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Report prepared for: Brian Parker

For the Site of: Bricket Lodge Sport and Country Club, Lye Lane, Hertfordshire AL2 3TF

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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 licences 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.

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Contents

Ecological Appraisal (EA)

0.0 Non-Technical Summary

0.1 Background

This survey 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 Bricket Lodge Sport and Country Club, Lye Lane, Hertfordshire AL2 3TF.

The client commissioned Cherryfield Ecology to undertake an EA as the proposals include for the demolition of existing buildings to be replaced with residential buildings and associated landscaping. Plans have been provided see Appendix I.

0.2 Results and Findings

- The site consists of eight buildings (B1 – B8), hard-standing, bare ground, improved grassland, tall ruderal, scattered trees, dense scrub, scattered scrub, species-poor hedgerow and woodland.
- The site provides **negligible** potential for badger due to the lack of suitable habitat and limited connectivity to more suitable habitats.
- **Bat presence is confirmed** through dropping evidence that was found in Loft Space 1 of **B1**. Furthermore, open access was found at multiple points across the building including through an air vent and broken windows and in addition, potential roosting features found between the roof tiles across the roof of **B1.** Due to the aforementioned access points and roosting features B1 is considered to have **high** potential.
- The building **B3** provides **moderate** potential for bats due to numerous gaps and access/exit points under the ridge tiles, within the external brick wall, and through broken windows found across this building.
- The buildings **B2** and **B8** provide **low** potential for bats due to limited gaps and access/exit points under the eaves and between loose roof tiles.

- The buildings **B4**, **B5**, **B6** and **B7** provide **negligible** potential for bats due to the lack of gaps and access/exit points suitable for use by roosting bats found across these buildings.
- The mosaic of habitats found on site which include dense scrub, scattered scrub, improved grassland, hedgerow and bare ground provide **high** potential for reptiles.
- The site provides **low** potential for GCN in some of the terrestrial habitat found on site, such as the hedgerow and scattered scrub habitats, as well as the debris and log pile features. No aquatic habitat was found on site, the nearest water bodies are located 745m south-east and 850m north of the site.
- The buildings (B1, B2, and B3), trees, scrub, and hedgerow habitats provide **high** potential for breeding birds.

0.3 Impact Assessment and Recommendations

Badger – No further surveys are necessary; however, if any badger setts are found throughout works, all works must stop, and advice sought.

B1 – **Full roost characterisation surveys** will be required to determine species, population and the entry/exit points used (three surveys, a minimum of two weeks apart).

A total of four surveyors to cover B1 will be required. These surveys must be undertaken within the May to September window (with September considered sub-optimal). Two of these surveys will need to be undertaken during the optimal timeframe of mid-May to August.

B3 – **Presence/likely absence surveys** will be required (two surveys, at least two weeks apart), four surveyors will be required to cover building **B3**; one of these surveys must be undertaken between May to August. If bats are found to be using B3, one further survey will be required.

B2 and B8 - **Presence/likely absence surveys** will be required (one survey), two surveyors will be required to cover building **B2,** and two surveyors will be required to

cover building **B8**; this survey must be undertaken between May to August. If bats are found to be using B2 and/or B8, two further surveys will be required.

Breeding Birds - No further surveys are recommended; however, the development should take place outside the nesting season (March to August). If this is not possible, it is recommended that a qualified ecologist is on site to ensure the buildings, trees, scrub and hedgerow habitats are not occupied by breeding birds, prior to demolition and removal. Should an occupied nest be found, a buffer zone would need to be created until the nest is no longer in use.

GCN – No further survey is necessary. A qualified ecologist will be required to supervise the clearance, via a destructive search, of potential hibernacula such as the log piles and debris on site. If GCN are found all works must stop and advice sought from a qualified ecologist.

Reptiles - **Presence/ likely absence surveys** for reptiles will be required to establish if any species are using the site. These will be done between the months of March and October. Bitumen tiles will be placed across the site in week one and will then be checked once a week over a seven-week period, in suitable weather (9^{o}C to 18^{o}C, no rain, little winds and sunny).

Habitat – No further survey is necessary. It is currently understood that the existing woodland on site will not be affected by the development. However, should the woodland be included within the plans for development, further survey will be required.

The findings outlined in this report are valid for one year, after which updated surveys will be required.

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, Brian Parker, has commissioned Cherryfield Ecology to undertake an EA for the site of Bricket Lodge Sport and Country Club, Lye Lane, Hertfordshire AL2 3TF. Planning permission is being sought for the demolition of existing buildings to be replaced with residential buildings and associated landscaping.

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 05/01/2022.

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 UK protected species have the same protection and the detail under Bats also applies to GCN, Dormouse, Otters and the two UK 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, several 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 Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, which transpose Annex II of the Directive 92/43/EEC 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora ("Habitats Directive") which defines United Kingdom 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 helvetic),* 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 under The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, which defines UK protected species of animals ("rare reptiles").

1.3.4 Badgers

Badger *Meles meles* 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 The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 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, for example, 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.

2.1 Limitations

This survey provides a snapshot of the site at the time of the survey only. Species are highly mobile and can 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 Collins (2016), Edgar *et al* (2010) and Natural England (2007) etc.

Likelihood of species presence (Habitat Value)	Features that species can 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 to 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 to 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 Reference – TL134028 and Postcode – AL2 3TF.

Table 2: Weather Records

Temperature	5.8°C
Cloud cover	20%
Precipitation	None
Wind	2/12

3.2 MAGIC

The following statutory sites and Natural England Protected Species (NEPS) have been located within the 2km search area (Figure 1).

- There are two statutory sites located within the search area. Bricket Wood Common Site of Special Scientific Interest (SSSI) is located approx. 1.1km south-west of the site. Moor Mill Quarry West SSSI is located approx. 650m east of the site.
- There are no NEPS licences granted for European protected species within the search area.

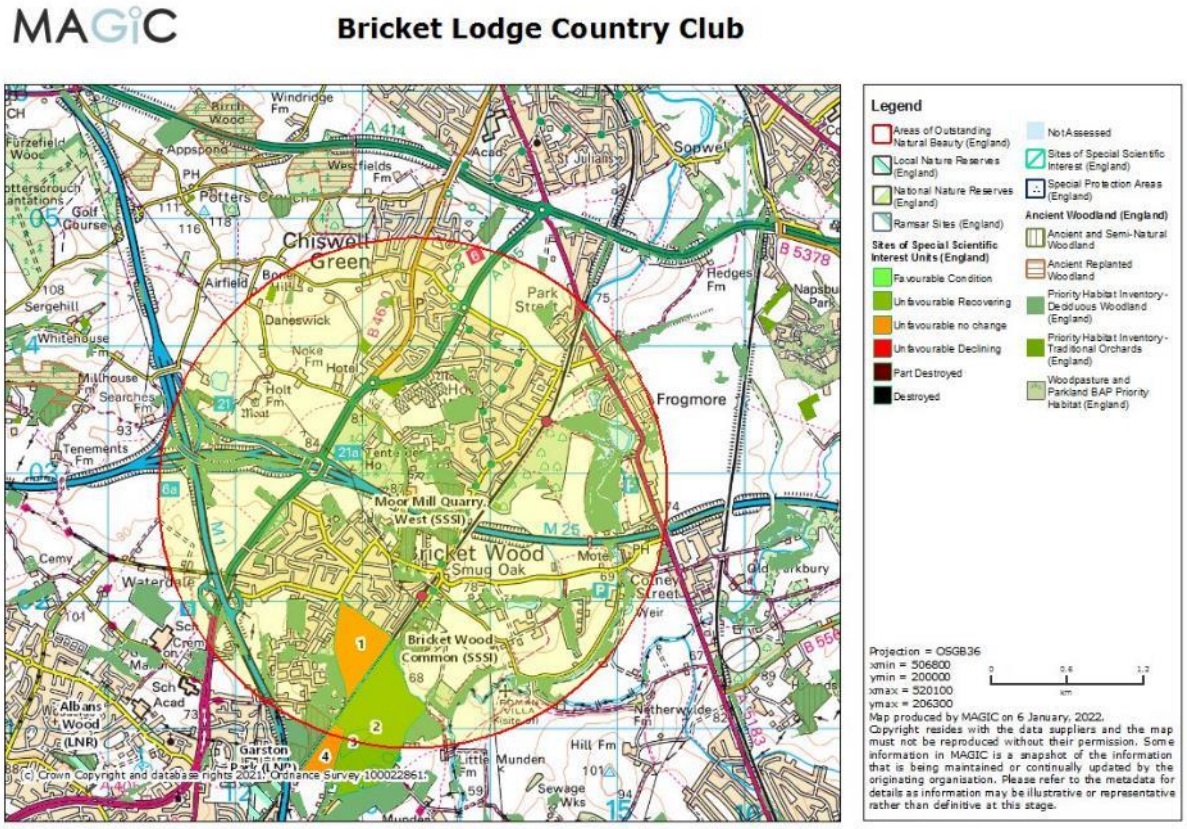

Figure 1: Magic Map Search

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 (HERC) (2021), with a total of 5347 biological records provided.

Table 3: Biological Records

Species	Number of Records	Closest Record (accuracy)	Most Recent Record (year)
Amphibians Great Crest Newt *Triturus cristatus*	11	Approx. 305m (6 fig. grid ref.)	1998
Bats			

Brown Long-Eared *Plecotus auratus*	2	Approx. 1.9km (4 fig. grid ref.)	Not provided
Common Pipistrelle *Pipistrellus pipistrellus*	19	Approx. 1.9km (4 fig. grid ref.)	2020
Daubenton's *Myotis daubentonii*	2	Approx. 600m (4 fig. grid ref.)	Not provided
Noctule *Nyctalus noctule*	7	Approx. 1.9km (4 fig. grid ref.)	2013
Soprano Pipistrelle *Pipistrellus pygmaeus*	7	Approx. 1.9km (4 fig. grid ref.)	2013
Unidentified Bat *Chiroptera sp.*	13	Approx. 600m (4 fig. grid ref.)	2020
Mammals (exc. Bats)			
Badger *Meles meles*	19	Approx. 890m (4 fig. grid ref.)	2019
Hazel Dormouse *Muscardinus avellanarius*	1	Approx. 1.1km (4 fig. grid ref.)	Not provided
Water Vole *Arvicola amphibius*	3	Approx. 1.1km (4 fig. grid ref.)	1987
Reptiles			
Common Lizard *Zootoca vivipara*	1	Approx. 1.1km (4 fig. grid ref.)	Not provided
Grass Snake *Natrix Helvetica*	3	Approx. 430m (6 fig. grid ref.)	1991
Slow-Worm *Anguis fragilis*	1	Approx. 1.1km (4 fig. grid ref.)	1985
Other			
Birds	3832	Approx. 0m (6 fig. grid ref.)	2020
Invertebrates	1313	Approx. 0m (6 fig. grid ref.)	2020
Plants			

Non-Statutory Sites			
Name	**Reference No.**	**Type**	**Description/designated for**
How Wood	76/021	Local wildlife site	Not provided

Birch Wood	76/020	Local wildlife site	Not provided
Blackgreen Wood	76/014	Local wildlife site	Not provided

3.4 Site Location and Surrounds

The site is in Bricket Wood, Hertfordshire and is surrounded by woodland and low-density urban sprawl 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	The River Ver is located approx. 1.4km east of the survey site.
Water bodies	The closest water body is located approx. 750m south-east of the site. In addition, there are water bodies located 815m south-east, 825m south-east, 850m north, 920m north and 960m north of the site.
Woodland	Woodland is located on site to the south and in its immediate surrounds to the east and west. There is also woodland located approx. 500m north-east, 350m south and 675m south-west of the survey site.
Linear e.g., hedgerows	There are numerous hedgerows scattered throughout the search area. The closest is located approx. 500m north of the site.
Pasture/arable/grassland	There is scattered arable land within the north-west and south-east of the search area. The closest arable field is located 460m north of the survey site.
Other	There are no other significant features within the search area.

3.5 Habitat, Building, Tree or Other Structure

This section details the structures/habitat reference and descriptions (see Figure 27 for Site Plan).

3.5.1 Habitats

3.5.2 Buildings

There are eight buildings on site (B1 – B8).

B1 is a brick -built and rendered, single-storey building with an M shaped open gable roof. The roof has overhanging eaves, dormer windows and slate roof tiles. The windows and doors are constructed of timber and have been boarded shut due to this building being derelict. Timber weatherboards and soffits are also present. B1 also has plastic rainwater goods.

B2 is a brick-built and part-rendered, single-storey building with an open gable roof. The roof has overhanging eaves and slate roof tiles. The windows and doors are constructed of timber and have been boarded shut due to this building being derelict. Timber weatherboards and soffits are also present. B2 also has plastic rainwater goods.

B3 is a brick-built two-storey building with a M shaped open gable roof. The roof has overhanging eaves, concrete roof tiles and concrete ridge tiles. The windows and doors have been boarded shut due to this building being derelict. Timber weatherboards and soffits are also present. B3 also has plastic rainwater goods.

B4 is block-built single-storey building with an open gable roof. The roof has overhanging eaves, concrete roof and ridge tiles. Timber weatherboards and soffits are also present.

B5 is a brick-built single-storey residential building with an open gable roof structure. The roof has overhanging eaves, concrete roof tiles and concrete ridge tiles. Timber weatherboards and soffits are also present. B5 also has plastic rainwater goods.

B6 is a brick-built single-storey residential building with an open gable roof structure. The roof has overhanging eaves, interlocking concrete roof and concrete ridge tiles. Timber weatherboards and soffits are also present. B6 also has plastic rainwater goods.

B7 is a brick-built two-storey residential building with an open gable roof structure and dormer windows. The roof has overhanging eaves, interlocking concrete roof and concrete ridge tiles. Timber weatherboards and soffits are also present. B7 also has plastic rainwater goods.

B8 is a brick-built single-storey residential building with an open gable roof structure. The roof has overhanging eaves, interlocking concrete roof and concrete ridge tiles. Timber weatherboards and soffits are also present. B8 also has plastic rainwater goods.

Other structures on site include shipping containers. These shipping containers are of metal construction and have no roof voids or loft spaces internally.

Figure 2: Front elevation of B1

Figure 3: Rear elevation of B1

Figure 4: Front elevation of B2

Figure 5: Front elevation of B3

Figure 6: Rear elevation of B3

Figure 7: Front elevation of B4

Figure 8: Front elevation of B5

Figure 9: Front elevation of B6

Figure 10: Front elevation of B7

Figure 11: Front elevation of B8

Figure 12: Example of shipping container

Internally, B1 has two loft spaces (Loft Space 1 and Loft Space 2). Both loft spaces have a king post beam structure. The underside of the roof of Loft Space 1 was fully lined with sarking boards. The underside of the roof of Loft Space 2 is lined with bitumen felt. The floor of both loft spaces was lined with insulation and boards which have significant damage due to flooding.

Internally, B2 has one loft space with a braced king post beam structure. The underside of the roof is lined with bitumen felt and the floor has insulation and is partly boarded. This loft space floor has been damaged by flooding.

Internally, B3 has no loft space, and the roof is vaulted due to the internal roof area being converted for the use of additional room space.

Internally, B4 has no loft space, and also has a vaulted roof.

Internally, the loft spaces of B5, B6 and B7 have a single loft space above each apartment. These loft spaces are divided by a block wall. All loft spaces have a braced king post beam structure. The underside of the roof is lined with bitumen felt and the floor has insulation and is partly boarded.

Internally, B8 has one loft space with a king post beam structure. The underside of the roof is lined with bitumen felt and the floor is fully insulated.

Figure 13: Loft Space 1 of B1

Figure 14: Loft Space 2 of B1

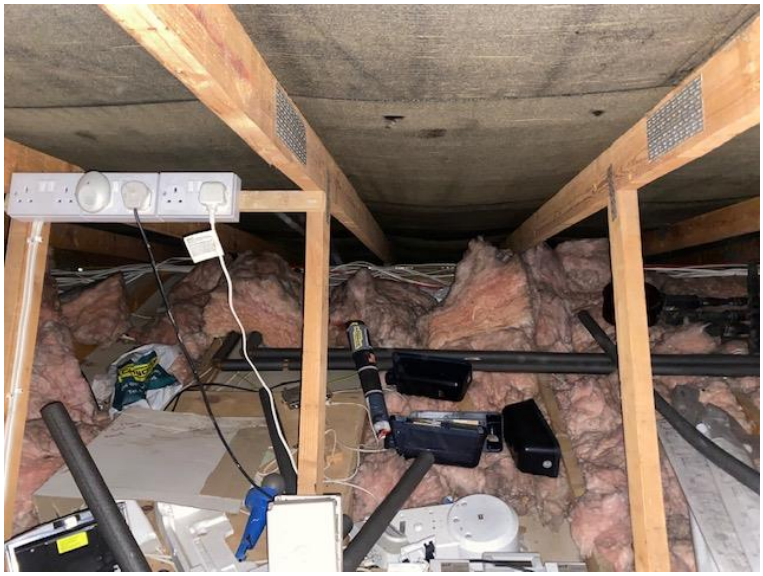

Figure 15: Loft space within B2

Figure 16: Example of a loft space within B5

Figure 17: Example of loft space within B6

Figure 18: Example of a loft space within B7

Figure 19: Example of a loft space within B8

3.5.3 Hardstanding

There are areas of hardstanding across the site which form the driveways, path and parking areas.

Figure 20: Example of hardstanding on site

3.5.4 Trees

There were numerous native and non-native trees found to be present across this site. These tree species include oak *Quercus sp.*, Pine *Pinus sp.* and Ash *Fraxinus sp.*

Figure 21: Example of scattered trees on site

3.5.5 Dense Scrub

Dense scrub was found predominantly to the east of the site. This habitat is dominated by bramble *Rubus fruticosus*.

Figure 22: Example of dense scrub

3.5.6 Scattered Scrub

Dense scrub was found predominantly to the north of the site. This habitat is dominated by bramble *Rubus fruticosus*.

Figure 23: Example of scattered scrub

3.5.7 Tall Ruderal

There was tall ruderal vegetation found to be present on site and was located predominantly to the north-east of the site at the time of survey. There was also scattered tall ruderal vegetation to the south-east of the site. This habitat is dominated by Canadian fleabane *Conyza canadensis*. Abundant nettle, *Urtica dioica* and occasional rosebay willowherb *Chamaenerion angustifolium* were also present.

Figure 24: Example of tall ruderal habitat

3.5.8 Improved Grassland

There was improved grassland found to be present to the north-east of the site. This habitat is dominated by false oat grass *Arrhenatherum elatius*, with perennial rye grass *lolium perenne* and occassional species such as spear thistle *Cirsium vulgare* and Herb-robert *Geranium robertianum* were also present.

Figure 25: Example of improved grassland on site

3.5.9 Bare ground

Areas of bare ground are found scattered across the site which form the paths and some car parking.

Figure 26: Example of bare ground present on site

3.5.10 Woodland – Broadleaved semi-natural woodland

There is broadleaved woodland at the south of the site. Tree species present include oak *Quercus sp*. and Ash *Fraxinus sp*.

Figure 27: Example of woodland

Table 5: Target Notes

Target Note	Description
TN1	Log piles were found to be present on site which could be used as refugia for reptiles and GCN.  Figure 28: Log piles

TN2	Debris piles were scattered across the scrub, tall ruderal and improved grassland habitats which could be used as refugia for reptiles and GCN.  Figure 29: Example of debris

3.6 Species List

Annual Meadow-Grass	*Poa annua*
Ash	*Fraxinus excelsior*
Blackthorn	*Prunus spinosa*
Bramble	*Rubus fruticosus*
Buddleia	*Buddleja davidii*
Canadian Fleabane	*Conyza canadensis*
Cat's-Ear	*Hypochaeris* sp.
Cleavers	*Galium aparine*
Creeping Buttercup	*Ranunculus repens*
Dandelion	*Taraxacum officinale*
False Oat-Grass	*Arrhenatherum elatius*
Ground-Ivy	*Glechoma hederacea*
Herb-robert	*Geranium robertianum*
Holly	*Ilex aquifolium*
Ivy	*Hedera helix*
Nettle	*Urtica dioica*
Oak	*Quercus* sp.
Perennial Rye-Grass	*Lolium perenne*

Rosebay willowherb	*Chamaenerion angustifolium*
Spear thistle	*Cirsium vulgare*
Yorkshire Fog	*Holcus lanatus*

Figure 30: 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 were found at the time of the survey.
Evidence of bat use	11 bat droppings were found within Loft Space 1 of B1 at the time of the survey.

Figure 31: Example of bat droppings in B1

Figure 32: Example of bat droppings in B1

Potential for bat use	Level of likelihood of presence – Confirmed and High (B1). Moderate (B3). Low (B2 and B8). Negligible (B4 – B7). Numerous access/exit points were found to be present within the air vent and broken windows of B1. Furthermore, gaps were found to be present between the slate tiles of B1.  Figure 33: Example of access/exit point in air vent of B1  Figure 34: Example of access/exit point in dormer of B1

Figure 35: Example of access/exit point in window of B1

Figure 36: Example of gap between tiles of B1

Numerous access/exit points were found to be present in the broken windows and between the bricks of the external wall of B3. Furthermore, gaps were found to be present underneath the ridge tiles of B3.

Figure 37: Example of gaps underneath the ridge tiles of B3

Figure 38: Example of broken windows found on B3

Figure 39: Gap between B3's external brickwork

A large access/exit point was found to be present at the eaves of B2.

Figure 40: Example of gap at eaves of B2

There were limited gaps found to present within the broken and loose roof tiles of B8.

	 Figure 41: Example of gap in roof tiles of B8

3.7.2 Badgers

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

Badgers found	No badgers were found at the time of the survey.
Evidence of badger use	No evidence of badger use was found at the time of the survey.
Potential for badger use	Level of likelihood of presence – Negligible. This is due to a lack of suitable habitat found on site and lack of connectivity to more suitable habitats.

3.7.3 Breeding Birds

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

Breeding birds found	No breeding birds were found at the time of the survey.
Evidence of breeding bird use	No evidence of breeding birds was found at the time of the survey.
Potential for breeding bird use	Level of likelihood of presence – High. The buildings (B1, B2 and B3), trees, scrub and hedgerow habitats provide nesting potential for breeding birds.

3.7.4 Amphibian

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

Amphibians found	No Great Crested Newt (GCN) were found at the time of the survey.
Evidence of amphibian use	No evidence of GCN was found at the time of the survey.
Potential for amphibian use	Level of likelihood of presence – Low. The log piles and debris features found on site provide potential refugia habitat for GCN. In addition, some of the other terrestrial habitat on site also has low potential for GCN, but it should be noted that there are no nearby water bodies in the immediate vicinity of site. The closest water body to site is located 750m south-east, however, this is separated from site by both the M25 motorway and low-density urban sprawl.  Figure 43: Example of log piles suitable for GCN

Figure 44: Example of debris features suitable for GCN

3.7.5 Reptile

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

Reptiles found	No reptiles were found at the time of the survey.
Evidence of reptile use	No evidence of reptiles was found at the time of the survey.
Potential for reptile use	Level of likelihood of presence – High. The scrub, tall ruderal, bare ground, improved grassland and hedgerow habitats found on site form a mosaic which is known to be used by common reptile. Additionally, the log and debris piles also found on site have the potential to act as hibernaculum.

Figure 45: Example of bare ground and improved grassland suitable for reptiles

Figure 46: Example of tall ruderal, scrub and hedgerow suitable for reptiles

3.7.6 Other Species e.g., Hazel Dormouse

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

Species found	No other protected species were found at the time of the survey.
Evidence of species use	No evidence of other protected species was found at the time of the survey.
Potential for species use	Level of likelihood of presence – Negligible.

	No suitable habitat was found on site.

3.7.7 Invasive Non-Native

No invasive non-native species were found at the time of the survey.

4.0 Conclusions, Discussion, Impacts and Recommendations

The following section details the conclusions, discussion, impacts and recommendations in the context of the proposed works.
Building/tree/structure reference - (B1, B2, B3, B4, B5, B6, B7 and B8).

4.1 Conclusion and Discussion

The proposals include for the demolition of existing buildings to be replaced with residential buildings and associated landscaping. The site consists of eight buildings (B1 – B8), hard-standing, bare ground, improved grassland, tall ruderal, scattered trees, dense scrub, scattered scrub, species-poor hedgerow and woodland.
The site provides **negligible** potential for badger due to the lack of suitable habitat and limited connectivity to more suitable habitats.
Bat presence is confirmed through dropping evidence that was found in Loft Space 1 of **B1**. Furthermore, there were access/exit points in the air vent, and broken windows and there were gaps found between the roof tiles, all of which provide **high** potential for bats in this building.
The building **B3** provides **moderate** potential for bats due to access/exit points found to be present through the broken windows, as well as suitable potential roosting features found in gaps under the ridge tiles of this building.
The buildings **B2** and **B8** provide **low** potential for bats due to limited gaps and access/exit points at the eaves of B2 and between the loose and broken roof tiles of B8.
The buildings **B4**, **B5**, **B6** and **B7** provide **negligible** potential due to the lack of gaps and access/exit points suitable for use by roosting bats found across these buildings.
The site provides low potential for GCN. The log and debris piles found on site provide potential refugia habitat for GCN. In addition, some of the other terrestrial habitat , including hedgerow and dense scrub also provides low potential for GCN, but it should be noted that there are no nearby water bodies in the immediate vicinity of site. The closest water body to site is located 750m south-east, however, this is separated from site by both the M25 motorway and low-density urban sprawl.

The scrub, tall ruderal, bare ground, improved grassland and hedgerow habitats found on site form a mosaic which is known to be used by common reptile. Additionally, the log and debris piles also found on site have the potential to act as hibernaculum.

The buildings (B1, B2 and B3), trees dense scrub and hedgerow habitats provide **high** potential for breeding birds.

It is understood that the woodland habitat on site is to be retained and will be unaffected by the development.

4.2 Potential Impacts

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

Table 12: Impact Assessment

Impact	Bats - A bat roost will be lost in the development. Breeding Birds – Active nests may be lost in the development. GCN – Loss of habitat. Reptiles – Loss of habitat.
Characterisation of unmitigated impact on the feature	Bats - A low-level loss/impact at a local level. Breeding Birds – A low-level loss/impact at a local level. GCN – A low-level loss/impact at a local level. Reptiles - A low-level loss/impact at a local level.
Effect without mitigation	Without mitigation individual bats, birds, GCN and reptiles could be killed, injured, or trapped during the works.
Mitigation and/or potential enhancement	See Table 13 and Table 14
Significance of effects of residual impacts (after mitigation)	Bats - If lost roosts are replaced by bat boxes, the effects would be negligible. Breeding Birds – If lost habitat is replaced by bird boxes and mitigation is followed, the effects would be negligible. GCN – If mitigation is followed, the effects would be negligible. Reptiles – If mitigation is followed, the effects would be negligible.

4.3 Recommendations

Badger – No further surveys are necessary; however, if any badger setts are found throughout works, all works must stop, and advice sought.

B1 – **Full roost characterisation surveys** will be required to determine species, population and the entry/exit points used (three surveys, a minimum of two weeks apart).

A total of four surveyors to cover B1 will be required. These surveys must be undertaken within the May to September window (with September considered sub-optimal). Two of these surveys will need to be undertaken during the optimal timeframe of mid-May to August.

B3 – **Presence/likely absence surveys** will be required (two surveys, at least two weeks apart), four surveyors will be required to cover building **B3**; one of these surveys must be undertaken between May to August. If bats are found to be using B3, one further survey will be required.

B2 and B8 - **Presence/likely absence surveys** will be required (one survey), two surveyors will be required to cover building **B2,** and two surveyors will be required to cover building **B8**; this survey must be undertaken between May to August. If bats are found to be using B2 and/or B8, two further surveys will be required.

Breeding Birds - No further surveys are recommended; however, the development should take place outside the nesting season (March to August). If this is not possible, it is recommended that a qualified ecologist is on site to ensure the buildings, trees, scrub and hedgerow habitats are not occupied by breeding birds, prior to demolition and removal. Should an occupied nest be found, a buffer zone would need to be created until the nest is no longer in use.

GCN – No further survey is necessary. A qualified ecologist will be required to supervise the clearance, via a destructive search, of potential hibernacula such as the log and debris piles found on site. If GCN are found all works must stop and advice sought from a qualified ecologist.

Reptiles - **Presence/ likely absence surveys** for reptiles will be required to establish if any species are using the site. These will be done between the months of March and October. Bitumen tiles will be placed across the site in week one and will then be checked once a week over a seven-week period, in suitable weather (9ºC to 18ºC, no rain, little winds and sunny).

Habitat – No further survey is necessary. It is currently understood that the existing woodland on site will not be affected by the development.

4.4 Recommended Enhancements and Mitigation

Table 13: Recommended Mitigation

Work	Specification
General Information	**No development will occur until bat surveys consistent with the Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition) (Collins et al. 2016) have been undertaken in the appropriate survey season, May to September (Mid-May to August optimal).** The Three Tests to be answered before planning can be granted (NE, 2017): *Test 1:* Regulation 53(2)(e) states: a licence can be granted for the purposes of "preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment". Test 1 can be achieved via the 'imperative reasons of overriding public interest'. Although not for the ecologist to determine the planning officer will on grant of consent. *Test 2*: Regulation 53(9)(a) states: the appropriate authority shall not grant a licence unless they are satisfied "that there is no satisfactory alternative". Test 2 would be achieved on the grant of content as no other sites have been considered for the development.

	Test 3: Regulation 53(9) (b) states: the appropriate authority shall not grant a licence unless they are satisfied "that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range." Test 3 will be achieved once full emergence/re-entry surveys are conducted and full mitigation appropriate to species and population has been designed and implemented via an NEPS licence issued from the statutory authority (Natural England), if this becomes necessary following a dusk and pre-dawn survey.
Mitigation and Compensation to be installed via an NEPS licence application (if required)	Under licence demolition of suitable bat roosting features e.g., beam structure, roof tiles etc. will require the supervision of a bat licensed ecologist. The suitable bat roosting features e.g., beam structure, roof tiles. will be stripped by hand only. All areas across the roof/wall tops/weather boarding etc. will be checked for bats i.e., endoscope (where possible) and via destructive search. If bats are found these will be removed by hand (Ecologist only) and placed in bat boxes that will be in place before works begin. Bat boxes will be installed. These will be no less than 3m above ground level and away from any neighbouring ledge to prevent local cats predating on bats using the boxes. A minimum of two Schweglar 1FF or similar boxes (Figure 47) will be hung on the trees at a minimum of 3m from ground level and face south/southwesterly. These boxes are known to be used by crevice and void dwelling species.  Figure 47: Schweglar 1FF bat box Two bat tubes can also be built into the new dwellings, these will be located on a gable end towards the apex or at eave height, ideally, they will face in the same direction as the known roost in the building and if used as enhancement will face south or north (Figure 48)

	 Figure 48: Example of bat tube Commuting bats maybe using the grounds and surrounds – therefore, any tree, hedges or linear feature should be retained were possible.
Lighting	Any lighting near or shining onto any trees or buildings, 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 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 (Figure 49) could be installed into the gable ends of the new dwellings.

Figure 49: Schweglar 2FR bat tube

Bird boxes for a variety of different species can also be installed.

A selection of open fronted boxes and songbird boxes can be installed (Figure 50 and Figure 51); it is recommended that a minimum of two of each of the boxes are installed.

Figure 50: Robin box

	 Figure 51: Songbird box A variety of insect boxes can be installed in the area; a minimum of one box is recommended (Figure 52 and Figure 53).  Figure 52: Urban bee nesting box, used for solitary bees and wasps  Figure 53: Bug biome, ideal for ladybirds, lacewings and bees
Hedgehog highways and	In order to allow hedgehogs and other small mammals a continuous corridor across the site, thus linking the garden and green spaces.

small mammal connectivity.	• A 13cm x 13cm is sufficient for any hedgehog to pass through. This will be too small for nearly all pets (Figure 54). • Remove a brick from the bottom of the wall, creating a 13cm x 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 54: 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 into 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. • 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 55: Example of swift bricks, that can be built into a dwelling, *Source: https://www.birdbrickhouses.co.uk/brick-nesting-boxes/*

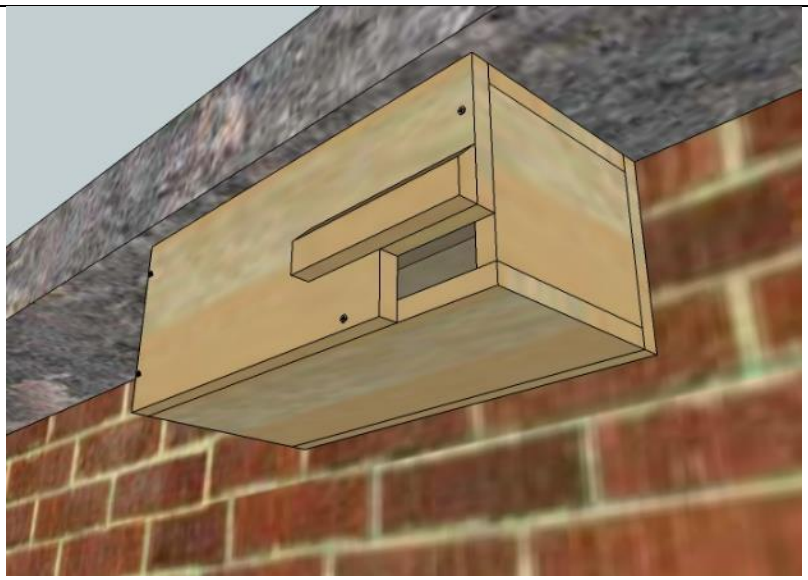

Figure 56: Swift box, *source:* http://actionforswifts.blogspot.com/p/diy-swift-box-designs.html

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 57).

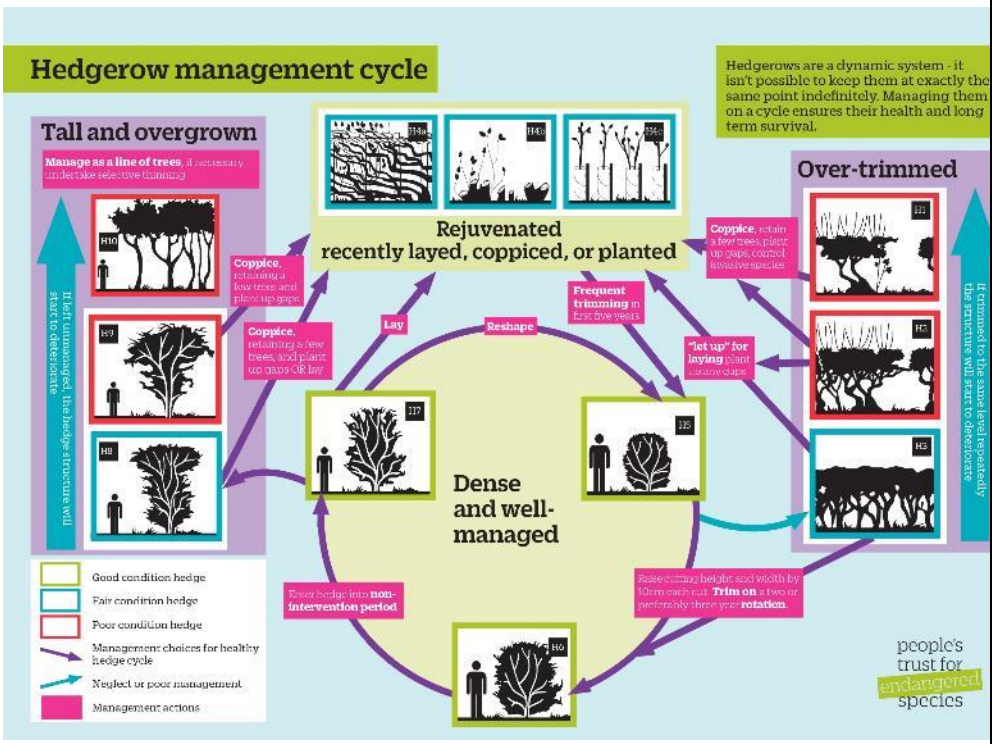

Figure 57: Hedgerow management cycle (https://hedgerowsurvey.ptes.org/)

Reptiles Habitat Enhancement	Log and brash piles can enhance the existing habitat by providing cover for reptiles, as well as enhancing prey availability. Also, including reptile hibernacula and basking banks into development plans will enhance the habitat for reptiles. (Edgar *et al.*, 2010).

5.0 References

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6.0 Appendix I Proposed plans