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EXECUTIVE SUMMARY

This report presents the results of a preliminary ecological appraisal, comprising a background data search and a Phase 1 habitat survey with an assessment for protected species. The survey was carried out on 26 April 2022. This report has been produced to support a planning application for a new carpark at Yusen Logistics Warehouse, Derby, DE65 6BG. The appraisal was based on the red line boundary plan of the development site (from now on referred to as the 'site').

The site is located adjacent to an active warehouse and is predominantly surrounded by agricultural fields. Habitats within the site comprise bare ground, poor semi-improved grassland, tall ruderal, defunct species-poor hedge, scattered scrub, dense scrub and a brook/wet ditch.

The site has the potential to support bats, nesting birds, great crested newts, and reptiles. Mitigation and enhancement measures are proposed to prevent harming these species.

Further surveys to determine the extent of potential constraints, and to inform the planning decision, are recommended as follows:

- One dusk emergence survey and one dawn re-entry survey for bats on the Ash tree just outside the site's north-western corner (SK298315).

Precautionary mitigation measures proposed include:

- Vegetation clearance to occur in September to avoid disturbing breeding birds or hibernating amphibians and reptiles;
- Vegetation clearance to be supervised by a great crested newt licensed ecologist and involve hand searches and two-stage clearance;
- Covering any excavations overnight, or providing a suitable ramp, to allow trapped animals to escape; and
- Implementing a sensitive lighting scheme.

Enhancement opportunities are suggested to meet any requirement for biodiversity net gain, including:

- The planting of native species on the site;
- Enhancing the existing hedgerow and planting new trees and hedgerows on the site;
- Planting strips of rough native grassland along natural linear features; and
- Creating a semi-natural buffer between the proposed development and adjacent landscape.

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1.0 INTRODUCTION

1.1 Purpose of this report

- 1.1.1 This report presents the results of a preliminary ecological appraisal (PEA), comprising a background data search and a Phase 1 habitat survey, with assessment for protected or otherwise notable species, at Yusen Logistics' warehouse in Derbyshire (Grid Ref SK301313). The survey area included the land within the red line boundary (the site). The site and survey area are shown in *Figure 1*. The ditch running along the northern boundary was assessed for its suitability to support great crested newts (*Triturus cristatus*) and a ground-level assessment of all trees potentially suitable for bats within the site and along the boundaries was made.
- 1.1.2 The report identifies ecological constraints relevant to the project, specifies any further survey or mitigation requirements (e.g., for any Ecological Impact Assessment), gives recommendations for avoidance and protection through design changes, and suggests opportunities for ecological enhancement, in particular to deliver biodiversity net gain. The appraisal was carried out on behalf of Yusen Logistics.

1.2 Landscape context

- 1.2.1 The 0.9 ha site is located to the south-west of the city of Derby. The site is dominated by bare ground, poor semi-improved grassland, and tall ruderals. There is one wet ditch running along the northern edge of the site.
- 1.2.2 The site is situated adjacent to an active warehouse. The immediate adjacent fields are agricultural, and a Toyota warehouse is located c. 600 m to the south-west. The villages of Findern and Burnaston are located c. 1.1 km to the south, and north of the site respectively. The A38 (Burton Road) runs within 300 m of the site's south-eastern corner. Findern Lane, a minor road, borders the site directly along its western border. A line of trees borders the northern edge of the site, and a hedgerow runs along the southern edge with a large property behind it. The surrounding landscape is rural with a mixture of farmland, hedgerows, lines of trees, and some scattered residential properties.

1.3 Development proposals

- 1.3.1 The development proposals comprise a new carpark of c. 0.4 ha, to increase existing carpark capacity, bordered by a new 2.4 m high perimeter fence. A 4.5 m wide landscaping strip atop a 1.2 m high berm is proposed along the southern border of the site. These development proposals are presented in 'Proposed Site Plan – Drawing No 1099921/ALM/P01' (CS2 Limited, 2021).

2.0 METHODS

2.1 Overview

- 2.1.1 The PEA was undertaken in line with guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017); it therefore included:
- a desk study (here called a background data search (BDS)), which included a review of aerial photographs; obtaining information from the DEFRA and JNCC websites, and requesting data from the local records centre; and
 - a field survey that informed habitat mapping, an assessment of the possible presence of protected or priority species and the likely importance of habitat features.
- 2.1.2 The PEA report includes an ecological description of the site and information about species that may occur there. Notes and mapping of any incidental sightings of invasive non-native plant species and protected or priority fauna species are also provided.
- 2.1.3 The survey was carried out on 26 April 2022 by Kallum Buxton. Kallum is a suitably qualified and experienced ecological consultant, a member of CIEEM, and is experienced in carrying out preliminary ecological appraisals.

2.2 Background data search

- 2.2.1 A search was made in April 2022 for relevant reference materials. A list of sources is given in *Table 1*.

Table 1. Data sources

Information obtained	Available from
Protected and noteworthy species-records	Derbyshire Biological Records Centre
MAGIC (the Multi-Agency Geographic Information website) to view statutory designated nature conservation sites	www.magic.gov.uk
Nationally designated site locations and citations	Derbyshire Biological Records Centre
European and Internationally designated site locations and citations	Joint Nature Conservation Committee (JNCC) website
Local Designated site locations and citations	Derbyshire Biological Records Centre
Designations and legal protection of noteworthy species	Joint Nature Conservation Committee (JNCC) website
Details of species and habitats listed on the LBAP	Lowland Derbyshire Biodiversity Action Plan
Local planning guidance and policies	South Derbyshire District Council
Aerial photography	As a viewer only, sources include: www.google.com ; Google earth. Where reproduced as figures, sources vary and be licensed through ArcGIS, as stated.

- 2.2.2 A search was made for the following national and international statutory designated sites of ecological importance within 2 km and 5 km of the site boundary respectively: Sites of Special Scientific Interest (SSSI), including consideration of SSSI risk zones, and Ramsar sites, Special Areas of Conservation (SAC), and Special Protection Areas (SPA)¹.
- 2.2.3 A search was also made for non-statutory designated sites (often important in a local context) within 1 km of the site boundary. The distances were selected as the site is small and development there is unlikely to have large fragmentation effects on the surrounding habitat.
- 2.2.4 The BDS also included a search for records within 1 km of the site boundary of noteworthy species, which might pose a constraint to the proposed development. Species included in the search were:
- European protected species (listed on Schedules 2 and 5 of The Conservation of Habitats and Species Regulations 2017 (as amended));
 - nationally protected species under Schedules 1, 5 and 8 of The Wildlife & Countryside Act 1981 (as amended) and The Protection of Badgers Act 1992;
 - species listed as critically endangered, endangered or vulnerable based on the IUCN Red List Categories and Criteria 2001;
 - all species listed on the RSPB's Birds of Conservation Concern 5 (Stanbury *et al.*, 2021) as red' or 'amber';
 - nationally rare or nationally scarce species;
 - notable² invertebrates; and
 - species of principal importance listed under The Natural Environment and Rural Communities (NERC) Act 2006 or priority species under the relevant local biodiversity action plan (Lowland Derbyshire Biodiversity Partnership, 2011).

2.3 Plants and habitats

Phase 1 habitat survey

- 2.3.1 A Phase 1 habitat survey of the site was carried out. This involved systematically walking over the site and classifying each parcel of land according to the standard JNCC Phase 1 survey methodology (JNCC, 2010). Notes were made on the structure and composition of habitats and a botanical species list was collated. This field survey was undertaken in line with CIEEM 2017 and involved the following elements:
- habitat mapping using a set of standard colour codes to indicate habitat types on a habitat map (*Figure 2*); and
 - a description of features of possible ecological or nature conservation interest in notes relating to numbered locations on the habitat map, called 'target notes'.

¹ SACs and SPAs were formerly called 'European Sites' and part of the Natura 2000 network; post-'Brexit', they are now considered part of the UK's 'national site network'. Ramsar sites are sites of international importance. See Appendix A for details. Note that SPAs, SACs and Ramsar sites are also underpinned by SSSI designations whose citations/boundaries may be slightly different.

² Appendix C includes a description of 'notable' as used in this context.

- 2.3.2 Vascular plant species were recorded during the survey, although no attempt was made to produce an exhaustive species list (additional species would almost certainly be found during more detailed surveys or repeat surveys at various times of the year). A plant species list for those species that were recorded within the site is given in Appendix F.
- 2.3.3 Plant nomenclature in this report follows Stace (2019) for native and naturalised species of vascular plant. Introduced species and garden varieties were identified using relevant Floras. Plant names in the text are given with common names only, with scientific equivalents listed in a table in Appendix F. Doubtful identifications are preceded by 'cf.' placed before the specific epithet where the plant is very probably the species indicated, but it could not be distinguished from similar members of the genus with certainty.

Invasive non-native species (INNS)

- 2.3.4 Phase 1 habitat survey does not involve exhaustive surveying for individual plant species, and various invasive species may be little in evidence at various times of year (depending on the species). A survey seeking to identify habitat types cannot therefore be relied upon to provide firm information about the presence or extent of any INNS. However, any INNS that were encountered during the habitat survey, such as Japanese Knotweed, Giant Hogweed and Himalayan Balsam, were noted, as were any invasive non-native species of animals.

2.4 Protected and notable animals

General

- 2.4.1 The site was assessed for its suitability to support protected or otherwise notable animals that are likely to occur in the area. Taking into account the results of the BDS, the geographic location, connectivity to natural habitats in the wider landscape, the nature and extent of habitats at the site, and the proposed development, specific assessment was also carried out for the species/species groups outlined below.

Invertebrates

- 2.4.2 The site was assessed for its suitability to support notable species and/or assemblage of invertebrates, but no specific surveys were undertaken. The habitat requirements of particular invertebrates are often species-specific, so consideration was given to the presence of features and habitats that might be suitable for the notable species identified in the BDS.

Great crested newts

- 2.4.3 Although standing water is essential for their breeding, great crested newts are terrestrial for most of the year and have been recorded up to 500 m from their breeding ponds. Ordnance Survey maps and aerial imagery was reviewed to identify any ponds within 500 m of the site boundary, and the site was assessed for its suitability for both terrestrial and breeding great crested newts. Optimal breeding ponds tend to be well-vegetated, relatively clean and unpolluted, free of fish and wildfowl, and retentive of water throughout most summers (but not necessarily all). Highly suitable terrestrial habitats include woodland, scrub and tussocky grassland, although great crested newts can be

found in a broad range of sub-optimal habitats as well. Habitat suitability for other amphibians was similarly assessed.

- 2.4.4 Water features were assessed to determine whether they were suitable for great crested newts using the habitat suitability index (HSI) methodology developed by Oldham *et al.* (2000). This comprises a numerical index, where 0 indicates unsuitable habitat and 1 represents optimal habitat.
- 2.4.5 There is a positive correlation between HSI scores and presence and abundance of great crested newts in ponds. Generally, ponds with high HSI scores are likely to support larger populations. However, the relationship is not sufficiently precise to conclude that any pond with a high HSI will support newts in high populations, or that any pond with a low score will support low numbers of newts or no newts at all.

Reptiles

- 2.4.6 The site was assessed for its suitability for the four most widespread reptile species, with particular attention given to those features that provide suitable basking areas (*e.g.*, south-facing slopes), hibernation sites (*e.g.*, banks, walls, piles of rotting vegetation) and opportunities for foraging (*e.g.*, rough grassland and scrub).
- 2.4.7 Specific habitat requirements differ between species. Common lizards (*Zootoca vivipara*) and slow-worms (*Anguis fragilis*) favour rough grassland. Grass snakes (*Natrix helvetica*) have broadly similar requirements, with a greater reliance on ponds and wetlands. Adders (*Vipera berus*) use a range of fairly open habitats with some cover but are most often found in dry heath.

Birds

- 2.4.8 Birds nest, forage and roost in a wide variety of habitats including scrub, woodland, hedgerows and trees, wetland, arable and pastoral farmland and rough grassland. Some species also use open bare ground and man-made structures.
- 2.4.9 The site was assessed for its suitability to support diverse assemblages and/or uncommon species of breeding and non-breeding birds, with an emphasis on those species that are listed on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended), the red and amber lists of the RSPB's Birds of Conservation Concern 5 (Stanbury *et al.*, 2021) and other notable species recorded in the BDS, including any species that are qualifying features of nearby designated sites. Consideration was given to the site's connectivity to landscape features that are likely to be of particular importance to birds, such as extensive areas of semi-natural woodland or wetlands. The presence of nests or signs of nest building were recorded if encountered.

Bats

- 2.4.10 Habitats were assessed for their suitability for foraging and commuting bats, in line with guidance provided in Collins (2016). Areas of particular interest vary between species, but generally include sheltered areas and habitats with good numbers of insects, such as woodland, scrub, rivers and species-rich or rough grassland.

2.4.11 Trees were noted if they had potential suitability for roosting bats (Collins, 2016). This involved identifying features that roosting bats may favour (e.g., holes, cracks and cavities that might be used as bat access-points or roost sites).

2.4.12 There were no buildings on the site, so these are not considered in this report.

Ground-level tree surveys

2.4.13 All trees within the site were surveyed from ground level. Features that might be used by roosting bats were described and categorised according to accepted guidelines (Collins, 2016). Each tree was given a category during the ground-level surveys (see Table 2) based on its potential for roosting bats.

2.4.14 Trees may also be categorised as having *unknown potential* if the surveyor's view of the tree is obscured. This can be caused by dense Ivy (*Hedera helix*) covering the trunk and major limbs so as to conceal potential roosting features from view.

Table 2. Categorisation of the suitability of trees for roosting bats (Collins 2016)

Category (Potential to support roosting bats)	Description
Negligible suitability	Negligible habitat features on site likely to be used by roosting bats.
Low suitability	A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.
Moderate suitability	A tree 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 for 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).
High suitability	A tree 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.
Confirmed roost	Bats or evidence of bats recorded during the initial inspection surveys or during dusk/dawn surveys. A confirmed record (supplied by records centre/local bat group) would also apply.

Dormice

2.4.15 Habitats were assessed for their general suitability for dormouse (*Muscardinus avellanarius*). Dormice generally use areas of dense woody vegetation cover (including hedgerows) and are more likely to be found where there is a wide diversity of woody species contributing to three-dimensional habitat complexity, a number of food sources, plants suitable for nest-building material, and good connectivity to other areas of suitable habitat.

Water voles and otters

2.4.16 Waterbodies and watercourses and their surrounding habitats were assessed to determine whether they were suitable for water voles (*Arvicola amphibius*). Suitable habitats include vegetated earth banks, reed beds, flowing water and wet ditches.

Incidental signs of water vole activity, including burrows, feeding platforms, food remains and latrines, were recorded if they were encountered.

- 2.4.17 Waterbodies and watercourses on the site were also assessed for their suitability for otters (*Lutra lutra*). Otters require clean rivers and associated waterbodies with an abundant, varied supply of food and plenty of bank-side vegetation, offering secluded sites for their holts. Other suitable habitats include reed beds and interconnected ditches and streams. Incidental signs of otter activity, including holts, foraging signs, paths (runs), footprints and spraints, were recorded if they were encountered.

Badgers

- 2.4.18 An initial assessment was carried out to identify areas that might be used by badgers (*Meles meles*) for commuting, foraging or setts within 30 m of all areas potentially affected by works (where access was possible). The area was systematically searched for signs of badgers including setts, foraging signs, paths (runs) and latrines where possible, and the category of sett and levels of activity visible at each sett was recorded.

Other species of Principal Importance

- 2.4.19 The UK countries of England, Wales, Scotland and Northern Ireland are obliged by their individual laws to maintain lists of species and habitats of principal importance for biodiversity conservation. In England, this obligation derives from the NERC Act 2006. An assessment of the suitability and likelihood of the site supporting such species was made (for example, hedgehog (*Erinaceus europaeus*)).

2.5 Constraints and limitations

- 2.5.1 Less conspicuous plant species (including INNS) may have been missed as a result of the survey being undertaken outside of the ideal survey season. However, the majority of plants present were confidently identified, and the survey was sufficient to make a broad assessment of the habitats present on the site.
- 2.5.2 This preliminary appraisal as to whether protected or otherwise notable species might occur on the site is based on the suitability of habitat, the known distribution of relevant species in the local area (from online sources and desk study), and any signs of the relevant species. It does not constitute a full and definitive survey of any protected species group.
- 2.5.3 Field signs for protected and valuable species are often difficult to find or absent from a site. The survey conducted was not intended to be a comprehensive presence/absence survey for all species, but rather to provide an indication of the likely presence of such species based on the field signs found, and the nature of the habitats present.
- 2.5.4 Access was not made to adjacent land, and therefore it remains possible that a badger sett (or other evidence of protected or notable species) beyond the site boundary could have been missed.
- 2.5.5 All recommendations made in this report are based on the proposed site layout plan (CS2 Limited, 2021) provided. If the plans change significantly, then an ecologist must be consulted, and further surveys may be required.

3.0 RESULTS

3.1 Background data search

Statutory and non-statutory designated sites

- 3.1.1 There are no statutory, nor non-statutory designated sites within the search areas outlined in Section 2.2 of this report.

Protected and notable species

- 3.1.2 At least 13 noteworthy species have been recorded from places within 1 km of the site boundary. Noteworthy species include species of principal importance that are listed under Section 41 of The Natural Environment and Rural Communities (NERC) Act 2006.
- 3.1.3 Of these, one is amphibian, four are birds, and seven are mammals (of these, three are bats) and one is a plant. Species that are protected by law under Schedules 2 and 5 of The Conservation of Habitats and Species Regulations 2017 (as amended), Schedules 1, 2, 5 and 8 of The Wildlife and Countryside Act 1981 (as amended) or The Protection of Badgers Act 1992 that have been recorded in the search area are highlighted in full in *Appendix B*. Those of relevance to the site and the current proposals are discussed further below.

3.2 Plants and habitats

Phase 1 habitat survey

- 3.2.1 The Phase 1 habitat map is provided as *Figure 2* and shows the location of the target notes referred to in the text below. A full description for each of the target notes is given in *Appendix D*. The site comprises the following: bare ground, poor semi-improved grassland, tall ruderal, defunct species-poor hedge, scattered scrub, dense scrub and a brook/wet ditch. The surveyor was informed that the site is managed once a year by cutting and scraping.

Bare ground

- 3.2.2 Bare ground covers a large portion of the north-east section of the site (Photo 3). Sporadic patches of (cf.) Dead-nettle, Bramble, Cleavers, (cf.) Thistle, Greater Plantain, and Ivy were present.

Poor semi-improved grassland

- 3.2.3 This habitat was dominated by Meadow Foxtail grass, up to c. 25 - 30 cm tall in places (Photo 12). Species present included Common Nettle, Common Vetch, Cow Parsley, Cleavers, Dandelion, Broad-leaved Dock, and Spear Thistle.

Tall ruderal

- 3.2.4 Sections of tall ruderal were present in the north-west, and along the southern boundary (Photo 13 and Photo 14). In the northern section, the habitat was dominated by Common Nettle and Hogweed, with interspersed Meadow Foxtail, Cleavers, and Cow parsley. In the southern section the habitat was dominated by Common Nettle, with the same species mentioned above present, plus (cf.) Forget-me-not and Herb-Robert.

Defunct species-poor hedge

- 3.2.5 The hedge bordering Findern Lane to the west was dominated by Hawthorn and cut yearly (Photo 7). Willow and Prunus sp. were also present in the hedgerow, with an understory of Common Nettle, (cf.) Willowherb, Red Campion, Cleavers, Cow Parsley, Meadow Foxtail.

Scattered scrub

- 3.2.6 There were sections of scattered scrub in the centre and east of the site. These were dominated by Bramble scrub, Prunus sp. saplings, with sections of (cf.) Willowherb, Common Nettle, and Broad-leaved Dock.

Dense scrub

- 3.2.7 Dense scrub was present in the south-east corner of the site (Photo 8). It was composed of dense Hawthorn and Bramble with one mature Ash tree in the south-east corner (Photo 1). A pile of fence panels covered in brash was present in this corner (Target Note Photo 7 and Photo 6Photo 6).

Brook / wet ditch

- 3.2.8 A shallow wet ditch, c. 1 m in width, ran along the north of the site (Photo 9 and Photo 10). No aquatic vegetation was present. The surveyor was informed that the old cesspit (Target Note 1 and Photo 15) on site discharged into this, and the new one (Target Note 2 and Photo 16) discharges detergent when full.

Hedgerows Regulations

- 3.2.9 No hedgerows were recorded on site as 'important' under the Wildlife and Landscape Criteria of the Hedgerows Regulations 1997.

Invasive non-native species

- 3.2.10 No invasive species were noted during the survey.

3.3 Protected and notable animals

- 3.3.1 *Figure 2* shows the location of the target notes referred to in the text below, which show the location of particular features with suitability for protected and notable animals. A full description for each of the target notes is given in *Appendix D*.

Invertebrates

- 3.3.2 The BDS returned no records of protected or otherwise notable invertebrates within 1 km of the site. On site, the habitats present were considered likely to support only a common assemblage of invertebrate species, typical of bramble scrub and species-poor grassland and hedgerow habitats. Invertebrates are therefore not considered further in this report.

Fish

- 3.3.3 The only waterbody present on and around the site was the wet ditch running along the northern border of the site. This was highly unlikely to contain fish due to a lack of connectivity and the likely pollution from the cesspit discharge. Fish are therefore assumed to be absent from the site.

Great crested newts

- 3.3.4 The BDS revealed records of great crested newts within 1km of the site boundary. The wet ditch is suboptimal for great crested newts due to the lack of aquatic vegetation required for egg-laying and shelter. The water is also likely polluted from the cesspit discharge. Habitats within the site, including the grassland, scrub, and hedgerows, provide potentially suitable terrestrial habitat for great crested newts. Features such as the pile of fence panels (Target Note 7) could provide suitable refuge and hibernation site for great crested newts. However, no ponds were present. Based on a review of maps and aerial images, there are no ponds within a 500 m radius of the site that could provide potential breeding habitat for great crested newts. This species is therefore considered unlikely to be present on site.
- 3.3.5 The results HSI calculations for potentially suitable breeding ponds within 500 m of the site are shown in *Table 3*.

Table 3. HSI results for waterbodies within 500 m of the site.

HSI pond feature	Wet ditch
HSI score	0.51
Categorisation	Below average
Notes	Lack of aquatic vegetation and likely polluted water.

Reptiles

- 3.3.6 There have been no records of reptiles returned from the 1 km BDS search area. However, the site contains areas of bare ground, which provides good opportunity for reptile basking, and grassland and hedgerow which are good habitat for reptile hunting and shelter. Features such as the pile of fence panels (Target Note 7) are also suitable refuges and provide hibernation potential for reptiles. Reptiles may therefore be present on the site.

Birds

- 3.3.7 The BDS returned records of two priority bird species from within 1km of the site, including red kite (*Milvus milvus*) and fieldfare (*Turdus pilaris*).

3.3.8 Raven (*Corvus corax*), woodpigeon (*Columba palumbus*), chiffchaff (*Phylloscopus collybita*), robin (*Erithacus rubecula*), and blackbird (*Turdus merula*) were all spotted on site. A bird's nest was present within dense hawthorn scrub on the south-east corner of the site (Target Note 4 and Photo 4). This dense scrub and the hedgerow also provides opportunities for nesting birds, alongside some opportunity for ground-nesting birds in the grassland and bare ground.

Bats

3.3.9 The BDS returned records of the following bat species within 1km of the site:

- Nathusius Pipistrelle (*Pipistrellus nathusii*) (one record located c. 544 m east of the site);
- Brown long-eared (*Plecotus auritus*) (one record located c. 600 m east of the site);
- Barbastelle (*Barbastella barbastellus*) (two records both located c. 544 m east of the site); and
- A bat roost dated from 1995 (located where the current Toyota warehouse is; c. 780 m from the site).

3.3.10 One tree was identified with moderate bat roost potential, comprising an Ash tree just outside the site's boundary in the north-west corner (SK298315) (Target Note 6). The tree generally appeared in poor health. A branch on the west of the tree, overhanging Findern Lane, possessed a cavity which provided moderate potential for roosting bats (Photo 5 and Photo 11). Ivy covered the rest of the tree, which provided low to moderate potential for roosting bats.

Dormice

3.3.11 The site contained bramble scrub habitat and hedgerows that were potentially suitable for use by dormouse, although the site is outside the species' known range. Furthermore, no records of this species were identified within the 1 km BDS area. This species is therefore assumed to be likely absent from the site.

Water voles and otters

3.3.12 There is one record of water vole within 1 km of the site. However, the record is from 1984, so it provides little indication that water voles are still present nearby. The record was located in East Avenue Brook, Elvaston, which is c. 600 m away from the site. Works on site will not impact water vole here, if still present. The small wet ditch on site is unlikely to be suitable for water voles due to a lack of vegetation for foraging and the likelihood of pollution from the cesspit discharge. It is also disconnected from other suitable waterbodies.

3.3.13 The BDS returned no records of otter within 1 km of the site. Also, no suitable resting or lying up sites for otters were identified and no spraint or other evidence to suggest the presence of otters was found within or immediately adjacent to the site (within c. 30 m).

- 3.3.14 Given that the site predominately comprises bare ground, poor semi-improved grassland and scrub, with no identified aquatic habitat present, water voles and otters are assumed to be absent from the site.

Badgers

- 3.3.15 Badgers and their setts are protected under the Protection of Badgers Act 1992. The BDS returned one record of a badger sett from 1990 within 1 km of the site. The badger sett was recorded approximately 490 m from the site.
- 3.3.16 Mammal foraging signs were noted in the semi-improved grassland in the south-east of the site (Target Note 3 and Photo 2). These are most likely to be from rabbit but may also be from badger. No badger setts or other confirmed field signs (e.g., snuffle holes and latrines) of badger were noted across the site. Because of the lack of field signs, and the BDS record dating from 1990, it is assumed that badgers are likely absent from the site.

Other species

- 3.3.17 The BDS returned two records of brown hare (*Lepus europaeus*), both from 2004, and one record of European hedgehog from 2017.
- 3.3.18 Hedgehogs occupy a range of lowland habitats with enough cover to allow nesting; they are common in parks in urban and suburban environments, farmland and gardens. The scrub, grassland and hedgerow on the site provide suitable foraging habitat for hedgehogs. Hedgerows provide some connectivity to suitable habitat in the wider landscape, including agricultural fields. There may be opportunities for hedgehogs to hibernate in the dense scrub within the south-eastern part of the site and it may be likely that they are present.
- 3.3.19 Brown hares favour a mosaic of arable fields, grassland and woodland edges. The site itself provides some potentially suitable habitat for brown hares, alongside the neighbouring arable landscape, which provides far more extensive areas of suitable habitat. It is likely that brown hares are present in the wider landscape, although the site itself is unlikely to be of any particular importance to this species.

4.0 RECOMMENDATIONS

4.1 Key constraints to design and construction

Statutory and non-statutory sites

- 4.1.1 Given the lack of statutory and non-statutory designated sites within the BDS study area, such features do not pose any constraints to the proposed development plans.

Habitats

- 4.1.2 The habitats and plant species on site are not species-rich and have little intrinsic botanical value. They are common and widespread in the surrounding landscape.
- 4.1.3 Hedgerows qualify as local BAP priority habitats and/or habitats of principal importance, being listed under Section 41 of the NERC Act 2006. The hedgerow on site was recorded as defunct and species-poor but should be retained and enhanced where possible. It provides suitable habitat for mammals, reptiles, and amphibians. As it is a linear feature, it also provides good connectivity across the site and to the wider landscape and could potentially be used as a possible commuting route for bats and other wildlife.

Great crested newts

- 4.1.4 Great crested newts are a European protected species and are afforded protection under the Conservation of Habitats and Species Regulations 2017 (as amended) as well as the Wildlife and Countryside Act 1981 (as amended) (*Appendix A*). The wet ditch is considered largely unsuitable for great crested newts, so no further surveys are recommended. However, the grassland, scrub and hedgerow present suitable terrestrial habitat for great crested newts. Furthermore, there is a record of great crested newts c. 800 m from the site. Precautionary mitigation measures are therefore required when undertaking vegetation clearance. These are detailed in Section 4.3.

Reptiles

- 4.1.5 The site provides small areas of suitable habitat for reptiles. It is unlikely that reptiles are present on the site at a high density, since the potentially suitable areas of vegetation are so small. Further surveys to confirm the presence or likely absence of reptiles are therefore not considered necessary in this instance; however, all species of reptiles in the UK are afforded protection through domestic legislation (refer to *Appendix A*) and precautionary measures are required during construction to prevent the inadvertent killing or injuring of reptiles, in the event that low numbers are present on site during the works. These measures are detailed in Section 4.3.

Birds

- 4.1.6 All active birds' nests, regardless of species, are legally protected under Section 1 of the Wildlife and Countryside Act (1981) (refer to *Appendix A* for further details). A nest is deemed to be active even if it is in the process of being built and does not yet contain eggs or young. Any active nests must be retained and protected from damage or

abandonment until the young have fledged. Mitigation for nesting birds is detailed further in Section 4.3.

Bats

- 4.1.7 It is possible that the Ash tree on site (Target Note 6) supports roosting bats. Bats are afforded protection through the Conservation of Habitats and Species Regulations 2017 (as amended) as well as the Wildlife and Countryside Act 1981 (as amended) (see *Appendix A*). Since the ash tree is so close to the proposed development (c. 45 m away), it is possible that any roosting bats present could be disturbed by the works. Further surveys are therefore recommended to identify if any bats are roosting in this structure (detailed in Section 4.2), and if so, the mitigation measures that might be required as part of the design proposals.
- 4.1.8 Whilst it is unlikely that the site represents an important foraging or commuting resource for bats, a sensitive lighting scheme should be maintained during and after development to maintain dark commuting corridors, particularly along the hedgerow and brook boundary (further information in Section 4.3).

4.2 Further surveys required

- 4.2.1 Recommended further surveys are outlined below. Under current planning guidance and case law, a planning consent is likely to be obstructed or withheld at the time of the application if the results of required ecological surveys are unavailable. Given that many surveys can only be carried out at certain times of the year, it would be prudent to undertake these further surveys as soon as possible (unless it can be foreseen that it would make them out-of-date by the time of the application).

Bats

- 4.2.2 Although no evidence of bats was found during the survey, it concluded that the Ash tree just outside the site's north-west corner (SK298315) has moderate potential to support roosting bats. This tree will therefore require further surveys to inform an assessment of likely impacts and mitigation requirements for the proposed development.
- 4.2.3 The recommended bat surveys would comprise one dusk emergence and one dawn re-entry survey and would be carried out in-line with best practice guidance published by the Bat Conservation Trust (Collins, 2016) and by experienced licensed ecologists.
- 4.2.4 Bats are active from April to October (weather-dependent) and emergence and re-entry surveys are undertaken between May and September, within which the key survey period is May to August. The surveys can occasionally continue into early October if the weather remains mild. It is important to note that surveys later in the year (after August) are not sufficient on their own in many circumstances.
- 4.2.5 The dusk emergence and dawn re-entry surveys would involve watching and listening for bats leaving and / or re-entering potential roosting features. To ensure all potential bat access points of the tree are covered, two surveyors would be positioned at strategic points around the tree. In-line with best practice guidance, emergence surveys should commence c.15 minutes before sunset and continue for up to 90 – 120 minutes after; and re-entry surveys commence c.90 – 120 minutes before sunrise and continue for 15

minutes after. Bat detectors, recording equipment, and sound analysis software would be used to identify any bats present.

4.3 Mitigation requirements

- 4.3.1 The proposed works will be constrained by the legislative protection afforded to bats, nesting birds, great crested newts, and reptiles, as outlined in Section 4.1.
- 4.3.2 However, further surveys to confirm the absence of these species, with exception to roosting bats, are considered disproportionate to the risk of encountering them during the proposed works, which will occupy a small area and be short in duration. For this reason, the following precautionary mitigation measures are proposed.

Great crested newts

- 4.3.3 As a precaution, it is recommended that sensitive and phased clearance of vegetation on site is undertaken under the supervision of a great crested newt licensed ecologist. All vegetation, including the brash pile, should be searched by hand prior to removal. The vegetation should then be cleared in two phases, firstly with careful removal of scrub to 10cm in order to make it unattractive to amphibians, and a second cut (at the latest) a couple of days prior to any soil stripping. Heaps of stored materials and waste may provide refugia and should be removed by hand and as soon as possible after cutting. Once vegetation is removed, it should be maintained as bare ground to prevent species from returning.
- 4.3.4 Vegetation clearance for great crested newts should occur between February and October at temperatures above 5 degrees Celsius, when newts are active and able to leave the area during the phased clearance. It is therefore recommended that vegetation clearance occurs during September so as to coincide with the avoidance of the bird nesting season.
- 4.3.5 In the unlikely event that a great crested newt is found during the works, then work is to cease and further advice sought from the ecologist as to whether a great crested newt mitigation licence is required from Natural England.

Reptiles

- 4.3.6 In order to avoid the inadvertent killing or injuring of reptiles during the works, it is recommended that vegetation should be hand searched prior to clearance. It is also recommended that vegetation clearance be undertaken in two stages (as recommended for great crested newts) and overseen by an ecologist. Clearance should be done in September to avoid the nesting bird season, and the reptile and amphibian hibernation period. Heaps of stored materials and waste may provide refugia and should be removed by hand and as soon as possible after cutting. Once vegetation is removed, it should be maintained as bare ground to prevent species from returning.
- 4.3.7 Any excavations should not be left uncovered overnight, or 'escape ramps' (such as a plank of wood) should be placed in open excavations overnight to prevent the inadvertent trapping of reptiles and other animals.

Birds

- 4.3.8 All active birds' nests, regardless of species, are protected by UK law. To avoid impacts on nesting birds, vegetation on site should only be cleared outside of the nesting bird season, during the months of September to February. If any vegetation is to be cut during the nesting season (March to August inclusive), it will have to first be checked for nests by an ecologist no more than 48 hours prior to clearance. Any active nests must be protected from clearance by a suitable, species-specific buffer. If any bird's nest is discovered on site, works in that area should cease, and the advice of an ecologist should be obtained.

Bats

- 4.3.9 Further surveys (as detailed in Section 4.2) will be required to determine the extent of any impacts on bats, and the data gathered from these surveys used to determine appropriate impact avoidance, mitigation or compensation measures, or inform a licence application to Natural England.
- 4.3.10 Beyond the above consideration, in order to minimise the risk of disturbing foraging or commuting bats (if present), a sensitive lighting scheme should be maintained during and after development to maintain dark commuting corridors, particularly along the hedgerow and ditch boundary. The use of unnecessary lighting should be avoided, alongside the use of site lighting/working in the hours of darkness. If works are required in the autumn or winter months when light starts to fade before the end of the working day, the use of sodium lighting or floodlights should be avoided. Timers and bespoke dimming regimes may be used to ensure that lighting is reduced at times of predicted low use. These can be set to change with the seasons and therefore reflect the shifting time of dusk and dawn throughout the year. Directional lighting for specific tasks should be used where necessary. Directional lighting can be achieved by angle and orientation, use of a cowl, louvre or other light shield, or a combination of these. Light intensity should be as low as possible in order to undertake the works. Light sources selected should emit no ultra-violet light where possible. White and blue spectrum light should be avoided, but where white lights are required, these should be of a warm/neutral colour and have a peak wavelength of above 550 nanometres.

Other mammals

- 4.3.11 To minimise the risk of trapping animals such as badgers, hedgehogs and brown hare (if present), excavations should not be left open overnight. Failing that, 'escape ramps' should be placed in excavations to prevent the inadvertent trapping of animals.

4.4 Opportunities for enhancement

- 4.4.1 The effects of site clearance to facilitate the construction of the new carpark will result in the loss of small areas of semi-improved grassland and scrub. The small scale of habitat loss is not considered to be significant in the context of the surrounding habitat. The clearance works themselves could, however, result in adverse effects on animal species potentially present, such as amphibians, reptiles, nesting birds, bats and other mammals.

- 4.4.2 The planting of native species, including flower-, berry- and fruit-bearing species, would benefit mammals, birds and other noteworthy species and would help to offset the unavoidable habitat losses associated with the proposed development. Enhancing the existing hedgerow, and furthermore, planting trees and hedgerows on site would strengthen existing and create additional commuting and foraging corridors for many species, including bats and hedgehogs. These features should be kept as dark corridors and should have strips of rough native grassland planted adjacent to them to attract invertebrates.
- 4.4.3 Many species would benefit from the provision of a semi-natural buffer between the proposed development and the adjacent landscape. This would help protect retained habitats from potential adverse effects associated with proposed development, including noise and light spill.
- 4.4.4 The above enhancement measures could be designed and implemented on site by an ecological clerk of works.

5.0 CONCLUSIONS

- 5.1.1 The habitats and plant species on site are generally considered to be of low ecological value and are also likely to be present in the immediate surrounding area. Due to this, the lack of protected sites within 1 km of the site, and the small size of the site, it is unlikely that the development of a new carpark will have significant effects on the environment.
- 5.1.2 The possible presence of legally protected bats, nesting birds, great crested newts and reptiles pose minor ecological constraints to the development plans. Recommendations are given to mitigate and avoid effects on such species when undertaking works.
- 5.1.3 Further bat surveys are recommended (including one dusk emergence survey and one dawn re-entry survey) on the Ash tree in the north-west corner to confirm whether it is used by roosting bats.
- 5.1.4 Opportunities for enhancement are given in order to compensate for the loss of (albeit poor quality) habitat.
- 5.1.5 Unless the site changes significantly, the surveys carried out for this report should remain valid for at least 18 months, and potentially up to 3 years (CIEEM, 2019).

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FIGURES

Figure 1 Site Location Plan



Figure 2 Phase 1 Habitat Map



APPENDIX A – NATURE CONSERVATION LEGISLATION AND POLICY

International Legislation

The following international conventions and directives apply to biodiversity protection in the UK. Post-‘Brexit’, even though European Union (EU) directives no longer directly apply to the UK, the provisions therein are enshrined in both domestic legislation and international agreements. Legislation has been enacted to ensure the regulations derived from these remain in force.

The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) 1979

<https://www.coe.int/en/web/bern-convention>

The principal aims of the Bern Convention 1979 are to ensure the conservation and protection of wild plant and animal species and their natural habitats (listed in Appendices I and II of the Convention), to increase cooperation between contracting parties, and to regulate the exploitation of those species (including migratory species) listed in Appendix III. To this end, the Bern Convention imposes legal obligations on contracting parties, protecting over 500 wild plant species and more than 1,000 wild animal species. The UK Government ratified the Bern Convention in 1982.

National Legislation

The following pieces of domestic legislation apply to biodiversity protection in the UK.

The Wildlife and Countryside Act 1981

<https://www.legislation.gov.uk/ukpga/1981/69>

The Wildlife and Countryside Act 1981 (as amended) is the primary piece of legislation relating to nature conservation in the UK, though it has been adapted in different ways in the devolved administrations. It was initially enacted to implement the Bern Convention, Bonn Convention and the Birds Directive (described above).

The act is supplemented by provisions in the Countryside and Rights of Way (CROW) Act 2000 and the Natural Environment and Rural Communities (NERC) Act 2006. In addition to the Habitat Regulations (described below), the Wildlife and Countryside Act 1981 (as amended) provides protection for species listed in Schedules 1 (birds), 5 (other animals) and 8 (plants) of the Act. It provides for the notification and confirmation of Sites of Special Scientific Interest (SSSIs) in England and Wales. It also sets out, in other schedules, important and invasive species which are legally protected or require management.

All species of bird are protected under the Wildlife and Countryside Act 1981 (as amended). The legislation makes it an offence to intentionally:

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

Those species of birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) are afforded additional protection, which deems it an offence to intentionally or recklessly:

- a) disturb any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young; or
- b) disturb dependent young of such a bird.

Under Section 9 of the Wildlife and Countryside Act 1981 (as amended), for animals listed on Schedule 5, it is an offence in England and Wales to intentionally or recklessly:

- kill, injure or take any wild animal listed on Schedule 5;
- possess or control any live or dead those wild animals or anything derived from it;
- damage or destroy any structure or place which wild animals listed on Schedule 5 uses for shelter or protection*;
- disturb any such animal while it is occupying a structure or place of shelter or protection;
- obstruct access to any structure or place used by any such animal for shelter or protection; and
- sell, offer or expose for sale, or have in their possession or transports for the purpose of sale, any live or dead wild animal listed on Schedule 5 or any part of, or anything derived from such an animal.

Species commonly found on development sites include widespread species of reptiles: common lizard (*Zootoca vivipara*); slow-worm (*Anguis fragilis*); grass snake (*Natrix helvetica*); and adder (*Vipera berus*). These four reptile species receive partial protection, which prevents the intentional or deliberate killing and injuring of reptiles or offering them for sale.

Section 14(2) states that it is an offence to plant or otherwise cause to grow any plant in the wild at a place outside its native range.

There is no provision within the Act for derogation licences to be issued for the purposes of development, although Section 10 provides a defence in cases that may be considered to be: *“the incidental result of a lawful operation and could not reasonably have been avoided”* if certain conditions are met.

Section 16(i) of the Act does make provision for derogation licences to be issued *“for the purposes of preserving public health or public ... safety”*. For confirmation of this, it would be appropriate to consult Natural England.

The Conservation of Habitats and Species Regulations (Habitat Regulations) 2017

<https://www.legislation.gov.uk/ukxi/2017/1012>

The Habitats Regulations 2017 consolidated the various amendments made to the 1994 Habitat Regulations, which were developed to implement the Birds Directive and Habitats Directive (see above) at a national level.

The Regulations (as amended) provide for the designation and protection of the national site network (formerly ‘Natura 2000 sites’), the adaptation of planning and other controls for those sites, and the protection of EPS (listed on Schedules 2 and 5).

The 2017 Regulations (England and Wales, Reg. 43) deems it an offence to:

- a) deliberately capture, injure or kill a wild animal of a EPS,
- b) deliberately disturb wild animals of any such species,
- c) deliberately take or destroy the eggs of such an animal, or
- d) damage or destroy a breeding site or resting place of such an animal.

For the purposes of paragraph (b), disturbance of animals includes in particular any disturbance which is likely to:

- a) impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
- b) to affect significantly the local distribution or abundance of the species to which they belong.

There are also restrictions on transport, possession and sale.

It is possible to obtain a derogation licence from Natural England to permit activities which would otherwise contravene the regulations above, including for development purposes, when certain conditions are met. Failure to satisfy the Regulations and obtain a licence where required could result in prosecution and lead to fines and possible imprisonment.

Currently (2021), all EPS are also listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) (outlined above), though only some clauses of the Wildlife and Countryside Act 1981 (as amended) apply (Section 9 4(b), (c) and 5).

Countryside and Rights of Way Act 2000

<https://www.legislation.gov.uk/ukpga/2000/37>

The Countryside and Rights of Way (CROW) Act 2000 provides for public access on foot to certain land types, amends the law for public rights of way, increases protection for SSSIs, and strengthens wildlife enforcement legislation.

The Natural Environment and Rural Communities (NERC) Act 2006

<https://www.legislation.gov.uk/ukpga/2006/16>

The Natural Environment and Rural Communities (NERC) Act 2006, Section 40 requires that any public body or statutory undertaker in England must have regard to the purpose of conservation of biological diversity in a manner that is consistent with the exercise of their normal functions. This may include enhancing, restoring or protecting a population or a habitat. The intention is to help ensure that biodiversity becomes an integral consideration in the development of policies, and that decisions of public bodies work with the grain of nature and not against it.

As part of this duty, statutory undertakers must have regard to the list of habitats and species which are of principal importance for the purpose of maintaining and enhancing biodiversity. For England, the duty to compile such a list is captured under Section 41 of the NERC Act, which are accessible online via the National Archive³.

The Hedgerows Regulations 1997

<https://www.legislation.gov.uk/uksi/1997/1160/made>

The Hedgerows Regulations 1997 provide protection for 'important' hedgerows for which replanting is not a substitute. The 'importance' of a hedgerow depends upon several archaeological, wildlife and landscape criteria (which are outlined in the Regulations). The regulations deem it an offence to remove an 'important hedgerow' without prior notification to the relevant local planning authority.

3

<https://webarchive.nationalarchives.gov.uk/ukgwa/20140712055944/http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx>

Protection of Badgers Act 1992

<https://www.legislation.gov.uk/ukpga/1992/51>

Badgers and their setts are protected under the Protection of Badgers Act 1992. The key part of this legislation in relation to the proposed development are in Section 3, which deems it an offence to:

- a) damage a badger sett or any part of it;
- b) destroy a badger sett;
- c) obstruct access to, or any entrance of, a badger sett;
- d) disturb a badger when it is occupying a badger sett,
- e) intend to do any of those things or be reckless as to whether those actions would have any of the consequences listed above.

Derogation licences may be obtained from Natural England under Section 10 of the Act for the purpose of development, to permit activities which would otherwise be unlawful.

Note: there are additional provisions relating to badgers under the Wildlife and Countryside Act 1981 (as amended) Section 11 (Prohibition of certain methods of killing or taking wild animals).

The Wild Mammals (Protection) Act 1996

<https://www.legislation.gov.uk/ukpga/1996/3>

All wild mammals are protected by The Wild Mammals (Protection) Act 1996 (as amended). This makes it an offence to mutilate, kick, beat, nail, or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal.

National, regional and local policy and guidance of relevance

Planning policy relating to ecology and nature conservation is set out below.

National Planning Policy Framework 2021

Access via: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

The National Planning Policy Framework (NPPF) sets out the Government's planning policy in England at the national level. It does not contain specific policies for nationally significant infrastructure projects, which are determined in accordance with the decision-making framework in the Act and relevant National Policy Statements for major infrastructure, as well as any other matters that are relevant (which may include the NPPF). Section 15 (paragraphs 174-188) of the NPPF specifies the requirements for conserving and enhancing the natural environment through the planning and development process to minimise impacts on habitats and biodiversity.

Planning Practice Guidance

Accessed via: <https://www.gov.uk/government/collections/planning-practice-guidance>

The Planning Practice Guidance is a web-resource to support the NPPF, including guidance for Environmental Impact Assessments (<https://www.gov.uk/guidance/environmental-impact-assessment>) and the Natural Environment (<https://www.gov.uk/guidance/natural-environment>). The guidance for the Natural Environment explains key issues in implementing the NPPF to protect and enhance the natural environment, including local requirements. The guidance outlines what evidence needs to be taken into account in preparing planning applications to identify and map local ecological networks. It also outlines how biodiversity can be taken into account in preparing a planning application.

Government's 25-Year Environment Plan 2018

Accessed via: <https://www.gov.uk/government/publications/25-year-environment-plan>

The Government's 25-Year Environment Plan 2018 sets out how the UK Government intends to improve the natural health of the UK through improving land, air and water quality, as well as setting out how the effects of climate change will be tackled. The plan promotes the creation or restoration of wildlife-rich habitat outside the protected site network and seeks to recover threatened, iconic or economically important species of animals, plants and fungi, and where possible to prevent human induced extinction or loss of known threatened species in England. The plan sets out a number of goals and corresponding policies that look at managing land sustainably, improving and enhancing landscapes and biodiversity for both marine and terrestrial environments, improving resource efficiency and reducing waste and pollution, whilst also examining the UK's contribution to improving the global environment.

APPENDIX B – NOTEWORTHY SPECIES RECORDS

Table 4 displays noteworthy species records that are located within 1 km of the site boundary. These species records were obtained from Derbyshire Biological Records Centre. The scientific and common names for species are given as well as their level of designation. A glossary defining abbreviations used in the table is given in Table 5, Appendix C. If a species is not included in the table below it does not necessarily mean the species is absent from the search area, but that data-holding organizations do not have records of it in these locations.

Table 4. Noteworthy species records within 1 km of the site boundary

Scientific name	Common name	Designation	Most Recent
Plants			
<i>Rubus fruticosus</i> agg.	Bramble	Derbyshire Red Data Book plant species	1978
Amphibians			
<i>Triturus cristatus</i>	Great Crested Newt	European Protected Species	2010
Birds			
<i>Turdus pilaris</i>	Fieldfare	Schedule 1 WCA	2019
<i>Milvus milvus</i>	Red kite	Schedule 1 WCA	2020
<i>Turdus philomelos</i>	Song thrush	UK BAP	2001
<i>Alauda arvensis</i>	Skylark	UK BAP	2020
Mammals			
<i>Plecotus auritus</i>	Brown long-eared	European Protected Species	2016
<i>Pipistrellus nathusii</i>	Nathusius pipistrelle	European Protected Species	2020
<i>Barbastella barbastellus</i>	Barbastelle	European Protected Species	2020
<i>Arvicola amphibius</i>	Water vole	Schedule 5 WCA	1984
<i>Meles meles</i>	Badger	The Protection of Badgers Act 1992	1990
<i>Lepus europaeus</i>	Brown hare	UK BAP	2004
<i>Erinaceus europaeus</i>	Hedgehog	UK BAP	2017

APPENDIX C – ABBREVIATIONS

Table 5 displays abbreviations of protected species legislation.

Table 5. Glossary of abbreviations used in this report

Code	Full Title	Explanation
Amber	Amber list	Amber listed species have a population status in the UK of medium conservation concern.
BAP	Biodiversity action plan	A plan that identifies threats to significantly important species and habitats, and sets out targets and actions to enhance or maintain biodiversity.
ENG BSBI RDB	A Vascular Plant Red List for England	A list published in 2014 by the Botanical Society of Britain and Ireland of the red list status of plants in England. Measured against standardised IUCN criteria.
ENG BSBI RDB(CR)	Critically endangered	A BSBI Red List designation for species at an extremely high risk of extinction.
ENG BSBI RDB(EN)	Endangered	A BSBI Red List designation for species at a very high risk of extinction.
ENG BSBI RDB(VU)	Vulnerable	A BSBI Red List designation for species at high risk of extinction.
EPS (Sch 2)	European protected species (Schedule 2)	European protected species of animals, listed on Schedule 2 of The Conservation of Habitats and Species Regulations 2017.
EPS (Sch 5)	European protected species (Schedule 5)	European protected species of plants, listed on Schedule 5 of The Conservation of Habitats and Species Regulations 2017.
GB RDB	Red data book species	Species identified in one of the UK Red Data 2001.
GB RDB(CR)	Critically endangered	An IUCN Red List designation for species at an extremely high risk of extinction.
GB RDB(EN)	Endangered	An IUCN Red List designation for species at a very high risk of extinction.
GB RDB(VU)	Vulnerable	An IUCN Red List designation for species at high risk of extinction.
HAP	Habitat action plan	A plan that identifies threats to a priority habitat and sets out targets and actions to enhance or maintain that habitat.
IUCN	International Union for Conservation of Nature and Natural Resources	A worldwide partnership and conservation network to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.
LBAP	Local biodiversity action plan	A plan that identifies threats to locally important species and habitats, and sets out targets and actions in Species Action Plans and Habitat Action Plans to enhance or maintain biodiversity at the county or regional level.
Notable	Scarce and threatened invertebrates	Invertebrate species which are estimated to occur within the range of 16 to 100 10km squares but subdivision into Notable A and Notable B categories is not possible as there is insufficient information available).
Notable: A	Scarce and threatened invertebrates	Taxa which do not fall within Red Data Book categories but which are none-the-less uncommon in Great Britain and thought to occur in 30 or fewer 10km squares of the National Grid or, for less well-recorded groups, within seven or fewer vice-counties.
Notable: B	Scarce and threatened invertebrates	Taxa which do not fall within Red Data Book categories but which are none-the-less uncommon in Great Britain and thought to occur in between 31 and 100 10km squares of the National Grid or, for less-well recorded groups between eight and twenty vice-counties.
NN	Nationally notable	Designation for invertebrate taxa that are thought to be notably important in the UK.
NR	Nationally rare	Species in 15 or fewer hectads in Great Britain.
NS	National scarce	Species in 16-100 hectads in Great Britain.
Red	Red list	Red listed species have a population status in the UK with high conservation concern.
SAP	Species action plan	A plan that identifies threats to significantly important species, and sets out targets and actions to prevent losing that species to extinction.

Code	Full Title	Explanation
S41	Species of principal importance	Species of Principal Importance in England under The Natural Environment and Rural Communities (NERC) Act (2006)
UKBAP	UK biodiversity action plan	A plan that identifies threats to locally important species and habitats, and sets out targets and actions in species action plans and habitat action plans to enhance or maintain biodiversity in the UK.
WCA	The Wildlife and Countryside Act 1981 (as amended)	Containing 4 Parts and 17 Schedules, the Act covers protection of wildlife (birds, and some animals and plants), the countryside, National Parks, and the designation of protected areas, and public rights of way.

APPENDIX D – TARGET NOTES

The following target notes are shown in *Figure 2*.

Target Note 1 – Former brick-built filled in cesspit. Surveyor was informed that it leaks into the wet ditch in the north. Slightly raised earth bank with scrub.

Target Note 2 – Currently used cesspit of property to the south. Surveyor was informed that it leaks into the wet ditch in the north when full.

Target Note 3 – Mammal foraging signs.

Target Note 4 – Bird nest within dense hawthorn scrub.

Target Note 5 – Rabbit hole; appears unused.

Target Note 6 – An Ash tree with moderate bat potential. A branch cavity is present on a branch that overhangs Findern lane to the west, 8 m high (moderate potential for bats). General ivy cover is present on the rest of the tree (low-moderate potential for bats). Tree appears in poor health.

Target Note 7 – Pile of dumped fence panels.

APPENDIX E – SITE PHOTOGRAPHS



Photo 1. Ash tree just outside the north-west corner of the site.



Photo 2. Mammal foraging signs.



Photo 3. Bare ground, scattered scrub and wet ditch (right).



Photo 4. Birds nest on the eastern boundary.



Photo 5. Branch cavity in Ash tree.



Photo 6. Brash and fence panel pile.



Photo 7. Defunct species-poor hedgerow.



Photo 8. Dense hawthorn scrub in the south-eastern corner.



Photo 9. Wet ditch.



Photo 10. Wet ditch water quality.



Photo 11. Ash tree limb with branch cavity.



Photo 12. Poor semi-improved grassland.



Photo 13. Poor semi-improved grassland and ruderals, looking east.



Photo 14. Tall ruderals, looking north-west.



Photo 15. Remains of brick-built septic tank cesspit.



Photo 16. Modern in-use septic tank.

APPENDIX F – PLANT SPECIES LIST

Table 6. Vascular plant species recorded from the site and its boundaries on 26 April 2022.

Species
Trees, shrubs and woody climbers
Ash (<i>Fraxinus excelsior</i>)
Bramble (<i>Rubus fruticosus</i> agg.)
Hawthorn (<i>Crataegus monogyna</i>)
Ivy (<i>Hedera helix</i>)
Prunus sp. (cf. <i>Prunus</i>)
Willow sp. (cf. <i>Salix</i>)
Herbaceous species
Broad-leaved Dock (<i>Rumex obtusifolius</i>)
Cleavers (<i>Galium aparine</i>)
Common Nettle (<i>Urtica dioica</i>)
Common Vetch (<i>Vicia sativa</i>)
Cow Parsley (<i>Anthriscus sylvestris</i>)
Dandelion sp. (cf. <i>Taraxacum</i>)
Dead-nettle sp. (cf. <i>Lamium</i>)
Forget-me-not sp. (cf. <i>Myosotis</i>)
Greater Plantain (<i>Plantago major</i>)
Herb-Robert (<i>Geranium robertianum</i>)
Hogweed (<i>Heracleum sphondylium</i>)
Meadow Foxtail (<i>Alopecurus pratensis</i>)
Red Campion (<i>Silene dioica</i>)
Spear Thistle (<i>Cirsium vulgare</i>)
Thistle sp.
Willowherb sp. (cf. <i>Epilobium</i>)



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