

Preliminary Ecological Appraisal

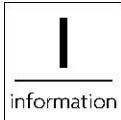
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PROJECT:

**LAND AT FALLOWS WAY
PRESCOTT
KNOWSLEY**

CLIENT:

**ALLIED PROPERTIES LTD
3RD FLOOR WEST, QUAY HOUSE,
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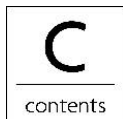
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Contents

Executive Summary	i
1. Introduction.....	1
1.1. Background	1
1.2. Purpose and Scope	1
1.3. Survey Aims and Objectives.....	2
1.4. Structure	2
1.5. Disclaimer	2
2. Legislation and Policy Framework.....	4
2.1. Legislation	4
2.2. Planning Policy	4
2.3. Biodiversity Action Plans	5
3. Methodology	6
3.1. British Standard 42020: Biodiversity – Code of Practice for Planning and Development.....	6
3.2. Study Area and Field Survey Area.....	6
3.3. Desk Study	6
3.4. Habitat Assessment	7
3.5. Limitations	7
4. Baseline	8
4.1. Desk Study	8
4.2. Field Survey.....	14
4.3. Further Survey Requirements.....	22
5. Ecological Impacts and Mitigation.....	24
5.1. Ecological Impact Discussion	24
5.2. Mitigation	26
6. Ecological Enhancement	30
6.1. Habitats.....	30
6.2. Species	30
7. Summary and Conclusions	34
7.1. Baseline.....	34
7.2. Further Surveys.....	34
7.3. Impacts & Mitigation	34
7.4. Enhancement.....	35



Appendix A	Legislative and Policy Framework	36
Appendix B	Site Photographs	48
References		52

Executive Summary

Hilson Moran were commissioned by Allied Properties Ltd to complete a Preliminary Ecological Appraisal and impact assessment of the Proposed Development of the land at Fallows Way, Prescott in Knowsley (National Grid Reference SJ 46205 90217). The PEA has been prepared in accordance with best practice guidance.

Baseline

The Application Site currently supports a range of semi-natural habitats that have developed following previous clearance of woodland across the site, with some areas of lowland mixed deciduous woodland remaining along with areas of neutral grassland, modified grassland, lines of trees, bramble scrub, introduced shrub, hardstanding and standing open water. The habitats present are generally relatively common in the local and national context, however elements of the woodland and grassland habitats present have potential to comprise part of a BAP Priority Habitat.

The Application Site was not identified to support any invasive species identified under the Wildlife and Countryside Act 1981 (as amended), however the presence of species commonly considered invasive (cherry laurel, snowberry and butterfly bush) were highlighted along with the presence of several species identified under the Weeds Act 1959 as injurious weeds.

The Application Site was identified to support potential to support nesting birds, common reptile, great crested newt, bat and rare or notable invertebrate species based on the habitats present, however the presence of badger, otter and water is considered unlikely.

Further Surveys

Further surveys in addition to the PEA walkover survey are required to fully establish the ecological value of the site and confirm the presence or likely absence of faunal species, these include:

- Botanical survey of the woodland and grassland habitats to confirm whether these meet BAP Priority Habitat descriptions between March and August;
- Reptile survey comprising checking of artificial refugia on the site over seven visits between March and September;
- Great Crested Newt survey comprising an eDNA survey to establish presence/likely absence in mid April to June and/or detailed survey from March to June;
- Bat activity survey comprising a single visit per season: Spring (April/May), summer (June/July/August) and autumn (September/October); and,
- Invertebrate scoping assessment survey.

Impacts & Mitigation

Impacts from the development are principally associated with habitat loss from the site and subsequent impacts on faunal species present, to be determined in further surveys recommended. The loss of habitat on site includes the potential loss of BAP Priority woodland and grassland habitat, although confirmation is required in follow up botanical surveys, which will result in the loss of c. 9.11 biodiversity units following the Defra Metric 3.1 methodology. As it is not possible to retain any BAP Priority Habitat within the development site, it is proposed that the loss of BAP Priority Habitat is compensated for by way of financial contribution towards the management or delivery of biodiversity enhancements in Knowsley via a Section 106 agreement.

Appropriate mitigation is identified for the mitigation of impacts on faunal species, although this is subject to refinement and confirmation depending on the findings of the further surveys recommended. Additional mitigation, forming best practice approaches, are identified to ensure biodiversity is considered through the construction process and potential impacts are considered and issues arising acted upon.

Further to direct impacts associated with the site, the development is located within an area identified with potential for impacts upon a SSSI as a result of the discharge of water or liquid waste of more than 20 m³/day either to ground or to surface water. However, due to the ground conditions on site, the drainage strategy looks to connect the drainage direct to the local sewer network.

Enhancement

Enhancement of the final developed site has been identified through the provision of appropriate landscaping, targeted to providing an appropriate structure and diversity of species with supporting value to wildlife that will promote the presence of faunal species on the site. In addition to this, recommendations have been made for the inclusion of artificial habitat aids to be included within the landscaping that will enhance sheltering opportunities for common and targeted bird species and bat species generally both on the site and in the locality.

1. Introduction

1.1. Background

Hilson Moran has been commissioned by Allied Properties Ltd to complete a Preliminary Ecological Appraisal and impact assessment of the Proposed Development of the land off Fallows Way, Whiston, Prescot in Knowsley (National Grid Reference SJ 46205 90217). The location of the site is identified in Figure 1.1.

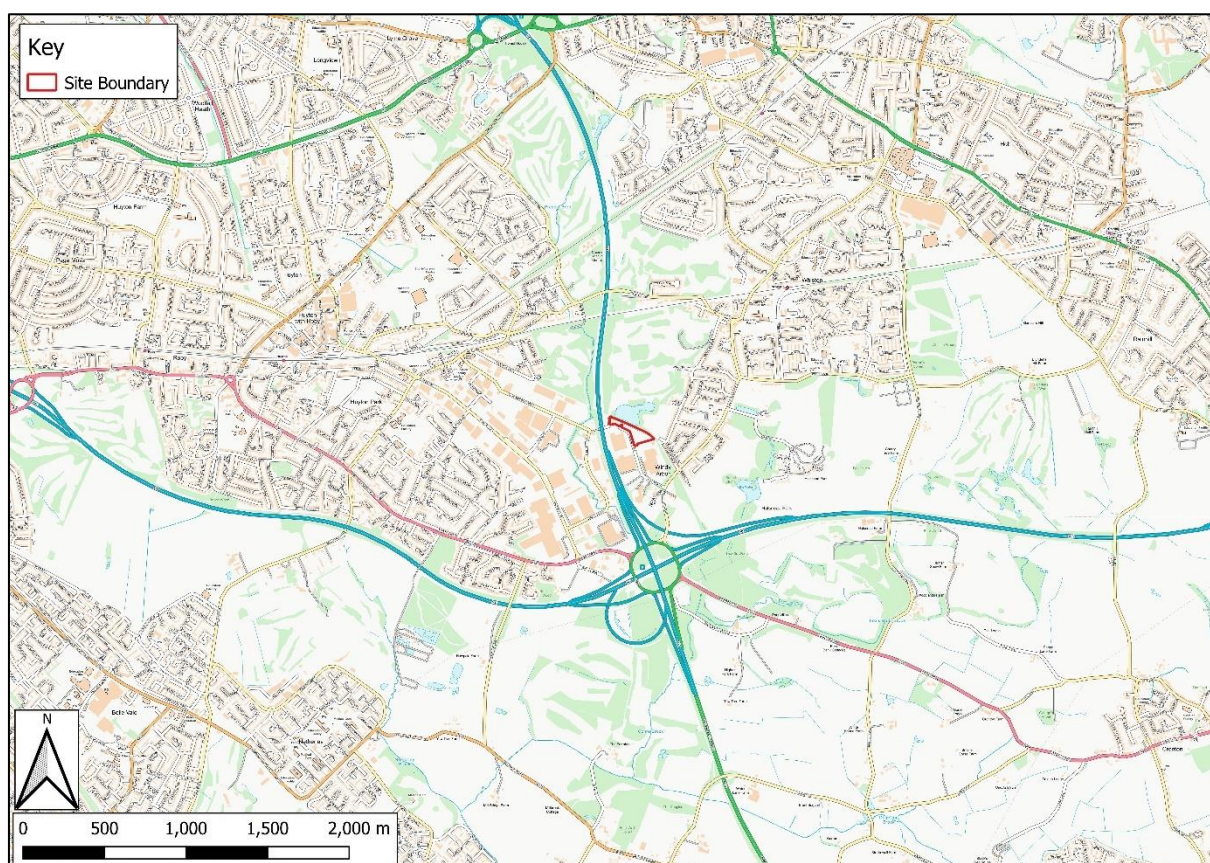


Figure 1.1 *Land at Fallows Way Development Site Location (Contains Ordnance Survey data © Crown copyright and database right 2022)*

The proposal for the development of the site includes for the construction of 13 no. industrial units.

1.2. Purpose and Scope

The Preliminary Ecological Appraisal provides an assessment of the habitats present and species potentially present within the Proposed Development site such that any effects associated with the redevelopment of the site upon ecological receptors can be assessed.

The appraisal presents the findings of a desk-based study of existing information for the site, obtained from the local biological records centre and reliable web-based resources, and outlines the findings of an ecological walkover survey and species potential. The walkover survey utilised the UK Habitat Classification methodology to identify and map habitats present on the site to provide a baseline and assess their importance and potential supporting value for legally protected and/or ecologically significant species.

The appraisal considers the potential for impacts on designated sites, significant habitats and legally protected or ecologically significant species and presents mitigation measures that are required to avoid or reduce impacts on features of biodiversity value. Consideration is also given to the opportunities for biodiversity enhancement associated with the development.

1.3. Survey Aims and Objectives

The overall aim of the survey was to reasonably determine the habitats present, following best practice guidance, within the field survey area and consider their potential to comprise significant biodiversity resources and to support ecologically significant and/or legally protected species. The purpose of this is to highlight where biodiversity may represent an ecological constraint to the Proposed Development and to inform potential mitigation of impacts arising from the proposals, together with opportunities for ecological enhancement.

The specific survey objectives were to:

- review existing biodiversity information for the site to inform the appraisal;
- map all habitats within the field survey area and identify those that are ecologically valuable and/or have legal protection;
- identify dominant vascular plant species present within habitats;
- highlight the presence of invasive plant species within the field survey area; and,
- assess the potential of habitats to support ecologically significant and/or legally protected species.

1.4. Structure

Following this introductory section, a brief overview of the relevant legislation and planning policy framework is given in Section 2. Section 3 details the ecological assessment methodology applied and Section 4 details the ecological baseline of the existing site, including the results of a desk-based study and habitat survey. Section 5 advises on measures recommended to protect ecological features and mitigate ecological impacts during construction and Section 6 makes recommendations on enhancing the ecological value of the Site. Section 7 presents conclusions and recommendations from the report.

Appendices and references can be found at the end of the document, with document control information included at the front.

1.5. Disclaimer

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2. Legislation and Policy Framework

This report has been prepared with due regard and consideration to applicable legislation and national and local planning policy. Detailed information regarding these documents is provided in Appendix A.

2.1. Legislation

Legislative protection is afforded to a range of sites, habitats and species through a number of national statutes. The principal means by which features of biodiversity interest are protected are:

- The Environment Act 2021¹;
- The Conservation of Habitats and Species Regulations 2017 (as amended)²;
- The Wildlife and Countryside Act 1981 (as amended)³;
- The Countryside and Rights of Way (CROW) Act 2000⁴; and,
- The Natural Environment and Rural Communities (NERC) Act 2006⁵.

The various national legislative statutes, including those identified above, provide protection to a range of ecologically significant sites and species. The legislative protection for the different sites and species varies according to their sensitivity, rarity and the scale at which they are intrinsically valuable. Those of relevance to this assessment include: breeding birds, bats, great crested newts, reptiles and plants. Full details of the legislative protection for these sites and species are listed in Appendix A.

Additional sites of ecological importance can be identified by the local authority, such as Local Wildlife Sites, however these are not statutorily protected.

2.2. Planning Policy

2.2.1. National

The National Planning Policy Framework (NPPF)⁶ sets out policies which will apply to the preparation of local plans, and to development management decisions. The framework sets out the Government's economic, environmental and social planning policies for England. Taken together, these policies articulate the Government's vision of sustainable development, which should be interpreted and applied locally to meet local aspirations. The NPPF is supported by planning practice guidance⁷, which provides further information on key issues in the implementation of policies identified in the NPPF. Further information on the NPPF and supporting planning practice guidance are given in Appendix A.

2.2.2. Local

Local planning policy for the development site is provided by the Local Plan for Knowsley, which was adopted in January 2016. The Local Plan Core Strategy⁸ sets out the vision, objectives and policies which will guide development within Knowsley up to the year 2028. The vision for Knowsley is that *"by 2028, Knowsley Borough will be known for its successful suburban townships that provide a sense of place and community, having sustainable, diverse, more prosperous and healthy populations"* and that *"Knowsley's areas of environmental importance, including sites of biodiversity and geological value, together with buildings, structures and areas of historic and cultural importance will be protected, managed and enhanced, to ensure a positive contribution to Knowsley's environmental quality and distinctiveness"*.

Strategic objectives have been set to identify the priorities in more detail with Strategic Objective 8 on Green Infrastructure and Rural Areas of most relevance to development of the site: *“to support and strengthen the role of Knowsley’s Green Infrastructure (in rural and urban areas), promote biodiversity [...]”*.

The site is identified in the Local Plan for redevelopment for industrial and commercial development (Policy CS4: Economy and Employment). In addition to this, the following policies are of relevance to the assessment:

- Policy CS2: Development Principles;
- Policy CS8: Green Infrastructure;
- Policy CS19: Design Quality and Accessibility in New Development
- Policy CS21: Greenspaces and Trees

2.3. Biodiversity Action Plans

2.3.1. National

The UK BAP has been replaced by the Post-2010 Biodiversity Framework⁹, which addresses the changes in the strategic thinking of the Convention on Biological Diversity’s Strategic Plan for Biodiversity 2011 – 2020. The new Framework includes new priorities for UK-level work for the Convention on Biological Diversity and provides a broad structure to enable action across the UK. Whilst the BAP has been replaced, the UK priority habitat and species continue to be regarded as conservation priorities in the UK Post-2010 Biodiversity Framework¹⁰.

The UK BAP identifies 65 habitats and 1,150 species that are considered to be of conservation concern.

2.3.2. Local

The North Merseyside Biodiversity Action Plan¹¹, hosted by Mersey BioBank, aims to help local people become more aware of the area’s natural environment and the issues facing it. The Plan is not a single published document, instead a number of individual Habitat and Species Action Plans and a Business Plan. At present, there are a total of 44 habitat and species action plans, with the following considered to be of potential relevance to the assessment:

Habitats

Lowland mixed broadleaf woodland
Urban grasslands
Ponds

Species

Song thrush
Urban birds
Bats
Common lizard
Great crested newt

3. Methodology

3.1. British Standard 42020: Biodiversity – Code of Practice for Planning and Development

This ecological appraisal and reporting has been completed in consideration of, and with reference to, British Standard (BS) 42020: Biodiversity – Code of Practice for Planning and Development¹². BS 42020 was developed to bridge the gap between specific best practice guidelines and professional Codes of Conduct and build upon relevant legislation and policy relating to biodiversity.

BS 42020 provides a framework for the assessment of biodiversity and recommendations for the content and detail of reporting on biodiversity features with the aim of improving standards within the profession.

3.2. Study Area and Field Survey Area

The Site is located on the northern side of Fallows Way, which is located to the east of the M57 motorway to the north of Junction 1. The site is bounded by Fallows Way to the south and west with Stadt Moers Park to the north and an industrial premises to the south-east. The site has been vacant for a number of years, but has recently been cleared in part.

The study area has considered the land within the development site boundary and surrounding lands up to 2 km from a central point on the site. The field survey area has considered land within the development site boundary with some consideration as to the land immediately surrounding it with regards to the presence of invasive species.

3.3. Desk Study

Information regarding local biological records was collected through an online search of information sources and a data request to the local biological records centre, Merseyside BioBank. Information requested from the local biological records centre included statutory and non-statutory designated sites, notable habitats and legally protected and ecologically significant species. To supplement this, the following web-based resources were used to collate historical biological records and site conditions within the study area:

- Multi-Agency Geographic Information for the Countryside (MAGIC) website (www.magic.defra.gov.uk);
- National Biodiversity Network (NBN) Atlas website (www.nbnatlas.net)*;
- Aerial imagery from Google Earth;
- UK Biodiversity Action Plan website (<http://jncc.defra.gov.uk>);
- North Merseyside Biodiversity Action Plan (hosted by <http://www.merseysidebiodiversity.org.uk>); and,
- Liverpool City Region Ecological Network (<https://lcreconet.uk/>).

* Data available under Open Government Licence (OGL), Creative Commons No rights reserved licence (CC0) and Creative Commons licence with attribution (CC-BY) utilised.

As species distributions are variable over time, information obtained through the desk study has been restricted to records from 2005 and onwards to ensure records are up-to-date. Any species with no record in the last 16 years are unlikely to remain present within the study area.

3.4. Habitat Assessment

The habitats present within the field survey have been classified and mapped following the UK Habitat (UK Hab) Classification methodology¹³, a new and comprehensive habitat classification system that was developed to establish a single system that can be used to identify habitats and provide better co-ordination between the various existing classifications (e.g. Annex I habitats and BAP Priority Habitats). Furthermore, the methodology is well suited to application by both remote-sensing observation and walkover surveys, or a combination of both methods. The methodology has been favoured over the Phase 1 Habitat approach, as it integrates well with the Defra Metric to classify changes in Priority Habitat extent and compensation.

The UK Hab Classification is hierarchical, with the professional edition utilised for the appraisal and all habitats and assessment to be taken to Level 4 wherever possible. Consideration the scale of the Proposed Development and urban context of the site, where habitats are often present at small extent and provide contrast to surrounding developed land, the fine-scale Minimum Mapping Unit (MMU) of 25 m² for area based habitats and 5 m length for linear features has been utilised. Linear features, such as lines of trees, that are at least 1 m in width, are recorded as area features at the fine-scale mapping resolution.

A walkover survey of the site was carried out to map the habitats present on the site. The survey mapped the habitats present, identified to Level 4 of the UK Habitat Classification, and identified the dominant species present for the various habitats. Features with potential to support legally protected or ecologically significant species were also identified. The walkover survey was carried out on 19th December 2022 by Ceridwyn Adkins BSc (Hons) and Joe McLaughlin BSc (Hons) MCIEEM, who are both experienced ecological consultants. The survey was undertaken on a relatively mild day for the time of year, with a temperature of 13°C, and overcast with rain at the start of the survey but finishing shortly after commencing. These conditions are suitable for this type of survey, although limitations (discussed in Section 3.6) are associated with survey at this time of year.

3.5. Limitations

The methods employed in the completion of the Preliminary Ecological Assessment are not considered to give rise to any significant limitations, following best practice guidelines where relevant. The survey is based on field surveys to provide up-to-date information on site conditions, the habitats present and potential features of note.

However, due to the timing of the survey it is not possible to fully determine the floral species present in all habitat types, which subsequently has the potential to affect the ability to confirm the detailed habitat type present. However, this limitation will be addressed through the completion of further surveys recommended to provide additional detail to the assessment. Completion of the Preliminary Ecological Assessment at this time is, however, important to ensure the survey periods for species surveys required to support an application are not missed, thereby causing delay to an application.

4. Baseline

4.1. Desk Study

4.1.1. Designated Sites

Although the study area does not include any statutory designated sites, a total of 21 non-statutory sites, or Local Wildlife Sites as they are known locally, are present within the study area. The sites present are identified in Table 4.1.

Table 4.1 *Designated Sites in the Study Area*

Site	Area (ha)	Proximity
Local Wildlife Site		
Tushingham's Pond, Stadt Moers Country Park	2.62	10 m north
Stadt Moers Q4	32.73	10 m north
Stadt Moers Q3	14.23	115 m north-west
Big Water and Big Water Wood, Halsnead	3.25	480 m south-east
Stadt Moers Q2 and visitor centre	1.56	660 m north
The Old Wood, North	1.44	665 m south-east
Strettles Bog, Tarbock	1.75	790 m south
The Old Wood, South	3.49	800 m south-east
Lickers Lane Wood	1.11	845 m east
Daggers Bridge Wood	2.88	935 m south
Huyton and Prescott Golf Club	37.43	1.2 km north
Woodland, Sandfield Park	1.65	1.2 km east
Mine Waste, Cronton	2.80	1.2 km south-east
Ox Lane Wood, Tarbock	1.20	1.4 km south
Ochre Brook, Tarbock	0.94	1.4 km south
Huyton Lane Wetland	4.28	1.5 km north-west
Parrens Covert	0.89	1.6 km east
Land, East of Fox's Bank Brook	1.95	1.6 km south-east
Carr Lane Lake, Prescott	1.02	1.7 km north
Blundell Hills Golf Course	50.67	1.7 km east
Dog Clog Brook, Tarbock	1.84	1.9 km south
Nature Improvement Area		
Netherley Brook and Ditton Brook Corridor	-	780 m south

Tushingham's Pond, Stadt Moers Country Park Local Wildlife Site (LWS) is designated as it comprises a large open pond with varied habitats around its edges, from marsh to alkaline grassland to scrub and woodland. The site supports 2 BAP priority habitats (swamp and inundation swamp) and 3 regionally important habitats (marshy grassland, swamp and standing water/pond) with a number of important plant species including the nationally important northern yellow-cress (*Rorippa islandica*), BAP priority species ivy-leaved crowfoot (*Ranunculus hederaceus*) and the regionally important Cyperus sedge (*Carex pseudocyperus*), rigid hornwort (*Ceratophyllum demersum*) and northern marsh-orchid (*Dactylorhiza purpurella*).

Stadt Moers Q4 LWS is designated as it comprises a large area of semi-improved neutral grassland with areas of scrub and developing broadleaf woodland. The site supports 1 Priority BAP habitat (unimproved neutral grassland) and 2 regionally important habitats (unimproved neutral grassland and marshy grassland) with a number of important plant species including the Wildlife and Countryside Act 1981 (as amended) Schedule 8, UK BAP species of concern and regionally important bluebell (*Hyacinthoides non-scripta*) and regionally important northern marsh-orchid.

Although the development site is located >5 km from the nearest SSSI, it falls within the impact zone for the Mersey Estuary with drainage aspects of the site with potential to influence the designated site. The Mersey Estuary, which is also a SPA and Ramsar site, is notified for its avifauna interest as a site of international importance with supporting habitats comprising intertidal sand, mudflats, saltmarshes, brackish marshes, reclaimed marshland and boulder clay cliffs with freshwater seepages.

4.1.2. Notable Habitats

The study area includes two areas of ancient woodland, although these are likely to have originally been one section that is now severed by the M62 motorway. The Old Wood is an area of ancient and semi-natural woodland located approximately 660 m to the south-east of the development site at its closest.

In addition to this, the study area includes four Priority Habitats identified under the UK BAP (as identified in Figure 4.2) These are deciduous woodland, lowland fen, lowland meadow and good quality semi-improved grassland. Deciduous woodland is the most extensive of these habitats, covering large areas around the M62 and M57 motorway junction and in blocks along both corridors. The desk study information also identifies the habitat to cover large areas of Stadt Moers Park to the north of the site and extend across the entire proposed development. However, aerial photography of the site indicates parts of the site have been clear of woodland since 2012, with further clearance more recently.

Lowland fen priority habitat is identified around the margins of Tushingham's Lake to the north of the site, c. 10 m at its closest, whilst lowland meadow and good semi-improved grassland priority habitats are more distanced from the site on the distant side of the M57 motorway approximately 510 m and 1.6 km to the north-west respectively.

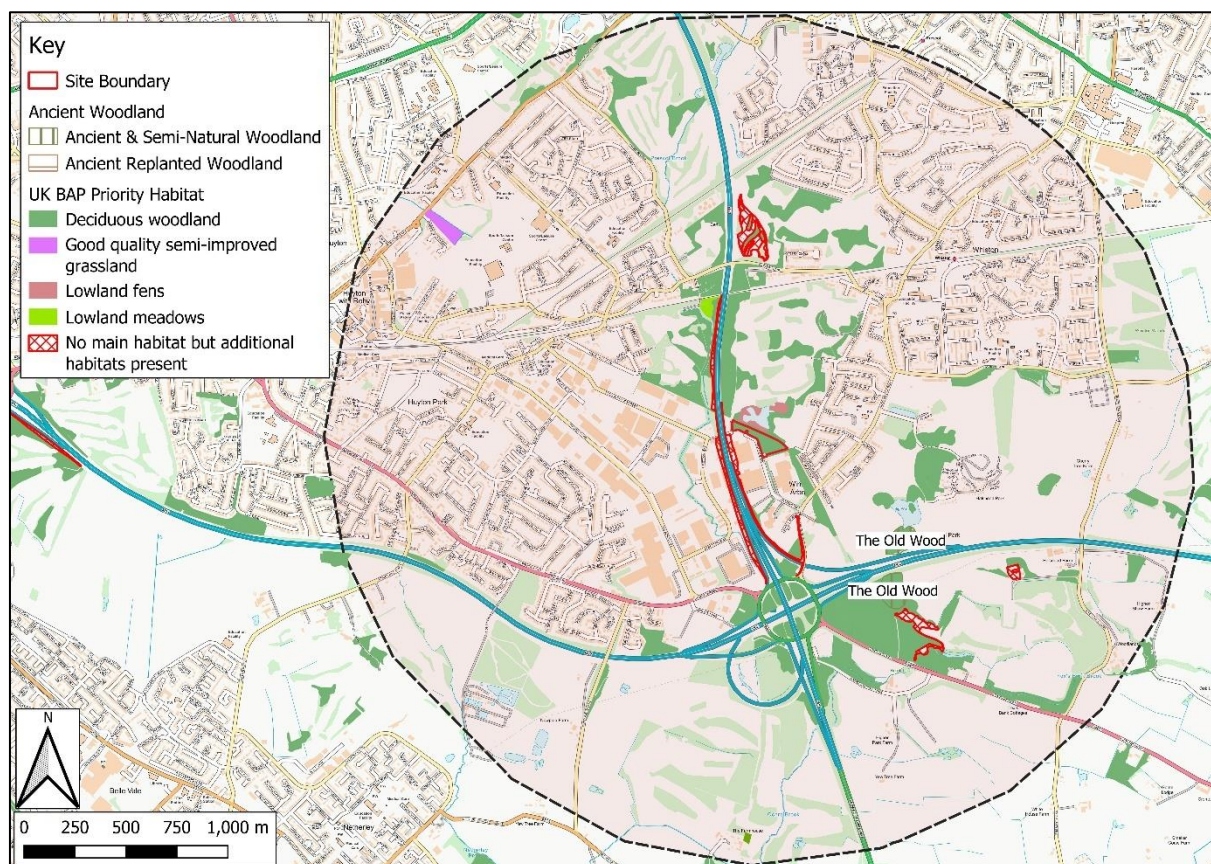


Figure 4.1 **UK BAP Priority Habitat and Ancient Woodland Habitat within 2 km of the Proposed Development** (Contains public sector information licensed under the Open Government Licence v3.0 and Ordnance Survey data © Crown copyright and database right 2022)

A search of OS mapping of the surrounding area 500 m from the development site identified three waterbodies. A ditch is present on the development site, running along the northern side of the site parallel to the site boundary and Tushingham's Lake is located c. 10 m to the north of the site. The third waterbody is Logwood Mill Brook, which runs on the distant side of the M57 motorway for the most part of the study area which serves as a significant barrier to faunal species dispersal between the waterbody and the development site.

A review of the Liverpool City Region Ecological Network¹⁴ identifies that the habitats within the development site are classified as part of a Core Biodiversity Area (CBA) with woodland CBA extending across the site and grassland CBA located at the southern end of the site. The review also highlights the importance of Stadt Moers to the north as a Local Wildlife Site with CBA grassland, woodland and wetland present as well as the importance of Tushingham's Lake as a stepping stone habitat.

4.1.3. Protected and Ecologically Significant Species

Biological Records Centre

The data returned by Merseyside BioBank identified the presence of a number of protected and ecologically significant species within the study area, however this incorporates a wide variety of habitat types including open grassland, woodland, open water and urban areas including industrial and residential areas. The following tables identify the species identified as present in the study area.

Table 4.2 Protected and Ecologically Significant Bird Species within the Study Area

Species		Most Recent Record	Designations
Kingfisher	<i>Alcedo atthis</i>	2014	Wildlife and Countryside Act 1981
Grey partridge	<i>Perdix perdix</i>	2007	Local BAP NERC Act Sect. 41
Lapwing	<i>Vanellus vanellus</i>	2008	Local BAP NERC Act Sect. 41
Skylark	<i>Alauda arvensis</i>	2008	Local BAP NERC Act Sect. 41
Song thrush	<i>Turdus philomelos</i>	2008	Local BAP NERC Act Sect. 41
Starling	<i>Sturnus vulgaris</i>	2008	Local BAP NERC Act Sect. 41
Bullfinch	<i>Pyrrhul pyrrhula</i>	2007	NERC Act Sect. 41
Dunnock	<i>Prunella modularis</i>	2008	NERC Act Sect. 41
Grasshopper warbler	<i>Locustella naevia</i>	2008	NERC Act Sect. 41
Lesser redpoll	<i>Acanthis cabaret</i>	2007	NERC Act Sect. 41
Reed bunting	<i>Emberiza schoeniclus</i>	2008	NERC Act Sect. 41
Tree sparrow	<i>Passer montanus</i>	2007	NERC Act Sect. 41
Yellowhammer	<i>Emberiza citronella</i>	2007	NERC Act Sect. 41

Table 4.3 Protected and Ecologically Significant Mammal Species within the Study Area

Species		Most Recent Record	Designations
Brown long-eared bat	<i>Plecotus auritus</i>	2016	Conservation Regulations 2017 Wildlife and Countryside Act 1981 Local BAP NERC Act Sect. 41
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	2021	
Daubenton's bat	<i>Myotis daubentonii</i>	2015	
Lesser noctule	<i>Nyctalus leisleri</i>	2021	
Nathusius pipistrelle	<i>Pipistrellus nathusii</i>	2014	
Noctule bat	<i>Nyctalus noctula</i>	2021	
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	2022	
Whiskered bat	<i>Myotis mystacinus</i>	2014	
Whiskered/Brandt's Bat	<i>M. mystacinus/brandtii</i>	2014	
Eurasian badger	<i>Meles meles</i>	2021	Protection of Badgers Act 1992

Species		Most Recent Record	Designations
Otter	<i>Lutra lutra</i>	2017	Conservation Regulations 2017 Wildlife and Countryside Act 1981 NERC Act Sect. 41
Water vole	<i>Arvicola amphibius</i>	2016	Wildlife and Countryside Act 1981 Local BAP NERC Act Sect. 41
Brown hare	<i>Lepus eruopaeus</i>	2015	Local BAP NERC Act Sect. 41
Hedgehog	<i>Erinaceus europaeus</i>	2021	NERC Act Sect. 41

Table 4.4 **Protected and Ecologically Significant Mammal Herptile within the Study Area**

Species		Most Recent Record	Designations
Common frog	<i>Rana temporaria</i>	2022	Wildlife and Countryside Act 1981
Common toad	<i>Bufo bufo</i>	2021	Wildlife and Countryside Act 1981 NERC Act Sect. 41
Great crested newt	<i>Triturus cristatus</i>	2021	Conservation Regulations 2017 Wildlife and Countryside Act 1981 Local BAP NERC Act Sect. 41
Smooth newt	<i>Lissotriton vulgaris</i>	2022	Wildlife and Countryside Act 1981

Table 4.5 **Protected and Ecologically Significant Plant Species within the Study Area**

Species		Most Recent Record	Designations
Bluebell	<i>Hyacinthoides non-scripta</i>	2022	Wildlife and Countryside Act 1981 Local BAP
Smooth Cat's-ear	<i>Hypochaeris glabra</i>	2015	Local BAP
Cornflower	<i>Centaurea cyanus</i>	2012	NERC Act Sect. 41
Grape-hyacinth	<i>Muscari neglectum</i>	2017	NERC Act Sect. 41

Table 4.6 Protected and Ecologically Significant Invertebrate Species within the Study Area

Species		Most Recent Record	Designations
White-letter hairstreak	<i>Satyrrium w-album</i>	2012	Wildlife and Countryside Act 1981 NERC Act Sect. 41
Azure damselfly	<i>Coenagriun puella</i>	2022	Local BAP
Blue-tailed damselfly	<i>Ischnura elegans</i>	2022	Local BAP
Broad-bodied chaser	<i>Libellula depressa</i>	2018	Local BAP
Brown hawk	<i>Aeshna grandis</i>	2019	Local BAP
Common blue damselfly	<i>Enallagma cyathigerum</i>	2022	Local BAP
Common darter	<i>Sympetrium striolatum</i>	2022	Local BAP
Emerald damselfly	<i>Lestes sponsa</i>	2008	Local BAP
Emperor dragonfly	<i>Anaz imperator</i>	2012	Local BAP
Four-spotted chaser	<i>Libellula quadrimaculata</i>	2018	Local BAP
Migrant hawk	<i>Aeshna mixta</i>	2020	Local BAP
Red-eyed damselfly	<i>Erythromma najas</i>	2018	Local BAP
Ruddy darter	<i>Sympetrum sanguineum</i>	2019	Local BAP
Southern hawk	<i>Aeshna cyanea</i>	2019	Local BAP

In addition to the above, the following species identified as invasive under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) are identified to be present within the study area that could have potential to be present within the site: Himalayan balsam (*Impatiens glandulifera*), Himalayan cotoneaster (*Cotoneaster simonsii*), Japanese knotweed (*Fallopia japonica*), Japanese rose (*Rosa rugosa*), Rhododendron (*Rhododendron ponticum*) and Virginia creeper (*Parthenocissus quinquefolia*).

National Biodiversity Network

A search of the National Biodiversity Network Atlas resource¹⁵ identified a number of additional species not identified in the Merseyside BioBank records. Of note within the data are the presence of the following red and amber listed bird species of conservation concern: greenfinch (*Chloris chloris*)[†], house sparrow (*Passer domesticus*)[†], lesser redpoll (*Acanthis cabaret*)[†], mallard (*Anas platyrhynchos*)[‡], Mediterranean gull (*Ichtyaetus melanocephalus*)[†], pintail (*Anas acuta*)[‡], pochard (*Aythya ferina*)[‡], redwing (*Turdus iliacus*)[†], sparrowhawk (*Accipter nisus*)[†], swift (*Apus apus*)[§], wigeon (*Mareca penelope*)[‡] and willow warbler (*Phylloscopus trochilus*)[†]. In addition to these, Mediterranean gull, pintail and redwing are also identified in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) as receiving special protection when nesting. The data also included the presence of ring-necked parakeet (*Psittacula krameri*)[‡], which is considered to be an invasive species and identified in Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

[†] Records provided by British Trust for Ornithology (BTO), accessed through NBN Atlas website.

[‡] Records provided by Merseyside BioBank, accessed through NBN Atlas website.

[§] Records provided by Royal Society for the Protection of Birds, accessed through NBN Atlas website.

Although not listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) as invasive, the presence of cherry laurel (*Prunus laurocerasus*)**, false-acacia (*Robinia pseudoacacia*)** and snowberry (*Symphoricarpos albus*)** was identified, with the species common considered to be invasive due to their impacts on habitats.

MAGIC

A search of the MAGIC database identified a single European Protected Species development license in the study area, which related to bats. Case Reference EPSM2013-5867 around Dacre's Bridge Lane, approximately 1 km to the south of the site, covers the destruction of a resting place for common pipistrelle, soprano pipistrelle, brown long-eared bats and natterer's bat (*Myotis nattereri*).

There are no records of GCN survey returns within the site area.

4.2. Field Survey

4.2.1. Habitats

The following sections describe the habitats that were identified in the field survey area according to the UK Hab Classification definitions and following CIEEM best practice guidance. The habitat descriptions should be read in conjunction with the UK Hab Classification survey map, see Figure 4.n, and site photographs, included in Appendix B.

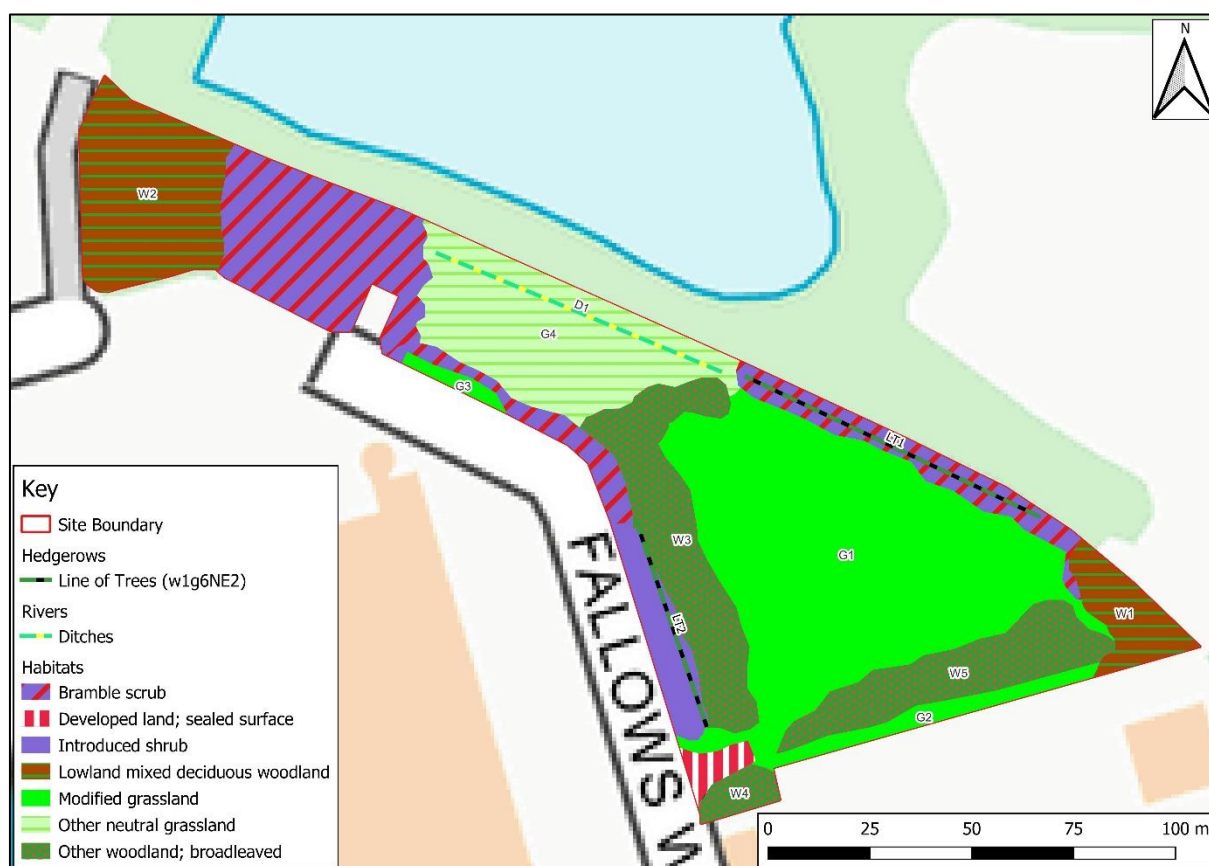


Figure 4.2 UK Hab Classification Map (Contains Ordnance Survey data © Crown copyright and database right 2022)

** Records provided by Botanical Society of Britain & Ireland, accessed through NBN Atlas website.

G3 Neutral Grassland

G3c Other Neutral Grassland

The habitat within the centre of the development site has been identified as other neutral grassland as the equivalent to the Phase 1 habitat of tall ruderals. The habitat is dominated by the presence of common nettle (*Urtica dioica*), broad-leaved dock (*Rumex obtusifolius*), thistle (*Cirsium* sp.) and willowherb (*Epilobium* sp.) with occasional bramble (*Rubus fruticosus*) and false oat grass (*Arrhenatherum elatius*). The habitat contained some areas of bare ground, but no bracken (*Pteridium* sp.) was present or damage noted.

The grassland habitat was considered to be of poor condition, missing two of the criteria in the Defra Metric Condition Sheets (version 3.1). Firstly the appearance and composition of the vegetation does not closely match the characteristics of neutral grassland within the UK Hab definition (required to achieve a moderate condition for this grassland type) and with more than 5 % cover of bare ground.

G4 Modified Grassland

There are three main areas of grassland within the development site that are identified as modified grassland, although the conclusion for two areas is subject to the findings of further botanical survey between May and September.

A large area on the eastern side of the development site was identified to comprise wet grassland with extensive moss, presumed to be springy turf moss, with between 3 and 6 species per square metre. The grassland supported abundant Yorkshire fog (*Holcus lanatus*) and false oat grass with occasional meadow grass (*Poa* sp.), fescue (*Festuca* sp.) and creeping bent (*Agrostis stolonifera*). The grassland also included frequent hard rush (*Juncus inflexus*) and soft rush (*Juncus effusus*), and herbaceous species including frequent creeping buttercup (*Ranunculus repens*) and occasional oxeye daisy (*Leucanthemum vulgare*), ribwort plantain (*Plantago lanceolata*), dock (*Rumex* sp.), common nettle and thistle. Wood avens (*Geum urbanum*) was present but rare and butterfly bush (*Buddleja davidii*) was also occasionally present.

A second area of wet grassland was present across the southern boundary of the site that was also identified to comprise wet grassland with extensive moss, also presumed to be springy turf moss, was present with between 4 and 6 species per square metre. Hard rush, soft rush and moss were extensive in this area of grassland, with frequent false oat grass and Yorkshire fog and occasional creeping bent. Herbaceous species present comprised frequent creeping buttercup and occasional wood avens, oxeye daisy, ribwort plantain, knapweed (*Centaurea* sp.), self-heal (*Prunella vulgaris*) and herb robert (*Geranium robertianum*) with butterfly bush and bramble occasionally present.

The third modified grassland habitat is present along the roadside on Fallows Way and comprised short mown amenity grassland with typical species present that included perennial rye grass (*Lolium perenne*) with herbaceous species including dandelion (*Taraxacum officinale* agg.), clover (*Trifolium* sp.) and common daisy (*Bellis perennis*).

The two wet grassland habitats were both considered to be in good condition, following the criteria within the Defra Metric Condition Sheets (version 3.1), passing all 7 condition criteria for low distinctiveness grassland habitat. However, the amenity grassland habitat alongside Fallows Way is considered to be of poor condition, failing criteria 1 and 2 with less than 6 to 8 species per m² (required to achieve a moderate condition) and a uniform sward height that does not create microclimates for insects, birds and small mammals.

Modified grassland does not normally comprise part of a BAP Priority Habitat, however characteristics within the wet grassland including rush (*Juncaceae* sp.), knapweed and oxeye daisy which could potentially comprise part of a BAP Priority Habitat.

W1 Broadleaved Mixed and Yew Woodland

W1f Lowland Mixed Deciduous Woodland

There are two areas of lowland mixed deciduous woodland within the development site, the first on the easternmost side of the site and the second on the westernmost side of the site.

The woodland at the easternmost part of the site comprises trees of 8 m to 15 m height with the canopy made up of ash (*Fraxinus excelsior*), willow (*Salix* sp.), sycamore (*Acer pseudoplatanus*) and oak (*Quercus* sp). The woodland had an understorey comprising elder (*Sambucus nigra*), bramble, dogwood (*Cornus sanguinea*) and rose (*Rosa* sp.) along with saplings of the tree species, and a ground flora made up of wood avens, common nettle and ivy (*Hedera helix*) in places.

The woodland at the westernmost part of the site also comprises trees of 8 m to 15 m height with the canopy made up of pedunculate oak (*Quercus robur*), hazel (*Corylus avellana*) and ash.

Both woodland areas contained three age classes present and supported both standing and fallen deadwood. The habitats were considered to be of moderate condition overall achieving the following level within the criteria:

- *Age distribution of trees*: Three age classes present (3 points);
- *Wild, domestic and feral herbivore damage*: Evidence of significant browsing pressure is present in 40 % or less of whole woodland (2 points);
- *Invasive plant species*: no invasive species present in woodland (3 points);
- *Number of native tree species*: three to four native tree or shrub species found across woodland parcel (2 points);
- *Cover of native tree and shrub species*: >80 % of canopy and >80 % of understory shrubs are native (3 points);
- *Open space within woodland*: 10-20 % of woodland has areas of temporary open space, unless woodland is <10 ha in which case lower threshold of 10 % does not apply (3 points);
- *Woodland regeneration*: all three classes present in woodland; trees 4-7 cm dbh, saplings and seedlings or advanced coppice regrowth (3 points);
- *Tree health*: tree mortality less than 10 %, no pests of diseases and no crown dieback (3 points);
- *Vegetation and ground flora*: no recognisable NVC Community (1 point)⁺⁺;
- *Woodland vertical structure*: three or more storeys across all survey plots or a complex woodland (3 points);
- *Veteran trees*: no veteran trees present in woodland (1 point);

⁺⁺ Further detailed survey in the summer required to confirm status.

- *Amount of deadwood*: less than 25 % of all survey plots within the woodland parcel have standing deadwood, large dead branches/stems and stumps, or a high abundance of smaller cavities (1 point);
- *Woodland disturbance*: less than 1 hectare in total of nutrient enrichment across the woodland area and/or less than 20 % of woodland area has damaged ground (2 points);
- **Total: 30 points – Moderate Condition**

Due to the time of year, the ground flora could not be fully identified to classify the woodland habitat present. However, lowland mixed deciduous woodland typically comprises a BAP Priority Habitat and given the identification of the site as part of a BAP Priority habitat in the desk study data it is likely that the woodland will comprise Priority Habitat.

W1g Other Woodland; Broadleaved

There are three areas of broadleaved woodland in the eastern half of the site that are of varying condition, with two bounding the modified grassland habitat and the third alongside the site entrance.

The woodland alongside the current site entrance is similar to the easternmost woodland described above, with a canopy of ash, willow, sycamore and oak with an understorey of elder, bramble, dogwood, rose and saplings and a ground flora of wood avens, common nettle and ivy. However, in this location the woodland also supported cherry laurel (*Prunus laurocerasus*). The woodland habitat was considered to be of moderate condition, as set out below:

- *Age distribution of trees*: two age classes present (2 points);
- *Wild, domestic and feral herbivore damage*: no significant browsing damage evidence in woodland (3 points);
- *Invasive plant species*: Rhododendron or laurel present, or other invasive species >10 % cover (1 point);
- *Number of native tree species*: three to four native tree or shrub species found across woodland parcel (2 points);
- *Cover of native tree and shrub species*: >80 % of canopy and >80 % of understory shrubs are native (3 points);
- *Open space within woodland*: 10-20 % of woodland has areas of temporary open space, unless woodland is <10 ha in which case lower threshold of 10 % does not apply (3 points);
- *Woodland regeneration*: one or two classes only present in woodland (2 points);
- *Tree health*: tree mortality less than 10 %, no pests of diseases and no crown dieback (3 points);
- *Vegetation and ground flora*: no recognisable NVC Community (1 point)**;
- *Woodland vertical structure*: two storeys across all survey plots (2 points);
- *Veteran trees*: no veteran trees present in woodland (1 point);

** Further detailed survey in the summer required to confirm status.

- *Amount of deadwood*: less than 25 % of all survey plots within the woodland parcel have standing deadwood, large dead branches/stems and stumps, or a high abundance of smaller cavities (1 point);
- *Woodland disturbance*: less than 1 hectare in total of nutrient enrichment across the woodland area and/or less than 20 % of woodland area has damaged ground (2 points);
- **Total: 26 points – Moderate Condition**

One of the bands of woodland (parallel to the eastern boundary) supported trees between 3m and 5m tall with a similar species composition to the above albeit with no cherry laurel present. The woodland was, however, considered to be of poor condition achieving the following criteria in the condition assessment under the Defra Metric (version 3.1):

- *Age distribution of trees*: one age class present (1 point);
- *Wild, domestic and feral herbivore damage*: no significant browsing damage evidence in woodland (3 points);
- *Invasive plant species*: no invasive species present in woodland (3 points);
- *Number of native tree species*: none to two native tree or shrub species across woodland parcel (1 point);
- *Cover of native tree and shrub species*: <50 % of canopy trees and < 50 % of understorey shrubs are native (1 point);
- *Open space within woodland*: 10-20 % of woodland has areas of temporary open space, unless woodland is <10 ha in which case lower threshold of 10 % does not apply (3 points);
- *Woodland regeneration*: (1 point);
- *Tree health*: tree mortality less than 10 %, no pests of diseases and no crown dieback (3 points);
- *Vegetation and ground flora*: no recognisable NVC Community (1 point)^{§§};
- *Woodland vertical structure*: one or less storey across all survey plots (1 point);
- *Veteran trees*: no veteran trees present in woodland (1 point);
- *Amount of deadwood*: less than 25 % of all survey plots within the woodland parcel have standing deadwood, large dead branches/stems and stumps, or a high abundance of smaller cavities (1 point);
- *Woodland disturbance*: less than 1 hectare in total of nutrient enrichment across the woodland area and/or less than 20 % of woodland area has damaged ground (2 points);
- **Total: 22 points – Poor Condition**

The third band of woodland, present parallel to the southern boundary, is dominated by a non-native poplar species, thought to be balsam poplar (*Populus balsamifera*), which has self-set. The trees present in the woodland are between 3 m and 5 m in height with a bare ground flora or modified grassland species. The woodland includes the presence of cherry laurel.

^{§§} Further detailed survey in the summer required to confirm status.

- *Age distribution of trees*: one age class present (1 point);
- *Wild, domestic and feral herbivore damage*: no significant browsing damage evidence in woodland (3 points);
- *Invasive plant species*: rhododendron or laurel present, or other invasive species > 10 % cover (1 point);
- *Number of native tree species*: none to two native tree or shrub species across woodland parcel (1 point);
- *Cover of native tree and shrub species*: <50 % of canopy trees and <50 % of understorey shrubs are native (1 point);
- *Open space within woodland*: 10-20 % of woodland has areas of temporary open space, unless woodland is <10 ha in which case lower threshold of 10 % does not apply (3 points);
- *Woodland regeneration*: No classes or coppice regrowth present in woodland (1 point);
- *Tree health*: tree mortality less than 10 %, no pests of diseases and no crown dieback (3 points);
- *Vegetation and ground flora*: no recognisable NVC Community (1 point)**;
- *Woodland vertical structure*: One or less storey across all survey plots (1 point);
- *Veteran trees*: no veteran trees present in woodland (1 point);
- *Amount of deadwood*: less than 25 % of all survey plots within the woodland parcel have standing deadwood, large dead branches/stems and stumps, or a high abundance of smaller cavities (1 point);
- *Woodland disturbance*: less than 1 hectare in total of nutrient enrichment across the woodland area and/or less than 20 % of woodland area has damaged ground (2 points);
- **Total: 20 points – Poor Condition**

The woodland habitat falling within this category does not normally comprise part of a Priority Habitat, although confirmation on the ground flora would help confirm this.

W1g6 Line of Trees

There are two distinct lines of trees present on the eastern side of the development site. The first line of trees runs parallel with the northern site boundary through the scrub habitat and comprises approximately 11 mature trees of oak, ash, alder (*Alnus glutinosa*) and sycamore species with a bramble understorey. The trees are all between 10 m and 15 m height with a diameter of 0.75 m at 1 m height.

The second line of trees is present parallel to the southern boundary and alongside the introduced shrub habitat and comprises approximately 15 trees of alder and ash species with an understorey of introduced shrub. The trees are all between 8 m and 12 m in height with a diameter of 0.5m at 1 m height.

The habitats are both considered to be of moderate condition, following the criteria within the Defra Metric Condition Sheets (version 3.1), passing 4 of the condition criteria for lines of trees. The habitat does not, however, support an undisturbed naturally vegetated strip of at least 6 m on both sides to protect the line of trees from farming and other anthropogenic operations. The line of trees are not, however, considered to comprise part of a Priority Habitat.

*** Further detailed survey in the summer required to confirm status.

H3 Dense Scrub

Bramble Scrub

Dense scrub habitat is present in several locations across the development site, with an extensive area present on the western side of the site which stretches along the southern boundary and a secondary area present on the northern boundary on the eastern side of the site. The dense scrub habitat is dominated by bramble, with additional species occasionally present that include broom (*Cystisus scoparius*), gorse (*Ulex europaeus*) and stands of butterfly bush with common nettle also present.

Dense bramble scrub does not require a condition to be identified for the net gain assessment within the Defra Metric, and is not considered to comprise part of a Priority Habitat.

Mixed Scrub/Introduced Shrub

Although best described in the UK Habitat Classification as dense mixed scrub habitat, the Defra Metric provides an individual category for Introduced Shrub within the Urban habitat category. The introduced shrub habitat is present on the southern boundary alongside Fallows Way on the eastern side of the development site. The introduced shrub habitat is dominated by the presence of cherry laurel and snowberry (*Symphoricarpos albus*), with an occasional presence of butterfly bush. Introduced shrub habitat does not require a condition to be identified for the net gain assessment within the Defra Metric, and is not considered to comprise part of a Priority Habitat.

U1 Built-up Areas and Gardens

U1b6 Other Developed Land

A small area of the development site comprises hardstanding, comprising the existing entrance into the site from Fallows Lane. The hardstanding is in relatively good condition with no floral species present.

R1 Standing Open Water and Canals

A man-made drainage ditch stretches across 75 m of the other neutral grassland habitat, parallel to the northern boundary, and supported standing water that appeared stagnant. The banks were earth and supported tall ruderal species and scattered scrub, with the water environment supporting emergent reedmace (*Typha latifolia*).

The ditch habitat is identified as a linear habitat, and following the condition criteria in the Defra Metric is considered to be of poor condition. The habitat passes only 4 of the condition criteria relating to the cover of filamentous algae and/or duckweed (< 10 % cover), an absence of physical damage such as poaching, management activities or from machinery (< 5 % of length), an absence of heavy shading (< 10 %) and an absence of non-native plant and animal species. However, the ditch is not considered to be of good water quality with clear water, does not support a range of macrophyte species, does not support extensive marginal vegetation and is not likely to maintain sufficient water levels through the year. The habitat is not considered to comprise part of a Priority Habitat.

4.2.2. Species

Flora

No plant species listed under Schedule 8 or Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were identified with the development site.

There are, however, several species present on the site that are considered potentially invasive. Cherry laurel is considered to be invasive as it outcompetes native species and creates heavy shading that limits the growth and establishment of ground flora within woodlands and prevents regeneration. Snowberry and butterfly bush are both also considered invasive due to their ability to colonise habitats or displace native species.

Several species listed under the Weeds Act 1959 as injurious weeds were identified to be present within the development site. Broadleaved dock was confirmed present within the other neutral grassland habitat. Although not confirmed, the presence of a dock species within the main modified grassland habitat and thistle species within both of the main grassland areas could also comprise species listed under the Weeds Act 1959.

Breeding Birds

The woody vegetation present across the development site, notably woodland, line of trees, introduced shrub and scrub habitats, provide suitable nesting opportunities for breeding birds. Disused nests were identified to be present throughout the site. Therefore, nesting birds have the potential to comprise a constraint to the development, however the inclusion of appropriate mitigation can reduce the impact of this.

Reptiles

The terrestrial habitats on the site are considered to be potentially suitable for reptile species, with areas of rubble and debris providing suitable refuge and hibernacula opportunities. In addition to this, the ditch and nearby lake provide a suitable connecting feature for semi-aquatic species such as grass snake. Therefore, the potential presence of reptiles cannot be discounted and the species has the potential to comprise a constraint to the development.

Great Crested Newt

Although the development site offers potentially suitable terrestrial habitat for GCN, their presence in a habitat is largely influenced by the presence of suitable aquatic habitat for breeding.

Tushingham's Lake, located c. 10 m to the north of the site, is not considered to be suitable for GCN largely due to the presence of predatory fish and large waterfowl.

Although ditches are not typically suitable for GCN, this is a result of moving water. As a result, the stagnant ditch present on site has the potential to offer suitable habitat for GCN, albeit of low potential. The presence of GCN cannot, therefore, be discounted and the potential presence of the species could comprise a constraint to the development.

Bats

The trees to the west of the development site were considered to hold low suitability for bats due to their age and structure, although no obvious features potentially suitable for roosting were identified. Trees associated with off-site habitat to the north, surrounding the lake, were considered to offer high potential for roosting bats.

Lighting associated with the site was restricted to street lighting to the south of the site along Fallows Way, with lighting absent across the site and peripheral areas to the north, east and west.

The development site was considered to offer low potential for foraging and commuting bats, based on the size of the site and lack of existing lighting.

The presence of bats and impacts upon supporting habitat for nearby high potential habitat cannot, therefore, be discounted and the potential presence of the species could comprise a constraint to the development.

Badger

No setts were identified and no evidence of pathways were noted on the site, therefore badger are considered likely to be absent from the development site and do not comprise a constraint to the development and are not considered further in this report.

Otter and Water Vole

The riparian habitat on the site, comprising the ditch running parallel to the northern boundary, was considered to be unsuitable for the presence of water vole and otter. The ditch does not form part of a network, with no connection to the river off-site, with stagnant water present and an absence of bankside for holts or burrows. Consequently, the species are considered likely to be absent from the development site and are not considered further in this report.

Invertebrates

The presence of a series of micro-climates, standing and fallen dead wood, standing water/ditch and potential priority habitat present as a result of the range of habitats present on the development site has potential to support rare or notable invertebrate species. Therefore, the potential presence of rare or notable invertebrate species could comprise a constraint to the development.

Other Species

Considering the nature of the habitats present, comprising scrub and overgrown vegetation and standing water, the presence of hedgehog could be likely. Whilst their legal protection makes it an offence only for them to be killed or taken by certain methods, as a priority species they are a material consideration for planning. Further survey for the species is not considered necessary, however precautionary mitigation is recommended to minimise the potential for adverse effect.

4.3. Further Survey Requirements

4.3.1. Habitats

Due to the timing of the Preliminary Ecological Appraisal survey, a follow up is required to provide additional supporting information regarding the botanical potential of some of the habitats present on the site and enable accurate determination of the potential for some habitats to comprise Priority Habitats.

A follow up survey to provide further detail regarding the botanical species present on the site is recommended to be carried out between May and August.

4.3.2. Species

Breeding Birds

Considering the scale and context of the proposed development, the completion of nesting bird surveys is considered disproportionate. However, the application of appropriate mitigation measures is required to ensure the construction phase is legally compliant and minimises impacts.

Reptiles

A reptile survey is recommended to establish the presence/likely absence of reptile species within the development site and determine the mitigation required. The survey should follow best practice guidance¹⁶ and cover all suitable habitats across the site, utilising a suitable number of artificial refugia that are checked at appropriate times of the day. The survey should comprise seven visits during the active reptile season of March to September, completed in suitable weather conditions.

Great Crested Newt

Further surveys for GCN are recommended and should include a minimum of four presence/likely absence surveys from March to June, with at least two surveys between mid-April and mid-May, following best practice guidance. If GCN are confirmed to be present, an additional two surveys should be carried out to categorise the population class size.

Alternatively, environmental DNA (eDNA) water samples could be taken between 15 April and 30 June to determine presence/likely absence following published guidance¹⁷. eDNA survey is only accepted as a mean to determine presence/likely absence where undertaken between 15 April and 30 June, and if presence is confirmed a population class size survey comprising six visits would be required to support a planning application.

Bats

Given the presence of habitat of high potential for roosting bats within the adjacent offsite habitat, it is recommended activity surveys of the site are carried out to determine the potential impact upon foraging and commuting bats.

In line with best practice guidance¹⁸, as the habitat is considered to be of low potential value for foraging and commuting, surveys should include one visit per season: spring (April/May), summer (June/July/August) and autumn (September/October). Best practice guidance also requires one automated/static detector to be present per survey transect for 5 consecutive nights in suitable weather conditions. However, as the site is not secure the placement of static detectors will require careful consideration and may require placement high within trees on the site.

Invertebrates

Due to the nature of the site and presence of a range of micro-habitats created following the clearance of the site, it is recommended that a scoping assessment is carried out to ascertain whether the site supports any rare or notable invertebrate species.

5. Ecological Impacts and Mitigation

The proposals for the development of the site includes for the construction of 13 no. industrial units on vacant land off Fallows Way, Whiston, Prescot, L35 1RZ.

5.1. Ecological Impact Discussion

The following provides a discussion of the impacts associated with the proposed development upon biodiversity features identified on the development site or within the area of influence in the study area.

5.1.1. Designated Sites

The development does not have any direct impacts upon any of the designated sites identified within the study area.

However, the development site is located within a SSSI Impact Risk Zone. This identifies that the project is within an area where the discharge of water or liquid waste of more than 20 m³/day, either to ground (*i.e.* to seep away) or to surface water (such as a beck or stream), could have the potential for adverse effects on a SSSI. Whilst the SSSI is not specified in the information, the proximity to the Mersey Estuary suggests this to be the likely site of interest. The ground conditions on the site are not, however, suitable for permeable drainage or infiltration tanks, and thus the drainage strategy looks to connect the drainage direct to the local sewer network instead of surface waters.

Indirect effects associated with dust generation are not considered to influence any of the designated sites. There are no particularly sensitive features present within 50 m of the development site, which is the screening criteria for assessment following the Institute of Air Quality Management's best practice guidance¹⁹. Furthermore, the adoption of best practice measures for dust will be adopted to minimise emissions of dust, reducing the potential for impact further still.

5.1.2. Habitats

Development of the site will result in the removal of all of the existing habitats on the site. As a number of the habitats on the site are likely to be of relatively low ecological value, impacts associated with their loss are generally insignificant in biodiversity terms. However, the site has potential to support Priority Habitat, and given its extent avoidance of these areas is unlikely to be feasible and would have a significant impact upon the deliverability of development on the site.

The magnitude of impact on Priority Habitats is subject to further survey to determine the status of habitats on site based on botanical species present. However, to provide an indication at this stage the biodiversity value, in biodiversity units, of the habitats with potential to comprise BAP Priority Habitats is identified in Table 5.1. It should be noted that whilst there is potential for the woodland habitat to comprise a BAP Priority Habitat, the grassland habitat is less likely to comprise a BAP Priority Habitat but has been included to provide an indication of the potential implications. All of the potential BAP Priority Habitat would be lost as a result of the development, and if confirmed would therefore require compensating.

Table 5.1 *Potential BAP Habitat Present on the Site and Biodiversity Value following the Defra Metric 3.1*

Habitat Type	Area (ha)	Distinctiveness	Condition	Strategic Significance	Biodiversity Units
Lowland mixed deciduous woodland	0.20	High	Moderate	Location ecologically desirable but not in local strategy	2.64
Neutral Grassland	0.49	Medium	Good		6.47

5.1.3. Species

Breeding Birds

In the absence of mitigation, impacts upon breeding birds are likely to occur during the construction phase where vegetation clearance occurs during the breeding birds season. The Wildlife and Countryside Act 1981 (as amended) makes it an offence to intentionally kill, injure or take any wild bird, or take, damage or destroy the nest (whilst being built or in use) or its eggs.

The loss of habitat on the site is not, however, considered to be significant upon the distribution of birds locally, given the extent and availability of similar semi-natural habitats in the surrounding environment. Furthermore, through the introduction of nesting opportunities as part of the development of the site, nesting opportunities for those species of conservation concern may be improved.

Reptiles

Depending on the findings of further survey recommended and in the absence of mitigation, the development of the site has the potential for harm/injury to individual reptile species and potential for the loss of suitable habitat. Reptiles are legally protected under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to intentionally kill or injure the animals.

The loss of habitat on the site is not, however, expected to be significant upon the distribution of reptile species locally given the extent and availability of similar semi-natural habitats in the surrounding environment.

Great Crested Newt

Impacts upon GCN are dependent upon the findings of the further surveys recommended. In the unlikely event that GCN are identified to be present on site, the development has the potential for adverse effects on the species as a result of the loss of terrestrial habitat for the species and potentially the loss of a breeding pond, along with potential for harm/injury to individual GCN during the completion of site clearance.

Bats

Although dependent on the findings of further surveys, the loss of habitat on the site for bats is unlikely to affect significantly the local distribution or abundance of bat species given the availability of similar habitat in the local area. Nonetheless, the loss of habitat could impact upon foraging opportunities for individual bats.

As the development site holds low suitability for roosting bats, associated with trees present on the site, impacts on roosting bats are unlikely, although appropriate mitigation is recommended to ensure bats are not present during vegetation clearance.

The introduction of lighting onto the site has potential to adversely impact upon bats beyond the site boundary, including potential roosting associated with nearby mature trees and foraging/commuting behaviour. However, appropriate mitigation to minimise light spillage and look to provide a dark corridor along the northern periphery of the site will ensure impacts are mitigated.

Invertebrates

The potential for impacts is dependent on the findings of further surveys recommended, however invertebrate populations present would be impacted as a result of the loss of habitat on the site.

5.2. Mitigation

5.2.1. Best Practice Measures

Ecology can often be seen as a hindrance to development, with the presence of protected species hampering development. However, this is often caused by a lack of awareness of the presence of flora and fauna on site, the reason for their protection, and the activities that can be lawfully conducted whilst animals in particular are using the site.

Biodiversity Champion

To overcome these issues, it is recommended that the contractor appoints a 'Biodiversity Champion', with sufficient authority to change Site practices, to raise awareness of ecological issues, and take the required steps to prevent harm to any species using the Site during the development programme. This could be achieved through toolbox talks and staff training, for example. Nominating a Biodiversity Champion, delivering training, recording and monitoring actions and complying with all relevant European and national legislation will contribute towards achieving 2 credits out of the 2 available for BREEAM LE05.

The Biodiversity Champion should be given the authority to pause works whilst further ecological advice is sought and/or remedial actions are taken to reduce the risk of environmental harm and breach of wildlife legislation. It is recommended that they should also have an input into the construction phasing to ensure that ecological enhancements are conducted at an appropriate time of the year and an appropriate time in the construction programme. It is suggested that the Biodiversity Champion role is fulfilled by the Project's Environmental Manager, as this will ensure that the ecological requirements of BREEAM and the development's CEMP are complied with.

Staff Training

The Biodiversity Champion, or somebody appointed by the Biodiversity Champion, should also develop and deliver training to site staff to enable them to comply with the legal requirements for protecting animals and plants and promote best environmental practice on site. It is recommended that this is covered in the site induction, and information provided should include:

- A brief description of the likely issues on the site – i.e. the potential presence of bats and/or breeding birds, their legal protection and the reason for this (see summary provided in Appendix A);
- Key signs of protected species to be aware of – detailed in Section 6.3.3;
- Mitigation measures in place through construction (e.g. tree protection measures), their purpose and the importance of maintaining them; and,
- Who to contact if signs of species presence or damage to protection measures are noted – provide the name and contact details of the Biodiversity Champion.

The Biodiversity Champion should keep a record of all actions/events and a log of all training undertaken in relation to biodiversity. Further details on recording and monitoring are provided in Section 6.3.4.

Lighting

Impacts upon potential biodiversity value associated with the developed site and their potential use by nocturnal species can be avoided by appropriate lighting establishment. Any lighting utilised within the development should consider the potential for impact on environmental receptors whilst creating a safe and accessible environment, and should follow best practice guidance provided by the Institute of Lighting Professionals (ILP) . Whilst this is focussed on bats, it will have benefits to all nocturnal species and could include the following:

- All luminaires should lack UV elements when manufactured. Metal halide or 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 spectrum (ideally < 2,700 Kelvin) should be adopted to reduce blue light component;
- Luminaires should feature peak wavelengths higher than 550 nm to avoid the component of light most disturbing to bats ;
- Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill;
- The used of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered. However, this often comes at a cost of unacceptable glare, poor illumination efficiency, a high upward light component and poor facial recognition, and their use should only be used as directed by a lighting professional;
- Column heights should be carefully considered to minimise light spill;
- Only luminaires with an upward light ration of 0 % and with good optical control should be used;
- Luminaires should always be mounted on the horizontal, i.e. no upward tilt;
- As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed; and/or,
- Ensure lights are switched off when they are not needed, where appropriate, either through the use of programmable fixtures or by PIR/motion sensor activation.

Inclusion of the above recommendations within the construction phase, in particular ensuring light is directed away from peripheral areas and are switched off overnight, will also ensure impacts in construction are minimised.

5.2.2. Habitats

Tree Protection Measures

Retained trees through the development, both within the site and bordering the site, should be protected in line with BS 5837 – ‘Trees in relation to design, demolition and construction’²⁰. This should include the establishment of an appropriate Root Protection Area (RPA) for the tree in line with best practice guidance and discussion with an appropriate professional. This will ensure the roots are protected from irreversible damage as a result of sustained machinery movements. BS 5837 recommendations include identifying an appropriate RPA based on the stem diameter of each individual tree, however localised conditions may need to be considered based on the urban nature of the site and subsequent influences on root spread. The establishment of an appropriate RPA will also provide some protection to the tree trunk and canopy present, and in some cases it may be appropriate to extend the RPA to the edge of the canopy.

Where the development requires incursion into a RPA, an arboriculturist should be engaged to consider the effects of such incursion into the RPA and ensure the tree is not significantly affected. Furthermore, any damage that is caused to the retained tree should be subject to inspection by an arboriculturist, with any subsequent recommendations for remedial action, for example removal of damaged limbs, carried out.

BAP Priority Habitat

The loss of BAP Priority Habitat, if confirmed to be present following further survey, would require compensation in the form of a financial contribution, secured through a Section 106 agreement. An appropriate amount should be negotiated with the Local Planning Authority, or their representatives, with the money utilised to benefit management improvements or works to increase the extent of similar Priority Habitats in the local area.

5.2.3. Species

Breeding Birds

The potential for the presence of breeding birds could comprise a constraint to the development, depending on the construction phase programme, with the woodland, line of trees, introduced shrub and scrub habitats capable of supporting nesting birds.

If works are scheduled to commence during the bird nesting season (typically March to August inclusive, although weather dependent) a search of the woody vegetation, including semi-mature and mature trees and introduced shrub, should be carried out by a suitably qualified ecologist to ensure that no active nests are present.

In the event that a nest of any bird species is identified on site, works within the immediate vicinity should cease and further ecological advice be sought. If further assessment by a suitably qualified ecologist confirms the best to be inactive, then works can proceed. However, if further survey confirms the nest to be active, then further consideration will be required as to whether certain activities can be carried out. However, the vegetation/structure supporting the nest will need to remain until the young have fledged the nest.

This approach will ensure that the development does not have a detrimental effect on birds using the site and the contractor/developer will remain compliant with wildlife legislation.

Reptiles

The need for and scale of mitigation for reptiles is dependent upon the findings of further surveys recommended. Depending on the findings of the further surveys, mitigation for the species could comprise active displacement of individuals through habitat manipulation if a small population of common species are present or, where a population of greater importance is present could include the installation of appropriate exclusion fencing and completion of a translocation exercise beyond the site boundary.

Great Crested Newt

The need for and scale of mitigation for great crested newt is dependent upon the findings of further surveys recommended. However, if confirmed to be present mitigation is likely to include the need for a European Protected Species development license and exclusion and translocation from the site and supervised removal of suitable habitat as a minimum. Depending on the outcome, additional mitigation in the form of replacement ponds and/or habitat may be required.

Bats

The need for and scale of mitigation for bats is dependent upon the findings of further surveys recommended. Depending on the level of activity identified, mitigation may be required in the form of maintaining some areas of woodland alongside the site boundary with low light corridors during construction and operation.

Invertebrates

The need for and scale of mitigation for invertebrates is dependent upon the findings of further surveys recommended, however is likely to be restricted to a removal and relocation of invertebrates prior to the completion of clearance of the site.

Other Species

In order to minimise the potential impact on hedgehog and other mammal species potentially present on the site, the following preventative measures are recommended:

- Vegetation clearance of scrub and shrubs should be undertaken in a staged manner, reducing the height of vegetation in blocks and checking for the potential presence of animals before proceeding to the next cut height;
- Mammal ladders (*e.g.* planks) or earth ramps should be placed in any open excavations at the end of each day to allow animals to escape;
- Open pipework should be capped at the end of each day to avoid mammals entering;
- All fuel and harmful substances should be kept in locked storage areas in line with best practice guidelines and Control of Substances Hazardous to Health (COSHH) requirements;
- All spillages should be contained and cleaned using appropriate spill kits.

6. Ecological Enhancement

6.1. Habitats

The development proposal provides some opportunity for the enhancement of the developed site, with around 1,800 m² allocated in the layout for landscaping. It is recommended that consideration is given to the type of landscaping proposed for inclusion, and where possible should seek to provide variation in the habitat structure through the provision of ground flora, shrubs and trees that will increase habitat opportunities for faunal species.

In addition to this, the landscaping along the northern boundary should seek to provide a continuation of the boundary habitat along the edge of the site and Stadt Moers Park to support faunal species movement and to minimise the influence of lighting and movements upon the adjacent habitat.

In addition to this, landscaping proposals should also aim for the inclusion of floral species that have a known value to wildlife through the provision of sheltering or foraging opportunities. The Royal Horticultural Society's Plants for Pollinators resource provides a useful resource to identify suitable species for inclusion in planting schedules.

6.2. Species

Alongside habitat enhancements, the development provides an opportunity to improve species potential through the inclusion of artificial habitat enhancements such as bird boxes and bat roosts. CIRIA guidance identifies that artificial nesting and roosting boxes, for birds and bats respectively, can make an important contribution to providing alternative wildlife refuges, enhancing the biodiversity value of buildings cheaply and easily²¹. Establishment of the boxes is, however, dependent on the provision of the right conditions with the four basic components of habitat required in the locality: food, cover, water and space²².

6.2.1. Birds

The inclusion of the following nest boxes, whilst targeted at specific species, has the potential to improve habitat opportunities for a variety of species. The recommended boxes are made of 'Woodcrete' or 'Woodstone', an exceedingly durable, rot-proof and breathable natural material. These boxes are also favoured as studies have shown them to result in higher occupation rates than traditional wooden boxes^{23,24}. In general, nest boxes should be fixed at least 2 m above floor level and should face somewhere between a north-east and south-east direction. Boxes facing in a north, west, south and south-west direction should be avoided as they will either not get any direct sunlight or will overheat as a result of exposure to too much sunlight, or they will be exposed to prevailing wind conditions. However, targeted nest boxes may have specific requirements, as discussed below.

House Sparrow

House sparrows prefer to nest communally, with both Schwegler and Vivaro having designed nest boxes that provide room for multiple families. The Schwegler 1SP Sparrow Terrace provides room for 3 sparrow families and the Vivaro Pro house sparrow nest box provides room for 2 sparrow families, both within one box, as identified in Figure 6.1.



Figure 6.1 *House Sparrow Targeted Nest Boxes (Left: Schwegler 1SP Sparrow Terrace; Right: Vivaro Pro Woodstone House Sparrow Nest Box)*

It is recommended that **2x Sparrow Terrace**, of either of the models identified above, are provided at roof level of the final development. Both boxes can be incorporated within the building fabric during construction or surface mounted following completion. They can also be secured to typical roof-top plant screens by means of fixing bolts being passed through the plant screen and then through a metal plate on the other side of the screen, with nuts tightened accordingly.

Although the boxes are intended for use by house sparrow, information for the Schwegler box indicates that it may also attract redstarts and spotted flycatcher along with tit species. There is no reason to believe that the Vivaro box would not also be attractive to these species.

Provision of this type of box would be in support of a local BAP species and aligns with local BAP actions. The bird boxes should be installed at least 2 m high and out of direct sunlight (preferably east facing). Installation of the bird box integrated into the building fabric would need consideration to ensure the box does not compromise the building U-value envelope, which is a measure of heat loss from the building (e.g. as a result of bridging a cavity or infringing thermal insulation thickness).

General Bird Species

There are a number of nest boxes that provide nesting opportunities for a number of more general species. Whilst most of these are not integrated, they are likely to be more suitable to the inclusion within landscaping of the site.

The 1B Schwegler Nest Box provides opportunities for cavity nesting species, with the 32 mm entrance hole preferred as this provides nesting opportunities for a range of tit species, redstart, nuthatch, flycatchers, wryneck and sparrows. It is recommended that **3x 1B Schwegler Nest Boxes** are included at ground level within the development site to increase nesting opportunities for more general species. The nest box, identified in Figure 6.2, can be hung over branches of suitable trees within the landscaping or can be affixed using the aluminium nail provided, as this type of nail does not cause issues with any required arboricultural works later.



Figure 6.2 *General Bird Species Nest Box (Left: Schwegler 1B Nest Box; Middle: Vivaro Pro Barcelona Woodstone Open Nest Box; Right: Schwegler 2H Robin Box)*

The Vivaro Pro Barcelona Woodstone Open Nest Box provides opportunities for cavity nesting species including song thrush, spotted flycatcher and grey wagtail along with common urban species including wren, robin and blackbird. Alternatively, the Schwegler Robin Box provides a similar opportunity but can be hung amongst vegetation if opportunities for installation are more limited. It is recommended that **2x Vivaro Pro Barcelona Woodstone Open Nest Boxes or Schwegler 2H Robin Boxes**, identified in Figure 6.2, are provided within the development. It is recommended that these are installed at a height of 1.5 m to 3 m above ground level and should, ideally, be concealed within vegetation.

6.2.2. Bats

Bat roost boxes are not species specific, and provide suitable conditions for a range of bat species typical to the surrounding environment. As a result, enhancement of the development site through the provision of artificial roosting aids is recommended to support wider habitat enhancement opportunities in line with the North Merseyside BAP.

It is recommended that **3x bat boxes** of any of the following types, identified in Figure 6.3, are provided within the landscaping of the development.



Figure 6.3 Bat Roost Boxes Recommended (Left: 1FF Schwegler Bat Box; Centre: 2FN Schwegler Bat Box; Right: Convex Bat Box)

The 1FF Schwegler Bat Box, 2FN Schwegler Bat Box or Convex Bat Box are all suitable for hanging in trees and providing opportunities for crevice dwelling bats. The 1FF Schwegler Bat Box is suitable for use as a summer roost or nursery site and has a single opening at the bottom, with the inner dimensions reducing in width making it ideal for bat species that inhabit crevices such as pipistrelle and noctule bats. The 2FN Bat Box has two entrances, one at the front and a second at the rear against the tree. The domed roof allows bats to form clusters for warmth and is highly successful for noctule and Bechstein's bats. The Convex Bat Box is suitable for both crevice and cavity dwelling bat species.

All of the boxes should be fixed at a height of at least 3 m with unobstructed access to the bottom of the box. As bats are legally protected from disturbance, the roost box should be located somewhere where it can be relatively undisturbed.

The provision of these boxes would provide additional roosting opportunities for bats in the local area and have potential to support bat populations in the wider environment.

7. Summary and Conclusions

7.1. Baseline

The Application Site currently supports a range of semi-natural habitats that have developed following previous clearance of woodland across the site, with some areas of lowland mixed deciduous woodland remaining along with areas of neutral grassland, modified grassland, lines of trees, bramble scrub, introduced shrub, hardstanding and standing open water. The habitats present are generally relatively common in the local and national context, however elements of the woodland and grassland habitats present have potential to comprise part of a BAP Priority Habitat.

The Application Site was not identified to support any invasive species identified under the Wildlife and Countryside Act 1981 (as amended), however the presence of species commonly considered invasive (cherry laurel, snowberry and butterfly bush) were highlighted along with the presence of several species identified under the Weeds Act 1959 as injurious weeds.

The Application Site was identified to support potential to support nesting birds, common reptile, great crested newt, bat and rare or notable invertebrate species based on the habitats present, however the presence of badger, otter and water is considered unlikely.

7.2. Further Surveys

Further surveys in addition to the PEA walkover survey are required to fully establish the ecological value of the site and confirm the presence or likely absence of faunal species, these include:

- Botanical survey of the woodland and grassland habitats to confirm whether these meet BAP Priority Habitat descriptions between March and August;
- Reptile survey comprising checking of artificial refugia on the site over seven visits between March and September;
- Great Crested Newt survey comprising an eDNA survey to establish presence/likely absence in mid April to June and/or detailed survey from March to June;
- Bat activity survey comprising a single visit per season: Spring (April/May), summer (June/July/August) and autumn (September/October); and,
- Invertebrate scoping assessment survey.

7.3. Impacts & Mitigation

Impacts from the development are principally associated with habitat loss from the site and subsequent impacts on faunal species present, to be determined in further surveys recommended. The loss of habitat on site includes the potential loss of BAP Priority woodland and grassland habitat, although confirmation is required in follow up botanical surveys, which will result in the loss of c. 9.11 biodiversity units following the Defra Metric 3.1 methodology. As it is not possible to retain any BAP Priority Habitat within the development site, it is proposed that the loss of BAP Priority Habitat is compensated for by way of financial contribution towards the management or delivery of biodiversity enhancements in Knowsley via a Section 106 agreement.

Appropriate mitigation is identified for the mitigation of impacts on faunal species, although this is subject to refinement and confirmation depending on the findings of the further surveys recommended. Additional mitigation, forming best practice approaches, are identified to ensure

biodiversity is considered through the construction process and potential impacts are considered and issues arising acted upon.

Further to direct impacts associated with the site, the development is located within an area identified with potential for impacts upon a SSSI as a result of the discharge of water or liquid waste of more than 20 m³/day either to ground or to surface water. However, due to the ground conditions on site, the drainage strategy looks to connect the drainage direct to the local sewer network.

7.4. Enhancement

Enhancement of the final developed site has been identified through the provision of appropriate landscaping, targeted to providing an appropriate structure and diversity of species with supporting value to wildlife that will promote the presence of faunal species on the site. In addition to this, recommendations have been made for the inclusion of artificial habitat aids to be included within the landscaping that will enhance sheltering opportunities for common and targeted bird species and bat species generally both on the site and in the locality.

Appendix A Legislative and Policy Framework

A.1 Legislative Framework

A.1.1 Environment Act 2021

The Environment Act 2021 makes provision for targets, plans and policies for improving the natural environment. Part 6 of the Act deals with nature and biodiversity, principally setting out the requirement for biodiversity net gain in planning but also including requirements relating to local nature recovery strategies and conservation.

Section 98 of the Act makes provision for biodiversity gain to be a condition of planning permission, with Schedule 14 identifying the objective being at least 10 % when comparing the post-development site to the pre-development site. Schedule 14 also identifies the methodology by which this is established and the process by which off-site biodiversity gains can be delivered. The legislation incorporates a transitional period for biodiversity net gain requirements, thereby coming into effect from November 2023.

A.1.2 Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (as amended), which consolidate the Conservation of Habitats and Species Regulations 2010 and subsequent amending instruments, is the main legislation governing the protection of biodiversity and is derived from European Council Directive 92/43/EEC (otherwise known as the Habitats Directive). These Regulations provide protection for sites, habitats and species that are of conservation importance at the European or international level. The Regulations provide the framework for the designation and protection of 'European Sites', including Special Protection Areas (SPAs) and Special Areas of Conservation (SACs). The Regulations also provide legislative protection to species, identified as 'European Protected Species' (EPS) within Schedule 2 of the Regulations.

The Conservation of Habitats and Species Regulations 2017 are amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, which ensures the continuity of the legislation following the departure of the UK from the European Union.

A.1.3 Wildlife and Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 (as amended) comprises the principal means of protecting wildlife in the UK, including the identification and protect of Sites of Special Scientific Interest (SSSIs), and provides the mechanism by which a number of international directives are implemented in the UK.

A.1.4 Countryside and Rights of Way (CROW) Act 2000

The Countryside and Rights of Way (CROW) Act 2000 strengthens the Wildlife and Countryside Act 1981 (as amended) in relation to the protection of SSSIs and threatened species.

A.1.5 Natural Environment and Rural Communities (NERC) Act 2006

The Natural Environment and Rural Communities (NERC) Act 2006 places an obligation on public bodies and statutory undertakers to ensure due regard to the conservation of biodiversity.

A.2 Statutory Protected Sites and Species

A.2.1 Sites

Statutory protection for sites of ecological importance or value has derived from various international conventions, European Directives and national legislation. The designations for protected sites in the UK include:

- Special Area of Conservation (SAC) – designated under the European Council Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna, targeting particular habitats (listed on Annex I) and/or species (listed on Annex II) identifies as being of European Importance;
- Special Protection Area (SPA) – designated under the European Council Directive on the Conservation of Wild Birds for the protection of wild birds and their habitats (including particularly rare and vulnerable species listed in Annex 1 of the Directive, and migratory species);
- Ramsar – listed under the Convention on Wetlands of International Importance for the protection of internationally important wetland habitat, especially as waterfowl habitat. Although not directly legislated, through the NPPF the government expects them to be given the same level of protection as SACs and SPAs;
- Site of Special Scientific Interest (SSSI) – notified under the Wildlife and Countryside Act 1981 (as amended) or the National Parks and Access to the Countryside Act 1914, as being of special nature conservation interest for its plant or animal communities, habitats, geological or landform features;
- National Nature Reserve (NNR) – designated under the Wildlife and Countryside Act 1981 (as amended) as a nationally important nature reserve on account of its habitat, flora or fauna interest;
- Local Nature Reserve (LNR) – established by Local Authorities under s21 of the National Parks and Access to the Countryside Act 1914 as a locally important nature reserve on account of its habitat, flora or fauna interest.

A.2.2 Species

The following summarises the legislative protection afforded to species identified as potentially present within the field survey area.

Flora

All wild plants are protected under Schedule 13 of the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to uproot a plant, defined as to ‘*dig up or otherwise remove the plant from the land on which it is growing*’, without permission from the land owner or occupier. A number of higher and lower plants receive additional protection under Schedule 8 of the Act, which makes it an offence to intentionally pick, uproot, destroy or trade in these plants.

Schedule 9 of the Act identifies invasive plant species and makes it an offence to plant these species or otherwise cause them to grow in the wild. The protection has been strengthened through the inclusion of a new schedule, as a result of Section 23 of the Infrastructure Act 2015, which enables environmental authorities to require works to be undertaken to remove or prevent their establishment. Any material containing Japanese knotweed (*Fallopia japonica*) or giant hogweed (*Heracleum mantegazzianum*) is identified as ‘controlled waste’ under the Environmental Protection Act 1990 and must be disposed of appropriately.

The Weeds Act 1959 consolidated existing enactments in relation to injurious weeds, allowing the Department for Environment, Food and Rural Affairs to require action to be taken to prevent the spread of weeds requiring specific control. The Weeds Act applies to common ragwort (*Senecio jacobaea*), spear thistle (*Cirsium vulgare*), creeping thistle (*Cirsium arvense*), curled dock (*Rumex crispus*) and broad-leaved dock (*Rumex obtusifolius*).

Birds

All wild birds in England and Wales are protected under Part 1 of the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to intentionally kill, injure or take any wild bird, or take, damage or destroy the nest (whilst being built or in use) or its eggs. Additional protection is afforded to species listed in Schedule 1 of the Act from disturbance whilst it is building a nest, or at a nesting containing eggs or young, or disturb the dependent young of such a bird.

Furthermore, provisions under Section 10, Part 1, of the Conservation of Habitats and Species Regulations 2017 (as amended) require local planning authorities to have regard to '*the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the UK*' in the exercising of their functions. As a result, it is important to consider any habitat loss as a result of development and opportunities for the provision of habitats.

Reptiles

All common reptiles, i.e. slow worm (*Anguis fragilis*), common lizard (*Lacerta vivipara*), adder (*Vipera berus*) and grass snake (*Natrix helvetica*), are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) in respect of Section 9(1) which makes it an offence to intentionally kill or injure the animals.

European Protected Species

All European Protected Species (EPS) in England and Wales are fully protected through inclusion within the Conservation of Habitats and Species Regulations 2017 (as amended). Under this legislation it is an offence to deliberately capture, injure or kill individuals of any native EPS. It is also a strict liability offence to damage or destroy sites or places which EPS use as a breeding site or resting place. EPS are also protected under the Regulations from deliberate disturbance which is likely to:

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

It may be possible to apply for a licence from Natural England to allow activities that would otherwise be an offence under these Regulations. However, it is an offence to breach a condition imposed by any such licence.

All EPS are also partially protected in England and Wales through their inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under this legislation, it is an offence to intentionally or recklessly disturb an EPS whilst it is using a place of rest or shelter.

EPS potentially present within the site and immediately surrounding areas include all species of bat and great crested newt.

A.3 Planning Policy

A.3.1 National Planning Policy

National planning policy guidance in relation to ecology and nature conservation is provided through the National Planning Policy Framework (NPPF), with planning practice guidance provided by the Ministry of Housing, Communities and Local Government. The conservation and enhancement of the natural environment is a key strategic policy in the NPPF, and Chapter 15 of the NPPF sets out the Government's planning policies on this. Paragraph 174 states that "*planning policies and decisions should contribute to and enhance the natural and local environment by:*

- *protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils;*
- *recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*
- *minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures”.*

The NPPF also states in Paragraph 175 that “*plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries”.*

Paragraph 180 of the NPPF identifies a number of principles that should be applied by local planning authorities in the determination of planning applications, which include:

- *“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;*
- *development on land within or outside a SSSI, 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 SSSIs;*
- *development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and,*
- *development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to 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”.*

Planning practice guidance provided by the Ministry of Housing, Communities and Local Government includes further guidance on biodiversity, ecosystems and green infrastructure within the planning process. Paragraph 018 (Reference ID 8-018-20190721) identifies that information on biodiversity impacts and opportunities should inform all stages of development, with planning applications requiring an ecological survey where the type and location of development are such that the impact on biodiversity may be significant and existing information is lacking or inadequate. The guidance also identified that detailed species surveys should only be required by local planning authorities where clearly justified, for example if there is a reasonable likelihood of a protected species being present and affected by the development.

A.3.2 Local Planning Policy

Local planning policy for the development site is provided by the Local Plan for Knowsley, which was adopted in January 2016. The Local Plan Core Strategy sets out the vision, objectives and policies which will guide development within Knowsley up to the year 2028. The vision for Knowsley is that *“by 2028, Knowsley Borough will be known for its successful suburban townships that provide a sense of place and community, having sustainable, diverse, more prosperous and healthy populations”* and that *“Knowsley’s areas of environmental importance, including sites of biodiversity and geological value, together with buildings, structures and areas of historic and cultural importance will be protected, managed and enhanced, to ensure a positive contribution to Knowsley’s environmental quality and distinctiveness”*.

Strategic objectives have been set to identify the priorities in more detail with Strategic Objective 8 on Green Infrastructure and Rural Areas of most relevance to development of the site: *“to support and strengthen the role of Knowsley’s Green Infrastructure (in rural and urban areas), promote biodiversity [...]”*.

The site is identified in the Local Plan for redevelopment for industrial and commercial development (Policy CS4: Economy and Employment). In addition to this, the following policies are of relevance to the assessment.

Policy CS2 Development Principles

- 1) New development in Knowsley and the preparation of subsequent stages of the Local Plan will be expected to support the following development principles:

Principle 4: Recognise environmental limits, protect and enhance environmental assets, enhance local character and promote quality of place by:

- f) Supporting policies relating to Green Infrastructure and the greening of towns and cities;
- h) Maintaining or enhancing the quantity and quality of biodiversity and habitats, including potential impacts on nationally and internationally important sites for biodiversity;

Development that will have an unacceptable impact upon any of the above will only be permitted where the benefits of the proposal clearly outweigh the harm.

Policy CS8 Green Infrastructure

Maintenance and Enhancement of Knowsley's Existing Green Infrastructure

- 1) Knowsley's existing Green Infrastructure and its beneficial functions will be protected, managed and/or enhanced, primarily to:
 - a) Ensure more attractive and cleaner residential neighbourhoods;
 - b) Sustain and promote biodiversity (including designated sites, priority habitats and protected and endangered species) in accordance with importance and contribution to ecological networks;
 - c) Preserve the character and function of historic environments and valued landscapes;
 - d) Mitigate the effects of climate change and flood risk;
 - e) Mitigate air, water and noise pollution;
 - f) Provide local opportunities for sport, recreation and allotments; and
 - g) Provide sustainable transport linkages between residential neighbourhoods and easy access to employment and services.
- 2) To achieve the above, planning powers and other interventions will be used to:
 - a) Protect and enhance strategically important areas of greenspace;

- b) Ensure an appropriate quantity and improved quality of locally important open spaces, including outdoor sports provision (and ancillary facilities of appropriate scale);
 - c) Promote effective movement of wildlife through a network of strategic green links, by protecting, maintaining and improving existing and new open spaces, water courses (including water quality) and biodiversity assets;
 - d) Protect, enhance and/or introduce biodiversity into existing areas of Green Infrastructure, through integration into the design of new development and public realm projects;
 - e) Improve accessibility for communities to greenspace offering leisure and recreation opportunities;
 - f) Protect and where possible improve green paths and cycleways linking residential areas, existing strategic areas of greenspace, employment locations, local community services and leisure facilities;
 - g) Work in partnership with other districts and relevant bodies at a landscape scale to minimise the impact of development upon Knowsley's existing biodiversity and geological assets, and sustain the protection afforded to internationally important sites, including supporting habitat, for biodiversity outside of the borough; and
 - h) Deliver new integrated and functional Green Infrastructure that helps to mitigate and adapt to climate change, such as sustainable drainage systems, carbon capture and storage, soft landscaping and green roofs.
- 3) Site allocations for greenspace will be identified in the Local Plan: Site Allocations and Development Policies document, with further guidance set out in the Developer Contributions Supplementary Planning Document or future Supplementary Planning Document as appropriate.

Approach to Green Infrastructure and New Development

- 6) New development must be served by Green Infrastructure to meet the needs of residents and the local environment, in a manner which will:
- a) Contribute to the creation of a high quality residential environment;
 - b) Provide access to high quality open space for leisure and recreational purposes;
 - c) Seek to protect, maintain and where possible enhance biodiversity within and around new developments according to their designation and significance to provide space for nature; and
 - d) Provide adequate mitigation and/or, as a last resort, compensation for Green Infrastructure or biodiversity loss, in circumstances where harm resulting from the development is otherwise unavoidable.

Policy CS19 Design Quality and Accessibility in New Development

Design Quality and Accessibility in New Development

- 1) To enhance the local distinctiveness, identity and accessibility of places, new development within Knowsley will be expected to:
- a) Respond to and integrate positive characteristics of immediate surroundings, including local materials, scale, mass, form, layout, alignment and density of the existing built environment;
 - b) Complement and enhance (where possible), existing landscape, topography, Green Infrastructure; and features of local importance and historic interest;

- c) Consider provision of landmark buildings and additional detailing at and adjacent to main gateways, movement corridors, town centres and strategic regeneration opportunities;
 - d) Create spaces and places as a focal point, accommodating social interaction and active lifestyles, including provision and integration of high quality public realm and open spaces, public art (as appropriate); and landscaping which promotes biodiversity and integrates existing local habitats;
 - e) Provide safe, secure and convenient routes for movement (including signage), with priority for walking, cycling and public transport, to meet the access needs of all users, particularly pedestrians, cyclists, less mobile people and the elderly;
 - f) Integrate effectively with existing development and link to existing shopping and service provision; and
 - g) Demonstrate community engagement during the design phase of major development proposals.
- 2) To maintain a good standard of amenity for all existing and future occupants of land and buildings, development proposals will be required to:
- a) Avoid unacceptable impacts on existing residents, business occupiers, and future occupiers;
 - b) Minimise crime, fear of crime and anti-social behaviour, including good levels of natural surveillance and security; and
 - c) Accommodate future maintenance and long term management requirements.
- 3) To address the challenges of climate change and future changes in social, economic and environmental priorities, new development should integrate:
- a) Sustainable design principles, with regard to Policy CS17: Housing Sizes and Design Standards and Policy CS22: Sustainable and Low Carbon Development as appropriate;
 - b) Biodiversity (in accordance with Policy CS8);
 - c) Flood risk mitigation (in accordance with Policy CS24);
 - d) Waste recycling; and
 - e) Energy and resource efficiency.
- 4) Further guidance on these issues will be provided in the Local Plan: Site Allocations and Development Policies document and Supplementary Planning Documents as appropriate.

Policy CS21 Greenspaces and Trees

Greenspace protection

- 1) In supporting the wider Green Infrastructure functions of urban greenspace in accordance with Policy CS8, the Council will provide and maintain quantitative, qualitative and accessibility standards for different types of public open space.
- 2) New development which would result in the loss of urban greenspace, will not be permitted unless at least one of the following criteria are met:
 - a) A surplus of provision for all types of greenspace would be maintained relative to local standards;
 - b) The land is considered unsuitable in terms of size, location or character to prevent or address individual deficiencies of different types of greenspace relative to local standards;
 - c) Appropriate mitigation is provided through replacement facilities of at least an equal quantity, quality and accessibility;
 - d) The development is required to improve greenspace provision or for ancillary facilities to support sport or recreation; or

- e) Where the proposal relates to the loss of indoor or outdoor sports provision, and there is no evidence of future or continuing need for sports use, or alternatively only land incapable of forming a playing pitch or sporting facility is affected and its release accords with either clause 2)a) or 2)b).
- 3) Irrespective of whether criteria in 2) are met, unless the benefits of a proposal clearly outweigh the loss of urban greenspace, development will be resisted where it would significantly harm any existing or potential special qualities of greenspace in the area in terms of:
 - a) Visual amenity;
 - b) Residential amenity;
 - c) Biodiversity and environmental benefits;
 - d) Historical, cultural or community value;
 - e) Recreational benefits; or
 - f) Physical and/or visual linkages between adjoining urban greenspaces.

Enhancement of Natural and Semi-Natural Greenspace and Tree Protection

10) The Council will encourage proposals for new development to incorporate:

- a) Retention of existing trees, woodland, vegetation and other habitat features which offer a positive contribution to the local environment in terms of visual amenity, recreation value or biodiversity/wildlife interest;
- b) Appropriate planting of trees, other soft landscaping and installation of habitat features for the benefit of biodiversity; and
- c) Adequate replacement provision where tree loss is unavoidable, comprising two additional trees for every tree lost and taking account of species and size.

A.4 Biodiversity Action Plans

A.4.1 UK Biodiversity Action Plan

The UK BAP has been replaced by the Post-2010 Biodiversity Framework, which addresses the changes in the strategic thinking of the Convention on Biological Diversity's Strategic Plan for Biodiversity 2011-2020. The new Framework includes new priorities for UK-level work for the Convention on Biological Diversity and provides a broad structure to enable action across the UK. Whilst the UK BAP has been replaced, the UK BAP priority habitats and species continue to be regarded as conservation priorities in the UK Post-2010 Biodiversity Framework.

The UK BAP identifies 65 habitats and 1,150 species that are considered to be of conservation concern.

Although a number of the species present within the study area are included in the UK BAP, only common pipistrelle and song thrush have been included in a Species Action Plan.

Common Pipistrelle

Although it remains the most abundant and widespread bat species in the UK, the pipistrelle is thought to have undergone a significant decline in numbers. Estimates from the National Bat Colony Survey suggest a population decline of approximately 70 % between 1978 and 1993. Factors identified as causing loss or decline of the species population include:

- A reduction in insect prey abundance, due to high intensity farming practice and inappropriate riparian management;
- Loss of insect-rich feeding habitats and flyways, due to loss of wetlands, hedgerows and other suitable prey species;
- Loss of winter roosting sites in buildings and old trees;
- Disturbance and destruction of roosts, including the loss of maternity roosts due to the use of toxic timber treatment chemicals.

Song Thrush

Although a common and widespread species, song thrush are declining throughout the UK as a result of changes in food supply and availability of nest sites as a result of changes in farming practice, predation by corvids and foxes and competition with blackbirds. The aims of the Species Action Plan are to halt the decline in numbers by 2000, maintain the range and populations levels of the species and, where possible, restore them to that of the 1970 estimate, and identify and implement priority research in order to formulate future conservation action.

A.4.2 Local Biodiversity Action Plan

The North Merseyside Biodiversity Action Plan, hosted by Mersey BioBank, aims to help local people become more aware of the area's natural environment and the issues facing it. The Plan is not a single published document, instead a number of individual Habitat and Species Action Plans and a Business Plan. At present, there are a total of 44 habitat and species action plans, with the following considered to be of potential relevance to the assessment.

Lowland Mixed Broadleaf Woodland

Lowland mixed broadleaf woodland is typically associated with a wide range of fertile, moist loams and clays. Nationally, the UK has an estimated 130,000 – 160,000 ha of ancient semi-natural mixed broadleaf woodland, however there are no estimates of the total area, status and condition locally. However, prior to the commencement of The Mersey Forest and estimated 573 ha of broadleaf woodland was present in Knowsley.

Causes for decline nationally including inappropriate management, including the removal of large old trees, deadwood and abandonment of traditional management systems, the replacement of native trees with non-native specimens, habitat loss as a result of development or agricultural conversion and the undertaking of undesirable recreational activities. Some of the national factors causing decline are also relevant locally, although vandalism and dumping of waste is additionally notable.

Local action looks to safeguard ancient semi-natural mixed broadleaf woodlands and oppose the loss of habitat through development or, where unavoidable, ensure appropriate mitigation is provided.

Urban Grasslands

The Habitat Action Plan identifies that Urban Grasslands covers unimproved, semi-improved and improved grasslands occurring in urban and urban fringe areas. Relevant habitats include unimproved permanent neutral or acidic urban common, roadside verges, which are either unimproved, or semi-improved (towards the urban fringe where there is more likelihood of the land being previously in agricultural use) or semi-permanent former-industrial sites currently free from management.

The wildlife value of these sites depends to a large extent upon their management regime. At one end of the scale are the closely mown amenity grasslands of formal urban parks, which often provide little more than a feeding site for some bird species but where relaxation of management allows the development of areas of more natural plant communities. At the other end are ex-industrial or other sites that have escaped built development, where colonisation by vegetation has been essentially natural and management is usually absent.

The main factors influencing the habitat include losses to development, unmanaged succession and encroachment of scrub and development of woodland, the over-management of grasslands, principally mowing, and recreational pressures.

Urban Green Infrastructure

The Habitat Action Plan identifies that Green Infrastructure is considered to comprise “*the network of natural environmental components of green and blue spaces that lies within and between the north west’s cities, towns and villages and provides multiple social, economic and environmental benefits*”.

The Habitat Action Plan looks to bind together several existing threads of the BAP which deal with facets of the urban environment separately, and draw in additional elements previously missing from the BAP.

Urban green infrastructure provides habitats that have significant value as refuges for some rare or declining species (see section three). But aside of the value of green infrastructure to threatened species, it also very valuable in biodiversity terms because of the sheer number of species that utilize it.

In general, appropriate management of urban green infrastructure and the pressures from aspects such as drought and climate change place significant pressure on the associated habitats. Pressures on the availability of land for development also increase the pressures on urban green infrastructure.

Ponds

UK BAP priority habitat ponds are defined as permanent and seasonal standing water bodies up to 2 ha in extent which meet one of a number of criteria. However, the local Habitat Action Plan covers all ponds regardless of the criteria. Locally, there was estimated to be 456 ponds in the Knowsley area, with most of the ponds in the North Merseyside area tending to be small and nutrient-rich.

Factors causing decline at the national level including eutrophication caused by agricultural run-off, pollution from organic matter, silt or heavy metals, urbanisation or in-filling, poor management and changes to surrounding land use that alter the water table and affect local conditions. Locally, the major factors are identified to comprise infilling of ponds on farmland and as a result of development, a spread of invasive species, over-management for angling and a lack of management resulting in succession.

Actions locally include the protection of ponds from development and infilling and identification of appropriate mitigation measures where loss is unavoidable.

Song Thrush

The Species Action Plan identifies that anecdotal evidence suggests a large decline in the species around the late 2000’s, but that the species remains widespread. The largest concentrations occur in suburban areas of south Liverpool and Blundellsands, and in the Prescot Reservoir/Eccleston Mere area of St. Helens – suggesting that gardens and parkland are crucial local habitats.

The species generally require access to a range of habitats at different times of the year: dense hedgerow/shrub cover for nesting and a succession of short-sward grassland and tilled arable land for foraging. Locally, population density is very low in most farmland areas and the decline indicated most likely to have been greatest in these habitats.

The actions identify the intention to promote hedgerow protection and planting along with the creation of urban green infrastructure to provide suitable nesting opportunities.

Urban Birds

The Species Action Plan distinguishes between the truly urban bird species, those that breed almost entirely in or on buildings such as house sparrow, house martin, swift and starling, and those that have adapted to urban environments as a result of feeding opportunities (*e.g.* garden birds).

The North Merseyside conurbation supports a remarkable diversity of breeding and wintering bird species. House sparrow and starling breed in all areas of urban North Merseyside and house martin are widespread, with swift slightly less common and occurring in around 1/3 of the borough at the time of writing.

Little is known in the Species Action Plan on current factors causing decline, however it is likely to mirror the national situation where the loss of nesting sites as a result of building maintenance or redevelopment and the higher degree of management of greenspaces and habitat loss reducing foraging and cover opportunities.

The actions identify the encouragement of nest box provision across residential and commercial/industrial buildings and for the provision of good quality biodiverse green infrastructure in urban areas, such as green/brown roofs that provide good foraging habitat for starling and house sparrow. Relaxed management of public greenspace can also support urban birds in foraging opportunities.

Bats

The Species Action Plan identifies that pipistrelle are widely distributed throughout North Merseyside, with presence in urban areas for foraging and roosting. Brown long-eared and noctule bats are less common but found throughout North Merseyside, whilst Daubenton's distribution is more localised to areas with open water for foraging. Whiskered/Brandt's and Natterer's bats are rare locally. There is no information on local trends, but the Plan identifies that it is believed to mirror national trends.

Factors causing decline are identified to mirror that of the national pressures, with loss and fragmentation of habitat reducing foraging resources and severing commuting routes between roosts and feeding habitats, and the redevelopment and maintenance of buildings have led to the loss of roosting opportunities.

The actions identify the encouragement for landowners to retain old and dead trees suitable for roosting bats, and the creation and management of linear features to provide habitat linkages. Suitable management of greenspace can also help increase the availability of insect prey for bats.

Common Lizard

Common lizard are widely distributed but local throughout England and the species can be found in a wide variety of habitats where there is a varied structure to the ground surface and vegetation that provides shelter from predators and open ground for basking.

Locally, survey and anecdotal evidence suggests common lizard is well established on the Sefton Coast, however away from the coast their status is unknown with a need to gather more information on the distribution and abundance of the species.

Factors causing decline locally are identified to comprise the loss and fragmentation of populations as a result of development and scrub encroachment on under-managed grassland and heathland sites. These largely match the national causes of decline.

Actions for the species include the creation and maintenance of linkages between populations and encouragement of populations to expand through restoration of nearby habitats. Railway and road corridors are also identified as an opportunity to make habitats and corridors more attractive to the species.

Great Crested Newt

Although widespread in Britain, the species has suffered a decline since the 1940s with an estimated colony loss of 2 % over five years in the 1980s. Nationally, Britain probably contains the largest population in Europe. Locally, there is no population estimate although a Pond Life Project survey of 1,000 ponds in the north-west (not including sites in the boroughs of Sefton, Knowsley, St Helens or Liverpool) found 25 % of ponds to contain GCN.

Factors for decline nationally and locally are identified to comprise the loss or decline in quality of ponds, loss of terrestrial habitat and fragmentation of both metapopulations and individual territories creating barriers to dispersal from/to breeding habitat or mixing of populations. Changes to ponds, such as fish stocking or removal of vegetation, and pollution events have also reduced the suitability of habitats.

Actions for the species are identified to include safeguarding of existing breeding sites and prevention of further fragmentation of populations as a result of development.

Appendix B Site Photographs









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