

Preliminary Ecological Appraisal and Preliminary Bat Roost Assessment

Location: Burge End Lane, Pirton, Hertfordshire, SG5 3QN

Client: James Augsburger

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Executive summary

This preliminary ecological appraisal (PEA) and preliminary bat roost assessment (PRA) report has been prepared by Bat Tree Surveys for James Augsburger to inform a pre-planning application involving the proposal for two new two-bedroom dwellings with carports and associated landscaping. The survey included a background data search, Phase 1 habitat survey, and assessment for protected species undertaken on 1st August 2025. The site and survey area are shown in Figure 1.

There are four statutory designated sites located within 5km of the site, these include: Deacon Hill, Site of Special Scientific Interest (SSSI), Knocking Hoe SSSI and National Nature Reserve (NNR), Oughtonhead Lane SSSI, and Oughtonhead Common Local Nature Reserve (LNR).

The site comprises of an overgrown garden with tall swards of grass, wild flowering plants, bramble scrub, and immature trees/shrubs. None of the habitats recorded on site are considered locally notable or of significant botanical value. No invasive non-native species were identified at the site. On-site habitats do not represent a constraint to the development.

The suitability of the site to support protected or notable species at the site is minimal and no evidence of protected species at the site was found during the field survey. The buildings subject to demolition do not possess any features suitable for roosting bats and the habitats on site are considered to hold low potential for commuting and foraging bats. However, lighting should be minimised where possible to prevent potential disturbance of commuting and foraging bats.

Great Crested Newts (GCN) have been recorded within 500m of the site and there are a number of ponds within 500m but not within the site boundary itself. The site supports some terrestrial habitat that may be suitable for hibernating or foraging GCN and other amphibians. The site is separated from potentially suitable GCN breeding ponds by residential housing, managed gardens, and fencing. Due to the small scale of the development and barriers to dispersal from ponds to the site, no further surveys are recommended in regard to GCN. As a precaution, vegetation clearance should be carried out under a Reasonable Avoidance Measures method statement.

No evidence of badger or breeding birds were found during the survey and the habitats on site are considered unsuitable for the species. However, as a precaution, vegetation clearance should avoid the breeding bird season (May to September) or only be carried out after a breeding bird check has been complete.

Enhancement measures have been recommended, including installation of bat and bird boxes, planting of native flowering species, and installation of access holes in boundary fences or walls to support commuting hedgehogs.

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1. Introduction

1.1. Background

The following report presents the results of a preliminary ecological appraisal (PEA) and preliminary bat roost assessment (PRA) at land to the west of Burge End Lane, Pirton, Hertfordshire, SG5 3QN (Grid reference TL 14481 32048), hereinafter referred to as the 'site'. The survey was undertaken to inform a pre-application for the proposal of two two-bedroom dwellings with carports to accommodate four parking spaces, associated landscaping, and reconfigured driveway access at the site.

The purpose of the report is to identify and classify habitats on the site, identify the potential of protected species at the site, and determine ecological constraints to the development. The report recommends the need for further surveys and mitigation or licensing requirements based on the survey results.

1.2. Site description

The site is located in the village of Pirton, North Hertfordshire and incorporates c. 200m² of land. The site is an unmanaged overgrown garden dominated by tall swards of grass, patches of scrub and herbaceous perennial plants. A concrete garage and timber shed are also within the boundary. In the wider area the site is surrounded by residential housing and gardens, with arable farmland further north, east, and west.



Figure 1: Aerial image of the site, boundary shown by red line

1.3. Scope of surveys

The preliminary ecological appraisal was undertaken in line with best practice guidelines outlined by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017). The scope of surveys is to gain baseline ecological information at the site. This was achieved by carrying out the following:

- A desk study to gather information on designated statutory nature conservation sites (within 5km) and non-statutory nature conservation sites (within 2km), and records of protected species (within 2km)
- A field survey including mapping of habitats at the site and surrounding the site, the importance of habitat features, identification of the potential presence of protected and/or notable species, and notes on incidental sightings of protected or notable species and non-native invasive plant species.

2. Protected species legislation and policy context

Certain species of animals and plants found in the wild in the UK are legally protected from being harmed or disturbed. These species are listed in the Wildlife and Countryside Act 1981 (as amended) or are named as European Protected Species (EPS) in the Conservation of Habitats and Species Regulations 2017 (as amended). These two main pieces of legislation have been consulted when writing this report and are therefore described within this section. See Appendix 5 for more detail.

2.1. Wildlife and Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 (as amended) is the primary piece of legislation relating to nature conservation in the UK. Protected species are listed under Schedule 5 of the Act which makes it an offence to intentionally or recklessly:

- a) kill, injure, or take any wild animal listed on Schedule 5
- b) damage, destroy or obstruct access to any structure or place which such an animal uses for shelter or protection or to disturb such an animal when it is occupying a structure or place for that purpose.

All nesting birds are protected by the WCA, making 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. In addition, it is an offence to disturb any wild bird listed on Schedule 1 of the act whilst it is building a nest or is in, on, or near a nest containing eggs or young, or whilst lekking; or to disturb the dependent young of any wild bird listed on Schedule 1.

2.2. Conservation of Habitats and Species Regulations 2017

The Habitats Regulations 1994 implement the species protection requirements of the European Directive 92/43/EEC on the conservation of natural habitats. This regulation makes it an offence to deliberately or recklessly disturb European Protected Species (EPS), such as bats (all species) and great crested newt. Their places of shelter are fully protected, and it is an offence to damage, destroy or obstruct access to or otherwise deny the animal use of a breeding site or resting place, whether deliberate or not. It is also an offence to disturb in a manner that is likely to significantly affect the local distribution or abundance of the species; impair its ability to survive, breed or reproduce or rear its young.

2.3. Habitats and species of principal importance

The Natural Environment and Rural Communities (NERC) Act came into force on 1 October 2006. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list has been drawn up in consultation with Natural England, as required by the Act. The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

2.3.1. Habitats of principal importance

Fifty-six habitats of principal importance are included on the S41 list. These are all the habitats in England that were identified as requiring action in the UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework. They include terrestrial habitats such as upland hay meadows to lowland mixed deciduous woodland, and freshwater and marine habitats such as ponds and sub-tidal sands and gravels.

2.3.2. Species of principal importance

There are 943 species of principal importance included on the S41 list. These are the species found in England which were identified as requiring action under the UK BAP and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework.

2.4. National Planning Policy Framework

The National Planning Policy Framework (NPPF) was first published in March 2012. It sets out the Government's planning policies for England and how these are expected to be applied. It gives guidance to local planning authorities on the content of their local plans but is also a material consideration in determining planning applications. The NPPF states that the planning system should provide a net gain for biodiversity wherever possible. The NPPF replaces much of the previous planning policy guidance, including PPS9: Biodiversity and Geological Conservation. However, the Government Circular 06/05: Biodiversity and Geological Conservation – Statutory Obligations and Their Impact within the Planning System (which accompanied PPS9) remains valid.

3. Methodology

3.1. Desk study

A desk study data search was conducted in July 2025 to establish the presence of priority habitats, protected species, and statutory sites within the Zone of Influence (Zoi) of the development site. Information was gathered from the following sources:

- Internationally, nationally, and locally designated sites, within a 5km radius of the site using the Multi Agency Geographic Information for the Countryside (MAGIC) website, Herts Environmental Record Centre (HERC), and Bedfordshire & Luton Biodiversity Recording & Monitoring Centre
- Protected and priority species records and records of locally designated sites within a 2km radius of the site using the Herts Environmental Record Centre (HERC) and Bedfordshire & Luton Biodiversity Recording & Monitoring Centre
- Aerial photographs and Ordnance Survey (OS) maps were reviewed to identify habitats and features of ecological interest in the vicinity of the site, including water bodies within 500m

3.2. Extended UK Hab Survey

An Extended UK Hab Survey was undertaken on 1st August 2025 to record habitats and vegetation on the site. Weather conditions were warm (22°C) with a light breeze (Beaufort Scale 2), 80% cloud cover, and no precipitation. Habitats at the site were mapped according to definitions in UK HAB 2.0 (UK Habitats Classification Working Group, 2023). A list of plant species was compiled, using nomenclature taken from Stace (2010). Target notes were used where necessary to signify additional ecologically significant information on features of importance. Habitat surrounding the site were noted to establish the potential for movement of fauna between habitats.

3.3. Protected and notable species

The site was assessed for its suitability to support protected or priority species in the area, including non-native invasive species.

3.3.1. Bats

Preliminary Bat Roost Assessment

The preliminary bat roost assessment was undertaken on the same day as the PEA by two licenced bat surveyors (licence refs. 2024-11948-CL18-BAT & 2024-11947-CL18-BAT), in accordance with best practice guidelines (Collins, 2024). The survey involved detailed external and internal assessment of the two structures on site to determine their suitability to be used by roosting bats. Habitats were assessed for their suitability for foraging and commuting bats at the site. Features of suitability include sheltered habitats with high insect populations, including scrub, woodland, water bodies, hedgerows and linear features.

The buildings were first surveyed from the outside to assess for potential access points, as well as evidence of bat use including staining, droppings, scratch marks, and feeding remains. The internal loft areas were also assessed for the same evidence. Three trees either proposed for removal or pollarding were also assessed for suitability for roosting bats.

Equipment used to investigate the buildings included binoculars, a high-power torch, ladder, and an endoscope (Teslong Articulating endoscope, TD450s).

Following completion of the survey, the potential of the buildings to provide suitable bat roosting habitat was assessed as either negligible, low, moderate, high, or confirmed as a roost (see Table 1).

During the PRA, the structure and features were also assessed for their suitability to be used by hibernating bats outside of the active season.

Table 1: Classifying bat roost suitability of buildings (Collins, 2024)

Category	Description	Further surveys required
Negligible	Little to no features within the site likely to be used by roosting bats	No further surveys needed
Low	One or more features that could be used by individual bats, but unlikely to support maternity or hibernation roost. Features or surrounding habitats not considered suitable conditions for a maternity or hibernation roost	A minimum of one nocturnal emergence / re-entry survey carried out between May and September
Moderate	One or more potential roost features that could be used by bats, characterised by their shelter, size, conditions, and surrounding habitat	A minimum of two nocturnal emergence / re-entry survey carried out between May and September, spaced three weeks apart
High	One or more potential roost features suitable for large numbers of bats on a regular basis or for longer periods of time characterised by their shelter, size, conditions, and surrounding habitat	A minimum of three nocturnal emergence / re-entry survey carried out between May and September, each spaced three weeks apart
Confirmed	Evidence of bat occupation found, i.e. droppings or bats themselves	A minimum of three nocturnal emergence / re-entry survey carried out between May and September, each spaced three weeks apart

3.3.2. Great Crested Newt

An assessment was made of terrestrial habitat within this site to support Great crested newt *Triturus cristatus* (GCN) and other amphibians. Any suitable refugia that could be lifted were examined for amphibians. Throughout this survey, best-practice methodologies as set out by Froglife and Natural England were employed.

3.3.3. Badger

A walkover of the site and its boundaries was conducted to identify any evidence of badger (*Meles meles*) activity within the site and within approximately 30m from its boundaries. Surveyors checked for setts, latrines, pathways and fence/ hedge crossing points and any associated trapped hairs, scratching posts and ground disturbed by foraging.

3.3.4. Breeding birds

The survey area was assessed for its potential to support breeding birds. This included an assessment of trees, vegetation, and ground cover. Assessment was also made of the suitability of the buildings on site to be used by nesting birds, as well as any historic evidence of nesting birds such as visible old nests or droppings below nesting areas.

3.3.5. Reptiles

The habitats within the site boundary and surrounding habitats were assessed for suitability for reptile species, focusing on features such as basking areas, hibernation sites, and foraging opportunities. The most common and widespread species were considered, including slow worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*).

3.4. Constraints and limitations

The desk study and field study will not necessarily produce an exhaustive list of fauna and flora at the site. Field signs of protected or priority species are often difficult to find or can be absent from the site. The species lists are intended to illustrate general species richness of the area and identify any species that may be considered uncommon or unusual.

Access could not be gained to a full 30m buffer around the site boundary due to the site being surrounded by residential gardens and housing. Surveyors made every effort to survey these habitats from public roads and footpaths.

Recommendations made in this report are based on the proposed plans provided by the client in July 2025. If the site plans are to change significantly, an ecologist must be contacted, and further assessment of the site may be necessary. No other limitations or constraints were recorded which would otherwise have significant limitations to this PEA.

4. Results and assessment of impacts

4.1. Desk study data search

4.1.1. Designated sites

There are four designated statutory protected sites and 12 non-statutory designated sites within the 5km search radius. See Table 1 below for more information.

No significant or direct impacts to statutory or non-statutory wildlife sites are considered likely to arise due to the proposed development. The lack of ecological or hydrological connectivity from the site to protected habitats, together with the small scale of the proposed works, limit the potential impacts to these sites.

Table 2: Statutory and non-statutory designated sites within a 5km radius

Site name	Designation	Description	Distance (m) and direction
Deacon Hill	SSSI	Remnant of chalk downland with species rich calcareous uncommon grassland flora including sheep's fescue <i>Festuca ovina</i> , common rock-rose <i>Helianthemum nummularium</i> , and autumn gentian <i>Gentianella amarella</i> . The site is the only remaining stronghold for the Duke of Bergundy butterfly, as well as supporting breeding farmland birds, harvest mice, and glow worm	3020 SW
Knocking Hoe	SSSI / NNR	Unimproved calcareous grassland supporting nationally rare species in the county of Bedfordshire, including Pasque flower (<i>Pulsatilla vulgaris</i>), greater pignut (<i>Bunium bulbocastanum</i>), and field fleawort (<i>Tephrosia integrifolia</i>), and herb-paris (<i>Paris quadrifolia</i>). It also contains an important population of large leaved lime trees and supports mammals such as stoats, weasels and hares.	1760 SW
Oughtonhead Lane	SSSI	One of two interglacial tufa sites noted for rich assemblages of fossil land snails and small mammals. Provides important evidence for environmental reconstruction and dating.	4000 SE
Oughtonhead Common	LNR	Wild variety of habitats including wet and dry woodland and areas of fen. The River Oughton flowing through the site. Species encountered at the site include kingfisher, water rails, woodcock, and water shrew	3370 SE
Tingley Wood	ASNW / LWS	Ancient semi-natural woodland of Pendulate Oak (<i>Quercus robur</i>), Ash (<i>Fraxinus excelsior</i>), and elm (<i>Ulmus</i> sp.), with Hazel (<i>Corylus avellana</i>) and Field Maple (<i>Acer campastre</i>) coppice. Areas of mixed coniferous and broadleaved woodland with a range of indicator species. Wildlife Site criteria: Ancient Woodland Inventory site; woodland indicators	1440 SW
Tingley Wood – West down & South Field Margin	LWS	Herb-rich unimproved chalk grassland. The site is bordered by hedgerows and broadleaved woodland and is valuable for butterflies. Wildlife Site criteria: Grassland indicators.	1740 SW
Tingley Wood – North Down	LWS	Chalk grassland and scrub supporting calcareous flora including rare species. Wildlife Site criteria: Grassland indicators.	1400 SW
Tingley Down – Northern Arable Field	LWS	Arable field margin with diverse flora including national notable species. Wildlife Site criteria: Species.	1210 SW
Wood Lane	LWS	Old green lane and public bridleway supporting a range of habitats such as calcareous grassland to scrub and Beech (<i>Fagus sylvatica</i>) trees. Wildlife Site criteria: Grassland indicators.	590 SW

Toot Hill Main	LWS	Meadowland with semi-improved neutral/calcareous grassland with several dry banks. The remaining ponds are somewhat degraded but have some aquatic flora remaining. The meadow is grass dominant and generally species poor with the exception of the bank and ditch. Wildlife Site Criteria: H.2.2b Grassland site with a predominance of species characteristic of old neutral grassland with 8 or more species recorded; H.2.2e Mixed grassland.	450 SE
Hill Farm Field Margin	LWS	Arable field baulk/border which is important for arable weeds, including records for the UK Endangered species Spreading Hedge-parsley (<i>Torilis arvensis</i>) and Field Gromwell (<i>Lithospermum arvense</i>). Wildlife Site criteria: Species.	520
High Down, The Close	LWS	Somewhat calcareous grassland with areas of species-rich grass to the north and east but with disturbed secondary grass in the west. Wildlife Site criteria: Grassland indicators.	1420
St Mary's Churchyard, Pirton	LWS	Churchyard supporting moderately species-diverse, neutral to somewhat calcareous grassland. Broadleaved hedges are present on the west and north boundaries. Wildlife Site criteria: Grassland indicators.	380 SE
Hitchin Road Verge	LWS	Important calcareous road verges supporting a moderately diverse flora. The verges are backed by ditches and mixed species hedgerows. Wildlife Site criteria: Grassland indicators.	720
Kettledean Farm Grassland	CWS		1350 SW
Tingley Field Plantation	CWS		2000 SW

4.1.2. Waterbodies and watercourses

Whilst no waterbodies were identified within the site boundary, MAGIC maps revealed three ponds, one moat, and several springs within 500m of the site boundary (see Figure 2 below). Further details on the waterbodies are provided in Table 3.

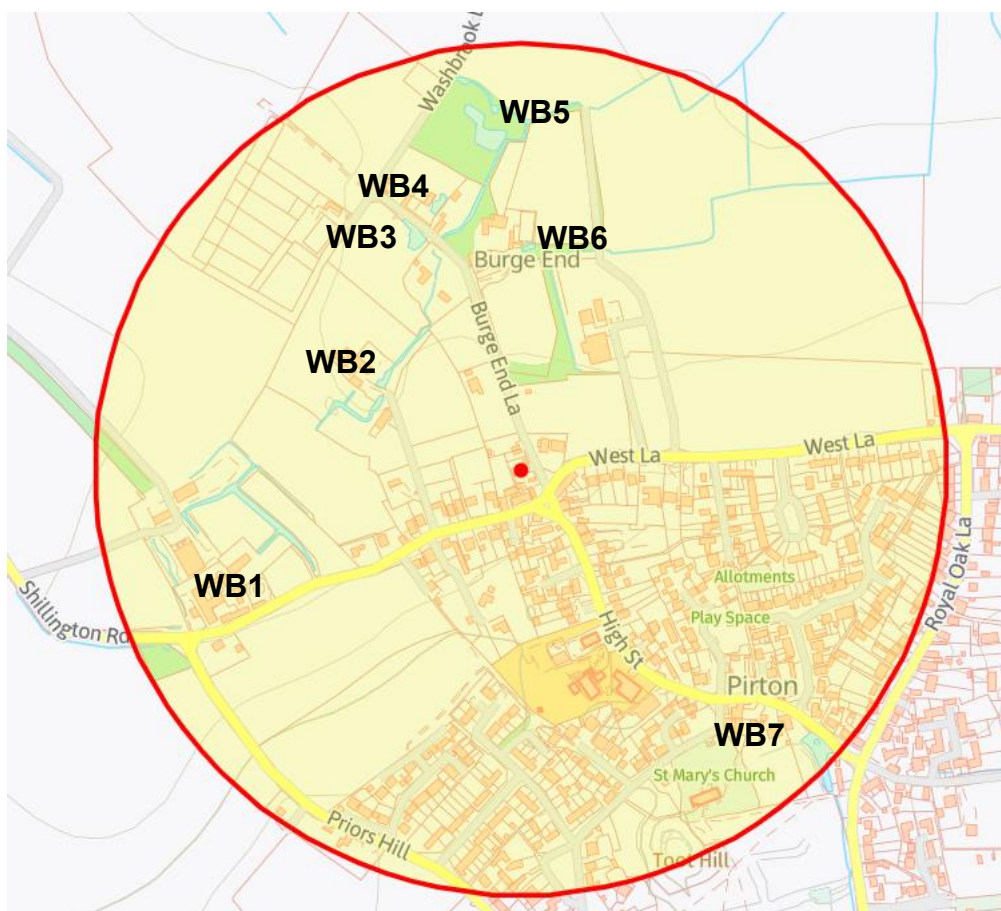


Figure 2: Location of waterbodies within 500m of site boundary (MAGIC maps)

Table 3: Waterbodies and watercourses within 500m

Waterbody number	Description	Approx distance from site and direction
WB1	Pirton Grange Moat	315m SW
WB2	Spring	190m NW
WB3	Pond	289m NW
WB4	Pond	326m NW
WB5	Pond	384m N
WB6	Pond	261m NE
WB7	Blacksmith's Pond	466m SE

4.1.3. Protected and noteworthy species

At least 200 protected or noteworthy species are recorded within 2km of the site boundary. Table 4 below summarises the protected and priority species records found within the radius. Only records from the past 15 years are included.

Table 4: Protected and noteworthy species records

Species	No. of records	Closest record (m) (accuracy)	Most recent record (year)
Bats			
Brown long-eared bat <i>Plecotus auritus</i>	7	410 (1m)	2017
Common pipistrelle <i>Pipistrellus pipistrellus</i>	4	410 (1m)	2017
Natterer's bat <i>Myotis nattereri</i>	2	410 (1m)	2017
Noctule <i>Nyctalus noctula</i>	1	410 (1m)	2017
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	3	410 (1m)	2017
Serotine <i>Eptesicus serotinus</i>	1	290 (100m)	2011
Amphibians			
Common frog <i>Rana temporaria</i>	3	1820 (10m)	2015
Common toad <i>Bufo bufo</i>	10	1820 (10m)	2024
Great Crested Newt <i>Triturus cristatus</i>	3	40 (1km)	2022
Smooth newt <i>Lissotriton vulgaris</i>	5	1820 (10m)	2020
Mammals			
Badger <i>Meles meles</i>	7	40 (1km)	2022
Hedgehog <i>Erinaceus europaeus</i>	11	410 (1m)	2021
Reptiles	-	-	-
Birds			
Schedule 1	591	100 (1m)	2024
BoCC Amb./Red	5385	100 (1m)	2024
Plants	15	1560 (100m)	2022
Invertebrates	503	290 (100m)	2024

Protected species licences

A 2km search on MAGIC maps revealed 3 granted European Protected Species Licences for the destruction or disturbance of a bat roost. Details of the licences are listed in Table 5 below.

Table 5: Granted European Protected Species licences within 2km

Case reference	Bat species	Distance and direction to nearest (m/km)	Licence start & end dates
EPSM2010-1822	Brown Long-eared <i>Plecotus auritus</i> Common pipistrelle <i>Pipistrellus pipistrellus</i>	222m NW	12/04/2010 to 30/09/2011
EPSM2013-5820	Brown Long-eared <i>Plecotus auritus</i> Common pipistrelle <i>Pipistrellus pipistrellus</i> Soprano pipistrelle <i>Pipistrellus pygmaeus</i> Natterer's Bat <i>Myotis nattereri</i>	445m SW	01/06/2013 to 30/09/2015
EPSM2010-2486	Common pipistrelle <i>Pipistrellus pipistrellus</i>	650m SE	08/11/2010 to 30/09/2011

4.2. Extended UK Hab Survey

Priority Habitats including, calcareous grassland, good quality semi-improved grassland, deciduous woodland, and ancient and semi-natural woodland occur within 2km of the site. The closest of which is deciduous woodland and lies approximately 300m north.

The vegetation within the boundary of the site was assessed as having limited biodiversity value. The habitats present within the site boundary are described below (according to UKHab classifications) and mapped in Appendix 2. A full list of identified flora species identified on site is provided in Appendix 3.

4.2.1. Garden (UK Habitat Classification 827)

The site is an unmanaged garden dominated by tall swards of grass, patches of scrub and herbaceous perennial plants. Species include false oatgrass (*Arrhenatherum elatius*), nettle (*Urtica dioica*), wild marjoram (*Origanum vulgare*), and white deadnettle (*Lamium album*). Some planted species including *Rosa* are placed along the southwest bordering fence. A hedgerow formed of *Cotoneaster horizontalis* interspersed with jasmine (*Jasminum officinale*) separates the site from gardens lying to the southwest. The garden is bordered on the northwest and southeast by either chain-link or wire fencing.

4.2.2. Bramble scrub (UK Habitat Classification h3h) & hedgerow (h2)

A patch of scrub dominated by bramble (*Rubus fruticosus*) covers the northeast end of the garden, encroaching on the boxleaf honeysuckle (*Lonicera nitida*) hedgerow on the garden boundary.

4.2.3. Buildings (UK Habitat Classification u1b5)

The site features a concrete garage and small timber clad shed. The preliminary bat roost assessment below describes the structures in further detail.

4.2.4. Developed land; sealed surface (UK Habitat Classification u1b)

The site features an aggregate hardstanding driveway leading from the garage to the road on the northeast border. A concrete path runs alongside the wire fence bordering the adjacent garden on the

southeast. A laid slab continues through the middle of the garden but is largely covered by ivy (*Hedera helix*).

4.2.5. Trees and shrubs

Two young trees lie in within the site, including holly (*Ilex aquifolium*) and field maple (*Acer campestre*). Trees are immature with a maximum height of 4m. Introduced shrubs including *Mahonia* sp. and evergreen spindle (*Euonymus japonicus*) are also on the northwest boundary.

No invasive non-native species were recorded at the site. The habitats described above are not considered to be ecologically important due to the small extent of the habitats and the limited botanical diversity. The loss of the habitats as a result of the proposed development is not anticipated to result in a significant ecological effect.



Figure 3: Overgrown grass, facing northwest



Figure 4: Southeast boundary, shrubs in neighbouring garden



Figure 5: *Mahonia* sp. shrub on northwest boundary



Figure 6: Wild oregano and bramble scrub



Figure 7: Field maple with bramble and traveller's joy, on northeast corner of garage



Figure 8: Fence within garden, facing northeast

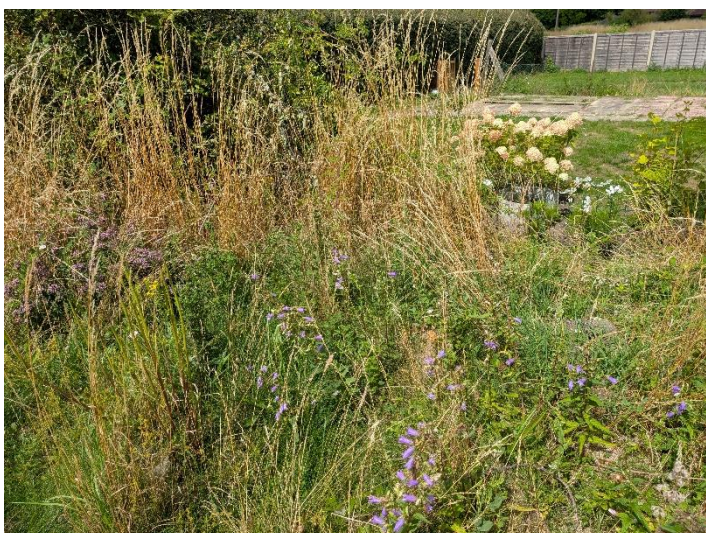


Figure 9: Overgrown grass with interspersed wildflowers, facing northwest

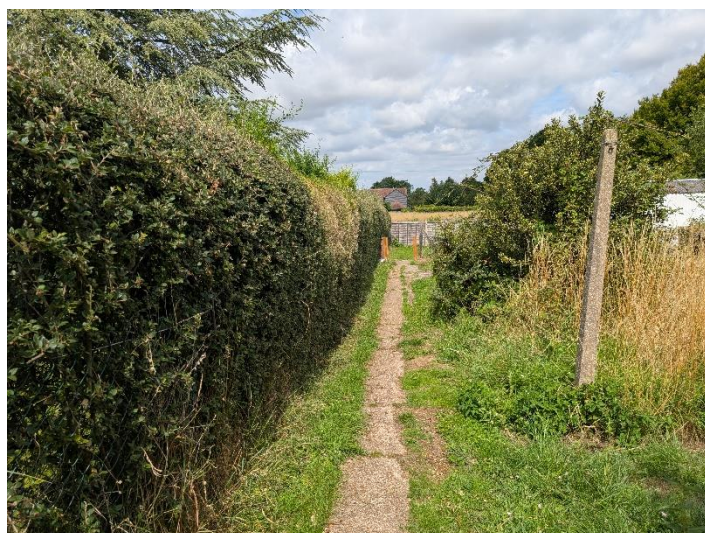


Figure 10: Hardstanding path and cotoneaster hedgerow bordering the southwest of garden, facing northwest

4.3. Protected and notable species

Biological records have been provided by Herts Environmental Records Centre and Bedfordshire & Luton Biodiversity Recording & Monitoring Centre. The data is licenced for use by Bat Tree Surveys and the client for a 24-month period and are not owned by the author or client.

Records of protected and notable species considered relevant to the site are described below.

4.3.1. Bats

Twenty-two records of bats were returned by the desk study, the majority of which were attributed to roosts, the closest one being approximately 400m southwest in a barn featuring a mixed species roost of Common pipistrelle (*Pipistrellus pipistrellus*), Soprano pipistrelle (*Pipistrellus pygmaeus*), Brown long eared (*Plecotus auritus*), and Natterer's bat (*Myotis nattereri*), last recorded in 2017. Other records included bats in flight.

Preliminary bat roost assessment – buildings

Two buildings lie within the site boundary and are proposed for removal as part of the development.

- Building B1

B1 is a concrete garage with asbestos corrugated sheet roofing supported by a metal frame. Gable ends have timber fascia boards and timber double doors face Burge End Lane on the northeast. Three paned windows are fitted on the northwest length of the garage wall. The garage is used for storage and well-lit by natural light. No suitable features were observed on the exterior or interior of the building that could be utilised by roosting bats; thus, the building is considered to have negligible potential.



Figure 11: Northeast elevation of garage, facing Burge End Lane



Figure 12: Southeast elevation of garage



Figure 13: Interior of garage

- **Building B2**

B2 is a dilapidated timber shed with a felted monopitched roof and loose fitted timber clad sides. The shed is also used for storage but left permanently open. No features were identified on the exterior or interior that would be suitable for bats; thus, the building is considered to have negligible potential for roosting bats.



Figure 14: Timber shed



Figure 15: Interior of timber shed

The two trees on site are immature and possess no suitable roosting features. The site is unlikely to be of significance to roosting bats due to the lack of suitable roosting features.

Commuting and foraging habitat

Only two records of bats in flight were returned from the desk study, those being a Noctule (*Nyctalus noctula*) and Soprano pipistrelle observed flying over the closest roost site 410m southwest. The habitats at the site are considered to have low suitability for foraging bats owing to the small scale of the site and limited botanical diversity (suggesting low invertebrate abundance).

The site's immediate surroundings are largely residential with housing and managed gardens providing little in the way of foraging or commuting habitat. There are some linear features such as tree lined hedgerows connecting the site to the wider landscape of arable fields to the north and west with small pockets of woodland interspersed. There is potential for low-level opportunistic foraging by a small range of common species along the surrounding hedge and tree lines, but local bat populations are not expected to depend on the site for foraging.

The proposed development will not adversely affect suitable foraging habitats in the wider area, nor are any fragmentation effects considered likely. The hedgerows surrounding the site are to be retained so it can be assumed any commuting and foraging within the area would continue unaffected.

The site is unlikely to be ecologically important for foraging and commuting bats and no significant impacts on foraging and commuting bats are anticipated as a result of the proposed development. No further surveys are considered necessary, but recommendations to improve the site for bats have been made in section 5.3.

4.3.2. Badger

Seven records of Eurasian badger were returned within 2km of the site, the closest being a road casualty within 1km of the search area. The closest recorded sett is approximately 1150m southwest of the site.

No evidence of badger activity was recorded during the field survey (i.e. active or inactive setts, droppings, latrines) and the habitats at the site were considered to be unsuitable for use by badgers. Whilst pockets of woodland among arable fields to the north of the site may provide suitable foraging and sett creation habitat for the species, there is limited connectivity from this habitat to the site. However, a transitory presence is considered likely in the area, supported by two records of road casualties within 1km of the site.

It is considered unlikely that badgers will be adversely affected by the proposed development, no further surveys are considered necessary in respect of badgers.

4.3.3. Great Crested Newt and other amphibians

There are records of common frog, common toad, smooth newt, and great crested newt within 2km of the site but not within the boundaries of the site. The latest records of GCN include adults identified in 2022 within 1km of the site.

Whilst no waterbodies lie within the survey boundary, the field and desktop study identified a number of water bodies within 500m of the site. These include: Blacksmith's Pond (470m southeast), Pirton Grange Moat (315m west), and 3 other ponds located at the north of Burge End Lane. The site supports some suitable terrestrial habitat for GCN in the way of scrub and underneath the dilapidated shed which could offer refugia and hibernacula for GCN during winter months, should GCN be using the nearby water bodies for breeding.

The land separating potential the small site from potential breeding ponds is predominantly managed residential gardens and houses with associated hardstanding. This landscape is predicted to impede GCN dispersal from nearby waterbodies to the site. Therefore, further surveys on ponds within 500m are not considered necessary.

4.3.4. Hedgehog

Eleven records of hedgehog were returned within 2km of the site, the closest being approximately 430m southeast. The overgrown garden of scrub and vegetation could provide suitable foraging and shelter habitat for hedgehogs. However, the site is isolated by boarded or chain-link fenced residential gardens and access roads making it unlikely there are populations of hedgehogs on site.

The proposed development has potential to adversely affect individual hedgehogs within the boundary of the site during machine works or being trapped in excavations. The effects are unlikely to cause a significant effect to the local hedgehog population; however, precautionary measures have been recommended to reduce the likelihood of any negative impacts.

4.3.5. Reptiles

No records of reptile were returned from the records centre search. Whilst the site supports some suitable habitats for reptiles (i.e. dense scrub and leaf litter), there is an absence of connectivity to potentially suitable habitat, with surrounding fenced gardens that are regularly mown or feature areas of hardstanding and gravel.

The presence of reptiles at the site is highly unlikely, thus, it is unlikely the proposals will have any adverse effects on reptile species or their conservation status. No further surveys are considered necessary in respect of reptile species.

4.3.6. Breeding birds

The local records search revealed 591 records of Schedule 1 bird species within 2km of the search area, including 11 Schedule 1 species. Species within 1km of the site include Swift (*Apus apus*), Barn owl (*Tyto alba*), Fieldfare (*Turdus pilaris*), and Skylark (*Alauda arvensis*). During the survey, very few birds were encountered, species were limited to blue tit (*Cyanistes caeruleus*) and wood pigeon (*Columba palumbus*).

The buildings on site provide negligible potential for roosting or nesting birds and no sign of recent roosting or nesting by birds within or on the structures was noted during the field survey. The mixed scrub at the northeast end of the site could provide limited nesting habitat for wild birds such as whitethroat (*Curruca communis*) and song thrush (*Turdus philomelos*) (both species recorded within 500m of the site). No bird nests were observed within scrub at the site, and the lack of density and subsequent high risk of predation make nesting at the site unlikely.

There is a low risk of breaching Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) in relation to damage or destruction of bird nests and their eggs if mixed scrub is removed during the nesting bird season. Mitigation measures have been proposed within this report to reduce the risk of breaching legislation.

It is considered unlikely the site is significant for wintering, breeding or migratory populations nor that the proposed development will result in significant adverse ecological effects to wild birds.

4.3.7. Protected flora

Two plant species listed on Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) have been recorded within 2km of the site. These include bluebell (*Hyacinthoides non-scripta*) recorded at Tingley Wood SSSI c.1560m southwest of the site in 2022 and ground-pine (*Ajuga chamaepitys*) recorded at Knocking Hoe NNR c. 1420m southwest in 2023.

The isolation and previous management of the site mean it is unlikely the site will support protected or notable plant species. No protected or notable plant species were observed during the field survey.

4.3.8. Invertebrates

A total of 503 records from 3 protected species of butterfly were identified within a 2km radius of the site. Species include small blue (*Cupido minimus*), chalkhill blue (*Lysandra coridon*), and large tortoiseshell (*Nymphalis polychloros*). Invertebrate species observed during the survey included bumble bee *Bombus* sp., Honeybees *Apis mellifera*, Ladybird *Coccinellidae* sp. and Gatekeeper butterfly *Pyronia tithonus*. The closest record of any protected or vulnerable species was approximately 750m south of the site.

As the botanical diversity of the site is low, the likelihood of notable species being present is unlikely. It is probable that common invertebrate species use the plant species on site for food and for larval and egg-laying, but the site is considered unlikely to be vital for invertebrates.

5. Conclusions and recommendations

5.1. Designated sites

The desktop data search returned four statutory designated sites and twelve non statutory designated sites within 2km of the site. There is a lack of ecological and hydrological connectivity from the site to designated sites within the area, as well as the small scale of the proposal meaning any impacts to such sites are considered negligible.

5.2. Habitat and vegetation

No priority habitats were identified within the boundary of the site. The site is dominated by common and widespread species with no rare or protected species identified, thus, the habitats are considered to hold low biodiversity value. Overgrown areas of scrub and can offer suitable shelter for amphibians and hedgehogs, as well as flowering species providing food sources for invertebrates.

5.3. Protected species

5.3.1. Bats

Both buildings on site were assessed as having negligible potential to support roosting bats based on a lack of suitable features. Therefore, no further surveys are recommended to be carried out on either building prior to demolition.

The site was assessed as having low potential for foraging and commuting bats. The flowering plants on site will attract small numbers of insects which may be suitable for foraging bats. There are linear features such as tree lines which could provide commuting routes from the site to the wider landscape. Any new lighting to be installed as part of the proposed development (temporary or permanent) should be kept to a minimum and directed away from the sky or suitable commuting routes nearby to the site (guidance provided by the Bat Conservation Trust and Institute of Lighting Professionals is summarised in Appendix 6).

Enhancement measures

The new dwellings should incorporate bat safe roofing membrane, including bituminous felt that does not contain polypropylene/polyethylene filaments that pose an entanglement risk to bats. A suitable example includes hessian reinforced 1F bitumen felt.

Planting of native, insect-attracting shrubs is encouraged to improve foraging opportunities at the site for bats. The proposed development should include at least one wall mounted bat box or integrated bat box and/or bat tile into the brickwork of the proposed buildings. Bat boxes should be installed a minimum of 4m above ground, preferably on a south/southeast facing wall. Examples of suitable bat boxes include Schwegler 1FF or 2FN Woodcrete bat boxes.

5.3.2. Badger

There are few records of individual badger within 2km of the site, the closest sett being over 1km from the boundary. No evidence of badger was found and there is limited habitat with potential to support this species within the survey area.

5.3.3. Great Crested Newt

Five records of GCN within 1km of the site have been returned within the last 5 years. There are no waterbodies or water features within the site boundary itself that have potential to support breeding of GCN. There are a number of ponds and waterbodies within 500m (the terrestrial range for this

species), the closest being a spring 190m northwest. There is also habitat present on site that could support GCN terrestrially, such as scrub and beneath the dilapidated timber shed. The surrounding managed residential gardens bordered by wooden fencing, associated housing and hardstanding, and roads to the east are considered boundaries to GCN dispersal from potential breeding sites. The waterbodies are surrounded by suitable GCN habitat including woodland and unmanaged grassland, making dispersal further afield less likely.

It is concluded that the implementation of a non-licensed Reasonable Avoidance Measures for GCN will be appropriate and proportionate with respect to the small scale and low-impact nature of the proposed development. These measures are set out in Appendix 4.

No further surveying, licensing, or mitigation for GCN or other amphibians will be required at this site.

5.3.4. Hedgehog

Hedgehogs have been recorded within 500m of the survey site and there is a possibility of hedgehogs using the site for foraging and shelter, although access to the site is limited. As a precautionary measure, mixed scrub due to be cleared at the site should be checked for hedgehogs immediately prior to removal to reduce the likelihood of adverse effects to the species.

Open excavations must be covered overnight with a solid sheet material (i.e. plywood) to prevent individuals from falling into excavations and becoming trapped. Where this is not possible, a shallow slope or access ramp should be incorporated into the excavation before being left overnight to allow an escape route for any fauna that might fall in. Areas of excavation must be checked before commencement of works the following morning.

Any new fencing or hard boundaries if proposed as part of the development should incorporate 13cm by 13cm holes to allow movement of hedgehogs between gardens and other suitable habitats. Hedgehog shelters should also be incorporated where possible to enhance opportunities for sheltering and hibernating hedgehogs. These should be placed within vegetation and away from roads.

5.3.5. Reptiles

No records of reptiles were returned from the desk study and suitability of habitats to support reptiles at the site is limited to patches of scrub. No suitable reptile habitat was identified in areas adjacent to the site and connectivity to suitable habitats is poor. The likelihood of reptile species being on site and being impacted by the development proposals is considered negligible.

5.3.6. Birds

No further surveys for breeding, migratory or wintering birds are required at the site.

All wild birds and their nests are protected under the Wildlife and Countryside Act 1981 (as amended). The site offers limited suitable nesting habitat for bird species with only small patches of scrub observed within the site boundary. The survey was undertaken outside of the peak bird nesting season; however, no past evidence of bird nesting was observed in the buildings or within any vegetation on site.

Removal of scrub and trees to facilitate the development should avoid nesting bird season (March to September inclusive) or should be checked by a suitably qualified ecologist prior to clearance to check for nesting birds if works must be undertaken within nesting season.

The proposed development should include installation of at least one bird box. Boxes must be positioned on north facing aspects, out of direct sunlight, and at a height of approximately 4m. Boxes can target notable species which have been recorded in proximity of the site such as House sparrow *Passer domesticus* and Starling *Sturnus vulgaris*. Planting of a variety of plants that attract insects and/or produce berries will provide seasonal food resources.

5.4. Overall conclusion

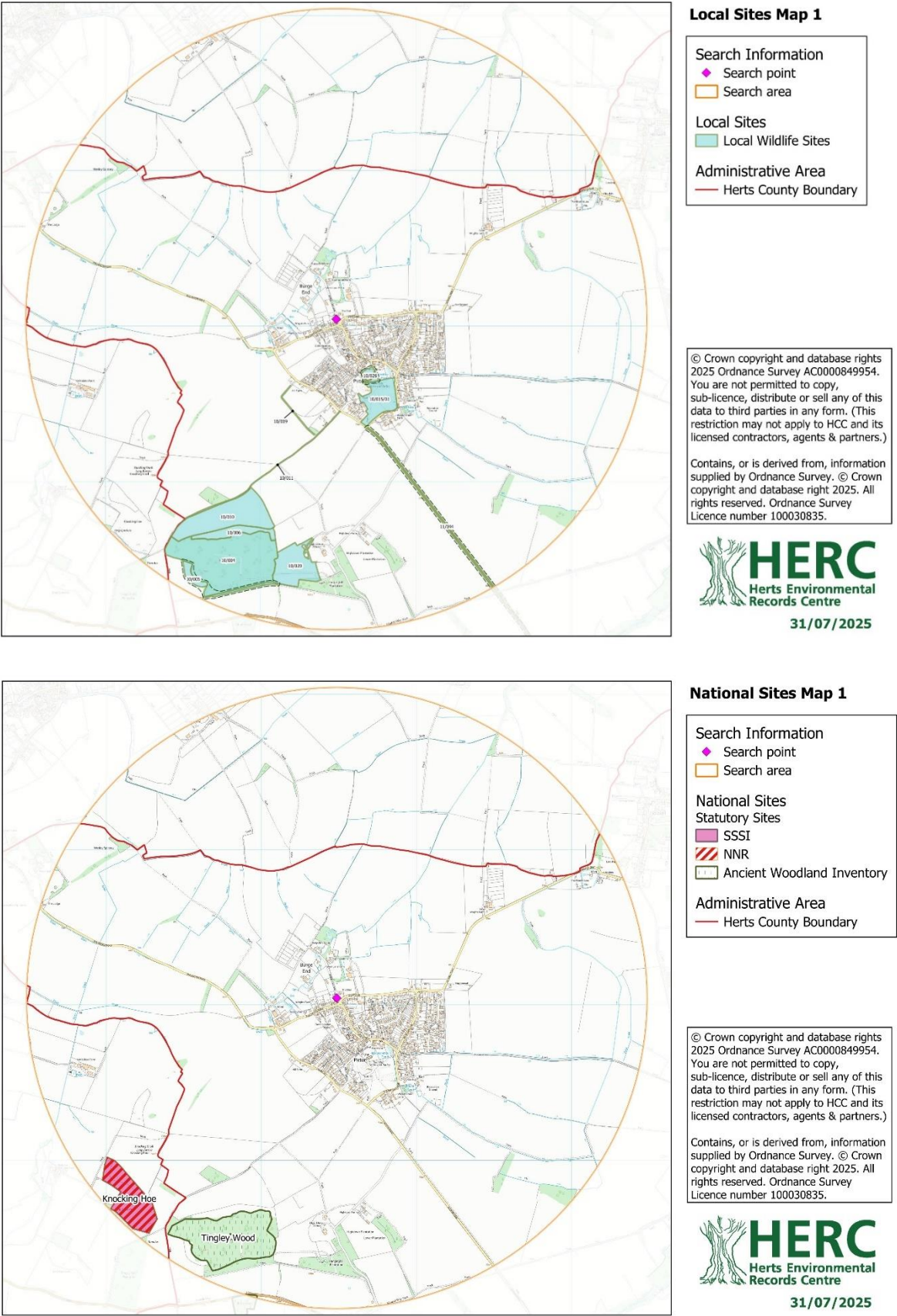
Providing that the recommendations outlined within this report are successfully implemented, it should be possible for the proposed development to proceed without any long-term impacts on protected or notable species. Specific recommendations for the site will be made once details of the proposed development become available.

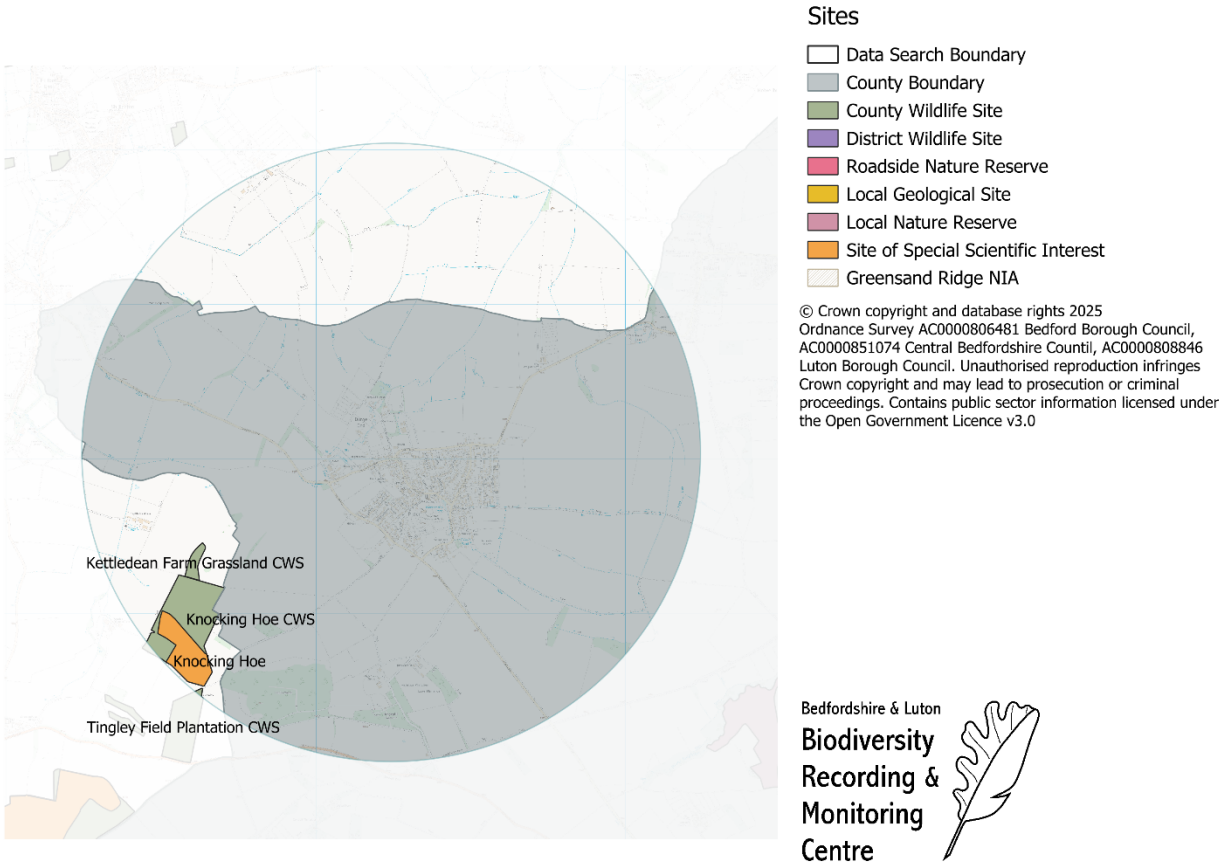
This ecological report will remain valid for a period of 18 months from the date of the PEA survey. Further surveys may be required to update the site information if planning is not obtained or works are delayed beyond this time period.

6. References

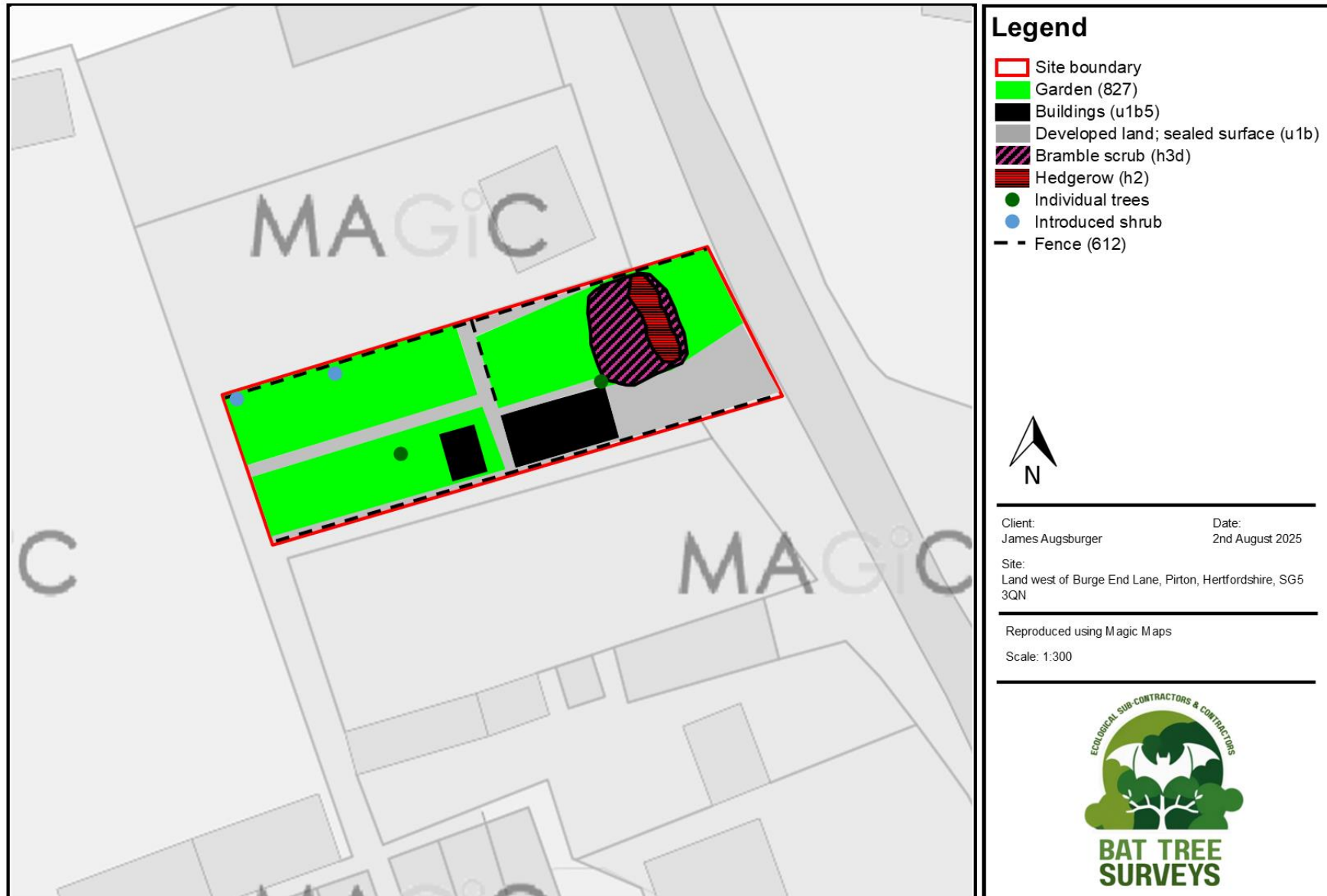
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Appendix 1: Statutory and non-statutory wildlife sites





Appendix 2: Habitat map



Appendix 3: Species list

The following table lists the flora species identified at the site during the field survey

Common name	Scientific name
Bramble	<i>Rubus fruticosus</i>
Bristly oxtongue	<i>Helminthotheca echioides</i>
Common dandelion	<i>Taraxacum officinale</i>
Common foxglove	<i>Digitalis purpurea</i>
Common honeysuckle	<i>Lonicera periclymenum</i>
Common ivy	<i>Hedera helix</i>
Common jasmine	<i>Jasminum officinale</i>
Common nettle	<i>Urtica dioica</i>
Common nipplewort	<i>Lapsana communis</i>
Common ragwort	<i>Jacobaea vulgaris</i>
Common selfheal	<i>Prunella vulgaris</i>
Creeping cinquefoil	<i>Potentilla reptans</i>
Dog rose	<i>Rosa canina</i>
Evergreen spindal	<i>Euonymus japonicus</i>
False oatgrass	<i>Arrhenatherum elatius</i>
Field bindweed	<i>Convolvulus arvensis</i>
Goldenrod	<i>Solidago sp.</i>
Hairy violet	<i>Viola hirta</i>
Hairy willowherb	<i>Epilobium hirsutum</i>
Hedgerow cranesbill	<i>Geranium pyrenaicum</i>
Holly	<i>Ilex aquifolium</i>
Ladys bedstraw	<i>Galium verum</i>
Lemon balm	<i>Melissa officinalis</i>
Musk mallow	<i>Malva moschata</i>
Nettle leaved bellflower	<i>Campanula trachelium</i>
Peach-leaved bellflower	<i>Campanula persicifolia</i>
Ribwort plantain	<i>Plantago lanceolata</i>
Rockspray cotoneaster	<i>Cotoneaster horizontalis</i>
Southern globethistle	<i>Echinops ritro</i>
Travellers joy	<i>Clematis vitalba</i>
Tutsan	<i>Hypericum androsaemum</i>
White deadnettle	<i>Lamium album</i>
Wild oregano	<i>Origanum vulgare</i>
Wood avens	<i>Geum urbanum</i>
Yarrow	<i>Achillea millefolium</i>

Appendix 4: Reasonable Avoidance Measures Method Statement for GCN

Great crested newts (GCN) and their habitat are fully protected under national (Wildlife & Countryside Act 1981 (as amended)) and European law (The Habitats and Species Regulations 2010) as a European Protected Species (EPS). The combined legislation makes it illegal to:

- Intentionally or deliberately capture, kill or injure a great crested newt;
- Intentionally or recklessly damage, destroy or obstruct access to any place used for shelter and protection including resting and breeding places, whether occupied or not;
- Deliberately, intentionally or recklessly disturb a great crested newt when in a place of shelter;
- Possess a great crested newt, or any part of it, unless acquired lawfully; or
- Sell, barter, exchange or transport or offer for sale great crested newts or parts of them.

Anyone carrying out activities which may affect EPS must consider the presence of EPS, their breeding sites and resting places. Good practice guidance is available from Natural England, which advises on assessing for the presence of EPS, and the possible impact of operations (including strategies for avoiding committing offences). If an offence cannot be avoided, then a derogation licence should be sought from Natural England.

The objectives of this method statement are, therefore, to:

- Avoid committing an offence under the above legislation; and
- Ensure that favourable conservation status of GCN is maintained.

Any development related activities on the site, such as vegetation clearance or excavations in areas of suitable newt habitat may potentially affect this species. As a result, safeguards must be implemented to protect this species and the Method Statement below details measures to be implemented to ensure these objectives are achieved. If these measures are followed then both objectives will be achieved without the need for a derogation license from Natural England.

METHOD STATEMENT

The following measures will be adopted throughout the construction period of the proposed development:

1. For the initial stages of the development when vegetation clearance is to be undertaken an experienced amphibian ecologist who holds a Natural England great crested newt survey licence will be employed by the developer to oversee the works.
2. In order to ensure that the method statement is adhered to a copy MUST be available on site at all times during the works
3. As part of the site induction process, all staff working on site will be made aware of the potential presence of great crested newts on site and their status as a UK and European Protected Species. This induction should be conducted by an experienced amphibian ecologist
4. If a great crested newt is identified it should not be moved or handled and all works on site should cease until advice from an ecologist or the ECoW is obtained – it is possible in such circumstances that development may need to be suspended until a development licence is obtained.
5. All potential refugae sites within the working areas will be hand-searched by the licensed ecologist prior to any form of digging, excavation or final vegetation clearance works being started.

6. All demolition rubble to be placed into skips or other containers or removed from site before the close of the working day to prevent GCN use as refugia sites.
7. All stock-piled and loose materials should be stored atop pallets or a similar support to keep them raised off the ground to prevent them being used by GCN as refugia sites.
8. All excavations left open overnight or longer must be gently ramped at one end to allow trapped animals to escape and must be checked for great crested newts prior to the continuation of works or infilling.
9. Any pipe work laid must have its open end blocked off at the conclusion of each working day to ensure that no GCNs can enter the pipe and be trapped within.
10. Following the initial construction phase, the site will require regular bi-monthly monitoring visits from a licensed ecologist employed by the developer to ensure that compliance with all measures outlined above.

Appendix 5: Legislation and planning policy framework

A level of statutory protection is afforded to specific species, largely as a consequence of dramatic declines in populations caused by habitat loss and/or degradation (both direct and indirect impacts) and persecution. In England the various statutes which provide this protection include the following:

- The Wildlife & Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000);
- The Conservation of Habitats and Species Regulations 2017 (as amended); and
- Natural Environment and Rural Communities Act (NERC) 2006.

These are further described for specific protected species surveyed for or expected at the site below.

Species of Principle Importance in England

The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list has been drawn up in consultation with Natural England, as required by the Act.

The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

There are 943 species of principal importance included on the S41 list. These are the species found in England which were identified as requiring action under the UK Biodiversity Action Plan (UK BAP) and which continue to be regarded as conservation priorities under its successor, the UK Post-2010 Biodiversity Framework.

Great Crested Newt

The great crested newt *Triturus cristatus* is protected under UK and European legislation. Great crested newt is included in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), the Countryside and Rights of Way Act 2000 and Regulation 40 and The Conservation of Habitats and Species Regulations 2017. It is an offence to:

- Deliberately capture, injure or kill a great crested newt;
- Damage or destroy a breeding site or resting place of a great crested newt; and
- Disturb a great crested newt, including disturbance of a great crested newt in such a way as to be likely to affect:
 - i) the ability of great crested newts to survive, reproduce or breed, or to rear or nurture their young;
 - ii) their ability to hibernate or migrate; and
 - iii) to significantly affect the local distribution or abundance of great crested newt.

Provisions are made within the UK legislation to allow for disturbance of great crested newt to take place under licence where works affect the species. The licence is issued by the appropriate statutory authority, which in England is Natural England. Licences can only be granted if there is no satisfactory alternative or if the action authorised will not be detrimental to the maintenance of the population of the species at a favourable conservation status in their natural range. Licences can be issued for scientific, research purposes (including survey work), and for the disturbance of great crested newt in relation to a development.

Bats

All species of bat and their roost are protected under UK and European legislation. Bats are included in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), the Countryside and Rights of Way Act 2000 and Regulation 40 and Schedule 2 of The Conservation of Habitats and Species Regulations 2017. It is an offence to:

- Deliberately capture, injure or kill a bat;
- Damage or destroy a breeding site or resting place of a bat; and
- Disturb a bat, including disturbance of a bat in such a way as to be likely to affect:
 - i) the ability of bats to survive, reproduce or breed, or to rear or nurture their young;
 - ii) their ability to hibernate or migrate; and
 - iii) to significantly affect the local distribution or abundance of bats.

Provisions are made within the UK legislation to allow for disturbance of bats or their roosts to take place under licence where works affect any bat species. The licence is issued by the appropriate statutory authority, which in England is Natural England (NE). Licences can only be granted if there is no satisfactory alternative or if the action authorised will not be detrimental to the maintenance of the population of the species at a favourable conservation status in their natural range. Licences can be issued for scientific, research purposes (including survey work), and for the disturbance of bats in relation to a development.

Birds

All birds are protected under the Wildlife and Countryside Act 1981 (as amended), making it an offence, with certain exceptions (e.g. game birds), to intentionally:

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

Schedule 1 of the Act contains a list of birds which are conferred extra protection and for which all offences carry harsher penalties. Under the legislation it is illegal to: intentionally or recklessly disturb a Schedule 1 bird while it is building a nest or is in or near a nest containing eggs or young; and intentionally or recklessly disturb dependent young of such a bird. Examples of species covered under Schedule 1 include: barn owl *Tyto alba*, kingfisher *Alcedo atthis* and little-ringed plover *Charadrius dubius*.

Hedgehogs

Hedgehogs are listed on schedule 6 of the Wildlife and Countryside Act (1981) which makes it illegal to kill or capture wild hedgehogs by certain methods. They are also listed under the Wild Mammals Protection Act (1996), which prohibits cruel treatment of hedgehogs.

Hedgehogs are listed as a species of 'principal importance' under the NERC Act, which is meant to confer a 'duty of responsibility' to public bodies during the planning process.

National Planning Policy Framework (NPPF)

The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2023) was first published on 27 March 2012 and updated on 24 July 2018, 19 February 2019, 20 July 2021, 5 September 2023 and 19 December 2023. This sets out the government's

planning policies for England and how these are expected to be applied. The NPPF states that 'planning policies and decisions should contribute to and enhance the natural and local environment by:

- Protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils in a manner commensurate with their statutory status or identified quality in the development plan;
- Recognising the intrinsic character and beauty of the countryside and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- Maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions, such as air and water quality, taking into account relevant information such as river basin management plans; and
- Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.'

A list of principles which local planning authorities should follow when determining planning applications is included in the NPPF which includes the following;

- If significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- Development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest; and
- Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

Appendix 6: Guidance on artificial light

Bright external lighting can have a detrimental impact upon foraging and commuting bat flight paths, but more importantly can also cause bats to remain in their roosts for longer. Artificial lighting can also cause significant impacts to other nocturnal species, most notably moths and other nocturnal insects. It can also result in disruption of the circadian rhythms of birds, reducing their fitness.

Guidelines issued by the Bat Conservation Trust should be referred to when designing the lighting scheme. Note that lighting designs in very sensitive areas should be created with consultation from an ecologist and using up-to-date bat activity data where possible. The guidance contains techniques that can be used on all sites, whether a small domestic project or larger mixed-use, commercial or infrastructure development. Lighting design should be flexible and be able to fully consider the presence of protected species.

Where bat habitats and features are considered to be of lower importance or sensitivity to illumination, the need to provide lighting may outweigh the needs of bats. Consequently, a balance between a reduced lighting level appropriate to the ecological importance of each feature and species, and the lighting objectives for that area will need to be achieved. The following are techniques which have been successfully used on projects and are often used in combination for best results:

- Dark buffers, illuminance limits and zonation
- Sensitive site configuration, whereby the location, orientation and height of newly built structures and hard standing can have a considerable impact on light spill
- Consideration of the design of the light and fittings, whereby the spread of light is minimised ensuring that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Consideration should be given to the height of lighting columns. It should be noted that a lower mounting height is not always better. A lower mounting height can create more light-spill or require more columns. Column height should be carefully considered to balance task and mitigation measures. Consider no lighting solutions where possible such as white lining, good signage, and LED cats eyes. For example, light only high-risk stretches of roads, such as crossings and junctions, allowing headlights to provide any necessary illumination at other times
- Screening, whereby light spill can be successfully screened through soft landscaping and the installation of walls, fences and bunding
- Glazing treatments, whereby glazing should be restricted or redesigned wherever the ecologist and lighting professional determine there is a likely significant effect upon key bat habitat and features
- Creation of alternative valuable bat habitat on site, whereby additional or alternative bat flightpaths,
- Dimming and part-night lighting. Depending on the pattern of bat activity across the key features identified on site it may be appropriate for an element of on-site lighting to be controlled either diurnally, seasonally or according to human activity. A control management system can be used to dim (typically to 25% or less) or turn off groups of lights when not in use

The Bat Conservation Trust recommends the following specifications for lighting on developments to prevent disturbance:

- Lighting spectra: peak wavelength >550nm
- Colour temperature: <2700K (warm)
- Reduction in light intensity
- Minimal UV emitted
- Upward light ratio of 0% and good optical control.