Based on ARGUK advice note 5 - Great Crested Newt Habitat Suitability Index

<b>ARGUK GCN HSI Calculator</b>				
	Pond Name	Example	Pond 1	Pond 2
	Grid Ref	SK123456	TM 07059 77487	TM 07034 77304
SI No	SI Description	SI Value	SI Value	SI Value
1	Geographic location	1.00	1	1
2	Pond area	0.50	0.2	0.5
3	Pond permanence	0.90	0.9	0.9
4	Water quality	1.00	0.67	1
5	Shade	1.00	1	1
6	Water fowl effect	1.00	1	1
7	Fish presence	1.00	1	1
8	Pond Density	0.65	0.7	0.7
9	Terrestrial habitat	1.00	0.33	0.67
10	Macrophyte cover	0.90	0.3	0.6
<b>HSI Score</b>		<b>0.88</b>	<b>0.62</b>	<b>0.81</b>
Pond suitability (see below)		Excellent	Average	Excellent

**Table 3:** The categorisation of the HSI score, is as follows:

HSI Score	Pond Suitability
< 0.50	Poor
0.50 - 0.59	Below average
0.60 - 0.69	Average
0.70 - 0.79	Good
> 0.80	Excellent

GCN Habitat Suitability Index (HSIs) was conducted for two of the four ponds in the area. Which were directly adjacent to site and approx. 190m to the south. Pond 1 came back with a score of 0.62 and had a pond suitability of 'Average'. Pond 2 came back with a score of 0.81 and had a pond suitability of 'Excellent'.

**Table 4:** Rapid risk assessment for GCN under the conservation of habitats and species regulations 2017, results are as follows:

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	0.001 - 0.01 ha lost or damaged	0.05
Land 100-250m from any breeding pond(s)	No effect	0
Land >250m from any breeding pond(s)	No effect	0
Individual great crested newts	No effect	0
		Maximum: 0.05
Rapid risk assessment result:	<b>GREEN: OFFENCE HIGHLY UNLIKELY</b>	

There were 19 records of GCN returned in the SBIS data search, the nearest being approx. 300m south east of site. The site had negligible habitat for GCN during terrestrial phases as majority of site was either hardstanding or short mowed amenity grassland lacking refugia.

### Hedgehogs

The Site was considered unsuitable for hedgehogs, as it did not have adequate foraging habitats, and it had no hibernation opportunities. Adjacent habitats including hedgerows, woodland and scrub provided potential to support foraging and nesting opportunities therefore commuting hedgehogs could access site. The data search returned 17 records of hedgehogs within 2km of the Site, the nearest of which being approx. 1.1km east of site.

### Reptiles

The habitat onsite was unsuitable for foraging or sheltering reptiles however the pond and wet ditches adjacent had potential to support species such as grass snakes. There was no evidence of reptiles on the site, no droppings, sloughs, or reptiles were found.

There were five records of reptiles within the 2km SBIS data search. Including Slow-worm (*Anguis fragilis*), Grass snake (*Natrix helvetica*), Adder (*Vipera berus*), and common lizard (*Zootoca vivipara*).

### Birds

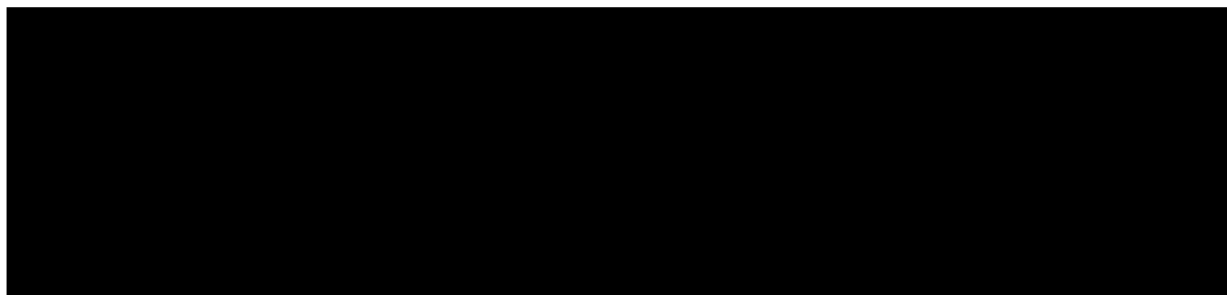
The sheds onsite had no features which indicated they had previously been used by nesting birds. And habitats onsite were not suitable to support foraging birds. Directly adjacent habitats including mature trees showed evidence of supporting nesting birds. An inactive nest from the recent nesting bird season was noted in a mature willow tree (*Salix spp*) to the north of site (no active nests were noted). Hedgerows near site had multiple areas with opportunities for nesting. Scrub and woodland adjacent provided foraging opportunities. (For a list of species seen during the survey see appendix III).

For a list of bird species of conservation concern returned in the SBIS 2km data search, please see Appendix V.

### Invertebrates

Vegetation to support invertebrates was negligible with a small proportion of site containing amenity grassland and the rest being bare containing only hardstanding. Plant species onsite were common and lacked characteristics due to being kept short-mown to support rare/protected terrestrial invertebrates. No rare invertebrates or habitats likely to support rare invertebrates were found onsite, and further invertebrate surveys are not considered necessary.

The desk study highlighted invertebrates that had been previously recorded within 2km of the Site to name some these included Norfolk Hawker (*Anaciaeschna isoceles*) which is listed as “endangered” on the England red list. White Admiral (*Limenitis camilla*) which is listed as “vulnerable” on the England red list. Sallow Guest Weevil (*Melanapion minimum*), Small Heath (*Coenonympha pamphilus pamphilus*), Grey Dagger (*Acrionicta psi*), Knot Grass (*Acrionicta rumicis*), Beaded Chestnut (*A grochola lychnidis*), Green-brindled Crescent (*Allophyes oxyacanthae*) and Ear Moth (*Amphipoea oculea*) which are section 41 and UK BAP species.





## 6. Potential Impacts and Obligatory Recommendations

### 6.1 *Statutory Designated Areas*

The impact of proposed activities on Sites of Special Scientific Interest (SSSIs) are assessed using Impact Risk Zones (IRZs), which establish buffer zones around each site which reflect the particular sensitivities of designated sites and indicate the types of development proposal which could potentially have adverse impacts. If the developed is assessed as having a “likely significant effect” any European statutory designated area, then the project will require a HRA (Habitat Risk Assessment) to be undertaken as stated in The Conservation of Habitats and Species Regulations 2010 (as amended).

The Site falls within the Impact Risk Zone (IRZ) of multiple SSSI, however as the proposal is a small-scale development and it will not include the creation of over 50 building units, the risk of impact to designated sites is negligible and therefore is unlikely to require a HRA or other pre-development consultation with Natural England regarding likely impacts on designated areas.

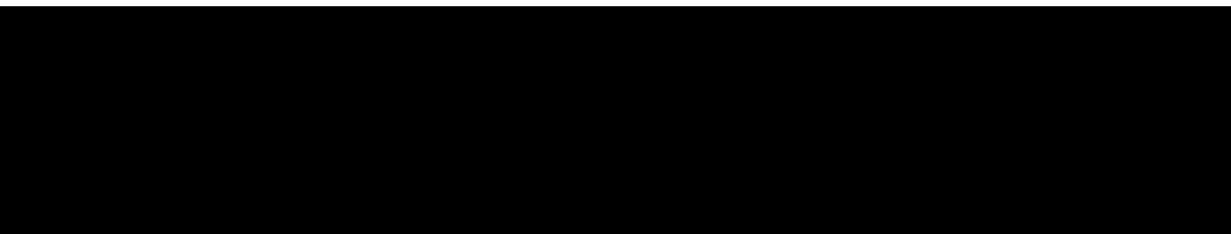
### 6.2 *Flora and Habitats*

The proposed development includes the removal of two shiplap sheds onsite in order to build a cart lodge. The current hard standing will be removed and replaced this however is on the existing footprint and will not include the removal of areas of vegetation. The damage to existing habitats will be low and only due to foot traffic during construction. No rare or protected plants were seen onsite during the survey and therefore there is no concern.

The Site does not contain biodiversity priority habitats and was unsuitable for supporting rare species highlighted within the data search.

If site plans were changed to include mature trees subject to felling, then under The Forestry Act 1967, all trees over 8cm in diameter will require a felling licence prior to removal, unless it is in the interest of health and safety. This is required if over 5 cubic metres (m<sup>3</sup>) of growing trees are to be felled.

**Further botanical survey is not considered necessary; however, any mature trees within close proximity of the Site should be suitably protected from harm following guidance set out in BS5837 (2012).**



**No further survey is necessary; however, as adjacent habitats provide suitable foraging habitat for smaller mammals, and hedgehogs have been recorded in the local area, construction works should have implemented several precautionary measures, including the following:**

- Safe storage of materials that may harm animals; and

- If external lighting is to be used, lights should be set on short timers to avoid disturbing nocturnal animals using the Site and immediate surrounding area.

### **Bats**

Structures onsite assessed for roost suitability included the two sheds. A barn bordering the construction area was also accessed and the closest gable of the adjacent dwelling.

Near site there was good foraging habitats for bats in the form of hedgerows, mature trees, and ponds. Within 100m deciduous woodland was also present which is a good foraging habitat for multiple bat species.

Habitats onsite had no potential for roosting bats, but adjacent habitats did therefore, sensitive lighting is recommended throughout the development and should follow guidance provided by the Bat Conservation Trust (Bats and Artificial Lighting at Night, 2023), to ensure foraging and commuting bats using adjacent habitats are not negatively impacted. Lighting measures should also be applied to temporary security lighting used during the construction phase. This could include low pressure sodium lamps, with hoods, cowls or shields, to prevent light spillage. More detailed advice can be provided from a suitably experienced bat ecologist.

The two sheds had no potential for roosting bats and the barn had low potential with no signs of bats found externally or internally. The dwelling to the south had the gable end adjacent to site checked and had low potential for roosting bats due to being timber clad however the cladding, soffits and bargeboards were all well sealed and no signs of bats found. The proposed development would not impact flight paths if there were bats roosting within the dwelling and the area is already illuminated by existing external lights.

**Further bat surveys are not necessary.**

### **Birds**

A number of species with the potential to nest near to the Site boundary was highlighted within the desk study (see Appendices III and V). These included BoCC red listed and section 41 species.

The site had no foraging opportunities for birds due to the lack of vegetation onsite however adjacent hedges and trees did.

If boundaries were changed to include nearby trees, hedges, or scrub/shrubs. **Any clearance of these should be carried out outside the breeding bird season, which runs from 1<sup>st</sup> March to 15<sup>th</sup> September (species dependant) or following a nesting bird survey by a suitably experienced ecologist – to prevent infringing legislation which protects all nesting birds.**

### **Great Crested Newts**

There was a total of nineteen SBIS records within 2km, and 3 EPS licences for great crested newts, there were 4 GCN class licence returns at 3 locations. There were 10 GCN pond surveys between 2017 and 2019 found in a 7km radius, 1 survey found GCN presence, while the other 9 found GCN to be absent. The site had negligible potential for GCN due to the site lacking vegetation cover which could be used as refugia. There was a pond near to site which had the potential to support breeding GCN however habitats onsite were unlikely to support GCN during their terrestrial phase due to a lack of vegetation or refugia. The only refugia onsite within short vegetation was checked and no GCN found. **As a precautionary measure all works must be conducted under Risk Avoidance Method Statement (RAMS) for great crested newts.**

### ***Hedgehogs***

**Further surveys are not considered necessary**, however, as there are nearby records of this species, and habitats adjacent to site had potential to support hedgehogs, any potential nesting habitat (discarded building materials, wood piles etc.) should be removed outside the hibernation period (which is November to March) or under supervision of an ecologist. In addition, the construction should follow recommendations set out for badgers, to minimise the risk of harm to foraging hedgehogs.

Any fencing that may be added should allow the movement of hedgehogs throughout the Site post development.

### ***Reptiles***

The project will not include the loss of suitable reptile habitat – sheltering and hibernation opportunities. It was considered unlikely that reptiles would use the habitats onsite for sheltering or hibernation, **and so no further survey is required.**

### ***Invertebrates***

The Site contained little habitat for small assemblages of common invertebrates and was not considered suitable for supporting the rare/protected species highlighted within the desk study. **Therefore, further invertebrate surveys are not considered necessary.**

### ***Other Protected Species***

No further survey is required, as the habitat types and overall size of each habitat would be unlikely to significantly impacted any other protected species.

## 7. Enhancement recommendations

The Natural Environment and Rural Communities Act 2006 (NERC), Section 40, established that all public bodies have a duty to conserve, restore, or otherwise enhance a population of a particular species or habitat:

Section 40 (A1)<sup>2</sup>

- “For the purposes of this section “the general biodiversity objective” is the conservation and enhancement of biodiversity in England through the exercise of functions in relation to England.”

Section 40 (1)

- “A public authority which has any functions exercisable in relation to England must from time to time consider what action the authority can properly take, consistently with the proper exercise of its functions, to further the general biodiversity objective.”

Section 40 (3)

- “The action which may be taken by the authority to further the general biodiversity objective includes, in particular, action taken for the purpose of—  
  
(a)conserving, restoring or otherwise enhancing a population of a particular species, and  
  
(b)conserving, restoring or otherwise enhancing a particular type of habitat.”

Therefore, enhancement opportunities are encouraged in order to change the overall net biodiversity impact of the development from minor-adverse neutral to neutral / minor positive.

### ***Bats***

A bat box, such as Eco Kent bat boxes and woodstone general purpose bat boxes (or similar) would increase roosting opportunities for bats within the Site. Exact models and locations should be determined by a suitably experienced ecologist.

### ***Birds***

Bird boxes are highly advised, such as Robin FSC Nest Box or WoodStone Seville Box erected on the cartlodge or an adjacent tree in an appropriate location which would provide an additional nesting opportunity for local bird populations.

Precise locations of a bird box should be decided by a suitably experienced ecologist at the time of erection to ensure an optimal situation and reduce the effect of changing environmental conditions at the Site in the meantime.

---

<sup>2</sup> This includes recent amendments to the Act under the Environment Act 2021, which extended the definition of general biodiversity objective to include biodiversity enhancement as opposed to solely biodiversity conservation.

### ***Hedgehogs and other small mammals***

No evidence of small mammals including hedgehogs was found on site. Although some habitats adjacent had the potential to support these species. The development will have a negligible impact on these habitats therefore no further enhancements are recommended for these species.

### ***Other protected species***

Rare and/or protected invertebrates, reptiles and mammals were considered unlikely to be present onsite, and no further enhancement is necessary.

## 8. Conclusions

The preliminary ecological appraisal found the Site to contain no habitats suitable for supporting protected species. The survey revealed the site to have no habitats likely to support foraging or sheltering individuals. However adjacent habitats including ponds had potential to support protected species namely great crested newts.

The following recommendations are made to minimise the risk of harm to individual animals:

- **Sensitive lighting measures for bats**, and security lighting to be set on short timers to avoid disturbing nocturnal animals.
- Covering of excavations and/or provision of exit ramps and safe storage of materials that may harm animals is recommended during works to prevent harm to mammals.
- To prevent infringing legislation which protects all nesting birds, it is recommended that **any clearance or works impacting nesting birds is carried out outside the breeding bird season** (which runs from March to September) or if not possible, following a nesting bird survey by a suitably experienced ecologist.
- **Recommendation for precautionary working methods in the form of Risk Avoidance Method statement (RAMS)** should be followed during works for **bats and great crested newts**.
- **A toolbox talk** should be given by a suitably trained and licenced ecologist to all workers on site prior to any works commencing.
- Potential refugia onsite should be removed prior to construction following RAMS and enhancement guidance followed during construction.
- Due to the site's close proximity to a county wildlife site considerations must be made to prevent negative environmental impacts from machinery or materials used onsite.

It is unlikely that the proposed development would cause a significant long or short-term impact to the conservation status of protected species in the area or to the conservation sites in the surrounding area if these measures are followed, but sensitive planning may increase species because of the enhancements.

Any short-term impacts to species populations or individuals would have been minimised through the incorporation of the above recommendation prior to, and during works.

### **Biodiversity Enhancement Strategy (B.E.S). (Post construction)**

Enhancement features, such as bat boxes (such as Eco Kent bat boxes and bat tubes) and bird boxes, could be incorporated into the final designs and therefore provide additional breeding, and sheltering opportunities for a range of wildlife.



## Enhancements to include:

### Site supervision.

An Ecological Clerk of Works (ECoW) should be appointed prior to commencement, to oversee the works when necessary.

**Bird and Bat boxes.** At least one bat box and at least one bird nesting box to be mounted on the building or adjacent trees/ buildings in suitable locations.

See Appendix VIII: Enhancement and mitigation example designs for examples.

No fences are proposed however if plans are changed to include a fence/ boundary it is recommended that boundaries are hedges, open post and rail fences or include gaps within fences following guidance set out under small mammal enhancements.

**Amphibians.** The development proposals do not include the loss of any habitats suitable for amphibians such as great crested newts however it is located near a pond which is a suitable habitat for breeding GCN therefore site clearance and RAMS guidance must be followed.

### Site clearance.

• **Amphibians.** The specifics of the clearance of the site with regard to Amphibians are as follows:

- o Any debris piles should be dismantled by hand and the materials kept in skips until moved off site or disposed of.

- o Any debris and materials arising from the proposed construction should be stored in skips and/or on pallets to prevent creating refuge sites for reptiles or amphibians.

- o The clearance of ruderals and vegetation > 300mm in height should be done during spring / summer (Feb to October) when amphibians and reptiles are active, all vegetation should be cut down to 150mm above ground level and left for at least an hour before final clearance to allow any reptiles or amphibians that may be present to disperse or to be carefully relocated to hedgerows in the local vicinity. Once cleared the land should be maintained as bare ground or short mown grassland throughout the development process.

- o The RAMS (appendix 1 above) should be followed throughout the development process.

- o If a great crested newt is discovered at any stage of the development, work should cease immediately, and an ecologist should be contacted for further advice.

• **Small mammals** including hedgehogs.

- o Any debris and materials arising from the proposed construction should be stored in skips and/or on pallets to prevent creating refuge sites for reptiles or amphibians.

- o Clearance of any debris or waste should be done sensitively with consideration to disturbance of hedgehogs.

- o Vegetation above 300mm above ground level should not be cleared until temperatures are above 6°C for at least 6 consecutive days to avoid disturbance of hibernating hedgehogs.

o Any fences that might be erected should include a gap of 150mm long by 100mm high at some point in the base of each run of fencing to enable terrestrial vertebrates, including hedgehogs, to move through the plot and prevent entrapment.

### Precautionary mitigation.

- To promote best practice and avoid the risk of causing injury or harm to small mammals, amphibians and reptiles during the construction process a toolbox talk should be given and made available to all contractors.
- Should the Local Planning Authority be minded to grant planning permission then it is advised that the site be maintained as bare ground or close mown grassland until the development works start. This is to prevent the establishment of any features of ecological interest becoming established on the site prior to the commencement of works.

## 9. Validation

Table 5: Validity duration of the data.

Information Source	Date Undertaken	Valid Until	Comments
PEA	December 2023	December 2025 (2 years)	Recommendations to follow as precautionary measures for species including great crested newts.

## 10. References

Amphibian and Reptile Groups of the United Kingdom (2010) Advice note 5 - Great Crested Newt Habitat Suitability Index

Barn Owl Trust (2012). Barn Owl Conservation Handbook. Pelagic Publishing: Exeter.

(BCT) Bat Conservation Trust (2023). Bats and Artificial Lighting at Night Guidance note 8.

British Standard BS 42020:2013 Biodiversity - Code of Practice for planning and development.

British Standards Institution (2012). BS 5837:2012, Trees in relation to design, demolition and construction –Recommendations.

(CIEEM) Chartered Institute of Ecology and Environmental Management (2016). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal. 2nd ed. Winchester: CIEEM.

Collins, J (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn.). The Bat Conservation Trust, London.

Cresswell, W.J. Birks, J.D.S, Dean, M., Pacheco, M., Trehwella, W.J., Wells, D. & Wray, S. (2012) UK BAP Mammals Interim Guidance for Survey Methodologies, Impacts and Mitigation. Eds. The Mammal Society, Southampton.

Froglife (1999) Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.

JNCC (2010) Handbook for Phase 1 habitat survey: a technique for environmental audit (revised reprint) JNCC: Peterborough.

Reason, P.F. and Wray, S. (2023). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Chartered Institute of Ecology and Environmental Management, Ampfield.

Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10 (4), 143-155.

Stace, C. (2021). Concise Flora of the British Isles (4th Edition). Cambridge University Press, Cambridge.

SBIS (Suffolk Biodiversity Information Service) (04/ 12/2023)) 2km Data search.

Sewell, D., Griffiths, R.A., Beebee, T.J.C., Foster, J., and Wilkinson, J.W. (2013). Survey protocols for the British herpetofauna. ARC, DICE University of Kent and University of Sussex.

### Web references

<https://treecouncil.org.uk/wp-content/uploads/2020/06/Tree-Council-Ash-dieback-tree-owners-guide-FINAL.pdf>

[https://magic.defra.gov.uk/Metadata\\_for\\_magic/SSSI/IRZuserguidance](https://magic.defra.gov.uk/Metadata_for_magic/SSSI/IRZuserguidance)

<http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx>

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

# 11. Appendices

## Appendix I: Table 6 target notes

Photos	Target Notes
	<p><b>Features of the site</b></p> <p>Target note 1 is of pond 1 located near the site. This had terrestrial habitat on the far side and between this pond and site was short-mowed amenity grassland and the gravel driveway drive. There was a wet ditch near to pond 1 that ran to the north of site. There was vegetation within the water that could provide suitable habitat for breeding GCN. (Location can be found on the ponds map).</p>
 <p style="text-align: center;">1</p>	<p>Target note 2 is of pond 2 located 190m south of site and 370m<sup>2</sup>. The pond was surrounded by vegetation including Bulrush (<i>Typha latifolia</i>), brambles (<i>Rubus fruticosus</i>) and Rosebay willowherb (<i>Chamaenerion angustifolium</i>). With a lily species in the centre and mature trees such as ash (<i>Fraxinus excelsior</i>), willow spp (<i>salix</i>) and English oak (<i>Quercus robur</i>). Previous eDNA of this pond came back negative for GCN (Anecdotal evidence) (Location can be found on the ponds map).</p>
 <p style="text-align: center;">2</p>	<p>Target note 3 shows the shiplap sheds which were situated on concrete hardstanding however they were raised by a couple of inches reducing the area of potential refugia onsite for GCN as under the sheds was a wide gap and unsuitable for hibernating GCN.</p>
 <p style="text-align: center;">3</p>	





4

Target note 4 shows a tree adjacent to site on the north which had a potential roost feature facing south. Lighting measures would have to ensure this isn't impacted during or after works. The same tree also had an old nest from the previous bird nesting season.





5


Target note 5 the area behind the bordering barn which had timber slats which was an area of potential refugia for GCN.



6

Target note 6 is a lifted wheelbarrow which was checked for GCN, and none were found. This was one of a few areas of potential refugia that were checked during the survey, and none were found to have GCN or any other amphibians present.






	<p>Target note 7 is a cluster of pan tiles leaning against the side of the shiplap shed. This had potential to be used as refugia by local amphibians.</p>
<p>7</p>	

## Appendix II : Site Photos

**Table 7: Site photos**

	
<p>The two shiplap sheds that will be removed along with the concrete which will be removed and replaced with new concrete on the existing footprint.</p>	<p>Area of land behind the sheds this will only be impacted by construction traffic during the works it will not be developed on.</p>
	
<p>Internal view of the shed showing the lack of potential roost features.</p>	<p>Gravel drive, bordering barn and area of construction .</p>

	
<p>Roof space within the bordering barn showing breathable membrane under the pan tiles and machine joints lacking crevices for potential roosts.</p>	<p>Workshop area of the barn which had additional breathable membrane used to partition it from other two sections of the barn used for storage.</p>
	
<p>Timber cladding on the adjacent dwelling that was well sealed with no gaps allowing access to the cavity behind the cladding.</p>	<p>Driveway to site and the access for construction.</p>

## Appendix III: Species Lists

Table 8: Plants

Species on site	
Latin name	Common name/s
<i>Senecio vulgaris</i>	Groundsel
<i>Urtica dioica</i>	Common nettle
<i>Geranium robertianum</i>	Herb -Robert
<i>Rubus fruticosus</i>	Bramble
<i>Lamium album</i>	White deadnettle
<i>Taxus baccata</i>	Yew*
<i>Salix spp</i>	Willow spp*

Table 9: Mammals

Species on or directly adjacent to site	
Latin name	Common name/s
<i>Oryctolagus cuniculus</i>	European Rabbit (Droppings)*

Table 10: Birds

Species on or directly adjacent to site	
Latin name	Common name/s
<i>Troglodytes troglodytes</i>	Eurasian Wren*

\*Species marked with an asterisk are those that were found/noted directly adjacent to site.

Appendix IV: Figures

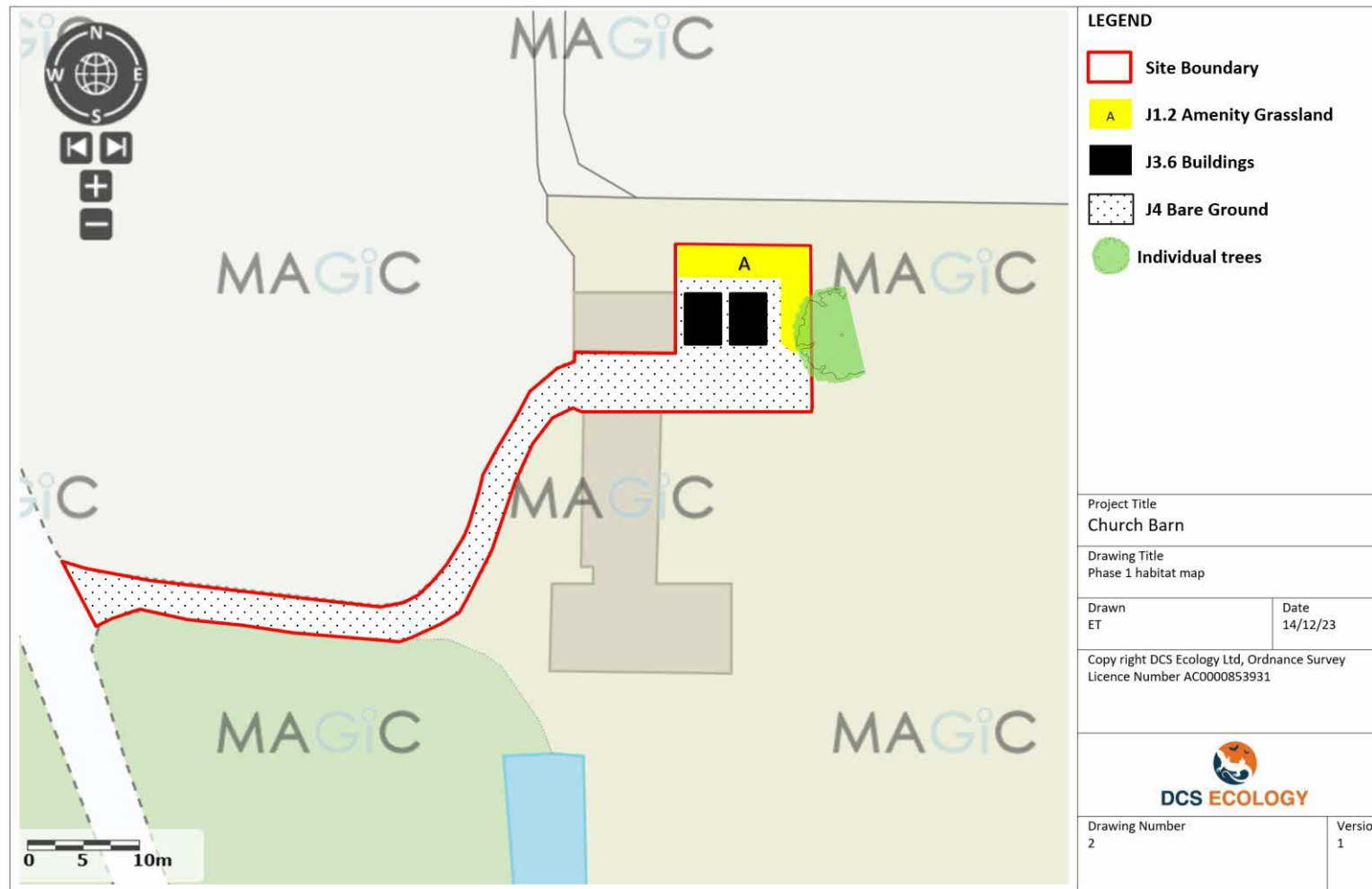


Figure 2: Phase 1 Habitat Map of Site (c) Crown Copyright under licence AC0000853931



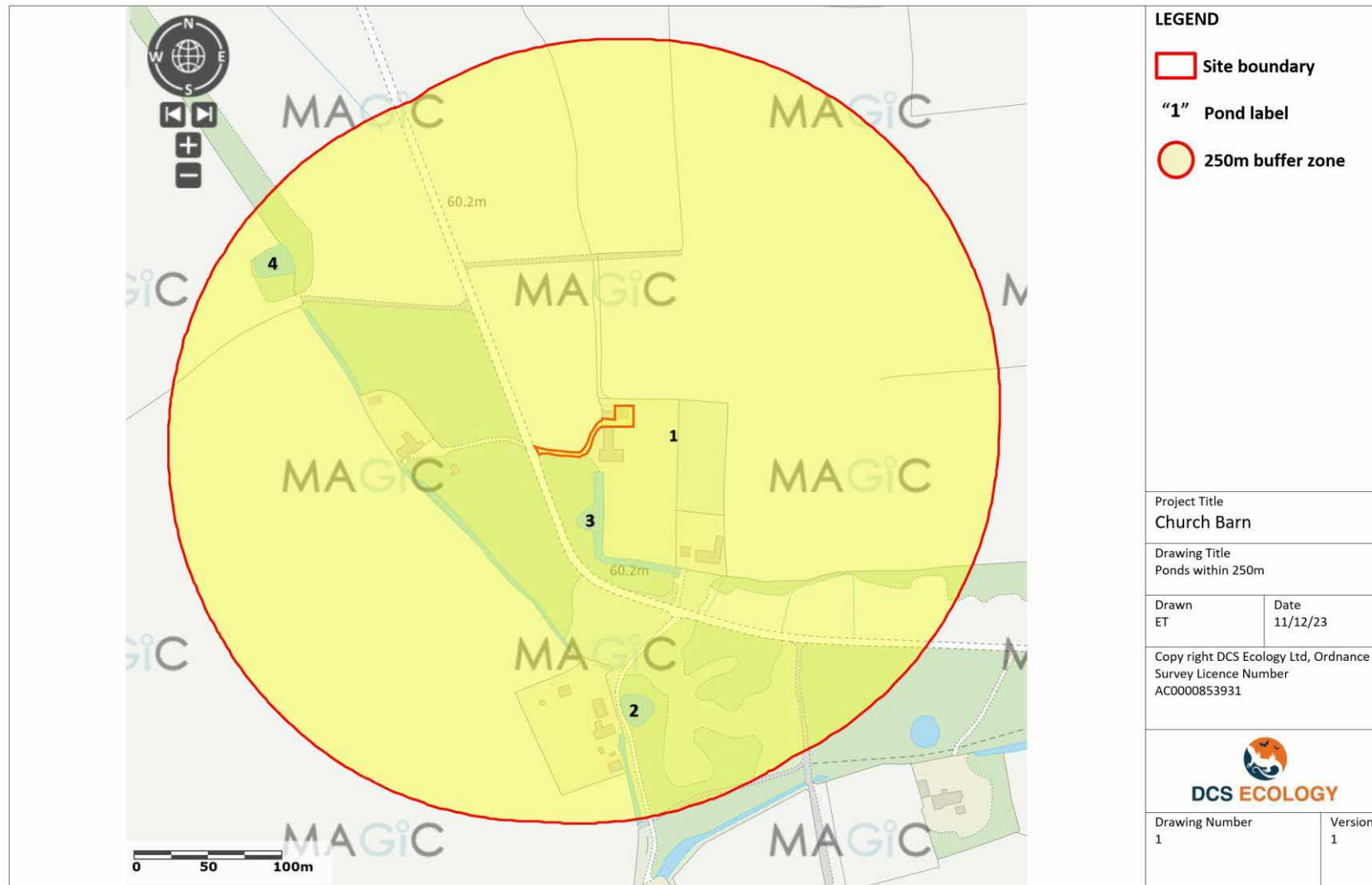


Figure 3: Pond Great Crested Newt ponds within 250m. Based upon Ordnance Survey (c) Crown Copyright under licence A C0000853931

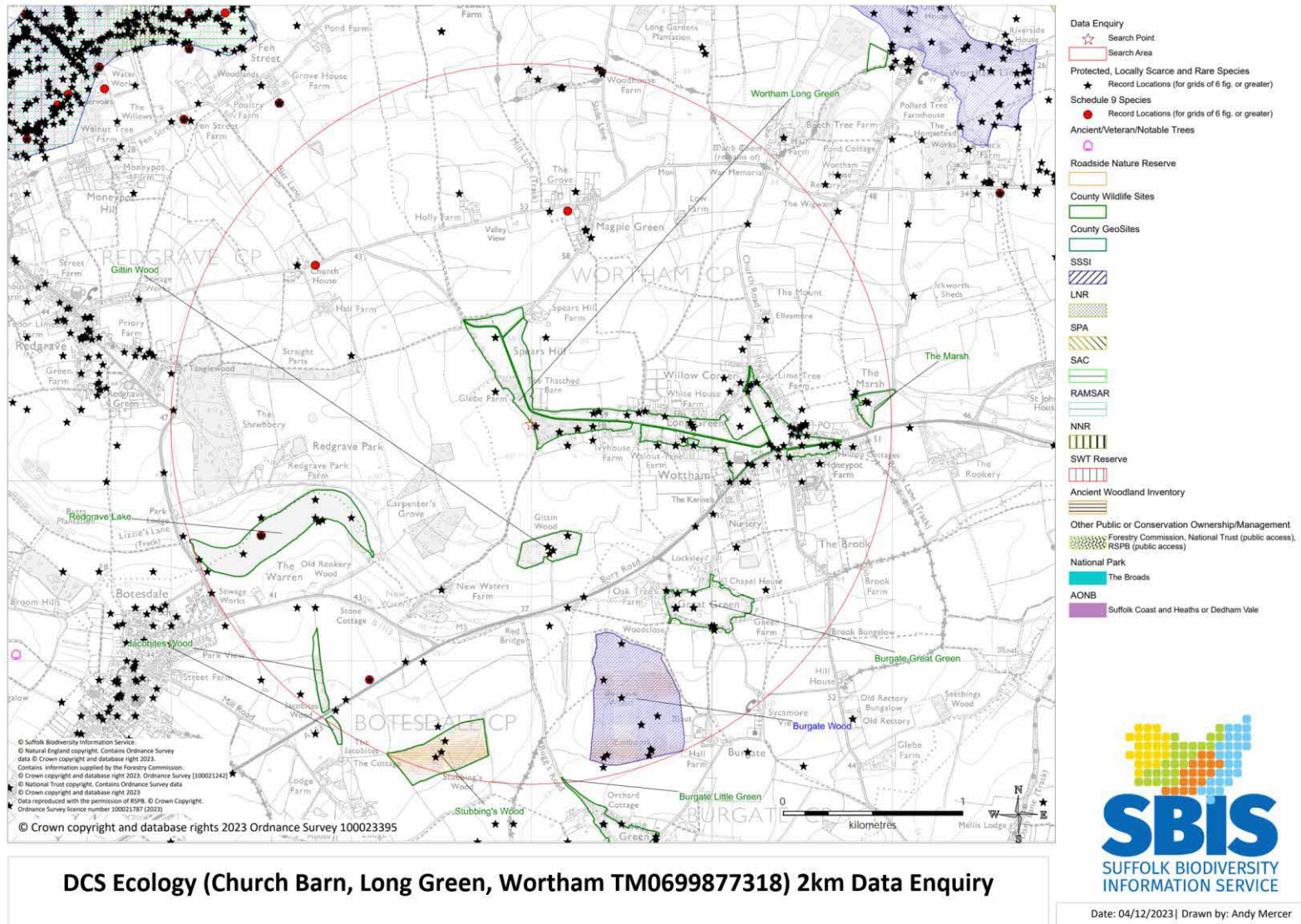


Figure 4: Protected species records, Statutory and Non-Statutory Designated Sites within 2km of the Site



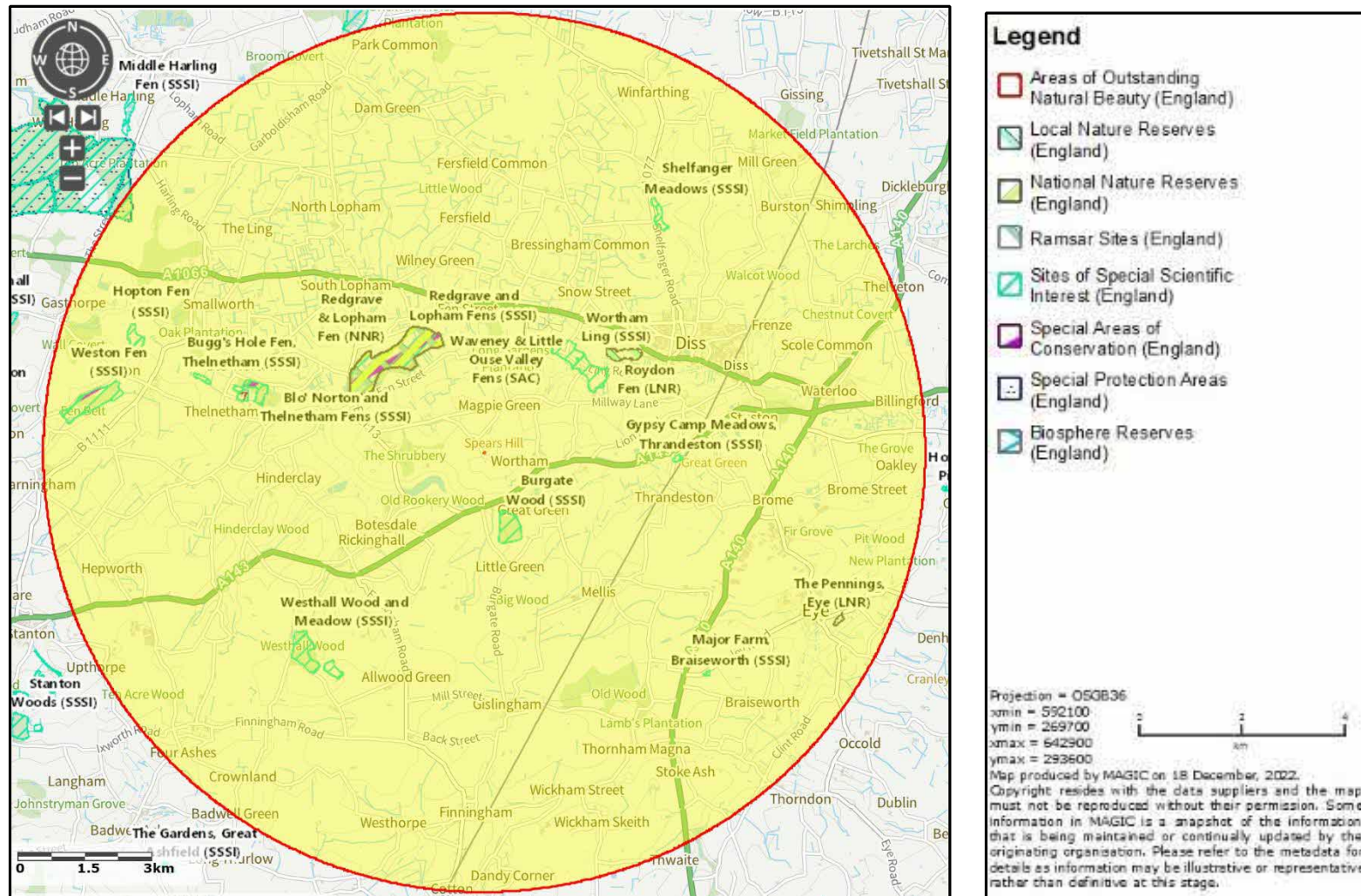


Figure 5: Statutory Conservation Sites within 10km of the Site. Based upon Ordnance Survey (c) Crown Copyright under licence A CD000853931

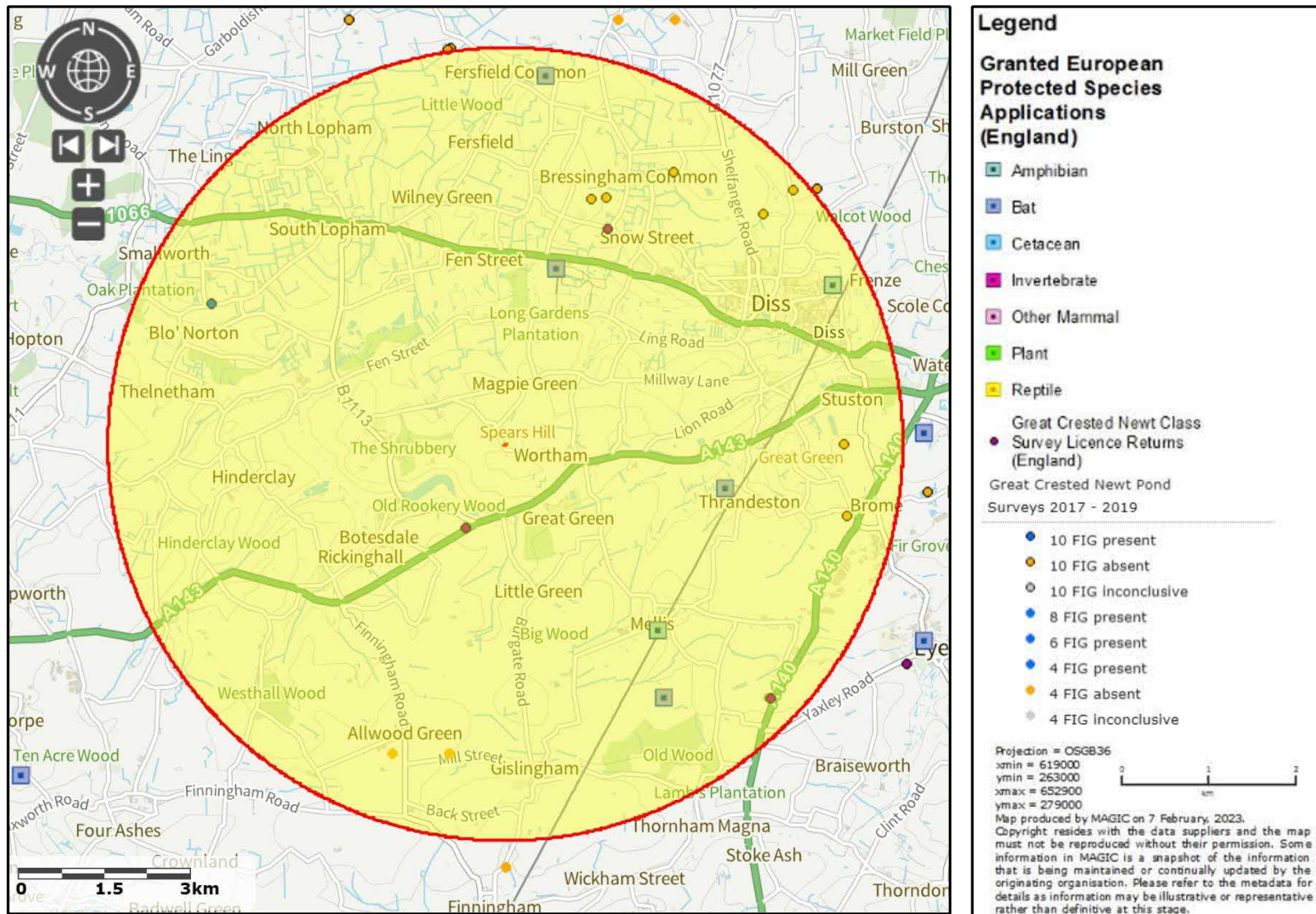


Figure 6: Protected species recorded on MAGIC within 7km of the Site. Based upon Ordnance Survey (c) Crown Copyright under licence A0000853931



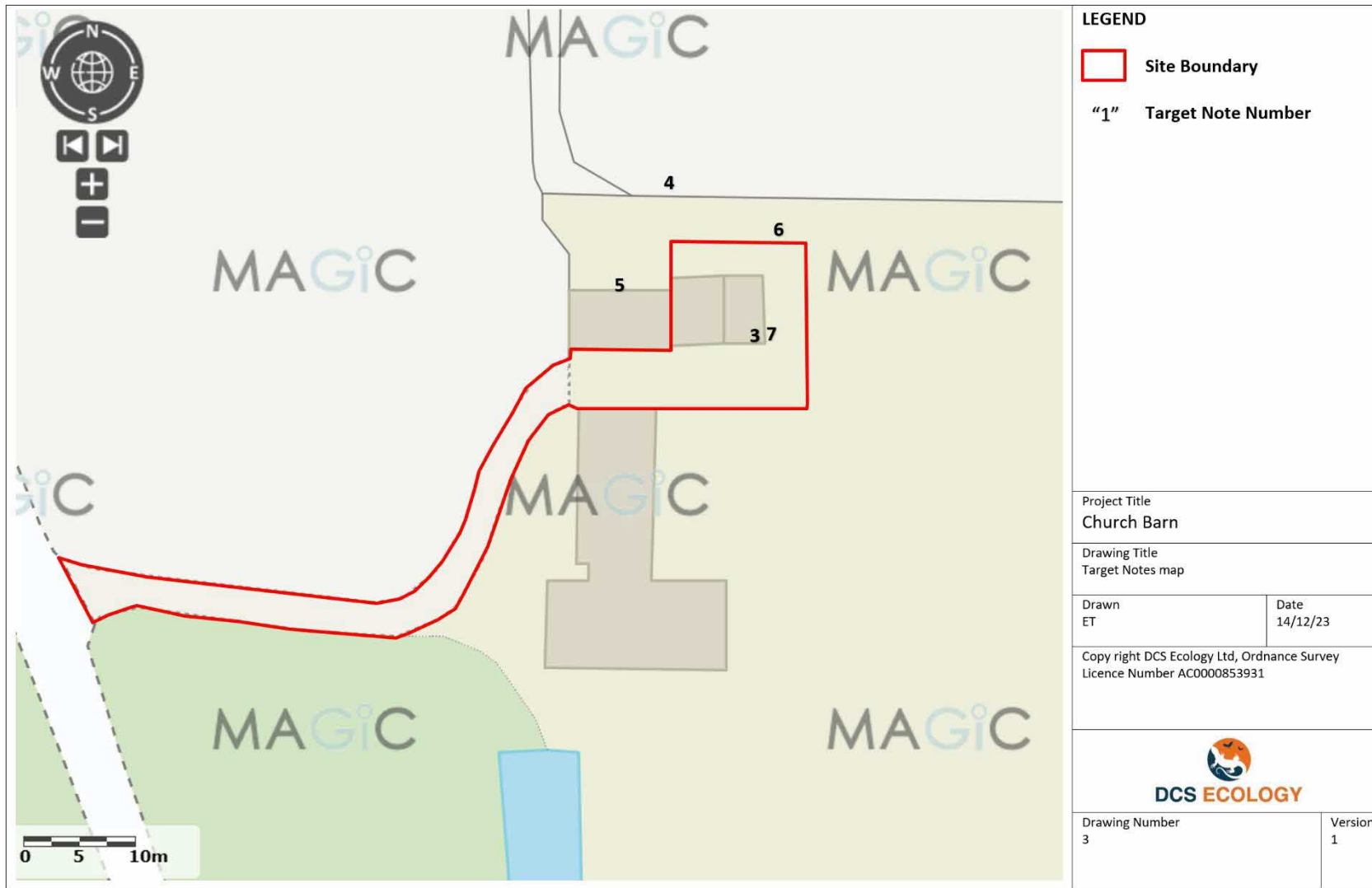


Figure 7: Target notes map. Based upon Ordnance Survey (c) Crown Copyright under licence AC0000853931

## Appendix V: Desk Study

**Table 11: WCA Sch. 1, BoCC Red Listed and Priority (BAP) bird species records within 2km of the Site.**

<b>Species common name</b>	<b>Latin name</b>	<b>Status</b>	<b>Most Recent Record</b>
Skylark	<i>Alauda arvensis</i>	BoCC Red, Sect.41, UKBAP	20 22
Lesser Redpoll	<i>Acanthis cabaret</i>	S41, UKBAP	2008
Kingfisher	<i>Alcedo atthis</i>	WCA1i	2017
Pintail	<i>Anas acuta</i>	WCA1ii	2017
White-fronted Goose	<i>Anser albifrons</i>	BoCC Red, UKBAP	2010
Greylag goose	<i>Anser anser</i>	WCA1ii	2018
Swift	<i>Apus apus</i>	BoCC Red	20 20
Pochard	<i>Aythya ferina</i>	BoCC Red	2018
Bittern	<i>Botaurus stellaris</i>	S41, UKBAP, WCA1i	2017
Goldeneye	<i>Bucepnaia clangula</i>	WCA1ii	2021
Dunlin	<i>Calidris alpina</i>	BoCC Red	2009
Cetti's Warbler	<i>Cettia cetti</i>	WCA1i	2021
Little Ringed Plover	<i>Charadrius dubius</i>	WCA1i	2009
Ringed Plover	<i>Charadrius hiaticula</i>	BoCC Red	2017
Greenfinch	<i>Chloris chloris</i>	BoCC Red	20 17
Marsh Harrier	<i>Circus aeruginosus</i>	WCA1i	2021
Cuckoo	<i>Cuculus canorus</i>	BoCC Red, S41, UKBAP	20 21
House Martin	<i>Delichon urbicum</i>	BoCC Red	20 17
Yellow Hammer	<i>Emberiza citrinella</i>	BoCC Red, UKBAP; S41	20 22
Reed Bunting	<i>Emberiza schoenicu.</i>	UKBAP; S41	20 20

Merlin	<i>Falco columbarius</i>	BoCC Red, WCA1i	2010
Peregrine	<i>Falco peregrinus</i>	WCA1i	2016
Hobby	<i>Falco subbuteo</i>	WCA1i	2020
Brambling	<i>Fringilla montifringi</i>	WCA1i	2021
Herring Gull	<i>Larus argentatus</i>	BoCC Red, UKBAP	2017
Black-tailed Godwit	<i>Limosa limosa</i>	BoCC Red, UKBAP, WCA1i	2011
Linnet	<i>Linaria cannabina</i>	BoCC Red; UKBAP	2017
Grasshopper Warbler	<i>Locustella naevia</i>	BoCC Red; UKBAP, S41	2017
Crossbill	<i>Loxia curvirostra</i>	WCA1i	2009
Red Kite	<i>Milvus milvus</i>	WCA1i	2015
Spotted flycatcher	<i>Muscicapa striata</i>	BoCC Red, UKBAP, S41	2017
Bearded Tit	<i>Panurus biarmicus</i>	WCA1i	2017
House Sparrow	<i>Passer domesticus</i>	BoCC Red, UKBAP, S41	2017
Grey Partridge	<i>Perdix perdix</i>	BoCC Red; S41, UKBAP	2017
Honey-buzzard	<i>Pernis apivorus</i>	WCA1i	2010
Willow tit	<i>Parus montanus</i>	BoCC Red; UKBAP	2007
Marsh tit	<i>Parus palustris</i>	BoCC Red; UKBAP	2017
Dunnock	<i>Prunella modularis</i>	UKBAP	2017
Bullfinch	<i>Pyrrhula pyrrhula</i>	UKBAP	2021
Whinchat	<i>Saxicola rubetra</i>	BoCC Red	2010
Woodcock	<i>Scolopax rusticola</i>	BoCC Red	2010
Turtle dove	<i>Streptopelia turtur</i>	BoCC Red, UKBAP, S41	2021
Starling	<i>Sternus vulgaris</i>	BoCC Red, UKBAP	2017
Wood Sandpiper	<i>Tringa glareola</i>	WCA1i	2009

Greenshank	<i>Iringa nebularia</i>	WCA1i	2017
Green Sandpiper	<i>Iringa ochropus</i>	WCA1i	2021
Redwing	<i>Iurauus IIIIacus</i>	WCA1i	20 17
Song thrush	<i>Iurauus pniIomelos</i>	BoCC Red, UKBAP, S41	20 20
Fieldfare	<i>Iurauus pIarIs</i>	BoCC Red, WCA1i	20 17
Ring Ouzel	<i>Iurauus torquatus</i>	BoCC Red, S41, UKBAP	2017
Mistle Thrush	<i>Iurauus viscIvorus</i>	BoCC Red	20 22
Barn Owl	<i>Iyto alba</i>	WCA1i	20 21
Lapwing	<i>Vanellus vanellus</i>	BoCC Red, UKBAP, S41	20 17

## Appendix VI: Relevant Protected Species Legislation

International and national legislation, and policy context.

### EC Habitats Directive

In 1992 the then European Community adopted Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, known as the Habitats Directive. The main aim of the Habitats Directive is to promote the maintenance of biodiversity by requiring member states to introduce protection for these habitats and species of European importance. The mechanism for protection is through the designation of Special Areas of Conservation (SACs), both for habitats and for certain species listed within Annex II. There are several species listed within Annex II of the Habitats Directive that are present within the UK; these include four lower plant species, nine higher plant species, six species of molluscs, six species of arthropods, eight species of fish, two species of amphibian, and nine species of mammal.

### The Bern Convention

The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) came into force in 1982. The principal aims of the Convention are to ensure the conservation and protection of wild plant and animal species and their natural habitats (listed in Appendices I and II of the Convention), to increase cooperation between contracting parties, and to regulate the exploitation of those species (including migratory species) listed in Appendix 3. To this end the Convention imposes legal obligations on contracting parties, protecting over 500 wild plant species and more than 1000 wild animal species.

### Bonn Convention

The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention or CMS) was adopted in Bonn, Germany in 1979 and came into force in 1985. Contracting Parties work together to conserve migratory species and their habitats by providing strict protection for endangered migratory species (listed in Appendix 1 of the Convention), concluding multilateral agreements for the conservation and management of migratory species which require or would benefit from international cooperation (listed in Appendix 2 of the Convention), and by undertaking cooperative research activities.



### Convention on Biological Diversity

The Convention on Biological Diversity (Biodiversity Convention or CBD) was adopted at the Earth Summit in Rio de Janeiro and entered into force in December 1993. It was the first treaty to provide a legal framework for biodiversity conservation. Contracting Parties are required to create and enforce national strategies and action plans to conserve, protect and enhance biological diversity.

### Wildlife and Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 (as amended) is the principal mechanism for the legislative protection of wildlife in Great Britain. However, it does not extend to Northern Ireland, the Channel Islands, or the Isle of Man. This legislation is how the Convention on the Conservation of European Wildlife and Natural Habitats (the 'Bern Convention') and the European Union Directives on the Conservation of Wild Birds (79/409/EEC) and Natural Habitats and Wild Fauna and Flora (92/43/EEC) are implemented in Great Britain.

### Conservation of Habitats and Species Regulations 2010 (as amended)

In the UK the Council Directive 92/43/EEC has been transposed into national laws by means of the Conservation (Natural Habitats, & c.) Regulations 1994 (as amended), and the Regulations (Northern Ireland) 1995 (as amended). The Regulations came into force on 30 October 1994 and have been amended several times. Subsequently the Conservation of Habitats and Species Regulations 2010 was created which consolidates all the various amendments made to the 1994 Regulations in respect of England and Wales and is commonly known as the 'the Habitats Regulations'. In Scotland the Habitats Directive is transposed through a combination of the Habitats Regulations 2010 (in relation to reserved matters) and the 1994 Regulations. The Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) transpose the Habitats Directive in relation to Northern Ireland. The Regulations contain five Parts and four Schedules and provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites.

**Table 12: Relevant Protected Species Legislation**

Species	Legislation	Protection
<b>Bats</b>	<ul style="list-style-type: none"> <li>▪ Conservation of Habitats and Species Regulations (2010) (as amended)</li> <li>▪ Wildlife and Countryside Act (WCA) (1981), Schedule 5 (as amended)</li> <li>▪ Wild Mammals Act (1996)</li> </ul>	<p>It is an offence to:</p> <ul style="list-style-type: none"> <li>▪ Intentionally kill, injure or take any bat,</li> <li>▪ Intentionally or recklessly disturb a bat,</li> <li>▪ Intentionally or recklessly damage, destroy or obstruct access to a bat roost</li> </ul>
<b>Great Crested Newts</b>	<ul style="list-style-type: none"> <li>▪ Conservation of Habitats and Species Regulations (2010) (as amended)</li> <li>▪ Wildlife and Countryside Act (WCA) (1981), Schedule 5 (as amended)</li> </ul>	<p>It is an offence to:</p> <ul style="list-style-type: none"> <li>▪ Intentionally kill, injure, or take a great crested newt,</li> <li>▪ Intentionally or recklessly disturb a GCN,</li> <li>▪ Intentionally or recklessly damage, destroy or obstruct access to any place used by a GCN for shelter or protection</li> </ul>
<b>Widespread Reptiles</b>	<ul style="list-style-type: none"> <li>▪ Wildlife and Countryside Act (WCA) (1981), Schedule 5 (as amended)</li> </ul>	<p>It is an offence to:</p> <ul style="list-style-type: none"> <li>▪ Intentionally kill or injure a reptile.</li> <li>▪ Sell, offer, or expose for sale, have in possession or transport for the purpose of sale any live or dead reptile or any part of,</li> </ul>

		or anything derived from, a reptile.
<b>Birds</b>	<ul style="list-style-type: none"><li>Wildlife and Countryside Act (WCA) (1981 (as amended))</li></ul>	<p>It is an offence to:</p> <ul style="list-style-type: none"><li>Intentionally kill, injure, or take any wild bird,</li><li>Intentionally take, damage, or destroy nests in use or being built,</li><li>Intentionally take, damage, or destroy eggs.</li></ul> <p>Species listed on Schedule 1 of the WCA (1981) are afforded additional protection, making it an offence to intentionally or recklessly disturb such species at, on or near an active nest.</p>

## Appendix VII : Abbreviations

Table 13: List of abbreviations	
BAP	Biodiversity Action Plan
BCT	Bat Conservation Trust
BoCC	Birds of Conservation Concern
CHSR	Conservation of Habitats and Species Regulations 2017
CIEEM	Chartered Institute of Ecology and Environmental Management
CROW	The Countryside Rights of Way Act 2000
CWS	County Wildlife Site
ECoW	Ecological clerk of works
eDNA	Environmental DNA
EIA	Ecological Impact Assessment
EPS	European Protected Species
GCN	Great crested newt
HPI	Habitat of Principal Importance
HSI	Habitat Suitability Index
HRA	Habitat Regulations Assessment
JN CC	Joint Nature Conservation Committee
LNR	Local Nature Reserve
LPAs	Local Planning Authorities
MAGIC	Multi-Agency Geographic Information for the Countryside
NERC	Natural Environment and Rural Communities Act
NBIS	Norfolk Biodiversity Information Service
NE	Natural England
NERC	Natural Environment and Rural Communities Act 2006
NNR	National Nature Reserve
NPPF	The National Planning Policy Framework
PEA	Preliminary Ecological Appraisal
PRA	Preliminary Roost Assessment
PRF	Potential (bat) Roosting Feature
RAMs	Reasonable Avoidance Measures
SAC	Special Area of Conservation
SBAP	Suffolk Biodiversity Action Plan
SBIS	Suffolk Biodiversity Information Service
SPA	Special Protection Area
SSSI	Special Site of Scientific Interest
TAF	Temporary amphibian fencing
WCA	Wildlife and Countryside Act 1981 (as amended)
UKBAP	United Kingdom's Biodiversity Action Plan

Table 14: Abbreviations of bat species		
Abbreviations	Common name	Latin name
BARB	Barbastelle (bat)	<i>Barbastella barbastellus</i>
BLE	Brown long-eared (bat)	<i>Plecotus auritus</i>
CPIP	Common Pipistrelle bat	<i>Pipistrellus pipistrellus</i>
DAUB	Daubenton's bat	<i>Myotis daubentonii</i>
LEI	Lesser noctule / Leisler's bat	<i>Nyctalus leisleri</i>
NATT	Natterer's bat	<i>Myotis nattereri</i>
NOC	Common noctule	<i>Nyctalus noctule</i>
NPIP	Nathusius's pipistrelle	<i>Pipistrellus nathusii</i>
SERO	Serotine (bat)	<i>Eptesicus serotinus</i>
SPIP	Soprano pipistrelle (bat)	<i>Pipistrellus pygmaeus</i>

Appendix VIII: Enhancement and mitigation example designs.

Table 15: Compensation and enhancement Examples.	
	
Photo 1: Woodstone Seville Box 28-32mm Hole.	Photo 2: Woodstone multichambered bat box
	
Photo 3: Eco-Kent bat box	Photo 4: Hedgehog highways sign highlighting a gap that's been left within a fence for small mammal passage.