PRELIMINARY ECOLOGICAL APPRAISAL

LAND OFF THE A151, HOLBEACH, LINCOLNSHIRE

JANUARY 2023

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1 INTRODUCTION

CGC Ecology Ltd has been commissioned by Mike Braithwaite of Robert Doughty Consultancy Ltd on behalf of South Holland District Council to undertake a preliminary ecological appraisal of land off the A151, Holbeach in Lincolnshire. The survey is required in connection with proposals for future development of the site.

The purpose of a preliminary ecological appraisal is to identify the likely ecological constraints associated with any development that might take place on the site, to make recommendations for mitigation and/or further survey work, and to identify any opportunities to deliver ecological enhancement.

The site was surveyed on the 12th December 2022, in frosty and foggy conditions by Helen Scarborough (registered to use Natural England Class Licences WML-CL08 to survey great crested newts; registration number 2016-20412-CLS-CLS, and WML-CL19 and WML-CL20 to survey bats; registration numbers 2015-12691-CLS-CLS and 2015-12692-CLS-CLS respectively) and Sarah Vinters.

During the initial appraisal of the site the protected species considered likely to occur were identified. These are:

- Badger
- Bats
- Water voles
- Common bird species

Certain protected species were scoped out of the survey; in particular it was considered that white-clawed crayfish *Austropotamobius pallipes*, otter *Lutra lutra* (breeding) and common dormouse *Muscardinus avellanarius* were highly unlikely to occur on the survey site due to lack of suitable habitat. There are no habitats on site considered suitable to support a population of common reptiles and there are no reptile records from within 2km of the site. There are no habitats suitable for nesting by Schedule 1 birds.

Although there are three ponds within 500m of the site boundaries, these are all separated from the site by either the A17 or the A151, both of which would constitute major barriers to the

dispersal of great crested newts *Triturus cristatus*, and this species has been scoped out of the survey.

Any species of principal importance (as set out in the Natural Environment and Rural Communities (NERC) Act, 2006) seen on site were recorded.

This report details the methods used, describes the species found on the site, discusses the results and makes recommendations for further work. A plant list for the site is included as Appendix 1.

2 METHODS

2.1 Data search

Lincolnshire Environmental Records Centre (LERC) was consulted and commissioned on 15th December 2022 to search for sites with statutory and non-statutory designation and records of protected species within 2km of the survey site. Records of protected species more than 20 years old are not usually referred to in the report but are included within the relevant appendix.

2.2 Badger

The site and adjacent areas (where access allowed) were searched for signs of use by badger *Meles meles* including setts, latrines, dung pits, pathways, hairs, footprints and snuffle holes.

2.3 Bats

2.3.1 Preliminary roost assessment

In accordance with Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd Edition (Collins J, 2016), a preliminary roost assessment was carried out on the buildings to determine whether any features were present that bats could use for entry/exit points and roosting, and to search for signs of bat presence. High-powered torches, ladders and binoculars were used to search for internal and external features including but not limited to;

- Gaps around windowsills, door frames and lintels
- Lifted rendering, paintwork, shiplap boarding
- Soffit boxes, weatherboarding and fascias
- Lead flashing, hanging tiles and lifted or missing tiles/slate
- Gaps >15mm in brickwork and stonework
- Bat specimens (live or dead)

- Bat droppings and urine staining
- Feeding remains (e.g. moth wings)
- Cobweb-free sections of ridge beam

The buildings were then assigned a measure of potential suitability to determine the extent of future survey work needed. The categories of potential suitability and further survey effort required are as follows;

- Negligible – Negligible features on site likely to be used by roosting bats – no further survey work
- Low – A structure with one or more potential roost sites that could be used by individual bats opportunistically – one survey visit (dusk or dawn)
- Moderate – A structure with one or more potential roost sites that could be used by bats on a regular basis – two separate survey visits (one dusk and one dawn)
- High – A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a regular basis and for longer periods of time – three separate survey visits (one dusk, one dawn and one dusk or dawn).

The following should be noted: 'The guidelines do not aim to either override or replace knowledge and experience. It is accepted that departures from the guidelines (e.g. either decreasing or increasing the number of surveys carried out or using alternative methods) are often appropriate. However, in this scenario an ecologist should provide documentary evidence of (a) their expertise in making this judgement and (b) the ecological rationale behind the judgement.' (Collins, 2016).

2.3.2 Ground level roost assessment

A preliminary ground level roost assessment was carried out on all trees on the site, in accordance with Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd Edition (Collins J, 2016) Table 4.1 page 35. The trees were visually checked for potential roost features such as:

- Woodpecker holes
- Broken limbs, snag ends, cracks and splits in branches and rot holes
- Cankers with cavities
- Gaps between overlapping stems or branches
- Dense ivy, with stem diameters in excess of 50mm
- Flaking bark

Any trees with roost potential were then assigned a measure of potential suitability to determine the extent of future survey work needed. The categories of potential suitability and further survey

effort required are as follows:

- Negligible – Negligible potential roosting features on the tree – no further survey work
- Low – A tree of sufficient size and age to contain potential roost features but with none seen from the ground, or features seen with only very limited roosting potential – no further surveys necessary
- Moderate – One or more potential roost features that could be used by bats on a regular basis – further survey work required (two emergence/ re-entry surveys)
- High – One or more potential roost features that are obviously suitable for use by larger numbers of bats on a regular basis and for longer periods of time – further survey work required (three emergence/ re-entry surveys)

2.3.3 Assessment of commuting and foraging habitats

In accordance with Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd Edition (Collins J, 2016), the survey site and adjacent areas were assessed for their potential suitability for commuting and foraging bats and categorised as follows;

- Negligible – Negligible habitat features on site or in surrounding area likely to be used by commuting or foraging bats
- Low – Habitat features that could be used by small numbers of commuting bats such as a gappy hedgerow or small numbers of foraging bats such as a patch of scrub, but that are isolated from other habitat features
- Moderate – Continuous habitat connected to the wider landscape such as lines of trees that could be used by commuting bats or trees, grassland or water features that could be used by foraging bats
- High – Continuous, high-quality habitat that is well connected to the wider landscape for use by commuting and foraging bats such as river valleys, woodland, grassland and parkland.

2.4 Water vole

An initial habitat assessment was carried out on the ditches on site, to determine their potential to support water vole *Arvicola amphibius* in accordance with *The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series)* 2016. Any signs of use by water voles seen during the survey including feeding stations, burrows, latrine sites, runs through the vegetation and cropped grass around burrow entrances were noted.

2.5 Common bird species

All bird species noted on site were recorded. The survey site was searched for signs of use by

nesting birds, typically old nests and concentrations of faecal deposits associated with a breeding site.

2.6 Habitats and plant species

An extended ecological assessment survey was undertaken to identify the habitats present, including any classed as priority habitats (NERC Act, 2006), and to record more detailed information on plant species on site. Any plant species listed on Schedule 8 or Schedule 9 of the Wildlife and Countryside Act (1981, reviewed in 2010) were recorded, and the habitats on site were assessed against the Local Wildlife Site (LWS) criteria for Lincolnshire. All hedgerows were assessed to determine whether they qualify as species-rich (with 5 or more native woody species within 30m) or as 'important' under the Hedgerow Regulations (1997).

2.7 Survey constraints and limitations

The weather conditions at the time of survey were frosty and foggy, which may have resulted in fewer bird, plant and mammal species being noted on the site.

The information contained in this report was accurate at the time of the survey; however, it should be noted that the status of mobile species such as badger, birds and bats can alter in a short period of time and any survey only represents a 'snapshot' of the site at one point in the season. Advice released by CIEEM (Chartered Institute of Ecology and Environmental Management) in April 2019 states that an ecological report remains valid for between 12-18 months, depending on the presence of mobile species, after which an update survey should be carried out.

3 SITE ASSESSMENT

3.1 Location and grid reference

The survey site comprises arable fields, ditches, hedgerows and treelines, buildings, hard-standing, amenity grassland, scrub and tall ruderal vegetation off the A151, Holbeach, Lincolnshire - central grid reference TF347257.

The habitats on site are described below and representative photographs are included in the text. An aerial view of the site location is provided as Figure 1 and a plan of the buildings as Figure 2.

Figure 1: Aerial view of the approximate survey site outlined in red (Bing Maps, 2023)

3.2 The buildings

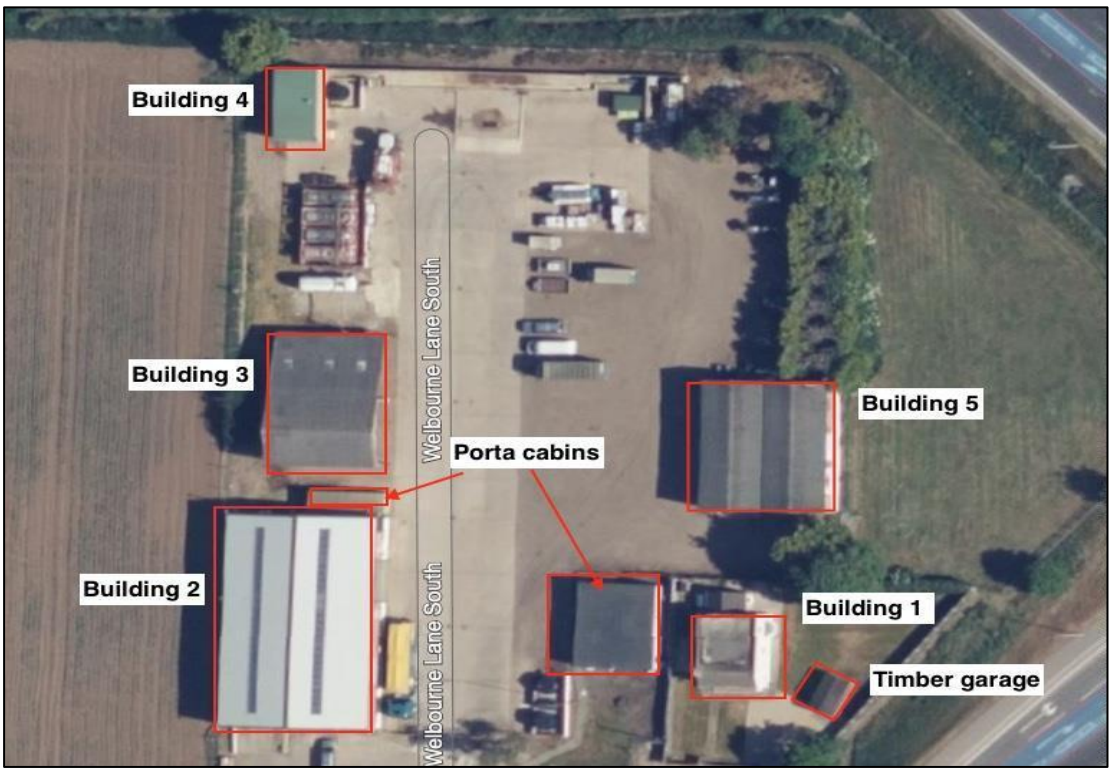

Figure 2: Locations of the survey buildings (Bing Maps, 2023)

Building 1 – Detached dwelling, timber garage & associated garden

An unoccupied two-storey house, constructed of partially rendered brick walls and a roof that is mono-pitched on the southern elevation and covered with concrete tiles, whilst from the ridge to the north is a flat roof. There is no access to the roof void in the main part of the house but there is an access hatch into a small void above the single storey extension to the north.

The house has modern, intact uPVC doors and windows and two brick chimneys. There is a modern conservatory extension and small porch on the western elevation, a large porch extension on the southern elevation and another small porch on the northern elevation. There are no gaps or cracks visible in the rendering or in the exposed brickwork, but there are some lifted tiles by the eaves on the southern elevation and on the front porch.

The timber garage within the associated garden has a pitched roof of corrugated fibre-cement sheets, a metal up and over door on its southern elevation and a single timber door on its northern elevation. The internal ridge beam has been covered with bitumen felt. A large part of the garage is covered by a climbing clematis plant.

The garden mainly comprises amenity grassland dominated by perennial rye-grass, red fescue, spear thistle, willowherb species, dandelion species, common couch, ribwort plantain, and ground ivy. A number of native species were noted within the overgrown gravel/path areas and on the edges of the grassland including creeping-jenny, common couch, bramble, Yorkshire-fog, common sorrel, feverfew, butterfly-bush, creeping buttercup, common nettle, selfheal and white bryony. There are also several small fruit trees, a Leyland cypress hedgerow and a small number of exotic garden shrubs present. The garden is bounded by timber panel fencing. In 2016 as part of a previous ecology survey (Scarborough Nixon Associates Ltd, 2016), two small ornamental garden ponds were recorded within the garden, but these are no longer present.

Photograph 1: Western elevation of the dwelling

Photograph 2: Eastern elevation of the dwelling and the garden

Photograph 3: Roof void within the northern extension

Photograph 4: Southern elevation of the dwelling

Photograph 5: The timber garage

Photograph 6: Internal view of the timber garage

Photograph 7: Roof structure of the garage

Building 2 – Office block and workshop

Building 2 is constructed of a steel frame with lower infill panels of solid blockwork and covered above with corrugated fibre-cement sheet panels with profiled metal sheeting on the pitched

roofs. The building is used for storage and office space, and no niches or gaps were noted. The building has high ambient light levels within and is in a good state of repair.

Photograph 8: Southern elevation of Building 2

Photograph 9: Eastern elevation of Building 2

Building 3 – Open-sided barn

To the north of Building 2 is a modern building which is open on all sides and is used for storage of machinery. It is constructed of a steel frame and covered with corrugated fibre-cement sheeting on the roof and upper sections of the sides. Light levels within the structure are high and there are no visible niches or roosting opportunities for bats.

Photograph 10: View of Building 3

Photograph 11: Further views of Building 3

Building 4 – Shed/workshop

In the north-west corner of the yard is a shed/workshop, constructed of blockwork walls supporting a flat timber roof covered with metal sheeting. There is a gap above the roller door of the building. The building is in a good state of repair and is currently used for storage. There are a small number of gaps in the blockwork and gaps under the metal covering where it wraps over the blocks.

Photograph 12: Building 4 in the north west corner of the site

Photograph 13: Gap above the roller door

Building 5 - Workshop

A workshop constructed of a steel frame with lower infill panels of solid blockwork and covered above with corrugated fibre-cement sheet panels supporting a pitched roof. There is a small concrete block room off the building's northern elevation. The building has large sliding doors on its southern elevation and a metal roller door on its western elevation. Gaps were noted where the concrete block room joins the building. The building has high ambient light levels within and is in a good state of repair.

Photograph 14: Southern elevation of Building 5

Photograph 15: Western elevation of Building 5

Photograph 16: Small concrete block room off northern elevation

Photograph 17: Gap where block room joins the main building

Building 6 – Porta cabins

There are two portable/temporary buildings on the site, in use as offices/tea rooms; a small one located to the north of Building 2 and a larger one located to the west of Building 1.

Photograph 18: Porta cabin located to the north of Building 2

Photograph 19: Porta cabin located to the west of Building 1

All of the buildings are surrounded by a large concrete apron used as parking and turning for commercial and industrial vehicles, and an area of crushed stone. There are a small number of semi-mature trees, including silver birch and cherry species, with some beech and Leyland cypress hedging.

3.3 The arable fields and bisecting ditch

The area to the north and west of the buildings consists of arable land divided into two fields by a wet ditch. The fields were down to stubble or ploughed at the time of the survey.

The narrow arable margins support common couch, cow parsley, ragwort, common nettle, cock's-foot, creeping buttercup, dove's-foot crane's-bill, and hogweed.

The wet ditch that divides the two fields has steep earth banks with false oat-grass, common couch, common nettle, bramble, broad-leaved dock, hogweed, cleavers and white dead-nettle present, with lesser amounts of black knapweed, tare species, creeping buttercup, ribwort plantain and common reed. The channel supports common reed and great willowherb with very occasional water-cress and hard rush.

Photograph 20: Arable land to the between the buildings and ditch to the west

Photograph 21: Further view of the arable land to the west

Photograph 22: Arable field west of the ditch

Photograph 23: Wet ditch bisecting the arable fields

Photograph 24: Further view of the ditch

3.4 The amenity grassland

To the east of the buildings is an area of short-sward amenity grassland. The grassland is dominated by perennial rye-grass, ribwort plantain, dandelion, daisy, creeping buttercup and white clover, with lesser amounts of common mouse-ear, cat's-ear, yarrow, hawkbit species and clover species. There are also small areas of amenity grassland associated with the buildings at Distillery Farm (Buildings 2-6), mainly around the entrance. This area is dominated by perennial rye-grass and creeping buttercup with some scrub including cherry species and cherry laurel.

Photograph 25: Amenity grassland to the east of the buildings

Photograph 26: Further views of the amenity grassland

3.5 Tall ruderal vegetation

To the south of the main survey site are areas of tall ruderal vegetation (on former arable land). These areas of rough vegetation are dominated by ragwort, willowherb species, bristly oxtongue, clover species, common couch, mugwort, greater plantain, spear thistle, creeping thistle, teasel, cock's-foot, false oat-grass, barren brome, creeping buttercup and Yorkshire-fog.

Patches of scrub are starting to appear on these unmanaged areas – bramble, willow species and silver birch saplings were noted.

Photograph 27: Tall ruderal vegetation (on former arable) – south of the arable fields

Photograph 28: Tall ruderals south of the arable fields

Photograph 29:Tall ruderals south of the site – near to current commercial development

Photograph 30: Tall ruderals to the south-west

3.6 Site boundaries and surrounding areas

The northern site boundary comprises a gappy hedgerow over a seasonally wet ditch, which supports common reed and great willowherb. The gappy hedgerow is dominated by hawthorn and elder.

The north-eastern site boundary is formed by the busy A17 and a wet ditch. The ditch supports common reed and great willowherb, with the banks supporting a range of semi-mature trees and scrub (planted as part of the road landscaping) – species noted include willow species, dogwood, field maple, apple, cherry laurel and alder. The banksides also support common

couch, cock's-foot, thistle species, bristly oxtongue and fescue species with lesser amounts of oxeye daisy, ribwort plantain, tare species, clover species and wild carrot.

A mixture of post and rail and timber panel fencing and the A151 forms the south-eastern boundary, and the southern boundary is variable but mainly comprises the roads associated with the areas where commercial development/new infrastructure has commenced.

The majority of the western boundary is formed by a treeline comprising willow species, poplar species, field maple, pedunculate oak, ash, dog-rose, hawthorn, elder, hazel, alder and apple over ivy, bramble, common couch and cock's-foot.

All three of the areas of tall ruderal vegetation located to the south of the survey site have mainly undefined boundaries with some occasional wooden fencing in places.

The immediate surroundings of the site comprise arable fields, commercial development and busy roads. The town of Holbeach is to the south-east of the site.

The wider area includes arable fields, grassland, woodland patches, commercial and industrial areas (some currently under construction) and residential areas.

Photograph 31: Northern boundary hedgerow

Photograph 32: North-eastern boundary ditch along the A17

Photograph 33: Fencing and the A151 along the south-eastern boundary

Photograph 34: Western boundary treeline

4 RESULTS

4.1 Data search

The data search from Lincolnshire Environmental Records Centre (LERC) shows that there are no statutory or non-statutory sites within 2km of the development area.

The priority habitat of traditional orchards occurs to the east of the site. This habitat does not occur on or adjacent to the site and the proposals are not expected to have any adverse impact on the nature conservation interest of this area.

Where applicable, the records of protected species are included within the relevant section of this report.

4.2 Badger

There are six records of badger within 2km dating from 2002 - 2017. Some of these records are animals noted dead on the A17.

A total of five outlier setts, each with a single hole, were noted within the ditch banks around the arable fields, along with mammal trails across the fields. The outlier setts are presumed to be active even though no other field signs were noted, as badgers become inactive during cold periods of weather such as that around the survey date, meaning there would be fewer field signs.

Photograph 35: Outlier sett on the bank of the internal ditch

Photograph 36: Mammal track across arable field

Figure 3: Locations of the badger outlier setts marked in yellow (Bing Maps, 2023)

4.3 Bats

4.3.1 Preliminary roost assessment

There are numerous records of bats (143 in total) for the local area, including brown long-eared bat *Plecotus auritus* and common pipistrelle *Pipistrellus pipistrellus* from 2019 and soprano pipistrelle *Pipistrellus pygmaeus* from 2017, all within 2km of the site.

All of the buildings except Building 1, Building 4 and Building 5 are considered to have negligible

potential to support roosting bats due to the lack of niches and gaps and the high ambient light and disturbance levels. No bats or field signs of bats were noted in any of the buildings.

Building 1 is considered to have low suitability to support single/small numbers of bats on a transitional basis, due to some lifted tiles along the eaves and on the front porch. The associated garage has negligible potential.

Buildings 4 and 5 are considered to have low suitability to support single/small numbers of bats on a transitional basis, due to some gaps in the blockwork and areas where the roof covering is lifted.

The results of the assessment for the buildings appear in tabular form below;

Table 1: Assessment of survey site to support roosting bats

Building/ Feature	Description	Overall value for bats
Building 1 (house and garage)	Some gaps under lifted tiles on porch and mono-pitched roof on house. Small void which is inaccessible (house). No niches or gaps within garage.	Low potential for transitional roosting (house only – garage is negligible)
Building 2	Steel frame with concrete block and cement fibre sheets. High ambient light levels. No niches within the fabric of the building. No signs of bats found.	Negligible potential for long-term or transitional roosting.
Building 3	Light and draughty barn with unlined roof. No niches within the fabric of the building. No signs of bats found.	Negligible potential for long-term or transitional roosting
Building 4	Concrete block building with flat timber roof	

	covered with metal sheeting. Gap over door. No signs of bats found.	Low potential for transitional roosting
Building 5	Steel frame with concrete block and cement fibre sheets. Some gaps in blockwork. High ambient light levels. No signs of bats found.	Low potential for transitional roosting
Building 6	Temporary porta cabins. No niches within the fabric of the buildings. No signs of bats found.	Negligible potential for long-term or transitional roosting

4.3.2 Ground level roost assessment

There are trees along the western boundary with low and moderate potential to support roosting bats. This line of broad-leaved trees includes a small number with rot holes and some ivy cladding.

Ideally this boundary should remain in situ and not be managed or felled. It is recommended that this treeline is retained as part of the Masterplan.

If any trees are to be managed or felled along this boundary then further assessment and survey work will be required in connection with the potential for roosting bats to be present.

Figure 4: Location of treeline on western boundary containing trees with bat roost potential (green dotted line). (Bing Maps, 2023)

4.3.3 Assessment of commuting and foraging habitats

There is some connectivity between the site and the wider area, and the survey site will provide foraging and commuting opportunities for local bats.

The results of the assessment of the surrounding habitats appear in tabular form below:

Table 2: Assessment of surrounding habitats to support commuting and foraging bats

Feature	Description	Site value for bats
Site and immediate area (<500m)	Arable fields, grassland, woodland copses to south, east and west, commercial/industrial areas. Some connectivity via hedgerows, western treeline, adjacent woodland and drains, but the adjacent A17 and A151 will constitute major barriers for some bat species.	Moderate potential for foraging and low potential for commuting bats

Feature	Description	Site value for bats
Wider surroundings (500m-3km)	Arable fields, grassland, residential areas and woodland. Waterways and hedgerows contribute to connectivity, but the A17 and A151 will act as barriers to some bat species.	Moderate potential for foraging and commuting bats

4.4 Water vole

There are 21 records of water vole within 2km of the survey site, most recently from 2021. Most of these records are located over 1km away from the site. No signs of water vole were noted within the ditches during the survey, although December is not a suitable time of year to confirm absence of this species.

Figure 5: Locations of ditches on the site in blue (Bing Maps, 2023)

The ditch along the northern, north-eastern and eastern boundary of the site and the internal ditch were assessed for their potential to support water vole, with the results presented in tabular form below.

Table 3: Assessment of the boundary ditch to support water voles

Habitat Feature	Observations	Suitability for water voles
Bank profile	Steep banks (>45°)	High potential
Bank substrate	Earth	High potential
Water levels and fluctuations	Likely to fluctuate seasonally	Moderate potential
Shading from trees/shrubs	Low levels of shading	High potential
Bankside vegetation type and density	Some fringing vegetation and scrub	Moderate/high potential
In-channel herbaceous vegetation type, cover and density	Vegetation present providing some cover and foraging	Moderate potential
Vegetation management	No visible management	Moderate potential
Other	No burrows or latrines noted. Good connectivity to other waterways. Numerous recent water vole records within 2km.	Moderate/high potential

Overall, the boundary ditch is considered to have moderate/high suitability for water vole.

Table 4: Assessment of the internal ditch to support water voles

Habitat Feature	Observations	Suitability for water voles
Bank profile	Steep banks (>45°)	High potential
Bank substrate	Earth	High potential
Water levels and fluctuations	Likely to fluctuate seasonally	Moderate potential
Shading from trees/shrubs	Low levels of shading	High potential
Bankside vegetation type and density	Some fringing vegetation and scrub	Moderate/high potential
In-channel herbaceous vegetation type, cover and density	Vegetation present providing some cover and foraging	Moderate potential
Vegetation management	No visible management	Moderate potential
Other	No burrows or latrines noted. Good connectivity to other waterways. Numerous recent water vole records within 2km.	Moderate/high potential

Overall, the internal ditch is considered to have moderate/high suitability for water vole.

4.5 Common bird species

A number of common birds were seen or heard during the survey. These are listed below along with their current status as species of principle importance (NERC, 2006) or Birds of Conservation Concern 5 (Stanbury A. *et al*, 2021):

Table 5: Common bird species seen or heard during the survey

English name	Scientific name	SPI	BoCC5
pheasant	*Phasianus colchicus*		Green
kestrel	*Falco tinnunculus*		Amber
buzzard	*Buteo buteo*		Green
woodpigeon	*Columba palumbus*		Amber
magpie	*Pica pica*		Green
carrion crow	*Corvus corone*		Green
jackdaw	*Corvus monedula*		Green
pied wagtail	*Motacilla alba*		Green
great tit	*Parus major*		Green
blue tit	*Cyanistes caeruleus*		Green
blackbird	*Turdus merula*		Green
robin	*Erithacus rubecula*		Green

Kestrel pellets were recorded in Building 3, and disused nests were noted in Buildings 3 and 4.

The trees, buildings, the scattered scrub and the hedgerows on site are considered to have good nesting potential for common birds. The arable fields and ditch banks are also considered to have potential to support ground-nesting birds.

4.6 Habitats and plant species

The habitats and plant species recorded on the site are common and widespread in the local area and in the country. The plant species recorded are not listed on Schedule 8 or 9 of the Wildlife and Countryside Act 1981 (as amended) and the site would not qualify as a Local Wildlife Site.

Although the hedgerow along the northern boundary is not species-rich and does not meet the criteria to qualify as ‘important’ under the Hedgerow Regulations 1997, it does consist of predominantly (>80%) native woody species, and is therefore classed as a priority habitat.

There are no records of Japanese knotweed or Himalayan balsam from within the search area. Neither species were noted on the survey site during the survey.

5 DISCUSSION AND RECOMMENDATIONS

5.1 Badger

5.1.1 Legal protection

Badgers and their setts are fully protected under the Protection of Badgers Act 1992, which amended and incorporated previous legislation. This Act makes it an offence, inter alia, to:

- Wilfully kill, injure or take, or attempt to kill, injure or capture a badger
- Interfere with a badger sett by doing any of the following things, intending to do any of these things or be reckless as to whether one's actions would have any of these consequences:

    1. Damaging a badger sett or any part of it
    2. Destroying a badger sett
    3. Obstructing access to, or any entrance of, a badger sett
    4. Disturbing a badger when it is occupying a badger sett

A badger sett is defined in the Act as 'any structure or place which displays signs indicating current use by a badger'. A sett is therefore protected as long as such signs remain present. In practice, this could potentially be for a period of several weeks after the last actual occupation of the sett by a badger or badgers. A sett is likely to fall outside the definition of a sett in the Act if the evidence available indicates that it is <u>not</u> in use by badgers.

5.1.2 Recommendations

Badgers are present on site. There is no main sett, but there are five one-hole outlier setts – these are likely to fall in and out of use, and new ones may occur in different locations on the site throughout the year as badgers are a very mobile species.

Before development proceeds, a dedicated update badger survey will be required. Following this survey, advice can be provided to ensure that any impacts on the badger setts and badger movements across the site can be avoided and designed out of the Masterplan, or that the appropriate advice relating to closure of certain holes at the appropriate time of year can be provided.

Ideally, the Masterplan should follow the mitigation hierarchy and avoid impacts by designing

the scheme with appropriate buffer zones around the outlier setts, and adequate pathways across and around the site to avoid issues arising from severance. If the Masterplan cannot avoid impacts within 30 metres of the setts, then it may be necessary to apply to Natural England for a licence to exclude badgers from the setts using one-way gates. Licences can only be issued once full planning permission has been granted. The season when it is permitted to close active holes under licence is between July and November (inclusive).

When construction is underway, vigilance should be maintained for the presence of badgers during the works and advice must be sought if any setts are found. To safeguard ground mammals, including badgers and hedgehogs *Erinaceus europaeus* during the development phase, it is essential that no trenches or pipes are left uncovered overnight unless a suitable escape ramp is provided. No pipes should be left uncapped overnight.

5.2 Bats

5.2.1 Legal protection

In England, Scotland and Wales, all bats are strictly protected under the Wildlife and Countryside Act 1981 (and as amended); in England and Wales this legislation has been amended and strengthened by the Countryside and Rights of Way (CRoW) Act 2000. Bats are also protected by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Taken together, all this legislation makes it an offence to:

- Deliberately capture (or take), injure or kill a bat
- Intentionally or recklessly disturb a group of bats where the disturbance is likely to significantly affect the ability of the animals to survive, breed, or nurture their young or likely to significantly affect the local distribution or abundance of the species whether in a roost or not.
- Damage or destroy the breeding or resting place of a bat
- Possess a bat (alive or dead) or any part of a bat
- Intentionally or recklessly obstruct access to a bat roost
- Sell (or offer for sale) or exchange bats (alive or dead) or parts of bats

A roost is defined as being ‘any structure or place that is used for shelter or protection’, and since bats regularly move roost site throughout the year, a roost retains such designation whether or not bats are present at the time.

5.2.2 Recommendations

<u>Roosting bats – buildings</u>

The preliminary roost assessment indicates that Buildings 1 (the dwelling), 4 and 5 have low potential to support roosting by bats, and in accordance with the latest guidelines (Collins,

2016), a minimum of one evening emergence survey is required on each of these buildings, to determine the presence or likely absence of bats prior to their removal or demolition. If the presence of bats is confirmed during these surveys, then further work will be required. These surveys must occur between May and August, and a team of 2-3 surveyors with infra-red cameras will be required for each building to cover all elevations. Further advice relating to mitigation can be provided when these surveys have been undertaken.

No further work or mitigation is required in respect of bats prior to the demolition or removal of the timber garage, or Buildings 2, 3 and 6.

Roosting bats – trees

The preliminary roost assessment indicates that the western treeline has trees within it that have low and moderate potential to support roosting by bats, and in accordance with the latest guidelines (Collins, 2016), trees with moderate potential require additional surveys and assessment. These surveys must be timed to occur between May and August and for trees assessed as having moderate potential, two survey visits are required.

Ideally, all of these trees should be retained and protected as part of the Masterplan. This will help to prevent biodiversity loss on site, as well as protecting roosting, foraging and commuting bats.

Commuting and foraging bats

Local bats are likely to be using the survey area and adjacent habitats for foraging and commuting, and the redevelopment of the site may have an impact on the availability of foraging areas for bats within the local landscape. There will be no requirement for bat activity surveys providing precautionary measures are implemented to ensure that bats can continue to use the site for foraging and commuting once the development has been completed.

Precautionary measures for commuting/foraging bats – A151, Holbeach

- The existing hedgerow, ditch and treeline along the site boundaries must be retained if possible, and if not, they must be replaced with new native landscaping.

- An unlit buffer should be retained alongside the boundary ditch, hedgerow and treeline, to enable bats to continue to use these linear features for commuting and foraging.

- Any external lighting must be kept to a minimum. If it is necessary to include some external lighting, this should be carefully designed to minimise disturbance to bats by using down-lights on low bollards on access roads rather than up-lights and using

shields to limit light spill. External lighting on the buildings should be sensor-activated and on a timer where possible, to limit light pollution. If security lighting is necessary, then shields must be used, to ensure no light spill onto the site boundaries or on any new areas of planting, to maintain dark areas for bats to commute and forage. An example of a bat-friendly lighting solution is the Pharola DS bollard (https://www.dwwindsor.com/products/pharola/pharola-ds/).

- Any external lighting used should emit minimal ultra-violet light, be narrow-spectrum (avoiding white and blue wavelengths) and should peak higher than 550nm. Ideally, 'warm-white' LED lights with no UV component would be used. It should be remembered that artificial lighting disrupts and disturbs many animals, including birds and invertebrates, as well as bats. More information is available at https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/.

5.3 Water vole

5.3.1 Legal protection

As of 6th April 2008, the water vole is now fully protected under section 9 of the Wildlife and Countryside Act (1981 as amended). Legal protection makes it an offence to:

- Intentionally kill, injure or take (capture) a water vole
- Possess or control a live or dead water vole, or any part of a water vole
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection or disturb water voles while they are using such a place
- Sell, offer for sale or advertise for live or dead water voles.

5.3.2 Recommendations

If there are any anticipated impacts to the ditch along the boundary or the internal ditch on site then further survey work will be required in order to remain legally compliant. One water vole survey must be undertaken between mid-April and the end of June, and another between July and September, unless there is sufficient information from the first survey to determine either the absence of water vole or the relative size and extent of the water vole population to be affected. Further advice relating to mitigation and protecting water voles can be provided once the surveys are complete.

5.4 Common bird species

5.4.1 Legal protection

All common wild birds are protected under The Wildlife and Countryside Act 1981 (and as

amended). Under this legislation it is an offence to:

- Kill, injure or take any wild bird
- Take, damage or destroy the nest of any wild bird while it is in use or being built
- Take or destroy the egg of any wild bird

5.4.2 Recommendations

Any removal/management of any of the trees, buildings, the scrub or the hedgerows on site, or any ground works within the arable fields or near the ditches, should commence outside the active nesting season which typically runs from early March through to early September. If work commences during the bird breeding season, a search for nests should be carried out beforehand by a suitably experienced ecologist, and active nests protected until the young fledge.

5.5 Habitats and plant species

5.5.1 Legal protection

Section 41 (S41) of the NERC Act requires the Secretary of State to publish a list (in consultation with Natural England) of Habitats and Species which are of Principal Importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as public bodies including local and regional authorities, in implementing their duty under Section 40 of the NERC Act, to have regard to the conservation of biodiversity in England, when carrying out their normal (e.g., planning) functions. The S41 list includes 65 Habitats of Principal Importance and 1,150 Species of Principal Importance.

A number of plant species are also protected under the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2010 (amended). It is an offence to deliberately pick, collect, cut, uproot or destroy these wild plants. It is also an offence for any purpose to possess, sell or exchange such a plant.

5.5.2 Recommendations

The destruction of, or damage to, priority habitats must be avoided if at all possible. If avoidance is not possible due to overriding factors, then the mitigation hierarchy must be followed, with any damage or loss to be minimised and compensated for, preferably on-site, with creation of new areas of priority habitat off-site as a last resort.

As the hedgerow along the northern boundary is a priority habitat, it should be retained in full. If this is not possible, then replacement hedgerow of at least equal length to that removed must be planted using a mix of at least six of the following native species; hazel *Corylus avellana*, holly *Ilex aquifolium*, field maple *Acer campestre,* hawthorn *Crataegus monogyna*, blackthorn

Prunus spinosa, dog rose *Rosa canina*, elder *Sambucus nigra,* wild cherry *Prunus avium*, bird cherry *Prunus padus* and guelder rose *Viburnum opulus*. The hedgerow must be planted in staggered double rows using biodegradable guards and ties. The northern boundary hedgerow is currently very gappy – a positive conservation measure would be to plant up the gaps with a mixture of the aforementioned native species.

5.6 Recommendations for ecological enhancement

In addition to the legislation which is in place to safeguard protected species, there is also legislation and policy which imposes duties to undertake action to prevent loss of biodiversity and species/habitats of principle importance in the UK. In England and Wales, the Natural Environment and Rural Communities (NERC) Act 2006, imposes a duty on all public bodies (including Local Authorities and statutory bodies) to conserve biodiversity – including restoring and enhancing a population or habitat. In addition, government planning policy guidance throughout the UK, provided in the latest National Planning Policy Framework (July 2021), states that '…local planning authorities should apply the following principles'; 'if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused'.

In addition to this, the South East Lincolnshire Local Plan (adopted in March 2019) states that as part of Policy 28 – The Natural Environment, 'A high quality, comprehensive ecological network of interconnected designated sites, sites of nature conservation importance and wildlife-friendly greenspace will be achieved by protecting, enhancing and managing natural assets'...'by ensuring that all development proposals shall provide an overall net gain in biodiversity, by:

i. protecting the biodiversity value of land, buildings and trees (including veteran trees) minimising the fragmentation of habitats;

ii. maximising the opportunities for restoration, enhancement and connection of natural habitats and species of principal importance;

iii. incorporating beneficial biodiversity conservation features on buildings, where appropriate; and maximising opportunities to enhance green infrastructure and ecological corridors, including water space; and

iv. conserving or enhancing biodiversity or geodiversity conservation features that will provide new habitat and help wildlife to adapt to climate change, and if the development is within a Nature Improvement Area (NIA), contributing to the aims and objectives of the NIA.

In order to try and achieve no net loss of biodiversity on site and fulfil the Local Planning Authority's obligations under the NERC Act, the following outline measures are recommended.

A Biodiversity Management Plan or similar is likely to be required by the Local Planning Authority in order to ensure that these measures are implemented on site;

- Any new hedgerows to be planted must comprise native species that provide pollen, nectar and fruit in order to provide a food source for birds and invertebrates. Species should include some of the following; hazel *Corylus avellana*, holly *Ilex aquifolium*, field maple *Acer campestre,* hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa,* dog rose *Rosa canina*, elder *Sambucus nigra,* wild cherry *Prunus avium*, bird cherry *Prunus padus* and guelder rose *Viburnum opulus*, and should be planted in double rows to ensure a dense hedgerow. Some standard trees should be added within the hedgerows where possible, using the native species listed below. Hedgerows should ideally be used in place of fencing or walls. All new hedgerow plants must use biodegradable ties and guards.

- All boundary hedgerows should be appropriately managed by trimming every 2 to 3 years and in sections so that not all parts of the hedgerow are cut at the same time.

- Any new trees to be planted must include field maple *Acer campestre*, bird cherry *Prunus padus,* pedunculate oak *Quercus robur*, white willow *Salix alba*, alder *Alnus glutinosa*, goat willow *Salix caprea*, holly *Ilex aquifolium*, rowan *Sorbus aucuparia*, hawthorn *Crataegus monogyna*, crab apple *Malus sylvestris* and wild cherry *Prunus avium*, which provide foraging opportunities for various invertebrate and bird species. All new trees must use biodegradable ties and guards.

- Planted flower borders within any landscaped areas of the site should include night scented flowers in order to attract moths and other night flying insects (which will provide foraging opportunities for bats). Species should include evening primrose *Oenothera biennis*, sweet rocket *Hesperis matronalis*, honeysuckle species *Lonicera sp.*, lavender *Lavendula sp.*, white jasmine *Jasminum officinale*, night-scented catchfly *Silene noctiflora*, night-scented stock *Matthiola longipetala* and soapwort *Saponaria officinalis*.

- Some areas of longer grass must be created and seeded with a general-purpose wildflower meadow seed mix such as Emorsgate EM1 mix or Boston Seeds BS1M mix, available at www.wildseed.co.uk or www.bostonseeds.com.

- Any new wildflower areas must be cut regularly throughout spring and autumn in the first year to a height of 40-60mm and the arisings removed, to avoid dominant weed species out-competing the wildflowers. Thereafter, these areas should be cut once in spring, and several times over late summer/early autumn and the arisings removed. The application of herbicides must be avoided, with weeds removed by pulling or topping. Further information on the establishment and ongoing management of wildflower meadows is available at www.wildseed.co.uk.

- The creation of a new wildlife pond on site would be a positive conservation measure and would help to achieve biodiversity gain on site. The pond should measure at least 100m^2 and should have varying depths to ensure that water is retained in some parts year-round. It must **not** have fish introduced, as this will greatly reduce its value for wildlife.

- The pond can either be left to colonise naturally, or some native aquatic plants can be introduced. A list of suitable native aquatic plant species can be found at: https://grassandflower.co.uk/british-flora/wp-content/uploads/sites/2/2019/03/Britishflora-Marginals-Aquatics.pdf. Species such as common reed *Phragmites australis* and common bulrush *Typha latifolia* should be avoided, as they can become dominant.

- The vegetation around the margins of the pond should be allowed to grow tall and tussocky, and cut back on rotation, with some vegetation remaining over winter to provide shelter for invertebrates.

- Piles of stone, rubble, logs and debris could be created around the pond, to provide shelter opportunities for invertebrates, amphibians and small mammals.

- As swifts *Apus apus* are declining in the UK, integral swift boxes (Manthorpe Swift Brick, Woodstone, Vivara Pro or Schwegler type) must be installed on the northern or eastern elevations of some of the new buildings. **These boxes must be installed during the construction phase, as they must be incorporated into the wall.** These boxes must be situated as high as possible, at a height of between 4-6 metres above ground level, with a clear flight-way for the birds to exit. As swifts are a colonial breeding species, the boxes must be situated together, approximately 1 metre apart. The total number of boxes required will be determined by the number of new buildings on site, with a 1/1 ratio being ideal. Recent evidence shows that integral swift boxes will also be used by other red-listed cavity nesting species such as starling *Sturnus vulgaris* and house sparrow *Passer domesticus* (Barlow, C., 2020). These nest boxes are available from www.nhbs.co.uk or www.wildcareshop.co.uk.

Manthorpe swift brick (source: www.nhbs.com)

6 SUMMARY

Land off A151, Holbeach in Lincolnshire was surveyed in connection with proposals for future development of the site.

Precautionary measures for foraging/commuting bats are required, as well as vigilance for ground mammals and appropriate timings with regards to nesting birds.

Further survey work is required in respect of the following species:

- **Roosting bats -** if there are to be any impacts to the western treeline on the site boundary.
- **Roosting bats -** if there are to be any impacts to Buildings 1, 4 and/or 5.
- **Badgers -** to determine the latest status of badgers on site and assess impacts against the final Masterplan.
- **Water vole -** if there are to be any impacts to the ditches on site.

Ecological enhancements are recommended in order to try and ensure no net loss to biodiversity. These are as follows:

- Use of native species in the planting/landscaping scheme
- Appropriate management of hedgerows
- Creation of wildflower areas
- Creation of a wildlife pond
- Addition of integral swift boxes to buildings within the development

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PRELIMINARY ECOLOGICAL APPRAISAL
LAND OFF THE A151, HOLBEACH, LINCOLNSHIRE

APPENDIX 1
Plant list

ENGLISH NAME	SCIENTIFIC NAME
alder	*Alnus glutinosa*
apple	*Malus domestica*
ash	*Fraxinus excelsior*
barren brome	*Bromus sterilis*
beech	*Fagus sylvatica*
blackthorn	*Prunus spinosa*
black knapweed	*Centaurea nigra*
bramble	*Rubus fruticosus agg.*
bristly oxtongue	*Helminthotheca echioides*
broad-leaved dock	*Rumex obtusifolius*
butterfly-bush	*Buddleia davidii*
cat's-ear	*Hypochaeris radicata*
cherry species	*Prunus sp.*
cherry laurel	*Prunus laurocerasus*
cleavers	*Galium aparine*
clematis species	*Clematis sp.*
cock's-foot	*Dactylis glomerata*
common field-speedwell	*Veronica persica*
common mouse-ear	*Cerastium fontanum*
common mugwort	*Artemisia vulgaris*
common nettle	*Urtica dioica*
common ragwort	*Jacobaea vulgare*
common reed	*Phragmites australis*
common sorrel	*Rumex acetosa*
cow parsley	*Anthriscus sylvestris*
creeping bent	*Agrostis stolonifera*
creeping buttercup	*Ranunculus repens*
creeping jenny	*Lysimachia nummularia*
creeping thistle	*Cirsium arvense*
curled dock	*Rumex crispus*
daisy	*Bellis perennis*
dandelion	*Taraxacum agg.*
dogwood	*Cornus sanguinea*
dog-rose	*Rosa canina*
dove's-foot crane's-bill	*Geranium molle*
elder	*Sambucus nigra*
false-oat grass	*Arrhenatherum elatius*
feverfew	*Tanacetum vulgare*

ENGLISH NAME	SCIENTIFIC NAME
field bindweed	*Convolvulus arvensis*
field maple	*Acer campestre*
great willowherb	*Epilobium hirsutum*
ground-ivy	*Glechoma hederacea*
hard rush	*Juncus inflexus*
hawthorn	*Crataegus monogyna*
hawkbit	*Leontodon sp.*
hazel	*Corylus avellana*
hogweed	*Heracleum sphondylium*
ivy	*Hedera helix*
lesser burdock	*Arctium minus*
Leyland cypress	*Cupressus x leylandii*
mugwort	*Artemisia vulgaris*
oxeye daisy	*Leucanthemum vulgare*
pedunculate oak	*Quercus robur*
poplar species	*Populus sp.*
red clover	*Trifolium pratense*
red fescue	*Festuca rubra*
ribwort plantain	*Plantago lanceolata*
self-heal	*Prunella vulgaris*
silver birch	*Betula pendula*
spear thistle	*Cirsium vulgare*
sycamore	*Acer pseudoplatanus*
tare species	*Vicia sp.*
teasel	*Dipsacus fullonum*
water-cress	*Nasturtium officinale*
white bryony	*Bryonia dioica*
white clover	*Trifolium repens*
white dead-nettle	*Lamium album*
wild carrot	*Daucus carota*
willow species	*Salix sp.*
willowherb species	*Epilobium sp.*
yarrow	*Achillea millefolium*
Yorkshire-fog	*Holcus lanatus*

PRELIMINARY ECOLOGICAL APPRAISAL
LAND OFF THE A151, HOLBEACH, LINCOLNSHIRE

APPENDIX 2
Data search results

LERC Search Summary Report

Grid Reference: TF 34752 25841
Buffer: 2km

Date of publication: 15/12/2022
Expires: 15/12/2023

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Report Details

Produced for	Celia Commowick, CGC Ecology
Search area	

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This report summarises a search of statutory sites, non-statutory sites, other sites, habitats and species within the specified area; where no information is returned for a section, it is excluded from this summary report.

About the Lincolnshire Environmental Records Centre

The Lincolnshire Environmental Records Centre (LERC) collates wildlife and geological information for Greater Lincolnshire from various sources and makes it available for various uses. This data is crucial to aid conservation management of sites, to help organisations prioritise action, and to understand the distribution of species and trends over time. For more information on LERC or to request a data search, visit the website at https://glnp.org.uk/partnership/lerc/

an ALERC accredited LERC
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For more information on acceditation, see the ALERC website at http://www.alerc.org.uk/alerc-accreditation.html

Habitats

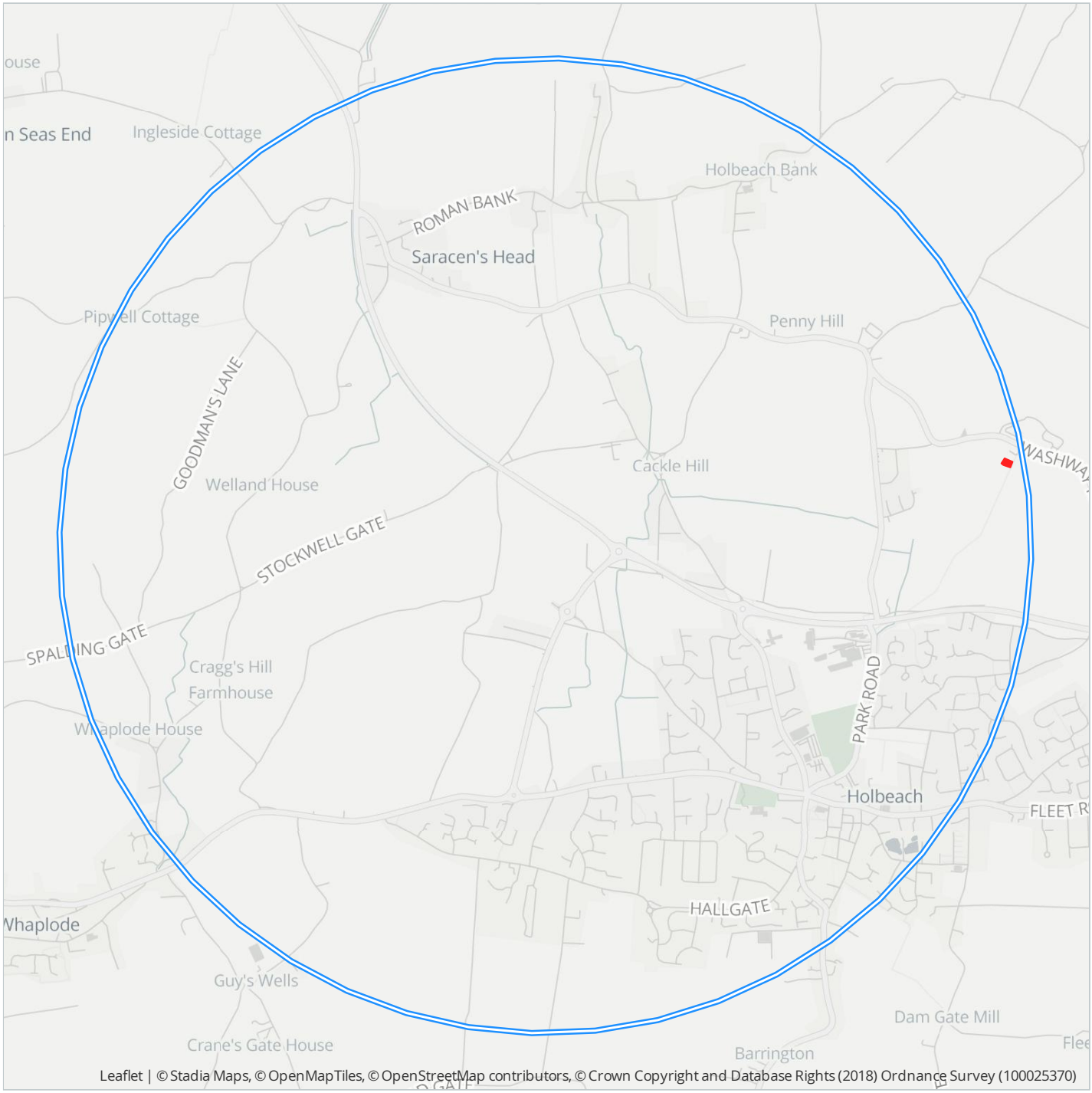
Priority habitats are those identified as being the most threatened and requiring conservation action in the UK. The most-recent list of UK priority species and habitats was published in August 2007 following a 2-year review of the process and priorities, representing the most comprehensive analysis of such information ever undertaken in the UK.

The data presented is the most up-to-date of the data collated by the GLNP and mostly comes from surveys of Local Sites; further historic data and non-Priority habitat data may also be available. Absence of information doesn't mean that the Priority habitat isn't present merely that no information is held.

A number of different datasets have been consulted to produce this report - a summary of attribution statements is available at https://glnp.org.uk/images/uploads/services/lincolnshire-environmental-records-centre/habitat%20attribution.pdf.

Type	Habitat	Survey Date	Area (ha)
Priority Habitat	Traditional orchards	2010	0.1

Habitats within the search area



Space restrictions on the map may result in some sites not being labelled.

Traditional orchards

Search area

Species

Lincolnshire Environmental Records Centre holds records on the following species within or overlapping the search area. Data shown is as held by LERC; past records of presence of a species does not guarantee continued occurrence and absence of records does not imply absence of a species, merely that no records are held. Confidential data, zero abundance records, data at poorly defined geographic resolutions and data pending validation and/or verification are also excluded from this report. A number of different datasets have been consulted to produce this report - a summary of attribution statements is available at https://glnp.org.uk/images/uploads/services/lincolnshire-environmental-records-centre/species%20attribution.pdf

Amphibian (3 taxa)

Common Frog, *Rana temporaria*	2	1977 - 1995	Protected
Common Toad, *Bufo bufo*	2	1998 - 2009	Protected, Priority
Great Crested Newt, *Triturus cristatus*	1	2017 - 2017	Protected, Priority, Local Priority

Bird (41 taxa)

Barn Owl, *Tyto alba*	5	1998 - 2019	Protected, Local Priority
Brambling, *Fringilla montifringilla*	1	2008 - 2008	Protected
Bullfinch, *Pyrrhula pyrrhula*	1	2009 - 2009	Local Priority
Collared Dove, *Streptopelia decaocto*	77	1999 - 2021	Non-native
Columba livia 'feral', *Columba livia 'feral'*	16	2010 - 2013	Non-native
Corn Bunting, *Emberiza calandra*	15	1998 - 2010	Local Priority
Cuckoo, *Cuculus canorus*	2	1998 - 2002	Priority
Curlew, *Numenius arquata*	1	2009 - 2009	Priority, Local Priority
Egyptian Goose, *Alopochen aegyptiaca*	1	2020 - 2020	Non-native
Fieldfare, *Turdus pilaris*	1	2019 - 2019	Protected
Grasshopper Warbler, *Locustella naevia*	4	2011 - 2013	Priority
Green Sandpiper, *Tringa ochropus*	3	2008 - 2021	Protected
Grey Partridge, *Perdix perdix*	4	2010 - 2011	Priority, Local Priority, Non-native
Hawfinch, *Coccothraustes coccothraustes*	1	2009 - 2009	Priority
Hen Harrier, *Circus cyaneus*	1	2000 - 2000	Protected
Hobby, *Falco subbuteo*	2	1999 - 1999	Protected
House Sparrow, *Passer domesticus*	108	1999 - 2020	Priority, Local Priority
Indian Peafowl, *Pavo cristatus*	1	2021 - 2021	Non-native
Lapwing, *Vanellus vanellus*	19	2000 - 2013	Priority, Local Priority
Linnet, *Linaria cannabina*	5	2002 - 2013	Local Priority
Little Egret, *Egretta garzetta*	3	2011 - 2020	Protected
Little Owl, *Athene noctua*	18	2009 - 2013	Non-native
Mediterranean Gull, *Ichthyaetus melanocephalus*	2	1999 - 2000	Protected
Mute Swan, *Cygnus olor*	1	2011 - 2011	Non-native

Bird (41 taxa)			
Pheasant, *Phasianus colchicus*	30	1999 - 2019	Non-native
Pink-footed Goose, *Anser brachyrhynchus*	4	2000 - 2018	Non-native
Red-legged Partridge, *Alectoris rufa*	10	1999 - 2013	Non-native
Redwing, *Turdus iliacus*	1	1999 - 1999	Protected
Reed Bunting, *Emberiza schoeniclus*	13	2010 - 2012	Priority, Local Priority
Rock Dove, *Columba livia*	1	2009 - 2009	Non-native
Rose-coloured Starling, *Pastor roseus*	1	2021 - 2021	Non-native
Skylark, *Alauda arvensis*	9	2006 - 2013	Local Priority
Song Thrush, *Turdus philomelos*	8	1999 - 2010	Local Priority
Starling, *Sturnus vulgaris*	64	1999 - 2020	Local Priority
Swift, *Apus apus*	22	1998 - 2020	Local Priority
Tree Sparrow, *Passer montanus*	34	2001 - 2013	Priority, Local Priority
Turtle Dove, *Streptopelia turtur*	9	2000 - 2013	Priority, Local Priority
White Stork, *Ciconia ciconia*	1	2011 - 2011	Non-native
Whooper Swan, *Cygnus cygnus*	4	2009 - 2020	Protected, Non-native
Yellow Wagtail, *Motacilla flava*	13	2001 - 2021	Local Priority
Yellowhammer, *Emberiza citrinella*	36	2000 - 2013	Priority, Local Priority

Conifer (7 taxa)			
Cedar-of-Lebanon, *Cedrus libani*	2	2013 - 2016	Non-native
European Larch, *Larix decidua*	1	2013 - 2013	Non-native
Hybrid Larch, *Larix decidua x kaempferi = L. x marschlinsii*	1	2016 - 2016	Non-native
Lawson's Cypress, *Chamaecyparis lawsoniana*	1	2016 - 2016	Non-native
Leyland Cypress, *Cupressus macrocarpa x Xanthocyparis nootkatensis = X Cuprocyparis leylandi*	3	2013 - 2016	Non-native
Wellingtonia, *Sequoiadendron giganteum*	1	2016 - 2016	Non-native
Western Red-cedar, *Thuja plicata*	1	2016 - 2016	Non-native

Crustacean (2 taxa)			
Crangonyx pseudogracilis/floridanus, *Crangonyx pseudogracilis/floridanus sens. lat.*	5	2001 - 2011	Non-native
Signal Crayfish, *Pacifastacus leniusculus*	1	1900 - 1900	Non-native

Flowering Plant (110 taxa)			
Algerian Ivy, *Hedera algeriensis*	1	2013 - 2013	Non-native
Alsike Clover, *Trifolium hybridum*	1	2013 - 2013	Non-native
American Willowherb, *Epilobium ciliatum*	5	2011 - 2016	Non-native
Apple, *Malus pumila*	3	2011 - 2013	Non-native
Apple-mint, *Mentha spicata x suaveolens = M. x villosa*	1	2016 - 2016	Non-native
Barren Brome, *Bromus sterilis*	6	2010 - 2016	Non-native
Bird-in-a-bush, *Corydalis solida*	2	2008 - 2013	Non-native
Black Walnut, *Juglans nigra*	1	2016 - 2016	Non-native
Blue Globe-thistle, *Echinops bannaticus*	1	2016 - 2016	Non-native
Bluebell, *Hyacinthoides non-scripta x hispanica = H. x massartiana*	3	2013 - 2016	Non-native
Box-leaved Honeysuckle, *Lonicera pileata*	1	2013 - 2013	Non-native
Bristly Oxtongue, *Picris echioides*	4	2013 - 2016	Non-native
Butterfly-bush, *Buddleja davidii*	5	2013 - 2016	Non-native
Canadian Fleabane, *Conyza canadensis*	3	2013 - 2016	Non-native
Canadian Goldenrod, *Solidago canadensis*	1	2015 - 2015	Non-native
Caper Spurge, *Euphorbia lathyris*	1	2013 - 2013	Non-native
Charlock, *Sinapis arvensis*	2	2013 - 2013	Non-native
Cherry Laurel, *Prunus laurocerasus*	3	2013 - 2013	Non-native
Cherry Plum, *Prunus cerasifera*	1	2013 - 2013	Non-native
Chinese Barberry, *Berberis julianae*	1	2016 - 2016	Non-native
Common Blue-sow-thistle, *Cicerbita macrophylla*	1	2016 - 2016	Non-native
Common Field-speedwell, *Veronica persica*	6	2010 - 2016	Non-native
Common Mallow, *Malva sylvestris*	4	2011 - 2016	Non-native
Common Millet, *Panicum miliaceum*	1	2016 - 2016	Non-native
Common Poppy, *Papaver rhoeas*	1	2016 - 2016	Non-native
Common Vetch, *Vicia sativa subsp. segetalis*	2	2013 - 2013	Non-native
Druce's Crane's-bill, *Geranium endressii x versicolor = G. x oxonianum*	1	2016 - 2016	Non-native
Duke of Argyll's Teaplant, *Lycium barbarum*	1	2013 - 2013	Non-native
Equal-leaved Knotgrass, *Polygonum arenastrum*	1	2016 - 2016	Non-native
Evergreen Oak, *Quercus ilex*	2	2013 - 2016	Non-native
False-acacia, *Robinia pseudoacacia*	1	2016 - 2016	Non-native
Fennel, *Foeniculum vulgare*	1	2016 - 2016	Non-native
Feverfew, *Tanacetum parthenium*	2	2016 - 2016	Non-native
Field Pansy, *Viola arvensis*	1	1987 - 1987	Non-native
Firethorn, *Pyracantha coccinea*	1	2016 - 2016	Non-native
Flowering Currant, *Ribes sanguineum*	3	2013 - 2016	Non-native
Garden Lobelia, *Lobelia erinus*	1	2016 - 2016	Non-native

Flowering Plant (110 taxa)			
Garden Privet, *Ligustrum ovalifolium*	2	2013 - 2016	Non-native
Glory-of-the-snow, *Scilla forbesii*	1	2013 - 2013	Non-native
Greater Celandine, *Chelidonium majus*	2	2013 - 2016	Non-native
Greater Periwinkle, *Vinca major*	2	2013 - 2016	Non-native
Green Alkanet, *Pentaglottis sempervirens*	2	2016 - 2016	Non-native
Grey Alder, *Alnus incana*	1	2016 - 2016	Non-native
Ground-elder, *Aegopodium podagraria*	2	2013 - 2016	Non-native
Hedge Mustard, *Sisymbrium officinale*	6	2011 - 2016	Non-native
Henbit Dead-nettle, *Lamium amplexicaule*	1	2013 - 2013	Non-native
Himalayan Cotoneaster, *Cotoneaster simonsii*	1	2016 - 2016	Non-native
Himalayan Honeysuckle, *Leycesteria formosa*	1	2016 - 2016	Non-native
Hjelmqvist's Cotoneaster, *Cotoneaster hjelmqvistii*	1	2016 - 2016	Non-native
Hoary Cress, *Lepidium draba*	1	2015 - 2015	Non-native
Honesty, *Lunaria annua*	1	2013 - 2013	Non-native
Horse-chestnut, *Aesculus hippocastanum*	3	2011 - 2016	Non-native
Horse-radish, *Armoracia rusticana*	3	2011 - 2016	Non-native
Italian Alder, *Alnus cordata*	1	2016 - 2016	Non-native
Ivy-leaved Toadflax, *Cymbalaria muralis*	2	2013 - 2016	Non-native
Large-flowered Evening-primrose, *Oenothera glazioviana*	2	2013 - 2015	Non-native
Least Yellow-sorrel, *Oxalis exilis*	2	2016 - 2016	Non-native
Lesser Swine-cress, *Lepidium didymum*	2	2020 - 2020	Non-native
Lilac, *Syringa vulgaris*	2	2011 - 2013	Non-native
London Plane, *Platanus occidentalis x orientalis = P. x hispanica*	1	2016 - 2016	Non-native
Lovage, *Levisticum officinale*	1	2016 - 2016	Non-native
Mock-orange, *Philadelphus coronarius*	1	2016 - 2016	Non-native
Mugwort, *Artemisia vulgaris*	2	2013 - 2013	Non-native
Narrow-leaved Ash, *Fraxinus angustifolia*	1	2016 - 2016	Non-native
New Zealand Flax, *Phormium tenax*	1	2013 - 2013	Non-native
Norway Maple, *Acer platanoides*	4	2013 - 2016	Non-native
Nuttall's Waterweed, *Elodea nuttallii*	5	2019 - 2020	Non-native
Oil-seed Rape, *Brassica napus subsp. oleifera*	2	2011 - 2013	Non-native
Oregon-grape, *Mahonia aquifolium*	1	2016 - 2016	Non-native
Osier, *Salix viminalis*	2	2012 - 2012	Non-native
Pale Pink-sorrel, *Oxalis incarnata*	1	2016 - 2016	Non-native
Perennial Candytuft, *Iberis sempervirens*	1	2016 - 2016	Non-native
Persian Ivy, *Hedera colchica*	1	2016 - 2016	Non-native
Petty Spurge, *Euphorbia peplus*	5	2013 - 2016	Non-native
Pineappleweed, *Matricaria discoidea*	4	2010 - 2016	Non-native

Flowering Plant (110 taxa)			
Portugal Laurel, *Prunus lusitanica*	2	2013 - 2016	Non-native
Prickly Lettuce, *Lactuca serriola*	3	2016 - 2020	Non-native
Procumbent Yellow-sorrel, *Oxalis corniculata*	2	2016 - 2016	Non-native
Purple Toadflax, *Linaria purpurea*	2	2013 - 2016	Non-native
Red Dead-nettle, *Lamium purpureum*	5	2010 - 2013	Non-native
Red Oak, *Quercus rubra*	2	2013 - 2016	Non-native
Red Valerian, *Centranthus ruber*	3	2013 - 2016	Non-native
Scented Mayweed, *Matricaria chamomilla*	1	2016 - 2016	Non-native
Scentless Mayweed, *Tripleurospermum inodorum*	7	2010 - 2020	Non-native
Shepherd's-purse, *Capsella bursa-pastoris*	8	2010 - 2020	Non-native
Slender Speedwell, *Veronica filiformis*	3	2013 - 2016	Non-native
Small Nettle, *Urtica urens*	4	2011 - 2020	Non-native
Snowberry, *Symphoricarpos albus*	2	2013 - 2016	Non-native
Snowdrop, *Galanthus nivalis*	3	2013 - 2013	Non-native
Spotted-laurel, *Aucuba japonica*	2	2016 - 2016	Non-native
Sun Spurge, *Euphorbia helioscopia*	7	2013 - 2020	Non-native
Sweet Chestnut, *Castanea sativa*	1	2016 - 2016	Non-native
Swine-cress, *Lepidium coronopus*	1	2011 - 2011	Non-native
Sycamore, *Acer pseudoplatanus*	6	2011 - 2016	Non-native
Trailing Bellflower, *Campanula poscharskyana*	2	2013 - 2016	Non-native
Turkey Oak, *Quercus cerris*	1	2016 - 2016	Non-native
Veronica hederifolia subsp. hederifolia, *Veronica hederifolia subsp. hederifolia*	4	2010 - 2013	Non-native
Wall Barley, *Hordeum murinum*	4	2013 - 2016	Non-native
Wall Cotoneaster, *Cotoneaster horizontalis*	1	2016 - 2016	Non-native
Water Bent, *Polypogon viridis*	1	2016 - 2016	Non-native
Weeping Crack-willow, *Salix euxina x alba x babylonica = S. x pendulina*	1	2013 - 2013	Non-native
Weeping Willow, *Salix alba x babylonica = S. x sepulcralis*	1	2013 - 2013	Non-native
White Dead-nettle, *Lamium album*	7	2010 - 2017	Non-native
White Stonecrop, *Sedum album*	1	2013 - 2013	Non-native
White Willow, *Salix alba*	2	2012 - 2012	Non-native
Wild Plum, *Prunus domestica*	1	2011 - 2011	Non-native
Wild-oat, *Avena fatua*	5	2011 - 2020	Non-native
Winter Aconite, *Eranthis hyemalis*	1	2013 - 2013	Non-native
Yellow Corydalis, *Pseudofumaria lutea*	4	2013 - 2016	Non-native
Yellow-flowered Strawberry, *Potentilla indica*	2	2013 - 2016	Non-native

Insect - Beetle (Coleoptera) (1 taxa)			
Harlequin Ladybird, *Harmonia axyridis*	6	2014 - 2020	Non-native

Insect - Butterfly (1 taxa)			
Small Heath, *Coenonympha pamphilus*	2	1980 - 1993	Priority

Mollusc (2 taxa)			
Common Bladder Snail, *Physa fontinalis*	2	2005 - 2005	Non-native
Jenkins' Spire Snail, *Potamopyrgus antipodarum*	44	1970 - 2005	Non-native

Terrestrial Mammal (9 taxa)			
Brown Hare, *Lepus europaeus*	13	1976 - 2005	Priority
Brown Rat, *Rattus norvegicus*	4	1977 - 1998	Non-native
Chinese Muntjac, *Muntiacus reevesi*	1	1996 - 1996	Non-native
Eastern Grey Squirrel, *Sciurus carolinensis*	4	2009 - 2018	Non-native
Eurasian Badger, *Meles meles*	6	2002 - 2017	Protected
European Rabbit, *Oryctolagus cuniculus*	9	1976 - 2021	Non-native
European Water Vole, *Arvicola amphibius*	21	2014 - 2021	Protected, Priority, Local Priority
House Mouse, *Mus musculus*	3	1977 - 1978	Non-native
West European Hedgehog, *Erinaceus europaeus*	73	1976 - 2021	Priority

Terrestrial Mammal (bat) (5 taxa)			
Bat, *Chiroptera*	143	1889 - 2019	Protected, Priority, Local Priority
Brown Long-eared Bat, *Plecotus auritus*	10	1997 - 2019	Protected, Priority, Local Priority
Common Pipistrelle, *Pipistrellus pipistrellus sensu stricto*	8	2002 - 2019	Protected, Local Priority
Pipistrelle Bat species, *Pipistrellus*	23	1989 - 2020	Protected, Priority, Local Priority
Soprano Pipistrelle, *Pipistrellus pygmaeus*	3	2002 - 2017	Protected, Priority, Local Priority

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