



**Former Charters Garage, Oxford Road, Tilehurst,
Reading, Berkshire RG31 6TQ**

**Ecological Impact Assessment
& Biodiversity Net Gain Assessment**

September 2024

on behalf of Maxika Homes

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1 Executive Summary

Site Details	The Former Charters Garage is located to the north of Oxford Road, in Tilehurst, Reading, Berkshire RG31 6TQ. The approximate Ordnance Survey grid reference for the site is SU 672 753.
Proposals	The proposals are for redevelopment of the site for residential use including the creation of four blocks of flats with associated parking and landscaping.
Methodology	An extended UKHab survey and Initial Bat Survey & Preliminary Roost Assessment were undertaken on 21 st August 2024. A Biodiversity Net Gain Assessment was conducted.
Evaluation	- The site comprises a former garage with three associated buildings (developed land; sealed surface), other developed land; sealed surface and vacant or derelict land. There is one tree within the site. - All habitats on site are of negligible or site value only. - All buildings are assessed as having 'negligible' potential to offer shelter to bats (Collins, 2023). - The lime tree is assessed as having 'FAR' potential to offer shelter to bats (Collins, 2023), but will be retained.
Potential Impacts	- The proposed development will result in the impact to developed land; sealed surface and vacant or derelict land. There are no foreseeable ecological impacts beyond the site level. There are no impacts on habitats of principal importance or irreplaceable habitats. - New external lighting within the site has the potential to adversely affect bat behaviour. - Based on the proposal plans and using the Statutory Biodiversity Metric, the site is predicted to have a: Total net unit change in habitats: +0.19 Total net % change in habitats: +70.67%
Recommendations	Avoidance of external lighting, or the sensitive design of external lighting, is also recommended with regard to bats. Landscape planting has been designed to include native/local planting and the erection of birds nesting, bat roosting and bee brick features is recommended.

2 Introduction

2.1 Site Description & Context

The Former Charters Garage, referred to as the 'site' within this report, is located to the north of Oxford Road, to the northern side of Tilehurst, a suburb of Reading, in Berkshire RG31 6TQ. The approximate Ordnance Survey grid reference for the site is SU 672 753.

The site comprises a former garage with three associated buildings (developed land; sealed surface - buildings), surrounded by hard-standing (developed land; sealed surface – other developed land) and vacant or derelict land. One individual tree is located within the south-eastern corner of the site.

To the north and east there is a tree line which is adjacent to the railway connected to Tilehurst Railway Station and the River Thames further north. To the south and west, there are residential dwellings with associated gardens interspersed with roads. The wider landscape is characterised by residential development within the northern edge of Tilehurst with habitats such as amenity parks and roads interspersed.

2.2 Proposed Works

The proposals are for redevelopment of the site for residential use including the creation of four blocks of flats with associated parking and landscaping.

See Appendix 5 for a proposal plan.

2.3 Aims of Study

The aims of this study are to describe and evaluate the habitats present within the site and to assess the potential for the site to support protected and notable species. The habitats are evaluated, and the report discusses the potential impacts of the proposed development on the ecology of the site and protected/notable species. Recommendations are made for appropriate mitigation & compensation measures in light of the impact assessment.

In addition, the study aims to assess and quantify the ecological impact of the proposals, with regard to overall net gain or net loss in biodiversity. The Statutory Biodiversity Metric is used as a tool to inform the assessment of biodiversity net gain, comparing the baseline habitat conditions with the proposed development/habitats.

2.4 Biodiversity Statement

2.4.1 Exemption

As the proposed development does not fall into a category of exemptions (<https://www.gov.uk/guidance/biodiversity-net-gain-exempt-developments>), the planning application for this project is subject to Statutory Biodiversity Net Gain (BNG), as defined under Schedule 7A of the Town and Country Planning Act 1990 (as inserted by Schedule 14 of the Environment Act 2021).

Developers must deliver a BNG of at least +10%. This means a development will result in more, or better quality, natural habitat than there was before development.

2.4.2 Pre-development Biodiversity Value of On-site Habitats

The pre-development biodiversity value of the on-site habitats is as follows:

- Habitat Units: 0.27
- Hedgerow Units: N/A
- Watercourse Units: N/A

2.4.3 Date the On-site Pre-development Biodiversity Value was Calculated

21st August 2024.

2.4.4 Version of the Biodiversity Metric

Statutory Biodiversity Metric.

2.4.5 Version of the Biodiversity Metric Publication Date

12th February 2024

2.4.6 Supporting Documentation

- I. Biodiversity Metric calculation – provided in Excel format as Appendix 7 to this report. Results as follows:

The result of the calculation predicts a net gain in biodiversity.

Total net unit change in habitats: +0.19

Total net % change in habitats: +70.67%

Total net unit change in hedgerows: +0.85

Total net % change in hedgerows: N/A

Total net unit change in watercourses: N/A

Total net % change in watercourses: N/A

The Trading Rules are satisfied.

- II. Onsite irreplaceable habitats – not applicable
- III. Onsite habitats existing on the date of the application for planning permission, see Table 1.

Table 1. UKHab habitats existing on the date of the application for planning permission.

Primary Code	Additional Codes	Description
u1b5	-	Developed land; sealed surface (buildings)
u1b6	82, 32	Developed land; sealed surface (other developed land) with vacant or derelict land and scattered trees.
g4	32	Modified grassland with scattered trees.

2.4.7 Loss of On-site Habitats

There has been no loss of on-site habitats prior to the submission of the planning application.

Does the pre-development biodiversity value and date used above factor in the loss of any onsite habitat because of activities carried out before the submission of this application? – not applicable.

2.4.8 Irreplaceable Habitats

There are no irreplaceable habitats within the site.

3 Methodology

3.1 Desk Study

The Thames Valley Environmental Records Centre (TVERC) was contacted in August 2024 to gather records that it holds for protected and notable species, and non-statutory sites of nature conservation importance from within a 1km radius of the site.

The Multi-Agency Geographic Information for the Countryside (www.magic.gov.uk) website was searched for information regarding internationally protected sites (e.g. Special Areas of Conservation) within 5km of the site and statutory sites of nature conservation importance (e.g. Sites of Special Scientific Interest) within a 1km radius.

Other Internet resources interrogated as part of the desk study include:

- Google Earth Pro
- Old Maps - www.old-maps.co.uk
- Where's the path - <https://wtp2.appspot.com/wheresthepath.htm>

Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 was consulted to gather information pertaining to priority habitats and species for conservation action at the national and local level.

Aerial photography interpretation was used to place the site into an ecological context and to provide information on the nature of the habitats beyond the site boundary. The information gathered is used to provide a baseline to the habitat assessment.

3.2 Field Surveys

3.2.1 Extended UKHab Survey

An extended field survey, using the UK Habitat Classification (UKHab) system, was undertaken on the 21st August 2024 by Reuben Hayden *MSc AC/IEEM*. The field survey technique used is detailed in the UK Habitat Classification User Manual (Butcher, Carey, Edmonds, Norton, & Treweek, UK Habitat Classification Manual Version 1.1, 2020).

Where possible, prior to carrying out the field survey, on-site habitats were identified using MAGIC website and Google Earth Pro satellite imagery. These sources were reviewed to identify an appropriate spatial resolution for habitat mapping, as the UKHab system has been designed to function at two scales: fine scale (25m² and 5m length) and large scale (400m² and 20m length). If a project requires the detailed mapping of small features and where habitats could be very fine grained it is recommended that surveyors use the fine-scale MMU which is 25m² and 5m in length. Therefore, for the purposes of this survey it is considered that the fine-scale minimum mapping unit (MMU) is appropriate.

The MAGIC website and Google Earth Pro satellite imagery were also used to determine whether there are known or possible locations for rare and/or habitats of high nature conservation importance.

The UKHab system comprises a five-level Primary Habitat Hierarchy and a list of Secondary Codes, the latter is divided into Essential codes and Additional Codes. It is mandatory that each recorded habitat parcel (which can be a point, line or polygon using geospatial vector data terminology) is allocated a single Primary Habitat Code and to record the presence of all Essential Secondary Code features associated with that habitat parcel. Additional Secondary Codes can also be associated with habitat parcels, where it is relevant to the whole parcel. The UKHab system recommends that up to six Secondary Codes can be allocated to a single habitat parcel.

The UKHab system includes all habitat types identified in the UK, irrespective of scale and geographic range, including all habitats listed under Section 41 of the NERC Act 2006 and all Habitats Directive Annex 1 habitats recorded in the UK. Where possible, synonyms for UKHab habitats in other major habitat classifications are provided in the definitions.

The UK Habitat Classification Version 2.0 has been used (UKHab Ltd, 2023), with the use of Level 3 to 5 Primary Habitats and Secondary Codes. Primary Habitats and Secondary Codes follow the UKHab Definitions listed in the aforementioned document. The Secondary Codes selected are appropriate to the site and habitats recorded.

Target notes were also prepared on features of particular ecological interest and an assessment was made of the site's potential to support protected and notable species (such as species listed under Section 41 of the NERC Act 2006) as well as invasive species (listed on Schedule 9 of the Wildlife & Countryside Act 1981).

3.2.2 Initial Bat Survey & Preliminary Roost Assessment (Buildings & Trees)

An Initial Bat Survey and Preliminary Roost Assessment (PRA) of the buildings and trees were also undertaken on 21st August 2024 by Reuben Hayden *MSc ACIEEM*.

Mr Hayden holds a licence from Natural England to survey for bats within all counties of England (Licence No. Level 1 2021-54302-CLS-CLS) and has over 4 years of experience surveying bats.

A detailed internal and external survey of the buildings was undertaken using a 1 million candle-power torch in order to look for bats and/or evidence of bats and to assess the potential of the buildings to support roosting bats. Internal rooms, loft spaces (if present) and external elevations were inspected for evidence of bats including, bat droppings, urine stains, feeding remains (such as moth wings) and characteristic fur staining around access points.

The bat survey was undertaken according to best practice guidelines published by the Bat Conservation Trust (Collins, 2023) and the Bat Workers Manual (JNCC, 2012).

The study also takes into account the nature of the buildings and the ecological context of the site, including the following factors which may increase the likelihood of roosting bats being present (Collins, 2023):

- Age of the building (pre-20th Century or early 20th Century construction)
- Nature of construction; traditional brick, stone or timber construction
- Large and complicated roof void with unobstructed flying spaces
- Large (>20 cm) roof timbers with mortise joints, cracks and holes
- Entrances and gaps for bats to fly and crawl through
- Poorly maintained fabric providing ready access points for bats into roofs, walls; but at the same time not being too draughty and cool
- Roof warmed by the sun, south-facing roofs in particular
- Weatherboarding and/or hanging tiles with gaps
- Undisturbed roof voids
- Buildings and built structures in proximity to each other providing a variety of roosting opportunities throughout the year
- Buildings or built structures close to good foraging habitat, in particular mature trees, parkland, woodland or wetland, especially in a rural setting

The following criteria are used to determine the level of 'bat roost potential suitability' within buildings (Collins, 2023):

Potential Suitability	Roosting Habitats in Structures
None	No habitat features on site likely to be used by any roosting bats at any time of the year.
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.
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 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).
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity or hibernation).
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 and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.

In addition to the buildings, any trees within the site were assessed for their potential to shelter roosting bats following Good Practice Guidelines (Collins, 2023). The survey was undertaken from ground level, with trees inspected for potential roost features, using binoculars as necessary.

Potential roost features (PRFs) that may be used by bats include (Collins, 2023):

PRFs Formed by Disease and Decay	PRFs Formed by Damage	PRFs Formed by Association
- Woodpecker holes - Squirrel holes - Knot holes - Pruning cuts - Tear outs - Wounds - Cankers - Compression forks - Butt rots	- Lightning strikes - Hazard beams - Subsidence cracks - Shearing cracks - Transverse snaps - Welds - Lifting bark - Desiccation - Fissures - Frost cracks	- Fluting - Ivy

The following criteria are used as guidelines for assessing the potential suitability of trees for bats (Collins, 2023):

Suitability	Description of Roosting Habitats
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.

Suitability	Description of Roosting Habitats
PRF	A tree with at least one PRF present. The definition of PRF types is below: 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.

Where the possibility that bats are present cannot be eliminated or evidence of bats is found during the PRA survey, then further surveys (such as PRF aerial inspection, winter hibernation, presence/absence and/or roost characterisation) are likely to be necessary if impacts on the roosting habitat (or the bats using it) are predicted.

In addition to the bat survey, the buildings and trees were checked for evidence of nesting birds including old birds' nests, bird droppings, feathers and eggs.

3.3 Evaluation Methodology

The evaluation of habitats follows the geographic frame of reference presented within the *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* version 1.1 (CIEEM, 2018).

The Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines recognise that ecological evaluation is a 'complex and subjective process' but provides key considerations to apply when 'applying professional judgement to assign values to ecological features and resources'. These include consideration of geographic frame of reference; site designations and features; biodiversity value; large populations or important assemblages of species; potential or supporting value; social value and economic value.

Focusing on assessments of biodiversity value, there are various characteristics that can be used to identify ecological resources or features that are likely to be important in terms of biodiversity. These include:

- Rare or uncommon species in the local, national or international context;
- Endemic or locally distinct sub-populations of a species;
- Species on the edge of their distribution;
- Notably large populations of animals or concentration of animals considered uncommon or threatened in a wider context;
- Species, rich assemblages of plants or animals;
- Ecosystems and their component parts, which provide the habitats required by the above species, populations and/or assemblages;
- Plant communities (and associated animals) considered typical of valued natural/semi-natural vegetation types; and
- Habitat diversity, connectivity and/or synergistic associations.

In this report, habitats are assigned to a value relating to their geographic frame of reference, using the following scale:

- International
- UK

- National (England)
- Regional (South East)
- County (Berkshire)
- District (Reading Borough)
- Local or parish (Tilehurst)
- Immediate zone of influence of the site (Site)
- Negligible

Regarding protected and notable species, an assessment of habitat suitability and potential presence of species has been undertaken, given the results of the desk study and field survey.

3.4 Biodiversity Net Gain Assessment

A Biodiversity Net Gain Assessment was conducted, using the Statutory Biodiversity Metric published by DEFRA (February 2024), to calculate the impact of the proposed development on biodiversity. The calculation also ascertains whether the proposals achieve a net gain, a net loss or no net loss in biodiversity, calculated as biodiversity units and percentage biodiversity units.

To effectively assess the impacts of the proposals the habitats within the site were classified according to the habitat types given in the UKHab classification system (UKHab, 2023). Habitats were assessed for their condition and strategic significance according to the criteria given within the Statutory Biodiversity Metric User Guide (DEFRA, 2024) through onsite visits and the interrogation of internet resources including MAGIC (www.magic.gov.uk) and Google Earth (www.earth.google.co.uk).

The areas of given habitats in both their current state and the proposed development were mapped using on site data, satellite imagery and QGIS software, with the resulting areas inputted into the Statutory Biodiversity Metric alongside strategic significance classifiers.

A site visit was undertaken by a suitably qualified ecologist to determine the habitats present on site, their location, size, condition and connectivity. This survey was conducted by Reuben Hayden MSc ACIEEM on 21st August 2024.

The principles of biodiversity net gain as set out in the Biodiversity Net Gain Good Practice Guidelines (CIEEM, IEMA & CIRIA, 2019) have been considered throughout this process as listed below:

- **Principle 1.** Apply the Mitigation Hierarchy
- **Principle 2.** Avoid losing biodiversity that cannot be offset by gains elsewhere
- **Principle 3.** Be inclusive and equitable
- **Principle 4.** Address risks
- **Principle 5.** Make a measurable Net Gain contribution
- **Principle 6.** Achieve the best outcomes for biodiversity
- **Principle 7.** Be additional
- **Principle 8.** Create a Net Gain legacy
- **Principle 9.** Optimise sustainability
- **Principle 10.** Be transparent

3.5 Limitations on Survey Data

All areas of the site were accessible and surveyed during the Extended UKHab Survey. There were no significant constraints on the survey data.

As with any survey undertaken on a certain date, the data presented within this report provide information at a particular point in time and present a 'snap-shot' of the ecological status of the site. Ecosystems and species behaviour/activity are dynamic and can change over time.

Whilst this report presents a characterisation and evaluation of habitat and species status at the time of the study, it should not be taken as an exhaustive representation of the ecological status of the site either at present or into the future.

4 Results & Evaluation

4.1 Ecological Context

4.1.1 Sites of Nature Conservation Importance

4.1.1.1 Statutory Sites

There are no sites of international nature conservation importance, such as Special Areas of Conservation (SACs), within a 5km radius of the site.

There are also no statutory sites of national conservation importance, such as Sites of Special Scientific Interest (SSSIs), within a 1km radius of the site.

The site is not located within an SSSI Impact Risk Zone.

The site is not located within a Conservation Target Area or other area of ecological strategic significance.

4.1.1.2 Non-statutory Sites

There are three non-statutory sites within the 1km search radius around the site.

For a brief summary of each of these refer to Table 2 below.

Table 2. Summary of non-statutory sites within a 1km radius of the site.

Designation	Name	Distance from Site (m)	Description
Berkshire Local Wildlife Site	Mcllroy Park	750	The site comprises a large grassland field surrounded by lowland mixed deciduous woodland, including a parcel of ancient woodland in the northern section (Kentwood Grove). The site slopes down on all sides and is entirely surrounded by residential development. It also encompasses two Local Nature Reserves; Mcllroy Park and Round Copse. The LWS is designated for it's Lowland Mixed Deciduous Woodland and records of a number of protected/notable species such as red kite, bluebell, stag beetle and badger.
Berkshire Proposed Local Wildlife Site	Land at Kentwood and Armour Hills	930	The site comprises a mixture of woodland, scrub and running water in an urban area. These provide recognisable semi-natural habitats within a largely urban setting. It also provides permeability for wildlife within the landscape, particularly in an urban context.
Berkshire Conservation Target Area	West Reading Woodlands and LNR	750	The West Reading Woodlands and LNR CTA comprises priority habitats of Lowland Mixed Deciduous Woodland and Parkland. The targets and opportunities for the CTA include: woodland management, parkland management and

Designation	Name	Distance from Site (m)	Description
			potential for restoration of grassland habitats on the steeper slopes in the west in particular.

4.2 Habitats

Photographs of the site are presented in Appendix 1. Appendix 2 illustrates the location of the site and provides an aerial photograph of the site within the surrounding landscape.

A habitat plan is presented in Appendix 3. The UKHab codes for the habitats within the site are presented within Table 3.

Table 3. UKHab habitat codes for the site.

Primary Code	Additional Codes	Description
u1b5	-	Developed land; sealed surface (buildings)
u1b6	82, 32	Developed land; sealed surface (other developed land) with vacant or derelict land and scattered trees.
g4	32	Modified grassland with scattered trees.

4.2.1 Developed Land; Sealed Surface (Buildings)

Developed land; sealed surface is considered to be of **negligible** ecological value.

4.2.1.1 Building 1 (Western Building)

Within the western corner of the site, there is a single-storey, brick-built building with a pitched roof of cement fibre tiles. The building was previously used as part of the former garage. The building has no eaves but instead has wooden barge boarding at the roof-wall junction. There are no loft spaces or enclosed spaces within the building and a number of deteriorated section of the roof provide illumination of daylight to the building. The roofing of the building has a wooden underlay.

In regards to bats, the walls, roof and wooden barge boarding are all in good repair and given the simple construction of the building, offer no crevices or gaps that could be used as potential roost features by bats. There are no features such as hanging tiles or wooden weatherboards that could offer shelter to bats.

No bats or evidence of bats was observed in association with the building. It is of note that extensive cobwebs were found along the ridge line beam within the building, indicating the likely absence of roosting bats in recent times.

Building 1 is assessed as having '**negligible**' bat roost potential (Collins, 2023). This is due to the lack of suitable crevice features or loft spaces and lack of evidence of roosting bats.

4.2.1.2 Building 2 (The Former Garage)

Within the centre of the site, there is a brick-built building which was previously used as a sales room and garage workshop. The southern section of the building is single-storey with a flat roof of corrugated metal, while the northern section is two-storey with a pitched roof of corrugated cement fibre sheeting. The building has no eaves but instead has metal and cement fibre sheeting that covers

the wall-roof junctions. Within the north-western section of the building there is a loft space which is completely illuminated by daylight through translucent sheeting. This loft space was used for storage of files and was thought to be regularly accessed. The roofing of the building has no underlay and the sheeting is completely exposed.

In regards to bats, the walls and roof are all in good repair and given the simple construction of the building, offer no crevices or gaps that could be used as potential roost features by bats. There are no features such as hanging tiles or wooden weatherboards that could offer shelter to bats.

No bats or evidence of bats was observed in association with the building, including the loft space.

Building 2 is assessed as having '**negligible**' bat roost potential (Collins, 2023). This is due to the lack of suitable crevice features and lack of evidence of roosting bats.

4.2.1.3 Building 3 (Eastern Building)

Within the eastern area of the site, there is a single-storey, brick-built building with a pitched roof of concrete tiles. The building was previously used as part of the former garage. The building has no eaves but instead has wooden barge boarding at the roof-wall junction. There are no loft spaces or enclosed spaces within the building and a number of windows provide illumination of daylight to the building. The roofing of the building has no underlay and the sheeting is completely exposed.

In regards to bats, the walls, roof and wooden barge boarding are all in good repair and given the simple construction of the building, offer no crevices or gaps that could be used as potential roost features by bats. There are no features such as hanging tiles or wooden weatherboards that could offer shelter to bats.

No bats or evidence of bats was observed in association with the building.

Building 3 is assessed as having '**negligible**' bat roost potential (Collins, 2023). This is due to the lack of suitable crevice features or loft spaces and lack of evidence of roosting bats.

4.2.2 Developed Land; Sealed Surface (Other Developed Land)

The majority of the site comprises sealed hardstanding in the form of concrete or asphalt.

Developed land; sealed surface is considered to be of **negligible** ecological value.

4.2.3 Vacant or Derelict Land

Within the north-eastern corner of the site, there is an area of gravel hardstanding that has been vacant resulting in the colonisation of disturbance tolerant plant species. This includes species such as butterfly bush *Buddleia davidii*, bramble *Rubus fruticosus*, nettle *Urtica dioica*, horseweed *Erigeron canadensis*, purple toadflax *Linaria purpurea*, broad-leaved dock *Rumex obtusifolius*, ragwort *Jacobaea vulgaris*, rosebay willowherb *Chamaenerion angustifolium*, mugwort *Artemisia vulgaris* and sycamore saplings *Acer pseudoplatanus*.

The vacant or derelict land is not considered to meet the criteria for 'open mosaic habitats on previously developed land' as listed within Section 41 of the NERC Act 2006. This is due to the land equating to less than 0.25ha in size and lack of spatial variation, comprising only shrubs and bare substrate.

Given the colonisation of the hardstanding habitat, the vacant or derelict land is considered to be of ecological value within the **context of the site only**.

4.2.4 Scattered Trees

Within the south-eastern corner of the site, there is a single lime tree *Tilia* species. The tree is semi-mature with an approximate height of 15m. The main tree trunk is covered in ivy.

Scattered trees are considered to be of ecological value within the **context of the site only**.

4.3 Species

The following sections provide a summary of the species data search results from TVERC and refers to the most pertinent species, given the nature of the habitats present within the site and the immediate locality. This summary only includes records from 1994 onwards.

4.3.1 Plants

There are a number of plant records within a 1km radius of the site, dating from 1995 to 2020. See Table 4 for these records.

Table 4. Records of plants within 1km of the site.

Common Name	Scientific Name
Bluebell	<i>Hyacinthoides non-scripta</i>
Butcher's-broom	<i>Ruscus aculeatus</i>
English Whitebeam	<i>Sorbus anglica</i>
Field Scabious	<i>Knautia arvensis</i>
Hoary Plantain	<i>Plantago media</i>
Hound's-tongue	<i>Cynoglossum officinale</i>
Wild Strawberry	<i>Fragaria vesca</i>

The records are scattered throughout the 1km search radius. The closest record is approximately 470m north-west, pertaining to English whitebeam. Collectively, the plant records pertain mostly to habitats such as woodland and rough grassland.

No rare or uncommon grassland plant species were noted within the site.

4.3.2 Invertebrates

There are a number of invertebrate records within a 1km radius of the site, dating from 1998 to 2023. See Table 5 for these records.

Table 5. Records of invertebrates within 1km of the site.

Common Name	Scientific Name
Stag Beetle	<i>Lucanus cervus</i>
Small Heath	<i>Coenonympha pamphilus</i>
White-letter Hairstreak	<i>Satyrus w-album</i>
Common Club-tail	<i>Gomphus vulgatissimus</i>
Common Darter	<i>Sympetrum striolatum</i>
A Mayfly	<i>Ephemera lineata</i>
Depressed River Mussel	<i>Pseudanodonta complanata</i>
Cinnabar	<i>Tyria jacobaeae</i>
Garden Tiger	<i>Arctia caja</i>
Jersey Tiger	<i>Euplagia quadripunctaria</i>
Shaded Broad-bar	<i>Scotopteryx chenopodiata</i>
A True Bug	<i>Eremocoris fenestratus</i>
A True Fly	<i>Mintho rufiventris</i>

The records are scattered throughout the 1km search radius. The closest record is approximately 10m north-east of the site, pertaining to stag beetle. Collectively, the invertebrate records pertain mostly to habitats such as woodland, rivers and rough grassland.

The vegetated habitats within the site are likely to support a common and widespread assemblage of invertebrate species that are typical of a suburban location. There are no deadwood habitats within the site that could support saproxylic invertebrates such as the stag beetle.

4.3.3 Amphibians

There are a number of records of amphibians within a 1km radius of the site. These include the common frog *Rana temporaria*, common toad *Bufo bufo* and smooth newt *Lissotriton vulgaris*. All of the records are further than 250m south of the site.

There are no ponds or standing open waterbodies within the site that amphibians could use for breeding. The colonising vegetation associated with the vacant or derelict land is sparse and only occupies a small footprint within the site, unlikely to provide suitable shelter. There are no permanent hibernacula features within the site.

A study of Ordnance Survey maps indicates the lack of waterbodies within a 500m radius of the site. The site is found within a 'Green Risk Zone', as defined by NatureSpace, meaning that there is moderate habitat suitability and great crested newts may be present. It is considered that great crested newts can disperse up to 500m from a breeding pond, with the majority of individuals being found within 250m of the pond. Research by Creswell and Whitworth (2004) found that the majority of great crested newts are found within approximately 50m of a breeding pond, given suitable habitat in close proximity to the pond, and they also found a significant drop-off in capture of newt beyond 100m of a pond.

Given that there are no ponds within 500m from the site, and the habitats on site are not considered to be suitable for sheltering amphibians, it is considered likely that amphibians including great crested newts are absent from the site during their terrestrial phase of life.

4.3.4 Reptiles

There are a number of records of slow worm *Anguis fragilis* within a 1km radius of the site. All of the records are further than 250m south of the site.

As discussed above with regard to amphibians, the habitats within the site are not considered suitable for shelter. There are no permanent hibernacula features within the site.

Given the above, it is considered that reptiles are likely absent from the site.

4.3.5 Birds

There are a number of bird records within a 1km radius of the site, dating from 1997 to 2024. See Table 6 for the pertinent records.

Table 6. Records of pertinent birds within 1km of the site.

Common Name	Scientific Name
Dunnock	<i>Prunella modularis</i>
House Sparrow	<i>Passer domesticus</i>
Red Kite	<i>Milvus milvus</i>
Rook	<i>Corvus frugilegus</i>
Song Thrush	<i>Turdus philomelos</i>
Starling	<i>Sturnus vulgaris</i>
Swift	<i>Apus apus</i>

Common Name	Scientific Name
Woodpigeon	<i>Columba palumbus</i>
Wren	<i>Troglodytes troglodytes</i>

The records are scattered throughout the local area with the closest records being 290m north, pertaining to house martin. Collectively the bird records pertain mostly to habitats such as woodland, open grassland, rivers, arable land and gardens.

Scattered trees and dense areas of bramble and scrub within the vacant or derelict land offer potential nest sites for breeding birds. It is considered likely that, if present, the site supports a typical breeding bird assemblage for suburban habitats. The assemblage may include species of 'principal importance' as listed within Section 41 of the NERC Act 2006, such as dunnoek.

The site is considered to be unsuitable for ground-nesting species, including skylark and grey partridge.

No birds nests were found in relation to the buildings or tree.

4.3.6 Bats

There Records Centre holds records for brown long-eared bat *Plecotus auritus*, common pipistrelle *Pipistrellus pipistrellus*, Leisler's bat *Nyctalus leisleri*, Natterer's bat *Myotis nattereri*, noctule *Nyctalus noctula*, serotine *Eptesicus serotinus* and soprano pipistrelle *Pipistrellus pygmaeus* within a 1km search radius, dating from 1994 to 2023.

The records are scattered throughout the local area with the closest records being 145m south-east, pertaining to common pipistrelle.

4.3.6.1 Bats & Buildings

The buildings are assessed as having 'negligible' potential to offer shelter to roosting bats (Collins, 2023). No bats, or evidence of bats, were found within the buildings.

4.3.6.2 Bats & Trees

The lime tree is assessed as having 'FAR' potential to offer shelter to roosting bats (Collins, 2023). This tree is to be retained within the proposal, hence why further survey has not been undertaken.

4.3.6.3 Bats & Habitats

The tree line adjacent to the northern boundary of the site is likely to support invertebrate prey for foraging bats and also form a potential flight corridor for bats through the local landscape.

However, within the site, there are no obvious habitat features likely to be used by roosting bats.

Given the above, the site is considered to offer 'negligible' suitability for foraging and commuting bats, while the tree line to the north of the site is considered to offer 'high' suitability for foraging and commuting bats (Collins, 2023).

4.3.7 Other Mammals

The Records Centre holds records for badger *Meles meles*, otter *Lutra lutra* and hedgehog *Erinaceus europaeus* dating from 1998 to 2024.

The records are scattered throughout the local area with the closest records being 190m north-east, pertaining to hedgehog.

4.3.7.1 Badgers

No evidence of badgers *Meles meles*, was recorded during the survey. No badger setts, faeces, dung pits or diggings were noted.

4.3.7.2 Hedgehogs

The vegetated habitats within the site could provide habitat for commuting and foraging hedgehogs *Erinaceus europaeus*, a species of 'principal importance' under Section 41 of the NERC Act 2006.

There are no permanent features on the site which are considered to offer shelter to this species.

4.3.7.3 Otters

No evidence of otters was recorded during the survey. The site is considered entirely unsuitable for sheltering or migrating otters.

4.3.8 Invasive Species

The Records Centre also holds records of butterfly-bush *Buddleja davidii* and zebra mussel *Dreissena polymorpha*, dating from 1995 to 2012.

No non-native invasive species (under Schedule 9 of the Wildlife and Countryside Act 1981) were noted within the site. It is of note that butterfly bush is present within the site, however, which is a GB Non-native Species Secretariat (NNSS) listed plant.

5 Discussion

5.1 Relevant Legislation & Policy Guidance

5.1.1 Bats

As with many animal species within the UK, declines in the abundance and distribution of many bat species have been documented through recent decades. The reasons for these declines are various and complex but it is considered that the major factors are changes in land use and agriculture, the loss of woodlands and hedgerows and the loss of suitable roosting sites.

Bats are particularly sensitive to human activity due to the fact that they roost within buildings, trees and underground structures such as mines, and the availability of suitable roost sites is considered to be a key factor in the conservation of bats within the UK. As a consequence, all species of bat and their roost sites are protected under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000) and under The Conservation of Habitats and Species Regulations 2017, as amended. Taken together, these make it an offence to:

- (a) Deliberately capture or intentionally take a bat
- (b) Deliberately or intentionally kill or injure a bat
- (c) To be in possession or control of any live or dead wild bat or any part of, or anything derived from a wild bat
- (d) Damage or destroy a breeding site or resting place of such an animal or intentionally or recklessly damage, destroy or obstruct access to any place that a wild bat uses for shelter or protection
- (e) Intentionally or recklessly disturb any wild bat while it is occupying a structure or place that it uses for shelter or protection
- (f) Deliberately disturb any bat, in particular any disturbance which is likely
 - to impair their ability;
 - (i) to survive, breed, reproduce or to rear or nurture their young; or
 - (ii) in the case of hibernating or migratory species, to hibernate or migrate; or

- to affect significantly the local distribution or abundance of the species to which they belong

A bat roost may be any structure a bat uses for breeding, resting, shelter or protection. It is important to note that since bats tend to re-use the same roost sites, current legal opinion is that a bat roost is protected whether or not the bats are present at the time.

Although the law provides strict protection to bats, it also allows this protection to be set aside (derogation) under The Conservation of Habitats and Species Regulations 2017 through the issuing of licences. Where a lawful operation is required to be carried out but which is likely to result in one of the above offences, a licence may be obtained from Natural England (the statutory body in England with responsibility for nature conservation) to allow the operation to proceed. However, in accordance with the requirements of The Conservation of Habitats and Species Regulations 2017, a licence can only be issued where the following requirements are satisfied:

- The proposal is necessary 'to preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment';
- 'There is no satisfactory alternative';
- The proposals 'will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range'.

These three criteria are often referred to as the 'three tests' of the Regulations. All three must be satisfied in order for a licence to be granted.

5.1.2 *Nesting Birds*

Nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. The nesting season for most species is between March and August inclusive.

5.1.3 *The Natural Environment and Rural Communities Act 2006*

Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 places a duty on the Secretary of State to publish, review and revise lists of living organisms and types of habitat in England that are of principal importance for the purpose of conserving English biodiversity.

It also requires the Secretary of State to take, and promote the taking of, steps to further the conservation of the listed organisms and habitats. This is important in the context of planning decisions as the National Planning Policy Framework affords planning policy protection to the habitats of species listed by virtue of Section 41.

There are no habitats listed within Section 41 of the NERC Act 2006 that are considered to be relevant to the site.

Species listed within Section 41 of the NERC Act 2006 that are considered to be potentially relevant to the site include:

- Bird species including dunnock (bramble scrub and scattered trees provide potential nesting opportunities)
- Hedgehog (vegetated habitats provide potential foraging opportunities)

5.1.4 The National Planning Policy Framework (NPPF)

The National Planning Policy Framework was updated on 19th December 2023 and sets out the government's planning policies for England and how these are expected to be applied. This revised Framework replaces the previous National Planning Policy Framework published in March 2012, revised in July 2018 and updated in February 2019 and July 2021.

The NPPF states that planning policies and decisions should contribute to and enhance the natural and local environment by:

- protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

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

To protect and enhance biodiversity and geodiversity, plans should:

- Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
- Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

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

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

- Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons, and a suitable compensation strategy exists; and
- Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements 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.

The following should be given the same protection as habitats sites:

- a) Potential Special Protection Areas and possible Special Areas of Conservation;
- b) Listed or proposed Ramsar sites; and
- c) Sites identified, or required, as compensatory measures for adverse effects on a habitats site, (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitat's site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

5.1.5 *Environment Act 2021*

On 15th October 2019, the government introduced a new Bill to Parliament; The Environment Bill. This Bill was given Royal Assent on 9 November 2021, thereby passing the Environment Act 2021. This legislation has been introduced to ensure that England maintains and improves its environmental protection. The Act details a legal requirement for all developments to ensure that a minimum of 10% net gain in Biodiversity is delivered.

Exemptions apply which can be found here: <https://www.gov.uk/guidance/biodiversity-net-gain-exempt-developments>.

5.2 **Potential Impacts**

5.2.1 *Sites of Nature Conservation Importance*

Impacts of the proposed development are likely to be limited to the bounds of the site and it is considered that there are no foreseeable direct impacts on sites of nature conservation importance.

5.2.2 *Habitats*

The scattered tree is considered to be of highest ecological value within the context of the site. This tree will be retained and protected.

The proposals are likely to result in the loss of other habitats including developed land; sealed surface, and vacant or derelict land. These habitats are considered to be of negligible or site ecological value and habitat loss is unlikely to result in any significant ecological impacts beyond the site level. The Biodiversity Net Gain Assessment indicates that the proposals will result in a significant ecological enhancement (+70.67% BNG).

There are no foreseeable impacts on habitats of principal importance.

There are no foreseeable impacts on irreplaceable habitats.

5.2.3 Biodiversity Net Gain Assessment

The Biodiversity Net Gain Assessment and calculation is presented below. The calculation is based off the UKHab Plan in Appendix 3 and the Proposed Habitat Plan in Appendix 4. See Appendix 7 for the biodiversity calculation.

5.2.3.1 Site Habitat Status Before Development

Table 7 presents the areas of each baseline habitat, prior to development.

Within the Statutory Biodiversity Metric, scattered trees are referred to as 'urban tree'.

Table 7. On-site habitat areas prior to development.

Habitat UKHab	Total Area (ha)
Developed land; sealed surface	0.2626
Vacant or derelict land	0.0682
Urban tree	0.0163

5.2.3.2 Habitat Condition Assessment

Habitat condition was assessed according to the criteria developed by DEFRA (2024), using the results of the Extended UKHab Survey.

The condition assessments for on-site habitats are presented in Table 8.

Table 8. On-site habitat condition assessment.

Habitat	Condition Assessment	Justification
Developed land; sealed surface	N/A – other	N/A – other.
Vacant or derelict land	Poor	The vacant or derelict land passes 1 condition assessment criteria (B), resulting in a poor condition. The vacant or derelict land contains different plant species that are beneficial for wildlife.
Urban tree	Moderate	The urban tree passes 4 condition assessment criteria (A, B, D & E), resulting in a moderate condition. The urban tree is native, has a predominately continuous canopy, has little evidence of an adverse impact from human activities and provides natural ecological niches such as ivy.

5.2.3.3 Habitat Strategic Significance

The site is not located within a Conservation Target Area (CTA), or a Network Enhancement Zone outlined by Natural England. Given this, all habitats within the site will be assessed as "area/compensation not in local strategy/ no local strategy".

5.2.3.4 Habitat Status After Development

The proposed development will result in the loss of developed land; sealed surface and vacant or derelict land. The urban tree will be retained.

The proposed habitat areas/lengths after development are presented in Table 9.

Table 9. On-site habitat areas/lengths after development.

Habitat	Retained Area (ha)/Length (km)	Enhanced Area (ha)/Length (km)	New Area (ha)/Length (km)
Developed land; sealed surface	-	-	0.2399
Modified grassland	-	-	0.084
Introduced shrub	-	-	0.0069
Urban tree	0.0163	-	0.0489
Native hedgerow	-	-	0.255

5.2.3.5 Habitat Condition Assessment

The condition assessments for expected on-site habitats can be seen in Table 10.

Table 10. On-site expected habitat condition assessment.

Habitat	Condition Assessment	Justification
Developed land; sealed surface	N/A – other	N/A – other.
Modified grassland	Poor	Modified grassland will be created within areas of open green space and beneath new hedgerows, being managed for amenity purposes. Given that the new grassland will be managed for amenity purposes and likely sown with a lawn seed mixture, it is considered unlikely that the grassland will have a vascular plant species diversity of higher than 5 species per m², resulting in a poor condition assessment.
Introduced shrub	Poor	Within the Metric, introduced shrub is fixed at a poor condition assessment.
Urban tree	Moderate	The existing urban tree will be retained and maintained at a moderate condition assessment. All new planted trees are targeted to pass 3 condition assessment criteria, resulting in a moderate condition assessment. The individual trees are targeted to be native, have little evidence of an adverse impact on tree health by human activities and have >20% tree canopy oversailing vegetation beneath.
Native hedgerow	Moderate	The newly planted native hedgerow is targeted to have no more than 4 failures in total; and not fail both attributes in more than one functional group, resulting in a moderate condition assessment. The hedgerows are targeted to be >1.5m average along the length, have a gap between the ground and base of the canopy <0.5m for >90% of the length, have gaps make up <10% of total length and

Habitat	Condition Assessment	Justification
		no canopy gaps >5m and have >90% of the hedgerow and undisturbed ground free of invasive non-native plant species.

5.2.3.6 Calculation

The result of the calculation predicts a net gain in biodiversity.

Total net unit change in habitats: +0.19

Total net % change in habitats: +70.67%

Total net unit change in hedgerows: 0.85

Total net % change in hedgerows: N/A

The Trading Rules are satisfied.

There are no river habitats within the site and such these habitats are not considered relevant to the biodiversity net gain calculation.

Given the above, the proposals deliver a net gain in habitat biodiversity. The biodiversity net gain calculation is based on habitat (botanical) value alone and does not take into account any species-specific ecological enhancement such as bird boxes and bat boxes. Such measures are likely to further enhance from the existing situation.

Given that the Statutory Biodiversity Metric indicates that over a 10% net gain in habitat units and river units will be achieved with the current proposal plans, it is considered that the proposals are in line with Policy G2 and the Environment Act 2021.

5.2.4 Species

5.2.4.1 Plants

There are no foreseeable impacts on rare plants.

5.2.4.2 Invertebrates

The proposed works are limited to areas of developed land; sealed surface and vacant or derelict land and are unlikely to have any significant impact on rare or uncommon invertebrates. Planting of native shrubs, hedgerows and trees are likely to provide an ecological enhancement for invertebrates.

5.2.4.3 Amphibians

There are no foreseeable impacts on amphibian species or their habitats.

The proposed development will not result in any foreseeable damage, destruction or obstruction of great crested newt habitat, the killing/injury of individual newts or result in any disturbance which is likely to impair individual newts' ability to survive, breed or reproduce. Consequently, a European Protected Species (great crested newt) Licence is not considered necessary for the proposed development to proceed.

5.2.4.4 Reptiles

There are no foreseeable impacts on reptile species or their habitats.

5.2.4.5 Birds

Removal of woody vegetation during the breeding bird season (March to August, inclusive) could have impacts on nesting birds through the damage or destruction of nests and the killing and injury of young/eggs.

There are no foreseeable impacts on skylarks or other ground nesting bird species.

5.2.4.6 Bats

Bats & Buildings

There are no foreseeable impacts on roosting bats, all buildings are assessed as having 'negligible' roosting potential for bats (Collins, 2023).

Bats & Trees

There are no foreseeable impacts on roosting bats within trees as all existing trees will be retained.

Bats & Habitats

Loss of low ecological value habitats (vacant or derelict land) is unlikely to result in a significant loss of foraging habitats for the local bat populations. There are considered to be more suitable areas of habitat within the wider locality, particularly habitat found along the River Thames. The planting of native shrubs, hedgerows and trees are likely to provide new commuting/foraging habitat for local bats.

External lighting can have an impact on bats by affecting their activity and behaviour. Certain species of bat have been shown to be attracted to mercury vapour lamps which emit light over a very broad-spectrum including UV light to which insects are particularly sensitive. Insects can be attracted in large numbers to mercury lamps and so can bats of the genera *Nyctalus* and *Pipistrellus*, including noctules *N. noctula* and common pipistrelles *P. pipistrellus* (Rydell and Racey, 1993). Lighting has shown to have an opposite effect on certain other species, such as the lesser horseshoe bat *Rhinolophus hipposideros*, which have been shown to avoid areas of artificial light (Stone *et al.* 2009).

New external lighting with the site could therefore have an adverse effect on foraging or commuting bats, partially foraging and dispersal behaviour along the site boundaries. Although disturbance by lighting is unlikely to result in significant impacts under the legal protection afforded to bats (and thus will not require a Bat Licence), lighting may result in a change in bat activity which is not desirable.

5.2.4.7 Badgers

There are no foreseeable impacts on badgers.

5.2.4.8 Hedgehogs

The removal or clearance of vegetated habitats such as grassland poses a risk of killing and injury to individual hedgehogs, should they be sheltering within these areas at the time of works. It is recommended that clearance of these habitats is carried out in a sensitive manner to avoid any potential of inadvertent killing or injury.

Proposals are not predicted to result in a significant loss of foraging or sheltering habitat for this species, given the habitats that are present within the wider local area.

5.2.4.9 Otters

There are no foreseeable impacts on otters.

6 Recommendations

6.1 Further Surveys

No further surveys for other species are considered necessary.

6.2 Habitats

6.2.1 Protection of Existing Habitats

During the construction phase all retained trees will be protected in accordance with British Standard 5837:2012, with the establishment of appropriate root protection zones.

6.2.2 Landscape Planting

It is recommended that any new areas of landscape planting are designed, planted and managed to maximise their value to wildlife. One key element of this would be the species used within the planting, which should comprise native species where possible, as well as ornamental plants of known value to wildlife. The key will be to provide a variety of flowers and fruits throughout the year in order to provide food for insects and birds, as well as providing potential nest sites through the planting of trees and shrubs.

Garden planting should aim to provide ground cover for animals such as hedgehogs and invertebrates, and so low-growing ground cover should be encouraged. Native species such as bugle, ivy and periwinkle could be used for this purpose, or ornamental species such as lady's mantle, elephant's ears or perennial geraniums may also be suitable for formal areas of ornamental planting. A diversity of structure should also be encouraged through the planting of small trees, with shrubs and herbaceous plants below. Appendix 6 provides a list of plant species that are considered suitable for 'wildlife-friendly' garden planting.

6.2.3 Hedgerow Creation

The proposed hedgerow planting will be planted with native species. Appropriate woody species for the hedgerows include:

- Blackthorn *Prunus spinosa*
- Hawthorn *Crataegus monogyna*
- Field maple *Acer campestre*
- Dogwood *Cornus sanguinea*
- Guelder rose *Viburnum opulus*
- Hazel *Corylus avellana*
- Spindle *Euonymus europaeus*

6.3 Species

6.3.1 Birds

6.3.1.1 Bird Box Enhancement

The erection of bird nesting boxes is recommended in order to provide suitable nest sites for species within the local area, as nest boxes can be excellent substitutes for the nesting potential of trees. Over 60 species are known to adopt nest boxes including blue tits, great tits, starlings, robins and sparrows. The location and nature of the nest box depends on the species it is designed for; boxes for tits, sparrows or starlings should be fixed two to four metres up a tree or a wall; open-fronted boxes for robins and wrens need to be low down, below 2m, and well-hidden in vegetation. Unless there are trees or buildings which shade the box during the day, boxes should be faced between north and east, thus avoiding strong sunlight and the wettest winds.

On the new buildings, the integration of bird boxes is particularly recommended as species such as the house sparrow will readily adopt such features as nest sites, with new integrated nesting features securing a biodiversity enhancement in the long term. Bird boxes can also be erected on retained trees.

Recommended integrated boxes are:

- Vivara Pro WoodStone House Sparrow Nest Box
- Vivara Pro Build in Woodstone® Half Open Nest Box
- WoodStone Build-in Swift Nest Box Deep

Other recommended boxes are:

- Vivara Pro Seville 32mm WoodStone Nest Box
- Vivara Pro Barcelona WoodStone Open Nest Box

6.3.2 Bats

6.3.2.1 Licensing

As previously discussed, a bat licence is not required for the proposed works.

6.3.2.2 Timing

No timing constraints are considered necessary.

6.3.2.3 Careful Work Practices

As bats are a highly mobile species, contractors should be briefed with regard to the fact that individual bats can often exploit very small crevices as roost sites (such as gaps under roof tiles) and that bats can move between roost sites on a regular basis.

In the very unlikely event that bats or significant evidence of bats (for example large accumulations of fresh bat droppings) are encountered, works should stop immediately, and advice sought from a suitably qualified ecologist.

6.3.2.4 Bat Box Enhancement

The erection, or integration, of bat boxes on the new buildings is recommended as an enhancement measure, and to provide gain for biodiversity under the NPPF.

Bat brick (sometimes also referred to as 'bat tubes') features can be obtained prefabricated and integrated directly into the fabric of the exterior walls of a building. The bricks/tubes have an external entrance slot which leads to an internal cavity for roosting (e.g. the Vivara Pro Build-in Woodstone Bat Tube). The brick/tube can be concealed behind external cladding, brickwork, stonework or render.

For example, bat bricks/ bat tubes can easily be installed into traditional or modern buildings with external wooden weatherboarding; the brick/tube being concealed behind the overlapping wooden boards with access via a gap under a lifted board which leads to the entrance slot of the brick/tube. Bats can fit through very small gaps and so a crevice of 2-2.5cm should be sufficient to allow access to the slot of the bat brick/tube.

Alternatively, conventional bat boxes could be installed; these could be traditional wooden boxes, or longer lasting woodcrete boxes specifically designed for buildings and houses (e.g. the Beaumaris Woodstone Bat Box). If these boxes are adopted, it is recommended that they are installed as high as possible on the exterior walls, just under the eaves. South-facing façades should be favoured. Bat boxes can also be erected on trees.

6.3.2.5 External Lighting

It is recommended that external lighting is avoided within the site, unless it is necessary for reasons of security and safety. In particular, lighting should be avoided around any new bat roosting features and along the northern boundary.

The key in the first instance is to maintain or reduce existing light levels, and reduce blue content to protect the bat species present; this is in line with the mitigation hierarchy where impacts are avoided in the first instance by being planned out (Bat Conservation Trust, 2023).

If lighting is required, it should be kept at low level and at low intensity (Bat Conservation Trust, 2023 and Emery, 2008).

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
- 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
- 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.

6.3.3 Hedgehogs

Hedgehogs passing through the site during the construction phase of development are at risk of injury and trapping due to inadvertent pitfall hazards. This is particularly the case when foundations are being excavated. It is therefore recommended that no ground works take place outside of daylight hours and at night any pits on site are appropriately covered over/fenced off, or that a ramp is put in place via which hedgehogs can escape.

6.3.4 Invertebrates

It is recommended that bee bricks (see Figure 1) are integrated into the proposed buildings. The solitary bees that use bee bricks are industrious and safe around children and pets. The bee brick provides a habitat that has become harder to find in modern gardens.

If adopted, the bee bricks should be positioned in a warm sunny spot, south facing, with no vegetation in front of the fascia. The bee bricks should be installed at least 1m from the ground (there is no upward limit). It is helpful to have bare soil nearby, and food sources such as flowers.



Figure 1. Bee Brick. Source: www.nhbs.com.

7 References

- Bat Conservation Trust, 2023. *Bats and artificial lighting at night*. The Bat Conservation Trust, London.
- Collins, J., 2023. *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition)*. The Bat Conservation Trust, London.
- CIEEM. 2018. *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1*. Chartered Institute of Ecology and Environmental Management, Winchester.
- CIEEM, IEMA & CIRIA, 2019. Biodiversity Net Gain. Good Practice Principles for Development. A Practical Guide.
- Cresswell W. and Whitworth R., 2004. *An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt Triturus cristatus*. English Nature Research Report 576. English Nature, Peterborough.
- DEFRA, 2024. *The Statutory Biodiversity Metric User Guide*.
- Edwards J, Knight M, Taylor S & Crosher I. E., 2020. '*Habitat Networks Maps, User Guidance v.2*', Natural England.
- Emery, M., 2008. Effect of Street Lighting on Bats. Urbis Lighting Ltd., Anglia.
- Joint Nature Conservation Committee, 2012. *Bat Worker's Manual*. Joint Nature Conservation Committee, Peterborough, UK.
- Reason, P.F. and Wray, S., 2023. *UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats*. Chartered Institute of Ecology and Environmental Management, Ampfield.
- Rydell J. & Racey, P. A. 1995. *Streetlamps and the feeding ecology of insectivorous bats*. Recent Advances in Bat Biology Zool Soc Lond Symposium abstracts.
- Stone, E.L., Jones, G., & Harris, S. 2009. *Street lighting disturbs commuting bats*. Current Biology 19:1-5.
- UKHab Ltd, 2023. *UK Habitat Classification Version 2.0* (<https://www.UKHab.org>).

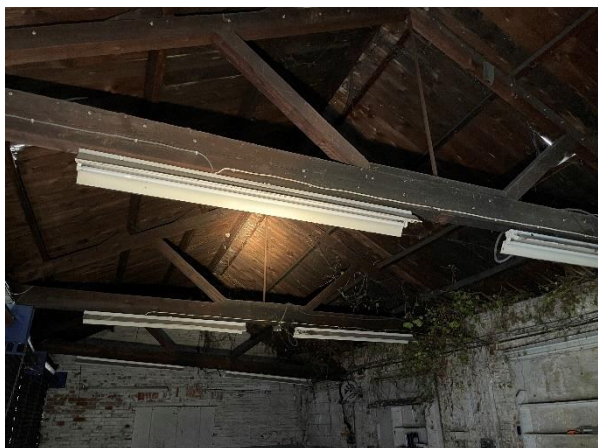
8 Appendix 1. Photographs



Photograph 1. Building 1 viewed from the south-west.



Photograph 2. Building 1 viewed from the south-east.



Photograph 3. The interior of Building 1.



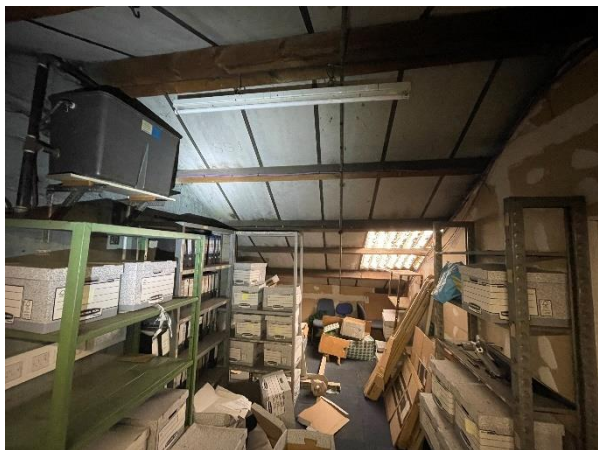
Photograph 4. Building 2 viewed from the south-west.



Photograph 5. Building 2 viewed from the south-east.



Photograph 6. The southern interior section of Building 2.



Photograph 7. The loft space within Building 2.



Photograph 8. The northern interior section of Building 2.



Photograph 9. Building 3 viewed from the south-west.



Photograph 10. Building 3 viewed from the east.



Photograph 11. The interior of Building 3.



Photograph 12. The vacant or derelict land to the east of the site.



Photograph 13. The south-eastern corner of the site, showing the lime tree.

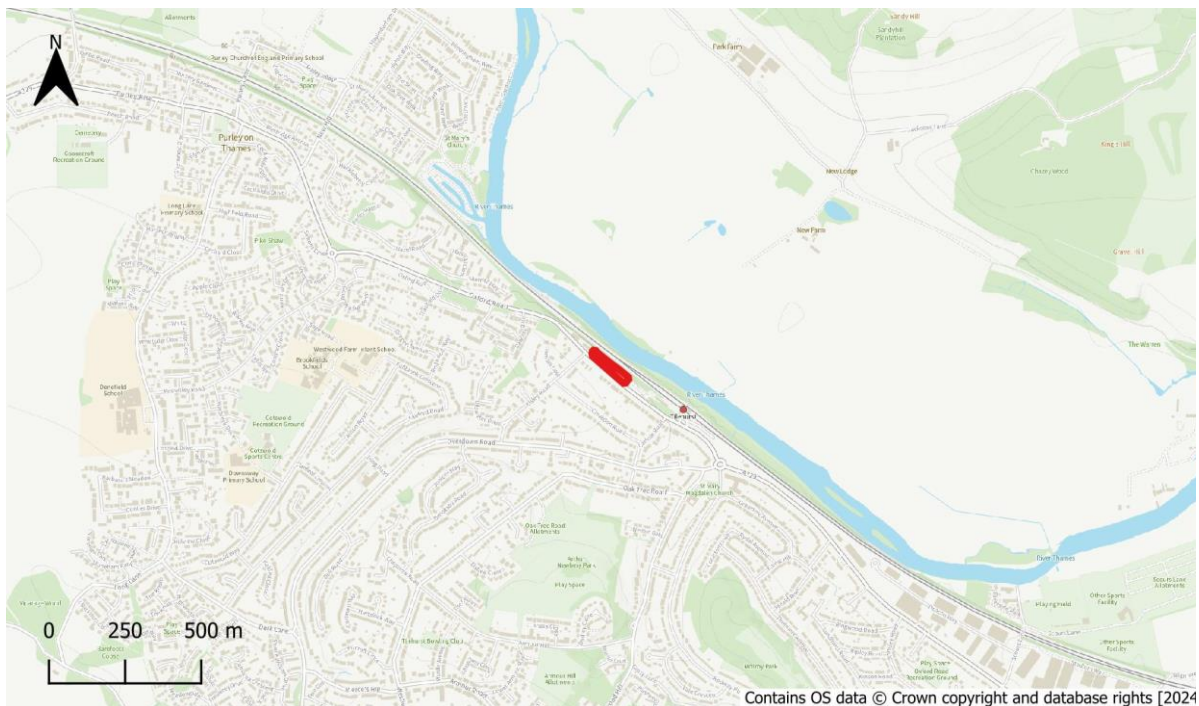


Photograph 14. The site viewed from the east.

9 Appendix 2. Site Location Plans

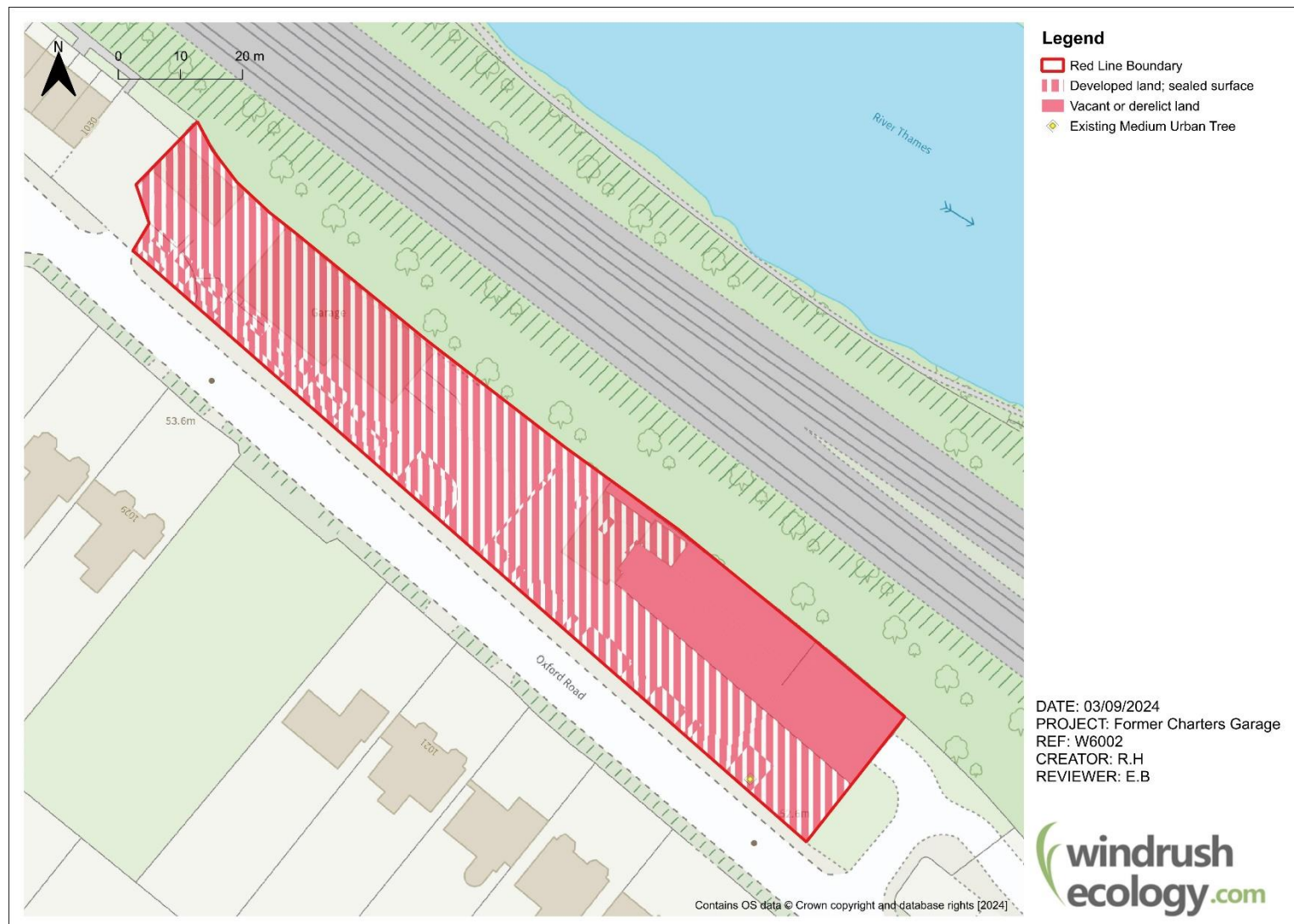


Aerial photograph showing the location of the site (outlined in red). Source: Google Satellite



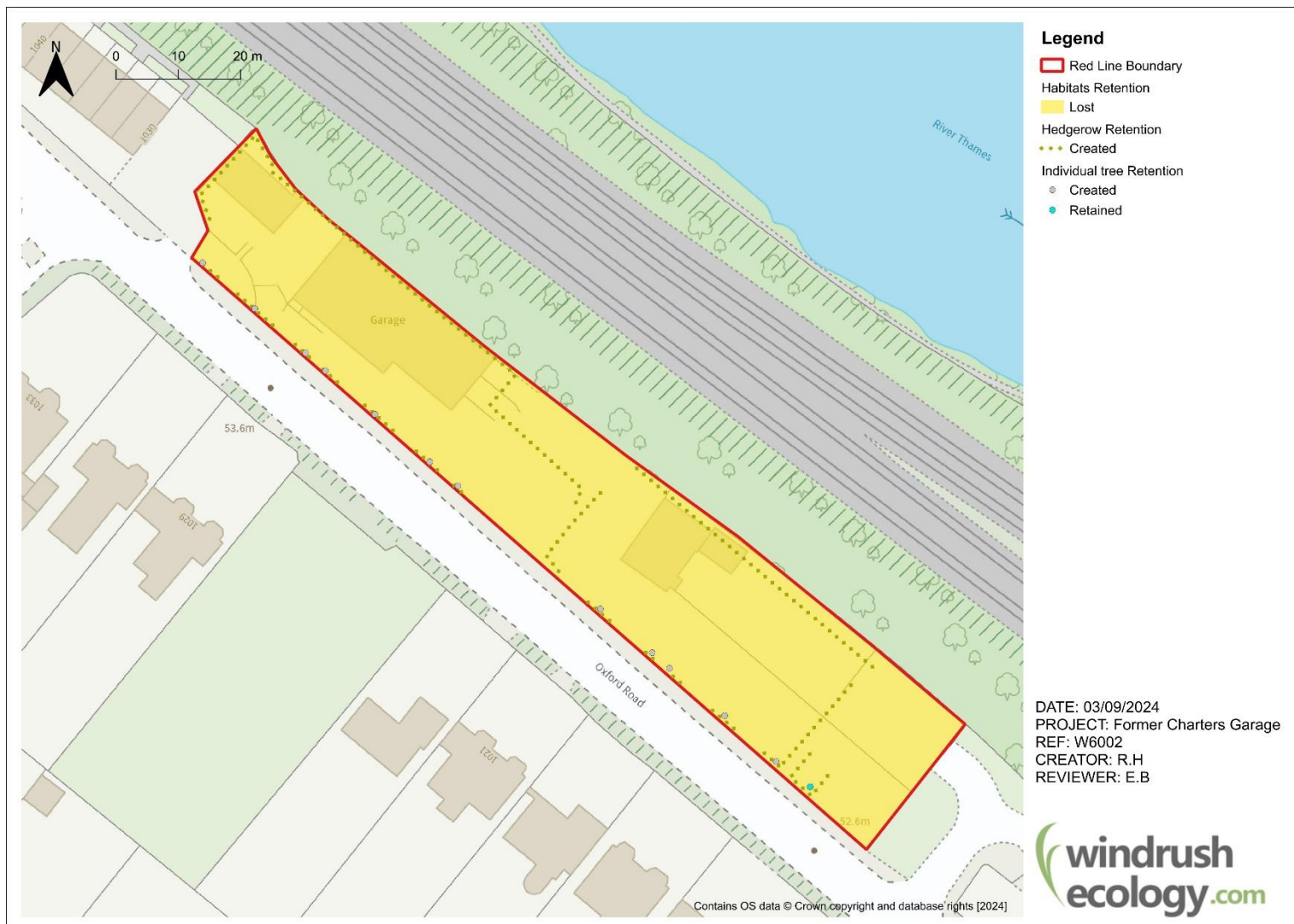
Ordnance Survey map showing the location of the site (outlined in red) within the local area. Source: OSM Standard

10 Appendix 3. UKHab Plan



11 Appendix 4. Proposed Habitat Plan & Habitat Change Plan





12 Appendix 5. Proposal Plan



13 Appendix 6. Species for Landscape and Ornamental Planting

Common Name	Botanical Name
Perennials	
Elephant's ears	<i>Bergenia cordifolia</i>
Sage	<i>Salvia</i> sp.
Lamb's ears	<i>Stachys byzantia</i>
Periwinkle*	<i>Vinca major & Vinca minor</i>
Ivy*	<i>Hedera helix</i>
Bugle*	<i>Ajuga reptans</i>
Lady's mantle	<i>Alchemilla mollis</i>
Geraniums	<i>Geranium</i> sp.
Globe thistle	<i>Echinops ritro</i>
Monk's hood	<i>Aconitum</i> sp.
Yarrow*	<i>Achillea millefolium</i>
Teasel*	<i>Dipsacus fullonum</i>
Oriental poppy	<i>Papaver orientalis</i>
Michaelmas daisy	<i>Aster</i> sp.
Bear's breeches	<i>Acanthus spinosus</i>
Montbretia	<i>Crocsmia</i> sp.
Purple coneflower	<i>Echinacea purpurea</i>
Ornamental onion	<i>Allium</i> sp.
Catmint	<i>Nepeta</i> sp.
Verbena	<i>Verbena</i> sp., <i>Verbena bonariensis</i>
Marjoram	<i>Origanum majorana</i>
Thyme	<i>Thymus</i> sp.
Crocus	<i>Crocus</i> sp.
Daffodil	<i>Narcissus</i> sp.
Snowdrop	<i>Galanthus nivalis</i>
Winter aconite	<i>Eranthis</i> sp.
Bluebell*	<i>Hyacinthoides non-scripta</i>
Primrose*	<i>Primula veris</i>
Forget-me-not*	<i>Myosotis</i> sp.
Grape hyacinth	<i>Muscari botryoides</i>
Hollyhock	<i>Althaea rosea</i>
Lenten rose	<i>Helleborus orientalis</i>
Foxglove*	<i>Digitalis purpurea</i>
Greater knapweed*	<i>Centaurea scabiosa</i>
Great mullein*	<i>Verbascum thapsus</i>
Toadflax*	<i>Linaria vulgaris</i>
Meadow crane's-bill*	<i>Geranium pratense</i>
*indicates native species	

14 Appendix 7. Biodiversity Impact Calculation

Please refer to separate Excel document.