www.cherryfieldecology.co.uk

Report prepared for: Mr Marco Vignali

For the Site of: Land Adjacent to 45 Kentish Lane, Herts, AL9 6NG

Version:	Written by:	Checked by:	Final:
Draft	Martin O'Connor 02/04/2020		
Draft 2, data added	Martin O'Connor 06/04/2020		
Final	Martin O'Connor 62/04/2020	Tanya O'Connor 07/04/2020	Martin O'Connor 07/04/2020

Cherryfield Ecology has prepared this report for the named clients use only.

Ecological reports are limited in shelf life, Natural England usually expect reports for licenses to be no more than 12 months old and therefore should the project not proceed within 12 months of this report an updated survey should be undertaken in order to check for changes that may have occurred on site. Information is believed to be accurate at the time of survey; recommendations are made without bias based on good practice guidelines within the industry. However, species presence and ecological parameters can change over time.

Martin O'Connor Dip, BSc (Hons), CBiol, MRSB

Bat license level 3 and 4. GCN level 1, Dormouse level 1 and Barn Owl

martin@cherryfieldecology.co.uk

07950279790

Contents

Ecological Appraisal (EA)

0.0 Non-Technical Summary

0.1 Background -

This report follows national guidelines JNCC (2010) allowing for a day-time inspection and recommends for further surveys if considered necessary. If a deviation from the guidelines has been made this will be detailed in the Method Section.
The following report details the findings and recommendations for the site of Land Adjacent to 45 Kentish Lane, Herts, AL9 6NG.
The client commissioned Cherryfield Ecology to undertake an EA as the proposals include for building a new dwelling on the plot, with associated landscaping and infrastructure.

0.2 Results and Findings -

The site consists of a vacant plot with amenity grassland, scattered trees, tall ruderal vegetation and hedging. The site is suitable for common reptiles, with a mix of habitats on site. Several of the scattered trees show suitable roosting features, including woodpecker holes and loose bark.
Three large holes were also found on site, two to the far end of the site, with one within 30m of the proposed works. These holes along with other sign suggest that badger could be using the site.

0.3 Impact Assessment and Recommendations -

Common reptiles could be affected if found to be present on site, through the loss of habitat. If badgers are found to be using the hole towards the front of the site, this would be lost, the two holes to the rear are further than 30m from site and will remain unaffected. If any of the trees identified that display suitable roosting features are to be removed these would be lost in the development.

Bats- if any tree is to be removed that has been identified as having suitable roosting features, these must be fully surveyed between May to Sept.

Reptiles – full reptile surveys are recommended to establish if they are present and if so, species and an estimated population.

Badger – a full badger survey must be undertaken on the hole to the front of the site. This will establish if badgers are present and if so, if the hole is in-use.

Please refer to section 4 for detail.

1.0 Introduction

1.1 Aim

The aim of this report is to inform of ecological constraints that may affect the development proposals and recommend to the client if further surveys are required for protected species. An impact assessment is undertaken at this stage, however if further surveys are required additional and unexpected impacts may result.

1.2 Background information

The client, Mr Marco Vignali, has commissioned Cherryfield Ecology to undertake an EA for the site of Land Adjacent to 45 Kentish Lane, Herts, AL9 6NG. Planning permission is being sought to build a new dwelling, along with associated infrastructure.

This survey has checked all habitats, buildings, trees (from ground level only) or structures due to be affected by the proposals on site, it includes checking for protected species, signs of protected species or habitat value e.g. crevices, badger setts, ponds etc. as well as mapping the habitats on site.

The inspection was conducted on the 02/04/2020.

The survey can only ever provide a 'snapshot' of the site at the time of the survey and circumstances may change following this report. Health and Safety restrictions or obstructions may limit the ability to find evidence.

Biological records have been requested to give the report context and allow a study of the surrounds. The information is often sensitive and therefore a synopsis is provided.

The survey can be conducted year-round with the optimal period between mid-March and mid-October (south)/1st April and 30th September (north). However, it can be limited due to bad weather and in the winter, when some species are not as active, thus evidence and species are often not found. During these periods, habitat value (likely presence) becomes more important to the assessment of the site.

Summary of legislation and National Planning Policy that protects wildlife in England:

- The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

- Wildlife and Countryside Act 1981 as amended.
- Countrywide and Rights of Way Act 2000.
- Natural Environment and Rural Communities Act 2006.
- National Planning Policy Framework ("NPPF").
- Circular 06/05.

This legislation makes it illegal to:

- Intentionally or deliberately kill, injure or capture a protected species.
- Deliberately disturb a protected species, whether at rest or not.
- Damage, destroy or obstruct access to a resting place.
- Possess or transport a protected species or any part of that species, unless acquired legally.
- Sell, barter or exchange a protected species, or any part of a species.

1.3 Species Specific information: -

All EU protected species have the same protection and the detail under Bats also applies to GCN, Dormouse, Otters and the two EU protected reptiles.

1.3.1 Breeding birds

All nesting birds are protected under the Wildlife and Countryside Act (as amended) 1981, which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. Furthermore, a number of birds enjoy further protection under that Act and are listed on Schedule 1 of the Act. These further protected birds are also protected from disturbance and it may be necessary to operate a "no-go" buffer zone around such nests – typically out to 5m.

1.3.2 Bats

All 18 species of bat common in the UK (17 known to be breeding) are fully protected under the Wildlife and Countryside Act (as amended) 1981 through inclusion in Schedule V of the Act. All bat species in the UK are also included in Schedule II of the Habitats

Regulations 2017 which transpose Annex II of the Council Directive 92/43/EEC 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora ("EC Habitats Directive") which defines European protected species of animals.

Bats species are afforded further protection by the Countryside and Rights of Way Act 2000; and the Natural Environment and Rural Communities Act 2006.

This combined legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture bats.
- Deliberately disturb bats, whether at roost or not.
- Damage, destroy or obstruct access to bat roosts.
- Possess or transport bats, unless acquired legally.
- Sell, barter or exchange bats.

1.3.3 Reptiles

There are six species of reptiles in Great Britain (Edgar *et al*. 2010) and four of these are commonly found; the grass snake (*Natrix natrix*) and/or the barred grass snake, (*Natrix Helvetica),* adder (*Vipera berus*), common lizard (*Zootoca vivipara*) and slow worm (*Anguis fragilis*).

All native British species of reptiles are legally protected through their inclusion in Schedule V of the Wildlife and Countryside Act 1981. As such, all species are protected from deliberate killing or injury. Therefore, where development is permitted, and there will be a significant change in land use, a reasonable effort must be undertaken to avoid committing an offence. The same act makes the trading of native reptile species a criminal offence without appropriate licensing.

Two species of reptile; the smooth snake (*Coronella austriaca*) and sand lizard (*Lacerta agilis*), are further protected through their inclusion in Schedule II of the Habitats Regulations 2017 which transposes Annex II of the Council Directive 92/43/EEC 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora ("EC Habitats Directive"), which defines European protected species of animals ("rare reptiles.")

1.3.4 Badgers

Badgers (*Meles meles*) Both the badger and its habitat are protected under The Protection of Badgers Act 1992, Schedule V of the Wildlife and Countryside Act 1981, and Appendix III of the Bern Convention 1979.

This legislation makes it an offence to:

- Kill, injure, take or possess a badger.
- Interfere with, damage or destroy a badger sett including e.g. obstruct access to a badger sett.
- Cruelly treat or harm a badger.
- Disturb a badger in a sett.

1.3.5 Great Crested Newts

Great crested newts (GCN) *Triturus cristatus* are listed in both Annex IV of the EC Habitats Directive and in Schedule V of the Wildlife and Countryside Act 1981.

GCN are afforded further protection by the Countryside and Rights of Way Act 2000; and the Natural Environment and Rural Communities Act 2006.

2.0 Methods

The survey follows the national guidelines JNCC (2010) and the following equipment is available for the inspection:

- Torches (e.g. LED Lensar type).
- Ladders (Standard 4m telescopic surveying ladder).
- Endoscope where holes, cracks and crevices are accessible.
- Mirrors (extendable and movable mirror face).
- Binoculars (Pentax close focus).
- Thermometer/hygrometer.
- Camera.
- Sample bags for collecting dropping and feeding evidence.

Target notes are made when appropriate to highlight e.g. protected species or an 'other feature(s)' of ecological note.
If a deviation from the guidelines has been made the reason and justification will be explained below: -
No deviation from the standard guidelines has been made for this survey.

2.2 Limitations

This survey provides a snapshot of the site at the time of the survey(s) only. Species are highly mobile and can and do turn up from time to time unexpectedly. All care has been taken to ensure the results and recommendations are suitable to the context of the development and the information gathered on surveys.

Table 1: Habitat value (likelihood) of protected species presence assessed against Collis (2016), Edgar *et al* (2010) and NE (2007) etc.

Likelihood of species presence (Habitat Value)	**Features that species can and will use, regardless of evidence being present.**
Confirmed Presence	Species are found to be present during the survey. Evidence of species is found to be present during the survey.
Higher likelihood of presence.	Buildings, trees or other structures with features of particular significance for use by protected species e.g. nesting habitat, roosting opportunities, and ponds. Habitat of high quality for foraging e.g. broadleaved woodland, tree-lined watercourses and grazed parkland. Site is connected with the wider landscape by strong linear features that would be used by commuting species e.g. river and or stream valleys and hedgerows. Site is close to known locations of records for protected species.
Moderate and Lower likelihood of species presence.	Several potential habitat opportunities in buildings, trees or other habitats. Habitat could be used for foraging e.g. trees, shrub, grassland or water. Site is connected with the wider landscape by linear features that could be used by commuting species e.g. lines of trees and scrub or linked back gardens. A small number of less significant habitat opportunities. Isolated habitat for foraging e.g. a lone tree or patch of scrub. An isolated site not connected by prominent linear landscape features.
Negligible likelihood of species presence.	No features suitable for roosting, minor foraging or commuting.

3.0 Results

The following section details the results of the desk study, inspection and survey, it includes MAGIC information, biological records data and map/aerial photo information. The results detail the building, structure or tree (numbered for reference) description of any evidence found and habitat value if no evidence has been located.

3.1 Desk Study

The desk study is centred on Grid Ref – TL261045 and postcode – AL9 6NG.

Table 2: Weather records –

Temperature	11ºC
Cloud cover	10%
Precipitation	None
Wind	1/12

3.2 Magic:

The following statutory sites have been located on the search (2km) see Figure 1 –

- A single SSSI/LNR is located to the east, approx. 1.7km from the site. Known as Northaw Good Wood.
- Three EPS licences are found in the search area. None of these are closer than 1km from the site. These are 2009-982, 2010-1812 and 2013-6057, all include for pipistrelle.

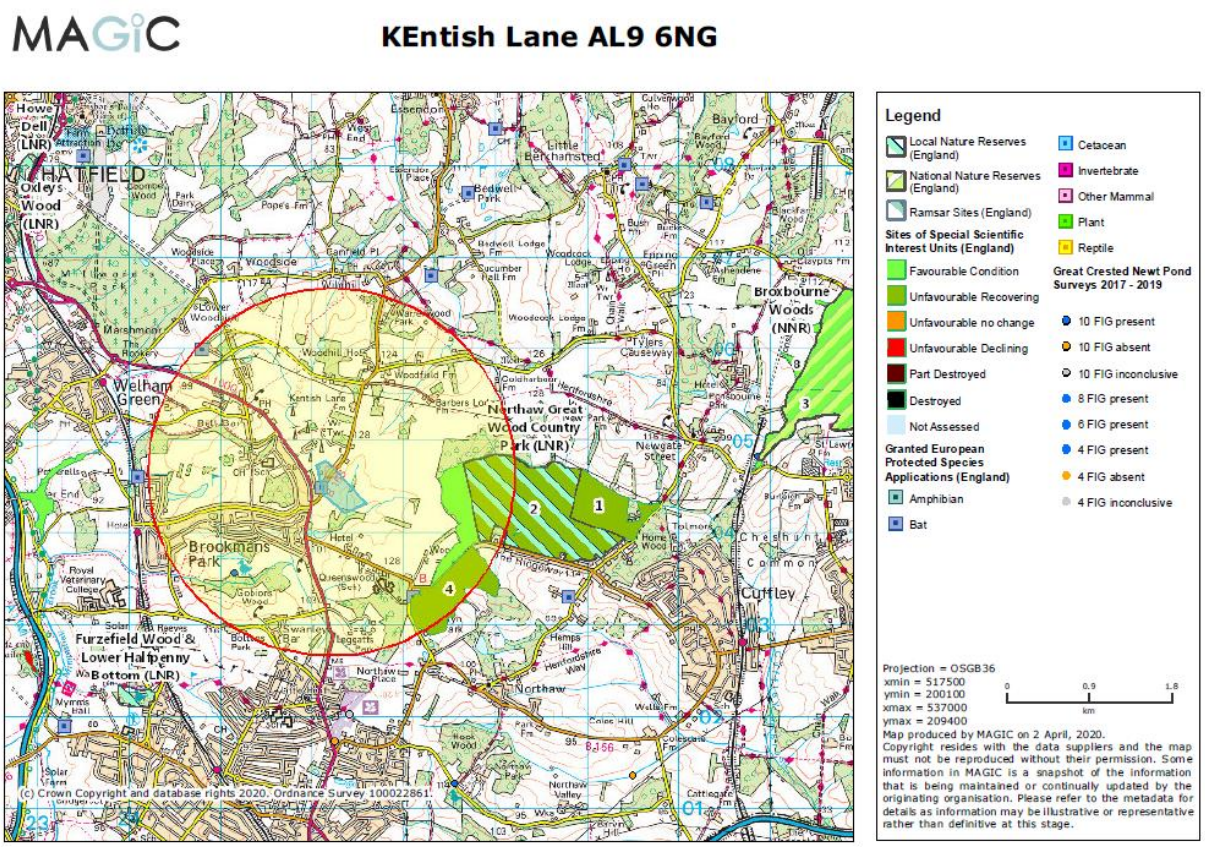

Figure 1: Magic Map Search

3.3 Biological Records Data:

A standard 1km data search of existing records for protected species and nature reserves has been commissioned, below details the results and site context:

Biological records were obtained from Herts Environmental Records Centre (2020).

Table 3: Biological records data

Species	Number of records	Closest record (accuracy)	Most recent record (year)
Bats Brown long eared *Plecotus auritus* Soprano pipistrelle *Pipistrellus pygmaeus*	33 4	Four figure references only (10km or more) 140m (1km accuracy)	2018 2018

Common pipistrelle *P. pipistrellus* Noctule *Nyctalus noctula* Natterer's *Myotis nattereri* Daubentons *M. daubentonii*	46 2 78 76	0m (1km accuracy) 460m (1km accuracy) 570m (1km accuracy) 570m (1km accuracy)	2018 2018 2017 2017
Badgers *Meles meles*	21	440m (1km accuracy)	2015
Reptiles Grass snake *Natrix helvetica*	5	140m (1km accuracy)	1991
Great crest newt *Triturus cristatus* Common lizard *Zootoca vivipara*	3 1	570m (1km accuracy) Four figure reference supplied	2004 1965
Otter/water-vole	n/a		
Dormouse	n/a		
Other	n/a		
Non-Statutory Sites (see Figure 1a)			
Name	Ref no	Type	Description/designated for
Gobions Wood	79/001/01	Herts and Middlesex Wildlife Trust Nature Reserves	36.40 of woodland
Kentish Lane Farm Wood (N.E. of Brookmans Park)	70/010	Local wildlife site	Ancient semi-natural broadleaved woodland with coppice-with-standards.
The Legg North	70/088/01	Local wildlife site	Thin strip of broadleaved semi-natural broadleaved woodland.
Gobions Wood Central	79/001/01/01	Local wildlife site	Largely ancient woodland occupying a shallow valley with small streams that flow into swallow holes.

Gobions Wood Meadows	79/001/01/02	Local wildlife site	A relatively large semi-improved grassland site, in a well-connected landscape.
Queenswood Home Farm Grove	79/010	Local wildlife site	Semi-natural woodland consisting of predominantly old Hornbeam (Carpinus betulus) and Pedunculate Oak (Quercus robur).
George's Wood	79/012	Local wildlife site	Ancient semi-natural Pedunculate Oak (Quercus robur)/Hornbeam (Carpinus betulus) woodland.
Grasslands S. of Mymfield	79/030	Local wildlife site	Three fields with semi-improved to unimproved neutral to slightly acidic grassland.

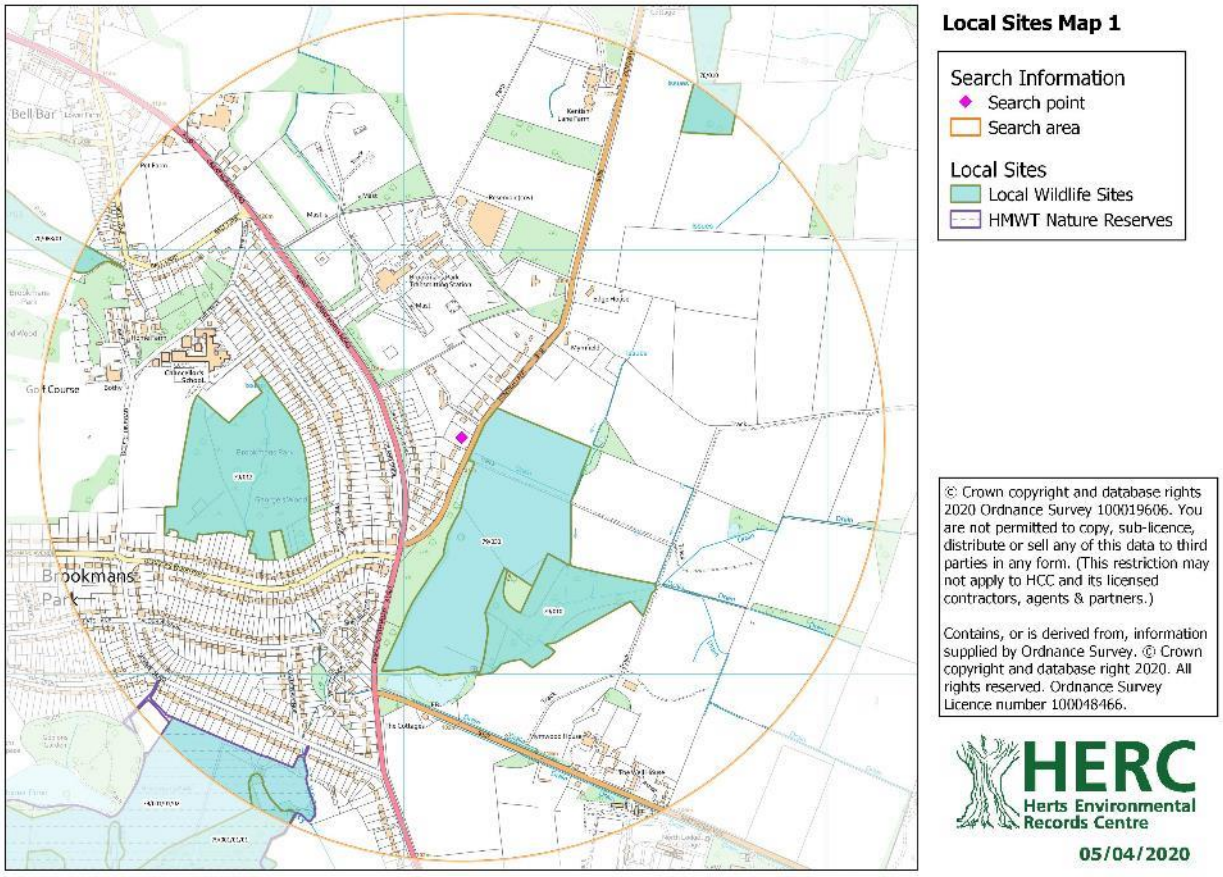

Figure 1a: Local sites

3.4 Site Location and Surrounds:

The site is located in Hertfordshire, Brookmans Park and is surrounded by local density housing in the immediate local. Table 4 details the commuting, feeding and habitat features in a 1km radius of the site.

Table 4: Habitat features suitable for use by protected species

Feature	Description
Water course	No named watercourses are found in the search area. Small drainage ditches are scattered around the general area.
Water bodies	Two unnamed ponds are located to the south, the first is approx. 300m from site and a further larger pond to the south approx. 700m from site.
Woodland	Woodland block and strips are found to the rear of the site, with small blocks located to the north and south, the blocks are no more than 200m from site, with strips leading to them.
Linear e.g. hedgerows	Garden hedging and tree lined roads are found to the immediate surrounds.
Pasture/arable/grassland	Amenity dominates the area, with a large open field to the rear boundary, this appears to be improved.
Other	n/a

3.5 Habitat, Building, Tree or Other Structure

This section details the structures/habitat reference and descriptions (see Figure XX for Site Plan).

3.5.1 Habitats

3.5.2 Amenity

The site consists of mostly amenity grassland, this hasn't been cut for a little while although it is not at a rough grassland stage, it is becoming tussocky in places.

Figure 2: Example of grassland

Figure 3: Example of grassland

3.5.3 Scattered Trees

A large number of scattered trees are found on site. These include oak *Quercus sp.*, birch *Betula pendula,* scots pine *Pinus Sylvestris,* and willow *Salix sp.*(see Figure 4).

Figure 4: Example of scattered trees

3.5.4 Tall Ruderal

Tall ruderal vegetation is found in the form of bracken *Pteridium aquilinum* and bramble *Rubus fruticosus agg*. in small patches found scattered across the site (see Figure 5).

Figure 5: Example of tall ruderal, red circle indicates

3.5.5 Scrub (Introduced)

Towards the front of the site and found along some of the boundary areas, introduced scrub including rhododendron *Rhododendron ferrugineum* is found.

3.5.6 Hedging

Hedging is located along the front of the site it consists of leylandii *Cupressus* × *leylandii* (see Figure 6).

Figure 6: Example of hedging

Table 5: Target notes

Target Note	Description
T1	Hole with underground stream
T2	Debris pile (see Figure 7)  Figure 7: Example of pile
T3	Tree with bat potential (see Figure 8)

	 Figure 8: Example of tree, red arrow indicates
T4	Probable badger hole
T5	Disused birds nest (see Figure 9)  Figure 9: Disused nest

3.6 Species List

Annual Meadow-grass	*Poa annua*
Ash	*Fraxinus excelsior*
Bent	*Agrostis* sp.
Birch	*Betula* sp.
Black Horehound	*Ballota nigra*
Black Medick	*Medicago lupulina*

Bluebell	*Hyacinthoides non-scripta*
Bracken	*Pteridium aquilinum*
Bramble	*Rubus fruticosus agg.*
Bristly Oxtongue	*Picris echioides*
Cat's-ear	*Hypochaeris* sp.
Cherry	*Prunus* sp.
Cherry Laurel	*Prunus laurocerasus*
Cleavers	*Galium aparine*
Cock's-foot	*Dactylis glomerata*
Common Bent	*Agrostis capillaris*
Common Chickweed	*Stellaria media*
Common Mallow	*Malva sylvestris*
Common Sorrel	*Rumex acetosa subsp. acetosa*
Crane's-bill	*Geranium* sp.
Creeping Buttercup	*Ranunculus repens*
Daisy	*Bellis perennis*
Dandelion	*Taraxacum officinale*
Dock	*Rumex* sp.
Germander Speedwell	*Veronica chamaedrys*
Goat Willow	*Salix caprea*
Green Alkanet	*Pentaglottis sempervirens*
Ground-ivy	*Glechoma hederacea*
Groundsel	*Senecio vulgaris*
Hawthorn	*Crataegus monogyna*
Hazel	*Corylus avellana*
Hedge Mustard	*Sisymbrium officinale*
Herb-Robert	*Geranium robertianum*
Holm Oak	*Quercus ilex*
Honeysuckle	*Lonicera periclymenum*
Hornbeam	*Carpinus betulus*
Ivy	*Hedera helix*
Ivy-leaved Speedwell	*Veronica hederifolia*
Leyland Cypress	*Cuprocyparis leylandii*
Mouse-ear chickweed	*Cerastium vulgatum*
Nettle	*Urtica dioica*
Oak	*Quercus* sp.
Perennial Rye-grass	*Lolium perenne*
Red Clover	*Trifolium pratense*
Red Dead-nettle	*Lamium purpureum*
Red Fescue	*Festuca rubra*
Rhododendron	*Rhododendron ponticum*
Ribwort Plantain	*Plantago lanceolata*
Rose	*Rosa* sp.

Rosebay Willowherb	*Chamerion angustifolium*
Speedwell	*Veronica sp.*
Wall Barley	*Hordeum murinum*
White Clover	*Trifolium repens*
White Dead-nettle	*Lamium album*
Willow	*Salix* sp.
Yarrow	*Achillea millefolium*
Yew	*Taxus baccata*
Yorkshire-fog	*Holcus Lanatus*

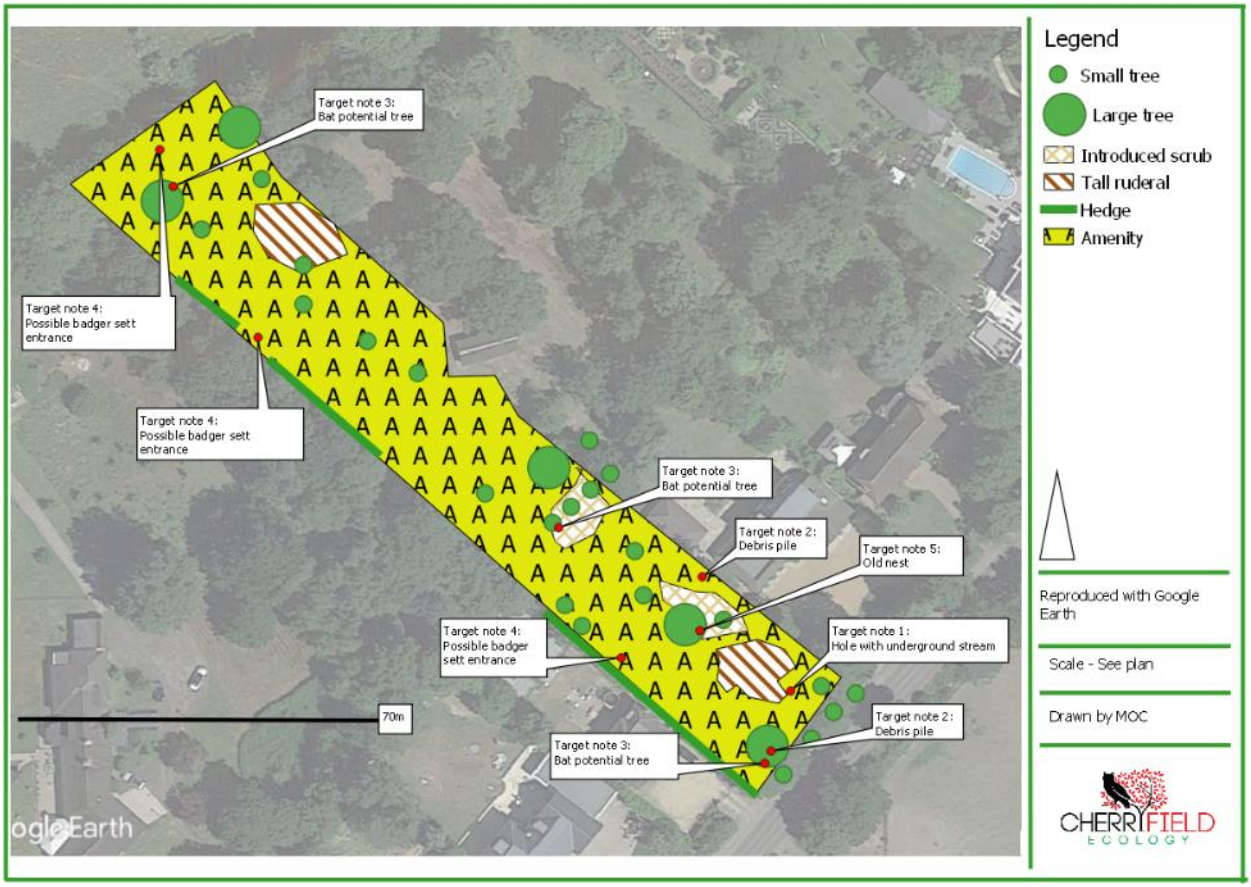

Figure 10: Site plan

3.7 Evidence or Likelihood of Species Presence

This section details the evidence located and likelihood of species presence.

3.7.1 Bats

Table 6: Bats, evidence or the potential for the species.

Bats found	No bats found at the time of the survey.
Evidence of bat use	No bat evidence found at time of the survey.
Potential for bat use	Level of likelihood of presence – high Several of the scattered trees on site displayed features suitable for roosting, including woodpecker holes, loose bark and splits in branches (see Figures 11 to 13).  Figure 11: Splits and loose bark

Figure 12: Woodpecker hole

Figure 13: Loose bark, red arrow indicates

3.7.2 Badgers

Table 7: Badgers, evidence or the potential for the species

Badgers found	No badgers found.
Evidence of badger use	Three holes found on site resembling those utilized by badgers, two are to the far end of the site, well outside the 30m buffer required, however a hole to the front of the site (see Figure 14) is within the 30m buffer.  Figure 14: Probable badger hole
Potential for badger use	Level of likelihood of presence – moderate The site displayed a number of possible badger snuffle holes, along with the holes present, a lack of human activity on site and links to the wider area, it is possible that they are present (Figure 15).  Figure 15: possible snuffle holes, red circles indicate

3.7.3 Breeding Birds

Table 8: Breeding birds, evidence or potential for the species

Breeding birds found	No in-use nests found.
Evidence of breeding bird use	A single old nest was located in a tree to the front of the site (see Figure 16).  Figure 16: Disused nest
Potential for breeding bird use	Level of likelihood of presence – high Any of the trees, scrub and hedging has the potential to support nesting during the breeding season.

3.7.6 Amphibian

Table 9: Amphibians, evidence or potential for species use.

Amphibians found	No amphibians found.
Evidence of amphibian use	No evidence of amphibians found.
Potential for amphibian use	Level of likelihood of presence –low The site offers some terrestrial habitat, but due to the lack of breeding ponds in or around the site it is unlikely they would be present.

3.7.7 Reptile

Table 10: Reptiles, evidence or potential for species use.

Reptiles found	No reptiles found at the time of the survey.
Evidence of reptile use	No evidence found at the time of survey.
Potential for reptile use	Level of likelihood of presence – high The mixed nature of the site with scrub, scattered trees, longer grass and debris piles coupled with direct access to the rear grassland outside the boundary would suggest it is possible for common reptiles to be present.

3.7.8 Other Species e.g. dormouse

Table 11: Other protected species, evidence or potential for species use.

Species found	No other protected species found.
Evidence of species use	n/a
Potential for species use	Level of likelihood of presence – n/a

3.7.9 Invasive Non-Native

A patch of suspected Japanese knotweed *Fallopia japonica* was located to the central area of the site. It appears this has already been treated as this patch was dead (see Figure 17).

Figure 17: Suspected knotweed

4.0 Conclusions, Discussion, Impacts and Recommendations

The following section details the conclusions, discussion, impacts and recommendations in the context of the proposed works.

4.1 Conclusion and Discussion

The development will involve building a new dwelling and associated infrastructure. A potential badger hole has been located within 30m of the development and further survey will be required to establish if they are present and using the possible sett. Common reptiles could use the site, which offers suitable habitat in the form of grassland, scrub and scattered trees, with links to more open grassland to the rear. Several of the trees displayed features suitable for roosting bats, should these need removal they will require further investigation.

4.2 Potential Impacts

Impact assessments must be proportionate to the scale of the development (CIEEM, 2018) and the following Table 12 details a proportionate impact assessment based on current information –

Table 12: Impact assessment

Impact	Bats – possible loss of tree roosts, if trees are affected by the development. Reptiles – loss of minor area of habitat to the building footprint, possible killing of individuals. Badger – if present a sett would be affected by the building.
Characterisation of unmitigated impact on the feature	All species – Unmitigated works would result in the loss of features creating a low impact at the local level.
Effect without mitigation	All species – individuals could be killed, injured or disturbed in the works.
Mitigation and/or potential enhancement	Please see tables 13 and 14.
Significance of effects of residual impacts (after mitigation)	Assuming all mitigation and compensation is installed there would be no net loss of habitat and enhancement can be made.

4.3 Recommendations

Bats – Should any identified tree be removed further presence/likely absence surveys will be required. Three surveys with one surveyor per tree would be required. Two dusk and one pre-dawn will be required, undertaken between May to Sept, with two weeks between each survey.

Reptiles – As the site is suitable for common reptiles a full reptile survey will be required in order to establish presence/likely absence. This can be undertaken from March to Oct, with July and August being sub-optimal. The survey consists of laying out bitumen felt tiles and checking once a week in suitable weather (9oC, no rain, little to no cloud/wind).

Badger – As a possible badger sett hole has been found close to the proposed works, a full badger survey will be required. Camera traps are to be installed and checked once a week for four weeks.

4.4 Recommended Enhancements and Mitigation

Table 13: Mitigation

Work	Specification
Lighting	Any lighting near or shining onto any trees, especially those with bat boxes in or commuting routes shown to be present at further survey stage should be designed to minimize the impact it has on potential bat roosting and commuting. Lighting should be in-line with the BCT lighting guidelines (Bats and Lighting in the UK (Bat conservation trust, 2018) *https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/* This lighting should be of low level, be on downward deflectors and ideally be on PIR sensors. Using LED directional lighting can also be a way of minimizing the light spill affecting the habitat. No up-lighting should be used. This will ensure that the roosting and commuting resources that the bats are likely to be using is maintained.

Table 14: The local authority has a duty to enhance biodiversity in its day to day duties, the following are suggested enhancements that are easily installed into a development and can be cost effective whilst ensuing a gain for local wildlife.

Work	Specification
Bat, bird and insect box enhancement.	Bat tubes can be installed into the new dwellings. A minimum of two Schweglar 2FR boxes (see Figure 18) could be installed into the gable ends of the new dwellings.  Figure 18: Schweglar 1FF bat box Bird boxes for a variety of different species will also be installed. A selection of open fronted boxes, and songbird boxes can be installed (see Figures 19 and 20) it is recommended that a minimum of two of each of the boxes are installed.  Figure 19: Robin box

Figure 20: Songbird box

A variety of insect boxes can be installed in the area, a minimum of one box is recommended (see Figures 21 and 22).

Figure 21: Urban bee nesting box, used for solitary bees and wasps

Figure 22: Bug biome, ideal for ladybirds, lacewings and bees

Hedgehog highways and small mammal connectivity.	In order to allow hedgehogs and other small mammals a continuous corridor across the site, thus linking the garden and green spaces. • A 13cm by 13cm is sufficient for any hedgehog to pass through. This will be too small for nearly all pets (Figure 23).

	• Remove a brick from the bottom of the wall, creating a 13cm by 13cm hole. • Cut a small hole in your fence if there are no gaps. • Dig a channel underneath your wall, fence or gate. • Ideally, rather than walls or fences a hedge will provide foraging, shelter and a route along as well as through the site.  Figure 23: Hedgehog Highway, *Source – Wildlife Trust - http://7474fab53f1b6ee92458-8f3ac932bad207a00c83e77eaee8d15c.r12.cf1.rackcdn.com/Hedgehog%20Highway.jpg*
Swifts *Apus apus*	Swift nest boxes are recommended due to the increased lack of nesting opportunities swifts are finding in modern built dwelling homes. Information is adapted from the RSPB https://www.rspb.org.uk/our-work/rspb-news/news/stories/swift-advice-for-ecologists/ and http://actionforswifts.blogspot.com The following will be undertaken – • Wherever possible, swift bricks will be installed in new or restored buildings to increase the overall availability of nest sites for swifts and other species. Birds such as house sparrow can use swift bricks, but swifts cannot use house sparrow nest bricks. • Integral swift bricks are the preferred option on new housing developments. These should be fitted in clusters of 2 to 4 on gable ends and near the roofline where swifts would naturally look for a potential nest site. On larger commercial buildings include one swift brick per 6 m2 of wall, mounted near the roofline, in clusters of 3 or more, with approximately 1m between entrance holes. • Try to ensure swift bricks have a minimum of 5m clearance beneath and in front. Always avoid locating them above doors and windows, to help prevent a disturbance issue to both the birds and human owners.

	• Alternatively, swift boxes can be placed on the external walls of a building when a restoration or opportunities don't exist to build in the boxes.  Figure 24: Example of swift bricks, that can be built into a dwelling, *Source: https://www.birdbrickhouses.co.uk/brick-nesting-boxes/*  Figure 25: Swift box, *source: http://actionforswifts.blogspot.com/p/diy-swift-box-designs.html*
Hedgerows	Hedgerows provide excellent corridors for wildlife and are extremely important to many species of wildlife. A hedgerow could be included in development plans to assist a range of species (Figure 26).

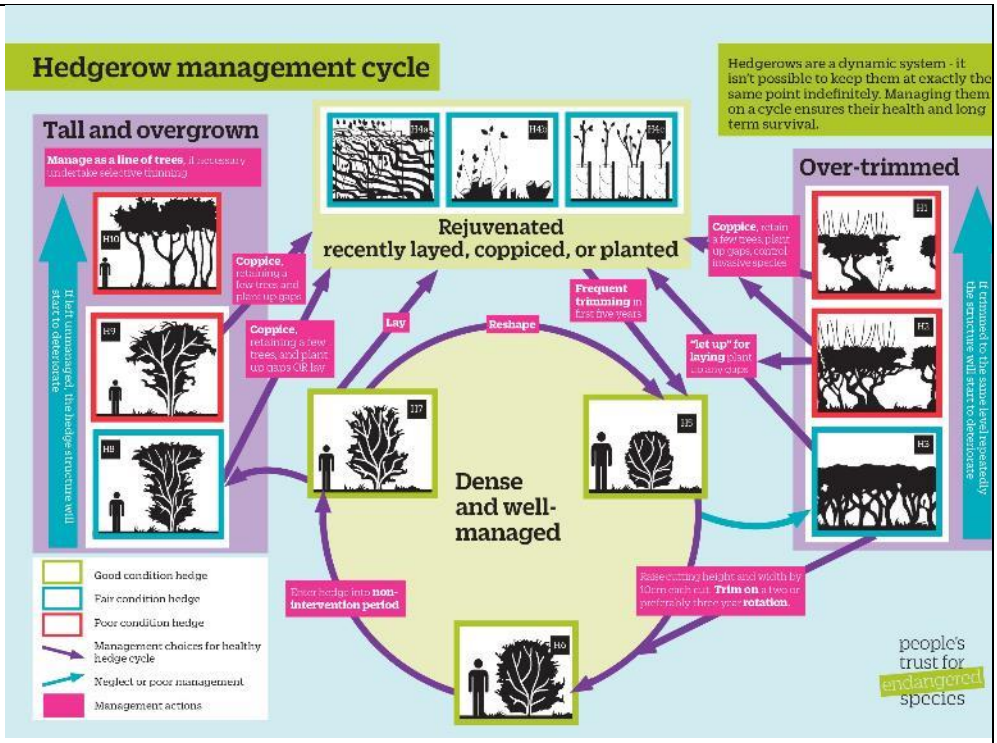

Figure 26: Hedgerow management cycle (https://hedgerowsurvey.ptes.org/)

5.0 References

CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, September 2018. Chartered Institute of Ecology and Environmental Management, Winchester, online at https://www.cieem.net/data/files/ECIA%20Guidelines.pdf

Collins, J. (ed), (2016), Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd Edition, BCT, London

Google Earth, (2017), Located on site postcode, online

Joint Nature Conservation Committee (2010). Handbook for Phase 1 habitat survey a technique for environmental audit.

MAGIC, (2017): Magic maps, NEPS licences and designated sites, online http://www.magic.gov.uk/Login.aspx?ReturnUrl=%2fMagicMap.aspx, accessed as report date.

Mitchell-Jones, A.J. (2004), Bat Mitigation Guidelines, English Nature, Peterborough

National Planning Policy Framework, 2017

Natural England (2007). Badgers and Development a Guide to Best Practice and Licensing. Natural England. Bristol.

Paul Edgar, Jim Foster and John Baker (2010). Reptile Habitat Management Handbook. Amphibian and Reptile Conservation, Bournemouth

Records: Herts Environmental Records Centre, 2020

The Great British Hedgerow Survey (2019), People's Trust for Endangered Species, online https://hedgerowsurvey.ptes.org/, accessed report date.

Tom Langton, Catherine Beckett and Jim Foster (2001). Great Crested Newt Conservation Handbook. Froglife.