

Preliminary Ecological Appraisal

September 2023

Wythenshawe Bus Garage

Bradnor Road

Sharston Industrial Area

Wythenshawe

Manchester

M22 4TE

National Grid Ref: SJ83048937



Wythenshawe Bus Garage, Bradnor Road, Sharston Industrial Area, M22 4TE
Preliminary Ecological Appraisal

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Surveyor	Mr. M. Pritchard ACIEEM
Author	Mr. M. Pritchard ACIEEM
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Reviewed by	Mrs. K. Wilding CEnv MIEMA ACIEEM
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Approved by	Mrs. K. Wilding CEnv MIEMA ACIEEM
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This report aims to provide general advice on ecological constraints associated with any development of the site and includes recommendations for further survey; it is not intended that this report should be submitted with a planning application for development of the site, unless supported by the results of further surveys and a detailed assessment of the effects of the proposed development.

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Executive Summary

As part of a proposed planning application and listed building consent application at Wythenshawe Bus Garage off Bradnor Road in the Sharston Industrial Area of Manchester (termed as 'the Site' and 'application site' in this report), Tyrer Ecological Consultants Ltd were commissioned to carry out a Preliminary Ecological Appraisal (PEA) in early August 2023.

The PEA was commissioned by Atelier MB Ltd. These proposals are for refurbishment of the existing bus garage and follow discussions with Manchester City Council Conservation Officers and advice from various specialist contractors.

The changes are all considered to be repair and a return to historic form.

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

Bats: Based upon the findings of the survey covered through sections 6.0 - 7.0 of the report, the historic bus shelter has been determined to offer 'Moderate' bat roost suitability based on availability of potential roost features. The level of suitability assigned is in strict accordance with the *Bat Conservation Trust (BCT) - Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed.* (2016) as are the subsequent recommendations (see **Figure 8.1**).

Table 7.3 Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).		
Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit. One dusk emergence or dawn re-entry survey ^a (structures). No further surveys required (trees).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey. ^b	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn. ^b

It is recommended that two dusk and/or dawn emergence/re-entry surveys are conducted during the active season of bats (May – August) at the bus depot, in order to establish if it is being used by bats for roosting use, and if so, identify bat species, abundance, roost locations and flight lines around site during any emergence/re-entry.

It should be noted that where the surveys evidence that bat(s), or their roost(s), will be affected by the proposed works, including disturbance, then to allow developmental works at the site to legally commence an application for a European Protected Species Mitigation Licence (EPSML) or equivalent and subsequent granting of a licence will be required. Notwithstanding the granting of a licence, works that would affect a roost cannot take place if a maternity colony is in occupation. It should also be noted that before an EPSML can be applied for, all Planning issues, including Consent and any pre-commencement Planning Conditions relative to EPS, should be resolved.

If the consultant ecologist considers that on balance the proposed activity is reasonably unlikely to result in an offence being committed, then no licence is required. However, in these circumstances Natural England would urge that reasonable precautions be taken to minimise the effect on European protected species should they be found during the course of the activity. If any European protected species are found, cease the work until you have assessed whether you can proceed without committing an offence.

Birds: No impacts are applicable in relation to any Sch.1 (WCA) specially protected bird species and no further surveys or recommendations are necessary in relation to specially protected birds at this time.

In relation to more common birds, breeding by herring gull was encountered atop the barrelled roof and there are also local issues in relation to feral pigeons.

In the interests of impact avoidance to breeding birds a scheme of avoidance and impact minimisation is recommended particularly concerning presence of breeding gulls. This could take the form of appropriate pre-commencement check(s) / survey(s) and actions in accordance with the findings and timings, including implementing mechanisms for exclusion or non-lethal methods of bird scaring prior to any breeding activity.

In addition, as a general recommendation any works to trees or removal of buddleia or brambles should be undertaken outside of the nesting bird season. The nesting bird season is weather dependent but generally extends between March and September inclusive (peak period March – August). For works within the breeding bird season, any areas that can support nesting birds should be checked by a professional Ecologist for nesting birds within 48 hours or less prior to works commencing.

Where active nests are / have been located by the Ecologist, then any works which may affect them would have to be delayed until the young have fledged and the nest has been abandoned naturally, this can be aided, for example, via implementation of appropriate buffer zone(s) around the nest site (typically 5 – 10 metres) in which no disturbance is permitted until the nest is no longer in use. This would have to be coordinated through the expert judgement of the professional ecologist and species pending.

Enhancement: Enhancement ideas that consider the specific scale and nature of the proposals in accordance with the principles of 'Biodiversity Net Gain: Good practice principles for development' (CIEEM et. al., 2019), are presented in **Appendix III**.

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1.0 Introduction & Scope

- 1.1 As part of a proposed planning application and listed building consent application at Wythenshawe Bus Garage off Bradnor Road in the Sharston Industrial Area of Manchester (termed as 'the Site' and 'application site' in this report), Tyrer Ecological Consultants Ltd were commissioned to carry out a Preliminary Ecological Appraisal (PEA) in early August 2023.
- 1.2 The PEA was commissioned by Atelier MB Ltd. These proposals are for refurbishment of the existing bus garage and follow discussions with Manchester City Council Conservation Officers and advice from various specialist contractors. Specifically, the proposals involve:
- i) Repairs and reinstatement of the original curved form boundary wall to entrance.
 - ii) Repairs to concrete structure.
 - iii) Removal of non-original doors and reinstatement with more sensitive alternatives based on historic photographs.
 - iv) Removal of non-original, non-functioning internal lighting and replacement with alternative.
 - v) Removal of non-original aluminium framed windows, and reinstatement of steel framed alternatives, based on historic photographs showing original form.
 - vi) Removal of non-original, damaged and degraded felt roof covering and replacement with SIKA grit finish alternative to main roof and remaining areas of side wings.
 - vii) Removal of non-historic roof lights and replacement with reinforced concrete glass block panels, based on the original rooflights shown in historical photographs.
 - viii) Lime-rich render to be applied to compromised or missing render.
 - ix) Repairs and relining of guttering. Removal of existing non original plastic downpipes and replacement with cast iron alternatives.
- 1.3 The changes are all considered to be repair and a return to historic form (see **Figure 1.1**).



Figure 1.1 - Wythenshawe bus garage, historic image from 1950s

- 1.4 As part of the Local Planning Authorities (LPA) planning policies and obligations to the Planning Framework, ecological surveys are generally required prior to planning permission being granted, particularly where protected/priority habitats or species are, or may be present, that could be affected by the proposals for which the application seeks consent.

- 1.5 The PEA was carried out in accordance with the '*Guidelines for Preliminary Ecological Appraisal, 2nd Edition*' (CIEEM, 2017) and all associated '*CIEEM Competencies for Species Survey (CSS)*', whilst this report has been presented in accordance with the British Standard 42020:2013 *Biodiversity. Code of practice for planning and development*.

Aims & Objectives

- 1.6 The preliminary appraisal aims to ascertain baseline nature of the application site and where possible, obtain information on any priority wildlife habitats, or species, that may be present and if so determine if they will be affected by the proposals. The survey therefore includes the following objectives:
- Gather and present baseline ecological information (as necessary) within a suitable report,
 - Identify, measure and map habitats using *UK Habitat Classification – Habitat Definitions Version 1.1* (2020),
 - Identify any likely ecological constraints associated with the proposals for the Site (i.e. the presence of protected/priority habitats or species that exist within the confines of the application boundary, or zone of influence (ZOI),
 - Identify measures likely to be required in line with the mitigation hierarchy (i.e. impact avoidance > minimisation > mitigation > compensation),
 - Identify additional survey requirements,
 - Aim to achieve no 'net loss',
 - Identify enhancement opportunities for biodiversity in line with national and local planning policy following '*Biodiversity Net Gain: Good practice principles for development*' (CIEEM et. al., 2019),
 - Set out any requirements for post-development monitoring, management, or other commitments, and how they can be secured, where required.
- 1.7 As a functioning component of this specific ecological appraisal:
- Habitats were identified, measured and mapped using *the UK Habitat Classification – Habitat Definitions Version 1.1* (2020),
 - Buildings and trees were subject to preliminary roost assessment (PRA) for Bats and scored against the bat roost suitability parameters defined in the Bat Conservation Trust - Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed. (2016) and British Standard 8596:2015 *Surveying for bats in trees and woodland*,
- 1.8 This report provides baseline information as derived from the diurnal appraisal process outlined above and recommends any necessary additional surveys, or work, where applicable, to provide a conclusive ecological impact assessment.

- 1.9 The Applicant should be aware that if during the appraisal:
- The application site/area was found to be suitable for any European Protected Species (EPS), otherwise protected, or priority habitats/communities/species, or,
 - Signs of use by particular protected species were found, or suspected, or,
 - Seasonal constraints significantly limit the gathering of ecological information to arrive at an accurate conclusion on which the planning application can proceed;
 - Then more detailed surveys may be recommended where necessary, to allow the ecologist to arrive at a conclusive impact assessment.
- 1.10 If protected species were subsequently found either during appraisal or during detailed further surveys and / or may be affected by the development proposals, then a European Protected Species Mitigation Licence (EPSML) may be required to proceed with the development.
- 1.11 Protected/priority species omitted from this report have been discounted due to negating factors including obvious absence/isolation of suitable habitats, and/or distributional aspects negating the necessity to survey for them, and/or the proposed works were not considered to impact the species or encroach on areas where the species may be present.

2.0 Legislation & Policy

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

- Biodiversity Net Gain. Good practice principles for development
- BS 42020:2013 Biodiversity – Code of Practice for Planning and Development
- Conservation of Habitats and Species Regulations (amendment) (2019) (EU Exit)
- Countryside Rights of Way (CRoW) Act (2000)
- Natural Environment and Rural Communities (NERC) Act (2006)
- The Hedgerow Regulations (1997)
- Town and Country Planning Act (1990)
- Wild Mammals Protection Act (1996)
- Wildlife and Countryside Act (WCA) (1981) (as amended)

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

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

Table 2.1 - Relevant Legislation

Species/Group	Relevant Legislation	Level of Protection
Bats	CRoW Act (2000) Conservation of Habitats and Species Regulations (2019) (EU Exit) Wildlife and Countryside Act (1981) (as amended)	All British bats and their roosts are afforded full protection from damage/destruction and bats may not be injured/killed/taken at any life stage. Once identified, roosts are protected whether the bat is in occupation or not.
Birds	CRoW Act (2000) Wildlife and Countryside Act (1981) (as amended)	All wild birds (with only minor exceptions) and their nests whilst being built or containing eggs or dependant young are protected. Birds listed on Schedule 1 Wildlife & Countryside Act (1981) (as amended) are afforded a greater level of protection.
Invasive Plant Species	Wildlife and Countryside Act (1981) (as amended)	Species listed within Schedule 9 as invasive, including Japanese Knotweed (<i>Reynoutria japonica</i>) and Himalayan Balsam (<i>Impatiens glandulifera</i>) carry notoriety regarding development. The Act makes it an offence for any person to grow or cause to grow in the wild any plants listed as invasive.

Relevant Policy

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

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

- 2.5 Paragraph 180 of the National Policy Planning Framework (as revised in July 2021) states:

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

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

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

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

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

- 2.6 Policy EN15 under Biodiversity & Geological Conservation of the Manchester Core Strategy 2012 to 2027 states -

"Developers will be expected to identify and implement reasonable opportunities to enhance, restore or create new biodiversity, either on-site or adjacent to the site, contributing to linkages between valuable or potentially valuable habitat areas where appropriate...", and,

"Where adverse impacts are unavoidable, developers will be required to provide appropriate mitigation and/or compensation", "It is important to recognise that brownfield sites often contain diverse and valuable biodiversity."

- 2.7 Where more detailed surveys are recommended by the Ecologist following a preliminary assessment, then the Local Planning Authority, upon the advice of their ecological advisors, should not determine an application until such time that all relevant information is gathered, i.e. - until all required survey work has been completed.

- 2.8 The above is in accordance with the obligations placed upon Local Authorities by way of its duties under the Conservation of Habitats & Species Regulations 2019 (EU Exit).

3.0 Priority Habitats & Species

National context

- 3.1 In the United Kingdom, legal protection and otherwise legislative recognition is afforded to particular habitats and species. Certain habitats and species are considered to hold nature conservation importance and are thus protected, due to factors such as their ecological functionality, connectivity, rarity, their vulnerability, environmental importance, or declining population / status. They are referred to as priority habitats and priority species.
- 3.2 The UK Biodiversity Action Plan (UKBAP) provided a statutory basis for lists of habitats and species of national conservation importance – now transposed under Section 41 (s.41) of the Natural Environment Rural Communities Act 2006 (NERC Act).
- 3.3 The following Section 41: Habitats of Principal Importance in England and: Species of Principal Importance in England are considered potentially relevant to the appraisal (non-extensive):

Habitats:

- Hedgerows.

Species:

- Bats: brown long-eared (*Plecotus auritus*), soprano pipistrelle (*Pipistrellus pygmaeus*) and common noctule (*Nyctalus noctula*),
- s.41 bird species that include: herring gull (*Larus argentatus*), house sparrow (*Passer domesticus*), starling (*Sturnus vulgaris*), bullfinch (*Pyrrhula pyrrhula*), grey partridge (*Perdix perdix*), song thrush (*Turdus philomelos*), dunnoek (*Prunella modularis*), for e.g.,
- Land mammals that include: hedgehog (*Erinaceus europaeus*), for e.g.,
- Herpetofauna that include: great crested newt (GCN) (*Triturus cristatus*), common toad (*Bufo bufo*), common lizard (*Zootoca vivipara*), slow-worm (*Anguis fragilis*) for e.g.,
- Botanical species that includes purple ramping-fumitory (*Fumaria purpurea*), bluebell (*Hyacinthoides non-scripta*), for e.g.

Regional context

- 3.4 Local Biodiversity Action Plans (LBAP's) are a way of encouraging people to work together to deliver a program of continuing action for biodiversity at a local level. LBAPs also embrace the idea of 'local distinctiveness'; habitats and species which are not considered UK conservation priorities can be catered for by LBAPs if they are of particular local significance.
- 3.5 LBAP's set out practical steps that aim to help protect, enhance and improve biodiversity where possible, as well as promote biodiversity at a local level.
- 3.6 The Greater Manchester Biodiversity Action Plan (GMBAP) further contains key local habitats/species considered to be rare or declining in the area. The following local plans are considered of potential relevance to the survey.
- black redstart (*Phoenicurus ochruros*);
 - native black poplar (*Populus nigra subsp. betulifolia*);
 - willow tit (*Poecile montanus*).

4.0 Methodology

Desktop study

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

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

4.2 The following key sources were consulted:

- Natural England and Joint Nature Conservation Committee (JNCC) websites;
- The Multi Agency Geographic Information for the Countryside (MAGIC) website.

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

4.4 A commercial data request to the Local Environment Records Centre (LERC) serving the area Greater Manchester Ecology Unit (GMEU) has not been sourced at this time:

1) The Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK (CIEEM, 2020) states:

"It is generally expected that a desk study, including a data search, will be a key part of the ecological surveys or reports produced to inform a planning application. Freely available web-based sources of data and contextual information should always be used; in some cases, it may be acceptable to not undertake a data search with the LERC or other relevant NSS or local interest groups, for example:

ii) Situations where the data search would be extremely unlikely to provide information needed to inform the assessment, due to the scale and location of the proposed development. The appropriateness of excluding a data search will need to be judged on a case-by-case basis as, in most situations, it will be essential to carry out such a search even if the development is very small or is likely to have a low impact. It can be very difficult to demonstrate that a data search would not have provided relevant information without obtaining and reviewing those data.

iii) In some cases for Preliminary Roost Assessments of buildings in low impact / small-scale scenarios, such as an extension to a residential property, loft conversions (full or partial), installation of Velux/dormer windows, single modern agricultural or similar building conversion or demolition; however, it should not be assumed that data searches are never required for such scenarios and this must be judged on a case by case basis and justified accordingly.

2) The Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017) also states:

"Very occasionally it might be possible to carry out a robust PEA without obtaining LERC/NBDC/CEDaR data; this will usually only apply to low impact or small-scale projects (e.g. by virtue of size, extent, duration of works, magnitude and locality), and should be determined on a case-by-case basis."

- 4.5 Based on the urban encapsulation of the Site and the nature of the works proposed they are considered small scale and low impact and a commercial data search would be unlikely to provide essential information needed to inform an impact assessment thus has not been commissioned at this time.
- 4.6 As exemptions outlined in the guidance can be applied in good practice for the proposals for which the applicant seeks consent, it is considered unnecessary to conduct a commercial data request at this time as enough information has been obtained from a basic desktop assessment and from field work, however, if a data search is considered to be necessary by the Local Authority, or environmental advisory body, to better inform the appraisal, a proportionate data search should be commissioned with results interpreted into the conclusions and recommendations of a re-issued/updated report.

Field survey

- 4.7 A daytime preliminary ecological appraisal was conducted on the 1st August 2023 in dry, clear, cloudy conditions (15°C) 98% cloud cover, by the following qualified surveyor (**Table 4.1**).

Table 4.1 - Surveyor credentials

Name	Description of most relevant credentials
Mr. M. Pritchard ACIEEM (Senior Ecologist)	• Six years professional Ecological consultant experience & extensive training in cross habitat/species ecology; • Relevant Degree: FdSc (Countryside, Conservation & Recreational Management); • Licenced in Bats: (2020-5039-CLS-CLS) (Class 1) and accredited agent on the (Class 2) Natural England bat licence of Mrs. K. Wilding (CLS-14227); • Licenced for Great Crested Newt: CL08 (Great Crested Newt Survey Level 1) - 2018-34062-CLS-CLS (England); • Licensed for Sand Lizard & Natterjack Toad (2022-62891-SCI-SCI); • FISC Level - 4 (2023) (Botanical); • Trained in UK Habs / BNG condition assessment.

Floristic assessment

- 4.8 The survey followed the *UK Habitat Classification Version 1.1* (Butcher, et.al., 2020) method with reference to the Joint Nature Conservation Committee (JNCC) Phase 1 Habitat Methodology standards (JNCC, 2010) and reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) Technical Guidance Series "*Guidelines for Preliminary Ecological Appraisal, 2nd Edition*" (CIEEM, 2017).
- 4.9 During a survey walkover botanical assemblages were assessed and the land was inspected for the presence of red-listed (Stroh *et al*, 2014; Hodgetts, 2011), s.41 and LBAP species alongside specially protected species as listed under Schedule 8 of the Wildlife and Countryside Act (WCA) (1981) (as amended) and / or Schedule 5 The Conservation of Habitats and Species (amendment) (EU exit) Regulations (2019). Species nomenclature follows Stace, C. (2019) – definitive English names.

- 4.10 Additional to attributing ecological value to red-listed / BAP species, in accordance with existing CIEEM guidance, a geographic frame of reference is also adopted. Plant species and habitats may be recognised for their ecological value on a geographical scale which is adopted on a site-to-site basis (see **Figure 4.1**).

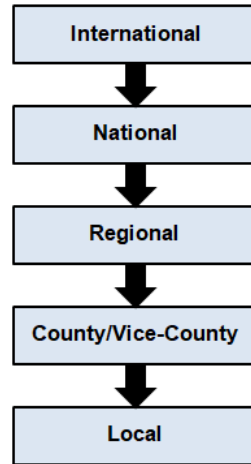


Figure 4.1 – Geographic Frame of Reference entailing degrees of conservation importance

- 4.11 The Site was also assessed in relation to the presence of invasive non-native species (INNS) as listed under Schedule 9 (Part II) of the Wildlife and Countryside Act (1981) (as amended). For botanical species list compiled, see **Appendix II**.

Faunal assessment

- 4.12 During a site walkover the Site was assessed for the potential to support protected and priority species.

Bats

- 4.13 The Bus Shelter was inspected for potential places that may be of value to bats and to determine evidence of use. This typically involves a search for potential roost features (PRF) both internally (investigation of loft spaces/upper floors/inside elevations) as well as externally, comprising an investigation of features (roof material, building components) using a high-powered torch. Field signs of bats typically comprise bat droppings, incidental animal presence, dead specimens and/or prey items. The surrounding habitat was also considered in terms of general suitability.
- 4.14 Trees were inspected for places that may be of value to bats and to determine if evidence of use was present; this typically involves a search for potential roost features along with an investigation of those features using a high-powered torch or close focus binoculars. Potential roost features can include woodpecker holes, rot holes, hazard beams, other vertical or horizontal cracks or splits in stems and branches, partially decayed lifted bark, knot holes, man-made holes, tear-outs, cankers in which cavities have developed, other hollows or cavities, including butt-rots, double-leaders forming compression forks with included bark, gaps between overlapping stems or branches, partially detached Ivy with stem diameters in excess of 50mm or bat/bird boxes.
- 4.15 Criteria for preliminary bat roost assessment are based upon the determinants given in the Bat Conservation Trust - Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed. (2016).

4.16 Factors typically considered during the preliminary roost assessment include:

- Knowledge of bat species relevant to the site location and geographical range,
- Nature of the immediate / surrounding habitat in relation to foraging opportunities,
- Presence and conditions of loft spaces, upper floors, roof linings,
- Presence / absence of roost potential,
- Value and types of roost potential, if present (i.e. - maternity, hibernation, transition).

Birds

4.17 The Site was inspected for evidence of nesting and suitability for relevant avian species including for breeding, passage and overwintering use. Bird species observed and heard were recorded, and a search was made for nest material, or areas suitable for nesting - this can take the form of searching structures, woody vegetation, semi-aquatic vegetation such as reeds and/or the ground.

4.18 Additional to the Site's capacity to support generally common species for breeding, the area was also subject to an assessment for wider capacity to support species with extra protection under Schedule 1 of the Wildlife & Countryside Act (WCA) (1981) (as amended) for example peregrine falcon (*Falco peregrinus*) and other Sch.1 (WCA) listed species.

Other terrestrial mammals

4.19 The walkover included a search for field signs of badger (*Meles meles*) which includes signs of activity such as prints, hairs, digging, setts, 'runs' leading to and from a sett and the existence of latrines or 'snuffle' holes where badgers have foraged in the ground.

4.20 The Site was also assessed for the suitability of European hedgehog.

Herpetofauna

4.21 The terrestrial value of the Site was assessed in relation to amphibian shelter, hibernation, foraging and commuting habitat suitability. The walkover also aimed to identify any ephemeral pools or unmapped waterbodies.

4.22 During desktop assessment a 250 metres radial search was undertaken from a site central grid reference in relation to the presence of ponds, ditches or other water bodies that may support great crested newts (GCN) for breeding. The information gathered would then be used to aid in establishing if more detailed surveys are required.

NB: *English Nature's (now Natural England) Great Crested Newt Mitigation Guidelines (2001) states ponds within 500m of a proposed development site should be considered for their potential to support GCN, however, in some instances this distance may be reduced to 250m due to the presence of physical barriers and obstructions or based on the likely magnitude of impacts arising from the proposed development.*

4.23 Following current best practice considering the national roll out of District Level Licencing (DLL) across England and based on likely effects, a proportionate assessment of the water bodies range within 250m from Site has been applied. Where a development is anticipated to affect GCN the search can be extended up to 500m or more.

4.24 The Site and its surroundings were assessed for suitability for use by reptiles known to the county; during the survey particular attention was paid to features that could be used as basking areas (e.g. south-facing slopes), hibernation sites (e.g. banks, walls, leaf litter, piles

of hardcore) and opportunities for foraging (e.g. rough grassland and scrub). *Beebee & Griffiths* (2000) state specific habitat preferences of common UK reptiles:

- common lizards use a variety of habitats from woodland glades to heaths, walls and pastures, as well as brownfield sites
- slow-worms use similar habitats to common lizards, and are often found in rank grassland, gardens and derelict land

- 4.25 In assessment of a site for reptiles several important habitat characteristics are considered, outlined in **Table 4.2** below, as derived from the *Reptile Habitat Management Handbook* (Edgar, 2010).

Table 4.2 – Important habitat characteristics for reptiles

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

Invertebrates

- 4.26 The Site was assessed for the presence of features that should be considered of high value to invertebrates. Several important features were considered, based on the assemblage descriptions provided within the Research Report “*Surveying terrestrial and freshwater invertebrates for conservation evaluation*” (NERR005, 2007), including but not limited to:
- Abundance of wildflower habitat,
 - Wood decay,
 - Early successional mosaic habitat,
 - Shaded ground layer,
 - Still and flowing water.
- 4.27 Results, conclusions and recommendations in this report are based on several factors i.e.
- Skills and experience of the ecologist,
 - Knowledge of flora and fauna relevant to the site location and geographical range,
 - Nature of the immediate and surrounding habitat in relation to shelter, foraging and commuting opportunities.
- 4.28 The results, conclusions and recommendations of this report have been assessed by Mrs. K. Wilding, Director of Tyrer Ecological Consultants Ltd, and her assessment concurs with the findings and recommendations of the surveyor and author Mr. Pritchard.

5.0 Limitations

- 5.1 This report does not contain a comprehensive list entailing the totality of botanical taxa on Site. Though the list in **Appendix II** represents the Site and helps distinguish habitats, a PEA is not a concentrated effort to gather full botanical information. Many plant species are only evident at certain times of the year, consequently, it is possible some plant species may have gone undetected, and a precautionary approach has been considered in the conclusions and recommendations.
- 5.2 No significant access issues arose, and the surveyor was able to carry out a robust internal assessment despite the vastness of the structure, however there are visual constraints from ground-based assessment to the highest points of the arched roof where it flattens out particularly from external assessment perspectives.
- 5.3 In considering limitations, no significant constraints were experienced that might adversely influence the results, conclusions, and recommendations of this report which have been provided in accordance with best practice guidance.

6.0 Desk Study Results

- 6.1 The Site is on Bradnor Road and is within the Sharston Industrial Area, to the east of Wythenshawe, which is itself to the south of Manchester city centre. The industrial area is roughly bounded by the Ring Road, Princess Parkway and the M56. See **Figure 6.1**.

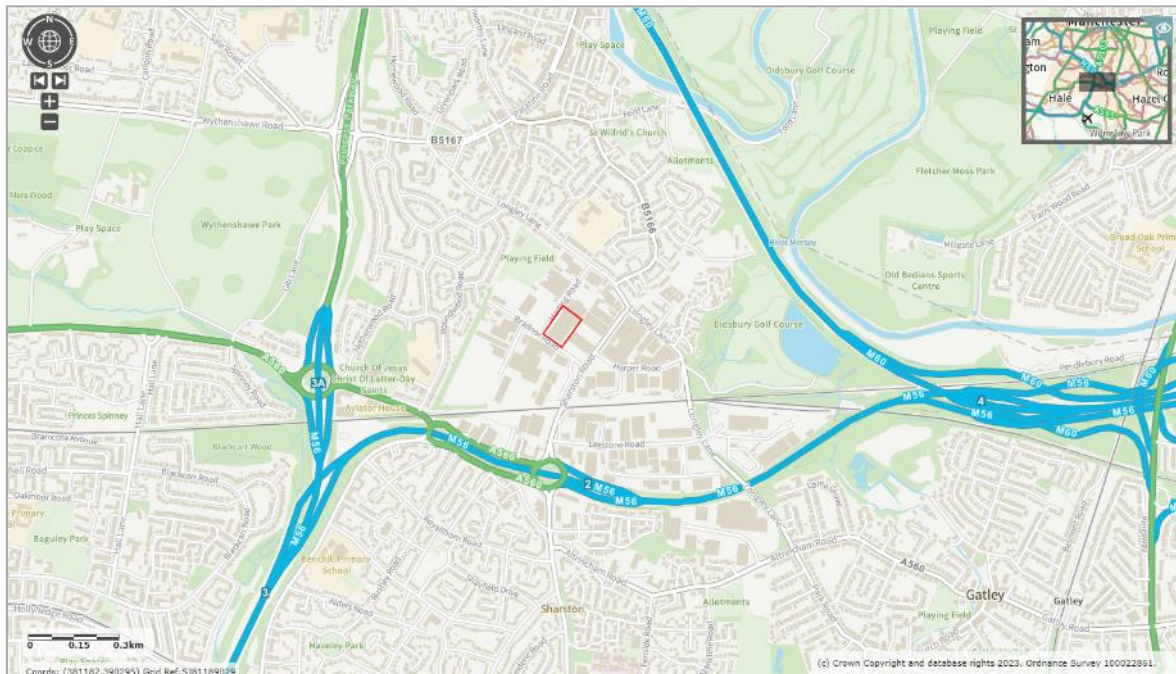


Figure 6.1 – Location of the Site within the context of the wider setting
(OS Maps 2023: OSGB36 - 1:10,000)

- 6.2 The Site is built hardstanding and a large concrete bus garage (Grade II listed historic) is located centrally. The whole Site is used for car parking. The only semi-natural habitats include a single rank Leyland cypress (*Cupressus x leylandii*) row of trees to the south boundary and a flailed hedgerow to the west boundary either side of a metal fence. Butterfly-bushes (*Buddleia*) emerge from the roof and walls of the bus garage building in several places and bramble (*Rubus fruticosus agg.*) grows from the foundations and fence lines.
- 6.3 Immediate habitats include an industrial built-up landscape and built linear features including busy roads.
- 6.4 Priority habitats within 2.0 kilometres include fragmented ancient semi-natural woodland to the west along the M56 and lowland mixed deciduous woodland to all directions. Other notable environs include rail track 270 metres to the south providing a valuable commuting route to habitats in the surrounding landscape.
- 6.5 Study of OS Maps suggests there are no ponds within 250 metres of the Site.
- 6.6 The described surrounding environment presents a low variety of terrestrial habitat types and the Site is somewhat fragmented from quality semi-natural habitats given its encapsulation within a urban, commercialised area. The protected species group most typically associated with the habitat types described are bats, namely the common pipistrelle bat, a species typically associated with roosting in many habitats including urban environments.

NB: Where quality habitat is present close to buildings then the percentage use of those buildings, by bats, increases given that roost opportunities are available and vice versa.

Statutory designated sites

6.7 There are three statutory designated sites located within 2.0 kilometres, see **Table 6.1**.

Table 6.1 – Statutory designation types and reasons for designation within 2.0 kilometres buffer

Site	Designation type	Interest features
Wythenshawe Park	Local nature reserve (LNR) 590 metres west	Variety of Woodland habitats in and around the park, three of which are sites of biological importance. Also, wildflower meadows and formal beddings.
Stenner Woods and Milgate Fields, Didsbury	Local nature reserve (LNR) 782 metres east	Stenner Woods is an area of wet woodland dominated by crack willow trees, much of the ground being submerged in water throughout most of the year. The Wardens will leave dead trees standing where it will not be hazardous to do so. Beetle larvae and other invertebrates soon inhabit the trees, which turns them into larders of food for birds such as great spotted woodpeckers and tree creepers.
Gatley Carrs	Local nature reserve (LNR) 0.95 kilometres south-east	There are various birds, mammals, invertebrates as well as lots of plants and flowers and trees.

6.8 A review of MAGIC maps identified that the Site is located within the SSSI Impact Risk Zone (IRZ) of several Special Scientific Interest (SSSI) outside of 2.0 kilometres. The IRZ system sets the criteria for development whereby a Local Authority (Manchester City Council) would be required to consult with Natural England regarding potential risks to designated sites posed by the proposed development.

6.9 It is considered that the proposed development meets none of the criteria whereby the Local Authority would be required to consult with Natural England regarding potential risks to the statutory designated sites posed by the proposed development on Site.

NB: *“It is important to note that the SSSI IRZs only indicate Natural England’s assessment of likely risk to the notified features of nationally designated sites. Where they indicate such a risk is unlikely, this does not mean that there are no potential impacts on biodiversity or the wider natural environment.”*

6.10 Further study of MAGIC maps highlights the following important contextual protected species information:

- There are Two granted Protected Species Mitigation licences within 2.0 kilometres – to the extended north, they have been granted for common pipistrelle and soprano pipistrelle bats.
- There are no records of great crested newt in the Great Crested Newt Class Survey Licence Returns (England) dataset within 2.0 kilometres.

7.0 Field Survey Results

7.1 Habitat survey

- 7.1.1 See **Table 7.1** (below) for baseline habitat information and descriptions; refer to **Appendix I** for any supporting imagery; scientific names for species named in **Table 7.1** are given in **Appendix II**.
- 7.1.2 Refer to **Appendix IV - UK Habitats Map** for the location of habitats & Target Notes (TN).

Table 7.1 – UK Habitat codes and descriptions with Target Notes

Habitat code / name	Description
h2b 81 – other hedgerows; flailed	A defunct hedgerow comprised of a mix of species including native and non-natives runs along the west boundary; heavily flailed road-side species include hawthorn and cotoneasters.
u1b5 - buildings	Described in section 7.3.
u1b6 – developed sealed surface	The Site is predominantly hardstanding except for the central building and linear hedge / treeline.
w1g6 48 – line of trees; non-native	A short row of Leyland cypress is present in two areas of the south boundary either side of the gated entrance.

7.2 Vegetation

Notable species

- 7.2.1 No priority species or species of conservation importance based on rarity or status were identified on site during the Site walkover; all species encountered were considered common locally and typical of the habitat types.

Invasive non-native species

- 7.2.2 No species listed as 'invasive' under Schedule 9 (Part II) of the Wildlife & Countryside Act (1981) (as amended) were identified upon assessment of the Site.

7.3 Bats

- 7.3.1 The bus shelter is industrial and functional in architectural form with double storey sides, a barrel roof cover and door openings to the perimeter. It is reinforced concrete-arched and vast, with shell concrete barrel vaults incorporating central top lights, each an individual square prism. The concrete arches have a span of 165 feet, a rise of approximately 42 feet, and are 42 feet apart; the thickness of the roof shell is 23-24 inches dense. The walls facing west and east have linear strips of intact glazing framed by aluminium and corrugated material is affixed to the sides which include brick; the front south-facing elevation has folding doors capable of allowing buses and aeroplanes to enter inside. Towards the rear, a former opening to a wider extent, formerly a repair area, is bricked up - the area behind now being in separate ownership.

- 7.3.2 No assessment was made by the surveyor on condition/state of the building; however, butterfly bush was emerging from various cracks/crevices at the walls, arches and the roof.
- 7.3.3 Internally, the surveyed space is vast (40,000 square feet), cathedral like and entirely open spacious except for the ground containing vehicles; conditions are generally dry, draughty and illuminated throughout. A limited number of remaining small rooms are situated around the perimeter. Potential roost features were observed in the form of various sized holes, crevices and general ingress opportunities in the concrete arches and walls particularly around interfaces of the two. No evidence of bats was located however the interior is vast, many areas are out of reach and the building could support crevice-dwelling species, including Pipistrelle bats, that gain access via open doors and windows.
- 7.3.4 Externally, corrugated material façades are bolted in place to side aspects below the higher tier of glazing before the roof arches and the corrugated material covers areas of exterior brickwork, which is understood to be testament to previous single-storey side extensions now long demolished. From ground level assessment it is clear there are cavities of varying depth and shape between the exposed areas of brickwork and the underlying concrete, in addition, there are further holes, crevices and general ingress opportunities in the concrete arches, walls and overhangs. There are visual constraints to the highest points of the arched roof where it flattens out.
- 7.3.5 It was considered the internal and external potential roost features could be used by crevice-dwelling bats despite the urban surroundings and whilst the linear habitat features around the building are of low biodiversity value they are linear features none the less and provide basic commuting and foraging habitat.

7.4 Birds

- 7.4.1 In relation to WCA Sch.1 listed species no evidence of peregrine falcon was located inside the bus shelter and the Site is not suitable for this species breeding requirements or for any other specially protected bird species such as black redstart. Sightings of birds on the day included a peregrine seen high over the Site in the north heading east.
- 7.4.2 In relation to s.41 priority species and more common breeding birds, herring gulls were nesting atop the barrelled roof with nest material seen from inside looking through the prism windows, adults behaving territorially during survey and calling by juvenile birds still dependant on their parents heard from the roof. Nesting by gulls also occurs to the north of the surveyed building on the adjacent area in separate ownership. No nesting of gulls, or any other species such as feral pigeon (*Columba livia 'domestica'*) was encountered or is suspected inside the construct with all nesting understood to be on the highest levels of the roof.
- 7.4.3 It stands to reason that the trees and hedges could be used by smaller, common species, particularly during the typical breeding bird season of March-August, and it should be highlighted that feral pigeon are breeding nearby to the west.

7.5 Other species / groups

- 7.5.1 No field signs were located to suggest the presence of badgers on Site including any setts, latrines, pathways, hairs, footprints or feeding signs such as snuffle holes and scratched trees/logs, and the surrounding busy roads, hardstanding and flat topography combine to provide negligible value for badgers.
- 7.5.2 No field signs or sightings of hedgehogs were encountered during the appraisal and for similar reasons to above the Site is considered unsuitable for hedgehogs.

- 7.5.3 No ponds exist on Site that might provide breeding habitat to protected amphibians such as great crested newt or priority species such as common toad and no ponds are present within 250 metres to warrant any concerns against amphibians. Terrestrially the surrounding busy roads, hardstanding and flat topography combine to provide negligible value for amphibians.
- 7.5.4 The Site is wholly unsuitable for reptiles and this group will not be impacted by works at the Site.
- 7.5.5 The Site is wholly unsuitable for notable invertebrates and this group will not be impacted by works at the Site.

8.0 Conclusions & Recommendations

Designated sites

- 8.1 The planning application does not meet any of the categories whereby it becomes immediately evident Natural England need to be consulted regarding potential impacts to nationally designated sites and Tyrer Ecological find it unlikely any development proposals pose risks to any SSSI sites, or their respective qualifying features, to warrant a Habitat Regulations Assessment (HRA).
- 8.2 No construction or operational impacts are anticipated to arise from the proposed development in relation to statutory or non-statutory designated sites by virtue of its distance and spatial separation from such sites.

Habitats & Vegetation

- 8.3 No priority habitats exist on Site and the development proposals will not result in direct loss of any priority habitats. No indirect impacts are anticipated.
- 8.4 Trees should be retained where possible and any tree loss should be suitably mitigated for on Site or within ecologically advantageous areas nearby.
- 8.5 Retained trees should be protected in-line with BS 5837:2012 *Trees in relation to design, demolition and construction*.
- 8.6 Any landscaping strategy should aim to use native woody species suitable for the area and local soil types as opposed to non-native exotic species of minimal biodiversity value - see **Appendix III** for planting ideas.

Bats

- 8.7 Based upon the findings of the survey covered through sections 6.0 - 7.0 of the report, the historic bus shelter has been determined to offer 'Moderate' bat roost suitability based on availability of potential roost features. The level of suitability assigned is in strict accordance with the *Bat Conservation Trust (BCT) - Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed. (2016)* as are the subsequent recommendations (see **Figure 8.1**).

Table 7.3 Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).		
Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit. One dusk emergence or dawn re-entry survey ^a (structures). No further surveys required (trees).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey. ^b	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn. ^b

Figure 8.1 - Bat Conservation Trust (BCT) extract on Moderate roost suitability

- 8.8 It is recommended that two dusk and/or dawn emergence/re-entry surveys are conducted during the active season of bats (May – August) at the bus depot, in order to establish if it is being used by bats for roosting use, and if so, identify bat species, abundance, roost locations and flight lines around site during any emergence/re-entry.
- 8.9 It should be noted that where the surveys evidence that bat(s), or their roost(s), will be affected by the proposed works, including disturbance, then to allow developmental works at the site to legally commence an application for a European Protected Species Mitigation Licence (EPSML) or equivalent and subsequent granting of a licence will be required. Notwithstanding

the granting of a licence, works that would affect a roost cannot take place if a maternity colony is in occupation. It should also be noted that before an EPSML can be applied for, all Planning issues, including Consent and any pre-commencement Planning Conditions relative to EPS, should be resolved.

- 8.10 Natural England provides information and guidance about EPSML's, and the following extract is included in that guidance: -

"If you intend to apply for a licence for development you are advised to seek the guidance of a consultant ecologist".

"A licence is needed if the consultant ecologist, on the basis of survey information and specialist knowledge of the species concerned, considers that on balance the proposed activity is reasonably likely to result in an offence under the Conservation of Habitats and Species Regulations (2019) (EU Exit)".

- 8.11 If the consultant ecologist considers that on balance the proposed activity is reasonably unlikely to result in an offence being committed, then no licence is required. However, in these circumstances Natural England would urge that reasonable precautions be taken to minimise the effect on European protected species should they be found during the course of the activity. If any European protected species are found, cease the work until you have assessed whether you can proceed without committing an offence.
- 8.12 A licence should be applied for if offences are unavoidable, and the work should not be re-started until a licence is obtained. The application should be completed by the developer and a consultant ecologist. The ecologist will need to be able to demonstrate to the satisfaction of Natural England that they have the relevant skills and knowledge of the species concerned.
- 8.13 Where more detailed bat surveys are recommended by the Ecologist, following an initial daytime investigation, then Local Planning Authorities on the advice of their ecological advisors, may not determine the application until such time that all relevant information is gathered, i.e., by conducting dusk/dawn surveys. The advice that is provided by the ecological advisors is in full accordance with the obligations placed upon Local Planning Authorities by way of its duties under the Conservation of Habitats and Species Regulations (2019) (EU Exit). Therefore, it would be prudent to make enquiries to the relevant departmental Planning Officer before submitting any planning application that includes an ecological report that recommends more detailed surveys.
- 8.14 Installation of harsh artificial lighting as part of any development that exceeds current levels could have a negative impact upon foraging/commuting bats in the landscape, particularly if increased light spillage occurs in areas of that are currently free from illumination, such as the site boundaries. A bat-sensitive lighting plan is therefore recommended to avoid potential impacts to bats that may use the site boundaries to feed and commute. Several options to consider have been listed below, though the reader is referred to the Bat Conservation Lighting Guidelines for further information.

Type of lamp (light source): The impact on bats can be minimized by the use of low pressure sodium lamps or high pressure sodium instead of mercury or metal halide lamps where glass glazing is preferred due to its UV filtration characteristics.

Lighting should be directed to where it is needed and light spillage avoided. This can be achieved by the design of the luminaire and by using accessories such as hoods, cowls, louvres and shields to direct the light to the intended area only. Planting can also be used as a barrier or manmade features that are required within the build can be positioned so as to form a barrier.

Predicting where the light cone and light spill will occur: There are lighting design computer programs that are widely in use which produce an image of the site in question, showing how the area will be affected by light spill when all the factors of the lighting components listed above are taken into consideration. This should be a useful tool to inform the mitigation process.

Light levels: The light should be as low as guidelines permit. If lighting is not needed in any particular area, do not light. Numerous software programmes are currently available which can be used inform lighting plans, demonstrating how lighting decisions will illuminate a site.

Please refer to the 'Landscape and urban design for bats and biodiversity' (*Gunnell et. al.*, 2012, Bat Conservation Trust) for further information.

Birds

- 8.15 No impacts are applicable in relation to any Sch.1 (WCA) specially protected bird species and no further surveys or recommendations are necessary in relation to specially protected birds at this time.
- 8.16 In relation to more common birds, breeding by herring gull was encountered atop the barrelled roof and there are also local issues in relation to feral pigeons.
- 8.17 In the interests of impact avoidance to breeding birds a scheme of avoidance and impact minimisation is recommended particularly concerning presence of breeding gulls. This could take the form of appropriate pre-commencement check(s) / survey(s) and actions in accordance with the findings and timings, including implementing mechanisms for exclusion or non-lethal methods of bird scaring prior to any breeding activity.
- 8.18 In addition as a general recommendation any works to trees or removal of buddleia or brambles should be undertaken outside of the nesting bird season. The nesting bird season is weather dependent but generally extends between March and September inclusive (peak period March – August). For works within the breeding bird season, any areas that can support nesting birds should be checked by a professional Ecologist for nesting birds within 48 hours or less prior to works commencing.
- 8.19 Where active nests are / have been located by the Ecologist, then any works which may affect them would have to be delayed until the young have fledged and the nest has been abandoned naturally, this can be aided, for example, via implementation of appropriate buffer zone(s) around the nest site (typically 5 – 10 metres) in which no disturbance is permitted until the nest is no longer in use. This would have to be coordinated through the expert judgement of the professional ecologist and species pending.

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

Other species / groups

- 8.20 No impacts are anticipated against any other species / groups to warrant any specific intervention or avoidance measures.

Enhancement

- 8.21 Enhancement ideas that consider the specific scale and nature of the proposals in accordance with the principles of '*Biodiversity Net Gain: Good practice principles for development*' (CIEEM *et. al.*, 2019), are presented in **Appendix III**.

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Appendix I: Site Photographs



Plate 1 – Interior of bus garage from south looking north to bricked up area



Plate 2 – Nature of the roof underside with prism sunlights



Plate 3 – Nature of internal southern elevation 1



Plate 4 – Cavities / ingress opportunities in most areas of concrete arch / brick interface



Plate 5 – Cavities / ingress opportunities in areas of concrete arch / brick interface



Plate 6 – South-facing aspect

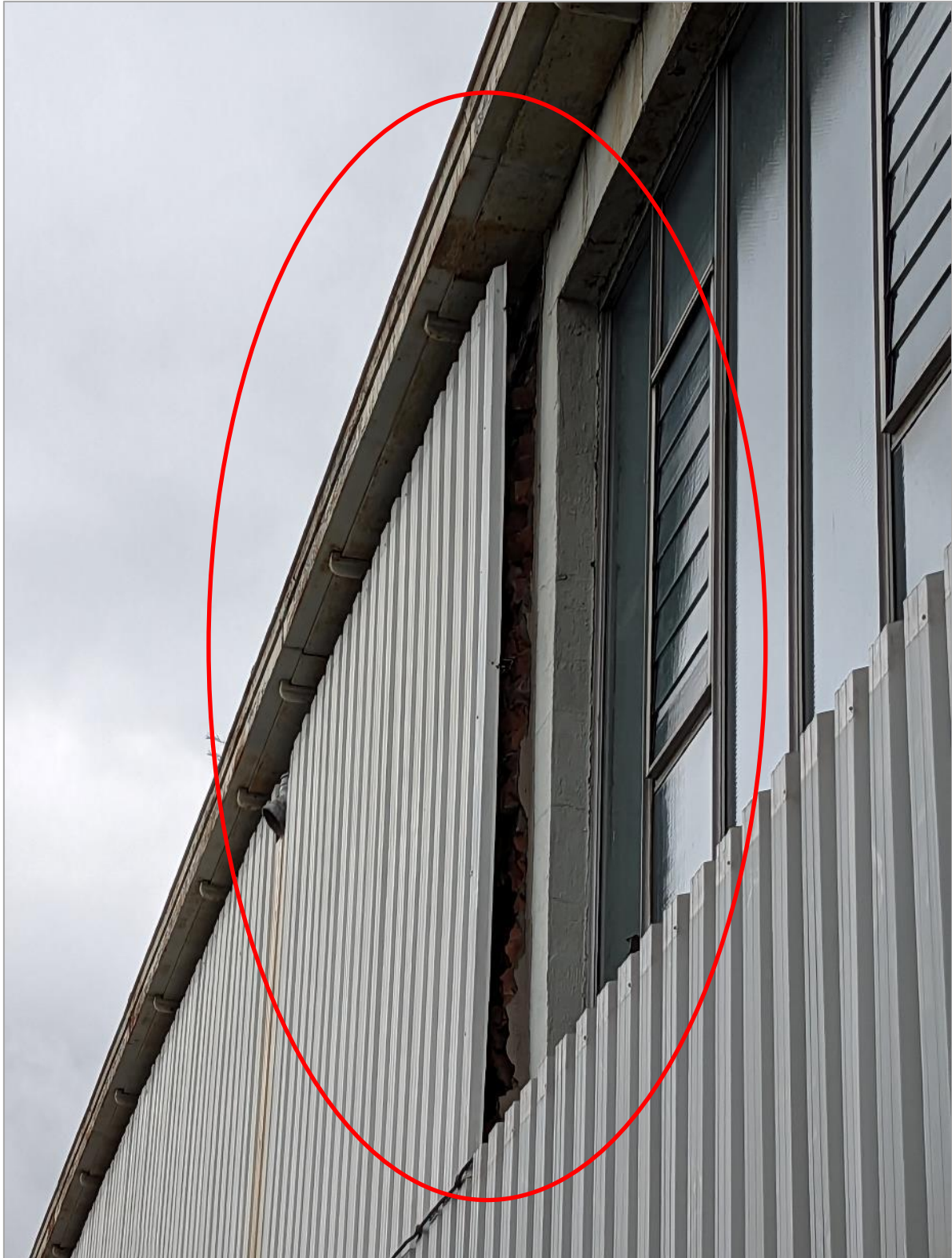


Plate 7 – Areas with exposed brick behind corrugated could lead to deep wall cavities in brick and concrete



Plate 8 – Large crack in concrete slabs above window eastern aspect



Plate 9 – West-facing aspect looking south directionally

Appendix II: Botanical Species List

Botanical species recorded during the PEA. Species nomenclature follows Stace, C (2019).

Scientific name	Common name
TREELINES	
<i>Cupressus × leylandii</i>	Leyland Cypress
HEDGEROW	
<i>Buddleja davidii</i>	Butterfly-bush
<i>Cupressus × leylandii</i>	Leyland Cypress
<i>Cotoneaster sp.</i>	Cotoneaster
<i>Crataegus monogyna</i>	Hawthorn
<i>Chamerion angustifolium</i>	Rosebay Willowherb
<i>Equisetum arvense</i>	Field Horsetail
<i>Erigeron canadensis</i>	Canadian Fleabane
<i>Geranium robertianum</i>	Herb-robert
<i>Holcus lanatus</i>	Yorkshire-fog
<i>Hordeum murinum</i>	Wall Barley
<i>Jacobaea vulgaris</i>	Common Ragwort
<i>Poa annua</i>	Annual Meadow-grass
<i>Rubus fruticosus agg.</i>	Bramble
<i>Sonchus arvensis</i>	Perennial Sow-thistle
<i>Sonchus oleraceus</i>	Smooth Sow-thistle

Appendix III: Biodiversity Enhancement: General Recommendations

Native Planting and/or Landscaping – recommended species

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

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

Enhancement for Bats



- Bark box / Kent twin type crevice

Two parallel crevices for roosting bats with internal connection to move between the two. Light internal finish for helping to spot bats, droppings and rub marks.

Bark Boxes are constructed using tough felt made of recycled polyamide combined with a cement and recycled cellulose fibre mix. They provide more natural form and outer layer mellow and can support lichens and mosses over time.



- Cardinal bat box

The Cardinal Bat Box incorporates three separate chambers with laddered entrance holes to each direction.

Enhancement for Nesting Birds



-2h Schwegler robin box

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

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

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



- 1B Schwegler Nest Box

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

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

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

Enhancement for Invertebrates

Insect hotels provide a habitat for a variety of insects. Designs can be small or large enough to create a focal point in a wildlife garden and sturdy enough to last for years. Ensure hotels are made from untreated wood, which is important as insects need natural materials to thrive, and split into sections that each contain a different nesting material. There should be pine cones for ladybirds, wood slits for butterflies and moths, bamboo canes for solitary bees, and loose pieces of wood for beetles.

Placement: Size against walls or fences and fix to prevent toppling. The feet keep the main body off the damp ground. You could push bricks against them to keep the bug hotel upright, which would also encourage woodlice and even frogs that enjoy cool stone conditions.



Examples of larger insect hotels



Examples of smaller insect hotels

- National Trust Bee Log



- Insect maisonette



Insect boxes should be sited approximately 1.5m above ground level on a south facing aspect somewhere that will receive sun for at least part of the day.

Insect boxes can be installed at any time of year following the cessation of construction works.

See:

<https://www.nhbs.com/>

<https://www.birdfood.co.uk/>



UK Habitats Key

-  Red line survey boundary
-  h2b 81 - other hedgerows; flailed
-  u1b5 - buildings
-  u1b6 - other developed land
-  w1g6 48 - line of trees; non-native

Wythenshawe Bus Shelter

Survey Date: 01/08/2023
Drawn: MJP
Date Drawn: 16/08/2023
Size: A3
Scale: 1:600:00

Tyrer Ecological Consultants Ltd
Roselands,
Suite 1,
3 Cross Green,
Formby,
L37 4BH

Tel: 01704 875781
Email: enquiries@tyrer-ecologicalconsultants.co.uk
www.tyrer-ecologicalconsultants.co.uk