Land off Walker Lane, Ingol
on behalf of Metacre Limited
Ecological Assessment Report

avian ecology

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1 INTRODUCTION

1.1 Background

1.1.1 Avian Ecology Ltd. was commissioned to undertake an Ecological Assessment in relation to the proposed housing development (the 'Proposed Development') to be located on land off Walker Lane, Ingol, Lancashire (the 'Site'). The Site location is shown in **Figure 1**.

1.1.2 The objectives of this report are to:

- Provide baseline information on the current habitats and ecological features both within the Site and the immediate surrounding area;
- Identify the proximity of any designated sites for nature conservation interest and provide an assessment of any potential effects the Proposed Development may have on these;
- Identify the presence or potential presence of any protected species or habitats and provide an assessment of any potential effects the Proposed Development may have on these; and,
- Provide recommendations for further pre-construction checks and / or mitigation measures, if required.

1.1.3 The Assessment has comprised a desk-based review, extended habitat survey, bat surveys and great crested newt *Triturus cristatus* eDNA survey.

1.1.4 The Assessment refers to relevant legislation, planning policy and guidance as appropriate.

1.1.5 This Ecological Assessment should be read in conjunction with the Landscape Masterplan (Drawing No. 2425_02) (Appletons, 2022).

1.2 Site Overview

1.2.1 The Site is located off Walker Lane, Ingol in Preston, Lancashire.

1.2.2 The habitats within the Site primarily comprise modified grassland with broadleaved woodland and lines of trees at the Site margins. Within the Site there are number of standalone trees or groups of trees and a pond.

1.2.3 The Site is bordered by a mix of broad-leaved woodland and grassland to the south, with Sharoe Brook located approximately 100m from the southern Site boundary. To the north are existing residential houses with garden fences marking the Site boundary. A new residential development is under construction to the west, separated from the Site by a linear woodland belt. To the east is Walker Lane, beyond which are similar grassland and woodland habitats as those found within the Site.

1.3 Legislative Framework, Planning Policy and Guidance

1.3.1 During the preparation of this report, reference has been made to the following key pieces of legislation, planning policy and guidance listed in **Table 1.1** below.

Table 1.1: Key legislation, planning policy and guidance.

International
• Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971 ('the Ramsar Convention)[1]; • Convention on the Conservation of European Wildlife and Natural Habitats 1979 ('the Bern Convention)[2]; and, • UNESCO convention on the protection of the World Cultural and Natural Heritage (1972)[3]
National
• The Conservation of Habitats and Species Regulations 2017 (as amended); • The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019; • The Wildlife and Countryside Act 1981 (as amended); • The Environment Act 2021[4]; • Countryside and Rights of Way Act 2000; • The Invasive Alien Species (Enforcement and Permitting) Order 2019; • Infrastructure Act 2015; • Protection of Badgers Act 1992; • Natural England European Protected Species Policies[5]; • Hedgerow Regulations 1997; • Natural Environment and Rural Communities (NERC) Act (2006); • The National Planning Policy Framework 2 (NPPF2, 2021)[6]; • 'Birds of Conservation Concern 5' (Standury *et al*., 2021)[7]; • The United Kingdom Biodiversity Action Plan (UK BAP); • The Bat Conservation Trust - *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Ed.).* (Collins *et al.*, 2016[8]); • BS 42020:2013 Biodiversity – Code of Practice for Planning and Development; • BS 8683:2021 Process for designing and implementing Biodiversity Net Gain. Specification; and, • Biodiversity Net Gain. Good practice principles for development[9]
Local
• Lancashire Biodiversity Action Plan[10.]

[1] https://www.ramsar.org/
[2] https://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/104
[3] https://whc.unesco.org/en/convention/
[4] https://bills.parliament.uk/bills/2593
[5] https://www.gov.uk/guidance/european-protected-species-policies-for-mitigation-licences
[6]https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004408/NPPF_JULY_2021.pdf
[7] Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021) The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds* 114, pp. 723-747.
[8] Collins *et al.* (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. 3rd edition, BCT: London.
[9] https://cieem.net/resource/biodiversity-net-gain-good-practice-principles-for-development-a-practical-guide/
[10]https://www.lancashire.gov.uk/lern/services/ [Accessed November 2022].

- Preston Local Plan 2012-26 (Policy EN10 and EN11)[11]

1.3.2 The Conservation of Habitats and Species Regulations 2017 (as amended) remains in place following the United Kingdom's (UK's) withdrawal from the European Union (EU) with only relatively minor changes coming into force on 31st December 2020, with the 2017 regulations being transposed into national (England and Wales) legislation via the Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019 which came into force on 31st December 2020. They are hereafter referred to as the 'Habitats Regulations'.

1.3.3 The 'UK Post-2010 Biodiversity Framework' succeeds the UK Biodiversity Action Plan (UK BAP) and 'Conserving Biodiversity – the UK Approach'. The lists of priority species and habitats agreed under UK BAP still form the basis of much biodiversity work and are therefore considered within this report in the context of the objectives of the Biodiversity Framework. BAPs identify habitats and species of nature conservation priority on a UK (UK BAP) and Local (LBAP) scale. UK BAPs formed the basis for statutory lists of priority species and habitats in England under Section 41 (England) of the Natural Environment and Rural Communities (NERC) Act 2006, and so are also relevant in the context of this legislation.

1.3.4 This report is provided with reference to the provisions of British Standard 42020:2013 Biodiversity: *Code of practice for planning and development*.

[11] https://www.preston.gov.uk/media/1952/Preston-s-Local-Plan/pdf/Preston-Local-Plan-2012-2026-_8.pdf?m=637056240884300000

2 METHODOLOGY

2.1 Desk Study

2.1.1 A desk study was undertaken to identify existing information on the presence of designated sites for nature conservation, protected and notable species and habitats within proximity to the Site as follows:

- Statutory designated sites for nature conservation within 5km of the Site (extended to 10km for internationally designated sites);
- Non-statutory designated sites for nature conservation within 2km of the Site; and,
- Existing records of protected and notable faunal species, within 2km of the Site (data provided has been filtered to provide records within the last 10 years only, unless otherwise stated in the baseline section of the Assessment).

2.1.2 The following key sources were consulted:

- Natural England and Joint Nature Conservation Committee (JNCC[12]);
- The Multi Agency Geographic Information for the Countryside (MAGIC[13]);
- Lancashire Environment Record Network (LERN).

2.1.3 Reference was also made to Ordnance Survey maps of the wider area and online aerial images (www.google.co.uk/maps) in order to determine any features of nature conservation interest in the wider area (e.g., potential ponds).

2.2 Extended Habitat Survey

2.2.1 An extended habitat survey of the Site was undertaken on 19th August 2022 by Mr. K Love *BSc*, a qualified and suitably experienced ecologist.

2.2.2 The survey followed the survey methodology detailed in the 'Handbook for Phase 1 Habitat Survey' (JNCC, 2010[14]) and habitat classification guidance detailed in the 'UK Habitat Classification Use Manual (V1.1)' (UKHab, 2020[15]). This was further extended to provide information on the presence or likely presence of protected and notable species such as bats, badgers etc.

2.2.3 The survey covered the Site as presented in **Figure 1**.

2.2.4 Habitats were mapped and described, using a series of 'target notes' (TNs). The survey was extended to include the additional recording of specific features indicating the presence, or likely presence, of protected species, invasive species and other species of conservation significance.

2.3 Bat Surveys

2.3.1 The approach to baseline information gathering with regards to bats has been undertaken with reference to current Bat Conservation Trust (BCT) Survey Guidelines (Collins *et al*., 2016) and the Bat

[12] http://jncc.defra.gov.uk/
[13] https://magic.defra.gov.uk/MagicMap.aspx
[14] https://data.jncc.gov.uk/data/9578d07b-e018-4c66-9c1b-47110f14df2a/Handbook-Phase1-HabitatSurvey-Revised-2016.pdf
[15] https://ukhab.org/ukhab-documentation/

Workers Manual (Mitchell-Jones, A. J. and McLeish, A. P, 2004[16]), and includes both baseline field surveys and desk study.

2.3.2 The purpose of the baseline field surveys for bats has been to establish the bat species assemblage using the Site, the spatial and temporal distribution of bat activity within the Site, the location and extent of commuting and foraging habitat used by bats and, the locations of any bat roosts that could potentially be affected by the Proposed Development.

2.3.3 The following surveys/baseline assessments have been completed:

- Habitat Suitability Assessment;
- Preliminary Roost Assessment (PRA); and,
- Bat Activity Surveys.

Habitat Suitability Assessment

2.3.4 An initial habitat assessment of the Site was undertaken by Mr. K Love during the extended habitat survey to appraise the potential value of habitats within the Site for commuting and foraging bats, and assigned a category of suitability, ranging from negligible to high, in line with BCT guidelines (Collins *et al*., 2016).

2.3.5 The assessment was informed through a review of aerial imagery and comprised a walkover of potentially suitable habitat features within the Site.

Preliminary Roost Assessment (PRA)

2.3.6 A PRA of the Site was undertaken by Mr. K Love during the extended habitat survey to identify any features that may be suitable for roosting bats. The survey adopted ground-based assessment; identifying features that bats could use for roosting purposes and to assess the individual features roosting potential.

2.3.7 Any identified features were assigned a category of suitability to support roosting bats, ranging from negligible to high, in line with BCT guidelines (Collins *et al*., 2016).

Bat Activity Surveys

2.3.8 Bat activity surveys, comprising walked transects, were undertaken during summer (August) and autumn (September-October) 2022, and were conducted during established periods of bat activity, in line with current guidance (Collins *et al*., 2016).

2.3.9 A transect route was devised in line with current survey guidance. The transect route was walked at a slow steady pace by a pair of surveyors carrying a Wildlife Acoustics Touch 2 Pro bat detectors. The bat transect route extended outside the Site boundary to provide further context to the Assessment. The transect route is illustrated in **Figure 2**.

2.3.10 The following suitably qualified and experienced ecologists and assistants undertook transect surveys during the above-mentioned survey periods:

- Mr. Z Hinchcliffe *MRes BSc* (Hons.);
- Miss. C Wood *MSc* ACIEEM;
- Mr. L Quarton *BSc*, *MSc* and,

[16] Mitchell-Jones, A. J. and McLeish, A. P. (2004) *Bat Workers Manual.* 3rd edition, JNCC, Peterborough.

- Mr. P Baker.

2.3.11 Bat passes at each walked section and listening points (LPs) were recorded, together with the maximum number of bats observed, the species identified, and any other contextual data such as flight direction, social calling and/or feeding buzzes. Surveyors stopped at pre-assigned LPs along the transect route where they remained stationary for five minutes to record bat activity.

2.3.12 The transect routes were reversed or started at a variety of LP's on some visits to reduce sampling bias.

2.3.13 The transect surveys commenced around sunset, ending approximately two hours after sunset.

2.3.14 All surveys were undertaken in weather conditions conducive for bat activity i.e., relatively mild and dry, with relatively low wind speeds (see Table 2.1 below).

Table 2.: Bat Transect Surveys – Survey Effort.

Date	Start Time	End Time	Sunset	Survey Conditions
16/08/2022	20:37	22:29	20:37	Temp: 17°C; Rain: 0; Wind: 2; Cloud: 7
07/09/2022	19:47	21:44	19:47	Temp: 21°C; Rain: 0; Wind: 2; Cloud: 6
03/10/2022	18:46	20:43	18:43	Temp: 15°C; Rain: 0; Wind: 0; Cloud: 2

Data Analysis and Assumptions of Bat Activity

2.3.15 Data analysis and interpretation of results followed the principles presented in the BCT guidance (Collins *et al*., 2016).

2.3.16 Bat sound analysis has been undertaken by Mr. L Quarton *BSc, MSc*, a suitability qualified ecologist, with experience of conducting sound analysis and bat activity surveys for areas across the UK.

2.3.17 Bat detectors recorded data onto digital media for subsequent analysis using Kaleidoscope Pro (Wildlife Acoustics) software. All data was processed through Kaleidoscope Pro bat detector in order to separate associated noise files. The remaining sonograms were then automatically identified by the software. A selection of sonograms from each species or species group was manually checked with particular attention given to non-pipistrelle species.

2.3.18 Bat species were identified using characteristic features associated with species echolocation calls. Diagnostic features used in this analysis include characteristic frequency, slope, call duration, time between calls, minimum length of the body of the call and smoothness.

2.4 Great Crested Newt Presence/Absence Survey (eDNA)

2.4.1 A single pond (P8) is located within the Site. Three additional ponds are located within 250m of the Site; however, these ponds are located within an active construction site and are highly unlikely to be used by great crested newt *Triturus cristatus* (GCN) and were discounted for GCN surveys. The location of ponds in relation to the Site is illustrated in **Figure 3**.

2.4.2 Pond P8 was assessed for its suitability to support GCN using the Habitat Suitability Index (HSI) Assessment methodology as developed by Oldham *et al.* (2000[17]) and as detailed within ARG UK guidance (ARG UK, 2010[18]).

2.4.3 Pond P8 was also subject to environmental DNA (eDNA) survey sampling to determine the presence or likely absence of GCN.

Field Sampling Technique

2.4.4 The pond (P8) located on Site was sampled on 29th June 2022.

2.4.5 The protocol for sampling followed that outlined within; Biggs *et al*., 2014a[19], which requires the collection of 20 x 30ml subsamples from each pond, spaced as evenly as possible around the pond margin.

2.4.6 Each sample was then placed within a Whirl-Pak bag and shaken, before a 15ml sample was pipetted from the bag and placed in a specimen tube for laboratory analysis. Following collection, samples were refrigerated prior to laboratory dispatch. This process was repeated for each sampled pond.

Laboratory Analysis

2.4.7 Laboratory analysis was undertaken by SureScreen Scientifics[20]; the laboratory follows the analysis methodology outlined within the Defra Project WC1067 research note (Biggs *et al*., 2014b[21]) using the q-PCR test conducted in two phases.

2.5 Limitations

Extended Habitat Survey

2.5.1 An extended habitat survey does not constitute a detailed botanical survey or faunal species list or provide a full protected species survey but, enables competent ecologists to ascertain an understanding of the ecology of the site in order to:

- Broadly identify the nature conservation value of a site and assess the significance of any potential impacts on habitat/species recorded; and/or,
- Confirm the need and extent of any additional specific ecological surveys that are required to identify the true nature conservation value of a site (if any).

2.5.2 The extended habitat survey was undertaken in July 2022 and therefore within the optimal period for botanical surveys (approximately April to September). The timing of the survey is not considered to be a constraint to the Assessment.

2.5.3 No limitations were identified with respect to the extended habitat survey.

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[17] Oldham R.S., Keeble J., Swan M.J.S. and Jeffcote M. (2000) Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus). Herpetological Journal, 10(4), pp. 143-155.
[18] ARG UK (2010) ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index. Amphibian and Reptile Groups of the United Kingdom.
[19] Biggs J, *et.al*. (2014a). *Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 4. Technical advice note for field and laboratory sampling of great crested newt (Triturus cristatus) environmental DNA*. Freshwater Habitats Trust, Oxford.
[20] https://surescreenscientifics.com/edna/gcn-edna/
[21] Biggs J, *et al*. (2014b). *Analytical and methodological development for improved surveillance of the Great Crested Newt. Defra Project WC1067*. Freshwater Habitats Trust: Oxford.

Bat Surveys

2.5.4 All surveys were undertaken in the appropriate seasonal window for summer (August) and autumn (September and October). However, these timeframes do not include data from spring (April and May) and early to mid-summer (June and July).

2.5.5 No weather constraints occurred during the bat activity transect surveys; being undertaken in suitable weather condition (warm, dry and low wind).

2.5.6 No automated/static surveys were undertaken as the Site is unsecured and is accessed by the public. Any survey equipment left unattended on Site was likely to have been removed (stolen) or damaged and therefore, it was decided not to install automated detectors.

2.5.7 The level of survey effort undertaken is considered to be sufficient to inform this Assessment.

Sonogram Analysis

2.5.8 Analysing bat sonograms using Kaleidoscope can clearly identify certain species. However, some genus groups (such as *Myotis* spp.) can be difficult to determine the specific species due to their similar styles of calls. In addition, it can be difficult to determine species or even genus in some circumstances, due to partial calls being heard or due to distortion from, for example passing cars, rain or wind. In cases when it is not possible to identify a bat call to genus, it is labelled as an unknown bat. If the genus can be identified but not the species, the call is labelled by the genus group only.

2.5.9 The detectability of some bat species, such as brown long-eared bat *Plecotus auritus*, is lower than that of, for example, noctule *Nyctalus noctula* and pipistrelle *Pipistrellus* species. Therefore, the echolocation calls of brown long-eared bats are comparatively more difficult to detect with bat detectors, and their hunting strategies take them into less open habitats, where survey transect routes may not venture. Careful interpretation has been applied when comparing survey results across species.

2.5.10 It should also be noted that physical and environmental factors as well as a bats age, sex or behaviour can all influence the echolocation calls (*e.g.,* a social call of a soprano pipistrelle has been known to display similar characteristics to a low clarity noctule call).

2.5.11 Therefore, professional judgement has been used and, in some cases, it is not possible to safely assign an individual bat call to a species.

Great Crested Newt Presence/Absence Survey (eDNA)

2.5.12 The eDNA surveys were undertaken in accordance with the published technical advice note, by suitably trained and experienced GCN surveyor and at appropriate time of year.

2.5.13 No limitations were identified with respect to the GCN eDNA survey.

3 BASELINE

3.1 Desk Study - Designated Sites for Nature Conservation

Statutory Designated Sites

3.1.1 A summary of statutory designated sites within 5km (extended to 10km for internationally designated sites) of the Site is presented in **Table 3.1** and locations in relation to the Site are illustrated in **Figure 4**.

3.1.2 The Site is located within a Site of Special Scientific Interest (SSSI) 'Impact Risk Zone' (IRZ); however, the development type does not meet the criteria, whereby the Local Planning Authority (LPA) would be required to consult with Natural England on likely impacts on statutory designated sites.

Table 3.1. Statutory Designated Sites *(SPA: Special Protection Area; Ramsar: wetland site designated to be of international importance under the Ramsar Convention; SSSI: Site of Special Scientific Interest and LNR: Local Nature Reserve)*

Site	Distance	Description
Haslam Park, Preston LNR	0.9km south	Town-park, noted to feature a variety of wildlife centred around the Lancaster Canal Biological Heritage Site.
Fishwick Bottoms LNR	2.2km east/1.1km south-west/4.5km south-west	A variety of habitats are present on-site, including wetland, wildflower meadows, woodland, orchard, and hedgerows.
Hills and Hollows LNR	4km east	Grassland and woodland habitat are present on site.
Preston Junction LNR	4.5km south-east	Preston Junction LNR features notable grassland habitat, and functions as a wildlife corridor.
Grange Valley LNR	4.8km south-east	Noted specifically for the variety of woodland and grassland habitats present on site.
Ribble and Alt Estuaries SPA/Ramsar	6.9km south-west	A large area encompassing two estuaries and various sites and habits found adjacent to the Irish Sea. The site consists of areas of sand and mudflats, and includes the Ribble Estuary saltmarshes and Sefton Coast sand dunes. Tidal flats and saltmarsh are noted to support internationally important populations of waterfowl in winter), whilst sand dune habitat features vegetation communities and amphibian populations of international importance. Specific Ramsar designation include the presence of significant natterjack toad *Epidalea calamita* populations (Criterion 2), internationally importance winter waterfowl assemblages (criterion 5), and species/populations of breeding and wintering birds occurring at level of international importance (Criterion 6). SPA designation includes the presence of 1% > of Annex 1 (Birds Directive 79/409/EEC) in any given season (article 4.1), in addition to 1% > of regularly occurring migratory species in any given season (other than those listed in Annex 1) under article 4.2.

Non-statutory Designated Sites

3.1.3 A summary of non-statutory designated sites within 2km of the Site is presented in **Table 3.2** and locations in relation to the Site are illustrated in **Figure 5**.

Table 3.2: Non-statutory Designated Sites (BHS: Biological Heritage Sites)

Site	Distance	Description
Lancaster Canal BHS	0.9km south	Largest and most species rich waterbody in Lancashire, spanning from Cumbria to Preston. The canal and its marginal areas include standing open water and emergent vegetation, and semi-natural habitats such as grassland, scrub, hedgerow, and woodland. The Site is noted for its diversity of flora, with approximately 250 aquatic and semi-aquatic plants recorded. Fauna includes bird species, dragonfly, and damselfly species. The site also supports foraging and roosting bats (e.g., Daubenton's *Myotis daubentonii*).
Cottam Hall Brick Works BHS	1.1km south-west	Former brick pit, which has also previously functioned as a landfill site. Habitats found on-site include species rich neutral grassland (wet and dry), marsh, scrub, hedgerow, ruderal herbs and standing open water (i.e., ponds). The site is noted for its high species diversity present, e.g., more than 180 species of flowering plant have been recorded, which in turn support a wide range of invertebrates (e.g., burnet moth *Zygaena filipendulae*), in addition to amphibian species.

3.2 Desk Study - Priority Habitats

3.2.1 Habitats of Principal Importance (also known as priority habitats) under Section 41 of the NERC Act/UK Biodiversity Action Plan (UKBAP) or Lancashire Local BAP (LBAP) habitats identified within 2km of the Site from desk study, including review of MAGIC, aerial images and existing site information is presented in **Table 3.3** below. Where numerous records of a particular habitat were recorded, only the closest record to the Site has been provided, to provide context for the Site and surrounding area.

Table 3.3: Priority Habitats

Priority habitat name	Designation	Distance from site
Deciduous woodland	NERC S.41, UKBAP, LBAP	On-Site
Traditional orchard	NERC S.41, UKBAP	1.3km southwest
Wood-pasture and parkland	UKBAP	1km south
Open mosaic habitats on previously developed land	NERC S.41, UKBAP	1.1km southwest

Key

NERC S.41: Natural Environment and Rural Communities (NERC) Act (2006)

UKBAP: UK Biodiversity Action Plan Priority Habitat

LBAP: Lancashire Biodiversity Action Plan Habitats

3.3 Extended Habitat Survey

3.3.1 This section should be read in conjunction with **Figure 6**, Target Notes (TNs) presented in **Table 3.4** and photographs presented in **Appendix 1**.

Grassland

3.3.2 Modified grassland, comprising mown former golf course greens was the dominant habitat on Site; species recorded include Yorkshire fog *Holchus lanatus*, common bent *Agrostis capillaris*, timothy *Phleum pratense*, meadow buttercup *Ranunculus acris*, dandelion *Taraxacum officinale* and docks *Rumex* spp. Additional unmown areas were present comprising false oat grass *Arrhenatherum elatius*, sweet vernal grass *Anthoxanthum odoratum*, ragwort *Jacobaea vulgaris*, creeping thistle *Cirsium arvense*, broom *Cytisus scoparius*, docks and willowherbs *Epilobium* spp.

3.3.3 A shallow depression of neutral grassland, was located at the woodland edge, comprised sweet vernal grass, crested dog's tail *Cynosurus cristatus*, common bent, ragwort, creeping thistle, meadow buttercup, water aven *Geum rivale*, greater willowherb *Epilobium hirsutum*, and docks. Scrub including bramble *Rubus fruticosus*, goat willow *Salix caprea* and oak *Quercus robur* saplings were also present.

Woodland

3.3.4 The Site is bordered by broadleaved woodland to the west and south. The woodland to the south was dominated by oak and beech with sycamore *Acer pseudoplatanus*, elder *Sambucus nigra*, lime *Tilia* spp., Norway maple *Acer platanoides*, field maple *Acer campestre*, cherry *Prunus avium*, horse chestnut *Aesculus hippocastanum*, goat willow, elm, white poplar *Populus alba*, birch *Betula* spp., rowan *Sorbus aucuparia*, hawthorn *Crataegus monogyna* and blackthorn *Prunus spinosa* also recorded. The understorey comprised many saplings of species listed, and ground flora comprised wood avens *Geum urbanism*, ivy *Hedera helix,* red current *Ribes rubrum* and bramble.

3.3.5 A wide strip of broadleaved woodland, located along the south-west Site boundary, comprised a mix of mature and semi-mature ash *Fraxinus excelsior*, oak, lime, sycamore, goat willow, elder and hawthorn.

3.3.6 An additional area of beech dominated woodland was located along either side of Walker Lane. Alder *Alnus glutinosa*, holly *Ilex aquifolium*, elm and hawthorn were also present, along with small amounts of Solomon's seal *Polygonatum multiflorum* on the ground.

3.3.7 Within the Site along the north-west boundary, was a small broadleaved woodland copse comprising cherry, field maple, sycamore, dogwood *Cornus sanguinea* and willow *Salix spp*., with a dense bramble understorey.

Aquatic Habitats

3.3.8 A large pond (P8) is located within the Site. The pond is >1m deep and approximately 400m² in size with aquatic vegetation dominated by Canadian pondweed *Elodea canadensis*, with hard rush *Juncus inflexus* and unbranched bur-reed *Sparganium emersum* around the pond margins. Bankside vegetation comprised the mown modified grassland and oak and beech dominated woodland, with a line of immature alder and willow also present.

3.3.9 Sections of a small stream, Sharoe Brook is located approximately 100m south of the Site. The water was clear, with a slow or static flow and a depth <30cm. The banks ranged from shallow abundant in grasses to steep (c. 1m high) banks with sparse vegetation. Himalayan balsam was present along the watercourse.

Line of Trees

3.3.10 A line of mature and semi-mature trees was located along the north boundary of the Site. The line of trees partially makes up garden boundaries of adjacent residential properties and as a result trees comprised a mix of native and horticultural species; sycamore, cherry, ash, damson *Prunus domestica*, hawthorn, willow, cypress *Cupressus spp.*, and eucalyptus *Eucalyptus* spp*.* With laurel *Laurus spp.*, bramble and ivy also present.

Hedgerow

3.3.11 An intact, managed sycamore hedgerow is located partially along the north-east Site boundary, by Walker Lane. The hedgerow is approximately 1.5m high by 1m wide.

Table 3.4 Target Notes

Target Note	Comments	Photograph No.
TN1	Mature oak tree with several cracks in branches and broken branches. Moderate bat roost potential.	1
TN2	Beech tree with many holes and a large trunk cavity. Moderate to High bat roost potential.	2

3.4 Protected and Notable Species

Birds

3.4.1 Bird records within 2km of the Site provided by LERN comprised of a suite of species typical of the habitats and region. Records returned included species protected under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), species listed as a priority species under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 and/or red or amber listed 'Birds of Conservation Concern' (BoCCs) (Stanbury *et al*., 2021) and LBAP species.

3.4.2 No bird records were returned within or directly adjacent to the Site.

3.4.3 The mosaic of habitats within and adjacent to the Site, particularly the areas of woodland, trees, and hedgerows, are likely support an assemblage of commonly occurring species that are frequently recorded nesting in urban and woodland habitats. The Site is subject to regular disturbance and is used by dog walkers, as such the Site is unlikely to support ground nest species.

3.4.4 Due to the relatively enclosed nature of the Site, its location within an urban environment, and the potential for regular disturbance effects to occur, the Site (and surrounding environment) is not considered suitable to support waterfowl/waders associated with the nearby coastal statutory designated sites.

3.4.5 The Site may support a variety of wintering bird species commonly associated with urban and woodland habitats, this may include species such as redwing *Turdus iliacus* and fieldfare *Turdus pilaris*.

Bats

<u>Desk Study</u>

3.4.6 LERN returned a total of 45 records of bat species within 2km of the Site boundary. Records related to 4 species, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, noctule and brown long-eared bat. Additional records were provided for unidentified *Myotis* and *Pipistrellus* species, in addition to unidentified *Chiroptera* records.

3.4.7 No bat records were returned within the Site. The closest records related to a soprano day roost, and possible brown long-eared and pipistrelle roosts located approximately 30m north-west of the Site boundary.

3.4.8 LERN also returned an additional 19 recent records, recorded by South Lancashire Bat Group. These records related to common pipistrelle, brown long-eared and noctule bats, as well as unidentified Myotis species. Of these records, the closest in proximity to the Site relates to two common pipistrelle roosts, located approximately 900m north-west and north-east of the Site respectively.

3.4.9 Results from a search of MAGIC identified a single issued European Protected Species Mitigation (EPSM) licence (last updated 13 January 2022) within 2km of the Site; this related to the destruction of a common pipistrelle resting place, located approximately 1km northeast of the Site boundary.

Habitat Suitability Assessment

3.4.10 The Site, comprising mainly open grassland surrounded by woodland and trees is considered to provide foraging and commuting habitat for bats, with connectivity to similar habitats in the wider landscape. The large pond (P8) and the nearby Sharoe Brook are also considered to provide an important foraging and commuting resource.

3.4.11 Overall, the habitats within and adjacent to the Site were considered to most closely fit the description for land of 'moderate' interest for foraging and commuting bats in accordance with Bat Conservation Trust (BCT) guidance, with '*continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens'* and *'habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water'.*

Preliminary Roost Assessment

3.4.12 Two trees with bat roost potential were identified within or close to the Site.

3.4.13 These comprised a mature oak, assessed as having moderate bat roost potential, due to cracks and breaks in decaying branches (TN1) and beech, assessed as having moderate to high bat roost potential, due to multiple rot holes and a large cavity along the trunk (TN2).

3.4.14 No additional structures or buildings are present within the Site.

Bat Activity Survey

3.4.15 The number of call registrations recorded during the manual transect surveys are presented in **Table 3.5.**

Table 3.5: Combined transect survey results. Figures represent the number of call registrations.

Species	16/08/22	07/09/22	03/10/22	Total
Common pipistrelle	92	54	45	**191**
Myotis spp.	0	4	4	**8**
Noctule	0	3	0	**3**
Brown Long eared	0	1	0	**1**
Total	**92**	**62**	**49**	**203**

3.4.16 A minimum of four bat species were recorded during the transect surveys, although only common pipistrelle was observed foraging/commuting during the surveys. All other species were recorded as passes only and not observed.

3.4.17 Whilst bat activity levels were highest in August (*i.e.,* highest number of call registrations), all registrations were attributed to common pipistrelle. Species diversity was greatest in September, with at least four species recorded.

3.4.18 Overall, common pipistrelle accounted for approximately 94% of all call registrations recorded during the survey period.

3.4.19 Activity was consistently highest at LP5 and LP7, both of which were located close to the pond (P8) within the Site. Linear features, such as the woodland edge to the south-east of the transect route and the tree line to the north-west of the transect route also consistently recorded bat activity. Foraging and commuting activity recorded during the bat activity surveys is illustrated shown in **Figure 7**.

Badger

3.4.20 Refer to **Appendix 2** Confidential Badger Report.

Otter & Water Vole

3.4.21 A total of seven records for European otter *Lutra lutra* were returned from within a 2km radius of the Site boundary. No records of water vole *Arvicola amphibius* were provided by LERN.

3.4.22 The nearest otter record was approximately 1.2km south-west of the Site, near to the Lancaster Canal.

3.4.23 Results from a search of MAGIC identified no EPSM licences issued for otter within 2km of the Site.

3.4.24 The Sharoe Brook located approximately 100m east of the Site has the potential to support otter and water vole with food resources and suitable burrowing/holting opportunities present. No evidence of otter or water vole was located during the extended habitat survey.

Amphibians

Desk Study

3.4.25 LERN returned a total of 667 records of amphibian species, recorded within 2km of the Site boundary; species records included GCN, palmate newt *Lissotriton vulgaris*, smooth newt *Lissotriton helveticus*, common toad *Bufo bufo* and common frog *Rana temporaria*.

3.4.26 In total, 221 records of GCN were returned by LERN; these included two records from within the Site, whilst an additional record was found directly adjacent to the Site's south west boundary. Additional historical (i.e., 2010) records for GCN recorded on-Site were also returned.

3.4.27 Results from a search of MAGIC identified 12 EPSM licences for GCN within 2km of the Site. These include EPSM licence that have been issued for development in other parts of the former Ingol Golf Club.

Habitat Suitability Index Assessment (HSI)

3.4.28 The on-Site pond (P8) was subject to a HSI assessment and was assessed as having 'good' suitability to support GCN. The results of the HSI assessment are presented in **Table 3.6** below.

Table 3.6: Habitat Suitability Index Assessment Results

HSI Criteria / Pond ref.	Zone	Area (m^2)	Drying	Water Quality	Shade	Fowl present?	Fish present?	Pond count (within 1km)	Terrestrial habitat	Macrophytes (%)	HSI Score	GCN habitat suitability
Pond 8	A	400	Never	Moderate	50%	Minor	Possible	35	Moderate	30	**0.78**	**Good**

Presence/Absence Survey (eDNA)

3.4.29 The eDNA laboratory sample result was received from Surescreen Scientifics on 20th July 2022. The on-Site pond (P8) was found to be **negative** for GCN eDNA, thereby indicating that GCN breeding populations were unlikely to be present within the Site at the time of survey.

3.4.30 The eDNA results are summarised in **Table 3.7** below; the SureScreen Scientific Technical Report is presented in **Appendix 3**.

Table 3.7: eDNA Laboratory Results

Pond Reference Number	Lab Sample No.	Sample Integrity Check (SIC)	Degradation Check (DC)	Inhibition Check (IC)	Results	Positive Replicates
P8	4090	Pass	Pass	Pass	Negative	0

Reptiles

3.4.31 LERN provided a total of two reptile records within a 2km radius of the Site; both records related to slow worm *Anguis fragilis*.

3.4.32 The closest of these records was recorded approximately 1.3km northeast of the Site boundary.

3.4.33 It is considered that habitats within the Site are of low habitat suitability for reptile species lacking varied structure to provide basking opportunities and places of shelter; however, grassland and pond P8 could potentially provide suitable foraging habitat for grass snake *Natrix Helvetica.*

Other Notable Species

3.4.34 LERN returned records of hedgehog *Erinaceus europaeus*, brown hare *Lepus europaeus* and stoat *Mustela erminea* within a 2km radius of the Site.

3.4.35 Hedgehog have been recorded on Site during bat surveys and are therefore known to be present. Brown hare and stoat are considered unlikely to present within the Site due to regular disturbance and urban setting.

3.4.36 The habitats within the Site are not considered to be of a floristic or structural quality which could support significant assemblages of notable invertebrate species. The pond is likely to be used by aquatic invertebrate species.

3.5 Invasive Non-native Species

3.5.1 LERN returned a total of 667 records of invasive and non-native species within 2km of the Site.

3.5.2 Records included montbretia *Crocosmia pottsii x aurea = C. x* crocosmiiflora found approximately 30m to the west and Himalayan balsam *Impatiens glandulifera* approximately 30m to the north. Additionally, harlequin ladybeetle *Harmonia axyridis form succinea* was also recorded 30m west of the Site.

3.5.3 During extended habitat survey Himalayan balsam was recorded throughout the adjacent woodland and along the Sharoe Brook.

4 DISCUSSION

4.1 Overview

4.1.1 This section seeks to identify the potential for effects on habitats and protected and notable species which could be considered as reasonably likely to occur. The Site's proximity to statutory and non-statutory designated sites and potential effects on their qualifying interests is discussed. Measures are proposed for the protection of sensitive habitats and species throughout the construction phase of development and recommendations are made for further pre-construction surveys and mitigation, if required.

4.1.2 This section also introduces opportunities for habitat enhancement as part of the Proposed Development for the benefit of local biodiversity.

4.2 Designated Sites

Statutory Designated Sites

4.2.1 The Site does not form part of any statutory designated site for nature conservation. Five statutory designated sites were identified within 5km of the Site. The closest are Haslam Park LNR and Fishwick Bottoms LNR, both designated for their habitats and associated species, located 0.9km south and 1.1km south-west of the Site respectively. Other statutory designated sites include Hills and Hollows LNR, Preston Junction LNR and Grange Valley LNR which are all located over 4km from the Site boundary and are designated for their habitats and associated species.

4.2.2 One statutory designated site of international importance, the Ribble and Alt Estuaries SPA and Ramsar, was identified within the extended 10km search radius. The site is designated for its coastal and estuarine habitats and for supporting internationally important populations of wintering water birds and natterjack toad.

4.2.3 The Site lies within a SSSI Impact Risk Zone (IRZ); however, housing developments are not listed on the qualifying criteria whereby the LPA would be required to consult with Natural England.

4.2.4 There will be no direct effect on habitats associated with any statutory designated site due to the separation distances involved and the nature of the Proposed Development. Indirect effects will similarly be avoided through the implementation of standard good practice drainage management and pollution prevention and runoff control measures during the construction and operation of the Proposed Development.

4.2.5 Due to the relatively enclosed nature of the Site, its location within an urban environment, and the potential for regular disturbance effects to occur, the Site is not suitable for qualifying interest species of Ribble and Alt Estuaries SPA.

Non-statutory Designated Sites

4.2.6 The Site is not located within any non-statutory designated site for nature conservation. Two non-statutory sites comprising Lancaster Canal BHS and Cottam Hall Brick Works BHS are located 0.9km south and 1.1km south-west within to the Site respectively.

4.2.7 There will be no direct effects on the LWS due to separation distance. In addition, standard measures to ensure runoff control and pollution prevention will be implemented during construction of the Proposed Development; these measures will safeguard off-site habitats and the species they support. With such measures in place, no indirect effects are anticipated on non-statutory designated sites in the wider area.

4.3 Habitats

4.3.1 The habitats within the Site primarily comprise modified grassland with broadleaved woodland and lines of trees along the Site margins. Within the Site there are number of standalone trees or groups of trees and a pond (P8) is located on the southern boundary with the adjacent woodland. The modified grassland is of low ecological value; however, the trees, woodland and pond provide higher biodiversity value at a local geographic scale.

4.3.2 The footprint of the Proposed Development predominantly lies within the area of modified grassland, avoiding the majority of the broadleaved woodland and boundary features (line of trees).

4.3.3 Effects during construction relate to physical disturbance and permanent removal of the modified grassland to accommodate the housing plots and associated roads and infrastructure. With the plots being free builds, it is likely construction will proceed in phases and hence not all the Site will be disturbed at the same time.

4.3.4 Additionally, while most of the broadleaved woodland will be retained as part of the Proposed Development, the small copse located along the north-west corner of the Site will be removed and some of the woodland edge shrubs may also be lost to facilitate construction. An individual rowan tree will also be lost to allow for the access road.

4.3.5 Standard good practice construction methods including pollution prevention and control will ensure that there are no indirect effects on retained features such as the pond and off-Site habitats including woodland and watercourses.

4.3.6 Retained woodland and trees will be protected during construction following British Standards BS5837:2012 *Trees in relation to design, demolition and construction,* with measures including root zone protection and clear instructions on the location of materials storage areas away from trees and their root protection zones. Tree protection measures are detailed Tree Survey and Arboricultural Impact Assessment (Appletons, 2022[22]).

4.3.7 Opportunities will be sought to provide an overall biodiversity gain; in line with BS 42020 – *A Code of Practice for Biodiversity in Planning and Development*. The design of the Proposed Development seeks to maintain and improve functionality through protecting and enhancing potentially important wildlife habitats such as the woodland, mature trees, and the on-Site pond. Habitat enhancements as set out in the Landscape and Habitat Management Plan (LHMP) (Appletons 2022[23]) and their long-term management further aims to improve the Site for the benefit of local wildlife. *i.e.,* through strengthening connectivity and linked habitats through native species hedgerow and scrub planting and creating species and structurally diverse grassland.

4.3.8 Habitat enhancement measures are proposed for the Site, set out in the LHMP and illustrated in the Landscape Masterplan (Drawing No. 2425_02). These include:

- Native hedgerow planting;
- Native scrub planting to facilitate wildlife connectivity;
- Tree planting; and,

[22] Appletons (2022) *Land Off Walker Lane, Ingol (Former Ingol Golf and Squash Club Parcel G). Tree protection measures are detailed Tree Survey and Arboricultural Impact Assessment.*
[23] Appletons (2022) Landscape and Habitat Management Plan.

- Development of structurally and species-diverse grassland.

4.4 Protected and Notable Species

Birds

4.4.1 All wild birds, their nests and eggs are, with few exceptions, protected under the Wildlife and Countryside Act 1981 (as amended). Species listed under Schedule 1 of the Act, have special protection with increased penalties for offences committed towards these birds. Additional protection is provided to species listed under Directive 2009/147/EC on the conservation of wild bird (the 'Birds Directive').

4.4.2 In order to reasonably avoid impacts on nesting birds and to ensure compliance with the provisions of the Wildlife and Countryside Act 1981 (as amended), it is recommended that vegetation removal and ground clearance takes place outside of the bird breeding season (March-August inclusive) if possible. If vegetation works are necessary during the breeding season any suitable nesting habitat to be affected by works should be checked by a suitably experienced ecologist prior to works commencing. Works would be permitted to proceed only when the ecologist is satisfied that no offence will occur under the legislation.

4.4.3 The main potential effect of construction of the Proposed Development is the displacement of foraging and nesting birds. The majority of breeding birds within the Site are likely to be associated with habitats outside the development footprint, particularly the broadleaved woodland and line of trees. The majority of these boundary features are not expected to be directly impacted by the Proposed Development. These features will be protected, with an appropriate buffer zone, to ensure this vegetation (and root systems) are not impacted by the works. If this is adhered to, any nesting species associated with the forementioned habitats are likely to be unaffected by the works, and are considered at low risk from displacement.

4.4.4 The modified grassland which will be impacted by the Proposed Development is of low suitability to ground nesting birds, especially if kept short by regular mowing. In addition, regular disturbance by the public and dog walkers is likely to make the Site unsuitable for ground nesting species.

4.4.5 With mitigation measures adopted to ensure that any works associated with the Proposed Development during the breeding bird season do not negatively impact nesting birds, it is concluded that the breeding bird assemblage is unlikely to be adversely impacted. In the longer term, breeding birds may benefit from the habitat change and proposed habitat management measures.

4.4.6 Further nesting opportunities will be provided with the inclusion of bird nest boxes on mature trees within and bordering the Site (see **Appendix 4** for examples).

Bats

4.4.7 All species of British bat are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Bats are further protected under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. The Act and Regulations make it an offence to:

- kill, injure or take any wild bat;
- damage, destroy or obstruct access to any place that a wild bat uses for shelter or protection; and
- Intentionally or recklessly disturb any wild bat while it is occupying a structure or place that it uses for shelter or protection.

4.4.8 Seven bat species in the UK are also listed as species of principal importance for the purpose of conserving biodiversity under Section 41 of the NERC Act 2006 and are also listed as priority species on the LBAP.

4.4.9 Four bat species/species group were recorded during the transect surveys; common pipistrelle, noctule, brown long-eared bat and *Myotis* species. Common pipistrelle accounted for approximately 94% of all call registrations recorded. All other species/species group were recorded in very low numbers.

4.4.10 Data suggests that species utilise habitats throughout the Site, with activity particularly focused around the on-Site pond and along boundary features such as woodland and line of trees.

4.4.11 The small area of woodland copse and rowan tree scheduled to be removed was found to have negligible potential for roosting bat species.

4.4.12 The Site contains no buildings or structures. Two trees within or adjacent to the Site were identified as offering moderate or moderate to high bat roost potential, comprising an oak tree (TN1) and a beach tree (TN2). The adjacent woodland habitats are also likely to provide bat roosting opportunities These trees along with the adjoining woodland will be retained and protected following British Standards BS5837:2012 *Trees in relation to design, demolition and construction*. Therefore, no direct impacts on potential bat roost are anticipated from the Proposed Development.

4.4.13 Although no trees with bat roost potential are currently affected, should this change, suitable checks for roosting bats will be required in advance of any removal. If bats are confirmed to be roosting within any tree to be impacted by proposed works, the data gathered would be used to inform potential design amendments avoid or reduce impacts or, failing that support a licence application to Natural England to destroy/disturb the bat roost.

4.4.14 Features such as woodland, lines of trees, hedgerows and pond which are of most value as foraging and commuting habitat for bats will be retained and protected during construction, with exception of a small copse located to the north-west boundary. Habitat enhancements are proposed as set out in the LHMP, to include tree planting, native species hedgerow and scrub planting and the creation of species and structurally diverse grassland will provide additional features and a focus for foraging bats. The gardens of the proposed residential properties will also provide suitable foraging habitat for bats, particular species such common pipistrelle, the most recorded species during the bat surveys.

4.4.15 Any lighting required during construction and as part of the Proposed Development should be carefully designed with reference to *Lighting in the UK, Bats and the Built Environment Series, Bat Conservation Trust and Institute for Lighting Engineers*[24]. The lighting design should aim to avoid introducing additional light spill into retained boundary woodland, trees and pond to protect against the risk of interfering with favoured foraging habitats and bat commuting routes and ensure their function within the landscape is maintained.

4.4.16 The Proposed Development will provide further enhancements for bats with the inclusion of bat roost boxes on mature trees within and bordering the Site (see **Appendix 4** for examples).

4.4.17 With the implementation of these measures the conservation status of the local bat population will not be adversely affected. The provision of new bat roost features as part of the Proposed Development will result in enhanced roost availability over the current baseline conditions.

[24] Institution of Lighting Professionals & the Bat Conservation Trust. (2018). *Guidance Note 08/18: Bats and artificial lighting in the UK Bats and the Built Environment series*

Badger

4.4.18 Refer to **Appendix 1: Confidential Badger Report**.

Otter and Water Vole

4.4.19 Otters are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended); they receive further protection under the Habitats Regulations. The Act and Regulations make it an offence to:

- Deliberately capture, injure or kill an otter;
- Damage or destroy a breeding site or resting place;
- Deliberately disturb an otter, particularly in a way which is likely to:

  a) to impair their ability to survive, breed or reproduce, rear or nurture young; and,

  b) to affect significantly the local distribution or abundance of the species.

4.4.20 Water vole and its habitats receive full legal protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

4.4.21 Otter and water vole are listed under Section 41 of the NERC Act 2006 and within the LBAP and is therefore, a material consideration within the planning process.

4.4.22 No signs of otter or water vole presence was recorded during extended habitat survey; however, the Sharoe Brook located approximately 100m from the Site boundary does provide suitable habitat for these species and woodland habitats offer opportunities for otter holt creation. The on-Site pond could also potentially provide foraging opportunities for otter if present locally.

4.4.23 Proposed Development is highly unlikely to affect either otter or water vole. Standard good practice construction methods including pollution prevention and control will ensure that there are no indirect effects on nearby watercourses.

4.4.24 As a precautionary measure, it is recommended that pre-construction surveys include checks by a suitably experienced ecologist for new signs of activity and/or newly created holts in the vicinity of the Site. If the pre-construction survey were to confirm presence of otter holts, suitable avoidance or protection measures will be set in place, in certain circumstances a licence may be required if disturbance cannot be avoided.

Amphibians

4.4.25 GCN and their habitats are protected under the Wildlife and Countryside Act 1981 (as amended) and the Habitats Regulations. The Act and Regulations make it an offence to:

- Kill, injure or take a GCN;
- Damage, destroy or obstruct access to any place that a GCN uses for shelter or protection; and,
- Intentionally or recklessly disturb a GCN while it is occupying a structure or place that it uses for shelter or protection.

4.4.26 GCN, natterjack toad *Epidalea calamita* and common toad are listed as a species of principal importance within Section 41 of the NERC Act and GCN and natterjack are also listed as a priority species on LBAP Plan and therefore, are also of material consideration within the planning process.

4.4.27 The Site does not provide suitable habitat for natterjack toad but does provide suitable breeding and terrestrial habitats for other common and widespread amphibian species, including GCN and common toad (the pond was assessed as providing 'good' habitat suitability for GCN).

4.4.28 GCN eDNA survey of the on-Site pond (P8) returned a negative result for the presence of GCN eDNA, indicating that GCN were absent at the time of survey and were unlikely to be using P8 as a breeding pond. Surveys have previously recorded GCN at P8 (most recently in 2019) as well as at other ponds within former Ingol Golf Course (but located over 250m from the Site) and thus GCN are known to be present within the locality.

4.4.29 Given the negative GCN eDNA results and separation from other GCN ponds, it is considered that the adoption of Reasonable Avoidance Measures (RAMs) will be sufficient to avoid adverse effects on local amphibian populations and safeguard individuals that may be present within the terrestrial habitats. RAMs are presented in **Appendix 5** and will include a 'toolbox talk', visual searches of habitats prior to habitats clearance/development activities to minimise risk of accidental harm.

4.4.30 Standard pollution prevention and runoff control measures will be implemented to protect the pond habitat located within the Site and surrounding terrestrial habitats.

4.4.31 Habitat enhancements proposed within the LHMP include native hedgerow and scrub planting and the creation of species and structurally diverse grassland will provide suitable terrestrial habitat for foraging amphibians as well offering places shelter and refuge. In addition, at least one hibernacula will be created as well as habitat piles which will provide shelter and overwintering features suitable for amphibians.

4.4.32 With the implementation of these measures the conservation status of the local amphibian populations will not be adversely affected.

Reptiles

4.4.33 Widespread reptile species namely the common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis,* grass snake and adder *Vipera berus* are protected against killing, injuring and sale under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). These species are also listed as priority species under Section 41 of the NERC Act 2006 and therefore, are also of material consideration within the planning process.

4.4.34 The majority of the Site is modified grassland, which is of low suitability for reptile species; however, grassland and pond could potentially provide some suitable foraging habitat for grass snake.

4.4.35 The RAMs proposed in relation to amphibian species will also protect and safeguard individual reptile species should they be present on Site.

4.4.36 Habitat enhancements proposed within the LHMP such as native hedgerow and scrub planting, the creation of species and structurally diverse grassland and the inclusion of hibernacula and log piles will provide suitable habitat for foraging reptiles as well as places of shelter and refuge if present locally.

Other species

4.4.37 Hedgehog may be present and use the Site, species are listed as priority species under Section 41 (England) of the NERC Act 2006. The RAMs proposed in relation to amphibian species will also protect and safeguard individual hedgehogs should they be present on Site.

4.4.38 Suitable habitat for hedgehogs will be provided as part of the habitat provision as set out in the LHMP as well as through residential garden plots. Hibernacula and log piles will provide additional places of shelter and refuge. Garden fences should be designed to allow free movement for hedgehog and other wildlife.

4.4.39 The retention of woodland, trees and pond will be retained that majority of the habitats of value to invertebrates. The native planting proposed in the LHMP will provide additional opportunities for

invertebrates with planting providing pollen and nectar rich species, particularly favourable for bee and butterfly species. In addition, the installation of insect hotels (see **Appendix 4** for examples) and creation of log piles and hibernacula will benefit a range of species including invertebrates.

4.5 Invasive Non-native Species

4.5.1 Himalayan balsam was recorded, particularly within the woodland adjacent to the Site. A pre-construction check should be undertaken to determine the extent of which the invasive species has colonised the Site. Suitable biosecurity measures will need be employed to prevent the accidental introduction or spread of such species during or after construction, including control or eradication measures as appropriate.

4.5.2 Should any new area of invasive species be encountered or suspected on Site, prior to or during construction, the advice of a suitably qualified ecologist should be sought, and the appropriate measures taken.

5 SUMMARY MATRIX

5.1.1 **Table 5.1** summarises the ecological constraints and opportunities associated with the Proposed Development.

Table 5.1: Ecological Constraints and Opportunities

Feature		Details
Statutory and Non-statutory designated sites for Nature Conservation	Constraints & Opportunities	a. The Site does not form part of any statutory or non-statutory designated site for nature conservation b. The closest statutory designated sites were identified as Haslam Park LNR and Fishwick Bottoms LNR, both designated for their habitats and associated species, located 0.9km south and 1.1km south-west of the Site. c. The Site lies within a SSSI Impact Risk Zone (IRZ); however, housing developments are not listed on the qualifying criteria whereby the LPA would be required to consult with Natural England. d. Two non-statutory sites comprising Lancaster Canal BHS and Cottam Hall Brick Works BHS were identified approximately 0.9km south and 1.1km south-west of the Site. e. No impacts are anticipated on any statutory or non-statutory designated site by virtue of separation distance.
	Protection Measures	f. Standard measures to ensure runoff control and pollution prevention will be implemented during construction of the Proposed Development; these measures will safeguard off-site habitats and the species they support
Habitats & Flora	Constraints & Opportunities	g. The habitats within the Site primarily comprise modified grassland with broadleaved woodland and lines of trees along the Site margins. Within the Site there are number of standalone trees or groups of trees and a pond (P8) is located on the southern boundary within the adjacent woodland. The modified grassland is low ecological value; however, the trees, woodland and pond provide higher biodiversity value at a local geographic scale. h. The footprint of the Proposed Development predominantly lies within the area of modified grassland; most of the broadleaved woodland, trees and pond will be retained and protected. i. Habitat enhancements are set out in the LHMP (Appletons 2022) and include native species hedgerow and scrub planting and creating species and structurally diverse grassland. Habitat features such hibernacula and log piles will also be created.
	Protection Measures	j. Existing features of biodiversity value will be retained and protected throughout the construction and operational phases. k. All retained trees within the vicinity of construction areas will be protected during construction works in-line with BS 5837:2012 *Trees in relation to design, demolition and construction.* l. Standard measures to ensure runoff control and pollution prevention will be implemented during construction of the Proposed Development; these measures will safeguard off-site habitats and the species they support
Birds	Constraints & Opportunities	m. The majority of breeding birds within the Site are likely to be associated with habitats outside the development footprint, particularly the broadleaved woodland and line of trees. Most of these boundary features are not expected to be directly impacted by the Proposed Development. The grassland habitat within the Site is unlikely to provide opportunities for ground nest species. n. With the proposed measures, the breeding bird assemblage within and surrounding the Site is unlikely to be adversely affected by the Proposed Development. o. The landscape planting, including species native hedgerow and scrub planting and tree planting will provide a local benefit for birds. Bird boxes will also be installed in suitable locations.

Feature		Details
		p. The Proposed Development will provide further enhancements for birds with the inclusion of bird boxes on mature trees within and bordering the Site (see **Appendix 4** for examples).
	Protection Measures / Legislative Compliance – WCA**	q. Removal of nesting bird habitats should be undertaken outside of the bird breeding season (01 March to 31 August inclusive). If vegetation works are necessary during the breeding season, suitable nesting habitat should be searched by a suitably experienced ecologist prior to works commencing. Only when the ecologist is satisfied that no offence will occur under the legislation will works be permitted to proceed.
Bats	Constraints & Opportunities	r. The Site contains no buildings or other structures suitable for roost bats. s. Two trees with bat roost potential were identified as offering bat moderate or moderate to high bat roost potential; these trees will be retained and protected during construction. t. Bat activity surveys have shown that bats utilise habitats throughout the Site, with activity particularly focused around the on-Site pond and along boundary features such as woodland and line of trees. The majority of theses feature will remain unaffected by the Proposed Development. u. Habitat enhancements are proposed as set out in the LHMP, to include tree planting, native species hedgerow and scrub planting and the creation of species and structurally diverse grassland will provide additional features and a focus for foraging bats. The gardens of the proposed residential properties will also provide suitable foraging habitat for bats. v. The Proposed Development will provide further enhancements for bats with the inclusion of bat roost boxes on mature trees within and bordering the Site (see **Appendix 4** for examples).
	Protection Measures / Legislative Compliance – WCA**, HR***	w. Retained tree and woodland will be retained and protected following British Standards BS5837:2012 *Trees in relation to design, demolition and construction*. x. Any lighting required during construction and as part of the Proposed Development should be careful designed with reference to *Lighting in the UK, Bats and the Built Environment Series*, Bat Conservation Trust and Institute for Lighting Engineers. y. Although no trees with bat roost potential are currently affected, should this change, suitable checks for roosting bats will be required in advance of any removal.
Badger	Constraints & Opportunities	z. Refer to Confidential Badger Report (**Appendix 2**).
	Protection Measures / Legislative Compliance – PBA****	
Otter	Constraints & Opportunities	aa. No evidence of otter or otter holts were recorded during the extended habitat survey. bb. The Sharoe Brook located approximately 100m from the Site boundary does provide suitable habitat for these species and woodland habitats offer opportunities for otter holt creation. The on-Site pond could also potentially provide foraging opportunities for otter if present locally.
	Protection Measures / Legislative Compliance – WCA**, HR***	cc. Standard pollution prevention measures should be employed to ensure runoff control and pollution prevention will be implemented to protect aquatic/marginal habitats potentially used by otter. dd. As a precaution, a pre-construction check for otter holts/resting places, should be completed by a suitably qualified ecologist immediately prior to the commencement of construction. ee. If the pre-construction survey were to confirm presence of otter holts, suitable avoidance or protection measures will be set in place, in certain circumstances a licence may be required if disturbance cannot be avoided.

Feature		Details
Water Vole	Constraints & Opportunities	ff. No evidence of water vole was found during the extended survey and water vole they are considered likely to absent from the Site.
	Protection Measures / Legislative Compliance – WCA**	gg. Standard pollution prevention measures will be employed to ensure runoff control and pollution prevention to protect aquatic/marginal habitats potentially used by water vole.
Amphibians	Constraints & Opportunities	hh. GCN eDNA survey of the on-Site pond (P8) returned negative results for the presence of GCN eDNA, indicating that GCN were absent at the time of survey and were unlikely to be using P8 as a breeding pond. Surveys have previously recorded GCN at P8 as well as at other ponds within former Ingol Golf Course (but located over 250m from the Site) and thus GCN are known to be present within the locality. ii. The pond will be retained as well as boundary woodland habitats. Habitat enhancements proposed within the LHMP include native hedgerow and scrub planting and the creation of species and structurally diverse grassland and will provide suitable terrestrial habitat for foraging amphibians as well offering places shelter and refuge. In addition, at least one hibernacula will be created as well as habitat piles which will provide shelter and overwintering features suitable for amphibians.
	Protection Measures / Legislative Compliance - WCA*, HR**	jj. Given the negative GCN eDNA results and separation from other GCN ponds, it is considered that the adoption of RAMs will be sufficient to avoid adverse effects on local amphibian populations and safeguard individuals that may be present. RAMs are presented in **Appendix 5** and will include a 'toolbox talk', visual searches of habitats prior to habitats clearance/development activities to minimise risk of accidental harm. kk. Standard pollution prevention and runoff control measures will be implemented to protect the pond habitat located within the Site and surrounding terrestrial habitats.
Reptiles	Constraints & Opportunities	ll. Most of the Site is modified grassland, which is of low suitability for reptile species; however, grassland and the pond could potentially provide some suitable foraging habitat for grass snake. mm. Habitat enhancements proposed within the LHMP such as native hedgerow and scrub planting, the creation of species and structurally diverse grassland and the inclusion of hibernacula and log piles will provide suitable habitat for foraging reptiles as well as places of shelter and refuge if present locally.
	Protection Measures / Legislative Compliance – WCA**	nn. Works to be undertaken under RAMs on a precautionary basis.
Other Species	Constraints & Opportunities	oo. Hedgehog may be present and use the Site. Suitable habitat for hedgehogs will be provided as part of the habitat provision as set out in the LHMP as well as through residential garden plots. Hibernacula and log piles will provide additional places of shelter and refuge. Garden fences should be designed to allow free movement for hedgehog and other wildlife. pp. The retention of woodland, trees and pond will be retained that majority of the habitats of value to invertebrates. The native planting and habitat features proposed in the LHMP will provide additional opportunities for invertebrate species. qq. In addition, the installation of insect hotels (see **Appendix 5** for examples) and creation hibernacula will benefit a range of species including invertebrates
	Protection Measures	rr. The adoption of standard good practice measures during construction and RAMS for amphibian and reptiles will also protect small mammal species.

Feature		Details
Invasive Non-native Species	Constraints & Opportunities	ss. Himalayan balsam which is a non-native species listed under Schedule 9 of The Wildlife & Countryside Act 1981 (as amended) was recorded during the extended habitat survey.
	Legislative Compliance – WCA**	tt. A pre-commencement survey will be undertaken prior to construction. Following this mitigation measures will be employed to prevent the spread of this species such as buffers, fencing and a toolbox talk and treatment / eradication.

Legislative Compliance Key
WCA Wildlife & Countryside Act 1981 (as amended)
HR The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019
PBA Protection of Badgers Act 1992

FIGURES

Legend

Site

Rev	Date	Description	De	App
00	01/12/2022		HD	MJR

Co-ordinate System : British National Grid
Projection: Traverse Mercator
Datum: OSGB 1936
Units: Metres

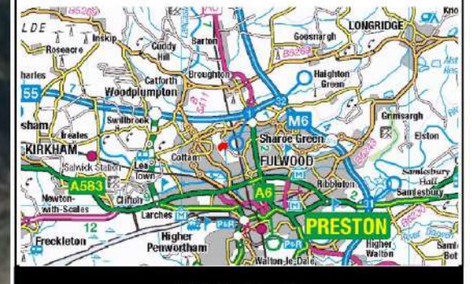

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FIGURE 1: SITE LOCATION

avian ecology

Avian Ecology, Suite 3c Walnut Tree Farm, Northwich Road, Lower Stretton
WA4 4PG
Tel: 0845 506 5116
www.avianecology.co.uk

0 50

metres

N
W E
S

LP15
LP14
LP13
LP12
LP11
LP10
LP9
LP8
LP7
LP6
LP5
LP4
LP3
LP2
LP1

Legend

Site

Transect Route

Listening Point (LP)

Rev	Date	Description	De	App
00	01/12/2022		HD	MJR

Co-ordinate System : British National Grid
Projection: Traverse Mercator
Datum: OSGB 1936
Units: Metres

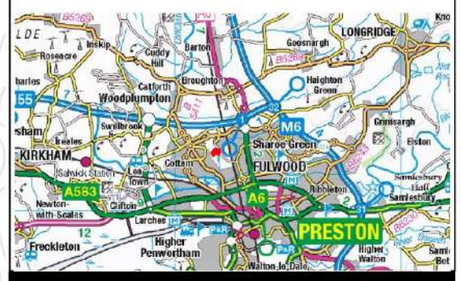

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FIGURE 2: BAT TRANSECT ROUTE

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WA4 4PG
Tel: 0843 506 5116
www.avianecology.co.uk

0 50
metres

N
W E
S

Legend

Site

250m Buffer

Pond

P3

P8

P4

P5

P18

P6

Rev	Date	Description	De	App
00	01/12/2022		HD	MJR

Co-ordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Metres

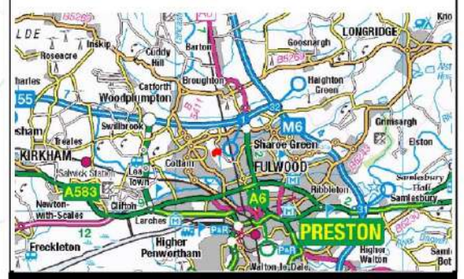

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FIGURE 3: POND LOCATIONS

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WA4 4PG
Tel: 0843 506 5116
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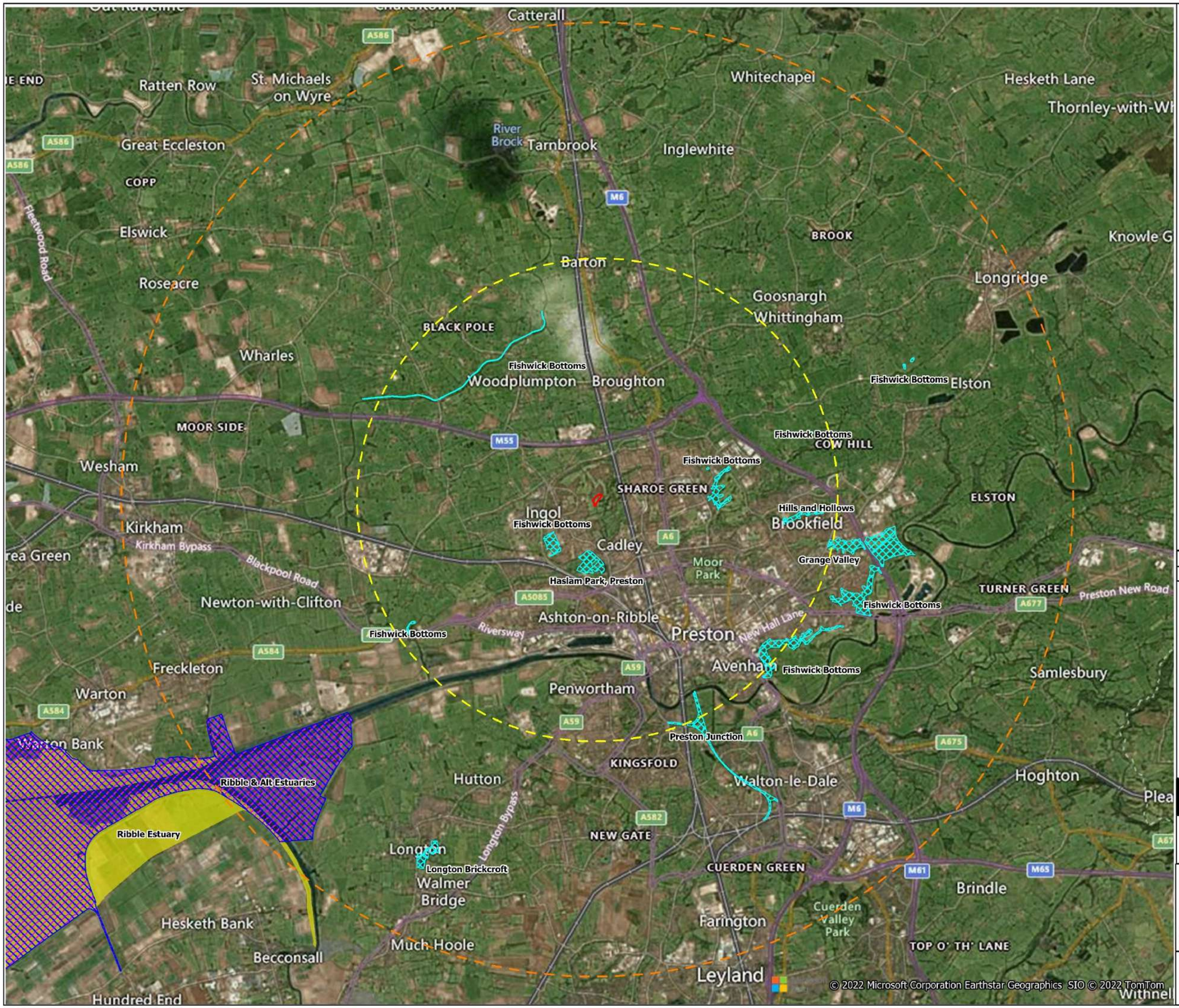
0 100

metres

N W E S



Legend

- Site
- 10km Buffer
- 5km Buffer

Designated Site

- Local Nature Reserve (LNR)
- Ramsar Site
- Special Protection Area (SPA)
- National Nature Reserve (NNR)

Rev	Date	Description	De	App
00	01/12/2022		HD	MJR

This map contains data from the following sources:
Ordnance Survey (2022)

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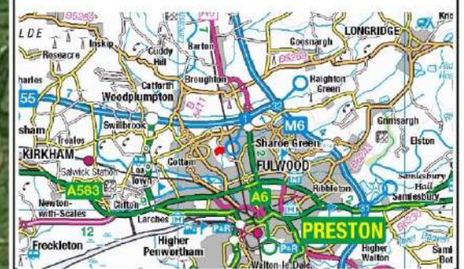

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FIGURE 4: STATUTORY DESIGNATED SITES

avianecology

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Tel: 0843 506 5116
www.avianecology.co.uk

0 2
kilometres

N W E S

Legend

Site

2km Buffer

Designated Site

Biological Heritage Site (BHS)

Rev	Date	Description	De	App
00	01/12/2022		HD	MJR

Co-ordinate System : British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Metres

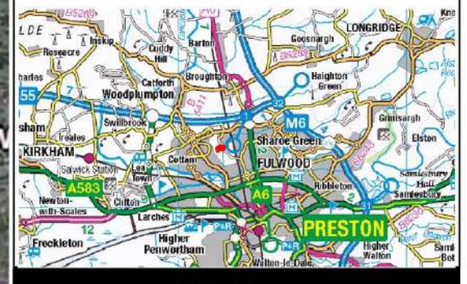

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FIGURE 5: NON-STATUTORY DESIGNATED SITES

avian ecology

Avian Ecology, Suite 3c Walnut Tree Farm, Northwich Road, Lower Stretton
WA4 4PG
Tel: 0843 506 5116
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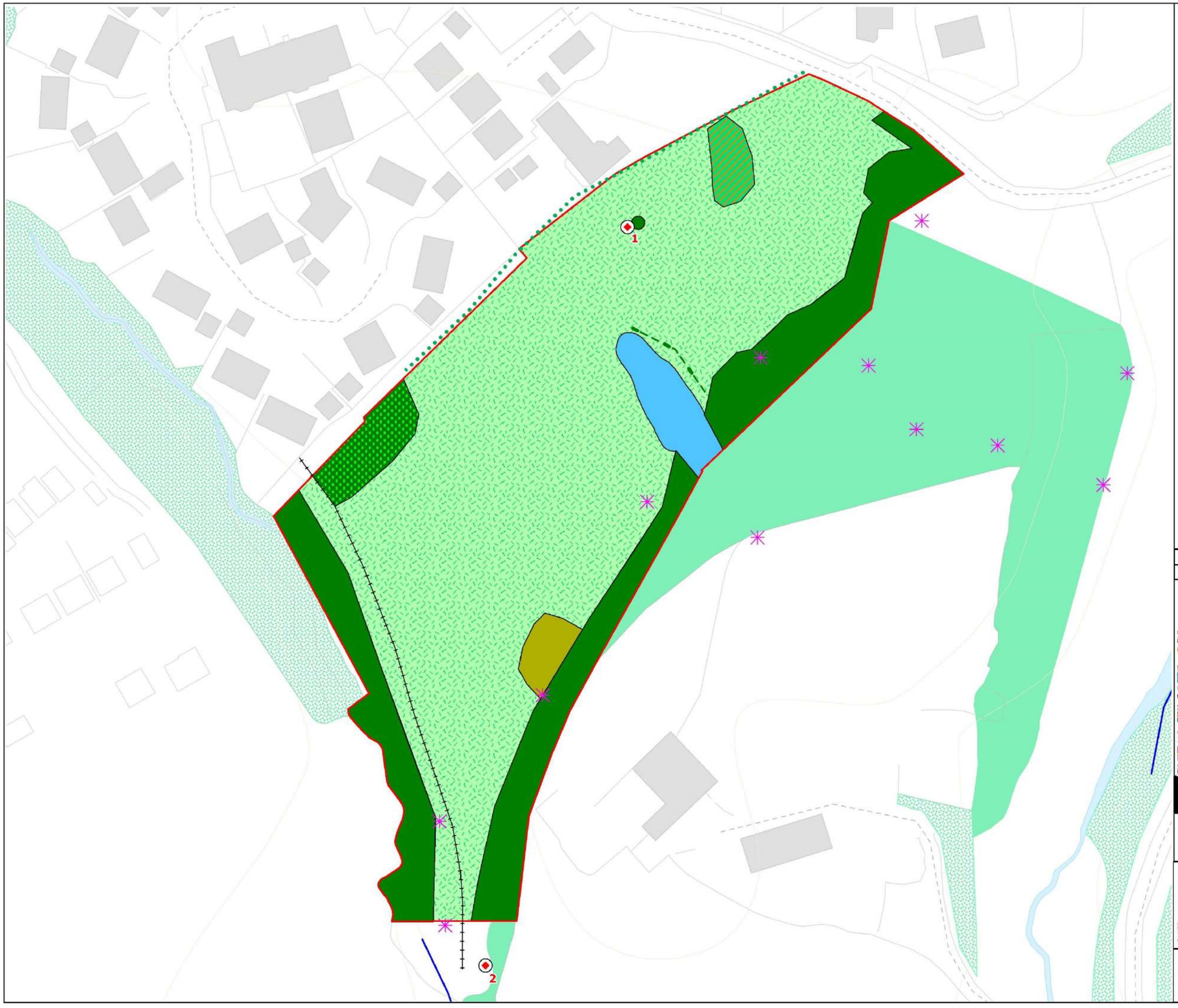
0 500
metres

N W E S



Legend

Site

Target Note

UK Habitat Clasification

- g3c.10 - Other neutral grassland; Scattered scrub
- g4.16.10 - Modified grassland; Tall ruderal; Scattered scrub
- g4.64 - Modified grassland; Mown
- r1.19 - Standing open water and canals; Pond
- w1g - Other woodland; broadleaved
- w1g.10 - Other woodland; broadleaved; Scattered scrub
- h2a - Hedgerow (priority habitat)
- r2b - Other rivers and streams
- u1e.69 - Built linear features; Fence
- w1g6 - Line of trees
- w1g6.10 - Line of trees; Scattered scrub

Himilayan Balsam

Tree

Rev	Date	Description	De	App
00	01/12/2022		HD	MJR

Co-ordinate System : British National Grid
Projection: Traverse Mercator
Datum: OSGB 1936
Units: Metres

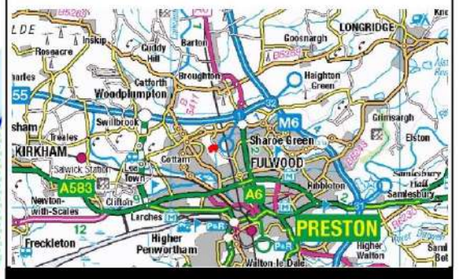


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FIGURE 6: HABITATS

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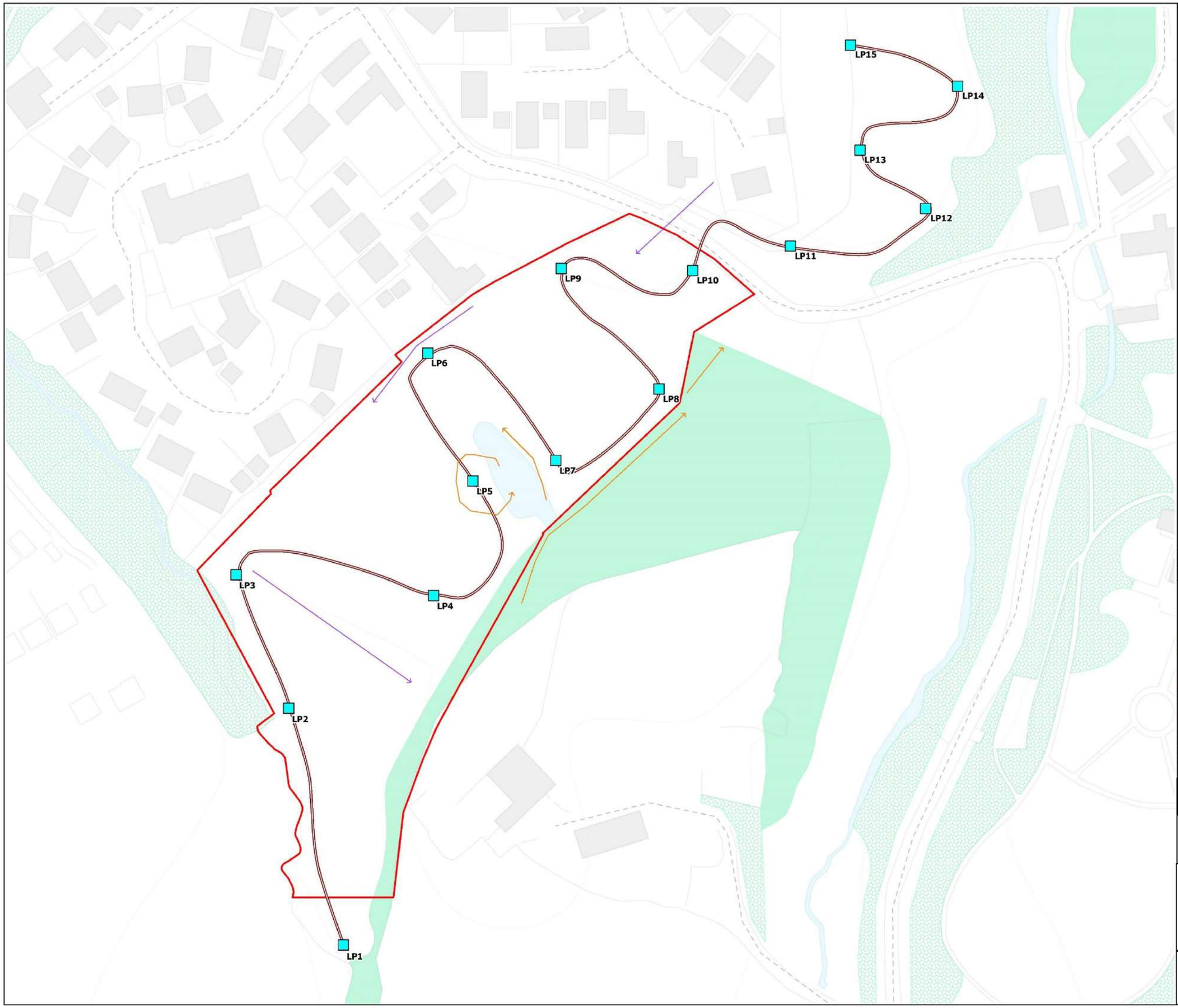
0 50

metres

N W E S



Legend

Site

Transect Route

Listening Point (LP)

Bat Activity

Commuting

Foraging

Rev	Date	Description	De	App
00	01/12/2022		HD	MJR

Co-ordinate System : British National Grid
Projection: Traverse Mercator
Datum: OSGB 1936
Units: Metres

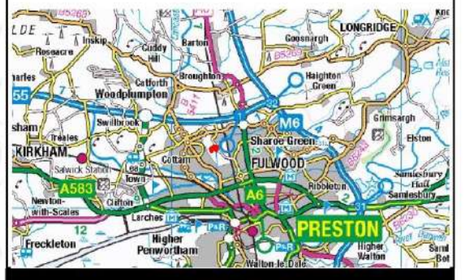


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FIGURE 7: BAT ACTIVITY SURVEY

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WA4 4PG
Tel: 0843 506 5116
www.avianecology.co.uk

0 50

metres

N W E S

APPENDIX 1: PHOTOGRAPHS

Photograph	Description
	**Photo 1** Mature oak with moderate bat roost potential as described in TN1.
	**Photo 2** Beech tree with moderate to high bat roost potential as described in TN2.

	**Photo 3** Mown modified grassland within Site that makes up the majority of the development footprint.
	**Photo 4** Patch of unmown modified grassland.

	**Photo 5** Shallow depression of neutral grassland
	**Photo 6** Himalayan balsam within grassland at woodland edge to the west of the Site.

	**Photo 7** Small woodland copse to be removed as part of development.
	**Photo 8** Large pond (P8) within Site.

	**Photo 9** Line of trees along north/north-west boundary.
	**Photo 10** Sycamore hedgerow at north-east Site boundary.

APPENDIX 2: CONFIDENTIAL BADGER REPORT (PROVIDED SEPERATLEY)

APPENDIX 3: SUREDCREEN SCIENTIFICS – TECHNICAL REPORT

SureScreen Scientifics

Folio No: E14953
Report No: 1
Purchase Order: AE-22-137
Client: AVIAN ECOLOGY LTD
Contact: Andrew Logan

TECHNICAL REPORT

ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS (TRITURUS CRISTATUS)

SUMMARY

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analysing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

RESULTS

Date sample received at Laboratory: 06/07/2022
Date Reported: 20/07/2022
Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
4090	P8 Ingol	SD 51788 32602	Pass	Pass	Pass	Negative	0
4748	NP10 Ingol	SD 51989 32221	Pass	Pass	Pass	Negative	0
5558	NP1 Ingol	SD 52068 32281	Pass	Pass	Pass	Negative	0
5568	NP6 Ingol	SD 51926 32196	Pass	Pass	Pass	Negative	0
5851	NP9 Ingol	SD 51972 32222	Pass	Pass	Pass	Negative	0
5852	NP5 Ingol	SD 51939 32159	Pass	Pass	Pass	Negative	0
5864	NP7 Ingol	SD 51934 32210	Pass	Pass	Pass	Negative	0

APPENDIX 4: EXAMPLE WILDLIFE BOXES

Suitable Bat Roost Boxes (other suitable boxes can be used)		
2F Schwegler Bat Box		The 2F bat box is designed as a summer roosting space for bats and has a simple entrance hole at the front. The box is manufactured from long-lasting woodcrete, which is a blend of wood, concrete and clay which will not rot, leak, crack or warp, and will last for at least 20 - 25 years, making it suitable for long-term projects. This provides ideal quarters for bats that inhabit crevices, such as *Pipistrelle Pipistrellus* sp. and Myotis species.
1FF Schwegler Bat Box		The 1FF bat box is designed as a summer roosting box. The box is made from the same woodcrete material and will also last 20 – 25 years. The open bottom allows droppings to fall out reducing the requirement for maintenance. This provides ideal quarters for bats that inhabit crevices, such as Pipistrelle *Pipistrellus* sp. and noctule bats *Nyctalus noctula*.
Bark Box Kent Type Twin Crevice		Two parallel crevices for roosting bats with internal connection to move between the two. Light internal finish for helping to spot bats, droppings and rub marks. Bark Boxes are constructed using tough felt made of recycled polyamide combined with a cement and recycled cellulose fibre mix. They provide more natural form and outer layer mellow and can support lichens and mosses over time.

Suitable Bat Roost Boxes (other suitable boxes can be used)		
Bark Box Large Twin Crevice		Primarily for use by roosting bats but may also be used by small birds as a safe roost site. Two curved internal voids narrowing down to tight crevices at the top. Suitable for a range of bat species, mating roosts and spring and autumn roosts where the thermal mass is a benefit.
Siting	The bat boxes can be sited in trees or mounted to poles and is best positioned at a height of between 4 to 6 metres. Bat boxes should ideally be sited in open sunny positions and in groups of 3 facing different directions to provide a variety of micro-habitats.	
Timing	Bat boxes can be installed at any time of year following the cessation of construction works.	
Other Notes	Note that once bats have inhabited a roost site they may only be disturbed by licensed bat workers.	
References	Schwegler boxes - http://www.nhbs.com/ Bark boxes - https://www.barkboxes.co.uk/	

Suitable Bird Boxes (other suitable boxes can be used)		
1B Schwegler Nest Box		The 1B nesting box is designed for cavity nesting species such as great, blue, marsh, coal and crested tit, redstart, nuthatch, collared and pied flycatcher, wryneck, tree and house sparrows, the interchangeable front panel comes with a variety of entrance holes (32mm, 26mm and oval shape) to attract different species, however, an entrance hole of 32mm is recommended for maximum diversity of use. The 1B nesting box is also available in four colors: brown, green, white and red. Brown would be considered the most appropriate colour, aiding the box to blend into the landscape and making it less evident to predators. The box is manufactured from long-lasting woodcrete, which is a blend of wood, concrete and clay which will not rot, leak, crack or warp, and will last for at least 20 – 25 years, making it suitable for long-term projects.

Suitable Bird Boxes (other suitable boxes can be used)		
1N Schwegler Deep Nest Box		Birds which nest in recesses or cavities are at risk where there are large numbers of magpies, jays, cats and martens. The 1N has two entrances and a removable wooden insert and offers excellent protection. Robins are particularly attracted to this type of box, especially if it is placed approx. 1 to 1.5m above the ground, preferably in a moist, shady area. The wooden insert, which can be removed for inspection and cleaning purposes, gives protection against predators because nesting takes place at the far end of the box. It is particularly effective against cats, martens, magpies and jays and therefore makes an effective contribution to breeding success. The box is manufactured from long-lasting woodcrete, which is a blend of wood, concrete and clay which will not rot, leak, crack or warp, and will last for at least 20 – 25 years, making it suitable for long-term projects.
Bark Boxes Houses sparrow/great tit box (32mm entrance) and Tree sparrow/pied fly catcher (28mm entrance)		Nest box and roost site with 32mm entrance suitable for a variety of species including great tit *Parus major* and nuthatch *Sitta europaea.* Nest box and roost site with 28mm entrance suitable for a variety of species including tree sparrow *Passer montanus.*
Siting	The nest boxes should be sited in trees and are best positioned at a height of between 2 to 5 metres in accordance with the supplier's instructions. Boxes should be angled so that they face away from the prevailing wind or in a semi sheltered environment. Positioning within or close to hedgerows will increase chances of occupation.	
Timing	Bird boxes will be erected outside of the breeding bird season, to eliminate the possibility of disturbing birds currently utilising the trees for nesting.	
Other Notes	Note that bird boxes should not be opened between the months of March to September to avoid disturbing nesting birds.	
References	Schwegler boxes - https://www.nhbs.com/ Bark boxes - https://www.barkboxes.co.uk/	

Suitable Bird Boxes (other suitable boxes can be used)		
Clay and Reed Insect Nest		The box is designed with reeds on either side of a clay central section to provide a range of environments to suit different insects.
Insect Maisonette		Designed for solitary bees and other insects
Siting	Insect boxes should be sited approximately 1.5m above ground level on a south facing aspect somewhere that will receive sun for at least part of the day.	
Timing	Insect boxes can be installed at any time of year following the cessation of construction works.	
References	Clay and Reed Insect Nest - https://www.nhbs.com/ Insect Maisonette - https://www.birdfood.co.uk/	

APPENDIX 5: REASONABLE AVOIDANCE MEASURES (RAMS)

The following Reasonable Avoidance Measures (RAMs) Method Statement outlines suitable measures to be implemented during construction works associated with the Proposed Development to avoid the disturbance, injury or killing of individual amphibians (including GCN*)* and common and widespread reptile species. These RAMs will also safeguard other wildlife such as small mammal species (e.g., hedgehog).

A 2022 GCN eDNA survey retuned negative results indicating the GCN were absent at the waterbody and were unlikely to be using the pond for breeding. Given the edna survey results and absence of other connected ponds within 250m of the Site, GCN were considered unlikely to be currently present on Site. Most of the Site is modified grassland which may provide foraging opportunities for amphibian and reptiles species; however, the surrounding woodland habitats are likely to provide more favourable foraging habitat as well as places of shelter and refuge.

Measures to ensure the favourable conservation status of protected species during the Proposed Development must reflect legislation and guidance applicable at the time. Works are proposed to be undertaken following RAMs under the supervision of an Ecological Clerk of Works (ECoW), as required, unless updated surveys indicate that GCN are likely to be present.

Amphibians and Reptiles

Summary

The following Method Statement outlines suitable measures to be implemented during construction works to avoid the potential for disturbance, injury or killing of individual GCN and other more commonly recorded amphibian and reptile species.

Legislation

GCN and their habitat are fully protected under the Wildlife & Countryside Act 1981 (as amended) and Habitats Regulations.

The combined legislation makes it illegal to:

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

Anyone carrying out activities which may affect a European Protected Species (EPS) must consider the presence, their breeding sites and resting places. If an offence cannot be avoided, then a EPS Mitigation (EPSM) licence or District Level Licence (DLL) should be sought from Natural England (NE).

Widespread reptile species namely the common lizard, slow-worm*,* grass snake and adder are protected against killing, injuring and sale under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended).

Method Statement

Any development related activities on Site, such as vegetation clearance (removal of scrub or long dense grass/ruderal), removal or tidying up of logs or other debris or excavations in areas of potentially suitable habitat may potentially affect amphibian and reptile species. This Method Statement details measures to be implemented to ensure these objectives are achieved.

The objectives of this Method Statement are therefore to:

- Avoid committing an offence under the above legislation; and,
- To ensure that favourable conservation status of amphibian (including GCN) or reptiles is maintained.

If works have not commenced on Site prior to April 2023, an updated eDNA survey of the on-Site pond P8 will be undertaken to assess presence or likely absence of GCN. Should presence be detected, the following RAMs will be adopted under the GCN DLL.

Should clearance be undertaken during the breeding bird season (1st March to 31st August inclusive) a pre-clearance check for nesting birds will be undertaken by an experienced ecologist. Only once it is determined that clearance works will not result in an offence under the provisions of the Wildlife Act with regards nesting wild birds, may works proceed.

The following measures will be adopted throughout the construction of the Proposed Development:

- Site operatives will be informed by 'toolbox' talk of the potential for protected species to occur on-site, what to look out for and what to do in the event that animal is found;
- A protective buffer will be created using fences to prevent works encroaching on the on-Site pond;
- If possible, the timing of the proposed clearance works (e.g., longer grass (>150mm) and scrub or other features potentially offering shelter or refuge) should avoid the hibernation period (November to February inclusive). This will reduce the likely presence of individual animals being disturbed during hibernation;
- Vegetation (e.g., longer grass (>150mm) and scrub) should be reduced (by hand strimmer) to a height of c.150mm prior to ground works commencing to aid visual searches and encourage individuals to temporarily move away from the working areas;
- Trenches and excavations should include an escape route for animals that might enter the trench, especially if left open overnight. Ramps should be no greater than 45 degrees in angle and can include wooden planks or ramped earth. Ideally, any excavations open for a prolonged period should be covered.
- All excavations left open overnight or longer should be checked for animals prior to the continuation of works or infilling; and,
- Any excavated material stored overnight should be searched prior to being used as infill.

Should a GCN be found at any point during construction, works within suitable habitat and/or potentially disturbing works in close proximity to the GCN must cease immediately and an ecologist contacted who will advise on the appropriate actions, including applying for a licence, if required.

Other amphibians/reptiles/hedgehog found during the visual inspection will be placed within a safe receptor area comprising of terrestrial habitats which will not be impacted by the proposed works and has excellent connectivity with surrounding terrestrial habitats.