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Preliminary Ecological Appraisal

March 2024

Project Reference: PR-0058-24

Bunker 9–8

Draw Well Road

Kirkby

L33 7BJ

National Grid Reference: SJ43579877



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Executive Summary

As part of an ongoing planning application with Knowsley Council (Application Reference: **23/02741/FUL**) at Bunker 9–8, Kirkby, (termed as ‘the site’), Tyrer Consultants carried out a Preliminary Ecological Appraisal (PEA) in February 2024.

The PEA was commissioned by Lawrenson Associates; proposals are understood to involve the conversion of a former magazine bunker into a manufacturing and storage facility.

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

Habitats

Whilst no priority habitats were identified on site by the surveyors, the nature of the access limitations mean that it was not possible to formally categorise the grassland to level 3 or higher. The dense bryophyte cover could be indicative of rarer grassland types associated with acidic substrates, though this could not be verified.

Given the presence of bryophyte and sedum, it is recommended that any loss of grassland is suitably mitigated for with a green / brown roof above the redeveloped structure. This could be secured via a Biodiversity Net-gain assessment (utilising the Statutory Biodiversity Metric), or via a planning condition from the local authority.

Vegetation

Two INNS were identified on site by the surveyors: Himalayan cotoneaster and wall cotoneaster.

Given the high density of these species within the site boundary, a precautionary working method statement is recommended to be implemented prior to the commencement of development operations which includes eradication, biosecurity protocol and a specification that all spoil taken off site is treated as controlled waste and disposed of at a landfill authorised to accept INNS refuse.

Bats

The trees on site were unable to be fully assessed relative to their potential to offer roosting suitability for bats and have been duly categorised as Further Assessment Required (FAR).

It is recommended that a precautionary approach is enacted. Tree loss should be avoided wherever possible, though if entirely necessary for the works then they should be investigated prior to felling for any wounds or areas of decay which could harbour bat(s) or their roosts. If any PRFs are observed then an ecologists advice should be sought prior to any tree works.

Birds

Regarding wider breeding bird species, there are a range of viable nesting platforms within the site boundary, including the taller vegetation and scrub, all of which could provide suitable nesting locations within the nesting bird season of March – August, inclusive.

Given that all birds are protected when at the nest, it is recommended that any vegetation clearance works on site are carried out outside of the breeding bird season (March – August inclusive). For any works within the breeding bird season, a pre-commencement check of any impacted habitats able to support nesting birds will need to be carried out by a suitably

qualified ecologist / ornithologist in order to determine whether or not active nests are present. This will need to be carried out within 48 hours or less prior to works commencing.

Given the locally notable nature of the site for birds, likely being one of the last remaining areas suitable for nesting and feeding, the scheme should consider enhancement in the form of nest boxes and suitable food plants for bird species known to exist in proximity to the site.

Other terrestrial mammals

Hedgehog have the potential to be impacted upon by the works, subject to their presence.

A programme of Reasonable Avoidance Measures (RAMs) is recommended to be enacted to safeguard this species.

Herpetofauna:

Based on the lack of a nearby pond network, common amphibians such as common frog and common toad are unlikely to be present even occasionally, though will sometimes use such sites during their terrestrial phase.

As a precautionary measure any clearance and habitat management should therefore have due regard to local wildlife as discussed, and the programme of Reasonable Avoidance Measures above should be extended to cover common amphibians.

In addition, based on the site specific habitats as described the site could feasibly support reptiles, though lack of connectivity to a wider ecological network decreases the likelihood of their presence.

As a precautionary measure the RAMs above should be extended to cover reptiles.

Invertebrates

The site is likely locally valuable for invertebrates.

*The scheme should consider enhancement, either in the form of the aforementioned green / brown roof which could recreate habitats present currently, or via provisions such as insect hotels / bee bricks (see **Appendix III**).*

Biodiversity enhancement:

As a means of improving biodiversity value / enhancing the site any new landscaping should aim to incorporate majority use of native species as opposed to non-native exotic species which offer significantly fewer benefits to our native fauna. Suitable species for native landscaping have been provided in **Appendix III**. Examples of suitable measures in respect of faunal species are also provided in **Appendix III**.

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1.0 Introduction & Scope

- 1.1 As part of an ongoing planning application with Knowsley Council (Application Reference: **23/02741/FUL**) at Bunker 9–8, Kirkby, (termed as ‘the site’), Tyrer Consultants carried out a Preliminary Ecological Appraisal (PEA) in February 2024.
- 1.2 The PEA was commissioned by Lawrenson Associates; proposals are understood to involve the conversion of a former magazine bunker into a manufacturing and storage facility. See **Figure 1.1** for a location plan.

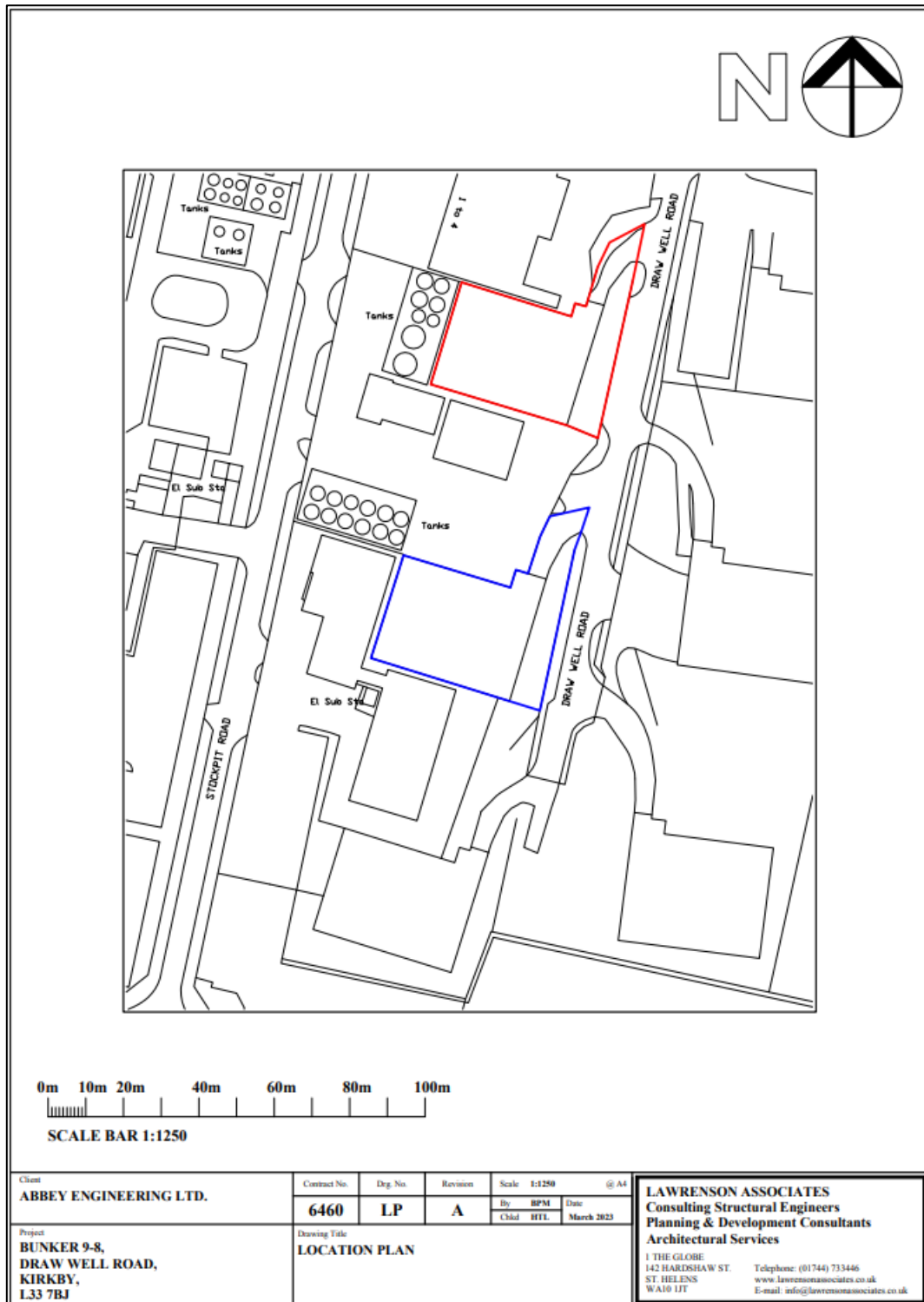


Figure 1.1 – Location plan © Lawrenson Associates

- 1.3 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, and where these species have the potential to be impacted by the proposals for which the applicant seeks consent.
- 1.4 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

- 1.5 The appraisal aims to ascertain the baseline nature of the 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 on site/off site (as necessary) within a suitable report,
 - Identify, measure and map habitats using UK Habitat Classification – Habitat Definitions Version 2.0 (2023) habitats,
 - 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 any additional survey requirements,
 - Identify enhancement opportunities for biodiversity in line with national and local planning policy.
 - Set out any requirements for post-development monitoring, management, or other commitments, and how they can be secured, where required.
- 1.6 As a functioning component of this specific ecological appraisal:
- Habitats on site were identified, measured and mapped using the UK Habitat Classification – Habitat Definitions Version 2.0 (2023) to the highest level possible given the access constraints,
 - Any buildings and trees, where present and accessible, 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, 4th ed. (2023),
 - An Unmanned Aerial Vehicle (UAV) was utilised to overcome access constraints, where feasible.
- 1.7 This report therefore provides important 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.

- 1.8 The Applicant should be aware then 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.

- 1.9 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.
- 1.10 Where more detailed surveys are recommended by the Ecologist, following ecological appraisal, then Local Planning Authorities (LPAs), on the advice of their ecological advisors, may not grant permission until such time that all relevant material information is gathered in accordance with their obligations to the legislature.
- 1.11 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 considered for the purposes of this report includes the following:

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

2.2 These acts entail relevance to both protected and invasive species. The degree of protection offered to taxa provided within existing UK and EU legislature often varies depending on species / group, for example, some species may purely be protected during one of its life stages (e.g. common species of breeding bird whilst nesting / with eggs / young); some species may receive full protection within the EU, 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 / Species	Relevant Legislation	Level of Protection
Badger	Protection of Badgers Act (1992), Wildlife and Countryside Act (1981) (as amended)	<u>Illegal to:</u> Wilfully kill, injure or take a badger (or attempt to do so), cruelly ill-eradicate a badger, dig for a badger, Intentionally or recklessly damage or destroy a badger sett or obstruct access to it, cause a dog to enter a badger sett, disturb a badger when it is occupying a sett.
Bats	CRoW Act (2000) Conservation of Habitats and Species Regulations (2017) (as amended) Wildlife and Countryside Act (1981) (as amended)	All British bats and their roosts are afforded full protection from damage/destruction and bats may not be injured/killed/taken at any life stage. Once identified, roosts are protected whether the bat is in occupation or not.

Species Group / Species	Relevant Legislation	Level of Protection
Birds	CRoW Act (2000) Wildlife and Countryside Act (1981) (as amended)	All wild birds (with only minor exceptions) and their nests whilst being built or containing eggs or dependant young are protected. Birds listed on Schedule 1 Wildlife & Countryside Act (1981) (as amended) are afforded a greater level of protection.
Great Crested Newt (GCN)	CRoW Act (2000) Conservation of Habitats and Species Regulations (2017) (as amended) Wildlife and Countryside Act (1981) (as amended)	Great Crested Newts (GCN's) are fully protected from disturbance, killing, injuring or possession at any life stage. Confirmed breeding ponds and resting places are afforded the same protection.
Invasive Plant Species	Wildlife and Countryside Act (1981) (as amended) The Invasive Alien Species (Enforcement and Permitting) Order 2019	Species listed within Schedule 9/Schedule 2 as invasive, including Japanese knotweed (<i>Reynoutria japonica</i>) and Himalayan balsam (<i>Impatiens glandulifera</i>), for example, carry notoriety regarding development. The Acts make it an offence for any person to grow or cause to grow in the wild any plants listed as invasive.
Reptiles	Conservation of Habitats and Species Regulations (2017) (as amended) – SL/SS Wildlife and Countryside Act (1981) (as amended) CRoW Act (2000)	All native reptile species have some degree of protection in the UK, through section 8(1) and (5) (specified in Schedule 5) of the Wildlife and Countryside Act 1981 (as amended). Sand lizard (SL) and smooth snake (SS) are species of principal importance however with greater protection(s).

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 September 2023) states:

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

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

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

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

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

- 2.6 Policy CS8 of the Adopted Knowsley Local Plan, titled Green Infrastructure, echoes this national focus on preservation of biodiversity, stating:

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.*

- 2.7 Point 5.87 delves further into the priorities of the Council, and states:

The key priorities for natural assets and geology in the Liverpool City Region are:

- To manage the natural assets better – to protect the integrity of nature sites of international importance, and to protect the city region's nature and geodiversity assets; and*
- To make sure there is no net loss of these natural assets and to extend and enhance the city region's Ecological Network and natural assets.*

3.0 Methodology

- 3.1 As part of the ecological appraisal report, a desk-top and field-based study is conducted. Methods for both components of the appraisal are given below.

Desktop study

- 3.2 Prior to a site visit, a desktop study was conducted using online resources to obtain information pertaining to any sites afforded statutory (e.g. SSSI) and non-statutory (e.g. LWS) designations for nature conservation within 2.0 kilometres (km) of the site boundary. To do so, the Multi Agency Geographic Information for the Countryside (MAGiC – provided by DEFRA) was accessed to gather such information; this particular interactive mapping service was also used to locate any locally granted European Protected Species Mitigation Licenses (EPSML) and species records to further inform conclusions concerning such species in the context of the study site and its proposed development.
- 3.3 Historic satellite imagery was reviewed using sources such as Google Earth (© 2023/24) to help establish past use of the land and determine the nature of adjoining and extending habitats; such information aids in the understanding of how the site might interact with its surroundings ecologically and its value in that context, and how the development may impact at a wider scale.
- 3.4 In addition, the Knowsley Council 'View planning applications' portal and online map viewer were utilised to help inform the desktop study by analysis of existing publicly accessible ecological survey results that have been carried out locally within the previous five years.
- 3.5 A commercial data request to the Local Environment Records Centre serving the area – in this case Merseyside Environmental Advisory Service (MEAS) – has not been sourced and is justified through application of the following recent guidance:

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.*

- 3.6 As exemptions as made **bold** above can be applied at the site, whilst following best practice, it is considered unnecessary to conduct a commercial data request following the desk study

effort and daytime assessment at this time, with a combination of online EPSML data, extensive company records, experience of the attending ecologists and daytime survey data considered to offer a proportionate level of survey effort. **If, however, a data search is considered necessary by the Local Authority advisory body to inform the ecological impact assessment following any further surveys recommended in this report, a proportionate data search should be commissioned with results interpreted into the conclusions and recommendations of a re-issued / updated report.**

Field survey

- 3.7 A daytime preliminary ecological appraisal (PEA) was conducted on the 15th February 2024 in overcast, mild conditions (13°C), average wind 2/12 (Beaufort scale), average 100% cloud cover, by the following surveyors (see **Table 3.1**).

Table 3.1 – Site surveyor credentials

Name	Description of most relevant credentials
Mrs. K. Wilding CEnv ACIEEM MIEMA	- Principal level Ecologist with 16 years training and experience, - Holder of a Class 2 Natural England bat license (CLS-14227), - Has a large portfolio of successful granted mitigation licences in England and Wales, including 3 published in the UK Bat Mitigation Guidelines 2023.
Mr. B. Richards Qualifying CIEEM	- Consultant Ecologist with 2 years training and experience, - MBiolSci in Biological Sciences (Zoology), - Accredited agent on the Natural England Great Crested Newt: CL08 Class 1 licence (2018-34062-CLS-CLS) of Mr. M. Pritchard ACIEEM, - Accredited agent on the Natural England Class 2 bat license of Mrs K Wilding CEnv MIEMA ACIEEM (CLS-14227), - Holder of Civil Aviation Authority Operator & Flyer ID, - Holder of a FISC Level 3 (2023) (Botanical competency).

Floristic assessment

Habitats

- 3.8 The survey followed the UK Habitat Classification Version 2.0 (UKHabs, 2023) methodology which was introduced as the successor to the Joint Nature Conservation Committee (JNCC) Phase 1 Habitat Methodology standards (JNCC, 2010) in conjunction with the nationwide roll out of Biodiversity Net-gain. Where possible, owing to access constraints, survey techniques were also carried out with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) Technical Guidance Series “Guidelines for Preliminary Ecological Appraisal, 2nd Edition” (CIEEM, 2017).

Vegetation

- 3.9 Where possible within the access constraints, during the 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 Regulations (2017) (as amended). Species nomenclature follows Stace, C. (2019) – definitive English names.

- 3.10 In addition to attributing ecological value to red-listed / BAP species, in accordance with existing CIEEM guidance, a geographic frame of reference is also adopted. Plant species and habitats may be recognised for their ecological value on a geographical scale which is adopted on a site-to-site basis (*International – National – Regional – County/Vice-County – Local*). For botanical species list compiled in full, see **Appendix II**.
- 3.11 In combination with assessing the area in relation to flora and habitats of conservation importance, the land was also assessed in relation to the presence of invasive non-native species (INNS) as listed under Schedule 9 (Part II) of the Wildlife and Countryside Act (1981) (as amended) and Schedule 2 of The Invasive Alien Species (Enforcement and Permitting) Order 2019 (IASO).

Faunal assessment

- 3.12 During site walkover, direct presence and / or evidence of priority fauna encountered was documented, where feasibly possible owing to the access constraints, whilst in tandem the area was assessed for the potential to support the priority species discussed in **Section 6.0**. The walkover also aimed to identify any ephemeral pools or unmapped waterbodies.

Bats

- 3.13 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, 4th ed. (2023) (see **Figures 3.1 – 3.3**).
- 3.14 The site was assessed for bats; where accessible, a daytime bat walkover (DBW) was undertaken to observe, assess and record any habitats or features suitable for usage by bats, either as commuting, foraging or roosting provision. Wider connectivity to other habitats was also considered during the DBW.
- 3.15 Buildings and/or other permanent / semi-permanent structures present were subject to a preliminary roost assessment (PRA), to identify potential areas which may be of value to bats and to determine evidence of use. This typically involves a systematic search of the external aspects of any structure(s), comprising an investigation of features known to be used by bats (for example roofing material, soffits, fascia, lead flashing hanging tiles) using a high-powered torch and close-focus binoculars, where necessary. An internal assessment of the structure(s) was also carried out, with the aid of a high-powered torch and endoscope, where necessary, to identify any evidence of bat use of a structure. Field signs of bats typically comprise bat droppings, urine splashing, fur-oil staining, incidental animal presence, dead specimens and / or the presence of prey items, such as moth wings.
- 3.16 Trees (where present) would be subject to a ground level tree assessment (GLTA) using equipment such as close-focus binoculars and a high powered-torch. Potential roost features (PRFs) can include woodpecker holes, rot holes, hazard beams, other vertical or horizontal cracks or splits in stems and branches, partially decayed lifted bark, knot holes, man-made holes, tear-outs, cankers in which cavities have developed, other hollows or cavities, including butt-rots, double-leaders forming compression forks with included bark, gaps between overlapping stems or branches, partially detached climbing species with stem diameters in excess of 50mm or pre-existing bat / bird boxes. These PRFs can then be determined as PRF-I or PRF-M, dependent on their suitability for individual / low numbers of bats or their capability to host multiple bats.

3.17 Factors considered during the preliminary roost assessment include:

- Practical experience of the surveyors,
- Knowledge of bat species relevant to the site location and geographical range,
- Nature of the immediate / surrounding habitat in relation to foraging opportunities,
- Presence / absence of roost potential,
- Value and types of roost potential, if present (i.e. – maternity, hibernation, transitional).

Table 4.2. Guidelines for assessing the suitability of trees on proposed development sites for bats, to be applied using professional judgement.	
Suitability	Description
NONE	Either no PRFs in the tree or highly unlikely to be any
FAR	Further assessment required to establish if PRFs are present in the tree
PRF	A tree with at least one PRF present

Figure 3.1 – BCT extract on tree roost suitability criteria

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

Figure 3.2 – BCT extract on tree roost categorisation criteria

Table 4.1. Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement.		
Potential suitability	Description	
	Roosting habitats in structures	Potential flight-paths and foraging habitats
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats).
Negligible ^a	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions ^b and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity and not a classic cool/stable hibernation site, but could be used by individual hibernating bats ^c).	Habitat that could be used by small numbers of bats as flight-paths such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions ^b and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for flight-paths such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions ^b and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.
a Negligible is defined as 'so small or unimportant as to be not worth considering, insignificant'. This category may be used where there are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute). b For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance. c Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten <i>et al.</i>, 2016 and Jansen <i>et al.</i>, 2022). Common pipistrelle swarming has been observed in the UK (Bell, 2022 and Tomlinson, 2020) and winter hibernation of numbers of this species has been detected at Seaton Delaval Hall in Northumberland (National Trust, 2018). This phenomenon requires some research in the UK, but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in prominent buildings in the landscape, urban or otherwise.		

Figure 3.3 – BCT guidelines extract

Birds

- 3.18 The site was inspected for evidence of nesting and suitability for relevant species. Bird species observed and heard were recorded on site, 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 ground flora. Elevations of any buildings or structures on site were inspected for evidence of birds that show a high dependency upon built structures, many of which are in a state of decline. These might include the following species for example (list non-extensive):
- House martin (*Delichon urbica*): Birds of Conservation Concern (BoCC) red status,
 - House sparrow (*Passer domesticus*): BoCC red status,
 - Starling (*Sturnus vulgaris*): BoCC red status,
 - Swift (*Apus apus*): BoCC red status,
- 3.19 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 (1981) (as amended) and other priority species.

Other terrestrial mammals

- 3.20 The walkover included an assessment for the presence / suitability of badger (*Meles meles*), which includes signs of activity such as prints, hairs, digging, setts, 'runs' leading to and from a sett and the existence of latrines or 'snuffle' holes where badgers have foraged in the ground.
- 3.21 The site was also assessed for the presence / suitability of European hedgehog (*Erinaceus europaeus*) and other priority mammals.

Herpetofauna

- 3.22 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 newt (GCN) (*Triturus cristatus*). 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.*

- 3.23 Following current best practice considering the partial 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.
- 3.24 The site and surrounding habitats were also assessed relative to their potential to offer suitability for wider, generalist amphibians, in addition to GCN, for example common toad (*Bufo bufo*) and common frog (*Rana temporaria*).
- 3.25 The site and its surroundings were assessed for suitability for use by reptiles, with particular attention 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 lizard** (*Zootoca vivipara*) use a variety of habitats from woodland glades to heaths, walls and pastures, as well as brownfield sites.

- 3.26 In assessment of a site for reptiles several important habitat characteristics are considered, outlined in **Table 3.2** below, as derived from the Reptile Habitat Management Handbook (Edgar, 2010).

Table 3.2 – 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

- 3.27 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:

- Wood decay,
- Early successional mosaic habitat,
- Shaded ground layer,
- Still and flowing water.

Quality Assurance (QA)

- 3.28 The results, conclusions and recommendations of this report are based on a number of factors i.e.

- Skills and experience of the surveyors,
- Acknowledgement of the access constraints at the site and adopting a precautionary approach,
- Knowledge of flora and fauna relevant to the site location and geographical range,
- Nature of the immediate and surrounding habitat in relation to shelter, foraging and commuting opportunities.

- 3.29 Quality Assurance (QA) has been assessed by Mrs. K. Wilding, Director of Tyrer Ecological Consultants Ltd, and her assessment concurs with the findings and recommendations of the author and surveyor Mr. B. Richards.

4.0 Limitations

- 4.1 Significant access constraints are present at the site; no physical access was possible to the roof of the bunker / majority of the exterior of the site. To overcome these constraints, a UAV was utilised to ascertain the nature of the inaccessible habitats to the highest possible UK Habitats v2.0 level, as well as to look for evidence of priority fauna and flora on site.
- 4.2 This report does not contain a comprehensive list entailing the totality of botanical taxa on site. Species listed within **Appendix II** are recorded from a combination of the seasonal timing that the survey took place and botanical identification skills of the surveyors. Many plant species are only evident at certain times of the year; consequently, it is possible that some plant species may have gone undetected. In addition, assessing a full species composition from the UAV was not possible.
- 4.3 The optimal time of the year to carry out a preliminary ecological appraisal / UK Habitats survey is April to October; the survey was therefore carried out within a sub-optimal period.
- 4.4 The survey took place outside of both the active bat season and the breeding bird season; whilst sub-optimal, survey timing is not considered a constraint in this instance as evidence of both of these species is evident all year round and suitability can be assessed by a competent surveyors at any time of the year.
- 4.5 In considering possible survey constraints, access issues form a significant barrier to the collection of ecological information for the site during the diurnal appraisal. Whilst all feasible measures have been undertaken by the ecologist to overcome this access constraint, it is considered that a precautionary approach represents the most pragmatic route forward, safeguarding nature interest at the site as well as facilitating development of a disused and heavily vandalised structure.
- 4.6 The combination of the limited daytime survey data, the extensive desktop information gathered by the author and the precautionary approach are considered sufficient to form sound ecological conclusions.

5.0 Desk Study Results

- 5.1 The site is located to the west of Draw Well Road, approximately 12.5km north-east of Liverpool city centre. The site broadly comprises a former magazine bunker of concrete construction covered by secondary vegetative communities to its roof, with an estimated total area of 0.16 hectares (ha) (see **Figure 5.1** below for location of the site within the surrounding landscape).



Figure 5.1 – Location of red line boundary within surrounding landscape © Google Earth Pro 2024

- 5.2 In a historical context, the bunker appears to have been constructed prior to or during World War 2. Whilst the structure is not present on historical OS Maps, the Heritage Statement produced in support of the scheme suggests that the building has remained largely unaltered since it was constructed.
- 5.3 The immediate environment is entirely industrial in nature, with the site encompassed by the commercial and industrial premises of Knowsley Industrial Estate with minimal greenspace present. Isolated fragments of vegetated habitat such as trees, scrub and successional habitats on previously developed land are scattered across the landscape.
- 5.4 The extending environment is similar in part, with further areas of commercial and industrial land use to each direction. Beyond the industrial estate to the west are expanses of residential properties, though land use to the north and east is typically agricultural, interspersed with semi-natural woodland, rough grassland and features such as hedgerows and watercourses. To the south of the site is located Acornfield Plantation, a Local Wildlife Site (LWS) with expanses of priority deciduous woodland and priority lowland raised bog.

- 5.5 Linear features are lacking in the immediacy, though disconnected scattered trees and shrubbery along roadways does feasibly link the site to areas of more suitable habitat in the wider landscape. These features typically favour airborne organisms, with those most likely to be present including bats, such as the common pipistrelle (*Pipistrellus pipistrellus*) which are associated with roosting in built structures, as well as birds, such as house sparrow and starling.

Relevant planning history

- 5.6 The site itself has been subject to several previous planning applications, though these were undertaken in 1974 and as such are not considered relevant to the desk study.
- 5.7 Site surrounding habitats have undergone extensive alteration in the previous 10 years, as verified by the Knowsley Council 'Map Viewer' and historical site imagery, with extensive clearance of successional habitats such as scrub and woodland at neighbouring sites (Application Reference Numbers: **20/00114/DEMCON** & **21/00915/FUL**).

Designated sites

- 5.8 There is one statutory designated site for nature conservation within 2.0km of the site (see **Table 5.1** for details and **Figure 5.2** overleaf for a visual aid).

Table 5.1 – Statutory designation type and reason for designation within 2.0km buffer

Site name	Designation type	Interest features
Acornfield Plantation (0.7 kilometres south)	Local Nature Reserve (LNR)	A 12.26ha site for which the Natural England citation states: <i>"Predominantly mature broadleaf woodland of birch, oak and sycamore. The centre of the site has a lowland basin mire dominated by sphagnum moss and soft rush. Other habitats include a pond, stream, drainage channels, acidic and neutral grasslands, bracken and rhododendron thickets."</i>

- 5.9 The site lies outside of any Impact Risk Zones (IRZ) for designated sites in the surrounding landscape, and as such no further consultation with Natural England is required in this respect.
- 5.10 There are a number of non-statutory sites in the surrounding landscape, though the most notable in terms of spatial proximity is Charley Wood Site of Biological Interest (SBI) at a distance of 0.4km, which is designated for its range of priority habitats, both UK BAP and NMBAP, and 13 locally rare plant species.
- 5.11 Given the degree of separation and intervening dense commercial and industrial infrastructure, there is a minimal potential for the works to impact upon the non-statutory designated sites via surface run-off and dust, amongst others.

Habitats

- 5.12 An online search of MAGiC Maps identified the following priority habitats within a 2.0km search radius (see **Table 5.2** overleaf).

Table 5.2 – Priority habitats located within 2.0km buffer

Habitat Type	Designation	Distance to site
Deciduous woodland	Priority Habitat Inventory	0.3km south-east
Lowland fens	Priority Habitat Inventory	0.9km south
Lowland raised bog	Priority Habitat Inventory	1.2km north-east
Open mosaic habitat	UK BAP Priority Habitat	1.0km south-west

Vegetation

- 5.13 The site appears to be positioned within an area within a ‘moderate’ zone of the ‘summarised botanical value map 2022¹’ on MAGiC Maps 2024, indicating that the area is host to moderate numbers of Rare, Scarce and Threatened (RST) botanical species and/or has a proportion of species indicative of priority habitats.

Bats

- 5.14 An online search of MAGiC maps revealed that no European Protected Species Mitigation Licences (EPSML) have been granted within a 2.0km radius of the site (see **Figure 5.2** for a visual aid).
- 5.15 Tyrer Ecological Consultants Ltd have previous and ongoing projects involving bats within the 2.0 kilometre area surrounding the site – as such, the following biological data (see **Table 5.3** is readily available to the Ecologist from the company database – all data has been previously submitted to the LERC serving the area, which, in this case, is MEAS.

Table 5.3 – LERC submitted biological data records collected by Tyrer Ecological Consultants Ltd

Year	Distance from site	Context (where relevant)
2022	1.7km south-east	Common pipistrelle, soprano pipistrelle and noctule activity records

Birds

- 5.16 The site lies within multiple layers of bird interest on MAGiC Maps (2024), including the ‘*Arable Assemblage Farmland Birds ‘5’ layer*’ and ‘*Grassland Assemblage Farmland Birds ‘2’ layer*’, with corn bunting (*Emberiza calandra*), grey partridge (*Perdix perdix*), lapwing (*Vanellus vanellus*) and yellow wagtail (*Motacilla flava*) all having been recorded within the search range as indicated by their respective layers overlapping the site.

GCN

- 5.17 No EPSMLs in relation to GCN have been granted within a 2.0km search radius of the site (see **Figure 5.2** for a visual aid).
- 5.18 In addition, no GCN ‘Class Survey Licence Returns’ or GCN Pond Surveys (2017 – 2019) are present within the search radius.
- 5.19 No ponds were identified within the 2.0km search radius.

¹ Further information available [here](#)

Bunker 9–8, Draw Well Road, Kirkby, L33 7BJ
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Figure 5.2 –Designated site and priority habitat data for the area within 2.0 kilometres of the application site ©MAGic Maps 2024

6.0 Field Survey Results

6.1 Habitat survey

6.1.1 See **Table 6.1.1** (below) for baseline information and habitat descriptions; refer to **Appendix I** for any supporting imagery; additional scientific names are given in **Appendix II**. Refer to **Appendix IV** – UK Habitats Map for the location of described habitats & Target Notes (TN).

Table 6.1.1 – UK Habitat types within the survey area

Area habitat	Sec. Codes	Description
g Grassland	32 Scattered trees 81 Ruderal / ephemeral 86 Green roof 524 Invasive non-native species	These areas of the site constitute a successional grassland which appears to have developed over the concrete roof of the bunker structure present on site; an exact species composition could not be ascertained due to the access limitations as described previously, and as such the grassland has not been taken past Level 1 of the UK Habs code. Confirmed species present include a fescue (<i>Festuca spp.</i>), a stonecrop (<i>Sedum spp.</i>) and large swathes of bryophyte cover, though it was not possible to determine the species present. Wall cotoneaster INNS (<i>Cotoneaster horizontalis</i>) is present across much of the parcel along with butterfly-bush (<i>Buddleja davidii</i>), as well as a number of scattered immature trees, with birch (<i>Betula spp.</i>) and a number of other specimens whose species were not able to be confirmed.
h3d Bramble scrub	32 Scattered trees 81 Ruderal / ephemeral 86 Green roof 524 Invasive non-native species	Areas of dense scrub dominated entirely by bramble (<i>Rubus fruticosus agg.</i>) with occasional rosebay willowherb (<i>Chamaenerion angustifolium</i>) and hawthorn (<i>Crataegus monogyna</i>) occur along the eastern boundary of the site and in the north-western corner. These parcels feature scattered immature tree species such as birch and ash (<i>Fraxinus excelsior</i>), as well as introduced species including butterfly-bush, and stands of wall cotoneaster INNS. Further species identified include broom (<i>Cytisus sp.</i>) and common & Atlantic ivy (<i>Hedera helix s.l.</i>).

Area habitat	Sec. Codes	Description
u1 Built up areas and gardens	32 Scattered trees 81 Ruderal / ephemeral 86 Green roof 524 Invasive non-native species 847 Introduced shrub	A large portion of the site constitutes introduced shrub, dominated by Himalayan cotoneaster INNS (<i>Cotoneaster simonsii</i>) and wall cotoneaster INNS . Ground cover appears to be a mix of bryophytes, sedums and grasses, though this could not be confirmed.
u1b6 Other developed land	510 Bare ground	The entrance to the bunker comprises sealed surface hardstanding, which is somewhat degraded, though minimal vegetation is present. Parts of this area full of litter and other waste items, and it has negligible value for wildlife.

6.2 Vegetation

Notable species

- 6.2.1 No species of conservation importance were located anywhere within the site during the appraisal.

Invasive non-native species (INNS)

- 6.2.2 Two species listed under Schedule 9 (Part II) of the Wildlife & Countryside Act (1981) were identified on site; namely Himalayan cotoneaster (*Cotoneaster simonsii*) and wall cotoneaster (*Cotoneaster horizontalis*). Both of the species appeared to be widespread across the site.

6.3 Bats

- 6.3.1 A single structure is present on site; a large WWII bunker of reinforced concrete construction which is currently unoccupied, though has been utilised previously as a storage facility as well as hosting a woodworking business. The building is entirely built of concrete and is considered to underlie the entirety of the plot. Externally it is almost entirely vegetated, with limited features able to be visually inspected; these include a thick concrete retaining wall to the east of the structure, as well as a large entry way which is covered by thick timber doors to the north. In respect of its condition, whilst the surveyor is not qualified to assess structural state, the aesthetic condition was noted to be poor.
- 6.3.2 Internally, the building features a large, interconnected space which has been used partially for manufacturing and partially for storage in the past, featuring smooth, reinforced concrete walls with a distinct lack of crevice features. The space is cool, damp and dark with no light ingress to the space. The building is currently being used to store diesel for nearby manufacturing firms, and the smell of this is evident throughout with diesel spills on the floor. Recent vandalism and anti-social behaviour has exacerbated the number of spills, and has also increased disturbance.

- 6.3.3 Based on the above, the building is considered unsuitable for both crevice and loft-dwelling species within the active season, with thermal characteristics inconsistent with the preferences for these bat species.
- 6.3.4 Externally, no potential roosting features were identified by the surveyors.
- 6.3.5 The atmospheric conditions within the bunker are considered to more closely align with the thresholds for a hibernation roost, and as such the structure has been considered against this. Whilst the conditions are confirmed to align with hibernation requirements, being cool, damp and dark, the levels of disturbance alongside the diesel fumes are considered to reduce the likelihood of bats using the space for hibernation. In addition, the smooth polished concrete provides a poor quality roosting platform, with minimal grip for the bats' fine claws to affix to. The polished, light coloured nature of the concrete meant that a conclusive search for bats or evidence of bats was able to be carried out by the surveyors during the hibernation season, with no evidence of use identified.
- 6.3.6 With the above in mind, the structure is considered to offer '**Negligible**' bat roost suitability in accordance with Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4th ed. (2023).
- 6.3.7 Whilst there are several immature tree specimens present on the roof, none of these were able to be conclusively assessed in relation to their potential to offer roosting suitability for bats, given the access limitations as described. Whilst their immature nature means that the presence of suitable PRFs is unlikely, they cannot be fully ruled out as decay features can develop on trees of any size.
- 6.3.8 The trees are therefore categorised as '**FAR**' in accordance with Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4th ed. (2023).
- 6.3.9 From a habitat suitability assessment, the site likely forms one of the last suitable foraging areas within Knowsley Industrial Estate, with significant clearance across the estate having been undertaken across recent years. Taller vegetation such as the scattered trees could support favoured invertebrate prey, and successional sedum / bryophyte / grassland communities can support high diversity of invertebrate species including those preferred by bats. Linear features do loosely link the site to areas of woodland in the surrounding landscape, and it is feasible that bats may occasionally commute to the site from the agricultural land to the east.

6.4 **Birds**

- 6.4.1 In relation to WCA Schedule 1 specially protected bird species such as barn owl (*Tyto alba*), no areas suitable for nesting were identified by the surveyors, with an absence of built or natural features suitable for usage by this species. Surrounding land is considered unsuitable for this, and other Sch.1 raptors and their presence is considered highly unlikely.
- 6.4.2 The range of taller vegetation within the site could provide suitable nesting platforms for a number of more common bird species during the nesting bird season of March – August inclusive, and given the extensive clearance which has taken place in the site surrounding habitat, it likely forms a locally notable nesting and feeding habitat for these species.

6.5 **Other terrestrial mammals**

Badger & hedgehog

- 6.5.1 No field signs of badger, such as latrines, pathways, hairs, footprints, or feeding signs, for example snuffle holes and scratched trees / logs, were located within the site boundary. Given

the dense industrial surrounding habitats, the presence of this species within the site is considered highly unlikely.

- 6.5.2 Whilst no direct evidence of hedgehog was identified, the lack of significant barriers to commuting and the ability of this species to exist even in dense residential and industrial areas means that its presence for commuting, foraging, and refuge purposes cannot be ruled out.

6.6 Herpetofauna

Great crested newt (GCN)

- 6.6.1 Important elements to consider when assessing likely impacts against GCN includes:

- The scale, nature and magnitude of proposals,
- Site proximity to a potential breeding pond and to any additional ponds,
- Habitat linkage / barriers between potential breeding ponds and the site,
- Nature and extent of available terrestrial habitat around the pond,
- Area of site habitat loss,
- Nature of habitat to be lost and potential value to GCN,
- Most up to date Government guidance considering EPS.

- 6.6.2 As derived from the desktop assessment, no evidence of GCN is present in the locale.

- 6.6.3 In addition, no ponds are present within a 250m buffer.

- 6.6.4 In a terrestrial contextual assessment, the site could provide suitable refuge areas, though the degree (>250m) and nature (dense industrial development) of the spatial separation between the site and any waterbodies means the chance of GCN being present is negligible.

Wider amphibians

- 6.6.5 Whilst the site is formed of successional scrub and scattered trees, providing potentially suitable refuge areas, given the isolated nature of the site in relation to water bodies the chance of even more common amphibians on the site is considered unlikely.

Reptiles

- 6.6.6 The site itself provides a number of suitable habitats for reptiles, with open basking areas, south facing slopes, and a small-scale mosaic of ecotones between scrub and grassland habitats. Despite this, the presence of reptiles within the site boundary is considered unlikely, given the dense industrial development surrounding the red line boundary and high disturbance of the area.

6.7 Invertebrates

- 6.7.1 The mosaic of bryophyte cover, grassland and scrub on site provides potentially suitable habitat for a number of invertebrate species, and the site is likely of high value locally given the large-scale development works which have been undertaken in the vicinity. The presence of specially protected invertebrates is however considered unlikely.

7.0 Conclusions & Recommendations

Designated sites

- 7.1 The site lies outside of any Impact Risk Zones (IRZ) for designated sites in the surrounding landscape, and as such no further consultation with Natural England is required in this respect.
- 7.2 There are a number of non-statutory sites in the surrounding landscape, though the most notable in terms of spatial proximity is Charley Wood Site of Biological Interest (SBI) at a distance of 0.4km; impacts to this site as a result of the proposed development are considered negligible to absent.

Habitats

- 7.3 Whilst no priority habitats were identified on site by the surveyors, the nature of the access limitations mean that it was not possible to formally categorise the grassland to level 3 or greater. The dense bryophyte cover could be indicative of rarer grassland types associated with acidic substrates which can sometimes be found in urban waste and brownfield sites, though this could not be verified.
- 7.4 Given the presence of bryophyte and sedum, it is recommended that any loss of grassland is suitably mitigated for with a green / brown roof above the redeveloped structure; should a Biodiversity Net-gain assessment be requested by the LPA to accompany the application, implementation of this or other such mitigation would likely form a material part and would be secured through a Section 106 agreement or other such legally binding conservation covenant.
- 7.5 Any landscaping should look to incorporate native species as discussed in **Appendix III**.

Vegetation

- 7.6 No priority vegetative species were identified on the site by the surveyors during the diurnal appraisal to warrant any specific intervention measures.
- 7.7 Two INNS were identified on site by the surveyors: Himalayan cotoneaster and wall cotoneaster. Whilst it is not illegal to host any species identified as INNS within a site, it is an offence, under current legislature, to knowingly permit the spread of INNS beyond the confines of your site to the countryside or neighbouring plots, either via allowing it to grow unchecked or through the irresponsible removal and dumping of waste.
- 7.8 Given the high density of these species within the site boundary, a precautionary working method statement is recommended to be implemented prior to the commencement of development operations which includes eradication, biosecurity protocol and a specification that all spoil taken off site is treated as controlled waste and disposed of at a landfill authorised to accept INNS refuse.
- 7.9 Any landscaping or planting carried out during the works should consider local soil types and habitats, and as such should prioritise native species which will better tolerate the soil type present on site and provision for faunal species present in the immediacy.

Bats

- 7.10 Based upon the findings of the DBW and associated PRA, covered through sections 5.0 – 6.0 of the report and supported by **Appendix I**, the bunker on site is considered to offer 'Negligible' bat roost suitability in accordance with Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4th ed. (2023).

- 7.11 The above assessment is considered to encompass usage in both the active season as well as for hibernation purposes.

Table 4.1. Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement.		
Potential suitability	Description	
	Roosting habitats in structures	Potential flight-paths and foraging habitats
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats).
Negligible*	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.

Figure 7.1 – BCT extract on ‘Negligible’ suitability criteria

- 7.12 In relation to the immature trees on site, it is recommended that a precautionary approach be enacted. Tree loss should be avoided wherever possible, though if necessary to facilitate the works then they should be investigated prior to felling for any wounds or areas of decay which could harbour bat(s) or their roosts. If any PRFs are observed, then an ecologists advice should be sought prior to any tree works.
- 7.13 Bats are a transient species group and both buildings and trees can develop PRFs, over time or following periods of damaging weather. Should the planning application be subject to an extensive time delay (typically 12 – 18 months), then an updated diurnal assessment should be carried out to assess the ecological status of the site, and whether any significant changes have occurred.
- 7.14 In the highly unlikely event that bat(s), or evidence of bat(s), are found during any works within the red line boundary, then, as a legal requirement, the work at the site should immediately cease and an Ecologist should be contacted for further advice. If bat(s) or their roost(s) will be affected, then an EPSML may be required to legally commence with the works. See **Figure 7.2** below for indicative evidence of bats.



Figure 7.2 – Indicative evidence of bats: droppings on the left / a common pipistrelle bat on the right

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

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

- All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used.
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white light source (2700Kelvin or lower) should be adopted to reduce blue light component.
- Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).
- Internal luminaires can be recessed (as opposed to using a pendant fitting) where installed in proximity to windows to reduce glare and light spill.
- Waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges.
- Column heights should be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards.
- Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered - See ILP GN01.
- Luminaires should always be mounted horizontally, with no light output above 90° and / or no upward tilt.
- Where appropriate, external security lighting should be set on motion-sensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2 minute timer is likely to be appropriate.
- Use of a Central Management System (CMS) with additional web-enabled devices to light on demand.
- Use of motion sensors for local authority street lighting may not be feasible unless the authority has the potential for smart metering through a CMS.
- The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where the lighting professional and project manager are able to resolve these issues.
- Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely.

Birds

- 7.16 No impacts are applicable in relation to any Sch.1 (WCA) specially protected raptor species such as barn owl, and no further surveys or recommendations are necessary in relation to specially protected birds, with no viability of nesting within the site boundary.

- 7.17 Regarding wider breeding bird species, there are a range of viable nesting platforms within the site boundary, including the taller vegetation and scrub, all of which could provide suitable nesting locations within the nesting bird season of March – August, inclusive.

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.*

- 7.18 Given that all birds are protected when at the nest, it is recommended that any vegetation clearance works on site are carried out outside of the breeding bird season (March – August inclusive). For any works within the breeding bird season, a pre-commencement check of any impacted habitats able to support nesting birds (inclusive of the hedgerow, trees, taller vegetation and structures) will need to be carried out by a suitably qualified ecologist / ornithologist in order to determine whether or not active nests are present. This will need to be carried out within 48 hours or less prior to works commencing.

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

- 7.19 Where / if active nests are located by the Ecologist, then any works which may affect them would have to be delayed until the young have fledged and the nest has been abandoned naturally, this can be aided, for example, via implementation of appropriate buffer zone(s) around the nest site (species dependent) 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.
- 7.20 Given the limited availability of such foraging and nesting habitat in the area, the application site is likely one of the last remaining areas suitable these behaviours in the Knowsley Industrial Estate, and the scheme should consider enhancement in the form of nest boxes and suitable food plants for bird species known to exist in proximity to the site.

Other terrestrial mammals

Badger & hedgehog

- 7.21 The location of the site indicates that the chance of badger being present is highly unlikely, even on an occasional basis. No further recommendations are made for this species.
- 7.22 There is a low chance that hedgehog could occur within the site boundary, despite the heavily developed nature of the surrounding area. A programme of Reasonable Avoidance Measures (RAMs) should be enacted at the site to safeguard this species.

Herpetofauna

Great crested newt (GCN)

- 7.23 Given the lack of a viable pond network surrounding the site, it is considered that the likelihood of GCN utilising the site in any form is negligible. No further surveys or recommendations are made in relation to this species.

Wider amphibians

- 7.24 Taking into account the lack of a pond network within proximity to the site, it is unlikely that even more common, robust amphibians would utilise the site. However, purely as a

precautionary measure, the RAMs discussed previously for hedgehog should be extended at the site to also safeguard common amphibians.

- 7.25 Should any frogs or toads be encountered within the works area, they should be handled with wet gloves to prevent impact / injury and moved to an area of like for like habitat outside of the works area away from potential harm.
- 7.26 The applicant and all contractors would be aware that if at any stage newts are encountered during works, or at any other stage of the programme of works, such works would be required to immediately cease and the Ecologist / ECoW would be made aware as to provide further guidance, if an Ecologist is not already present.
- 7.27 Where it is discovered GCN would be impacted by the proposals, a development licence (options include District level licence, traditional development mitigation licence, low impact class licence or other) informed by survey data, and a suitable mitigation strategy may be required to legally proceed with the works. In some cases, a licence may not be necessary where risks can be avoided, minimised or mitigated for through RAMs, 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 unlikely to result in an offence being committed.

Reptiles

- 7.28 Whilst isolated from a wider ecological network of suitable habitat, the habitats present within the site boundary as described provide suitable habitat for reptiles. Whilst the chance of this taxon being present is low, they cannot be entirely ruled out, given the access limitations. The RAMs above should be further extended to safeguard reptiles.

Invertebrates

- 7.29 The site is likely valuable on a local level for invertebrates, and as such the scheme should consider enhancement, either in the form of the aforementioned green / brown roof which could recreate habitats present currently, or via provisions such as insect hotels / bee bricks (see **Appendix III**).

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Appendix I: Site Photographs



Plate 1 – *Northern entrance to the bunker*



Plate 2 – *Character of the bunker as viewed from Draw Well Road to the east*



Plate 3 – *Looking north from the southern site boundary, note scattered trees*



Plate 4 – *Note high bryophyte and sedum cover, alongside cotoneaster visible*



Plate 5 – *Nature of the interior of the bunker*



Plate 6 – *Nature of the mosaic of scrub and grassland within the red line boundary*



Plate 7 – *Eastern site boundary viewed from Draw Well Road*

Appendix II: Botanical Species List

Species nomenclature follows Stace, C (2019) – definitive English names; scientific names for given flora are presented below.

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

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

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

(*These values can be prefixed by the letter L (locally) to provide more subtle biogeographical data.)

Common Name	Scientific Name	Abundance
Ash	<i>Fraxinus excelsior</i>	R
Birch species	<i>Betula spp.</i>	O
Bramble	<i>Rubus fruticosus</i> agg.	LD
Broom species	<i>Cytisus sp.</i>	R
Butterfly-bush	<i>Buddleja davidii</i>	O
Common & Atlantic Ivy	<i>Hedera helix</i> s.l.	LA
Fescue	<i>Festuca spp.</i>	A
Hawthorn	<i>Crataegus monogyna</i>	R
Himalayan Cotoneaster INNS	<i>Cotoneaster simonsii</i>	O
Holly	<i>Ilex aquifolium</i>	R
Rosebay Willowherb	<i>Chamaenerion angustifolium</i>	O
Stonecrop	<i>Sedum spp.</i>	F
Wall Cotoneaster INNS	<i>Cotoneaster horizontalis</i>	A

Appendix III: Biodiversity Enhancement: General Recommendations

Bats

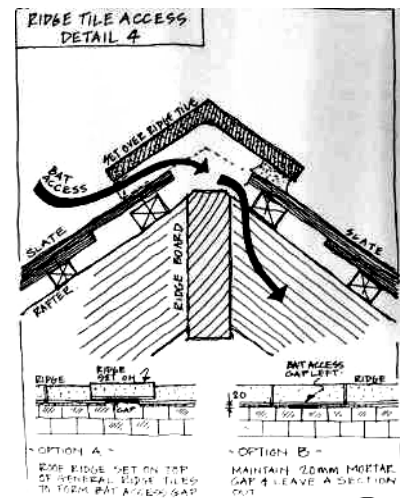
Integrated bat box

The Habibat Bat Box is a solid box made of insulating concrete with internal roosting space. The box blends seamlessly into brick-built properties and may be incorporated into the fabric of buildings, being best placed on gable elevations.



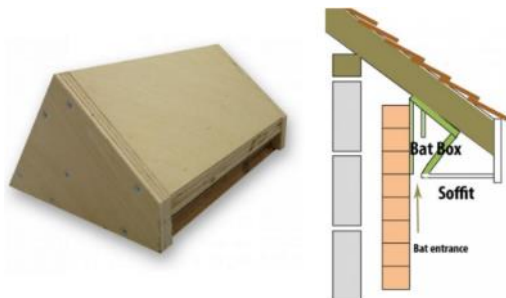
Ridge access

Where appropriated, ridge tile access should be made with the incorporation of traditional Bitumen 1F underfelt immediately beneath ridge tiles. Breathable BRM membrane can cause significant problems where bats are in contact with it, whereby their fine claws become entangled within the fibres of the membrane, entrapping and killing bats.



Soffit access

Where soffits are instated at gable elevations, roost provision may be instated in the form of a soffit bat box with internal roosting space.



Externally fitted boxes

A large number of externally fitted box models for bats exist for buildings and trees. Suitable models for both buildings and trees may include the Eco Kent Bat Box.



Breeding Birds – House Sparrow

The sparrow terrace has been designed to help redress the balance of falling house sparrow numbers. The current UK population is now half of what it previously was in 1980 and this is widely attributed to habitat destruction and lack of suitable nesting spaces. House sparrows are social birds and like to nest in company, therefore, this terrace provides ideal nesting opportunities for three families. The terrace can be fixed on to the surface of a suitable wall or incorporated into the wall. It is suitable for all types of buildings.



Breeding Birds – Other

This traditional design has proved to be highly effective in attracting robins, as well as other small 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.



Hedgehog Home

Exterior quality 12mm resin bonded ply. The box remains untreated on the inside. Best situated in a quiet corner of the garden, and covered with leaves and other garden debris. Removable lid for cleaning purposes and reinforced corners, manufactured with surface sunk nails to resist rusting.

Nest box size: Height 22cm x Width 38cms x Length 47cm



Environmentally positive: Direct action to help hedgehog survival rates, encouraging biodiversity; FSC timber; Zero carbon footprint in use.

Invertebrates – Insect Hotels

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.



Invertebrates – Bee bricks

The Bee Brick can be used in place of a standard brick or block in construction to create habitat for solitary bees. Alternatively, it can be used as a standalone bee house in your garden or wild patch. It will provide much needed nesting space for solitary bee species such as red mason bees and leafcutter bees, both of which are non-aggressive.



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

Specification

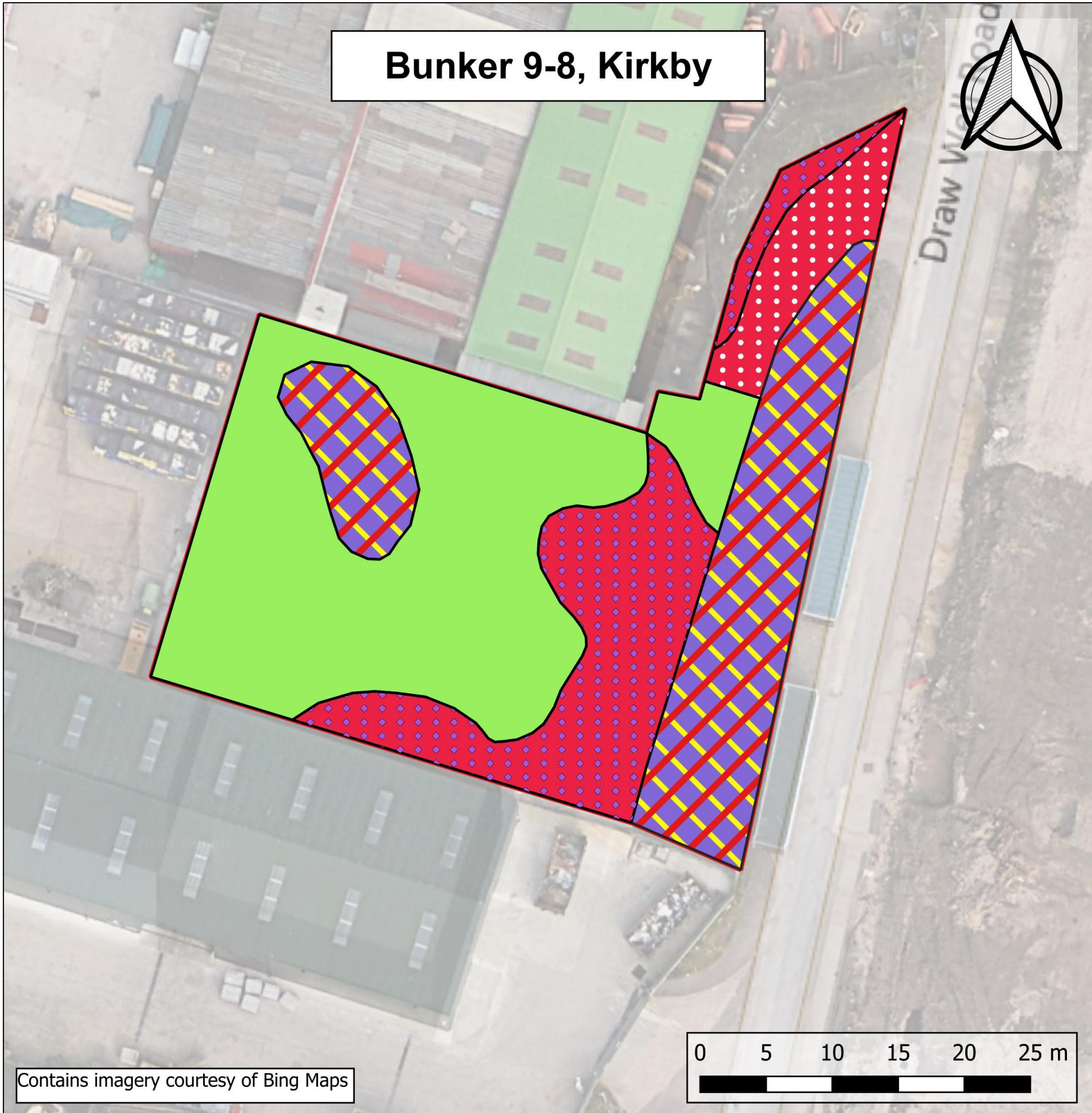
- * Material: Concrete
- * Dimensions: W 215mm x D 105mm x H 65mm
- * Weight: 2.9kg
- * Colours: White grey, yellow, dark grey and red

Native Planting and/or Landscaping

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. New hedgerows should be primarily comprised of blackthorn, hawthorn, hazel, and holly, whilst climbers/creepers such as hops and honeysuckle can be planted at the base of boundary features such as fences and walls, and new tree planting should include species such as pedunculate oak, wild cherry, and alder buckthorn.

Bunker 9–8, Draw Well Road, Kirkby, L33 7BJ
Preliminary Ecological Appraisal

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



UK Habitats Key	
	g - Grassland
	32 - Scattered trees
	81 - Ruderal / ephemeral
	86 - Green roof
	524 - Invasive non-native species
	h3d - Bramble scrub
	32 - Scattered trees
	81 - Ruderal / ephemeral
	86 - Green roof
	524 - Invasive non-native species
	u1 - Introduced shrub
	32 - Scattered trees
	81 - Ruderal / ephemeral
	86 - Green roof
	524 - Invasive non-native species
	u1b6 - Other developed land
	510 - Bare ground
	Red Line Boundary

Survey Date: 15/02/2024
Drawn: Mr. J. Pescod
Date Drawn: 07/03/2024
Checked & Approved: Mrs. K. Wilding
Size: A3
Scale: 1:400

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