

Preliminary Ecological Appraisal

February 2024

Project Reference: PR-0054-24

Land adj. and to rear of No. 1-3 Lakeside View
Lower Road
Halewood
L26 2XA

National Grid Reference: SJ458859



Land Adjacent And To The Rear Of No. 1-3 Lakeside View, Lower Road, Halewood, L26 2XA
Preliminary Ecological Appraisal

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This report aims to provide general advice on ecological constraints associated with any development of the site and includes recommendations for further survey where applicable.

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Executive Summary

As part of a new planning application at “Land Adjacent And To The Rear Of No. 1-3 Lakeside View, Halewood” (“the site”), Tyrer Ecological Consultants Ltd carried out a preliminary ecological appraisal (PEA) in February 2023.

The PEA was commissioned by Mr. Charles Attard on behalf of the applicant; proposals to Knowsley Council under planning reference “**23/02836/FUL**” are for the “ERECTION OF 7 NO. DWELLINGS CONSISTING OF A TERRACE OF THREE DWELLINGS, 2 NO. SEMI-DETACHED DWELLINGS AND 2 NO. DETACHED DWELLINGS TOGETHER WITH VEHICULAR ACCESS, LANDSCAPING AND OTHER ASSOCIATED WORKS”

The applicant received planning consent in August 2023 subject to a Section 106 Agreement under approval “**21/00074/FUL**” for “ERECTION OF 12 NO. DWELLINGS TOGETHER WITH VEHICULAR ACCESS, PARKING, LANDSCAPING AND OTHER ASSOCIATED WORKS” which would affect part of the site adjacent to this new planning application.

Extensive findings, conclusions and recommendations are presented for key species groups throughout the report; however, the reader should be aware of the following key recommendations.

Recommended further surveys

- Bats

No specific trees amalgamated throughout the woodland and edges of the pond were noted as offering definitive bat roost suitability from the site walkover and no further surveys need be recommended in consideration of potential roost loss. However, the habitat is considered to offer ‘Moderate’ suitability given the presence of continuous well connected tree cover ‘dark corridors’ which will be used for essential foraging and commuting activity by bats known to the area and the presence of woodland, scrub and freshwater bodies providing invertebrate prey.

Bat activity surveys are recommended across spring, summer and autumn, for potential habitat loss, to assess the value of the site for bats. Survey methodology should adopt a combination of manual and automated methods using transects, vantage points and static bat detectors, to determine which species are present, establish relative abundance, establish value of the site to bats (especially areas of key interest) and ultimately gather information to predict impacts. See **Figure 7.1**.

- Water vole & otter

The ditch adjacent to the east boundary (see visual aid in **Figure 5.1**) provides a potential suitable habitat for water vole breeding and could also be used by otter, subject to presence. Whilst the previous PEA dismissed impacts to water vole and otter, the proposals now encompass the whole pond and there is likely to be construction within 10 metres of the ditch adjacent to the east boundary, and as such off-site sensitive receptors could be impacted by development related activities, particularly, vibration, digging and piling, which could lead to an offence subject to the presence of water voles or their burrows and/or otters and their places of rest.

A 10.0 metre buffer from the eastern edge of the site is recommended to be implemented which will require a change of design proposals. The 10.0 metre buffer zone should be demarcated clearly by signed Heras fencing, or other, and out of construction bounds to avoid

disturbance, piling aggregates near to a water body and pollution / run-off which could impact water voles.

If any work is proposed within 10.0 metres of the adjacent ditch to the east boundary, or within the recommended area of buffer zone, further surveys are recommended for water voles and otter. Any survey effort should assess the ditch, as well as the pond on site (for completeness), and should be carried out by a suitably qualified ecologist(s), to assess the impacts of the proposals in relation to both species. Whilst water vole surveys can be carried out all year round, the optimal period is between April 1st and September 30th when field signs are most prevalent. In most cases two surveys need to be carried out unless it can be conclusively ascertained during the first survey that suitability is very low. The results of the survey should be considered as part of any mitigation design for the scheme and could carry with it licence ramifications.

General:

- Designated sites

The development proposals trigger potential impact pathways on the Mersey Estuary Special Protected Area (SPA) and Ramsar site. Potential impacts are identified in the form of a net increase in recreational pressures on site and in-combination effects with other local developments. The proposals require a Habitats Regulations Assessment (HRA) for likely significant effects against the Mersey Estuary SPA and Ramsar site.

These issues were addressed previously, and the mitigation is still considered relevant. Further information is provided in section 7.0.

- Priority habitats & vegetation

One UK Priority habitat ('Priority' Pond) and four local (LBAP) habitats (Pond, Urban Grasslands, Urban Trees, Urban Infrastructure) were identified on site. Each of the priority habitats on site is likely to be impacted by the proposals through one or a combination of permanent habitat loss, damage and/or degradation effects during the construction phase. Retained habitats could also be impacted by the operational phase.

The scale of impacts requires a bespoke 'Mitigation and Compensation strategy' following the mitigation hierarchy, in accordance with the relevant policy outlined in section 2.0 and the '*Biodiversity Net Gain: Good practice principles for development*' (CIEEM et. al., 2019). Further information is provided in section 7.0.

No priority plant species were encountered during the appraisal to warrant any specific recommendations, though over 120 floral species were recorded, and the diversity and richness of flora encountered, in grassland areas in particular, which included species from the *Orchidaceae*, *Cyperaceae* and *Juncaceae*, qualifies the site for candidate local wildlife site (LWS) status.

Further information is provided in section 7.0.

- Avoidance measures

Given the results of the appraisal, sensitive timings and/or reasonable avoidance measures are necessary for common breeding birds, European hedgehog and common herpetofauna. Further information is provided in section 7.0.

Table of Contents

- 1.0** Introduction & Scope
- 2.0** Legislation & Policy
- 3.0** Methodology
- 4.0** Limitations
- 5.0** Desk Study Results
- 6.0** Field Study Results
 - 6.1** Habitat survey
 - 6.2** Vegetation
 - 6.3** Bats
 - 6.4** Birds
 - 6.5** Other terrestrial Mammals
 - 6.6** Herpetofauna
 - 6.7** Invertebrates
- 7.0** Conclusions & Recommendations
- 8.0** Bibliography

Appendix I: Preliminary Ecological Appraisal (Tyrer Ecological Consultants Ltd, July 2021)

Appendix II: Site Photographs

Appendix III: Botanical Species List

Appendix IV: Biodiversity Enhancement: General Recommendations

Appendix V: UK Habitats Map

1.0 Introduction & Scope

Overview

- 1.1 As part of a new planning application at “Land Adjacent And To The Rear Of No. 1-3 Lakeside View, Halewood” (termed as “the site”), Tyrer Ecological Consultants Ltd carried out a preliminary ecological appraisal (PEA) in February 2024.
- 1.2 The PEA was commissioned by Mr. Charles Attard on behalf of the applicant; proposals to Knowsley Council under planning reference “**23/02836/FUL**” are for the “ERECTION OF 7 NO. DWELLINGS CONSISTING OF A TERRACE OF THREE DWELLINGS, 2 NO. SEMI-DETACHED DWELLINGS AND 2 NO. DETACHED DWELLINGS TOGETHER WITH VEHICULAR ACCESS, LANDSCAPING AND OTHER ASSOCIATED WORKS”
- 1.3 The applicant received planning consent in August 2023 subject to a Section 106 Agreement under approval “**21/00074/FUL**” for “ERECTION OF 12 NO. DWELLINGS TOGETHER WITH VEHICULAR ACCESS, PARKING, LANDSCAPING AND OTHER ASSOCIATED WORKS” which would affect part of the site adjacent to this new planning application.
- 1.4 See **Figure 1.1** for visual aid – this shows the juxtaposition of the two planning applications and how each would interconnect.
- 1.5 **Figure 1.1** also shows site-adjacent major developments “Redrow Homes - APP: “**19/00521/HYB**” and “Bellway Homes - APP: “**20/00063/FUL**” which were both advanced phase construction sites, including as-built partly occupied sites, at the time of this appraisal.

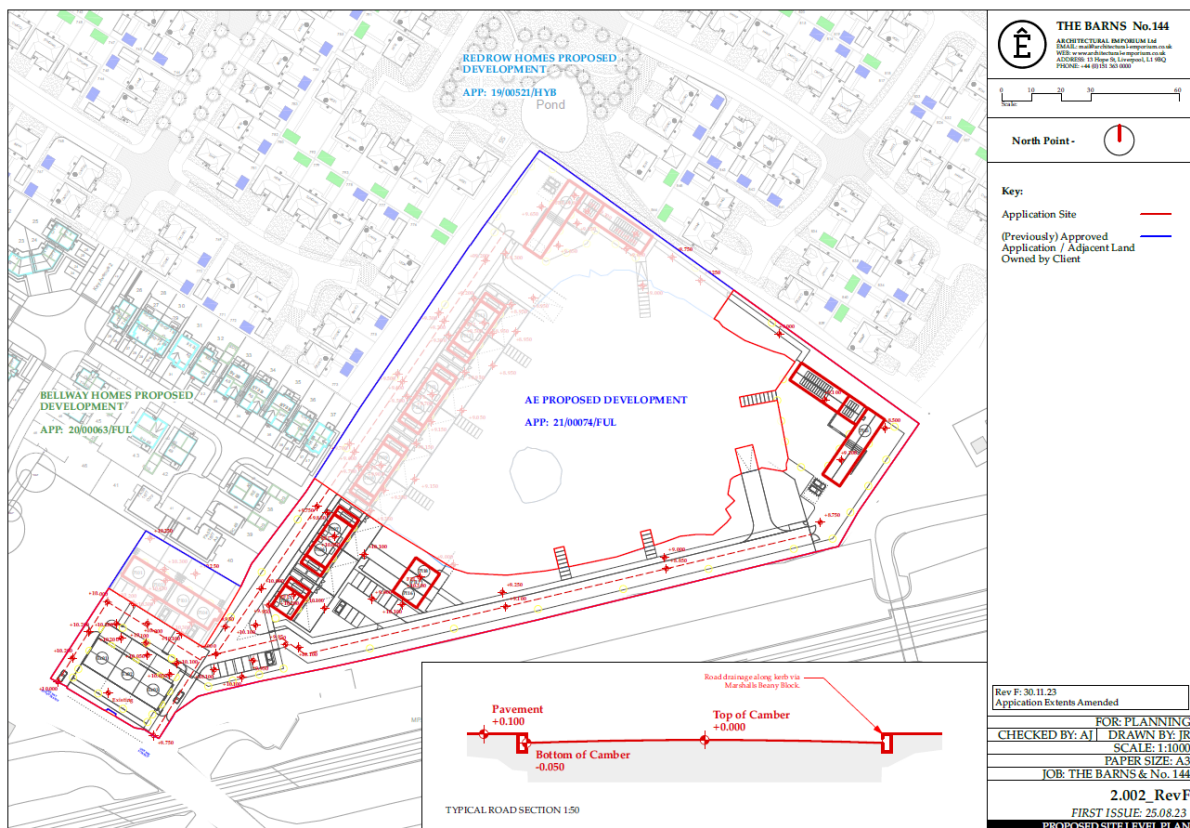


Figure 1.1 – Proposed Site Plan - Application Extents Amended - 2.002_RevF

- 1.6 As part of the Local Planning Authorities (LPA) planning policies and obligations to the Planning Framework, ecological surveys are generally required prior to planning permission being granted, particularly where protected/priority habitats or species are, or may be present, that could be affected by the proposals for which the application seeks consent.
- 1.7 The PEA was carried out in accordance with the '*Guidelines for Preliminary Ecological Appraisal, 2nd Edition*' (CIEEM, 2017) and all associated '*CIEEM Competencies for Species Survey (CSS)*', whilst this report has been presented in accordance with the British Standard 42020:2013 *Biodiversity. Code of practice for planning and development*.

Aims & Objectives

- 1.8 The appraisal aims to ascertain baseline nature of the site and where possible, obtain information on any irreplaceable and/or priority wildlife habitats, or species, that may be present and if so determine if they will be affected by the proposals. The survey therefore includes the following objectives:
- Present baseline ecological information (as necessary) within a suitable report,
 - Identify, measure and map relevant habitats using *UK Habitat Classification – Habitat Definitions Version 2.0* (UK Hab Ltd, 2023),
 - Identify any likely ecological constraints associated with the proposals (i.e. the presence of protected/priority habitats or species that exist within the confines of the boundary, or zone of influence (ZOI),
 - Identify measures likely to be required in line with the mitigation hierarchy (i.e. impact avoidance > minimisation > mitigation > compensation),
 - Identify additional survey requirements,
 - Aim to achieve no 'net loss' and Identify enhancement opportunities for biodiversity in line with national and local planning policy following '*Biodiversity Net Gain: Good practice principles for development*' (CIEEM et. al., 2019),
 - Set out any requirements for post-development monitoring, management, or other commitments, and how they can be secured, where required.
- 1.9 As a functioning component of this specific ecological appraisal:
- Habitats were identified, measured and mapped using the UK Habitat Classification – Habitat Definitions Version 2.0 (2023). To overcome **Limitations** (see **section 4.0**), as part of this updated ecological assessment, direct reference has been made to the previous PEA report carried out at the site which took place in July 2021 (issued July 2021) (see **Appendix I**) - an optimal time to carry out habitat identification and botanical assessment.
- 1.10 This report provides baseline information as derived from the diurnal appraisal process outlined above and recommends any necessary additional surveys, or work, where applicable, to provide a conclusive ecological impact assessment.
- 1.11 The Applicant should be aware that if during the appraisal:
- The site was found to be suitable for any European Protected Species (EPS), otherwise protected, or, priority habitats/communities/species, or,

- Signs of use by particular protected species were found, or suspected, or,
- Seasonal constraints significantly limit the gathering of ecological information to arrive at an accurate conclusion on which the planning application can proceed;

Then more detailed surveys may be recommended where necessary, to allow the ecologist to arrive at a conclusive impact assessment.

- 1.12 If protected species were subsequently found either during the appraisal or during detailed further surveys and / or may be affected by the development proposals, then a Mitigation Licence may be required to legally proceed with the development.
- 1.13 Where more detailed surveys are recommended by the Ecologist, following ecological appraisal, then Local Planning Authorities (LPAs), on the advice of their ecological advisors, may not grant permission until such time that all relevant material information is gathered in accordance with their obligations to the legislature.
- 1.14 Groups/species omitted from this report have been discounted due to negating factors including obvious absence/isolation of suitable habitats, and/or distributional aspects negating the necessity to survey for them, and/or the proposed works were not considered to impact the species or encroach on areas where the species may be present.

2.0 Legislation & Policy

2.1 The legislature and guidance considered for the purposes of this report includes the following:

- Biodiversity Net Gain: Good practice principles for development (2019),
- BS 42020:2013 Biodiversity – Code of Practice for Planning and Development (2013),
- BS 8683:2021 Process for designing and implementing biodiversity net gain (2021),
- Conservation of Habitats and Species Regulations (2017) (as amended),
- Countryside Rights of Way (CROW) Act (2000),
- Environment Act (2021),
- Natural Environment and Rural Communities (NERC) Act (2006),
- Protection of Badgers Act (1992),
- The Biodiversity Gain Regulations (SI) (2024),
- The Hedgerow Regulations (1997),
- The Invasive Alien Species (Enforcement and Permitting) Order 2019
- Town and Country Planning Act (1990),
- Wild Mammals Protection Act (1996),
- Wildlife and Countryside Act (1981) (as amended).

2.2 These acts entail relevance to both protected and invasive species. The degree of protection offered to taxa provided within existing UK and EU legislature often varies depending on species/group, for example, some species may purely be protected during one of its life stages (e.g. common species of breeding bird whilst nesting/with eggs/young); some species may receive full protection (e.g. bats), whereas others may be protected solely on a national basis (e.g. grass snake).

2.3 **Table 2.1** contains appropriate legislature to each species/group specifically respective to the Site and provides the relevance of said legislation.

Table 2.1 – Relevant Legislation

Species/Group	Relevant Legislation	Level of Protection
Badger	Protection of Badgers Act (1992), Wildlife and Countryside Act (1981) (as amended)	<u>Illegal to:</u> Wilfully kill, injure or take a badger (or attempt to do so), cruelly ill-eradicate a badger, dig for a badger, Intentionally or recklessly damage or destroy a badger sett or obstruct access to it, cause a dog to enter a badger sett, disturb a badger when it is occupying a sett.

Land Adjacent And To The Rear Of No. 1-3 Lakeside View, Lower Road, Halewood, L26 2XA
Preliminary Ecological Appraisal

Bats	CRoW Act (2000) Conservation of Habitats and Species Regulations (2017) (as amended) Wildlife and Countryside Act (1981) (as amended)	All British bats and their roosts are afforded full protection from damage/destruction and bats may not be injured/killed/taken at any life stage. Once identified, roosts are protected whether the bat is in occupation or not.
Birds	CRoW Act (2000) Wildlife and Countryside Act (1981) (as amended)	All wild birds (with only minor exceptions) and their nests whilst being built or containing eggs or dependant young are protected. Birds listed on Schedule 1 Wildlife & Countryside Act (1981) (as amended) are afforded a greater level of protection.
Great Crested Newt (GCN)	CRoW Act (2000) Conservation of Habitats and Species Regulations (2017) (as amended) Wildlife and Countryside Act (1981) (as amended)	Great Crested Newts (GCN's) are fully protected from disturbance, killing, injuring or possession at any life stage. Confirmed breeding ponds and resting places are afforded the same protection.
Invasive Plant Species	Wildlife and Countryside Act (1981) (as amended)	Species listed within Schedule 9 as invasive, including Japanese knotweed (<i>Reynoutria japonica</i>) and Himalayan balsam (<i>Impatiens glandulifera</i>), for example, carry notoriety regarding development. The Act makes it an offence for any person to grow or cause to grow in the wild any plants listed as invasive.
Reptiles	Conservation of Habitats and Species Regulations (2017) (as amended) Wildlife and Countryside Act (1981) (as amended) CRoW Act (2000)	All native reptile species have protection in the UK, through section 8(1) and (5) (specified in Schedule 5) of the Wildlife and Countryside Act 1981 (as amended). Sand lizard (SL) and smooth snake (SS) are species of principal importance however with greater protection(s).
Water vole	CRoW Act (2000) Wildlife and Countryside Act (1981) (as amended)	Water voles are fully protected against intentional killing, capture or injury and intentional or reckless disturbance, obstruction, damage or destruction of their burrows.

Relevant Policy

- 2.4 Guidance for Local Authorities: Extract from Office of the Deputy Prime Minister - Circular 06/2005 states:

"It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision".

- 2.5 Paragraph 180 of the National Policy Planning Framework (as revised in September 2023) states:

When determining planning applications, local planning authorities should apply the following principles:

a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate

- 2.6 The development plan in Knowsley comprises the Saved Policies of the Replacement Unitary Development Plan, the Core Strategy Local Plan and the Joint Waste Local Plan. The following policies are relevant to this application.

KNOWSLEY LOCAL PLAN: CORE STRATEGY (2016)

SD1 - Sustainable Development
CS1 - Spatial Strategy for Knowsley
CS2 - Development Principles
CS3 - Housing Supply, Delivery and Distribution
CS7 - Transport Networks
CS8 – Green Infrastructure
SUE1 - Sustainable Urban Extensions and Safeguarded Land
SUE2 - Sustainable Urban Extensions - Development Principles
SUE2b - Sustainable Urban Extensions - East of Halewood
CS15 - Delivering Affordable Housing
CS17 - Housing Sizes and Design Standards
CS19 - Design Quality and Accessibility in New Development
CS20 - Managing the Borough's Historic Environment

CS26 - Waste Management
CS21 - Greenspaces and Trees
CS22 - Sustainable and Low Carbon Development
CS24 - Managing Flood Risk
CS27 - Planning and Paying for New Infrastructure

**SAVED POLICIES - KNOWSLEY REPLACEMENT UNITARY DEVELOPMENT PLAN
(ADOPTED JUNE 2006)**

T7 - New Development and Walking & Cycling Routes
T10 - Access for the Less Mobile
DQ2 - Security in the Built Environment
DQ4 - Trees and Development
ENV2 - Noise and Vibration
ENV3 - Light Pollution
ENV5 - Contaminated Land

The Joint Merseyside and Halton Waste Local Plan 2013

WM8 - Waste Prevention and Resource Management
WM9 - Sustainable Waste Management Design and Layout of New Development

SUPPLEMENTARY PLANNING DOCUMENTS

Amended New Residential Development SPD (2018)
East of Halewood SPD (2020)
Ensuring a Choice of Travel SPD (2010)
Design Quality in New Development SPD (2016)
Developer Contributions SPD (2016)
Trees and Development SPD (2016)

3.0 Methodology

Desktop study

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

- Statutory designated sites for nature conservation within 5km; and
- Non-statutory designated sites for nature conservation within 2km.

3.2 The following key sources were consulted:

- Merseyside Biobank local record centre 1.0km data search for commercial use - providing otherwise unobtainable information on protected & priority species, invasive non-native species, statutory & non-statutory designated sites, phase 1 habitats, supporting documentations.
- The Natural England Geo-portal.
- Environment Agency 'Statutory Main River Map' tool.
- Joint Nature Conservation Committee (JNCC) website.
- The Multi Agency Geographic Information for the Countryside (MAGIC) website.

3.3 Reference was also made to Google Earth Pro and Ordnance Survey (OS) maps of the local area and online aerial images (www.google.co.uk/maps) in order to aid in determining any features of nature conservation interest in the wider area.

Field survey

3.4 A daytime PEA was conducted on the 5th February 2024 in wet, clear weather (6°C) post-rain by the following qualified ecologist (**Table 3.1**).

Table 3.1 – Surveyor credentials

Name	Description of most relevant credentials
Mr. M. Pritchard ACIEEM (Senior Ecologist)	• Seven years professional experience & extensive training in cross habitat/species ecology; • Relevant degree: FdSc (Countryside, Conservation & Recreational Management); • FISC Level - 4 (2023) (Botanical); • Licenced for Great Crested Newts in England (2018-34062-CLS-CLS) & Wales: S089281/1. • Licenced in Bats: (2020-5039-CLS-CLS) (Class 1) in England • Licenced for Great Crested Newt: CL08 (Great Crested Newt Survey Level 1) - 2018-34062-CLS-CLS (England); • Licensed for Sand Lizard & Natterjack Toad (2023-66506-SCI-SCI) in England; • Competent in both UK Habs 2.0 & Extended Phase 1.

Floristic assessment

- 3.5 The survey followed the *UK Habitat Classification Version 2.0* (UKHabs, 2023) methodology with reference to the Joint Nature Conservation Committee (JNCC) *Phase 1 Habitat Methodology standards* (JNCC, 2010) and reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) Technical Guidance Series “*Guidelines for Preliminary Ecological Appraisal, 2nd Edition*” (CIEEM, 2017).
- 3.6 During a survey walkover botanical assemblages were assessed and the land was inspected for the presence of red-listed species (Stroh *et al*, 2014; Hodgetts, 2011), NERC Act s.41 species and LBAP species alongside specially protected species as listed under Schedule 8 of the Wildlife and Countryside Act (WCA) (1981) (as amended) and / or Schedule 5 The Conservation of Habitats and Species Regulations (2017) (as amended). Species nomenclature follows Stace, C. (2019) – definitive English names.
- 3.7 Additional to attributing ecological value to red-listed / BAP species, in accordance with existing CIEEM guidance, a geographic frame of reference is also adopted. Plant species and habitats may be recognised for their ecological value on a geographical scale which is adopted on a site-to-site basis (*International – National – Regional – County/Vice-County – Local*). For botanical species list compiled in full, see **Appendix II**.
- 3.8 The site was also assessed in relation to the presence of invasive non-native species (INNS) as listed under Schedule 9 (Part II) of the Wildlife and Countryside Act (1981) (as amended) and Schedule 2 of The Invasive Alien Species (Enforcement and Permitting) Order 2019 (IASO).

Faunal assessment

- 3.9 During a walkover the identification of priority fauna encountered was documented whilst in tandem the area was assessed for the potential to support priority species.

Bats

- 3.10 The site was assessed for bats; a daytime bat walkover (DBW) was undertaken to observe, assess and record any habitats or features suitable for usage by bats, either as commuting, foraging or roosting provision. Wider connectivity to other habitats was also considered during the DBW.
- 3.11 Buildings and other permanent / semi-permanent structures were subject to a preliminary roost assessment (PRA), to identify potential areas which may be of value to bats and to determine evidence of use. This typically involves a systematic search of the external aspects of any structure(s), comprising an investigation of features known to be used by bats (for example roofing material, soffits, fascia, lead flashing hanging tiles) using a high-powered torch and close-focus binoculars, where necessary. An internal assessment of the structure(s) was also carried out, with the aid of a high-powered torch and endoscope, where necessary, to identify any evidence of bat use of a structure. Field signs of bats typically comprise bat droppings, urine splashing, fur-oil staining, incidental animal presence, dead specimens and / or the presence of prey items, such as moth wings.
- 3.12 Trees (where present) would be subject to a ground level tree assessment (GLTA) using equipment such as close-focus binoculars and a high powered-torch. Potential roost features (PRFs) can include woodpecker holes, rot holes, hazard beams, other vertical or horizontal cracks or splits in stems and branches, partially decayed lifted bark, knot holes, man-made holes, tear-outs, cankers in which cavities have developed, other hollows or cavities, including butt-rots, double-leaders forming compression forks with included bark, gaps between

overlapping stems or branches, partially detached climbing species with stem diameters in excess of 50mm or pre-existing bat / bird boxes. These PRFs can then be determined as PRF-I or PRF-M, dependent on their suitability for individual / low numbers of bats or their capability to host multiple bats.

- 3.13 Criteria for roost assessment are based upon the determinants given in the Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4th ed. (2023): (see **Figure 3.1 – 3.3** overleaf).
- 3.14 Factors typically considered during the preliminary roost assessment include:
- Knowledge of bat species relevant to the site location and geographical range,
 - Nature of the immediate / surrounding habitat in relation to foraging opportunities,
 - Presence and conditions of loft spaces, upper floors, roof linings,
 - Presence / absence of roost potential,
 - Value and types of roost potential, if present (i.e. - maternity, hibernation, transition).

Birds

- 3.15 The site was inspected for evidence of nesting and suitability for relevant avian species including breeding, passage, overwintering use. Bird species observed and heard were recorded, and a search was made for nest material, or areas suitable for nesting - this can take the form of searching structures, woody vegetation, semi-aquatic vegetation such as reeds and/or the ground. Elevations were inspected for evidence of birds that show a high dependency upon built structures, many of which are in a state of decline. These might include the following species for example:
- Starling: Birds of Conservation Concern (BoCC) red status
 - House sparrow: BoCC red status
 - House martin (*Delichon urbica*): BoCC red status
 - Swift (*Apus apus*): BoCC red status
- 3.16 Additional to capacity to support generally common species for breeding, the site was also subject to an assessment for wider capacity to support species with extra protection under Schedule 1 of the Wildlife & Countryside Act (WCA) (1981) (as amended) for example barn owl (*Tyto alba*), kingfisher (*Alcedo atthis*) and other Sch.1 (WCA) listed species.

Table 4.1. Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement.

Potential suitability	Description	
	Roosting habitats in structures	Potential flight-paths and foraging habitats
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats).
Negligible ^a	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions ^b and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity and not a classic cool/stable hibernation site, but could be used by individual hibernating bats ^c).	Habitat that could be used by small numbers of bats as flight-paths such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions ^b and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for flight-paths such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions ^b and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.
a Negligible is defined as 'so small or unimportant as to be not worth considering, insignificant'. This category may be used where there are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute). b For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance. c Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten <i>et al.</i>, 2016 and Jansen <i>et al.</i>, 2022). Common pipistrelle swarming has been observed in the UK (Bell, 2022 and Tomlinson, 2020) and winter hibernation of numbers of this species has been detected at Seaton Delaval Hall in Northumberland (National Trust, 2018). This phenomenon requires some research in the UK, but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in prominent buildings in the landscape, urban or otherwise.		

Figure 3.1 – BCT (2023) guidelines extract

Table 4.2. Guidelines for assessing the suitability of trees on proposed development sites for bats, to be applied using professional judgement.

Suitability	Description
NONE	Either no PRFs in the tree or highly unlikely to be any
FAR	Further assessment required to establish if PRFs are present in the tree
PRF	A tree with at least one PRF present

Figure 3.2 – BCT (2023) extract on tree roost suitability criteria

Table 6.2. Guidelines for categorising the potential suitability of PRFs on a proposed development site for bats, to be applied using professional judgement.	
Suitability	Description
PRF-I	PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats.
PRF-M	PRF is suitable for multiple bats and may therefore be used by a maternity colony.

Figure 3.3 – BCT (2023) extract on tree roost categorisation criteria

Other terrestrial mammals

- 3.17 The walkover included a search for field signs of badger (*Meles meles*) which includes signs of activity such as prints, hairs, digging, setts, 'runs' leading to and from a sett and the existence of latrines or 'snuffle' holes where badgers have foraged in the ground.
- 3.18 The site was assessed for suitability to support water vole (*Arvicola amphibius*), otter (*Lutra lutra*), brown hare (*Lepus europaeus*) and European hedgehog (*Erinaceus europaeus*).

Great crested newt / other amphibians

- 3.19 Terrestrial value on site was assessed in relation to protected and common amphibian shelter, hibernation, foraging and commuting habitat. The walkover also aimed to identify any ephemeral pools or unmapped waterbodies.
- 3.20 During desktop assessment a 250 metres radial search was undertaken from a site central grid reference in relation to the presence of ponds, ditches or other water bodies that may support great crested newts (GCN) (*Triturus cristatus*). The information gathered would then be used to aid in establishing if more detailed surveys are required.

NB: *Ponds within 500m of a proposed development site are considered for their potential to support GCN, however, in some instances this distance may be reduced to 250m due to the presence of physical barriers and obstructions or based on the likely magnitude of impacts arising from the proposed development.*

- 3.21 The pond on site was subject to a Habitat Suitability Index (HSI) assessment for GCN. No ponds outside of the site have been accessed at this time.

Applying the GCN HSI

- 3.22 The GCN Habitat Suitability Index (HSI) is a quantitative measure of habitat quality evaluating the suitability of habitat for the Great Crested Newt. A HSI is a number between 0 and 1, derived from an assessment of ten habitat variables known to influence the presence of newts. An HSI of 1 is optimal habitat (high probability of occurrence), while an HSI of 0 is very poor habitat (minimal probability of occurrence). The HSI is calculated on a single pond basis, but takes into account surrounding terrestrial habitat and local pond density. The tool is particularly useful in survey and mitigation; one benefit is that it can be undertaken in a single field visit (with supporting desk work) and at any time of the year (though some variables are more easily measured in spring and summer).

Its main uses are:

- *In surveys, to assess habitat quality in a repeatable, objective manner. In particular, the HSI allows individual factors that influence newt presence to be easily identified. These*

factors could help explain a very high or very low count. A high HSI can justify employing additional survey effort or methods if no newts are found initially.

- *In impact assessments, to allow a measure of how damaging a development could be. HSI might also be used as a screening tool to select no impact or minimal impact options.*
- *In risk assessments, helping to decide whether an offence might be committed, and therefore whether a licence should be applied for. If a pond has a very low HSI score (say <0.5) then there would typically be a minimal chance of GCN presence. Hence, with due care and in limited circumstances the HSI might be used in the absence of newt surveys to help conclude that an offence is highly unlikely and therefore work could proceed in that area without a licence. This application of the HSI should only be used where the predicted impacts - were newts to be present - would be low (e.g. development at least 100m from pond, permanent habitat loss <0.5ha or temporary habitat loss <5ha). The developer should be aware that there would still be a risk of committing an offence, but it would typically be so low as to be negligible. Obviously, note that if HSI >0.5, this is not confirmation of newt presence; a newt presence/absence survey would be required to confirm this.*
- *In habitat enhancement, HSI could be used to identify the low-scoring factors in an existing pond that need addressing to improve its quality for newts.*
- *In post-development monitoring, to allow an assessment of habitat condition.*

3.23 GCN HSI Limitations - *The GCN HSI is not a substitute for undertaking newt surveys; it indicates but cannot confirm presence or absence of GCN. A licence application that infers GCN presence solely from HSI data (i.e. no newt survey data presented) will be rejected. Very low HSI scores may be used along with scheme details to infer a minimal chance of committing an offence in low impact situations. This is on a risk assessment basis and developers should be aware of the potential hazards of this approach. Care should be taken when interpreting low HSI scores; for example, a low scoring pond close to an occupied newt pond may still support newts.*

3.24 In order to quantify risks to GCN in a PEA a range of factors that can lead to an offence are considered (see below and **Table 3.2**):

- Presence of ponds on site, and impacts to those ponds,
- Site proximity to any additional ponds within 250-500m,
- Pond quality (suitable for breeding, or not),
- Nature, extent, and connectivity of available terrestrial habitat around the pond(s), considering core, intermediate and distant ranges, to be affected by works,
- Presence of significant barriers between ponds and site,
- Area of site habitat loss and permanence of that loss.

Table 3.2 – Factors that can increase/decrease risk of committing an offence

Increases risk to GCN	Decreases risk to GCN
large population size, high local pond density, good terrestrial habitat, low pre-existing habitat fragmentation, large development footprint, long construction period	small population size, low local pond density, poor terrestrial habitat, substantial pre-existing dispersal barriers, small development footprint, short construction period

Reptiles

- 3.25 The site and its surroundings were assessed for suitability for use by reptiles. During the survey particular attention was paid to features that could be used as basking areas (e.g. south-facing slopes), hibernation sites (e.g. banks, walls, leaf litter, piles of hardcore) and opportunities for foraging (e.g. rough grassland and scrub). *Beebee & Griffiths* (2000) state specific habitat preferences of common UK reptiles:
- common lizards (*Zootoca vivipara*) use a variety of habitats from woodland glades to heaths, walls and pastures, as well as brownfield sites.
 - slow-worms (*Anguis fragilis*) use similar habitats to common lizards, and are often found in rank grassland, gardens and derelict land;
 - grass snakes (*Natrix helvetica*) have broadly similar requirements to common lizards but with a greater reliance on ponds and wetlands, where they prey on amphibians;
 - adder (*Vipera berus*) use a range of fairly open habitats with some cover, but are most often found in dry heath.
- 3.26 Assessment for reptiles considers important characteristics outlined in **Table 3.3** below, as derived from the *Reptile Habitat Management Handbook* (Edgar, 2010).

Table 3.3 – Important habitat characteristics for reptiles

1. Location (in respect of species range)	7. Connectivity to good quality habitat
2. Vegetation structure	8. Prey abundance
3. Insolation	9. Refuge opportunity
4. Aspect	10. Hibernation habitat potential
5. Topography	11. Disturbance regime
6. Surface geology	12. Egg-laying site potential

Invertebrates

- 3.27 The site was assessed for the presence of features of high value to invertebrates. Several important features were considered, based on the assemblage descriptions provided within the Research Report “*Surveying terrestrial and freshwater invertebrates for conservation evaluation*” (C.M. Drake *et. al.* (2007), including but not limited to:
- Abundance of wildflower habitat,
 - Wood decay,
 - Early successional mosaic habitat,
 - Shaded ground layer,
 - Still and flowing water.

Quality assurance

- 3.28 Results, conclusions and recommendations in this report are based on several factors i.e.
- Previous survey results at this site and nearby sites.
 - Skills and experience of the ecologist.
 - Knowledge of flora and fauna relevant to the site location and geographical range.
 - Nature of the immediate and surrounding habitat in relation to shelter, foraging and commuting opportunities.
- 3.29 The results, conclusions and recommendations of this report have been assessed by Mrs. K. Wilding, Director of Tyrer Ecological Consultants Ltd, and her assessment concurs with the findings and recommendations of the surveyor and author Mr. Pritchard.

4.0 Limitations

- 4.1 The optimal time of the year to carry out a preliminary ecological appraisal / UK Habitats survey is April to October; the 2024 PEA was carried out in February within a sub-optimal period therefore direct reference has been made to the previous PEA report carried out at the site which took place in July 2021 (see **Appendix I**) – an optimal time to carry out habitat identification and botanical assessment. This offsets the limitation in respect of timings by permitting the ecologist a more holistic assessment across two separate seasons, provides a broad window of comparison to assess any material changes to the site and provided a more robust preliminary roost assessment of trees at a time when foliage is absent.
- 4.2 The survey took place outside of both the active bat season and the breeding bird season; whilst sub-optimal, survey timing is not considered a constraint in this instance as roost or nest site suitability can be assessed by a competent surveyor at any time of the year.
- 4.3 In considering limitations, no significant constraints were experienced that might adversely influence the results, conclusions, and recommendations of this report which have been provided in accordance with best practice guidance.

5.0 Desk Study Results

Overview

- 5.1 The site lies to the northeast of Lower Road, Halewood; it extends over an area of approximately 2.4 hectares. The site frontage is occupied by an existing barn conversion comprising three dwellings with associated gardens and communal parking, accessed from Lower Road. The north-east region of the site is a secure fenced off area that features a large fishing pond surrounded by scattered trees, elements of species rich neutral grassland and acid grassland with calcicoles, strips of modified grassland, rushes, mixed woodland, scrub, recently planted hedgerow and tall ruderal herbs. The site frontage is enclosed by a low-level sandstone wall with a small hedge at the south-east corner.
- 5.2 The site is bounded to the north, northwest and northeast by land with planning consent for major residential development, which is partly under construction and part-complete (Bellway Homes and Redrow Homes – see section 1.5). Land to the east and southeast is a secure wooded mosaic understood to be United Utilities land accommodating a pumping station and substation; further beyond to the southeast is a steep railway embankment and railway line (Manchester to Liverpool). Between the site and the railway line an existing two-storey dwelling, Railway Cottage, is located off Lower Road. The last use of Railway Cottage is believed to be a residential dwelling with children's day care facility with outbuilding to the rear, although it appears this may no longer be in operation for day care. Hayes Farm and associated outbuildings and land is located immediately to the west of the site.
- 5.3 Study of the data search provided by Merseyside Biobank and from an assessment of information on MAGIC maps highlights lowland mixed deciduous woodland as adjacent to the site south boundary located on the embankments of the nearby railway¹. Woodland is the most common priority habitat within the surrounding 1.0-kilometre radius, many of which are fragmented by arable land cover.

Ditches

- 5.4 Adjacent to the east boundary is a running freshwater ditch that extends north alongside the Redrow Homes development, and the United Utilities wooded mosaic area, where it eventually meets Ditton / Netherley Brook (a main river). See **Figure 5.1** overleaf for visual aid.

Ponds

- 5.5 In relation to ponds, there is one pond on site (**P1**) and one pond adjacent to the site north-west boundary (**P2**) within the ongoing Redrow Homes development, whereby it is understood from analysis of the ecological reports that informed the East Halewood Development that the pond **P2** will be protected during construction and afforded a post-development terrestrial buffer zone of 10 metres radius from any encroachment. See **Figure 5.1** for visual aid.

¹ The field study would later reveal Network Rail have felled the woodland on their railway embankments adjacent to the south of the site, subsequently creating open grassland habitat; as a result the woodland mapped along the embankment adjacent to the south boundary no longer exists.

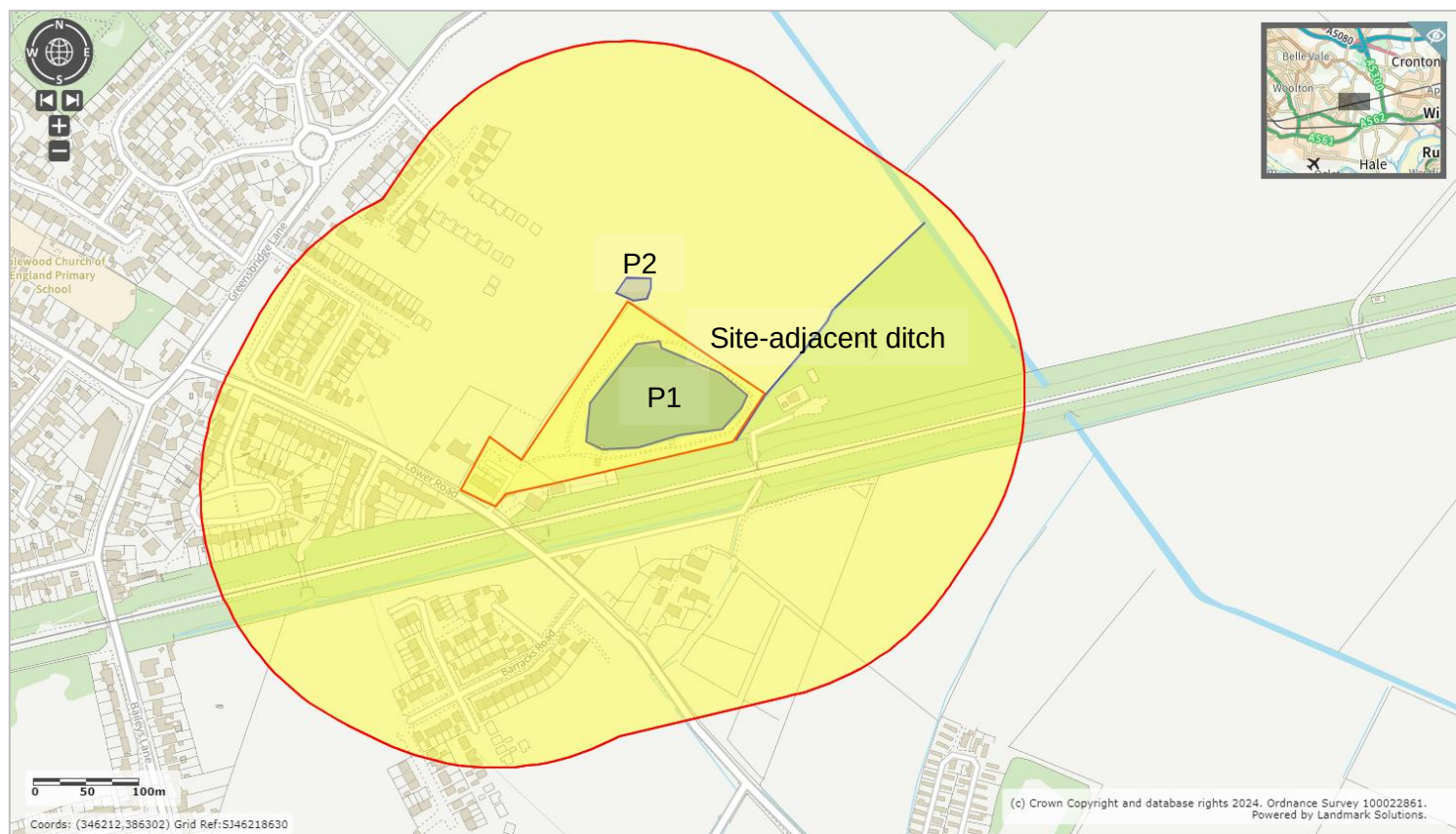


Figure 5.1 – Image above highlights location of ponds **P1** and **P2** and the adjacent running freshwater ditch that extends north where it eventually meets the main river Ditton / Netherley Brook

European Protected Species Mitigation Licences (EPSMLs) / records

- 5.6 The desktop study identified that no European Protected Species Mitigation Licences (EPSMLs) have been granted within a 2.0km radius of the site. Additionally, no GCN presence data occurs within 2.0km radius as according to MAGIC maps.

Statutory designated sites

- 5.7 There is one statutory designated site within 2.0 kilometres: see **Table 5.1**.

Table 5.1 – Statutory designation types and reasons for designation within 2.0 kilometres buffer

Site/distance	Designation	Interest features
Millwood & Alder Wood 1.79 kilometres to the south	Local nature reserve (LNR)	Habitats include broadleaf woodland, neutral grassland and ponds. Native bluebell and a range of notable butterflies.

- 5.8 The development site is near (outside of 2.0 kilometres) to the following European protected sites and thus within the Impact Risk Zone (IRZ).

- Mersey Estuary Special Protected Area (SPA)
- Mersey Estuary Ramsar site

Non-statutory designated sites

- 5.9 There are six non-statutory designated local wildlife sites (LWS) within 2.0 kilometres of the site. The closest of the sites are Ditton / Netherley Brook LWS to the north, Cartbridge Lane Wood LWS further north, Greensbridge Plantation LWS to the north-west, Halewood Triangle LWS to the extended west and Flood Plain, Ditton Brook LWS to the extended east. See **Figure 5.2** for visual aid.



Figure 5.2 – Local wildlife sites within 1.0 kilometre of the site (sourced via [North Merseyside Local Wildlife Sites \(northmerseysidelsp.org.uk\)](http://NorthMerseysideLocalWildlifeSites.northmerseysidelsp.org.uk))

Merseyside Biobank – Species data search results

- 5.10 The following flora and fauna information has been extracted from the 1.0 kilometres data search provided by Merseyside Biobank (MBB) local record centre (see **Figure 5.3 – 5.4**).
- 5.11 The findings, where relevant, are discussed in section 7.0 conclusions and recommendations.

UK Protected Species

'UK Protected species' are those taxa specifically identified by UK legislation including: Wildlife & Countryside Act 1981 (as amended); Protection of Badgers Act 1992; Conservation of Habitats and Species Regulations 2017. The latter regulations enact the European Union's (EU) Habitats Directive (92/43/EEC) in the UK and supercede The Conservation Regulations 1994 and 2010. In our list of protected species, you may see designations that refer to schedules in the 1994 and 2010 regulations, but these remain unchanged under the 2017 regulations.

Some protected species may not be legally disturbed unless you are in possession of an appropriate license. If you are in any doubt as to whether or not a license is required, you should contact Natural England.

The following tables detail the protected species that were recorded in the search area.

Group	Common Name	Scientific Name	Records	Dates	Designations
amphibian	Common Frog	<i>Rana temporaria</i>	27	1981-2021	WCA5/9.5a
	Common Toad	<i>Bufo bufo</i>	10	1971-2021	WCA5/9.5a
	Great Crested Newt	<i>Triturus cristatus</i>	1	2011	HabRegs2,WCA5/9.4b,WCA5/9.5a,WC A5/9.4c
	Smooth Newt	<i>Lissotriton vulgaris</i>	26	1996-2018	WCA5/9.5a
bird	Barn Owl	<i>Tyto alba</i>	3	1997-2005	WCA1i
	Kingfisher	<i>Alcedo atthis</i>	2	1997-2014	WCA1i
flowering plant	Bluebell	<i>Hyacinthoides non-scripta</i>	22	1981-2020	WCA8
terrestrial mammal	Bats	<i>Chiroptera</i>	1	2007	HabRegs2
	Brown Long-eared Bat	<i>Plecotus auritus</i>	1	2018	HabRegs2,WCA5/9.4b,WCA5/9.5a,WC A5/9.4c
	Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	2	2007-2018	HabRegs2,WCA5/9.4b,WCA5/9.5a,WC A5/9.4c
	European Water Vole	<i>Arvicola amphibius</i>	2	2000-2018	WCA5/9.4.a,WCA5/9.4b,WCA5/9.4c
	Noctule Bat	<i>Myotis noctula</i>	1	2018	HabRegs2,WCA5/9.4b,WCA5/9.5a,WC A5/9.4c
	Pipistrelle Bat species	<i>Pipistrellus</i>	10	2007-2008	HabRegs2,WCA5/9.4b,WCA5/9.5a,WC A5/9.4c
	Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	1	2008	HabRegs2,WCA5/9.4b,WCA5/9.5a,WC A5/9.4c

Figure 5.3 – UKBAP species recorded within the search radius (MBB reference: 3413-Tyrer)

North Merseyside BAP Species

The North Merseyside Biodiversity Action Plan (NM BAP) was published in September 2001 and last reviewed in 2008. Like other Local Biodiversity Action Plans (LBAPs) its purpose is to focus local conservation on national priority species and habitats. However, LBAPs also embrace the idea of 'local distinctiveness' and species which are not considered UK conservation priorities can be catered for by LBAPs if they are of particular local significance. Such is the case with the NM BAP which currently names 74 species of which 57 are not conservation priority species but are included because their conservation is considered to be a priority in North Merseyside.

The following tables detail the North Merseyside BAP species that were recorded in the search area.

Group	Common Name	Scientific Name	Records	Dates	Designations
amphibian	Great Crested Newt	<i>Triturus cristatus</i>	1	2011	LBAP
bird	Com Bunting	<i>Emberiza calandra</i>	10	1994-2005	LBAP
	Grey Partridge	<i>Perdix perdix</i>	10	1998-2005	LBAP
	House Martin	<i>Delichon urbicum</i>	5	1998-2005	LBAP
	House Sparrow	<i>Passer domesticus</i>	7	1998-2005	LBAP
	Lapwing	<i>Vanellus vanellus</i>	8	1998-2006	LBAP
	Skylark	<i>Alauda arvensis</i>	9	1998-2002	LBAP
	Song Thrush	<i>Turdus philomelos</i>	6	1998-1999	LBAP
	Starling	<i>Sturnus vulgaris</i>	5	1998-2005	LBAP
	Swift	<i>Apus apus</i>	3	1998-2005	LBAP
	Bluebell	<i>Hyacinthoides non-scripta</i>	22	1981-2020	LBAP
Insect - dragonfly (Odonata)	Azure Damselfly	<i>Coenagrion puella</i>	15	1991-2011	LBAP
	Banded Demoiselle	<i>Calopteryx splendens</i>	3	2011-2017	LBAP
	Black Darter	<i>Sympetrum danae</i>	1	1991	LBAP
	Black-tailed Skimmer	<i>Orthetrum cancellatum</i>	4	2005	LBAP
	Blue-tailed Damselfly	<i>Ischnura elegans</i>	24	1991-2020	LBAP
	Broad-bodied Chaser	<i>Libellula depressa</i>	8	2005-2018	LBAP
	Brown Hawker	<i>Aeshna grandis</i>	7	2005-2014	LBAP
	Common Blue Damselfly	<i>Enallagma cyathigerum</i>	9	1982-2005	LBAP

4 of 54



**The Local Biodiversity
Records Centre
for North Merseyside**

Merseyside BioBank
Estate Barn, Court Hay Park
Roby Road, Liverpool
L16 3NA
Tel: 0151 737 4150
Info@MerseysideBioBank.org.uk

terrestrial mammal	Common Darter	<i>Sympetrum striolatum</i>	5	1991-2020	LBAP
	Emperor Dragonfly	<i>Anax imperator</i>	15	2005-2010	LBAP
	Four-spotted Chaser	<i>Libellula quadrimaculata</i>	5	2010	LBAP
	Migrant Hawker	<i>Aeshna mixta</i>	1	2016	LBAP
	Southern Hawker	<i>Aeshna cyanea</i>	6	2000-2010	LBAP
	Bats	<i>Chiroptera</i>	1	2007	LBAP
	Brown Hare	<i>Lepus europaeus</i>	11	1976-2015	LBAP
	Brown Long-eared Bat	<i>Plecotus auritus</i>	1	2018	LBAP
	Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	2	2007-2018	LBAP
	European Water Vole	<i>Arvicola amphibius</i>	2	2000-2018	LBAP
	Noctule Bat	<i>Myotis noctula</i>	1	2018	LBAP
	Pipistrelle Bat species	<i>Pipistrellus</i>	10	2007-2008	LBAP
	Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	1	2008	LBAP

Figure 5.4 – NMBAP species recorded within the search radius (MBB reference: 3413-Tyrer)

East Halewood Urban Extension area surveys – ERAP

- 5.12 ERAP issued the '*ERAP Ltd. 2017-366 East Halewood, Knowsley: Technical Appendix H1: Extended Phase 1 Habitat Survey (Plots 1 to 4) August 2019*' (termed 'the ERAP report'), which informed the planning consent granted to the land adjacent to the north, northwest and northeast boundaries, which are partly under development and part built (Bellway Homes and Redrow Homes – see section 1.5) at the time of this report being issued.
- 5.13 The ERAP report provides the results of various protected species surveys which can be considered materially informative for the applicant's proposals at this site, including the results of transects carried out adjacent to the site for bats, surveys for breeding and overwintering birds, pond surveys for great crested newts (GCN) and water vole/otter surveys at the nearby Ditton Brook and some of its minor associated drainage channels, which includes part of the 'Site-adjacent Ditch', illustrated in the previous **Figure 5.1**.
- 5.14 The ERAP report provides the following paragraph in relation to all protected species surveys they carried out between the period January 2018 – September 2019; see **Figure 5.5**.

Protected Species

- x. Comprehensive survey and / or assessment in accordance with standard survey guidance have not identified use of the site by badger, water vole, otter, brown hare, nesting or roosting barn owl, great crested newt and reptile species. Adverse effects on these protected and / or Priority Species are reasonably discounted, no further survey effort is necessary and these species are reasonably scoped out from further assessment, although precautionary and best practice measures are advised.

Figure 5.5 – Extract from section 5 of the ERAP Ltd. 2017-366 East Halewood, Knowsley: Technical Appendix H1: Extended Phase 1 Habitat Survey (Plots 1 to 4) August 2019

Associated bat surveys adjacent to site

- 5.15 The ERAP report sections on transect and static detector surveys confirm the surrounding landscape is used by common pipistrelle bats for foraging. Noctule, myotis species (calls being most indicative of whiskered and Brandt's bats), brown long-eared bats and soprano pipistrelle bats use the site infrequently and were most frequently recorded to be associated with the habitats along the margins of Finch Woods Plantation (500 metres south of the site) – the habitats here are woodlands, scrub and treelines on the edge of arable land.

Associated water vole / otter surveys near to site

- 5.16 The ERAP report shows how water vole and otter were not detected during surveys of the site-adjacent ditch and Ditton Brook, but provided information that the site-adjacent ditch offers suitability for water voles in its Table 3.10 page 28.

Past and associated GCN surveys on site and adjacent

- 5.17 **P1** which is the pond on site, alongside **P2** which is the pond adjacent to the north-west boundary, has been surveyed on two occasions in the past ten years for the presence / absence of GCN.
- **P1** and **P2** were surveyed in 2014 by The Tyrer Partnership – using traditional techniques by Mr. Robert N. Leatham (four surveys) (The Tyrer Partnership, 2014, GREAT CRESTED NEWT PRESENCE & ABSENCE SURVEY - Hayes Farm, Halewood, Merseyside). The surveys did not detect the presence of GCN. See **Figure 5.6** for results.

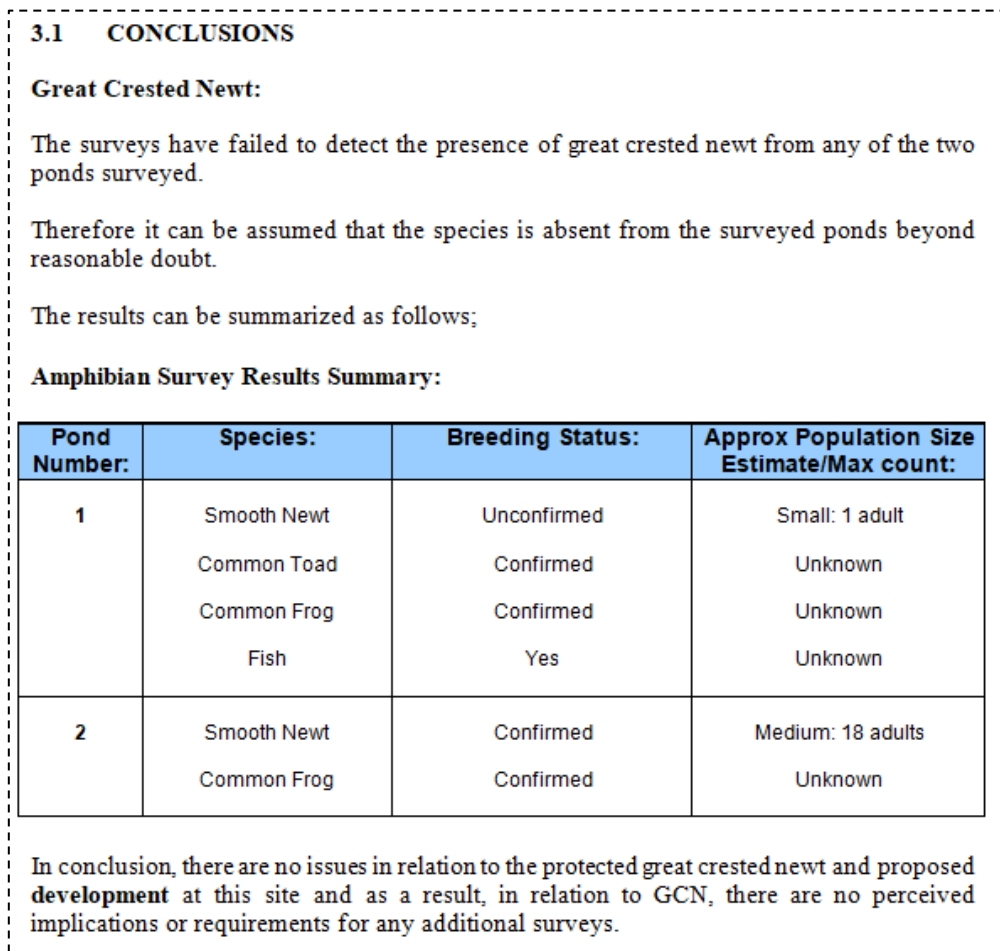


Figure 5.6 – 2014 results by The Tyrer Partnership for P1 and P2 as extracted from third party report

- **P1** and **P2** were HSI assessed in 2018 by ERAP as part of a sweeping assessment of ponds on a much larger radius, to inform the East Halewood Development, by Mr. Lee Moat & Mr. Mick Moss; an Environmental DNA (eDNA) survey was then carried out at **P2** (ERAP, Technical Appendix H4: GREAT CRESTED NEWT PRESENCE / ABSENCE SURVEY and Habitat Assessment 2018 - East Halewood Sustainable Urban Extension, 2018). The surveys did not detect the presence of GCN. See **Figures 5.7 – 5.8** for results.

5.18 The results effectively demonstrate how the absence of GCN at site level can be reasonably concluded over the surveyed period, whilst revealing the presence of common frog (*Rana temporaria*), common toad (*Bufo bufo*) and smooth newt (*Lissotriton vulgaris*) at local level.

Land Adjacent And To The Rear Of No. 1-3 Lakeside View, Lower Road, Halewood, L26 2XA Preliminary Ecological Appraisal

Table 6.4: HSI Results for Ponds 11, 12 and 13

General Description		Pond 11		Pond 12	
Photograph					
HSI Calculation		Description	Score	Description	Score
SI ₁	SI ₁ Geographical Location	Optimal	1	Optimal	1
SI ₂	SI ₂ Pond Area	10290m ²	N/A	100m ²	0.2
SI ₃	SI ₃ Pond Drying	Never dries	0.9	Sometimes dries	0.5
SI ₄	SI ₄ Water Quality	Moderate	0.67	Poor	0.33
SI ₅	SI ₅ Shade	5%	1	20%	1
SI ₆	SI ₆ Waterfowl	Minor	0.67	Absent	1
SI ₇	SI ₇ Fish	Major	0.01	Absent	1
SI ₈	SI ₈ Abundance of Other Ponds ²	10	1	10	1
SI ₉	SI ₉ Quality of Terrestrial Habitat	Poor	0.33	Poor	0.33
SI ₁₀	SI ₁₀ Macrophyte cover	5%	0.35	80%	1
HSI Score ¹		Poor	0.43	Average	0.64
Notes		Stocked fishing pond		None	
¹ = Calculated by (SI ₁ x SI ₂ x SI ₃ x SI ₄ x SI ₅ x SI ₆ x SI ₇ x SI ₈ x SI ₉ x SI ₁₀) ^{1/10}					
² Ponds within an unobstructed one kilometre radius divided by 3.14					

Figure 5.7 – 2018 HSI results for P1 and P2 (cited as Ponds 11 & 12 respectively in the ERAP report)

7.1 Ponds 1, 4, 8 and 12																																															
 Folio No: E2798 Report No: 1 Order No: ERAP 2017/366d Client: ERAP LTD Contact: Victoria Burrows Contact Details: victoria.burrows@erap.co.uk Date: 15/05/2018 TECHNICAL REPORT ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS Date sample received at Laboratory: 10/05/2018 Date Reported: 15/05/2018 Matters Affecting Results: None RESULTS <table> <tr> <th>Lab Sample No.</th><th>Site Name</th><th>O/S Reference</th><th>SIC</th><th>DC</th><th>IC</th><th>Result</th><th>Positive Replicates</th></tr> <tr> <td>2096</td><td>Halewood, Pond 8</td><td>SJ 45519 85417</td><td>Pass</td><td>Pass</td><td>Pass</td><td>Negative</td><td>0</td></tr> <tr> <td>2097</td><td>Halewood, Pond 4</td><td>SJ 45585 85136</td><td>Pass</td><td>Pass</td><td>Pass</td><td>Negative</td><td>0</td></tr> <tr> <td>2098</td><td>Halewood, Pond 4</td><td>SJ 45598 84668</td><td>Pass</td><td>Pass</td><td>Pass</td><td>Negative</td><td>0</td></tr> <tr> <td>2101</td><td>Halewood, Pond 12</td><td>SJ 45340 85921</td><td>Pass</td><td>Pass</td><td>Pass</td><td>Negative</td><td>0</td></tr> </table> SUMMARY When Great Crested Newts (GCN); <i>Triturus cristatus</i> inhabit a pond, they deposit traces of their DNA in the water as evidence of their presence. By sampling the water, we can analyse these small environmental DNA (eDNA) traces to confirm GCN habitation, or establish GCN absence. Forensic Scientists and Consultant Engineers SureScreen Scientifics Division Ltd, Morley Retreat, Church Lane, Morley, Derbyshire, DE7 6DE UK Tel: +44 (0)1332 292003 Email: scientific@suresscreen.com Company Registration No. 08505940 Page 1 of 3								Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates	2096	Halewood, Pond 8	SJ 45519 85417	Pass	Pass	Pass	Negative	0	2097	Halewood, Pond 4	SJ 45585 85136	Pass	Pass	Pass	Negative	0	2098	Halewood, Pond 4	SJ 45598 84668	Pass	Pass	Pass	Negative	0	2101	Halewood, Pond 12	SJ 45340 85921	Pass	Pass	Pass	Negative	0
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ERAP Ltd. 2017-366d East Halewood Sustainable Urban Extension (s_u_e): Technical Appendix H4: August 2019 16																																															

Figure 5.8 – 2018 eDNA results for P2 (cited as Pond 12) as part of a wider assessment to inform the East Halewood Development adjacent to the site

Anecdotal information

- 5.19 The author Mr. Pritchard ACIEEM is aware of recent verified sightings of otters in the Ditton Brook / Netherley Brook LWS freshwater corridor, located 230 metres away to the north-east from a local well-respected naturalist and ecologist. Ditton Brook / Netherley Brook LWS connects with the site-adjacent ditch which is a drainage channel for Ditton Brook LWS (see previous **Figure 5.1.**).
- 5.20 Water vole populations are known to Ditton Brook / Netherley Brook LWS' cited as key interest features and reasons behind the protection afforded to Ditton Brook / Netherley Brook LWS's with a sighting as recent as 2018 validated by the Merseyside Biobank data search.

6.0 Field Survey Results

6.1 Habitat Survey

- 6.1.1 See **Table 6.1** (below) for baseline habitat information. Refer to **Appendix II** for any supporting imagery, refer to **Appendix III** for botanical species list).
- 6.1.2 Refer to **Appendix V – UK Habitats Map** for the location of habitats and for visual aid of wider contextual environs.

Table 6.1 – UK Habitat codes and descriptions

Target Notes	1	Accumulated aggregates (Potential refuge areas for wildlife)
Area & Linear Habitats	Description	
f2d – aquatic marginal vegetation	The western edge of the pond P1 is formed of established reeds, comprised of bulrush, yellow iris, flowering rush and cyperus sedge.	
g3c 18 107 125 – species-rich neutral grass; mown and collected; flower forage abundant	High quality habitat in good condition most areas mapped. Has been subject to favourable land management for quite some time. Aspect and topographical slope vary, with slanted areas to the pond edge typically richer in biodiversity value versus the flatter areas by the paths. The grassland ranges in a mix of pH conditions with some sloped areas around the western pond edge quite acidic demonstrating species such as sheep's fescue, glaucous sedge, birds-foot trefoil, cat's-ear and common bent. Areas of crush and run around the pond, typically made of a mix of limestone, granite and trap rock, are more calcareous with species comprised of brome grasses, Yorkshire-fog and fescue, along with localised prominence of false fox-sedge, field wood-rush, hard-rush, common centaury, mouse-ear, perforate St. Johns-wort, ribwort plantain and black medick. Occasional are smooth meadow-grass, birds-foot trefoil, meadow vetchling and teasel. Rarely, species also include viper's-bugloss, bee orchid, and red bartsia.	
g3c 81 – other neutral grassland; ruderal & ephemeral; tall sward	Patchy areas of willow-herb, male-fern, common nettles and vetch intertwine in several areas of the site never more than 1.0 metre away from a patch of successional scrub as described. High rise grasses such as false oat-grass thrive in these areas.	
g4 108 – modified grassland; frequently mown	Areas of species poor grassland in the southern region of the site are more intensively managed for amenity and are dominated by species such as perennial rye-grass, white clover, selfheal and daisy, with lower frequency of black medick and other grasses. With favourable management restored these areas could be improved to be consistent with the wider site grassland quality.	

h3h 16 32 – mixed scrub with tall forbs and scattered trees	Mixed scrub is present to the southern boundary formed by mature goat willows with lower silver birch and sycamore, packed with a dense rising understorey of brambles, false oat-grass, hogweed, common nettles and large bindweed. Other species found in the scrubby areas are creeping thistle, great willow-herb, tufted vetch, perforate St. Johns-wort, greater birds-foot trefoil, meadow vetchling and ivy. Patchy scrub is present around the pond where scattered willows create dappled shade, comprised of similar species, though many are highly biodiverse areas, particularly along the western edge. Localised species to the pond margins included southern marsh-orchids, common spotted-orchids, marsh woundwort, marsh horsetail, common ragwort, creeping buttercup. Scrub along the western edge intertwines with tall ruderal herb and fern and is particularly dense.
r1 40 – standing open water; pond (priority habitat)	A large fish stocked pond P1 is located centrally, with yellow water-lily and western edge of aquatic marginal reeds.
u1 847 – built-up areas and gardens; introduced shrub	Cultivated flower and shrub beds are planted to the car park, constituting exotic non-native species not recorded to species level.
u1b – developed land; sealed surface	Areas of crush and run around the pond and providing access, typically made of a mix of limestone, granite and trap rock, are more calcareous with species comprised of brome grasses, Yorkshire-fog and fescue, along with localised prominence of false fox-sedge, field wood-rush, hard-rush, mouse-ear, common centaury, perforate St. Johns-wort, ribwort plantain and black medick.
u1b5 – building	See section 6.3 – Bats.
u1e 612 – built linear features; fence	A locked metal fence separates the south-west residential area from the open water body pond P1 and its surrounding habitats in the north-east of the site.
w1g 34 – ecologically valuable line of trees	A row of mature Lombardy poplar trees denotes the eastern boundary. Along the south boundary the line of trees amalgamates with mixed scrub and includes goat willow, silver birch, rowan and hawthorn.

Priority habitat

6.1.3 The pond on site (**P1**) meets the definition of UK Priority habitat in UK Habs 2.0 as it supports at least one species of high conservation importance in the form of common toad, a UKBAP priority species, which was recorded on site in previous years, as discussed in section 5.0, and is likely to continue to be present in a breeding capacity, given that common toad at all life stages from tadpole to adult are unpalatable to most fish, thus are able to breed and thrive even where stock density is high.

6.1.4 The survey identified four local priority habitats (LBAP's) on site in the form of:

- the grassland on site meets the definition of LBAP 'Urban Grasslands' (This habitat covers acid/neutral/calcareous unimproved, semi-improved and improved grasslands occurring in urban and urban fringe areas),
- the pond **P1** meets the definition of LBAP 'Ponds',
- the trees on site meet the definition of LBAP 'Urban trees',
- the whole site fits the definition behind LBAP 'Urban Green Infrastructure'.

- 6.1.5 The range of habitat types likely qualifies the site for candidate local wildlife site (LWS) status.
- 6.1.6 There is also a potential priority habitat adjacent to site. As discussed in paragraph 5.4, adjacent to the east boundary is a running freshwater ditch that extends north alongside the Redrow Homes development, and the United Utilities wooded mosaic area, where it eventually meets Ditton / Netherley Brook (a main river).

6.2 **Vegetation**

Notable species

- 6.2.1 No priority plant species were encountered during the appraisal, though over 120 floral species were recorded, with a diversity and richness of flora encountered in the high-quality species-rich neutral grassland areas in particular, which included species from the *Orchidaceae*, *Cyperaceae* and *Juncaceae*, qualifies the site for candidate local wildlife site (LWS) status.

Invasive non-native species

- 6.2.2 No species listed as 'invasive' under Schedule 9 (Part II) of the Wildlife & Countryside Act (1981) (as amended), or Schedule 2 of The Invasive Alien Species (Enforcement and Permitting) Order 2019 (IASO) were identified upon assessment of the survey area.

6.3 **Bats**

- 6.3.1 A small timber Hut is present in the south of the site within planted dense scrub and tree cover; it is constructed of wood and is timber framed, featuring a narrow-pitched roof covered by tile; its doorframes were sealed over with chipboard as opposed to doors, and it appeared incomplete structurally, with ingress possible at the verge to the frontal northern aspect, which was lined by a thin plastic membrane smooth to the touch. The material is inconsistent with the plausible use of fine bat claws which would prevent direct entry inside this building, and the narrow verge gaps are too tapered to allow bats direct flight in/out of the Hut.
- 6.3.2 No potential roost features exist at the Hut; no evidence of bats was found in 2021 nor during the updated assessment in 2024. The roost value of the Hut to bats, given an absence of any suitable roost features, is roundly considered to pertain to '**Negligible**' bat roost suitability in accordance with Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4th ed. (2023).
- 6.3.3 No specific trees on site which include mature willows (*Salix* spp.), silver birch (*Betula pendula*) and sycamore (*Acer pseudoplatanus*) amalgamated throughout the scrub and edges of the pond were noted as offering definitive bat roost suitability. However, the habitat is considered to offer '**Moderate**' suitability given the presence of continuous well connected tree cover. These 'dark corridors' will be used for essential foraging and commuting activity by bats known to the area and the presence of woodland, scrub and freshwater bodies provide high value invertebrate prey.

6.4 **Birds**

- 6.4.1 In relation to WCA Schedule 1 specially protected bird species such as barn owl and kingfisher, no evidence was found to suggest any form of site use or historic nesting sites; equally no evidence of any other specially protected bird species was encountered or warrants consideration at this time.
- 6.4.2 In relation to common nesting birds, the site visit observed the incidental presence of four grey partridge (*Perdix perdix*) in the north-west of the site on the vegetated edge of the pond **P1**

and on the edge of localised scrub. A number of birds were also inadvertently flushed from **P1** in the form of two cormorant (*Phalacrocorax carbo*), five mallard (*Anas platyrhynchos*) and a moorhen (*Gallinula chloropus*). In 2021, direct evidence of breeding by coot (*Fulica atra*) was encountered with young seen paddling alongside adults on the pond. The site generally offers a high range of nesting provision to several species of birds associated with woodland, scrub, pond margins, reeds and grasslands. It is also likely to be valued by species on passage and overwintering throughout the year.

6.4.3 **Table 6.2** presents the range of species incidentally encountered during the x2 PEAs to date.

Table 6.2 – Bird species encountered during the x2 PEAs to date

Species	Scientific Name	Conservation Status	Context (where relevant)
Blackbird	<i>Turdus merula</i>	Green	Likely breeding
Buzzard	<i>Buteo buteo</i>	Green	Circled high over site
Coot	<i>Fulica atra</i>	Green	Confirmed breeding
Cormorant	<i>Phalacrocorax carbo</i>	Green	Flushed from pond
Dunnock	<i>Prunella modularis</i>	s.41, LBAP, Amber	Likely breeding
Greenfinch	<i>Chloris chloris</i>	Red	Calling from mature scrub, first PEA
Grey partridge	<i>Perdix perdix</i>	s.41, LBAP, Red	Likely breeding
House sparrow	<i>Passer domesticus</i>	s.41, LBAP, Red	Likely breeding at barn
Mallard	<i>Anas platyrhynchos</i>	Not assessed	Likely breeding
Moorhen	<i>Gallinula chloropus</i>	Not assessed	Likely breeding
Skylark	<i>Alauda arvensis</i>	s.41, LBAP, Red	Breeds in adjacent fields, heard not seen during first PEA
Song thrush	<i>Turdus philomelos</i>	s.41, LBAP, Amber	Calling and foraging in scrub – likely breeding off site
Sparrowhawk	<i>Accipiter nisus</i>	Amber	Female passed through the site during first PEA
Tufted duck	<i>Aythya fuligula</i>	Green	3-4 seen in pond, first PEA
Woodpigeon	<i>Columba palumbus</i>	Amber	Likely breeding
Wren	<i>Troglodytes troglodytes</i>	Amber	Likely breeding
S.41 - Listed on section 41 of the NERC Act 2006 LBAP - A local biodiversity action plan listed species UK Conservation status – Red, Amber, Green - bocc-5-a5-4pp-single-pages.pdf (bto.org)			

6.5 **Other terrestrial mammals**

6.5.1 No evidence of badger was located across the extent of the surveyed site, and based on local species knowledge no impacts are likely to transpire in relation to this species.

6.5.2 Most of the site provides highly suitable habitat for European hedgehog; wooded scrubby areas provide opportunities for diurnal shelter and hibernation of a day, whilst the favourable

management of grasslands and paved crush-and-run areas would provide a range of opportunities for foraging and commuting with low disturbance regime by night.

- 6.5.3 The site-adjacent ditch discussed in paragraph 5.4 provides a potential suitable habitat for water vole and could also be used by otter, subject to presence, given the absence of disturbance factors; whilst the previous PEA dismissed impacts to water vole the proposals now encompass the whole pond and as such off-site sensitive receptors could be impacted by development related activities.

6.6 Herpetofauna

- 6.6.1 Desk study data provided in section 5.0 of this report, confirms presence of common species such as common frog and smooth newt, as well as UKBAP listed common toads.

GCN – Habitat Suitability Index

- 6.6.2 The pond on site **P1** scored a 'Poor' HSI result by ERAP in 2018; having reviewed the results of the HSI assessment and given the confirmed presence of large fish in the pond, observed during the PEA's, the surveyor has no objection to this assessment of 'Poor' and concurs with the findings of the HSI score against **P1**.

NB: The HSI for great crested newts is a measure of habitat suitability. It is not a substitute for newt surveys. In general, ponds with high HSI scores are more likely to support great crested newts than those with low scores. However, the system is not sufficiently precise to allow the conclusion that any particular pond with a high score will support newts, or that any pond with a low score will not do so. There is a positive correlation between HSI scores and the numbers of great crested newts observed in ponds. So, in general, high HSI scores are likely to be associated with greater numbers of great crested newts. However, the relationship is not sufficiently strong to allow predictions to be made about the numbers of newts in any particular pond.

- 6.6.3 **Figure 6.1** shows the likely occupancy rates by GCN of ponds that score 'Poor' during HSI assessments.

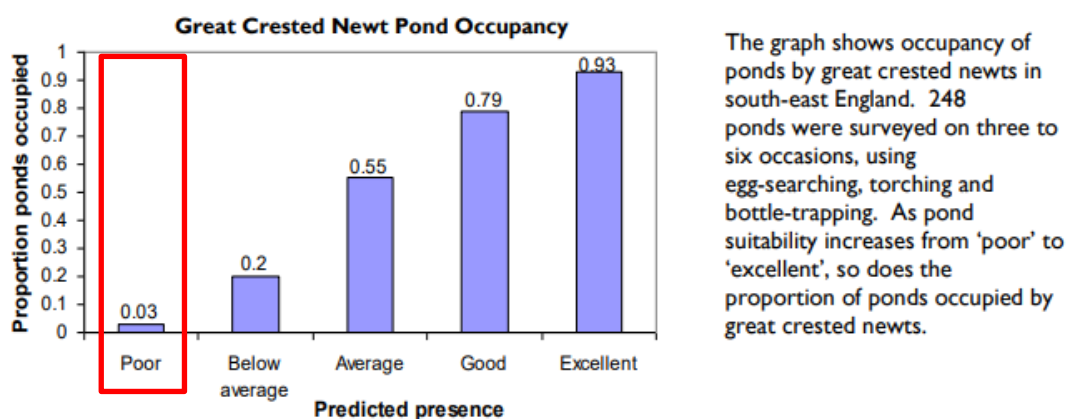


Figure 6.1 – Great Crested Newt Pond Occupancy rates in accordance with HSI scores
(Source: ARG UK 2010)

- 6.6.4 Given the results of four presence/absence surveys carried out at **P1** and **P2** in 2014 by The Tyrer Partnership, 'Poor' HSI' score of **P1** and weighed against the 'Negative' results of eDNA data gathered in 2018 of a range of nearby ponds to inform the East Halewood development works by ERAP, covered in section 6.0 of this report, which included **P2** adjacent to site, risks

to GCN can be reasonably discounted at this time, given the assessment of likely absence of GCN from the site/local geographical range.

Reptiles

- 6.6.5 No biological records attesting to reptile presence were flagged by the data search request.
- 6.6.6 Local distribution information known to the surveyor attests to likely absence of reptiles from this area of Merseyside which is faced with an intensive arable grassland management regime leading to a monoculture of open expansive grasslands, pockets of woodland, with intensive local management, thus hostile to much herpetofauna. Notwithstanding, the site provides a habitat of minor value to this group, from south-facing banks suitable for basking, to neat ecotones between shelter and grassland suitable for hunting, to potential hibernaculum/refuge hotspots.

6.7 Invertebrates

- 6.7.1 There is insufficient habitat quality on site for locally notable invertebrates outside of dragonflies/damselflies (*Odonata*) (a North Merseyside BAP group) and butterflies/moths (*Lepidoptera*).
- 6.7.2 The pond **P1** contains a high fish stock, an effective predator of *Odonata* nymphs, as such no significant invertebrate assemblage is likely to be present.

7.0 Conclusions & Recommendations

Designated sites

- 7.1 The development proposals trigger potential impact pathways on the Mersey Estuary Special Protected Area (SPA) and Ramsar site. Potential impacts are identified in the form of a net increase in recreational pressures on site and in-combination with other local developments. The proposals require a Habitats Regulations Assessment (HRA) for likely significant effects against the Mersey Estuary SPA and Ramsar site.
- 7.2 As part of the existing consent, for part of the site, MEAS had provided an Appropriate Assessment (Appendix 1: Habitats Regulations Assessment (Test of Likely Significant Effects) Land Adjacent And To The Rear Of No. 1 - 4 Lakeside View, L26 2XA - Application number 21/00074/FUL). The HRA concluded that with appropriate mitigation measures that there will be no adverse effect upon the integrity of the Mersey Estuary. Natural England were consulted as part of the existing consent and MEAS were advised that the conclusion of no adverse effects has been reached, on the proviso that mitigation measures, in the form of two elements, the first being a detailed Construction Environmental Management Plan (CEMP) and the second being the production of an advisory leaflet to be included in sales packs for new dwellings, are secured through planning conditions (should the planning application to develop the site attain consent) and be completed in full. We see no reason that the same conclusions cannot be reached as part of any new planning application and thus no updated recommendations need be applied at this time.
- 7.3 Any CEMP shall include, but not be limited to, the following:
- a) Methods for the mitigation of noise and vibration from building works, including any piling works, and also for the operation of any temporary power generation or pumping plant which will operate overnight.
 - b) Control of transfer of mud out of the site - details of wheel washing facilities including location and type.
 - c) Methods for dust control and suppression.
 - d) Details of methods for the control of rats to be taken during the construction phases.
 - e) Location and layout of any site compound(s) including identification of areas for the storage of plant and materials, loading/unloading and turning areas for delivery vehicles (for each phase as necessary); and the methods of loading and unloading of plant and materials.
 - f) Management of deliveries including prevention of waiting/layover of construction related traffic on the highway; measures for the control of traffic to and from the site; and consideration of any temporary traffic management arrangements which may be necessary during periods of construction.
 - g) Identification of permanent on-site contact and/or traffic manager as main point of enquiries, or issues arising from construction activities.
 - h) An implementation programme of works including phasing if applicable.
 - i) The parking of vehicles of site operatives and visitors.
 - j) The details of the design, siting and maintenance of any security hoardings.
 - k) Details of any floodlighting and security lighting installed during construction which shall avoid light spill and glare onto adjacent properties / land / highway.
 - l) A commitment that there shall be no burning of materials on-site during construction work without the prior written approval of the Local Planning Authority.
 - m) A commitment that no tree or scrub clearance, hedgerow removal, vegetation management or ground clearance is to take place during the period 1st March to 31st August inclusive. If it is necessary to undertake works during the bird breeding season then habitats are to be checked first by an appropriately experienced ecologist to

ensure no breeding birds are present. If present, details of how they will be protected are required to be submitted for approval.

- n) A scheme identifying Reasonable Avoidance Measures for protection of hedgehog and common toad (s41 Priority Species (NERC).
- o) Protection and pollution control measures for Priority Habitats.

7.4 The proposals are unlikely to impact any other statutory or any non-designated site by virtue of distance.

Habitats

7.5 One UK Priority habitat ('Priority' Pond) and four local (LBAP) habitats (Pond, Urban Grasslands, Urban Trees, Urban Infrastructure) were identified on site.

7.6 Each of the priority habitats on site is likely to be impacted by the proposals through one or a combination of permanent habitat loss, damage and/or degradation effects during the construction phase. Retained habitats could also be impacted by the operational phase following the introduction of new dwellings around the pond perimeter and artificial lighting.

7.7 The scale of impacts to habitats requires a bespoke 'Mitigation and Compensation strategy' following the mitigation hierarchy, in accordance with the relevant policy outlined in section 2.0 and the '*Biodiversity Net Gain: Good practice principles for development*' (CIEEM et. al., 2019).

7.8 Given the likely impacts described above, habitat options for this site might include:

- **Habitat creation:** planting up of reedbeds / marginal vegetation at suitable areas of the pond, to mitigate for loss of marginal vegetation along the western edge.
- **Habitat creation:** living walls, green/brown roofs of non-residential buildings/bin stores, use of grasscrete in select areas, use of creepers and climbers on fences.
- **Habitat creation:** native tree and shrub planting.
- **Habitat modification on site:** removal of the large fish stock from the pond allowing enhancement to a functioning wildlife pond, of higher benefit to native flora and fauna, including amphibians, birds and NMBAP invertebrates (such as *Odonata*).
- **Introduction of sustainable urban drainage (SuDS) systems:** Implementation of filter strips and swales along areas of the pond and boundaries to prevent construction run-off, use of systems such as bioswale(s), rain gardens(s), filter drains, permeable surfaces, infiltration devices, basins, for example.
- **Enhancement for biodiversity:** Bat boxes, bird boxes, hedgehog highways, scrub retention, beetle bank habitat, use of bee bricks and insect hotels, for example.
- **A Landscape Management and Maintenance Plan (LMMP):** to encompass habitats on site for a period of 30 years.

7.9 Where mitigation is not sufficient to mitigate impacts against priority habitats or species, compensation should be explored as a feasible mechanism, in accordance with the mitigation hierarchy.

7.10 Details for what is outlined above can be secured via legally binding agreement, such as a section 106 agreement, conservation covenant, or other legally binding mechanism, implemented via planning condition(s), or other.

7.11 Site-adjacent habitats including the nearby railway bank, off-site ditch and nearby woodland mosaic, including the adjacent part-developed Bellway & Redrow sites, should be protected by perimeter fencing around construction zones(s) prior to the commencement of works and

during works. Construction fencing should be in place throughout to prevent the encroachment of activity beyond the site boundary.

- 7.12 Standard pollution prevention measures should be adopted throughout the construction phase to protect off-site watercourses.

Vegetation

- 7.13 No priority plant species were encountered during the appraisal to warrant any specific recommendations, though over 120 floral species were recorded and the range and richness of flora encountered in grassland areas in particular, which included species from the *Orchidaceae*, *Cyperaceae* and *Juncaceae*, qualifies the site for candidate local wildlife site (LWS) status. The recommendations under Habitats therefore apply in relation to loss of vegetation.

Invasive non-native species

- 7.14 No invasive non-native species listed under Schedule 9 (Part II) of the Wildlife & Countryside Act (1981) or Schedule 2 of The Invasive Alien Species (Enforcement and Permitting) Order 2019 (IASO) were identified upon assessment of the site to warrant any specific intervention measures.

Bats

- 7.15 Whilst following best practice guidance, the timber Hut and all trees on site are determined to offer '**Negligible**' bat roost suitability in accordance with the Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4th ed. (2023).
- 7.16 No specific trees amalgamated throughout the scrub and edges of the pond were noted as offering definitive bat roost suitability from the site walkover and no further surveys need be recommended in consideration of potential roost loss. However, the habitat is considered to offer '**Moderate**' suitability given the presence of continuous well connected tree cover 'dark corridors' which will likely be used for essential foraging and commuting activity by bats known to the area, with the presence of woodland, scrub and freshwater bodies providing invertebrate prey.
- 7.17 Bat activity surveys are recommended across spring, summer and autumn, based on the scope of potential habitat loss, to assess the value of the site for bats. Survey methodology should adopt a combination of manual and automated methods using transects, vantage points and deployment of static bat detectors, to determine which species are present, establish relative abundance, establish value of the site to bats (especially areas of key interest) and ultimately gather information to predict impacts. See **Figure 7.1**.
- 7.18 The applicant should be aware that, if during the further surveys, evidence is gathered that confirms bat(s) or their roost(s) are found on site and will be impacted upon, then a mitigation licence may be required to legally commence with the proposals.
- 7.19 Where surveys demonstrate a "*significant harm to biodiversity resulting from a development*" cannot be avoided, mitigated or compensated, *then planning permission should be refused*.

Table 8.3. Minimum recommended number of repeats for activity surveys.			
Survey type	Low suitability habitat for bats ^a	Moderate suitability habitat for bats	High suitability habitat for bats
NBW	One survey visit ^b per season (spring – April/May, summer – June/July/August, autumn – September/October) ^c . Further surveys may be required if these visits, or the results of static detector surveys, reveal activity of interest that requires more observation on site.		
Automated/static bat detector surveys ^d The same locations should be used for each survey for comparison.	Data to be collected for a minimum of five consecutive nights per season (spring – April/May, summer – June/July/August, autumn – September/October) ^c in appropriate (or the best available) weather conditions for bats.	Data to be collected for a minimum of five consecutive nights per month (April to October) ^c in appropriate (or the best available) weather conditions for bats.	

Figure 7.1 – Table 8.3 from the latest BCT guidance for activity surveys

- 7.20 Installation of harsh artificial lighting as part of any development that exceeds current levels may have a negative impact upon foraging / commuting bats in the landscape, subject to their presence, particularly if increased light spillage occurs in areas of that are currently free from illumination. A bat-sensitive lighting plan is highly recommended in order to avoid impacts to bats that may use the site and the surroundings. Several options to consider have been listed below, though the reader is referred to the Bat Conservation Trust's 'Bats and Artificial Lighting at Night' guidelines (August 2023) for further information (see **Table 7.1**):

Table 7.1 - Extract from *Bats and Artificial Lighting at Night*, BCT (August 2023)

Appropriate luminaire specifications: Light sources, lamps, LEDs and their fittings come in a myriad of different specifications which a lighting professional can help to select. However, the following should be considered when choosing luminaires and their potential impact on Key Habitats and features:

- All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability
- A warm white light source (2700Kelvin or lower) should be adopted to reduce blue light component
- Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012)
- Internal luminaires can be recessed (as opposed to using a pendant fitting) where installed in proximity to windows to reduce glare and light spill
- Waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges
- Column heights should be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards
- Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered - See ILP GN01
- Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt
- Where appropriate, external security lighting should be set on motion-sensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2 minute timer is likely to be appropriate
- Use of a Central Management System (CMS) with additional web-enabled devices to light on demand
- Use of motion sensors for local authority street lighting may not be feasible unless the authority has the potential for smart metering through a CMS

- The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where lighting professional and project manager are able to resolve these issues.
- Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely.

Birds

- 7.21 No impacts are applicable in relation to any Sch.1 (WCA) specially protected bird species such as barn owl or kingfisher and no further surveys or recommendations are necessary in relation to specially protected birds.
- 7.22 In relation to other species, direct evidence of breeding birds was encountered on site and is otherwise considered likely for a range of species associated with nesting on the pond margins, in grassland, scrub and trees. The site generally offers a variety of nesting provision to several species of birds and is also likely to be valued by species on passage and migration throughout the year. It is recommended that any site preparation / general site clearance / habitat management / tree felling is carried out within the autumn/winter months and outside of the breeding bird season to avoid direct impacts to breeding birds. The breeding bird season is weather dependent but generally extends between March and September inclusive (peak period March-August).
- 7.23 If works must take place during the period March - September, then a pre-commencement check should first be carried out by a professional Ecologist within the preceding 48 hours to check for breeding birds. The Ecologist will have to demonstrate breeding birds are absent before allowing works to proceed. Where/if active nests are located by the ecologist then any works which may affect them would have to be delayed until the young have fledged and the nest has been abandoned naturally, this can be aided, for example, via implementation of appropriate buffer zone(s) around the nest site (typically 5-10 metres) in which no disturbance is permitted until the nest is no longer in use. This would have to be coordinated through the expert judgement of the professional ecologist and species pending.

Point 3.24 of the British Standards Publication 42020:2013 defines a professional ecologist as: *"a person who has, through relevant education, training or experience, gained recognised qualifications and expertise in the field of ecology and environmental management."*

NB: *All wild birds (with only minor exceptions) and their nests whilst being built or containing eggs or dependant young are protected from destruction, damage and disturbance under the Wildlife & Countryside Act 1981 (as amended). It is a punishable offence to interfere in any way with an active nest.*

Water vole and otter

- 7.24 The ditch adjacent to the east boundary (see visual aid in **Figure 5.1**) provides a potential suitable habitat for water vole breeding and could also be used by otter, subject to presence. Whilst the previous PEA dismissed impacts to water vole and otter, the proposals now encompass the whole pond and there is likely to be construction within 10 metres of the ditch adjacent to the east boundary, and as such off-site sensitive receptors could be impacted by development related activities, particularly, vibration, digging and piling, which could lead to an offence subject to the presence of water voles or their burrows and/or otters and their places of rest.

- 7.25 A 10.0 metre buffer from the eastern edge of the site is recommended to be implemented which will require a change of design proposals. The 10.0 metre buffer zone should be demarcated clearly by signed Heras fencing, or other, and out of construction bounds to avoid disturbance, piling aggregates near to a water body and pollution / run-off which could impact water voles.
- 7.26 If any work is proposed within 10.0 metres of the adjacent ditch to the east boundary, or within the recommended area of buffer zone, further surveys are recommended for water voles and otter. Any survey effort should assess the ditch, as well as the pond on site (for completeness), and should be carried out by a suitably qualified ecologist(s), to assess the impacts of the proposals in relation to both species. Whilst water vole surveys can be carried out all year round, the optimal period is between April 1st and September 30th when field signs are most prevalent. In most cases two surveys need to be carried out unless it can be conclusively ascertained during the first survey that suitability is very low. The results of the survey should be considered as part of any mitigation design for the scheme and could carry with it licence ramifications.
- 7.27 The applicant should be aware that in the event that water voles or otters are found and would be directly impacted upon, including disturbance, a European Protected Species Mitigation Licence to legally proceed with the development will be required.

Other terrestrial mammals

- 7.28 Regarding hedgehogs, a precautionary approach is recommended to be adopted considering likely presence of this species in the landscape:
- a pre-commencement check of the site should be carried out prior to start of works by an ecologist. In the event that any hedgehogs are encountered if they cannot be left in-situ they should be carefully captured and relocated to an area of like-for-like habitat off site / adjacent to site with sufficient shelter. Resting or hibernating animals should be given a reasonable period of time to awake and move on of their own accord particularly if discovered in the colder months.
- 7.29 No impacts are anticipated or recommendations necessary concerning badgers or brown hares.

Amphibians

- 7.30 Risks to GCN are considered highly unlikely and no further surveys are recommended at this time.
- 7.31 Whilst no further surveys for GCN are recommended as part of this report, it is considered that Reasonable Avoidance Measures (RAM's) are appropriate to be implemented as a minimum safeguard for herpetofauna confirmed as present locally such as common toad, common frog and smooth newt. A site bespoke working Method Statement should be conditioned that outlines key working protocols to be in effect during the proposed work schedule once confirmed. The recommended RAM's / Method Statement should be drafted by a suitably qualified GCN licenced Ecologist/Ecological clerk of works (ECoW). Upon gaining understanding of the details contained within the RAMS, the applicant and associated contract team would be expected to comply with the measures recommended within it. Any RAM's / Method Statement would be subject to the approval of the local planning authority - following approval, adherence to the terms of it would be a requirement of the named authority and the applicant would be the liable party, with the Ecologist/ECoW acting for and on behalf of the applicant. The applicant and all contractors would be aware that if at any stage GCN are encountered during works, or at any other stage of the work programme, works would be

required to immediately cease and the Ecologist/ECOW be made aware as to provide further guidance if an Ecologist is not already present.

- 7.32 The applicant should be aware that in the event that GCN are found and would be directly impacted upon, including disturbance, a Protected Species Mitigation Licence (EPSML) to legally proceed with the development will be required.

Reptiles

- 7.33 In respect of reptiles, no specific intervention measures other than that already outlined for amphibians, are necessary at this time.

Invertebrates

- 7.34 No significant impacts are likely to occur from construction activity in respect to notable invertebrate assemblages. However, the measures recommended to mitigate for habitat loss in this report and the general enhancement measures for invertebrates recommended in **Appendix IV** are recommended to be actioned, with regards to invertebrates.

Enhancement

- 7.35 Enhancement ideas are presented in **Appendix IV**.

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Appendix I:

Preliminary Ecological Appraisal
(Tyrer Ecological Consultants Ltd, July 2021)

Appendix II: Site Photographs



Plate 1 – Entrance track into site from Lower Road, looking north



Plate 2 – Entrance track into site, alternative view, looking south



Plate 3 – Car park and grassland area where new access is proposed, looking south



Plate 4 – Car park and grassland area where new access is proposed, alternative view, looking east



Plate 5 – Secured fence leading to pond area, looking north



Plate 6 – Secured fence leading to pond area, lawn area, looking north-east



Plate 7 – Pond P1 southern bank, looking north-east



Plate 8 – Semi-improved grassland area, looking east



Plate 9 – Hut building, front, north-facing aspect



Plate 10 – Track in shaded area, southern region, facing west



Plate 11 – Track in shaded area near Lombardy Poplar trees, eastern region, facing north



Plate 12 – Track in shaded area, north-east region



Plate 13 – Track in open area, northern region, facing west



Plate 14 – Track in open area, north-western region, facing south-east



Plate 15 – Track in open area, western region, facing south



Plate 16 – Track in open area, western region, facing north



Plate 17 – Pond P1 view, note marginal reed bed vegetation, facing north-west



Plate 18 – Species rich neutral grassland area looking south-west



Plate 19 – Grassland to scrub ecotone in the north-west of the site



Plate 20 – Bee orchid along track in west of the site



Plate 21 – Several southern marsh-orchids are present along the western pond edge



Plate 22 – Several southern marsh-orchids are present along the western pond edge

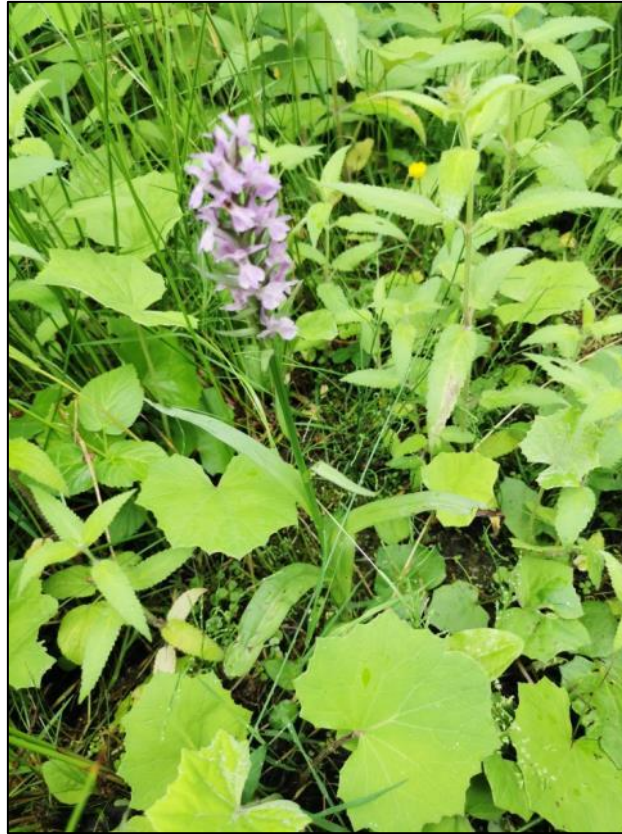


Plate 23 – Common spotted orchids are present in more shaded areas



Plate 24 – Lady's-mantle in the north of the site



Plate 25 – Common centaury in the west of the site on track



Plate 26 – Common carder bee on tufted vetch in the south-east of site



Plate 27 – Creeping cinquefoil on track in the south of site



Plate 28 - Viper's-bugloss on track in the east of site

Appendix III: Botanical Species List

Each species recorded was given an abundance value according to the standard DAFOR scale*, where:

D	=	Dominant
A	=	Abundant
F	=	Frequent
O	=	Occasional
R	=	Rare

*These values can be prefixed by the letter L (locally), to provide more subtle biogeographical data. P, meaning Present, is given where an abundance value has not been calculated. The term (s) means sapling in relation to trees.

Any invasive non-native species (**INNS**) are denoted by the acronym.

Scientific	Common	Abundance
<i>Acer pseudoplatanus</i>	Sycamore	P
<i>Achillea millefolium</i>	Yarrow	F
<i>Aegopodium podagraria</i>	Ground-elder	F
<i>Agrostis capillaris</i>	Common Bent	F
<i>Alchemilla glabra</i>	Smooth Lady's-mantle	R
<i>Anisantha sterilis</i>	Barren Brome	O
<i>Arctium minus</i>	Lesser Burdock	O
<i>Arrhenatherum elatius</i>	False oat-grass	A
<i>Artemisia vulgaris</i>	Mugwort	F
<i>Avenula sp.</i>	Oat-grass	R
<i>Bellis perennis</i>	Daisy	F
<i>Betula pendula</i>	Silver Birch	P
<i>Bromus hordeaceus</i>	Soft Brome	O
<i>Butomus umbellatus</i>	Flowering Rush	R
<i>Calystegia silvatica</i>	Large Bindweed	F
<i>Carex flacca</i>	Glaucous Sedge	LF
<i>Carex otrubae</i>	False Fox-sedge	O
<i>Carex pendula</i>	Pendulous Sedge	O
<i>Carex pseudocyperus</i>	Cyperus Sedge	R
<i>Centaurea nigra</i>	Common Knapweed	F
<i>Centaureum erythraea</i>	Common Centaury	O
<i>Cerastium fontanum</i>	Common Mouse-ear	O
<i>Chamerion angustifolium</i>	Rosebay willow-herb	F
<i>Cirsium arvense</i>	Creeping Thistle	F
<i>Cirsium vulgare</i>	Spear Thistle	F
<i>Crataegus monogyna</i>	Hawthorn	LF
<i>Crepis sp.</i>	Hawk's-beards	R
<i>Dactylis glomerata</i>	Cock's-foot	F
<i>Dactylorhiza fuchsii</i>	Common spotted-orchid	LR
<i>Dactylorhiza praetermissa</i>	Southern marsh-orchid	LO
<i>Digitalis purpurea</i>	Foxgloves	O
<i>Dipsacus fullonum</i>	Teasel	O
<i>Dryopteris filix-mas</i>	Male-fern	F
<i>Echium vulgare</i>	Viper's-bugloss	R
<i>Epilobium ciliatum</i>	American willow-herb	F

Land Adjacent And To The Rear Of No. 1-3 Lakeside View, Lower Road, Halewood, L26 2XA
Preliminary Ecological Appraisal

<i>Epilobium hirsutum</i>	Great willow-herb	F
<i>Epilobium sp.</i>	a Willow-herb	P
<i>Equisetum arvense</i>	Field Horsetail	F
<i>Equisetum palustre</i>	Marsh Horsetail	O
<i>Festuca ovina</i>	Sheep's Fescue	A
<i>Festuca rubra</i>	Red Fescue	A
<i>Fraxinus excelsior</i>	Ash (s)	R
<i>Galium album</i>	Hedge Bedstraw	R
<i>Galium aparine</i>	Cleavers	F
<i>Geranium dissectum</i>	Cut-leaved Crane's-bill	O
<i>Geranium molle</i>	Dove's-foot Crane's-bill	F
<i>Geranium pyrenaicum</i>	Hedgerow Crane's-bill	O
<i>Geranium robertianum</i>	Herb-robert	A
<i>Geranium rotundifolium</i>	Round-leaved Crane's-bill	O
<i>Grimmia pulvinata</i>	a moss	LO
<i>Hedera helix</i>	Ivy	F
<i>Heracleum sphondylium</i>	Hogweed	F
<i>Holcus lanatus</i>	Yorkshire-fog	A
<i>Hordeum murinum</i>	Wall Barley	O
<i>Iris pseudacorus</i>	Yellow Iris	F
<i>Hypericum androsaemum</i>	Tutsan	O
<i>Hypericum perforatum</i>	Perforate St. Johns-wort	O
<i>Hypochaeris radicata</i>	Cat's-ear	F
<i>Jacobaea vulgaris</i>	Common Ragwort	O
<i>Juncus effusus</i>	Soft-rush	O
<i>Juncus inflexus</i>	Hard-rush	O
<i>Juncus conglomeratus</i>	Compact-rush	O
<i>Kindbergia praelonga</i>	a moss	O
<i>Lapsana communis</i>	Nipplewort	O
<i>Lathyrus pratensis</i>	Meadow Vetchling	A
<i>Leontodon hispidus</i>	Rough Hawkbit	O
<i>Leucanthemum vulgare</i>	Ox-eye Daisy	O
<i>Lolium perenne</i>	Perennial rye-grass	F
<i>Lotus corniculatus</i>	Birds-foot Trefoil	F
<i>Lotus pedunculatus</i>	Greater Bird's-foot Trefoil	O
<i>Luzula campestris</i>	Field Wood-rush	LF
<i>Medicago lupulina</i>	Black Medick	A
<i>Melilotus officinalis</i>	Ribbed Melilot	F
<i>Myosotis arvensis</i>	Field Forget-me-not	LF
<i>Nuphar lutea</i>	Yellow water-lily	LA
<i>Odontites verna</i>	Red Bartsia	LO
<i>Ophrys apifera</i>	Bee Orchid	R
<i>Phalaris arundinacea</i>	Reed Canary-grass	F
<i>Plantago lanceolata</i>	Ribwort Plantain	A
<i>Plantago major</i>	Greater Plantain	O
<i>Poa nemoralis</i>	Wood Meadow-grass	R
<i>Poa pratensis</i>	Smooth Meadow-grass	F
<i>Poa trivialis</i>	Rough Meadow-grass	F
<i>Polystichum setiferum</i>	Soft Shield-fern	O
<i>Populus nigra 'Italica'</i>	Lombardy Poplar	P
<i>Potentilla anserina</i>	Silverweed	O
<i>Potentilla reptans</i>	Creeping Cinquefoil	F
<i>Prunella vulgaris</i>	Selfheal	F

Land Adjacent And To The Rear Of No. 1-3 Lakeside View, Lower Road, Halewood, L26 2XA
Preliminary Ecological Appraisal

<i>Quercus robur</i>	Pedunculate Oak (s)	R
<i>Ranunculus repens</i>	Creeping Buttercup	F
<i>Rhytidiadelphus squarrosus</i>	a moss	O
<i>Rubus fruticosus</i> agg.	Bramble	A
<i>Rumex conglomeratus</i>	Clustered Dock	O
<i>Rumex crispus</i>	Curled Dock	F
<i>Rumex obtusifolius</i>	Broad-leaved Dock	F
<i>Salix caprea</i>	Goat willow	A
<i>Salix viminalis</i>	Osier	R
<i>Salix x fragilis</i>	Hybrid Willow	P
<i>Sambucus nigra</i>	Elder	O
<i>Silene dioica</i>	Red Campion	O
<i>Silene latifolia</i>	White Campion	R
<i>Sisymbrium officinale</i>	Hedge Mustard	O
<i>Solanum dulcamara</i>	Woody Nightshade	O
<i>Sonchus arvensis</i>	Perennial Sow-thistle	R
<i>Sonchus asper</i>	Prickly Sow-thistle	F
<i>Sorbus aucuparia</i>	Rowan	P
<i>Stachys palustris</i>	Marsh Woundwort	O
<i>Stachys sylvatica</i>	Hedge Woundwort	F
<i>Symphytum x uplandicum</i>	Russian Comfrey	O
<i>Taraxacum officinale</i> agg.	Dandelion	F
<i>Trifolium dubium</i>	Lesser Trefoil	O
<i>Typha latifolia</i>	Greater Reedmace	LO
<i>Trifolium pratense</i>	Red Clover	O
<i>Trifolium repens</i>	White Clover	A
<i>Tussilago farfara</i>	Colts-foot	O
<i>Urtica dioica</i>	Stinging Nettle	A
<i>Veronica arvensis</i>	Wall Speedwell	O
<i>Vicia cracca</i>	Tufted Vetch	A
<i>Vicia hirsuta</i>	Hairy Tare	R
<i>Vicia sepium</i>	Bush Vetch	F

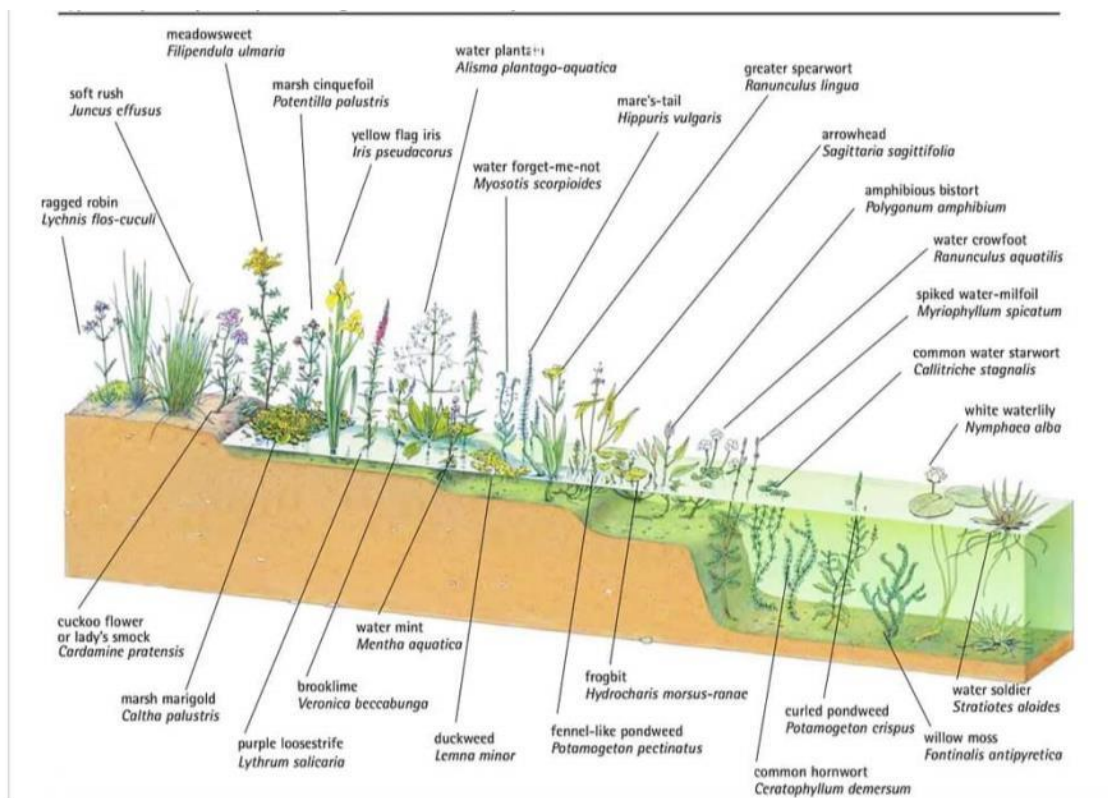
Appendix IV: Biodiversity Enhancement: General Recommendations

Native Planting and/or Landscaping - recommended species

The below species have been assessed against the local soil and habitat types and are deemed suitable for the site. All plant material should comply with the minimum requirements in BS 3936-1: 1992 Specification for trees and shrubs and BS 3936-4: 2007 Specification for forest trees and BS 8545: 2014 Trees from Nursery to Independence in the Landscape. Any plant material, which in the opinion of the appointed Landscape Architect, does not meet the requirements of the Specification, or is unsuitable, or defective in any other way, will be rejected. The minimum specified sizes in the plant schedule will be strictly enforced. The contractor should replace all plants rejected at own cost.

	Common Name	Scientific Name	Planting Preference
Ferns	Male Fern	<i>Dryopteris filix-mas</i>	Semi-shade or shaded
	Soft Shield-fern	<i>Polystichum setiferum</i>	Semi-shade or shaded
	Maidenhair Fern	<i>Adiantum capillus-veneris</i>	Suitable for rockeries / walled gardens
	Royal Fern	<i>Osmunda regalis</i>	Full sun in moist-damp areas
Herbaceous plants	Bloody Crane's-bill	<i>Geranium sanguineum</i>	Dry soils - suitable for rockeries
	Columbine	<i>Aquilegia vulgaris</i>	Semi-shade or open areas
	English Bluebell	<i>Hyacinthoides non-scripta</i>	Moist soils in semi-shade or open areas
	Giant Bellflower	<i>Campanula latifolia</i>	Semi-shade or open areas
	Greater Knapweed	<i>Centaurea scabiosa</i>	Dry-moist soils. Suitable for borders
	Greater Woodrush	<i>Luzula sylvatica</i>	Moist soils in semi-shade or open areas
	Meadow Crane's-bill	<i>Geranium pratense</i>	Humid-moist soils. Suitable for borders
	Musk Mallow	<i>Malva moschata</i>	Dry-moist soils. Suitable for borders and rockeries
	Sea Campion	<i>Silene uniflora</i>	Dry soils - suitable for rockeries
	Stinking Hellebore	<i>Helleborus foetidus</i>	Semi-shade or open areas
Climbers	Honeysuckle	<i>Lonicera periclymenum</i>	Dry-moist soils
	Hops	<i>Humulus lupulus</i>	Dry-moist soils
	Ivy	<i>Hedera helix</i>	Dry-moist soils
	Sweet-briar	<i>Rosa rubiginosa</i>	Dry-moist soils
Woody Shrubs	Blackthorn	<i>Prunus spinosa</i>	-
	Dogwood	<i>Cornus sanguinea</i>	-
	Guelder Rose	<i>Viburnum opulus</i>	-
	Hawthorn	<i>Crataegus monogyna</i>	-
	Hazel	<i>Corylus avellana</i>	-
	Holly	<i>Ilex aquifolium</i>	-
Trees	Alder Buckthorn	<i>Frangula alnus</i>	-
	Osier	<i>Salix viminalis</i>	-
	Pedunculate Oak	<i>Quercus robur</i>	-
	Purple Willow	<i>Salix purpurea</i>	-
	Rowan	<i>Sorbus aucuparia</i>	-
	Silver Birch	<i>Betula pendula</i>	-
	Wild Cherry	<i>Prunus avium</i>	-
Aquatic/marginal plants	Common Water-crowfoot	<i>Ranunculus aquatilis</i>	Ponds
	Marsh Marigold	<i>Caltha palustris</i>	Marginal vegetation
	Ragged Robin	<i>Silene flos-cucculi</i>	Marginal vegetation
	Water Mint	<i>Mentha aquatica</i>	Marginal vegetation
	Water-violet	<i>Hottonia palustris</i>	Ponds
	White Water-lily	<i>Nymphaea alba</i>	Ponds

Planting up the margin of the pond with suitable native species



Source: Langton, T.E.S., Beckett, C.L., and Foster, J.P. (2001), Great Crested Newt Conservation Handbook

Enhancement for Bats



- Beaumaris woodstone bat box

This bat box is made entirely from Woodstone, a robust material comprising concrete and wood fibres. The Beaumaris box has a single narrow cavity which makes it suitable for crevice roosting bats such as the Common Pipistrelle, Soprano Pipistrelle, Nathusius' Pipistrelle, Brandt's bat and Whiskered bat. The interior of the box has a rough surface for bats to cling to and the front of the box features a subtle but attractive imprint of a bat in flight.

Suitable for attaching to external walls and available in two sizes: the Midi and the Maxi.

For more information see www.nhbs.com/beaumaris-woodstone-bat-box.

Enhancement for Breeding birds

Common boxes



-2h Schwegler robin box

This traditional design has proved to be highly effective in attracting Robins as well as other small wood/garden species such as Black Redstart, Spotted Flycatcher and Wren. It is designed to be installed on the walls of houses, barns, garden sheds or other buildings and should be hung so that the entrance is to one side (at an angle of 90° to the wall). The front panel can be easily removed for cleaning.

This type of box should not be made conspicuous on a tree or bush because small predators can enter through the unprotected opening. By hanging on a wall, predators won't be able to reach the box. Alternatively hide the box in Ivy, honeysuckle or other climbing plants.

For more information - www.nhbs.com/2h-schwegler-robin-box



- 1B Schwegler Nest Box

These Woodcrete nest boxes are famous for their durability - lasting for at least 20-25 years.

Woodcrete is a breathable blend of wood, concrete and clay which will not rot, leak, crack or warp, whilst preventing condensation and maintaining more constant temperatures inside than wooden boxes. Schwegler bird boxes are backed by conservation organisations, government agencies and forestry experts and experiments have shown that the highest density of bird populations (i.e. breeding pairs per hectare) is achieved with Schwegler nest boxes. They are carefully designed to provide a stable environment and to mimic natural nest and roost sites with internal brood chamber dimensions that are similar to natural woodpecker cavities.

Schwegler have a patented method of installation on trees that prevents the tree trunk from growing over the hanger from which the box is suspended. A separate replacement front panel is also available.

Enhancement for Hedgehogs

The number of hedgehogs in the UK has plummeted over recent years; while there were estimated to be around 1.5 million in 1995 it is believed hedgehogs now number two thirds less at 500,000. Hedgehog homes could be provided as part of enhancement in close proximity to commercial works; a design suggestion can be found below.

Hedgehogs need homes just like humans, so making one for them is a great way to encourage them. Some tips include:

- Find a location - It should be sited in a quiet position out of prevailing wind in an area with some nearby cover. The front entrance should be out of the wind.
- Cover the outside - Cover the outside in a pile of woody garden cuttings and leaves. You can also cover it with soil, as long as the entrance hole and ventilation pipe is clear.
- Aftercare - It's worth clearing out the hedgehog home, every year or two. You can do this in April, after their hibernation but before hedgehogs start producing hoglets. However, the ideal time is in October before they go into hibernation, and after most of the litter have been weaned.
- Monitoring your hedgehog home - Remember that you won't see any activity between October and March/April when they're hibernating.
- If you'd like to find out if your box is being used, put something in front of the entrance that won't blow away but can be easily moved by a hedgehog, like a crumpled-up piece of newspaper. If a hedgehog is at home, you'll find it will have been moved by the next morning.



For Hedgehog Homes - [Hedgehog House, with weatherproof lid : Riverside Woodcraft](#)

Enhancement for Invertebrates

- Insect hotels

Insect hotels provide habitat for a variety of invertebrates. Designs can be small or large enough to create a focal point, and sturdy enough to last for years without maintenance in dedicated areas for wildlife.

Ensure any hotels are made from untreated wood, which is important as insects need natural materials to thrive, and, split into sections that each contain a different nesting/burrowing material. There should be pinecones for ladybirds, wood slits for butterflies and moths, bamboo canes for solitary bees, and loose pieces of wood for beetles, for example.

Placement: Biodiversity Area - Cite against walls or fences and fix where necessary to prevent toppling. You could push bricks against them to keep the bug hotel upright, which would also encourage woodlice and even frogs that enjoy cool stone conditions for shelter.



Examples of insect hotels

- National Trust Bee Log

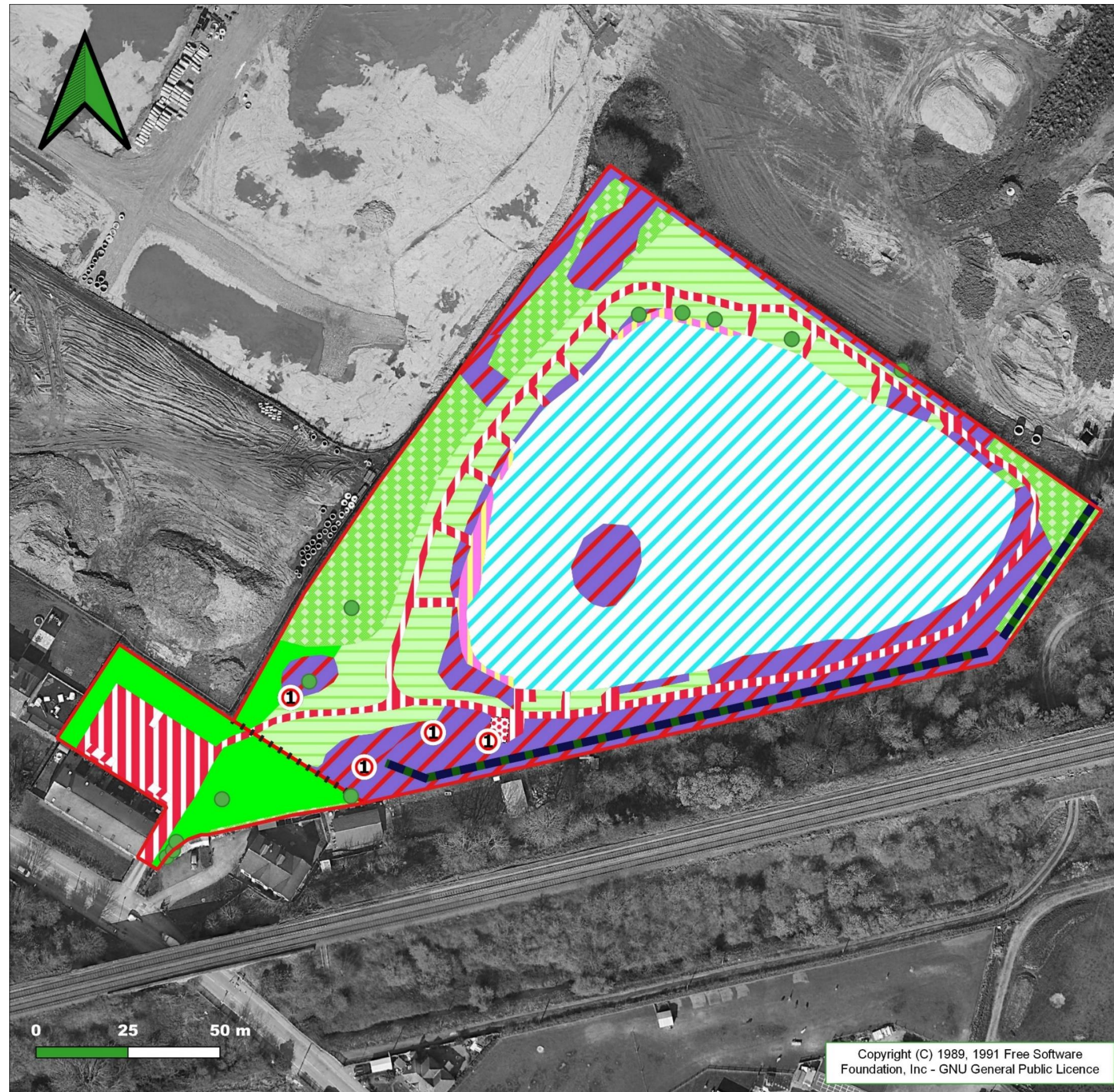
<https://shop.nationaltrust.org.uk/national-trust-bee-log-wicken-fen-collection>



- Bee Bricks

Each Bee Brick contains cavities in which solitary bees can lay their eggs before sealing the entrance with mud and chewed-up vegetation. The offspring will emerge the following spring and the cycle will begin again. Each cavity goes part way into the brick, which is solid at the back. Bee Bricks should be placed in a warm sunny spot on a south-facing wall at a minimum height of 1m, with no vegetation obstructing the holes. It is highly recommended that bee-friendly plants should be located nearby so that the bees using the bricks have food, otherwise it is unlikely that the brick will be used. Available in a choice of four colours: white grey, dark grey, yellow and red.





UK Habitats 2.0 Map

- Site Boundary
- Individual trees
- Target Notes
- f2d - aquatic marginal vegetation
- g3c 18 107 125 - species-rich neutral grass; mown and collected; flower forage abundant
- g3c 81 128 - other neutral grassland; ruderal & ephemeral; tall sward
- g4 108 - modified grassland; frequently mown
- h3h 16 32 - mixed scrub w/ tall forbs and scattered trees
- r1 40 - standing open water; pond (priority habitat)
- u1 847 - built-up areas and gardens; introduced shrub
- u1b - developed land, sealed surface
- u1b5 - buildings
- u1e 612 - built linear features; fence
- w1g 34 - (ecologically valuable) line of trees

Land adjacent and to the Rear of No. 1-3 Lakeside View, Halewood

Survey Date: 05/07/2021
 Re-surveyed on: 05/02/2024
 Drawn: MJP
 Date Drawn: 15/02/2023
 Checked & Approved: KW
 Size: A3
 Scale: 1:1000.00

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