PRELIMINARY ECOLOGICAL APPRAISAL

Hill Farm, Bishops Tachbrook (GT05)
Warwickshire

Final report
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SUMMARY

- A Preliminary Ecological Appraisal was carried out on an area of land at Hill Farm, just outside Bishops Tachbrook, Warwickshire, in April 2014.

- The site is on Warwick District Council's alternative list of potential Gypsy and Traveller Site Allocations. The survey was commissioned in connection with the potential future development of the site for the purposes of creating a Gypsy and/or Traveller Site with up to a maximum of fifteen pitches and associated access (site reference GT05). The exact layout of any proposed development is not yet known.

- The site surveyed measured approximately 6 ha and comprised improved grassland, hedgerows, linear scrub, ponds and remnant broadleaved semi-natural woodland. Habitats and plant species present on the site are common and widespread locally, regionally and nationally.

- Should this alternative site be taken forward, it is recommended that the development is designed in such a way as to minimise impacts on the woodland strip, linear scrub, hedgerows, pond edges and existing trees, and to protect these features during development with an appropriate fenced-off buffer zone.

- The survey found evidence of the use of the site by badgers, in the form of two active setts, one possible disused sett and well-used paths. An updating badger survey is recommended prior to further consideration of this site in order to inform the site layout and allow an assessment of potential impacts of the development on this species.

- The presence of four waterbodies within or immediately outside the site means that the site could be used as breeding habitat by great crested newts. Therefore a further great crested newt survey is required in order to assess the impacts of the development on this species prior to further consideration of the site.

- The site also has some suitability to support nesting birds, roosting bats in the mature trees, reptiles and dormice and some precautions will be required for these species.

- In the event that further consideration is given to the site, should the developer wish to incorporate enhancement elements into the project, suggestions have been made regarding appropriate measures for this development based on what species occur or are likely to occur on site.

1 INTRODUCTION

1.1 Background

A Preliminary Ecological Appraisal comprising a Phase 1 Habitat Survey, desk study and protected species assessment was undertaken of a field at Hill Farm, just outside the village of Bishops Tachbrook, at approximate OS grid reference SP304610. The survey was undertaken on 02 April 2014.

The survey was commissioned in connection with a potential development which will consist of the creation of up to a maximum of fifteen pitches for use by gypsies and/or travellers, and associated access. The layout of the development is not yet known.

1.2 Ecological Context

The site lies immediately to the east of the A452 road, which is a busy road that runs south-east from Warwick, connecting to the M40 just to the south of the site. Mallory Road runs along the site's northern boundary, which connects the A452 with the large village of Bishops Tachbrook to the east, through which runs a tributary of the River Avon, Tach Brook, located approximately 1 km from the site. The site mostly comprises improved grassland, used as sheep grazing pasture at the time of the survey. The site is bounded by hedgerows to the south and east, linear scrub to the north and a narrow strip of remnant broad-leaved semi-natural woodland along the A452 road verge to the west. Two ponds are present within the site, with two additional ponds located in the adjacent field to the east just outside the eastern boundary and within the managed garden immediately adjacent to the site to its south. The site is surrounded by additional intensively farmed arable and pasture fields and the settlement of Bishops Tachbrook lies approximately 170 m to the east of the site. Further afield are the urban settlements of Leamington Spa and Warwick, which are separated by open farmland, mainly arable, with some hedges and mature trees. Several small parcels of fragmented woodland are distributed throughout the largely agricultural environs, the nearest of which is Spinney Farm woodland, located approximately 600m to the north-west of the site. The M40 bisects the landscape to the south-west of the site, approximately 500 m away from the site boundary at its closest point.

2 METHODS

2.1 Background Data Search

A background data search was undertaken for designated sites and protected species records within 1 km of the site from the Warwickshire Biological Records Centre (WBRC).

2.2 Preliminary Ecological Appraisal

2.2.1 General

A Preliminary Ecological Appraisal, comprising a Phase 1 Habitat Survey and protected species assessment was undertaken, following standard methods as described in the Guidelines for Preliminary Ecological Appraisal (IEEM, 2012), and the Phase 1 Habitat Survey Methodology (JNCC, 1988 revised 2003), as modified by the Institute of Environmental Assessment's Guidelines for Baseline Ecological Assessment (IEA, 1995).

The Phase 1 Habitat Survey comprised:

- habitat descriptions for each separate habitat type;
- target notes to identify particular areas of interest or concern; and
- plant species lists, if appropriate.

The suitability of habitats for any protected animal species was assessed at the same time as the Phase 1 Habitat Survey and any incidental evidence of such species was recorded if encountered. Species that might be expected to be present in the geographic location include bats, badger *Meles meles*, hazel dormouse *Muscardinus avellanarius*, water vole *Arvicola amphibius* otter *Lutra lutra*, nesting birds, great crested newt *Triturus cristatus* and reptiles.

All information was mapped and recorded as target notes as appropriate.

Weather conditions during the site visit were good, with no rain and limited cloud cover. Visibility was good and the air temperature was 15°C.

2.2.2 Badger

Habitat was assessed for its suitability for badger foraging and sett digging. Any incidental signs of badgers, such as setts, latrines, foraging signs, or footprints, were recorded if they were encountered. A full badger survey was not undertaken.

2.2.3 Bats

There are no buildings on site. The site was assessed for its suitability for roosting and foraging bats.

2.2.4 Dormouse

Habitat was assessed for its suitability for dormouse based on vegetation structure, connectivity and species composition. A full dormouse survey was not undertaken.

2.2.5 Water vole and otter

Water bodies were assessed for their suitability to support water vole and otter, and were briefly checked for signs of use by these species including burrows, latrines, spraints, feeding remains and footprints. A full water otter and vole survey was not undertaken.

2.2.6 Great crested newt

Great crested newts use terrestrial habitat within 500 m of breeding ponds; such habitat is also protected. Terrestrial habitats on site were therefore assessed for their potential to support the species, based on factors including vegetation structure and composition, the availability of shelter and foraging resources. The proximity of ponds and intervening habitats are also an important factor in determining the likelihood of this species being present on site.

A Habitat Suitability Index (HSI) assessment was carried out of each pond. The assessment comprised an evaluation of the pond in accordance with Amphibian and Reptile Group (ARG) UK's *Great Crested Newt Habitat Suitability Index* (2010). The index is not a substitute for newt surveys but is intended to provide a measure of habitat suitability for great crested newts and to give an indication of the probability of this species being present within any given pond.

To make the assessment, ponds are scored in relation to 10 suitability indices: location, pond area, pond drying, water quality, shade, waterfowl presence, fish presence, number of ponds in the local area, terrestrial habitat, and macrophyte cover. Each of these features is awarded a score between 0 and 1, and a final score is calculated, also between 0 and 1. This final score enables the pond to be ranked in terms of its suitability (poor, below average, average, good or excellent) and an estimate made of the predicted presence of great crested newts within the pond.

2.2.7 Reptiles

Terrestrial habitats on site were assessed for their potential to support common reptile species, based on factors including vegetation structure and composition, and the availability of shelter and foraging resources.

2.2.8 Nesting birds

Habitats on site were assessed for their suitability for breeding birds, including trees, scrub and grassland.

2.2.9 Other species

General habitat suitability and incidental sightings of other animal species, including UK and Local Biodiversity Action Plan species, were noted.

2.3 Constraints

April is a reasonable month for Phase 1 survey, but is not an optimal time of year because many plants may not be in evidence and may be missed. Also, a single visit to a site at any time of year will only identify a proportion of the species present. Therefore the descriptions given in Section 3.3 should not be considered to be complete.

3 RESULTS

3.1 General

The site is a relatively small plot of land (approximately 6 ha), comprising improved grassland, hedgerows, linear scrub, waterbodies and remnant broadleaved semi-natural woodland. It is bounded by timber post and wire fences, with the addition of species-poor hedgerows to the south and east, linear scrub to the north and a strip of remnant broadleaved semi-natural woodland to the west.

Evidence of badger activity and nesting birds was found on the site, and there is a high likelihood that roosting bats are present in some of the more mature trees. The site's margins also have the potential to support reptiles and great crested newt and the presence of dormouse cannot be ruled out.

The main habitats and the results of the protected species assessment are described below, and are illustrated in *Figure 1*, Section 8.

3.2 Background Data Search

Data were obtained from the Warwickshire Biological Records Centre (WBRC).

Warwickshire County Council is currently reviewing its nature conservation site designation system and will be identifying Local Wildlife Sites (LWS); candidate sites are denoted as pLWS in the table below.

The site has no nature conservation designation. There are four non-statutory designated sites lying within approximately 1 km of the site. These are summarised in *Table 1*. Full details are given in *Appendix 1*.

Table 1: Non-statutory sites within 1 km of the study site

Site name	Description
09/26 Greys Mallory	Ecosite/pLWS
22/26 Plestowes Spinney	Ecosite/pLWS
46/26 Plestowes Stream	Ecosite/Designated as part of the River Avon Local Wildlife Site (LWS).
08/36 Marsh along Tach Brook	Ecosite/Designated as part of the River Avon Local Wildlife Site (LWS).

Relevant protected and notable species records are summarised in *Table 2* below and all records are given in full in *Appendix 1*. Records prior to 1980 are not included in the table. The desk study also provided records of other amphibians, plants, and invertebrates.

Table 2: Protected and notable species records within 1 km of the study site

Date	Common Name	Scientific Name	Grid reference	Source
2008	Unidentified bat	-	SP299617	WBG

2008	Unidentified bat	-	SP301615	WBRC
2013	Great crested newt	*Triturus cristatus*	SP310609	WBRC
2013	Great crested newt	*Triturus cristatus*	SP310609	WBRC
2013	Great crested newt	*Triturus cristatus*	SP310609	WBRC
2013	Great crested newt	*Triturus cristatus*	SP310609	WBRC
2013	Great crested newt	*Triturus cristatus*	SP310609	WBRC
2013	Great crested newt	*Triturus cristatus*	SP310609	WBRC
1990	Common frog	*Rana temporaria*	SP312612	WBRC
1990	Common frog	*Rana temporaria*	SP312612	WBRC
-	Badger	*Meles meles*	-	WBRC

Records for hedgehog *Erinaceus europaeus* were also provided, as well as records of four rare or notable plant species: loose silky bent *Apera spica-venti*, mousetail *Myosurus minimus*, green figwort *Scrophularia umbrosa* and small-flowered buttercup *Ranunculus parviflorus*.

An absence of records does not mean that a species is not present, merely that it has not been recorded. Some species records are not obtainable from the sources utilised and there may be further undetected records for such species on the study site or in the local area.

3.3 Habitats

3.3.1 Improved grassland

The majority of the site comprises improved grassland dominated by perennial rye-grass *Lolium perenne* and used as sheep grazing pasture at the time of survey. Other species recorded in the sward include common nettle *Urtica dioica*, creeping buttercup *Ranunculus repens*, common mousear *Cerastium fontanum*, dandelion *Taraxacum officinale* agg., and locally frequent lesser celandine *Ranunculus ficaria*, common chickweed *Stellaria media* and cleavers *Galium aparine* to the north of the field close to the boundary hedgerow. There was an area of boggy grassland close to the large pond towards the south of the site during the survey. However, the sward's species composition did not vary in this area, suggesting it was an ephemeral state caused by recent rainfall.

Improved grassland field.

3.3.2 Standing water

There are two ponds that lie within the site boundary and two ponds that are located just outside the boundary. All four ponds were surveyed and are marked on *Figure 1* in Section 8.

Pond 1

An ornamental pond located just outside the site boundary to the south, within the managed garden of the Hill Farm farmhouse. The pond actually comprises two small areas of water fed by a pump and linked by a man-made channel. The whole structure is lined with a plastic liner. The upper area of water (closest to the pump) contains large koi carp *Cyprinus carpio* and the aquatic vegetation is dominated by parrotfeather *Myriophyllum aquaticum*, with occasional iris *Iris* sp and marsh marigold *Caltha palustris*. The lower area of water has sheer, stone walls and the water is covered with duckweed *Lemna* sp. with occasional *Iris* sp. Both areas are surrounded by a low chicken wire fence and gravel, with amenity grassland in the immediate surroundings.

Pond 1

Pond 2

A large pond used by waterfowl (goose *Anser* sp., mallard *Anas platyrhynchos* and moorhen *Gallinula chloropus* were seen during the survey) located to the south of the site. The banks are steep and mostly bare earth with very little marginal vegetation. The water was very turbid and no aquatic vegetation was seen. To the west of pond is an area of close-grazed grass where the geese are housed. The whole pond is surrounded by chicken wire fence. The pond is heavily shaded by overhanging mature and semi-mature trees, including oak *Quercus robur*, hawthorn *Crataegus monogyna*, ash *Fraxinus excelsior*, elder *Sambucus nigra* and weeping willow *Salix* sp., and dense bramble *Rubus fruticosa* agg. scrub. The ground flora around the pond includes common nettle, white campion *Silene latifolia*, cleavers, spear thistle *Cirsium vulgare*, soft rush *Juncus effusus*, broad-leaved dock *Rumex obtusifolia*, creeping buttercup, cocksfoot *Dactylis glomerata*, Yorkshire fog *Holcus lanatus*, meadow-grass *Poa* sp. and false oat-grass *Arrhenatherum elatius*.

Pond 2

Pond 3

A small pond just outside the site's eastern boundary in the adjacent field. The pond has shallow, sloping edges which are either bare earth or colonised by the surrounding improved grassland species, including perennial rye-grass, common nettle, spear thistle, dock sp. and meadow-grass sp. The pond is full of fallen debris from surrounding trees, which include willow and hawthorn, two semi-mature ash trees and two mature oak trees. The water was turbid and no aquatic, emergent or marginal vegetation was observed.

Pond 3

Pond 4

A small crescent-shaped pond located in the north-west corner of the site, bordered by the A452 to the west and Mallory Road to the north. The northern edge of the pond is heavily shaded by overhanging hawthorn and elder with a ground flora of dense nettles and moss, with lords and ladies *Arum maculatum*, common mousear, cleavers, common buttercup and lesser celandine. Heavy use by rabbits *Oryctolagus cuniculus* has undermined the earth in this area. There is an area of dense bramble and blackthorn *Prunus spinosa* scrub at the eastern end of the pond. The pond edges are steep and mostly bare earth. The water was turbid and no aquatic, emergent or marginal vegetation was seen apart from a small amount of bittersweet *Solanum dulcamara*.

Pond 4

3.3.3 Remnant broadleaved semi-natural woodland

A narrow strip (up to 10 m wide) of remnant broadleaved semi-natural woodland runs along the A452 road verge, just outside the site's western boundary fence. The canopy is dominated by oak, including some large mature specimens. The understorey includes wild privet *Ligustrum vulgare*, blackthorn, hawthorn and hazel *Corylus avellana*. Ground flora is dominated by ivy *Hedera helix* and bramble and also includes ground ivy *Glechoma hederacea*, cleavers, creeping buttercup, lesser celandine, honeysuckle *Lonicera periclymenum*, hedge woundwort *Stachys sylvatica*, creeping thistle *Cirsium arvense*, dock sp, lords and ladies, cow parsley *Anthriscus sylvestris*, white dead nettle *Lamium album*, herb Robert *Geranium robertum*, wood avens *Geum urbanum* and locally frequent false wood brome *Brachypodium sylvaticum*. A dry ditch runs through this section, which probably fills during heavy rain due to run-off from the road. The species recorded on its banks are a continuation of the woodland flora, notably dense ivy. There are numerous areas of deadwood on the floor and scattered patches of dense bramble scrub throughout the length of the woodland.

Northern edge of woodland strip.

Dry ditch with dense ivy ground flora.

3.3.2 Tall ruderal

There is an area of dense nettle located to the south-east of Pond 2.

Dense nettle vegetation, Pond 2.

3.3.4 Linear scrub

A strip of linear scrub lines the site's northern boundary, in front of the site's boundary timber post and wire fence on the verge of Mallory Road. Species recorded include hawthorn, blackthorn, ivy, hazel, holly *Ilex aquifolium*, elder, apple *Malus* sp and ash. Ground flora species recorded include lesser celandine, common comfrey *Symphytum officinale*, cultivated daffodils *Narcissus* sp., cleavers, false oat-grass, garlic mustard *Alliaria petiolata*, white dead-nettle, lords and ladies and common nettle.

There is a line of planted scrub towards the north of the site, parallel with the northern boundary fence. Most of the trees are old hawthorn, elder and blackthorn specimens, possibly the remains of a previous field boundary. However, there are also some younger specimens including ash and oak. There is a possibility that some of the old hawthorn trees may be midland hawthorn *Crataegus laevigata*, but this was not possible to confirm at the time of survey as the leaves had not fully formed.

Two parallel lines of linear scrub, northern edge of site.

Linear scrub surrounds Pond 2. This is dominated by hawthorn and blackthorn, also with rose *Rosa* sp. and bramble. Linear hawthorn and blackthorn scrub also partially surrounds Pond 3.

Linear scrub surrounding Pond 3.

3.3.4 Hedgerows

The site's eastern boundary comprises a defunct species-poor hedgerow on a raised bank, the hedgerow becoming increasingly gappy towards the north of the site. The hedgerow is dominated by hawthorn, with occasional elder and blackthorn and some semi-mature trees including ash. Ground flora includes common nettle, spear thistle and meadow-grass sp. There is a lot of rabbit activity at the base of the hedgerow.

Eastern boundary hedgerow on raised bank.

The site's southern boundary comprises a timber post and wire fence fronted by a defunct species-poor hedgerow. The hedgerow is dominated by hawthorn, with occasional elder. To the west of the site, the hedgerow disappears and there are just a few young planted elder, apple and hawthorn trees along the fence line.

Southern boundary hedgerow.

3.4 Protected Animal Species

3.4.1 Badger

The site is suitable for sett building and for use by badgers for foraging, and a number of signs of badger activity were recorded within the site:

An active main badger sett with at least 12 entrances, many of which exhibited fresh spoil, was recorded to the south of pond 2, which is located at the southern end of the site. The sett is clearly well-used as a number of well-worn badger tracks linked sett entrances and a number of badger hairs were found.

One of the active entrances of main sett, Pond 2.

A further badger sett with three entrances in current use (with fresh spoil) and at least one entrance not currently in use was recorded further to the east beneath the southern boundary hedgerow.

One of the active entrances of main sett, southern boundary hedgerow.

A possible disused badger sett with four entrances was located within the linear scrub feature towards the north of the site (thought to be the old field boundary). The holes now appeared to be occupied by rabbits, although were of a size and shape more associated with badger than rabbit.

Possible disused badger sett in linear scrub, north of site.

There is one record of badger within 1 km of the site.

3.4.2 Bats

There are no buildings on site. There are several young or semi-mature trees surrounding the ponds and in the boundary hedgerows, remnant woodland and linear scrub features, which are unsuitable for bat roosting. However, there several larger trees that were briefly assessed for their bat roosting potential, especially within the strip of woodland to the west of the site; these are listed in the table below and marked as target notes on *Figure 1*. Use by roosting bats of most of these trees cannot be ruled out. The site's boundary hedgerows, linear scrub, remnant woodland and ponds are likely to be used by foraging or commuting bats. There are records of two unidentified bat species within 1 km of the site.

Table 3: Mature Tree Assessment for Bat Roosting Potential

Target	Species	Comment

note		
1	Oak	Two mature oak trees with bat roosting potential noted in woodpecker holes and split limbs.
4	Ash	Mature coppiced ash with bat roosting potential seen in split limbs.
5	Ash	Ash tree with rot hole – bat roosting potential.
6	Oak	Mature oak tree in front of gateway entrance. Nesting birds noted within the tree and numerous bat roosting potential areas, including split limbs, rot holes and woodpecker holes.
8	Oak	Mature oak tree with bat roosting potential seen where limb is missing.
9	Oak	Numerous mature oak trees within woodland area – many potential bat roosting opportunities noted.
12	Hawthorn	Hawthorn with bat roosting potential noted in rot-hole where limb has fallen.

3.4.3 Dormouse

The site's linear scrub and remnant woodland is suitable for dormice, although its connectivity with further suitable dormouse habitat is very low. There are no dormouse records within 1 km of the site and dormice are not known to be present in this part of the county. It is therefore relatively unlikely that dormice are present, but it cannot be ruled out on the basis of this survey.

3.4.4 Water vole and otter

The ponds are unlikely to be suitable for use by otter due to their small size, lack of suitable locations for holts and poor connectivity with nearby watercourses. The nearest watercourse is Tach Brook, which is located over 1 km to the east of the site, with the large settlement of Bishops Tachbrook acting as a partial barrier to commuting between the two. It is therefore considered that otters are absent from the site. The ponds have low suitability for water vole given their lack of aquatic and emergent vegetation and their heavy shading. No possible water vole burrows or other field signs of this species were noted during the survey and it is considered that this species is absent from the site. There are no records of water vole or otter within 1 km of the site.

3.4.5 Great crested newt

Suitable terrestrial habitat is limited to the linear scrub, tall ruderal vegetation and remnant broadleaved woodland. The species-poor hedgerows could also be used by great crested newts for commuting through the site.

The likelihood of newts using the site would depend on the presence of a breeding pond or ponds within a reasonable distance (250-500 m or less). There are two ponds on site, two ponds immediately outside the site and a further six ponds within 500 m of the site, although two of these are separated from the site by road barriers.

There was very little aquatic or emergent vegetation in ponds 2, 3 and 4 that would be suitable for egg-laying by this species. Nevertheless, vegetation accessible from the banks was searched for newt eggs during the survey and no eggs were found in any of the ponds.

A provisional great crested newt habitat suitability index (HSI) was calculated of each of the four ponds within or just outside the site:

Table 4: Results of HSI Assessment on Surveyed Ponds

Pond ref	Pond 1	Pond 2	Pond 3	Pond 4
SI1 - Location	1	1	1	1
SI2 - Pond area	0.05	0.86	0.4	0.2
SI3 - Pond drying	0.9	0.9	1	1
SI4 - Water quality	0.33	0.33	0.33	0.33
SI4 - Shade	1	0.6	0.2	0.2
SI6 - Fowl	1	0.01	0.67	0.67
SI7 - Fish	0.01	0.67	0.67	0.67
SI8 - Ponds	1	1	1	1
SI9 - Terr'l habitat	0.33	0.33	0.33	0.33
SI10 - Macrophytes	1	0.35	0.35	0.35
HSI	0.37	0.40	0.52	0.48

Based upon the provisional HSI calculation, the suitability of ponds 1, 2 and 4 for great crested newts is poor and the suitability of pond 3 for great crested newts is below average; this means there is a 0.03% chance of the species being present in these ponds 1, 2 and 4 and there is a 0.2% chance of the species being present in pond 3.

However, it should be noted that the HSI calculation is not a substitute for a full great crested newt survey. There are six great crested newt records within 1 km of the site, recorded in 2013. The known population of great crested newts within commuting distance and the number of ponds within 500 m of the site increase the likelihood that great crested newts are present on site.

3.4.6 Reptiles

The site contains marginal habitat within the remnant broadleaved semi-natural woodland that reptiles may use for foraging and shelter; however, much of the woodland habitat is heavily shaded and not ideal for basking. Also, the extent of suitable habitat is very limited in extent with poor connectivity to further suitable reptile habitat, especially as it is located adjacent to the busy A452 road and is set within intensively farmed agricultural surroundings, which do not tend to support high numbers of reptiles. The presence of four waterbodies may attract occasional grass snakes for foraging purposes. Common reptiles may occasionally be present on the site, but any such use is likely to be limited to commuting and occasional foraging along the field boundaries and pond edges.

There are no reptile records within 1 km of the site.

3.4.7 Nesting birds

Trees, hedgerows and scrub are potentially suitable for use by nesting birds.

Birds exhibiting breeding behaviour (singing and alarm calls) during the site visit included wren *Troglodytes troglodytes*, blue tit *Parus caeruleus*, buzzard *Buteo*

buteo, wood pigeon *Columba palumbus*, greenfinch *Carduelis chloris*, magpie *Pica pica* and blackbird *Turdus merula*; these are probably breeding nearby, but not necessarily on the site itself. Bird nests were seen within some of the trees.

3.4.9 Other species

The site has the potential to support species listed on the UK Government's Biodiversity Action Plan (BAP), such as hedgehog *Erinaceus europaeus* and possibly brown hare *Lepus europaeus.* There are four records of hedgehog within 1 km of the site.

4 EVALUATION

4.1 Habitats

The development will not directly impact on any sites with nature conservation designation. Also, given the scale and scope of the proposed development, it is not considered likely that the four sites with non-statutory nature conservation designation within 1 km of the site will be impacted by the development. The nearest designated site lies approximately 550 m from the site, which is considered sufficient distance to remain unaffected by the potential conversion of the site into gypsy and/or traveller pitches and access.

A full botanical survey was not undertaken, and therefore the descriptions given in Section 3.3 should not be considered to be complete. Nevertheless, all plants and habitats present are common and widespread in the UK and it is not expected that any rarities or unusual habitats are present. The remnant strip of broadleaved semi-natural woodland along the western boundary is indicative of the historic landscape pre-dating its use for agriculture. The woodland strip, linear scrub and waterbodies are the most ecologically valuable features on site.

The layout of the proposed development is not yet known and therefore it is not possible to assess impacts on the site fully; however, some disturbance of marginal habitat is likely to be caused by the creation of an access road into the site as this is likely to necessitate the removal of some trees and shrubs. Therefore, careful choice of the access layout is required to avoid impacting on the site's best ecological features; ideally the access would avoid cutting through the remnant woodland on the western edge of the site and would be sited to avoid any existing mature trees. Precautions will be required to minimise disturbance of marginal areas of woodland, scrub and waterbodies throughout the development period.

4.2 Protected Animal Species

4.2.1 Badger

The site is actively used by badgers; an active main sett and a nearby active subsidiary sett were recorded towards the south of the site and there is the possibility of an additional disused sett to the north of the site. It is therefore highly likely that, without mitigation, the proposed development would impact on badgers both during and following development, for example due to increased disturbance from residents and their pets, and the feasibility of this should be addressed prior to further consideration of the site. Precautions will therefore be needed for badgers.

4.2.2 Bats

The site may be used by foraging/commuting bats, but the loss of this small site is unlikely to be significant, particularly if the majority of the boundary features (linear scrub, hedgerow and woodland) and waterbodies can be retained.

There is a possibility that bats may use the more mature trees on the site for roosting. There may therefore be impacts on bats, if present, if any trees are to be removed.

4.2.3 Dormouse

Dormice are unlikely to be present but cannot be ruled out on the basis of this survey. However, provided the majority of the scrub and woodland habitats are not affected, and precautionary working methods are used for tree removal, no impacts are anticipated on this species.

4.2.4 Water vole and otter

No evidence of these species was found within the site and it is considered that neither species uses the waterbodies on site, given the poor connectivity with other suitable habitat. Therefore no impacts are anticipated on these species.

4.2.5 Great crested newt

The site's marginal areas contain terrestrial habitat that is suitable for great crested newts and there are four water bodies within or just outside the site. No newt eggs were found in the ponds during the survey and the results of an HSI assessment of the ponds showed ponds 1, 2 and 4 to provide poor habitat for this species and pond 3 to provide below average habitat for this species. Nevertheless, the HSI assessment is no substitute for a full great crested newt survey and, given there is a known population in the surrounding area (recorded in 2013) and that there are six additional ponds within amphibian-commutable distance of the site, the chances of great crested newts being present on site are increased. It is therefore possible that the proposed development will have an impact on this species and further survey work will be required to determine the presence or absence of great crested newts within the site.

4.2.6 Reptiles

The site contains limited habitat that is suitable for reptiles around its margins; however, the habitat is not optimal for these species and therefore any level of use by these species is likely to be low. Nevertheless, development of or disturbance to this habitat might have a minor impact upon these species if present and precautions will be needed to prevent harm to reptiles.

4.2.7 Nesting birds

Breeding birds may use the trees, scrub and hedgerows. The removal of such habitats might have an impact on birds while they are nesting.

4.2.8 Other species

Small areas of habitat for invertebrates, small mammals, fox, hedgehog and brown hare may be lost, so there may be a slight impact on these species, if present, but this is likely to be very minor in the context of other suitable habitat in the vicinity.

5 RECOMMENDATIONS

5.1 Habitats

It is recommended that the proposed development avoids impacting on the strip of remnant woodland to the west of the site, the parallel lines of linear scrub to the north of the site and the two waterbodies within the site. If it is necessary to create access into the site through these areas, then the existing gateway on the northern boundary is a preferred option, subject to Highways considerations, as there is already a gap in the linear scrub at this point. However, it is recommended that the access is designed to avoid impacting on the mature oak tree located in front of the existing gateway. Other mature oak trees within the woodland to the west of the site should also be retained and protected with an appropriate buffer where possible.

It is recommended that the woodland, scrub, hedgerows and waterbodies are all protected throughout development by an appropriate fenced-off no-disturbance buffer zone (at least two metres from the edge of the outer canopy or pond edge). Use of and storage of equipment and machinery should not be permitted within this zone. It is also recommended that appropriate pollution avoidance measures are adhered to throughout the construction period and that sustainable drainage measures are incorporated into the development to avoid impacting on the waterbodies post-construction.

The boundary linear scrub belts and hedgerows should be retained where possible and enhanced by appropriate management and, where necessary, gapping-up using appropriate native species (see 5.3).

The strip of remnant woodland should also be retained where possible and, following development, should be brought into an ecologically sensitive management regime in order to offset any loss caused by the development. This is likely to include some canopy thinning to allow the ground flora to flourish, possibly through traditional sustainable woodland practices such as coppicing, and the possible removal of some of the dense bramble scrub.

It is recommended that any planting scheme in connection with the development will comprise native or wildlife-attracting species in order to retain and enhance the site's biodiversity.

5.2 Protected Animal Species

5.2.1 Badgers

As badgers are mobile creatures that can build new setts overnight, in order to assess delivery of the site in relation to this protected species it is recommended that a further badger survey should be carried out and a suitable mitigation strategy designed where and if possible. If the proposed development proceeds, its layout should incorporate appropriate badger mitigation and be designed to minimise

impacts on the badgers' current use of the site. This should include siting pitches away from the locations of identified badger setts and ensuring that well-used badger tracks are maintained through the site where possible. If this is not possible, then alternative commuting routes through the site should be made available to badgers.

During development, a no-disturbance zone of at least 20 m from each active sett should be fenced-off, and this fencing should be maintained until development is complete. Use and storage of vehicles and heavy machinery should be avoided within this zone and in the wider vicinity of the setts. Following development, consideration should be given to protective fencing/screening around the setts to minimise disturbance from residents and their pets.

5.2.2 Bats

Should any of the trees identified as having bat roosting potential in this report or any other mature trees with a DBH of greater than 25 cm or with heavy ivy cover need to be felled, these must be inspected for their potential for bat roosting prior to felling.

Should potential for, or evidence of, roosting bats be found, further surveys and a European Protected Species licence may be needed.

5.2.3 Dormouse

Any coppice stools or other trees or shrubs to be removed must be cut to the base over winter, while dormice are in hibernation at or below ground level. Stools and stumps should then be removed between May and September, by which time any dormice will have emerged from hibernation and will not be harmed by stump removal.

5.2.4 Water vole and otter

No recommendations are made for water voles or otter, although the habitat recommendation in Section 5.1 to include a no-disturbance zone around the waterbodies will ensure that they could be utilised by these species in the future.

5.2.5 Great crested newts

In order to assess delivery of the site further in relation to great crested newts, a great crested newt survey of all four surveyed ponds is recommended at an appropriate time of year (mid-March to mid-June) in order to identify the presence or absence of this species at the site and, if present, the estimated size of the population. This survey should follow current best-practice methodology, which is likely to involve at least three visits during appropriate weather conditions, utilising a range of survey methods including bottle-trapping, egg-searching, torching and netting where appropriate. If great crested newts are found to be present then a European Protected Species licence may be needed and an appropriate mitigation strategy will be required.

5.2.6 Reptiles

Precautions are required to prevent harm to reptiles during the development as follows:

- Any long vegetation over the area of land to be developed will be strimmed to ground level during the weeks prior to development and maintained in that condition until the development is complete.

- Any fallen timber or other debris within the area to be developed will be removed by hand prior to development.

5.2.7 Nesting birds

All nesting birds are protected by law. To avoid committing an offence, any works to habitat that might be used by nesting birds should be undertaken outside the bird breeding season (March to August inclusive). If this is not possible, the habitat or structure to be affected should be checked immediately prior to works commencing by a suitably qualified ecologist. If there are breeding birds present, works cannot continue until the chicks have fledged and left the nest.

5.2.8 Other species

The impact on hedgehogs is likely to be minimal, provided the linear scrub, waterbody margins and woodland features are mostly retained. There may be a small loss of grassland habitat that could be used by brown hares. However, given the provision of alternative hare sites in the surrounding area, this loss is not considered to be significant. Therefore there are no recommendations in relation to other species.

5.3 Ecological enhancement

Current planning policy requires that development projects minimise ecological damage and should contain elements of ecological enhancement. A variety of habitat creation options could be implemented at the site. The following are not statutory requirements but would be considered appropriate options for the site should the developer wish to offset the negative impacts of the site development.

- Bird and bat boxes could be installed in the woodland area or around the ponds;
- Linear scrub and hedgerow boundaries should be gapped up where necessary with native species and managed appropriately by coppicing or laying in sections every 10-15 years;
- Log piles suitable for invertebrates and amphibians could be created from any tree removal operations at the site.
- The existing canopy in the woodland area could be thinned through sensitive removal of trees (for example by coppicing) in order to allow the ground flora to flourish.

- The overhanging scrub and trees over ponds 2, 3 and 4 could be sensitively thinned in order to reduce shading and encourage growth of marginal plant species.

6 LEGISLATION

6.1 Introduction

This section briefly describes legal protection applying to species mentioned in this report. It does not comprehensively reflect the text of the legislation and it should not be relied upon in place of it. The following items of legislation are relevant:

- The Wildlife and Countryside Act 1981 (as amended);
- The Countryside and Rights of Way (CRoW) Act 2000 (in England and Wales);
- Conservation (Natural Habitats etc.) (Amendment) Regulations 2010 (which implements the EC Directive 92/43/EEC in the United Kingdom)
- The Local Government Act 1985;
- The Environmental Protection Act 1990; and
- The UK Biodiversity Action Plan (not itself a Statutory Instrument but referred to in SIs and planning guidance).

6.2 Protected Species

6.2.1 Great crested newt, dormouse and all species of British bat

The great crested newt *Triturus cristatus*, dormouse *Muscardinus avellanarius* and all species of British bat (Vespertilionidae and Rhinolophidae) are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), and receive full protection under Section 9. Protection was extended by the Countryside and Rights of Way Act 2000 (the CRoW Act). These species are also all listed as European Protected Species on Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (which implements the EC Directive 92/43/EEC in the United Kingdom) which gives them full protection under Regulation 53. The legal implications of these two sets of legislation are largely compatible, making it an offence to:

- deliberately capture, injure or kill any wild specimens
- deliberately take or destroy eggs
- damage or destroy a breeding site or resting place of such an animal.
- possess any part of an individual either alive or dead, or
- sell or attempt to sell any individual.

It is also an offence to set and use articles capable of catching, injuring or killing bats (for example a trap or poison), or knowingly cause or permit such an action.

The great crested newt and seven species of British bat are included as priority species in the UK Biodiversity Action Plan and as species of principal importance for the conservation of biological diversity in England under Section 74 of the Countryside and Rights of Way (CRoW) Act 2000.

6.2.2 Birds

All species of bird are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended). Protection was extended by the Countryside and Rights of Way (CRoW) Act 2000. Under the above legislation it is an offence to intentionally:

- kill, injure or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- take or destroy an egg of any wild bird.

Certain species are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and receive protection under Sections 1(4) and 1(5). The protection was extended by the Countryside and Rights of Way (CRoW) Act 2000. There are special penalties where the offences listed above are committed for any Schedule 1 species and it is also an offence to intentionally or recklessly:

- disturb any such bird when it is building its nest or while it is in or near a nest containing dependant young; or
- disturb the dependant young of any such bird.

6.2.3 Common reptiles

Common lizard *Lacerta vivipara*, grass snake *Natrix natrix*, slow worm *Anguis fragilis*, and adder *Vipera berus* are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), in respect of Section 9(5) and part of Section 9(1). This protection was extended by the Countryside and Rights of Way (CRoW) Act 2000. Under the legislation it is an offence to:

- intentionally or deliberately kill or injure any individual of these species; or
- sell or attempt to sell any part of these species either alive or dead.

These species have recently been listed as priority species in the UK Biodiversity Action Plan and as species of principal importance for the conservation of biological diversity in England under Section 74 of the Countryside and Rights of Way (CRoW) Act 2000.

6.2.4 Hedgehog, harvest mouse, brown hare and polecat

These species are listed as priority species in the UK Biodiversity Action Plan and as species of principal importance for the conservation of biological diversity in England under Section 74 of the Countryside and Rights of Way (CRoW) Act 2000.

6.2.5 Badger

The Badger (*Meles meles*) is protected in Britain under the *Protection of Badgers Act 1992* and *Schedule 6* of *The Wildlife and Countryside Act 1981* (as amended). The legislation protects Badgers and their setts, and makes it a criminal offence to:

- wilfully kill, injure, take, possess or cruelly ill-treat a Badger, or to attempt to do so;
- interfere with a sett by damaging or destroying it;
- to obstruct access to, or any entrance of, a Badger sett; or
- to disturb a Badger when it is occupying a sett.

The Badger is also protected under *Schedule 6* of the *Wildlife and Countryside Act 1981* (as amended) relating specifically to trapping and direct pursuit.

7 REFERENCES

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Joint Nature Conservation Committee (2003). *Handbook for Phase 1 Habitat Survey - a Technique for Environmental Audit* (revised reprint). Joint Nature Conservation Committee, Peterborough.

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8 FIGURES

Figure 1: Phase 1 Habitat Survey of land at Hill Farm, Bishops Tachbrook (GT05)

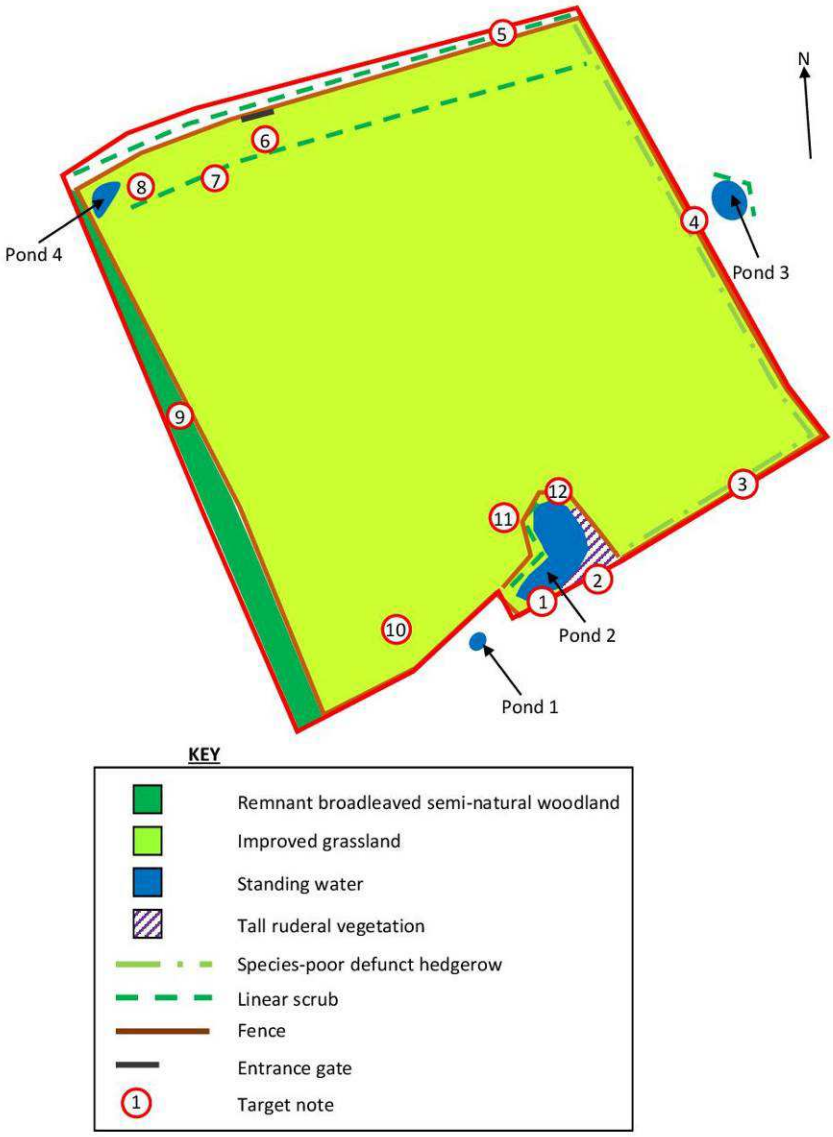

Table 5: Target note descriptions

Target Note	Description
1	Two mature oak trees with bat roosting potential noted in woodpecker holes and split limbs.
2	Active main badger sett with at least 12 entrances and well-used connecting tracks between entrances. Badger hairs found.
3	Badger sett with three entrances showing current use by badgers. One disused entrance.
4	Mature coppiced ash with bat roosting potential seen in split limbs.
5	Ash tree with rot hole – bat roosting potential.
6	Mature oak tree in front of gateway entrance. Nesting birds noted within the tree and numerous bat roosting potential areas, including split limbs, rot holes and woodpecker holes.
7	Possible disused badger sett with four entrances noted. Appears to now be in use by rabbits.
8	Mature oak tree with bat roosting potential seen where limb is missing.
9	Numerous mature oak trees within woodland area – many potential bat roosting opportunities noted.
10	Depression in the ground with drainage cover at the centre.
11	Boggy area of the field – but grassland sward similar.
12	Hawthorn with bat roosting potential noted in rot-hole where limb has fallen.

APPENDIX 1 – BACKGROUND DATA SEARCH