ROCKLEY DENE, WORSBOROUGH, BARNSLEY

PRELIMINARY ECOLOGICAL APPRAISAL

August 2024

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1 SUMMARY

This Preliminary Ecological Appraisal (PEA) included a desk study of designated sites and ecological data, and a detailed walkover survey of the site considering habitats and species.

Habitats within the application area may support roosting, foraging and commuting bats. As such, additional Phase 2 species surveys have been recommended relating to bats (Table 1, overleaf). This report is considered sufficient to draw robust and reliable conclusions to give the local authority confidence that all other ecological constraints are to be avoided, mitigated and compensated for, and ecological enhancements are proposed (see Section 5.3).

This PEA should be submitted alongside a Biodiversity Net Gain Biodiversity (BNG) Biodiversity Impact Assessment (BIA) Report to ensure an adequate habitat compensation strategy is produced which allows for 10% net gain as per the Environmental Act 2021.

An executive summary of recommendations is provided overleaf within Table 1.

Ecological Receptor / Constraint	Timescales
Amphibians and Reptiles Reasonable Avoidance Methods (RAMs) to be undertaken. Enclosed within CEMP.	During construction Secured through appropriately worded condition of planning.
Biodiversity Net Gain Biodiversity Impact Assessment (BIA) report should be submitted to support the planning application	Submitted prior to planning approval.
Breeding Birds Pre-commencement check and Reasonable Avoidance Methods (RAMs) to be undertaken. Enclosed within CEMP. Mitigation and enhancements to be secured within LEMP.	Prior to and during construction Secured through appropriately worded condition of planning.
Badgers Pre-commencement check and Reasonable Avoidance Methods (RAMs) to be undertaken. Enclosed within CEMP.	Prior to construction. Secured through appropriately worded condition of planning.
Trees Existing mature trees should be protected in line with BS5837:2012.	Prior to and during construction.
Ornamental Onsite Pond Reasonable Avoidance Methods (RAMs) to be undertaken. Enclosed within CEMP.	Prior to and during construction Secured through appropriately worded condition of planning.
Foraging and Commuting Bats Soft-lighting strategy to be implemented during the construction phase and post-development use. Soft-lighting plan to be prepared by a competent lighting professional	Prior to and during construction Secured through appropriately worded condition of planning.
Roosting Bats 2x Presence / likely absence surveys to be undertaken. Protected Species Report	May – September (weather permitting). Submitted as part of planning application

Table 1: Executive Summary of Ecological recommendations

2 INTRODUCTION

2.1 Background

Weddles were commissioned by EDGE AD Ltd to undertake a Preliminary Ecological Appraisal for the site at Rockley Dene, Worsborough, Barnsley.

This Preliminary Ecological Appraisal aims to:

- Identify any likely ecological constraints
- Propose any necessary design changes
- Identify any further ecological surveys required to enable an Ecological Impact Assessment (EcIA) to be carried out
- Propose any ecological enhancements

This report has been prepared in line with BS 42020:2013 Biodiversity: Code of practice for planning and development and the CIEEM Guidance for Preliminary Ecological Appraisal (2017), Ecological Report Writing (2017) and Ecological Impact Assessment (2022).

2.2 Site Description

The redline application area (known as 'the Site') is approximately 0.42ha in extent. The Site, formerly known as Rockley Dene Nursing Home, is located on land at Park Lane, Worsborough, Barnsley. The central Ordnance Survey Grid Reference is SE 35255 03833.

The Site comprises two complex buildings and associated hardstanding; amenity grassland and a small, ornamental pond; perimeter ornamental planting and mature nature trees border the site along its eastern, southern and southwestern perimeters. Additionally, there are scattered trees planted through the centre of the site, forming a connective green corridor. The A61 (Park Road) runs along the tree-lined eastern perimeter of the Site, across the road, beyond a wall, runs a small, culverted stream; further trees and suburban housing are also present. The Site is surrounded by suburban housing and gardens to its immediate western and northern boundaries, and an allotment and small tree-bordered grassland area lie immediately adjacent to the north-northwest.

Extending further from the Site northwards is land that is predominantly built-up suburban housing and local public and private services: to the south, meanwhile, lies Worsborough Reservoir. The River Dove flows from this Reservoir to the River Dearne into the Dearne Valley. These areas are important ecologically for both the species and habitats they support and their connective function. For this reason, Worsborough Reservoir, the River Dove and surrounding terrestrial/wetland areas are a designated Site of Special Scientific Interest (SSSI).

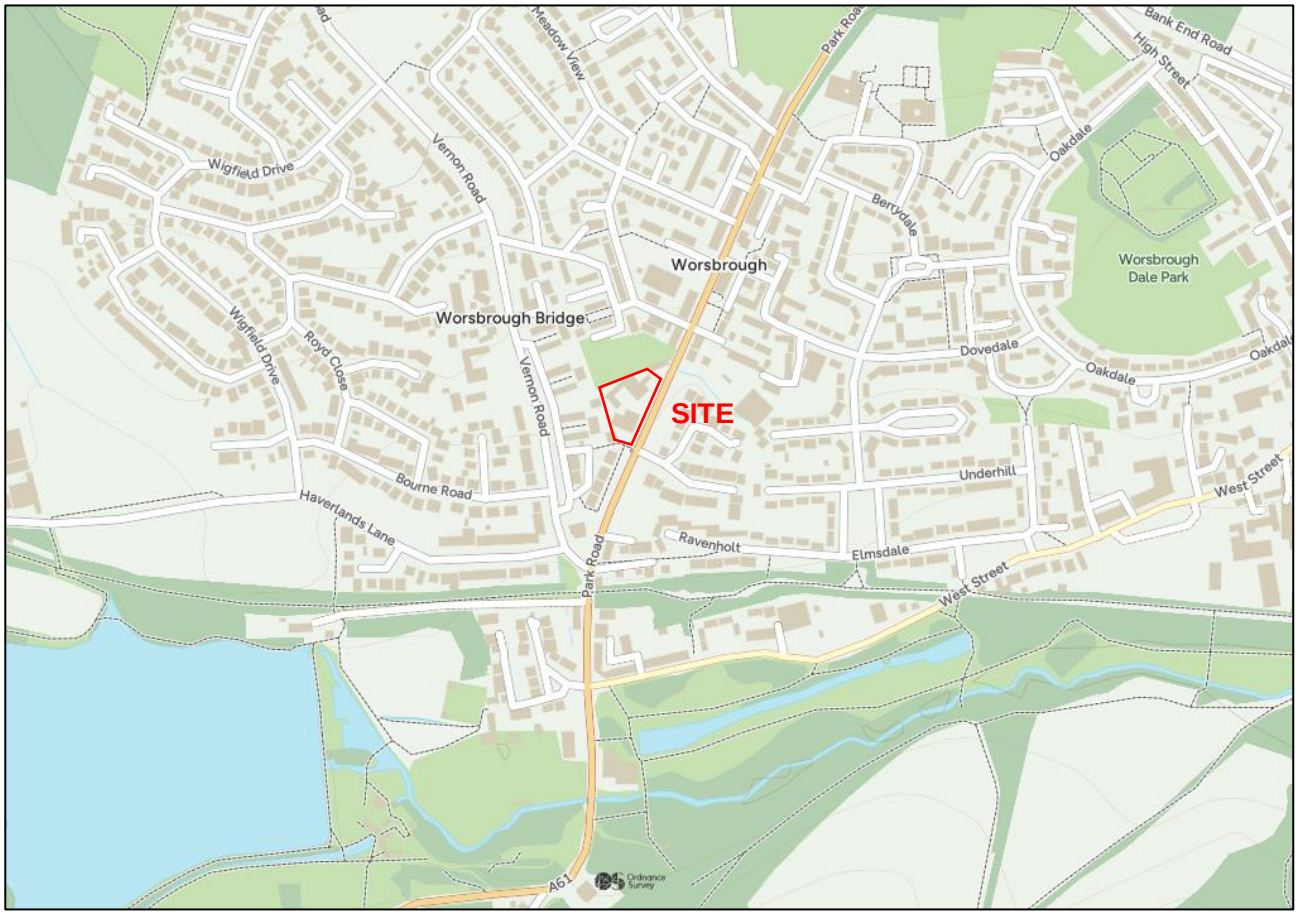


Figure 1: OS Map showing site location within the wider geographic context (OS online 2024).

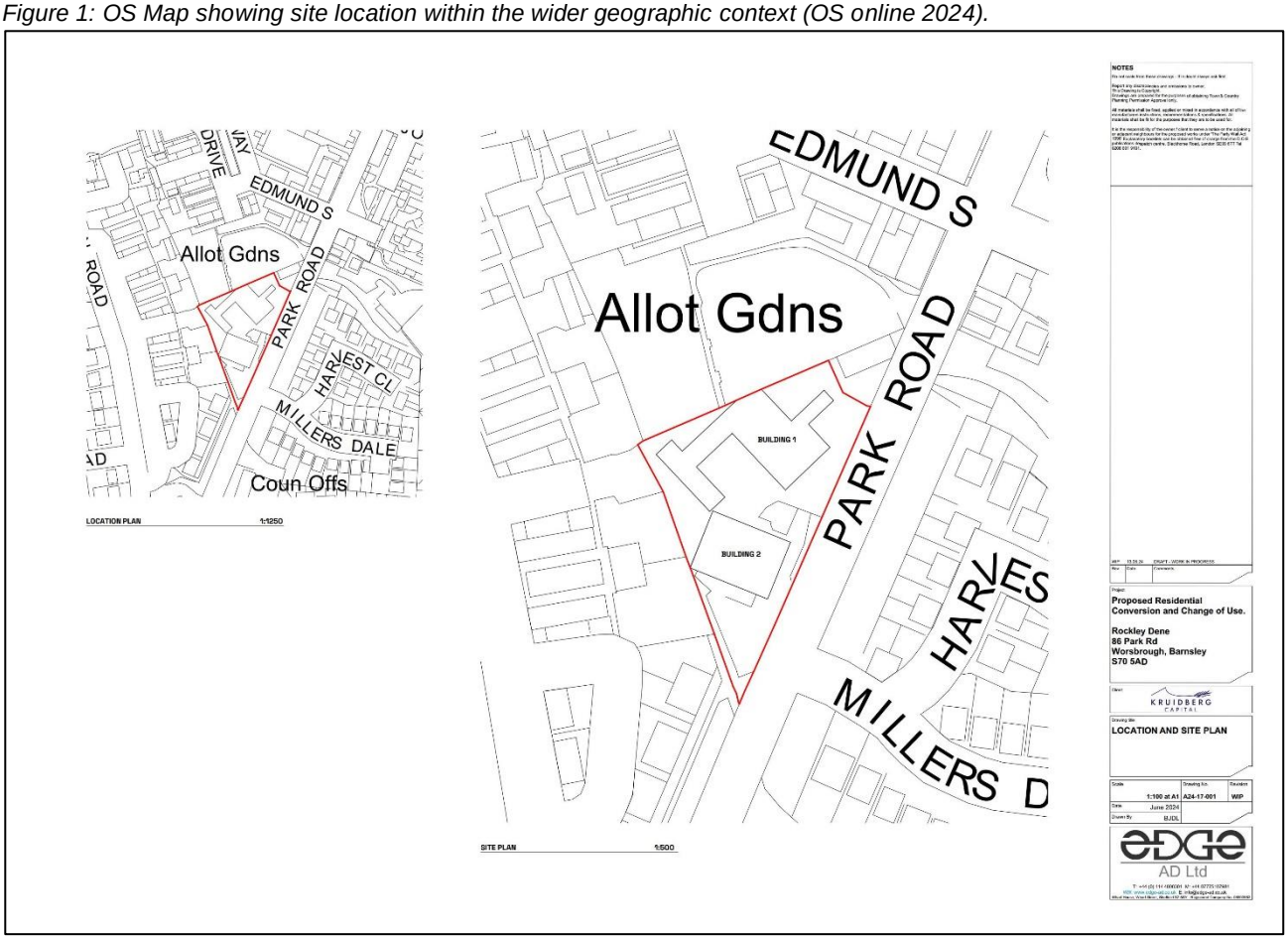


Figure 2: Redline application area (the Site) June 2024.

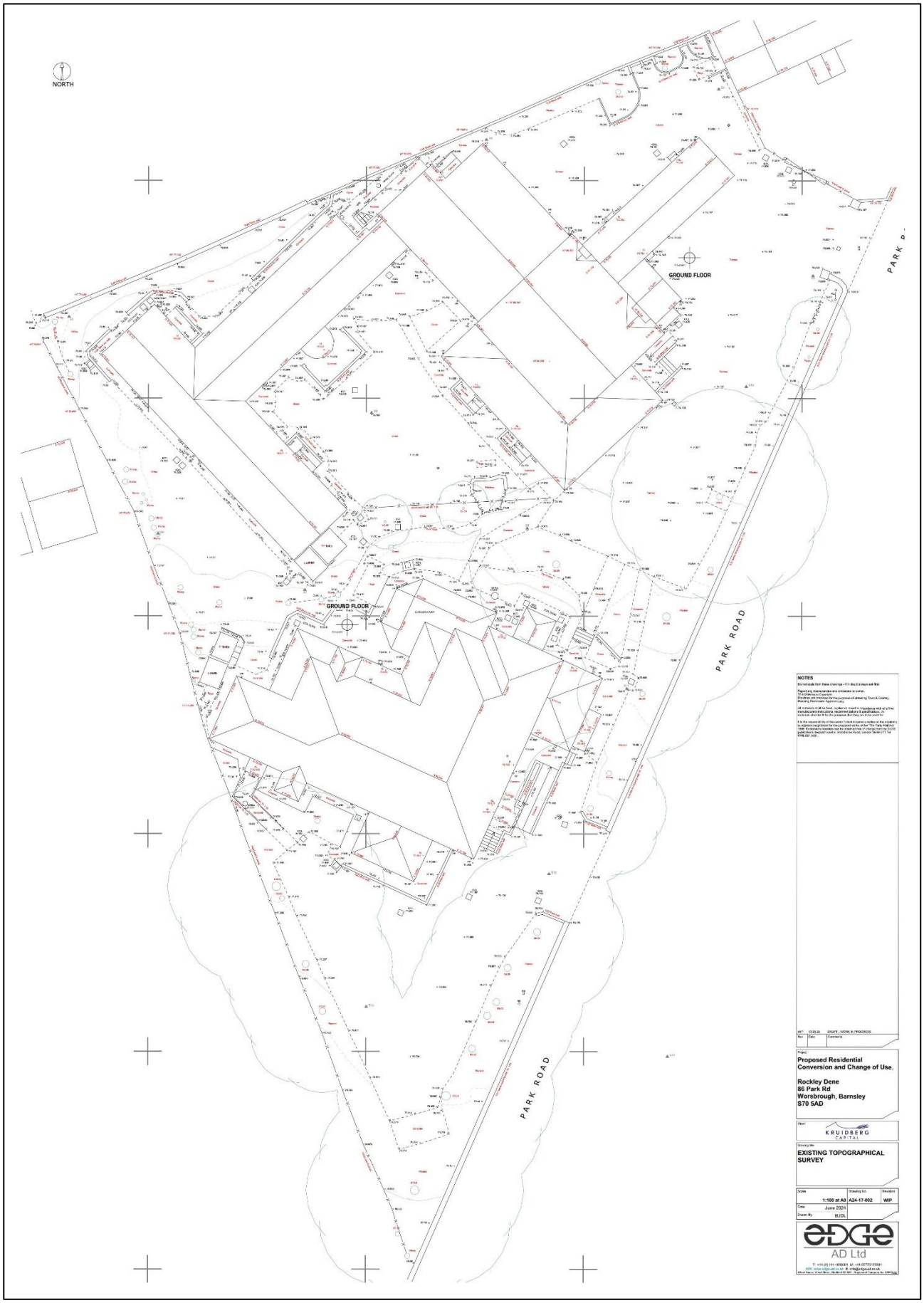


Figure 3: Topographical map of existing structures on site, June 2024.

2.3 The Proposals

The client proposes ‘Conversion including change of use from C2 Residential Institution to C3 Residential consisting of 24No. Apartments with associated amenity and parking’.

Figure 4: Proposed Residential Conversion and Change of Use at Rockley Dene, 86 Park Road, Worsborough, Barnsley – Proposed Parking and Refuse Strategy, Edge-AD, June 2024.

2.4 Planning Status

The site is in Barnsley, South Yorkshire, under the development control of Barnsley Metropolitan Borough Council.

3 METHODOLOGY

3.1 Desk Study

A desk study was undertaken to collate any existing ecological data for the site and its surroundings. As part of the desk study process, the following sources of record have been considered:

- Natural England Magic website for geographic information on key environmental schemes and designations. www.magic.gov.uk August 2024 (see Appendix C).
- Sheffield Biological Records Centre (SBRC) data at OS grid reference SE 35261,03849 Received 8th August 2024 (see Appendix D – full data set available on request).

3.2 Field Surveys

3.2.1 Habitat Survey

Habitat surveys were carried out in accordance with the UK Habitat Classification[1] (Professional Edition) at a minimum of Level 4 and at a Minimum Mapping Unit of 25m^2/5 linear m. The survey was undertaken within the optimum period for Habitat Field Surveys, between March and October.

Information regarding the assessment is provided in the table below:

Survey date / time	Surveyors present	Temperature (°C)	Humidity (%RH)	Windspeed (Beaufort)	Cloud cover (Okta)
23rd July 2024 – 11:00	Amy Wardle	18	72	2	2

Table 2: Survey Details

This appraisal includes a:

- Description of each habitat including a general list of species and assessment of general management.
- Condition assessment for each habitat, carried out following the condition criteria of The Statutory Biodiversity Metric Condition Sheets[2].
- Identification of UK BAP Priority Habitats under S41 of NERC Act and Habitats Directive Annex I habitat types.

A UK Habitats Plan of the site showing the various identified habitats is provided in Appendix E.

3.2.2 Biodiversity Net Gain – Baseline Assessment

A study of the baseline BNG score was carried out using the Statutory DEFRA Biodiversity Metric providing a summary of the onsite habitat types their relevant Distinctiveness, Condition and Strategic Significance. These are multiplied along with other factors to produce an Ecological Baseline Score, presented in Biodiversity Units (BU). The Baseline Score can then be used by the applicant to inform an appropriate mitigation strategy to reach 10% Biodiversity Net Gain in accordance with the Environment Act, 2021.

[1] UKHabs (2023) The UK Habitat Classification User Manual, Version 2.01
[2] DEFRA (2024). The Statutory Biodiversity Metric– Metric Condition Assessments.
https://assets.publishing.service.gov.uk/media/65c60f00cc433b000ca90b33/Statutory_Biodiversity_Metric_Condition_Assessments-_Feb24.xlsx

3.2.3 Badger Surveys

The site and immediate surroundings (where access was possible), was searched for any evidence of Badger *(Meles meles)* in accordance with Surveying Badgers[3] as part of the walkover survey. During the walkover the site was searched for evidence of badger including setts, paths and prints, latrines, dung pits, snuffle holes, foraging signs, and hairs caught on wire fencing.

3.2.4 Ground Level Tree Assessment (GLTA)

Trees within the site were inspected from ground level using binoculars and elevated survey by ladder if safe to search for any field signs of bats or potential roost features (PRF's). The survey was undertaken as part of the walkover survey for all accessible trees.

Each tree was searched for features including hollows, woodpecker holes and occlusions. 'Damage' features searched included lightning strikes, hazard beams, subsidence cracks, shearing cracks, transverse snaps and splits, welds, lifting bark, desiccation features and frost cracks. 'Association' bat roosting features, including fluting and ivy, were also searched and recorded.

Each tree was then assigned a suitability, as detailed in the table below:

Suitability	Description
None	No PRFs identified and no further action required.
PRF-I	PRF is only suitably for individual bats or very small numbers of bats due to size of lack of suitable surrounding habitats.
PRF-M	PRF is suitable for multiple bats and may therefore be used by a maternity colony.

Table 3: Categorisation of trees with PRFs for bats

3.2.5 Bat Preliminary Roost Assessment of Buildings

A thorough internal and external inspection of the building to look for evidence of bats and assess bat roosting potential was undertaken as part of the walkover survey. Evidence of bats may take the form of droppings, urine stains, feeding remains, live bats, dead bats, grease mark stains, fur and claw marks made by bats regularly roosting in the same location.

During the external survey any roof and walls were inspected from ground level (using binoculars to aid visibility where required) and elevated survey by ladder if safe to search for gaps and voids that would allow bats access to suitable roost sites.

Each building was assigned a roost suitability as defined BCT Good Practice Guidelines, as detailed in the table, below.

Potential Suitability	Description of Roosting Habitats
High suitability	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

[3] Cresswell, Harris & Jefferies (1989) *Surveying Badgers*, The Mammal Society.

Moderate suitability	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
Low suitability	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).
Negligible suitability	No obvious habitat features on site likely to be used by roosing bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion
None	No habitat features on site likely to be used by any roosting bats at any time of year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels

Table 4: Classification of building suitability for bats

3.2.6 Day Bat Walking (DBW)

Habitat features on site are assessed for their suitability to support foraging and commuting bat activity. This assessment is independent from the suitability of the site to support roosting bats and provides information on the likeliness of bat foraging activity within the local environment, and the dependence of individuals on these features for commuting to alternative roosting sites, foraging and migration.

The site was assigned a habitat suitability as defined BCT Good Practice Guidelines, as detailed in the table below:

Potential Suitability	**Description of Habitat**
High suitability	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge High-quality habitat that is well connected to the wider landscape that is likely to be used foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site that is close to and connected to known roosts.
Moderate suitability	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as treelines and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
Low suitability	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Negligible suitability	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour
None	No habitat features on site likely to be used by any commuting of foraging bats at any time of the year (i.e. no habitats that provoke continuous lines of shade/protection for flight-lines, or generate /shelter insect populations

Table 5: Suitability Assessment Criteria for foraging and commuting bats

3.2.7 Breeding Birds

Assessment of the sites overall suitability to support breeding and nesting birds was undertaken. The sites habitat composition, geographic locality and association with designated sites are all relevant considerations. Where habitats are suitable to support locally or nationally protected species, breeding individuals or populations of birds further breeding or wintering bird surveys may be required to understand the impact from a proposed scheme.

3.2.8 Pond Scoping Assessment

A pond scoping exercise was undertaken to identify any ponds or watercourses located within 500m of the Site using Ordnance Survey Maps and aerial photography. The zone of influence may be amended to 250m based upon the scale of impact at the discretion of the ecologist.

3.2.9 Great Crested Newt Habitat Suitability Index Assessment

Habitat Suitability Index (HSI) assessment was carried out on accessible waterbodies. The survey was undertaken on as part of the walkover survey. The survey was undertaken in accordance with the methodology described in ARG UK Advice Note 5[4].

The Habitat Suitability Index (HSI) was developed by Oldham et al (2000) in order to provide an index allowing a direct comparison to be made between different water bodies. This index assesses ponds against different criteria, each of which have a bearing on the likelihood of great crested newts *(Triturus cristatus)* being present in the pond under consideration.

The criterion are Geographic Location; Pond Area; Permanence; Water Quality; Perimeter Shading; Wildfowl presence; Fish Presence; Pond Count (within a 1.0 km radius); Terrestrial Habitat (within 250 m); and Macrophyte Cover.

The HSI score is used to demonstrate whether a pond is suitable for breeding GCN and therefore, if it requires detailed survey. Generally, ponds with a high HSI score are more likely to support GCN than those with lower scores. Pond suitability is categorised using the following scale as shown in the table below:

HSI Score	Pond Suitability
<0.5	Poor
0.5-0.59	Below Average
0.6-0.69	Average
0.7-0.79	Good
>0.8	Excellent

Table 6: HSI Suitability

Dr L Brady[5] provides further advice on interpreting HSI suitability scores:

- GCN tend to avoid ponds with low HSI scores. Ponds with relatively low HSI scores (poor to below average) typically only support GCN when they are located close to another occupied pond. Low scoring ponds are therefore only likely to support GCN in areas of high pond density.

[4] ARG UK (2010), ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index, Amphibian and Reptile Groups of the United Kingdom.
[5] Brady, L Habitat Suitability Index; Interpreting HSI Scores, Calluma Ecological Services. Available: https://www.calumma.co.uk/services/15-information/40-habitat-suitability-index

- GCN do not necessarily avoid ponds with average suitability, but nor do they actively seek them out. The presence of GCN in ponds with an 'average' HSI score appears to be simply down to chance.
- GCN appear to prefer ponds with high HSI scores. Ponds with relatively high HSI scores (good to excellent) frequently support GCN. Survey work undertaken in SE England indicates that great crested newt are present in more than 90% of ponds with an 'excellent' HSI score.

Therefore, any ponds that have an 'average' habitat suitability score or higher, or any low scoring ponds in areas of high pond density are likely to require further surveys to determine whether GCN are present, and if so, to establish population size.

3.2.10 Reptiles

An assessment of the onsite habitats was undertaken in order to evaluate the suitability of the habitats to support either episodically occurring or resident populations of reptiles. Habitats such as grasslands, heathland, dunes, brownfields, golf courses are all considered suitable, as are sites featuring a mosaic of habitats with south facing slopes or decreased levels of disturbance. Reptiles can be highly dispersive, so an assessment is also made of the suitability of the connective habitat to additional optimal habitats.

3.2.11 Invasive Species

As part of the walkover survey the site and immediate surroundings were searched for any evidence of invasive non-native plant species (INNS) listed on Schedule 9 of the Wildlife and Countryside Act 1981.

The species which are often encountered are Japanese Knotweed *(Fallopia japonica),* Himalayan balsam *(Impatiens glandulifera)*, Giant Hogweed *(Heracleum mantegazzianum), Cotoneaster sp., Rhododendron sp.,* and Variegated Yellow Archangel *(Lamiastrum galeobdolon subsp. argentatum).*

3.3 Limitations

The Preliminary Roost Assessment for Bats within the two buildings onsite (B1 and B2) was limited due to the clear fragility of the floor of the loft space: in several rooms, the ceiling/loft floor was falling down or else inaccessible.

4 BASELINE ECOLOGICAL CONDITION

4.1 Designations

Statutory Designations

The site lies within the Impact Risk Zone (IRZ) of the Dearne Valley Wetlands Site of Special Scientific Interest (SSSI). This SSSI comprises two parcels: the first located approximately 600m southeast and the second located approximately 600m southwest. These wetlands are connected to other waterbodies, the closest of which is approximately 400m southwest.

Dearne Valley Wetlands SSSI comprises 22 wetlands, scrub and woodland habitats. Wetlands comprise both shallow and deep open waters with associated marginal habitats including reedbeds, ditches, wet grasslands and marshes.

At the location within the SSSI IRZ the proposed development (primarily comprising retrofitting works to a pre-existing building) is unlikely to have a harmful effect on the terrestrial SSSI underpinned. Therefore, the client does **not** need to consult Natural England on the likely impacts of development on the Dearne Valley Wetlands SSSI. Ecological opportunities are present, however, to support this and other local statutory and non-statutory sites (see Section 5.3).

Worsborough Country Park is within the designated area of Dearne Valley Wetlands SSSI, but is also a 62.49ha Local Nature Reserve (LNR) in its own right. LNRs are a statutory designation made under Section 21 of the National Parks and Access to the Countryside Act 1949 by principal local authorities (Barnsley Borough Council in this case). Worsborough Country Park LNR lies approximately 400m southwest of the Site.

Non-Statutory Designations

The following list of Local Wildlife Sites (LWSs) were provided by Sheffield Biological Records Centre (SBRC). Local Wildlife Sites are sites with 'substantive nature conservation value'.

Name	Distance	Description	Designation
Worsborough Reservoir	520m SW	Large reservoir with semi-natural broadleaved woodland in the valley. Areas of scrub with outgrown hedges, unmanaged grassland and small areas of swampy fringes are also present.	LWS
Bell Bank Wood and Woolley Bank Wood	600 S	Woodland areas dominated by Oak (*Quercus* sp) with frequent occurrences of Sycamore (Acer pseudoplatanus) and Ash (Fraxinus excelsior). There are also large areas of scrub throughout both sites, as well as an abundance f woodland wildflowers including Common Dog-Violet (*Viola riviniana*), Red Campion (*Silene dioica*), Lords-and Ladies (*Arum maculatum*) and Enchanters nightshade (*Circaea lutetiana*).	LWS
Kendal Green Scrub	1.1km W	Site dominated by species rich modified neutral grassland with frequently occurring species such as red fescue (*Festuca rubra*), bird's-foot trefoil (*Lotus corniculatus*), meadow vetchling (*Lathyruspratensis*), black meddick (*Medicago lupulina*), sweet vernal grass (*Anthoxanthum odoratum*) and ribwort plantain (*Plantago lanceolata*). There is heavy encroachment of Hawthorn (*Crataegus monogyna*) and Goat Willow (*Salix caprea)* as scrub and trees.	LWS
Wombwell Wood	1.8km SE	Large block of woodland comprising mostly of the national NVC type W16a - the oak sub-community of oak-birch- wavy hair-grass woodland, typical of acidic conditions in coal measures landscapes. There is also an extensive area of well-established broadleaved plantation of mature beech (*Fagus sylvatica*).	LWS

Table 7: Summary of designated sites within 2km of the site boundary

Priority Habitats

Natural England Magic website indicates that within a 2km radius there are six types of Priority Habitat Inventory (PHI) allocations:

- Woodpasture and Parkland BAP Priority Habitat
- Traditional Orchards
- Deciduous Woodland
- Ancient Woodland
- Good quality semi-improved grassland
- Lowland Meadows

There are no priority habitats onsite. The closest priority habitat type to the Site is Deciduous Woodland, approximately 140m southwest of the redline boundary. There is good connectivity between several of the parcels of priority habitat due to their provision within the SSSI areas to the south, concentrated around Worsborough Reservoir and the River Dove.

4.2 Habitats and Flora

4.2.1 Flora Records

Sheffield Biological Records Centre (SBRC) have provided no flora records for any notable plant species within the Site. Within the 2km search area there are 9851 records of 975 species.

In relation to the redline boundary, the closest flowering plant, listed in the Biodiversity Action Plan, is Pennyroyal (*Mentha pulegium*).

All higher plant species present were recorded during the site walkover and are provided within the description of each habitat.

No rare or notable plants were recorded during the site walkover.

4.2.2 Invasive Non-Native Species

SBRC provided no invasive non-native species records for the Site. Within the 2km search area 88 individual records were provided for 10 species including Himalayan Balsam (*Impatiens glandulifera*), Japanese Knotweed (*Fallopia japonica*) and New Zealand Pigmyweed (*Crassula helmsii*).

No invasive species were noted during the Site walkover.

4.3 Field Survey

The table below summarises the habitats present within and immediately adjacent to the site, and their relevant inclusion as a National Habitat of Principal Importance and / or within the Local Biodiversity Action Plan[6].

Primary Habitat Code	Secondary Code (Where required)	UKHab	NHPI	LBAP	N/A
g4	106 (mown); 510 (bare ground);	Modified Grassland			✓
u1	518 (neglected)	Built-Up Areas and Gardens			✓
u1b	n/a	Developed land – sealed surface			✓
u1b5	n/a	Buildings			✓
-		Individual Trees – Urban			✓

Table 8: UKHabs Habitat Types and their relevant inclusion in NHPI or LBAP.

4.3.1 g4 - Modified Grassland (0.0642ha)

Areas of intensively managed (mown) modified grassland, previously used as an open garden area for residents, are present throughout the site. In areas of higher shade and drought, bare ground is exposed.

The grassland is dominated by Cock's-foot *(Dactylis glomerata)* and Perennial ryegrass *(Lolium perenne).* Fescue (*Festuca* sp.) was also present, occasionally. Other forbs identified included Creeping Cinqfoil (*Potentilla reptans*), Dandelion *(Taraxacum* sp.*),* Ribwort plantain *(Plantago lanceolata)*, Daisy (*Bellis perennis*) and Clover *(Trifolium sp.)* and Self-heal (*Prunella vulgaris*).

Grassland Condition Assessment	Pass / Fail
A. There are 6-8 vascular plant species per m^2 present, including at least 2 forbs. Note - this criterion is essential for achieving Moderate or Good condition.	Fail
B. Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.	Fail
C. Any scrub present accounts for less than 20% of the total grassland area. (Some scrub such as bramble Rubus fruticosus agg. may be present). Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Pass
D. Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	Fail
E. Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens).	Pass
F. Cover of bracken Pteridium aquilinum is less than 20%.	Pass
G. There is an absence of invasive non-native plant species (as listed on Schedule 9 of WCA4).	Pass
Condition Score	**Poor**

Table 9: Low Distinctiveness Grassland Condition Assessment – The Site grassland passes 4/6 criteria excluding essential criterion A which is essential for Moderate/Good condition grassland areas.

[6] Barnsley Biodiversity Action Plan, Accessed at: http://www.barnsleybiodiversity.org.uk/species.html, August 2024.

Figure 5: g4 area facing southeastern aspect of B1. The grassland management comprises an intensive, regular mowing regime.

Figure 6: Example of an area of bare ground within the g4 sward. These areas can support invertebrate colonies.

4.3.2 u1b – Developed land; sealed surface (0.1766ha)

A large portion of the site was covered by artificial, sealed hard-surfacing.
There is no condition assessment for this habitat type.

4.3.3 u1b5 – Buildings (0.1358ha)

There are two large, complex multi-storey buildings onsite.
Their descriptions and suitability to support protected species are found within Section 4.5.3.

4.3.4 u1b – Built up areas and Gardens (0.0525ha)

In small areas around the site, primarily the western areas, are small gardens that have become neglected. There was one ornamental rose bush (*Rosa* sp.) growing healthily in an area of planting along the southern boundary. Along the north/north-western boundary, there is a small area that would have comprised planting, but in which grass has grown tall to flower/seed and wild, native forbs grew such as Hedge Bindweed (*Calystegia sepium*), Common Nettle (*Urtica dioica*), Bramble (*Rubus fruticosus*), Bush Vetch (*Vicia sepium*) and Hawkbit (*Leontodon* sp.) among the ruins of a collapsed stone wall.

There is no condition assessment for this habitat type.

Figure 7: The collapsed boundary wall between the neighbouring allotment and the site had been colonised by grasses and common floral species. A Red Admiral (Vanessa atalanta) butterfly can be seen warming in the sunlight on a boulder. Several butterflies and day moths were observed in this small area.

Figure 8: Very small area of recolonised vegetation on what was, assumed, previously a managed vegetated garden bed along the boundary wall. Crickets were heard humming, and several Diptera *sp. were noted.*

4.3.5 Individual Trees (Urban)

Twenty-four trees were recorded within the Site which were assessed individually. Species within the site assessment area included Rowan (*Sorbus aucuparia*), Ash (*Fraxinus excelsior*), Sycamore (*Acer pseudoplatanus*), Horse Chestnut (*Aesculus hippocastanum*), and Wild Cherry (*Prunus avium*).

The trees displayed varying qualities and conditions. The condition criteria are listed below:

Individual Tree Condition Assessment
A. The tree is a native species (or at least 70% within the block are native species).
B. The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).
C. The tree is mature (or more than 50% within the block are mature).
D. There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.
E. Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.
F. More than 20% of the tree canopy area is oversailing vegetation beneath.

Table 10: Individual Tree Condition Assessment criteria A-F. Conditions are either passed or failed. Following ecological best practice principals, a conservative approach is taken where trees have been felled prior to survey or other degradation activities have recently taken place.

Condition	**T1**	**T2**	**T3**	**T4**	**T5**	**T6**	**T7**	**T8**	**T9**	**T10**	**T11**	**T12**	**T13**
A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
C		✓		✓								✓	✓
D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
E	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
F	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Condition Score	**Good**	**Good**	**Mod**	**Good**	**Good**	**Good**	**Mod**	**Mod**	**Mod**	**Mod**	**Mod**	**Mod**	**Mod**

Condition	**T14**	**T15**	**T16**	**T17**	**T18**
A	✓	✓	✓	✓	✓
B	✓	✓	✓	✓	✓
C	✓	✓	✓		
D	✓		✓	✓	✓
E	✓	✓	✓		
F	✓		✓	✓	✓
Condition Score	**Mod**	**Good**	**Good**	**Mod**	**Mod**

Table 11: Individual Tree Schedule

4.4 Biodiversity Net Gain – Baseline Assessment

The habitats recorded within the application site were calculated to provide a total of **3.44 Biodiversity Units.**

	Existing area habitats				Distinctiveness	Condition	Strategic significance	Required Action to Meet Trading Rules	Ecological baseline
Ref	Broad Habitat	Habitat Type	Irreplaceable habitat	Area (hectares)	Distinctiveness	Condition	Strategic significance		Total habitat units
1	Urban	Developed land; sealed surface	No	0.1358	V.Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00
2	Urban	Developed land; sealed surface	No	0.1766	V.Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00
3	Urban	Vegetated garden	No	0.0525	Low	Condition Assessment N/A	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or better habitat required ≥	0.11
4	Grassland	Modified grassland	No	0.0642	Low	Poor	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or better habitat required ≥	0.13
5	Lakes	Ornamental lake or pond	No	0.0006	Low	Poor	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or better habitat required ≥	0.00
6	Individual trees	Urban tree	No	0.0163	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required (≥)	0.13
7	Individual trees	Urban tree	No	0.228	Medium	Good	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required (≥)	2.74
8	Individual trees	Urban tree	No	0.0244	Medium	Good	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required (≥)	0.29
9	Individual trees	Urban tree	No	0.0041	Medium	Good	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required (≥)	0.05
10									
11									
12									
13									
14									
			Total habitat area	0.70					3.44
			Site Area (Excluding area of individual trees, green walls, intertidal hard structures)	0.43					

Figure 9: Habitat Baseline Scores

4.5 Fauna

Species legislation is provided in Appendix B.

4.5.1 Amphibians

SBRC provided 3 records of Great Crested Newts (*Triturus cristatus*) within the 2km radius from the application area. All 3 records are located approximately 1.6km north west of the site at Highstone Farm between 2017-2019. MAGIC returned no approved EPS licences within the search area.

Additionally, 7 records of Common Toad (*Bufo bufo*) and 16 records of Common Frog (*Rana temporaria*) was returned by SBRC within the 2km search area: the closest finding was recorded approximately 300 north west of the site and related to Common Frog.

Onsite there is a small, kidney-shaped ornamental pond – approximately 1.5m across, and 0.6m depth. It comprises drystone rock walls, bisected by a wooden timber fence. A mix of native and ornamental planting has been planted on the bank, including heathers (*Calluna* sp.) and Snow-in-Summer (*Cerastium tomentosum*).

Figure 10: The ornamental pond onsite.

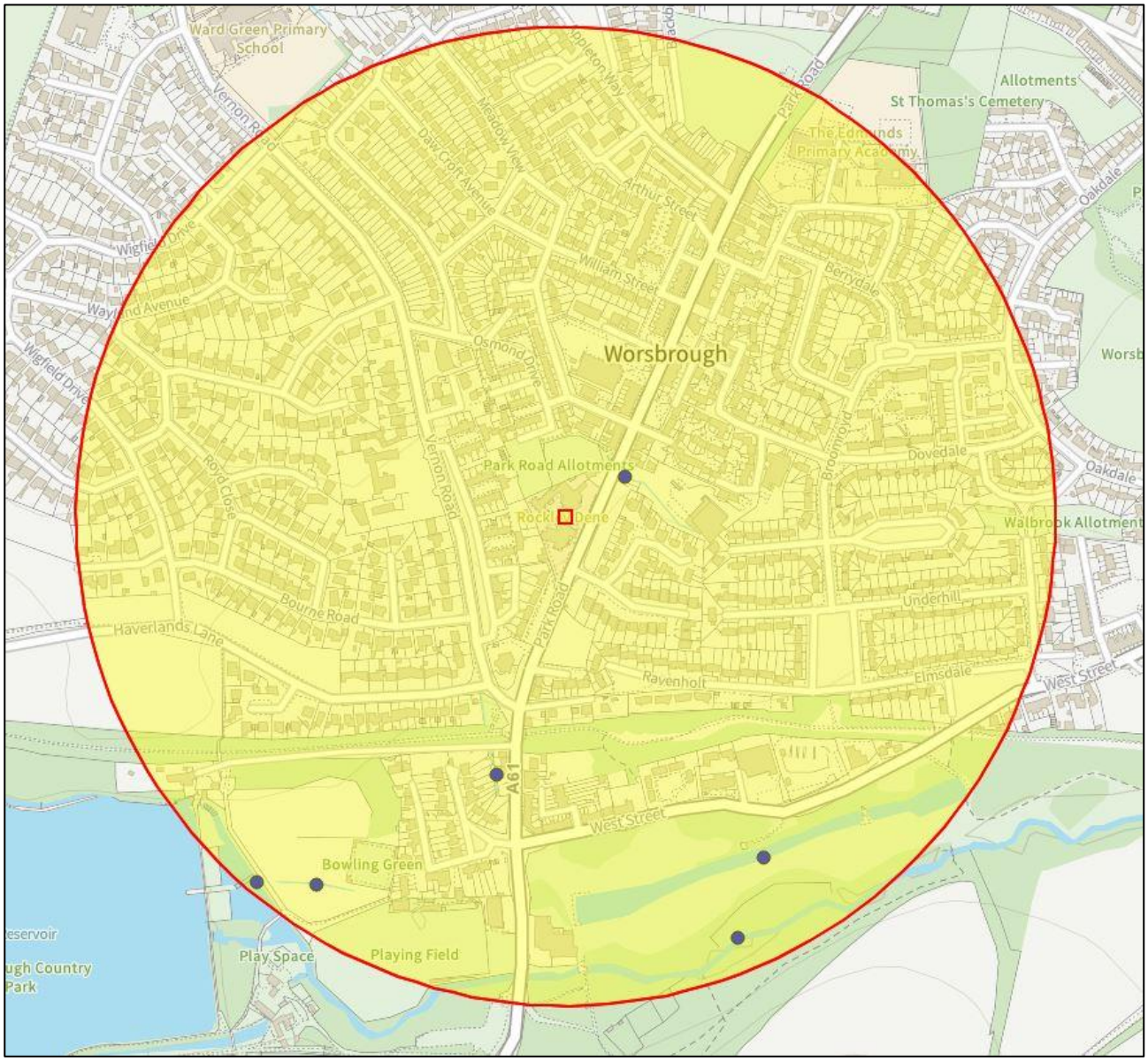


Figure 11: Pond Location Plan (500m buffer from site boundary)

Pond Name		Pond 1 (onsite)	Pond 2	Pond 3	Pond 4	Pond 5	Pond 6	Pond 7	Pond 8
No	SI Description	SI Value	SI Value	SI Value	SI Value	SI Value	SI Value	SI Value	SI Value
1	Geographic location	1	1	1	1	1	1	1	1
2	Pond area	0.05	0.2	0.07				0.2	0.2
3	Pond permanence	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
4	Water quality	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
5	Shade	0.01	0.9	0.9	0.1	0.2	0.2	0.8	0.8
6	Water fowl effect	1	1	0.8	0.01	0.67	0.01	0.67	0.67
7	Fish presence	1	0.33	0.33	0.01	0.01	0.01	0.33	0.33
8	Pond Density	5.09	5.09	5.09	5.09	5.09	5.09	5.09	5.09
9	Terrestrial habitat	0.33	0.33	0.33	0.33	0.2	0.2	0.33	0.33
10	Macropyhyte cover	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
HSI Score		**0.43**	**0.27**	**0.44**	**0.39**	**0.18**	**0.29**	**0.19**	**0.49**
Suitability		Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor

Table 12: HSI of ponds within 500m of the site

4.5.2 Badger

SBRC provided 6 records of badgers (*Meles meles*) within the 2km search area. Nearest record was in 2016 approximately 0.86km south west of the site. Two of the records are of setts both at over 1.8km south and south east of the site.

No evidence of badgers was seen at the time of survey; there were limited areas for foraging onsite and even fewer opportunities for sett-building. Badgers could, however, intermittently pass through or access into the site – especially from adjacent gardens and allotment to the south and north western boundary.

4.5.3 Bats

DEFRA's MAGIC Map system provided a single granted European Protected Species (EPS) licence within the 2km search area – located approximately 1.2km east of the redline boundary. This licence permitted impact on a breeding site; damage of a breeding site; damage of a resting place; destruction of a breeding site; and, destruction of a resting place for Soprano Pipistrelle (*Pipisrellus pygmaeus*) as a result of works taking place in April 2018 only. It is unknown whether this was also a hibernation site.

SBRC provided 30 relevant records of bats within the 2km search area, none of which are roosts. All records are of bat activity and include Daubenton Bat (*Myotis daubentonii*), Common Pipistrelle, Soprano Pipistrelle (*Pipistrellus pygmaeus*), Brown Long-Eared Bat (*Plecotus auritus*), and Noctule Bat (*Nyctalus noctula*). The nearest record, from 2020, being approximately 310m to the north west for a single common pipistrelle (*Pipistrellus pipistrellus*).

GLTA

All trees within the application site and located along the site's boundaries were assessed from ground level for their suitability to support roosting bats. Features were identified such as splits, cracks, hollows, woodpecker holes, occlusions etc. Of the scattered mature trees recorded throughout the site, 3 were assessed to have '**PRF-I**' suitability to support roosting bats which are discussed in greater detail in the table below.

The remaining mature trees onsite were considered to support 'Negligible' suitability to support roosting bats at the time of survey. Several trees onsite did however show superficial cracks and fissures which may, in time and through weathering, create larger and more suitable features.

Tree sp./ ID	Potential Roosting Features, Evidence and Suitability	Suitability
Sycamore / T7	• Knot-hole on northwestern elevation, approximately 3m high and approximately 30mm x 40mm.	PRF-I
Horse Chestnut / T13	• Pruning wound in bark on branch – northwestern elevation, approximately 4.5m high and measuring 12cm in length across the wound.	PRF-I
Unknown / T15	• Dense ivy.	PRF-I

Table 13: Roosting Bat assessment for trees.

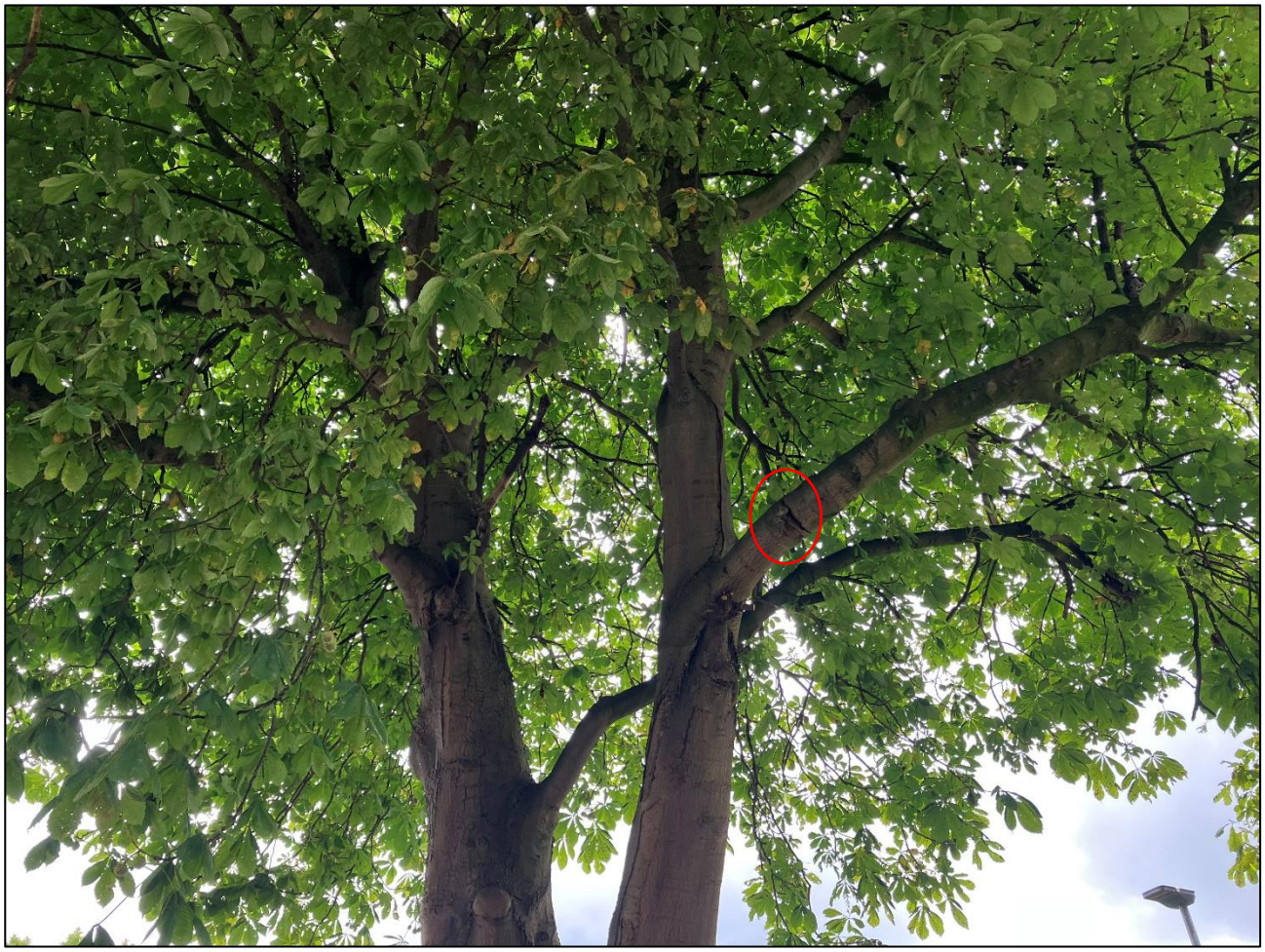


Figure 12: PRF-I located on T

Figure 13: Dense ivy located on T

Figure 14: PRF-I located on TX. Image contrast adjusted for visibility.

Roosting Bats – Buildings

All buildings within the application site were externally and internally visually assessed for PRFs.

No physical evidence of bats, nor were bats observed, at the time and on the day of survey.

Building 1 and Building 2 was considered to support 'Low' suitability due to the external PRFs observed.

Building No.	Building Description	Potential Roosting Features, Evidence and Suitability	Suitability
B1	B1 comprises two, adjoined, two-storey gable-ended redbrick buildings with single-storey extensions to the northeast and southwest. The northeast extension is L-shaped, and the smaller of the two: the southwest extension is T-shaped, and helps to form a central courtyard between the extension and the main two-storey building. A fire-escape, comprising metal staircase covered by metal sheeting, was present on the western aspect adjacent to the allotment. All windows and doors were covered and sealed by sturdy metal sheeting at the time of survey. Fascia supported the guttering beneath the tiled roof at two-storeys high, while timber boards connected guttering along the single-storey. The vast majority of brickwork was intact and well-mortared. There was a well-sealed, dry and warm cellar. No external access into the cellar that could be used by bats was observed.	External PRFs • A few slim cracks in timber fascia beneath guttering on the single-storey extension northwestern aspect (Figure 19). • Northern gable ends beneath barge boards could hold some limited suitability. • Northeastern and northern aspect has the occasional lifted tile. Note: The presence of birds carrying prey to and from the northwestern aspect of the roof (at two-storeys high) and the remains of juvenile birds on the floor indicated a nesting site for birds (*Passer domesticus*). The displacement of tiles, as observed through binoculars at ground level, provided a place for sparrows to nest which, at other times, could provide a suitable resting place for bats. Internal PRFs No observable internal PRFs: the lining comprised timber struts and bitumen felt with insulation, visible where parts of the loft floor/ceiling had collapsed. The loft was not thoroughly assessed at the time of survey due to safety. No light was observed entering the loft from outside. **No evidence of roosting bats were observed during the assessment.**	Low
B2	B2 takes an L-shape two-storey form with additional extensions at ground level, as well as a conservatory on its northern aspect. The access ramp is rooved, supported by timber struts. All windows and doors were covered and sealed by sturdy metal sheeting at the time of survey. Soffit boxes and fascia appeared to be timber. The roof had gable ends and lead flashing surrounding the chimneys. The vast majority of brickwork was intact and well-mortared.	External PRFs • A lifted ridge tile on the first floor extension roof on southeastern aspect – suitable for one crevice-dwelling bat (Figure 27). • Minimal gap in soffit on southern/southwestern aspect. Internal PRFs No observable internal PRFs: the lining comprised timber struts and bitumen felt with insulation, visible where parts of the loft floor/ceiling had collapsed. The loft was not thoroughly assessed at the time of survey due to safety. No light was observed entering the loft from outside. **No evidence of roosting bats were observed during the assessment.**	Low

Table 14: Roosting Bat assessment for Buildings

Figure 15: B1, view from the courtyard in the centre of the site, looking north.

Figure 16: B1 single-storey northern extension, (view from the north, looking south).

Figure 17: Single-storey extension on B1, view from the south of the site looking north.

Figure 18: The northern gable ends, viewed from the northern entrance/vehicle access (looking southwest).

Figure 19: View of PRF-I on B1 northern single-storey extension.

Figure 20: Exposed internal roof structure, indicating collapsed ceiling.

Figure 21: Internal courtyard – western view of B1.

Figure 22: B2 viewed from the south, looking north.

Figure 23: B1 northeastern gable-end; sealed and intact.

Figure 24: B2's northern aspect, view looking south.

Figure 25: View of B2, another northern aspect, view towards the south.

Figure 26: The rooftop porch of B2, eastern aspect.

Figure 27: View of the PRF on B2 eastern-facing single-storey extension.

Figure 28: View of B2 porch and eastern-facing single-storey extension.

Figure 29: View of the internal roof structure – collapsed, revealing bitumen felt lining, similar on both structures.

Figure 30: View up the redbrick and corrugated metal sheeting-encased fire escape on the western aspect of B1.

Day Bat Walk

The main habitat type onsite – hard standing and buildings – provides negligible habitat for bats; however, the tree-lined eastern boundary provides valuable foraging and commuting opportunities. These mature trees connect to a network of foraging areas within the locality: a tall grassland sward to the northwest and allotment; riparian networks to the south.

It can be concluded, therefore, that the site provides foraging opportunities limited to the tree canopies and western boundary border within a predominantly urban environment with fair connectivity to wider habitats. As such, the application site is considered to support **'Low'** suitability to support foraging and commuting bats.

4.5.4 Birds

SBRC provided 5249 individual records between 2014-2024 for 130 different species of birds within the 2km search area. Notable protected species include Barn Owl (*Tyto alba*), Fieldfare (*Turdus pilaris*) and Redwing (*Turdus iliacus*), with the closest record of relevant protected species being a Redwing (*Turdus iliacus*), recoded approximately 300m north west of the site in 2017. There were no records provided by SBRC from within the site boundary.

House Sparrows (Passer domesticus) carrying prey to and from the northwestern aspect of the roof (at two-storeys high) and the remains of juvenile birds on the floor indicated an active nesting site. No bird nests were noted from ground level on any other aspect of the buildings, within the structures (including small metal sheds onsite), nor trees. It was likely, however, that the ivy-clad tree (T15) provided shelter and nesting opportunities for small passerines earlier in the breeding season; furthermore, nests are difficult to spot high in the canopy and trees onsite are suitable.

Limited bird activity was observed during the site walkover: Robin (*Erithacus rubecula*) could be heard alarm calling in the adjacent allotment (to the west); Magpie *(Pica pica),* House Sparrow and Blackbird *(Turdus merula)* were identified on site; Pigeon (Columba *livia domestica)* and gulls (*Larus* sp.) identified flying overhead. Notable protected thrush species identified in the desk study could forage or land on trees onsite (notably T1, Rowan) during the autumn migratory period, should they be present in the local area.

4.5.5 Invertebrates

SBRC provided 2581 relevant individual records of 399 different invertebrate species.

During the site survey, a range of invertebrates was anecdotally noted in a small area of rubble, grass (allowed to flower) and wild forbs along the western boundary (shared with the adjacent allotment). This area had previously been managed as an ornamental garden for residents. Notably, both Peacock and Red Admiral Butterfly were present, basking on rocks; species of bee fed on bramble flowers and crickets/grasshoppers were present in the grassland sward. These could not be identified to species level through sound alone during a walkover survey.

The grassland habitats onsite, managed and mown, are unlikely to support a wide-ranging or diverse invertebrate assemblage. The areas of bare ground, however, provide greater potential to support burrowing invertebrates – if present.

4.5.6 Other Terrestrial Mammals

SBRC provided 173 records for other terrestrial mammals within the 2km search area. Recorded species include Hedgehog (*Erinaceus europaeus*), Brown Hare (*Lepus europaeus*), Harvest Mouse (*Micromys minutus*), Field Vole (*Microtus agrestis*), Stoat (*Mustela erminea*), Weasel (*Mustela nivalis*),

American Mink (*Neovison vison*), European Rabbit (*Oryctolagus cuniculus*), Grey Squirrel (*Sciurus carolinensis*), Mole (*Talpa europaea*), Rex fox (*Vulpes vulpes*), Wood Mouse (*Apodemus sylvaticus*) and a single record of Common Shrew (*Sorex araneus*). Nearest record was from 2019 approximately 310m north east of the site of a Hedgehog (*Erinaceus europaeus).*

One incidental sighting of a House Mouse (*Mus musculus*) was observed onsite, outside B1. Its sluggish behaviour during the middle of the day indicated that the mouse was unwell, and potentially had consumed poison (pest feeding stations/traps were present around the site).

The site provides very limited cover and foraging opportunities that would otherwise enable the site to support small populations of mammals.

4.5.7 Reptiles

SBRC provided 36 relevant reptile records within the 2km search area, the nearest to the application site was approximately 0.8km south east of the site in 2015 of a Grass Snake (*Natrix helvetica*). Other recorded species include Common Lizard (*Lacerta vivipara*), Adder (*Vipera berus*).

The majority of the site was assessed as providing little or no value to reptiles due to the lack of suitable mosaic habitats, prey resources, or hibernacula and its isolated location within a suburban environment. Some rubble piles along the western boundary could provide basking areas for small reptiles such as Common Lizard (if present within the wider area). No reptiles were identified during the walkover survey and are considered unlikely to be present on the site.

5 ECOLOGICAL CONSTRAINTS AND OPPORTUNITIES

5.1 Ecological Constraints

Avoidance, mitigation and/or compensation measures are required for the following constraints.

5.1.1 Amphibians and Reptiles

No evidence of amphibians, including GCN, was observed onsite at the time of survey. The ornamental pond did appear to be distinct from other local waterbodies, and was determined 'Poor' on the Habitat Suitability Index for GCN. This does not indicate that GCN and other amphibians are completely absent during the active or hibernation period: their presence is, however, unlikely.

No individual amphibians, nor signs of, was observed during the site survey. Similarly, no individual reptiles, nor signs of, was observed during the site survey. There remains a possibility that amphibians – and, to a less likely extent, reptiles – may be intermittently encountered within the application area during the initial site clearance.

To minimise the risk of killing or injury to individuals that may be present, a precautionary site clearance method will be implemented and impacts avoided during works.

Note: it is understood that there will be **no alteration or destruction of the ornamental pond** as part of the proposed works; therefore, the measures below have been written in line with this.

- Any suitable habitat – such as grass cuttings and leaf litter – will be carefully searched by hand. Any amphibians found during the search will be relocated to an area of retained habitat (the onsite ornamental pond).
- The onsite ornamental pond, particularly its stone walls and water, will be protected from negative impacts from works, including pollution (for example, brick dust). **See Section 5.1.7** for further information.
- Trenches or excavations left uncovered overnight will have a suitable means of escape (such as wooden plank).

GCN – Further Guidance Note

The Metropolitan Borough of Barnsley is covered by a District Level Licensing Scheme (DLL) for GCN, run by Natural England. In the case of pond alteration or destruction, GCN eDNA surveys of the pond should be conducted within the optimal sampling period (mid-April – June inclusive) and/or a DLL sought following further consultation with and conclusions from ecologists.

If any GCN are recorded within the application site, at any point, works should cease and the advice of a licenced ecologist sought.

5.1.2 Badger

While no badger setts were identified on site, badgers from the wider area may occasionally commute through the site. The following precautionary approach should, therefore, be implemented:

- Ensure excavations or trenches left overnight are covered or have an escape route such as a shallow gradient at one or both ends.
- Ensure excavations or trenches are inspected each morning and evening to ensure no badgers have become trapped.
- Open pipework with a diameter of more than 120mm should be properly covered or capped at the end of the working day to prevent badgers from entering and becoming trapped.

- During the work, the storage of any chemicals should be contained in such a way that they cannot be accessed or knocked over by any roaming badgers.
- The storage of topsoil or other “soft” building materials within the site should be given careful consideration. Badgers will readily adopt such mounds and dig setts which would then be afforded the same protection as established setts. To avoid the adoption of such mounds, they should be subject to daily inspections before work commences or alternative measures put in place, such as being fenced off (for higher-risk areas).
- Litter, tools and potentially dangerous materials on site should be cleared at the end of the working day. Care should be taken that there are no sharp metal objects or pointed protrusions on the ground which could seriously injure a badger due to their poor eyesight.

5.1.3 Bats

GLTA

Three trees within the site ownership were assessed to provide ‘**PRF-I**’ suitability to support roosting bats. **These trees should be retained and protected as a priority.**

All trees will be retained as part of the site works and impacts arising from the development proceedings are not considered likely of surmounting to disturbance of a roost, if present.

If the trees are to be removed to allow for the development footprint, it is recommended that PRF Aerial Close Inspection surveys are undertaken to confirm the Presence/Likely Absence of bats within the observed features.

Roosting Bats – Buildings

Building 1 and Building 2 were assessed to provide ‘**Low**’ suitability to support roosting bats due to the presence of external PRFs (as discussed in Section 4.5.3). While these features alone amount to ‘Low’ suitability, in accordance with best practice principles, further effort must be made in order to compensate for absence of thorough internal survey where the roof voids were deemed unsafe due to structural weaknesses. Therefore, additional survey effort should be undertaken on B1 and B2.

The proposed development will see the conversion of the buildings, demolition of conservatories and associated works. There is potential, hence, that roosting bats may be directly or indirectly impacted by the proposals.

Two Presence / Likely Absence Bat Surveys should be undertaken between the months of May and September (inclusive). If bats are found to be roosting within any structure during the emergence survey(s), additional roost characterisation surveys will be required to inform a suitable bat method statement. At least one of the two surveys should be undertaken before the end of August.

Day Bat Walking

The application site was considered to support ‘**Low’** suitability to support foraging and commuting bats due to the onsite mature vegetation and surrounding environmental context. The development will see the retention of mature woodland vegetation to the west and the majority of trees elsewhere within the site, therefore retaining the long-term suitability for the site to support foraging and commuting bats.

Artificial lighting during the construction phase of the development and in-use can result in impacts to foraging and commuting individuals.

A sensitive low-level lighting scheme will, therefore, be prepared by a lighting engineer to ensure no mature vegetation is impacted by the development. The lighting strategy should follow best practice as dictated by the Bat Conservation Trust[7]:

- Consider employing a competent lighting designer who will apply the principals of providing the right light, in the right place, at the right time and controlled by the right system.
- Minimise the spread of light to at, or near horizontal and ensure 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.
- Consider 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.
- Limit the times that lights are on to provide some dark periods. The task being lit often varies, for example roads are less used after 23:00 and car parks are empty. A lighting designer can vary the lighting levels as the use of the area changes reducing lighting levels or perhaps even switching installations off after certain times. This use of adaptive lighting can tailor the installation to suit human health and safety as well as wildlife needs.

In addition, apply technical specifications:

- Use narrow spectrum light sources to lower the range of species affected by lighting.
- Use light sources that emit minimal ultra-violet light
- Lights should peak higher than 550 nm
- Avoid white and blue wavelengths of the light spectrum to reduce insect attraction and where white light sources are required in order to manage the blue short wavelength content they should be of a warm / neutral colour temperature <4,200 kelvin.

5.1.4 Breeding Birds

Active House Sparrow nests were recorded within the application area during the preliminary walkover assessment. Sparrows (*Passer* sp.) are formally identified within the Barnsley Biodiversity Action Plan[8], and Red-listed Birds of Conservation Concern (BOCC5).

Although no other active nests were observed from ground level vantage points, the boundary trees onsite were also considered to provide suitable nesting habitat for breeding birds of Barnsley – of which there are known to be 27 species.

Onsite Reasonable Avoidance Methods (RAMs) should be followed by all onsite staff during the construction phase of the development and enclosed within a CEMP. The RAMs will include, but not limited to, the following safe working guidance, in order for the works to proceed in a legal and ecologically sensitive manner:

- Site works – including, but not exclusive to, vegetation clearance, ground works, building works and scaffolding construction – **must not take place during the breeding bird period**, deemed to be February to September, inclusive (dependent upon annual climate and weather fluctuations).

[7] Buglife (2011) *A review of the impact of artificial light on invertebrates*. Buglife.
Royal Commission on Environnemental Pollution (2009) Artificial light in the environment. London, HMSO
CPRE (2014) Shedding Light: A survey of local authority approaches to lighting in England.
[8] Barnsley Biodiversity Action Plan, Accessed at: http://www.barnsleybiodiversity.org.uk/species.html, August 2024.

- A **Breeding Birds Check** should be carried out by a qualified ecologist within 24 hours prior to the onset of works. If nesting birds are recorded within any vegetation due for removal, the area and surrounding **5m radius (minimum)** of the nest will be protected until the birds have fledged.

House Sparrow Terraces must be constructed on the northwestern aspect of B1 following the period of works. This will take the form of (minimum) **3x Woodstone Sparrow Nest Boxes** (from a reputable source, such as Wildcare – see: https://www.wildcare.co.uk/nature-harmonie-sparrow.html). Further information regarding installation and maintenance can be found in **Section 5.3.**

These House Sparrow targeting nestboxes will be installed approximately 15cm below the eaves of the roof on the main second storey section of B1, as closed to the identified nesting area as possible (see Figure 31, below).

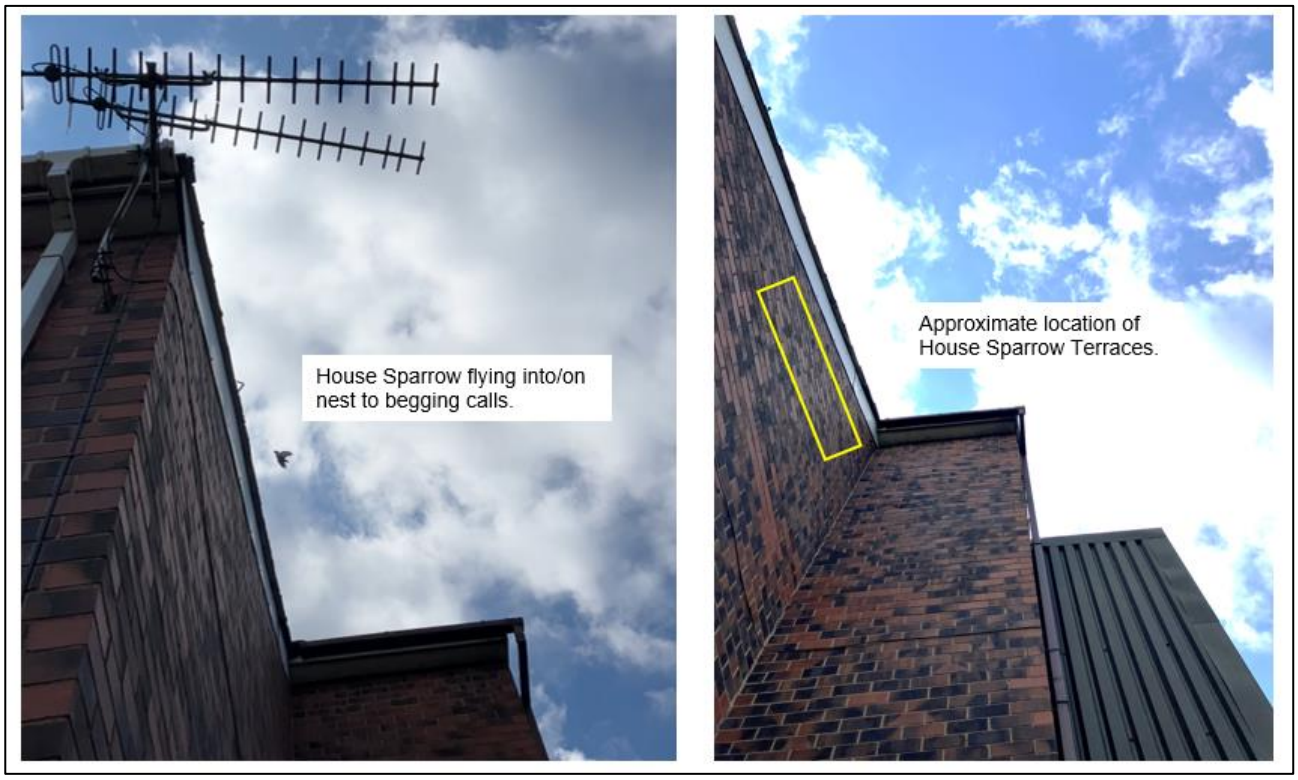


Figure 31: House Sparrows nesting onsite and indicative location for House Sparrow Terraces (mitigation).

Further foraging and nesting opportunities should be designed into the development through suitable planting and habitat creation (see Section 5.3).

5.1.5 Invertebrates

Despite the site comprising predominantly hardstanding, protected and local priority invertebrates and their foodplants (for example, Red Admiral Butterfly) remain present onsite: therefore, habitat and forage for invertebrates should be incorporated into landscape plans (see Section 5.3). The use of insecticide should be avoided.

Some species of invertebrates, such as solitary bees, are likely to use rubble piles and natural cracks in soil and stone in their life cycles. Rubble piles and stonework should be dismantled slowly, allowing any invertebrates opportunity to disperse.

Protection and enhancement of trees and their root area will also aid to support local invertebrate populations (see Section 5.1.6, below).

5.1.6 Trees

Mature trees should be retained and enhanced as part of the development: in particular, T5, T6 and T15 and neighbouring trees. Retained trees should be protected in line with BS5837:2012 *'Trees in relation to Design, Construction and Demolition -recommendations'.*

5.1.7 Ornamental Onsite Pond

A Construction and Environmental Management Plan (CEMP) should be produced to appropriately avoid any direct short-term impacts, such as soil leaching, surface run-off or pollution. By adhering to measures established within the CEMP, the impact of construction-related activities during the development phase will be considered to be reduced to negligible levels.

The CEMP will comply with the Environmental Agency's best practice guidance and will detail the implementation of a no-working buffer area, demarcated by signed Heras fencing along the riparian corridor. The CEMP will include, but not limited to, the following safe working guidance:

- Storage areas for chemicals (and similar) will be sited well away from the onsite pond and street-level, and stored on an impermeable base within an oil-tight bund with no drainage outlet.
- Silty water should be disposed of to the foul sewer.
- Re-fuelling of vehicles and plant(s) will take place in a designated area on an impermeable surface.
- The onsite pond and its banks will be kept free from dust, detritus, chemicals and all other pollutants.

5.1.8 Other Terrestrial Mammals / Hedgehog

To minimise the risk of killing or injury to small mammals such as European Hedgehog, a precautionary site clearance method will be implemented.

- Any suitable habitat such as brash or log piles will be carefully searched by hand. Any hedgehogs found during the search will be relocated to an area of retained habitat.
- Trenches or excavations left uncovered overnight will have a suitable means of escape (such as wooden plank).
- Opportunities for hedgehogs should be included in the development design, including holes at least 13cm in size retained in the boundary walls or fencing allowing hedgehogs continued passage around the Site and suitable planting to provide foraging and shelter for the species.

5.1.9 Biodiversity Net Gain

The site application site was assessed as having **3.44 Habitat Units**. The development proposals will see changes to the site landscaping, parking, and change of use of buildings. A Biodiversity Net Gain Summary should be prepared to support the planning application to ensure a minimum 10% net gain for biodiversity.

5.2 Summary of Recommendations

The below information will be required, either to support the planning application or form part of a planning condition. The information from Phase 2 protected species surveys (bats) will be collated and an Ecological Impact Assessment (EcIA) will be produced and submitted to support the planning application.

Ecological Receptor / Constraint	Timescales
Amphibians and Reptiles Reasonable Avoidance Methods (RAMs) to be undertaken. Enclosed within CEMP.	During construction Secured through appropriately worded condition of planning.
Biodiversity Net Gain Biodiversity Impact Assessment (BIA) report should be submitted to support the planning application	Submitted prior to planning approval.
Breeding Birds Pre-commencement check and Reasonable Avoidance Methods (RAMs) to be undertaken. Enclosed within CEMP. Mitigation and enhancements to be secured within LEMP.	Prior to and during construction Secured through appropriately worded condition of planning.
Badgers Pre-commencement check and Reasonable Avoidance Methods (RAMs) to be undertaken. Enclosed within CEMP.	Prior to construction. Secured through appropriately worded condition of planning.
Trees Existing mature trees should be protected in line with BS5837:2012.	Prior to and during construction.
Ornamental Onsite Pond Reasonable Avoidance Methods (RAMs) to be undertaken. Enclosed within CEMP.	Prior to and during construction Secured through appropriately worded condition of planning.
Foraging and Commuting Bats Soft-lighting strategy to be implemented during the construction phase and post-development use. Soft-lighting plan to be prepared by a competent lighting professional	Prior to and during construction Secured through appropriately worded condition of planning.
Roosting Bats 2x Presence / likely absence surveys to be undertaken. Protected Species Report	May – September (weather permitting). Submitted as part of planning application
Other Terrestrial Mammals / Hedgehogs Reasonable Avoidance Methods (RAMs) to be undertaken. Enclosed within CEMP. Enhancements to be secured within LEMP.	Prior to construction Secured through appropriately worded condition of planning.

Table 15: Summary of Ecological recommendations

5.3 Ecological Enhancement Opportunities

The following ecological enhancements should be incorporated into the proposed development to support the aims of Barnsley Biodiversity Action Plan and national biodiversity targets and legislation.

Invertebrates

Interventions from companies such as Grass Roof Company and/or Niche Environmental Services should be sought and incorporated into Landscape Plans to provide post-development habitat and forage for protected and priority invertebrates within areas of planting. This will in turn support other protected species in the area/onsite such as birds and bats. Habitat for solitary bees can be incorporated into planting areas to replicate areas of disturbed, sparsely vegetated ground, and rubble mounds currently onsite.

Floral species planted should include the foodplants of locally important and priority invertebrates such as the Lepidopterans listed in 4.5.5 such as Red Admiral Butterfly (common nettle, hop). Other floral species that support caterpillars of moths include Honeysuckle (*Lonicera periclymenum*), Heathers (*Erica*, *Calluna* sp.), and Hop (*Humulus lupulus*). For further guidance, Landscape teams should see Butterfly Conservation (https://butterfly-conservation.org/) .

Bug hotels and areas of dead wood can be introduced into planting areas to provide important habitats for a range of important invertebrates, for example *Coleoptera*. Leaf litter collected by gardeners should be retained where possible.

European Hedgehogs and Badgers

Terrestrial mammals can be supported onsite by providing areas of cover under planted shrubs, hedgerows and following the guidance above regarding supporting invertebrates onsite via planting provision, bare ground and good ecological management principles. Wildlife corridors adjacent to roads and cars can limit road traffic accidents. Gaps in fences between gardens should be provided where present to support hedgehog movement. Harvest mouse is a priority species in Barnsley, and can be supported via creation of long, tussocky grassland, native hedge-planting and management.

Birds

Suitable bird nesting habitat should be incorporated into the design plans. All nesting provision placed onto buildings will be positioned, generally, at least 3m from the ground level, ideally on the western or eastern elevations, and be free of climbing vegetation and out of reach of domestic animals. Starlings (*Sturnus vulgaris*) are named and targeted in the Barnsley BAP.

Nest box type and specification	Species supported	Recommendation details
Starling box (45mm entrance hole) https://www.nhbs.com/vivara-pro-woodstone-starling-nest-box	Starlings (*Sturnus vulgaris*)	Must be more than 1 box grouped together to encourage occupancy. Please follow installation guidelines. Height from the ground should be about 3 metres — avoid sites where foliage obscures the entrance hole - a clear flight path is important. Shelter your box from the weather — the front of the nest box should be angled vertically or slightly downwards to prevent rain from entering the nest box. It should be sheltered from prevailing wind, rain and strong sunlight.

Non-specific boxes; Small nest box(es) with hole (28mm and 32mm). https://www.nhbs.com/vivara-pro-seville-28mm-woodstone-nest-box https://www.nhbs.com/vivara-pro-seville-32mm-oval-woodstone-nest-box Open-fronted nest box https://shopping.rspb.org.uk/garden-bird-nest-boxes/rspb-robin-and-wren-diamond-nestbox.html	Some small passerines such as wrens prefer open nest boxes; standard box with holes support a range of species such as great tits (*Parus major*), nuthatches (*Sitta europaea*), coal tits (*Periparus ater*) and pied flycatchers (*Ficedula hypoleuca*).	Can be installed on trees or buildings. Height from the ground should be about 3 metres — avoid sites where foliage obscures the entrance hole - a clear flight path is important. Shelter your box from the weather — the front of the nest box should be angled vertically or slightly downwards to prevent rain from entering the nest box. It should be sheltered from prevailing wind, rain and strong sunlight.

Hedgerows and trees

Trees and native hedgerows provide good quality habitat for nesting birds, invertebrates, small mammals and hold biodiversity value in their own right. Where possible, this habitat should be further enhanced with additional native planting and incorporated into the plans for the development site. Hedgerows should follow a sustainable management plan that ensures nesting birds and small mammals are not disturbed or harmed: please see reputable sources such as the People's Trust for Endangered Species https://ptes.org/hedgerow/managing-hedgerows-top-tips/ for further guidance.

Bats

Low level or intermittent artificial lighting at night can be incorporated into road plans. Further detail on bat mitigation and enhancement will be informed by Further Bat Surveys.

Mechanism to secure Mitigation and Enhancement

The mitigation measures and enhancement opportunities set out above can be secured through appropriately worded planning conditions as part of any planning consents granted.

Further Bat Surveys will determine mitigation and enhancement measures required for any potentially roosting bats present onsite.

6 CONCLUSION

This Preliminary Ecological Appraisal has identified a number of ecological constraints as defined within Section 5 and specific avoidance, mitigation and compensation measures have been provided.

Avoidance is required for the following ecological constraints and will need to be included in the development of the site layout:

- Retention and protection of mature trees onsite;
- Retention and protection of onsite ornamental pond.

Further surveys are required to fully understand the ecological baseline of the site relating to bats. Once completed this will allow a Protected Species Survey Report to be carried out which can then be submitted in conjunction with the planning application.

Ecological enhancements have been included within Section 5. It is anticipated that planning conditions would be used to secure:

- A Construction Environmental Management Plan (CEMP) covering species and habitat reasonable avoidance measures, to be submitted and approved prior to construction commencing;
- Ecological Enhancements.

APPENDIX A – SPECIES LIST

Common Name	Scientific Name
Hedge Bindweed	*Calystegia sepium*
Common Nettle	*Urtica dioica*
Bramble	*Rubus fruitocosus*
Bush Vetch	*Vicia sepium*
Hawkbit	*Leontodon* sp.
Ash	*Fraxinus excelsior*
Rowan	*Sorbus aucuparia*
Sycamore	*Acer pseudoplatanus*
Horse Chestnut	*Aesculus hippocastanum*
Wild Cherry	*Prunus avium*
Cock's-foot	*Dactylis glomerata*
Perennial Ryegrass	*Lolium perenne*
Fescue	*Festuca* sp.
Creeping Cinqfoil	*Potentilla reptans*
Dandelion	*Taraxacum* sp
Ribwort Plantain	*Plantago lanceolate*
Daisy	*Bellis perennis*
Clover	*Trifolium* sp
Self-heal	*Prunella vulgaris*

APPENDIX B – KEY SPECIES LEGISLATION

Bats
Bats are European Protected Species (EPS) listed on Annex IV of the Habitats Directive 1992 which is transposed into UK law by the Conservation (Natural Habitats &c) Regulations 1994 or "Habitats Regulations" and consolidated within The Conservation of Habitats and Species Regulations 2017. Bats are also protected through Schedules 5 and 6 of the Wildlife and Countryside Act (WCA) 1981 (as amended). Certain species are also listed in Section 41 of the NERC Act 2006, as species which are of principal importance for the conservation of biodiversity in England. A number of Bat species are listed as a Biodiversity Action Plan (BAP) priority species on the UK BAP.

Eurasian Badger *(Meles meles)*
Badgers are protected in the UK under the Protection of Badgers Act 1992 which protects both the individual animals and their setts. However, habitats used for any other purpose are not afforded any form of protection under this or other legislation. This species is also listed on Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) which outlaws certain methods of taking and killing when this is necessary.

Harvest Mouse *(Micromys minutus)*
Harvest mouse is listed as a species of principal importance for the conservation of biodiversity in England under Section 41 of the NERC Act 2006 and is also listed as a UK BAP priority species.

European Hedgehog *(Erinaceus europaeus)*
Hedgehog are listed as a species of principal importance for the conservation of biodiversity in England under Section 41 of the NERC Act 2006 and is also listed as a UK BAP priority species.

Birds
All bird species including their eggs and nests, are protected from harm during the breeding season under the WCA 1981 to varying degrees. Some bird species are also included on Schedule 1 of the WCA 1981 (as amended) and inclusion on this schedule makes it an offence to intentionally or recklessly disturb these birds at, on or near an 'active' nest. A number of birds are listed as species of principal importance for the conservation of biodiversity in England under Section 41 of the NERC Act 2006.

Reptiles
Widespread reptiles; Adder *(Vipera berus),* Grass snake *(Natrix natrix),* Common lizard *(Lacerta vivipara)* and Slow-worm *(Anguis fragilis)* are protected against killing, injuring and sale under UK legislation through their inclusion in Appendix III of the Bern Convention (1979), Schedule 5 of the WCA 1981 (as amended).

Sand Lizard *(Lacerta agilis)* and Smooth snake *(Coronella austriaca)* are also EPS listed on Annex IV of the Habitats Directive 1992 which is transposed into UK law by the Habitats Regulations**,** and on Schedule 5 of the WCA 1981 (as amended).
All reptiles are listed as UK BAP Priority species and are also listed as a species of principal importance for the conservation of biodiversity in England under Section 41 of the NERC Act 2006.

Amphibians
Widespread amphibians; Smooth newt *(Triturus vulgaris),* Palmate newt *(Triturus helveticus),* Common frog *(Rana temporaria)* and Common toad *(Bufo bufo)* are only protected from sale under Schedule 5 of the WCA 1981 (as amended). Common toad is also listed as a UK BAP Priority species.

Great crested newt *(Triturus cristatus)* and Natterjack toad *(Bufo calamita*) are also EPS listed on Annex II and IV and Annex IV respectively of the Habitats Directive 1992 which is transposed into U.K law by the Habitats Regulations, and on Schedule 5 of the WCA 1981 (as amended). Both are also

listed as a UK BAP Priority species and GCN are also listed as a species of principal importance for the conservation of biodiversity in England under Section 41 of the NERC Act 2006.

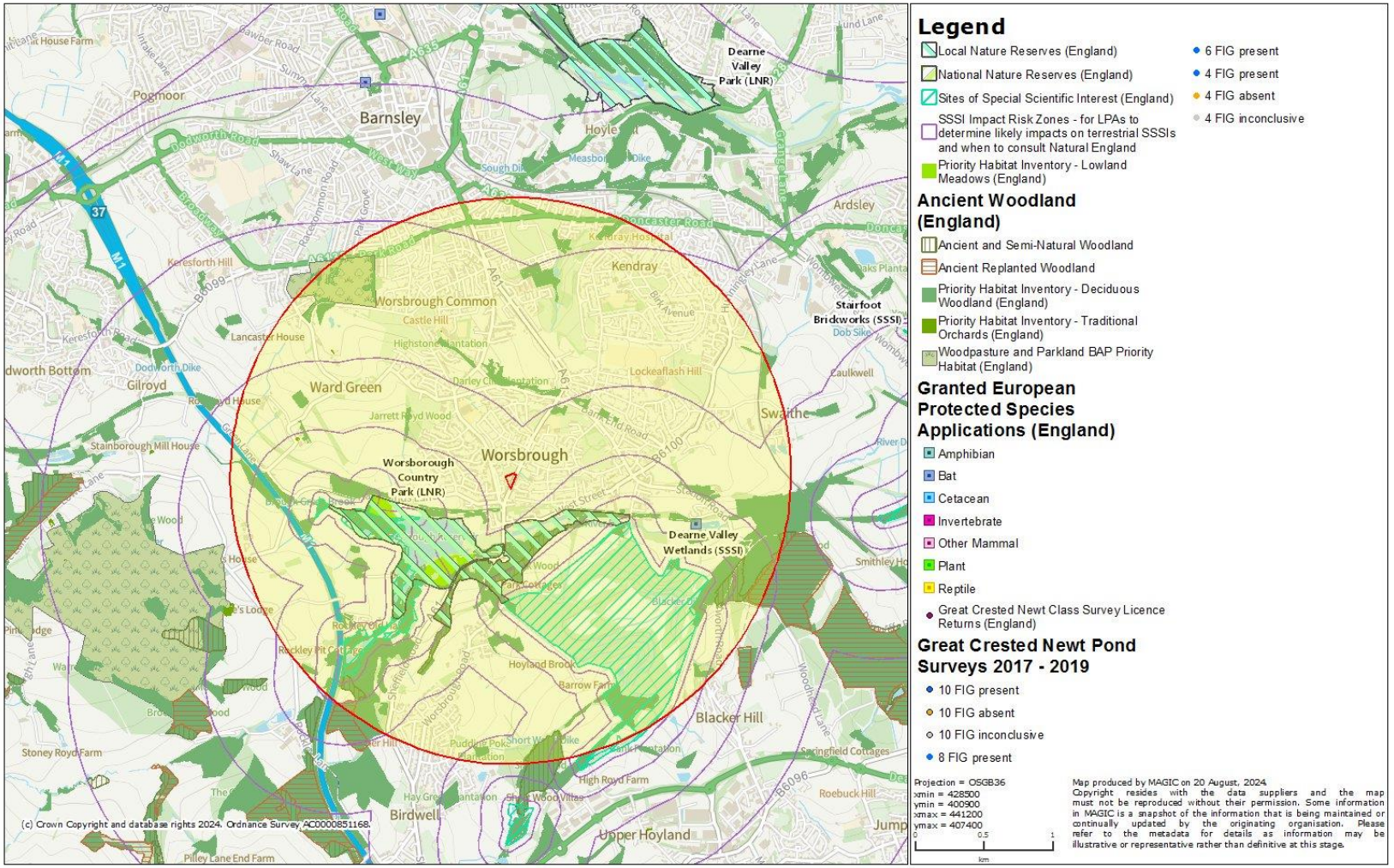
Invertebrates

A large number of British invertebrates are protected under Schedule 5 of the WCA 1981 (as amended). Different species are protected under one, some or all of the parts of Section 9. Hundreds of invertebrate species are of principal importance for the conservation of biodiversity in England under Section 41 of the NERC Act 2006. Similarly, several hundred are also listed as a UK BAP priority species.

APPENDIX C – MAGIC MAP

MAGIC

Rockley Dene, Worsborough, Barnsley



Legend

- Local Nature Reserves (England)
- National Nature Reserves (England)
- Sites of Special Scientific Interest (England)
- SSSI Impact Risk Zones - for LPAs to determine likely impacts on terrestrial SSSIs and when to consult Natural England
- Priority Habitat Inventory - Lowland Meadows (England)

Ancient Woodland (England)

- Ancient and Semi-Natural Woodland
- Ancient Replanted Woodland
- Priority Habitat Inventory - Deciduous Woodland (England)
- Priority Habitat Inventory - Traditional Orchards (England)
- Woodpasture and Parkland BAP Priority Habitat (England)

Granted European Protected Species Applications (England)

- Amphibian
- Bat
- Cetacean
- Invertebrate
- Other Mammal
- Plant
- Reptile
- Great Crested Newt Class Survey Licence Returns (England)

Great Crested Newt Pond Surveys 2017 - 2019

- 10 FIG present
- 10 FIG absent
- 10 FIG inconclusive
- 8 FIG present
- 6 FIG present
- 4 FIG present
- 4 FIG absent
- 4 FIG inconclusive

Projection = OSGB36
xmin = 428500
ymin = 400900
xmax = 441200
ymax = 407400
0 0.5 1
km

Map produced by MAGIC on 20 August, 2024
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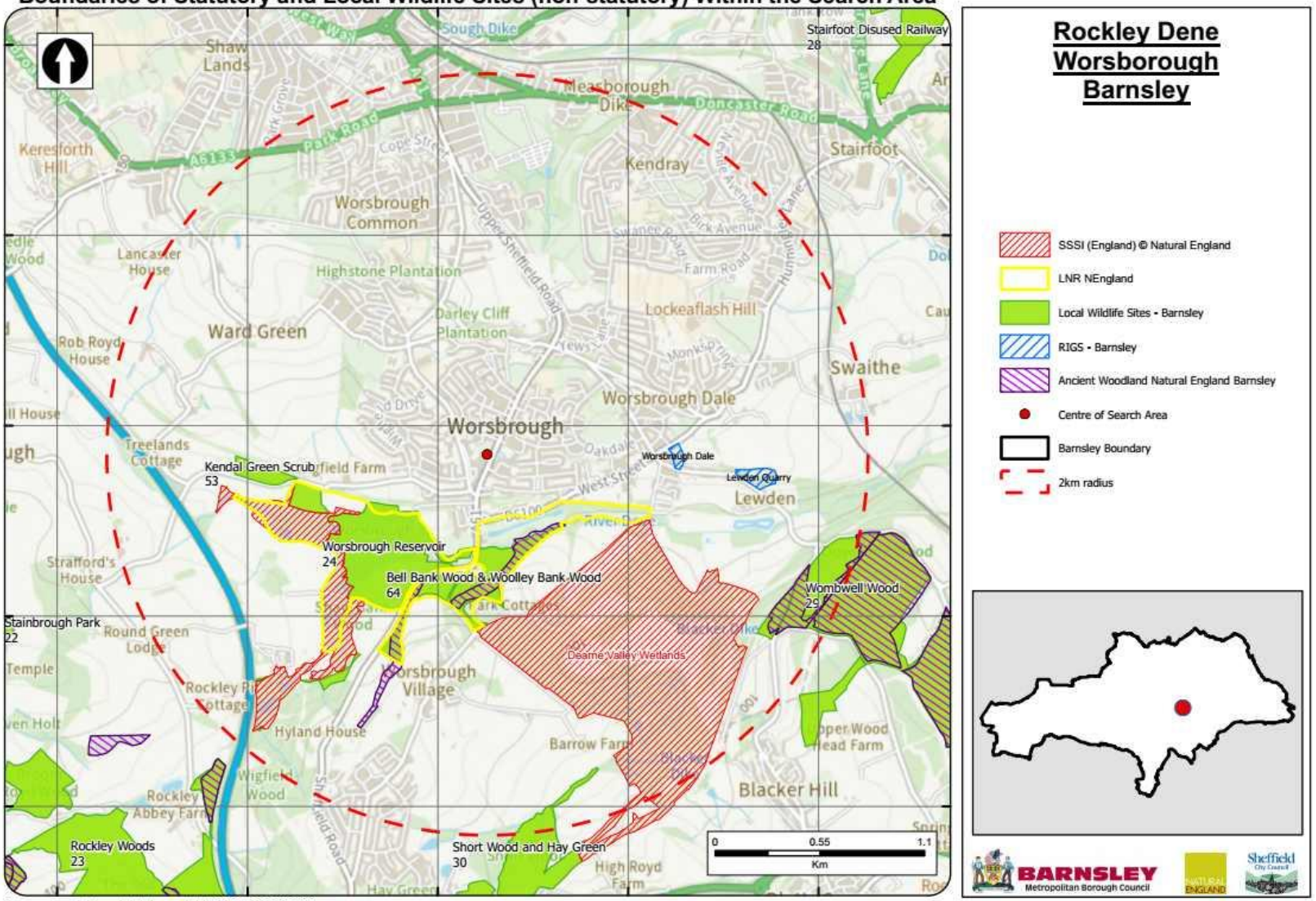
APPENDIX D –

Boundaries of Statutory and Local Wildlife Sites (non-statutory) Within the Search Area



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APPENDIX E - UKHABS MAP