MKA
ECOLOGY

# Preliminary Ecological Appraisal and Preliminary Roost Assessment

Whitnell Way, Ashburton Estate

| | |
|---|---|
| **Site** | *Whitnell Way, London SW15 6DG* |
| **Project number** | *132722* |
| **Client name / Address** | *Wandsworth Council, The Town Hall, Wandsworth High Street, SW18 2PU* |

| **Version number** | **Date of issue** | **Revisions** |
|---|---|---|
| **1.0** | *30 November 2022* | *Original* |

| | | |
|---|---|---|
| **Author(s)** | *Jo Sykes Qualifying CIEEM* |  |
| **Surveyor(s)** | | |
| **Reviewed by** | *Rory Roche ACIEEM* |  |
| **Authorised by** | *Rory Roche ACIEEM* |  |
| **Contact** | *MKA Ecology Limited, 01763 262211, info@mkaecology.co.uk* | |

**Declaration of compliance**

This Preliminary Ecological Appraisal has been undertaken in accordance with British Standard 42020:2013 "Biodiversity, Code of practice for planning and development". The information which we have provided is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

MKA Ecology Ltd is a CIEEM Registered Practice. This means that MKA Ecology Ltd are formally recognised for high professional standards, working at the forefront of our profession.

**Validity of data**

Unless stated otherwise the information provided within this report is valid for a maximum period of 24 months from the date of survey. If works at the site have not progressed by this time an updated site visit may be required in order to determine any changes in site composition and ecological constraints.

# CONTENTS

# 1. EXECUTIVE SUMMARY

In August 2022 MKA Ecology Limited was commissioned to undertake a Preliminary Ecological Appraisal and Preliminary Roost Assessment of three areas at Whitnell Way, Ashburton Estate. The appraisal included a habitat survey, protected species scoping survey and desktop study of protected and notable sites and species in the area. The Preliminary Roost Assessment involved an external inspection of buildings and trees set to be impacted by the development. The aim of the Preliminary Roost Assessment was to identify any potential bat roost constraints that may be associated with development of the Site. A site visit was undertaken on 7th October 2022.

The Sites comprise predominantly hardstanding and buildings with scattered trees, introduced scrubs, areas of grassland and hedgerows. The Sites are being brought forward for consultation for future residential development.

The following ecological constraints were identified at the Site with recommendations made as follows;

- **Designated sites:** The Sites are located within 1km of Wimbledon Common Special Area of Conservation (SAC). Should they be brought forward for development, consultation with the local planning authority (LPA) and Natural England to confirm further assessment. The Sites also lie within a Site of Special Scientific Interest (SSSI) Impact Risk Zone (IRZ). If 100 units or more are to be developed, local planning authority consultation with Natural England on the likely ecological risks associated with the development will be required. The Sites are located within 0.35km of the Putney Old Burial Ground Site of Importance for Nature Conservation (SINC) and 0.42km of the Wimbledon and Putney Commons SINC. Mitigation measures to minimise impacts from pollutants should be put in place to protect the designated sites during construction. A Construction Ecological Management Plan (CEMP) should be produced to protected the adjacent and nearby designated sites.
- **Habitats**: The trees onsite are of ecological value. It is recommended that trees are retained within proposals and protected during works.
- **Nesting birds**: The trees and introduced shrubs provide suitable habitat for breeding birds. It is recommended that any vegetation clearance be undertaken outside of bird breeding season (September – February inclusive). Should these timings not be possible, a nesting bird check by a suitably qualified ecologist should take place prior to any clearance.
- **Foraging and commuting bats**: The Sites have low suitability to support foraging and commuting bats. A sensitive lighting strategy should also be implemented during and following construction.

A Biodiversity Net Gain and Urban Greening Factor assessment should be undertaken to ensure that the proposed development is able to demonstrate a significant increase in biodiversity and green

infrastructure provision within the Sites. A Landscape Ecology Management Plan should be produced to ensure the successful establishment and long-term management of newly created habitats.

A number of biodiversity enhancements have been suggested that could be implemented in order to promote biodiversity, including the creation of species rich hedgerows, the creation of bee lawns native planting, the provision of bird boxes targeted to London Priority species, bat boxes, deadwood habitat piles, wildlife kerbs, hedgehog highways and the inclusion of green infrastructure, such as green roofs and green walls, within the final development.

# 2. INTRODUCTION

## 2.1. Aims and scope of Preliminary Ecological Appraisal and Preliminary Roost Assessment

In August 2022 MKA Ecology Limited was commissioned to undertake a Preliminary Ecological Appraisal and Preliminary Roost Assessment of three areas at Whitnell Way, Ashburton Estate by Wandsworth Council in order to support future development.

The aims of the Preliminary Ecological Appraisal and Preliminary Roost Assessment were to:

- Undertake a desktop study to identify the extent of protected and notable species and habitats within close proximity of the Sites;
- Prepare a habitat map for the Sites;
- Identify evidence of protected species/species of conservation concern at the Sites;
- Assess the potential impacts of development;
- Undertake a Preliminary Roost Assessment to establish the suitability of the buildings and trees at the Sites for roosting bats, and record any evidence of bat presence; Detail recommendations for further survey effort where required; and
- Detail recommendations for biodiversity enhancements.

## 2.2. Site description and context

The survey areas are shown on the map in Figures 1, 2 and 3. Within this report these areas are referred to as the Sites or Whitnell Way. The Sites are located within the London Borough of Wandsworth. Site 1 is centred on National Grid Reference TQ 23543 74654, Site 2 is centred on TQ 23447 74615 and Site 3 is centred on TQ 23548 74586. The Sites comprise areas of hardstanding, modified grassland, scattered trees and a number of buildings.

## 2.3. Proposed development

There are no current proposals for these Sites as they are being brought forward for consultation to determine future residential development.

## 2.4. Legislation and planning policy

This Preliminary Ecological Appraisal and Preliminary Roost Assessment have been undertaken with reference to relevant wildlife legislation and planning policy.

Relevant legislation considered within the scope of this document includes the following:

- The Environment Act 2021;
- The Wildlife and Countryside Act 1981 (as amended);
- The Conservation of Habitats and Species Regulations 2017 (as amended);
- Natural Environment and Rural Communities (NERC) Act 2006;
- The Countryside and Rights of Way (CRoW) Act 2000;
- Protection of Badgers Act 1992; and
- Wild Mammals (Protection) Act 1996.

Further information is provided in Appendix 1, including levels of protection granted to the species considered in Section 3.3.

In addition to obligations under wildlife legislation, the revised National Planning Policy Framework (NPPF) updated on 20 July 2021 requires planning decisions to contribute to conserving and enhancing the local environment. Further details are provided in Appendix 1.

Wandsworth Council has produced an adopted Local Plan, within which policy PL4 Open space and the natural environment relates to biodiversity and habitat conservation. A new Local Plan is currently in development, which will supersede the existing Local Plan. Within this document the following policies relate to biodiversity and habitat conservation:

- LP55 Protection and Enhancement of Green and Blue Infrastructure
- LP57 Biodiversity
- LP58 Tree Management and Landscaping
- LP59 Urban Greening Factor

Additionally, given that the Sites are located within London, consideration of the London Plan 2021 has also been given. The London Plan contains a number of policies relating to biodiversity, a brief summary of which are set out below:

- Policy G1 Green infrastructure;
- Policy G5 Urban greening;
- Policy G6 Biodiversity and access to nature;
- Policy G7 Trees and woodlands; and
- Policy G8 Food growing.

Where relevant these are discussed in further detail in Section 5.

# 3. METHODOLOGIES

This Preliminary Ecological Appraisal and Preliminary Roost Assessment have been undertaken in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Preliminary Ecological Appraisal, 2nd edition (CIEEM, 2017) and *Bat Surveys for Professional Ecologists – Good Practice Guidelines (3rd edition)* (Collins, 2016).

## 3.1. Desktop study

A data search was conducted for the Site and the surrounding area within 2km. Data was retrieved from the sources listed in Table 1.

**Table 1: Sources of data for desktop study**

| Organisation | Data collected | Date collected |
|---|---|---|
| Multi-agency Geographic Information for the Countryside (MAGIC) www.magic.gov.uk | Information on local, national and international statutory protected areas. | 03/11/2022 |
| Greenspace Information for Greater London (GiGL) | Information on protected and notable sites and species within 2km of the Site (TQ 23509 74615). | 20/09/2022 |
| Ordnance Survey maps and aerial photography | Information on habitats and connectivity between the Site and the surrounding landscape | 03/11/2022 |
| Plantlife Important Plant Areas (IPA) | Information on important plant areas within 2km of the Site. | 03/11/2022 |
| Buglife Important Invertebrate Areas (IIA) | Information on important invertebrate areas within 2km of the Site. | 03/11/2022 |

Wandsworth Council planning portal was also referred to in order to understand the scope of further development surrounding the Site.

## 3.2. UK Habitat Classification

Habitats were surveyed using the standardised UK Habitat classification and mapping methodology (UK Habs) (Butcher et al, 2020). Data were recorded onto a Samsung Tablet in a Geographic Information System (GIS), in this instance QField, following a modified UK Habs Colour Mapping Pallet. Dominant plant species were observed and recorded within each habitat type. The plant species nomenclature follows that of Stace (2019).

The DAFOR scale is used to describe the relative abundance of species. The scale is shown in Table 2. It is important to note that where a species is described as rare this description refers to its relative abundance within the Sites and is not a description of its abundance within the wider landscape. Therefore, a species with a rare relative abundance within the Site may be common within the wider landscape.

**Table 2: DAFOR scale**

| DAFOR code | Relative abundance |
|---|---|
| D | Dominant |
| A | Abundant |
| F | Frequent |
| O | Occasional |
| R | Rare |

### 3.3. Protected and notable species scoping survey

As part of the Preliminary Ecological Appraisal, an assessment of the potential for the habitats onsite to support protected or notable species was made. This assessment was based on the quality, extent and interconnectivity of suitable habitats, along with the results of the desktop study detailed in Section 3.1. This includes Species of Principal Importance as listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006), and Red and Amber listed Birds of Conservation Concern (BoCC) as per Stanbury *et al*., 2021 (see Appendix 1).

Protected and notable species considered within the protected species scoping survey for Whitnell Way include the following:

- Plants and fungi: bluebell *Hyacinthoides non-scripta*, chamomile *Chamaemelum nobile* and box *Buxus sempervirens*
- Invertebrates: stag beetle *Lucanus cervus*, small heath *Coenonympha pamphilus* and common darter *Sympetrum striolatum*
- Fish: European eel *Anguilla anguilla*, river lamprey *Lampetra fluviatilis*, brown trout *Salmo trutta subsp. fario*.
- Amphibians: Natterjack toad *Epidalea calamita*, great crested newt *Triturus cristatus* and common toad *Bufo bufo*.
- Reptiles: Adder *Vipera berus*, common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis*, grass snake *Natrix helvetica helvetica*.
- Birds: With special reference to species listed under Schedule 1 of The Wildlife and Countryside Act 1981 (as amended) and Species of Principal Importance.

- Mammals: Badger *Meles meles*, bats (all species), water vole *Arvicola amphibius*, otter *Lutra lutra*, hazel dormouse *Muscardinus avellanarius*, hedgehog *Erinaceus europaeus*, brown hare *Lepus europaeus*, harvest mouse *Micromys minutus,* polecat *Mustela putorius* and European beaver.

In each case the likelihood of presence of these protected species onsite was classified as being either confirmed, high, moderate, low or negligible.

- **Confirmed**: The species is confirmed on the Site during the Preliminary Ecological Appraisal, previous survey effort or recent records.
- **High:** Habitats are available onsite which are highly suitable for this species and there are records within the desktop study. The surrounding areas also provide widespread opportunities for the species which are well connected to the Site.
- **Moderate:** Some suitable habitat available onsite for the species although not of optimum quality. Species is present with the desktop study.
- **Low:** Some suitable habitat available onsite for the species but this is low value and possibly of small scale or with poor connectivity. No, or very few, records returned in the desktop study.
- **Negligible**: No suitable habitat available for the species, or very little poor-quality habitat.

This protected species scoping survey is designed to assess the *potential* for presence or absence of a particular species or species group, and does not constitute a full survey for these species.

### 3.4. Surveyor, author and reviewer

The survey was undertaken, and report written, by Jo Sykes Qualifying CIEEM, Consultant Ecologist at MKA Ecology Limited. Jo has three years' experience within the industry, undertaking ecological appraisals and holds a Natural England bat licence and great crested newt licence. The report has been reviewed by Rory Roche ACIEEM, who has five years' experience within the industry undertaking Preliminary Ecological Appraisals and holds both a Natural England great crested newt licence bat licence.

### 3.5. Preliminary Roost Assessment

All buildings and trees within the Site were inspected and the locations of these are shown in Figures 1 - 5. An external inspection of buildings was undertaken following guidance set out in *Bat Surveys for Professional Ecologists – Good Practice Guidelines (3rd edition)* (Collins, 2016).

The following features were recorded for buildings:

- Location;

- Type;
- Dimensions;
- Age;
- Construction materials; and
- Current use.

Descriptions of potential and actual access points and roosting places were recorded (including height above ground level and aspect), as well as descriptions of evidence of bats found. The following types of evidence of use by bats were recorded:

- Location and number of any live bats;
- Location and number of any bat corpses or skeletons;
- Locations and number of bat droppings;
- Notes on relative freshness, shape and size of bat droppings;
- Location and quantity of any bat feeding remains;
- Location of clean, cobweb-free timbers, crevices and holes;
- Location of characteristic staining from urine and/or grease marks;
- Location and quantity of bat-fly (Nycteribiidae) pupal cases;
- Location of known and potential access points to the roost; and
- Location of the characteristic smell of bats.

The following features were recorded for trees:

- Species; and
- Diameter at breast height.

Descriptions of suitable and actual roost features were recorded (including height above ground level and aspect), as well as descriptions of evidence of bats found.

Potential roost features recorded were:

- Woodpecker holes;
- Rot holes;
- Hazard beams;
- Other vertical or horizontal cracks and splits (such as frost-cracks) in stems or branches;
- Partially detached plately bark;
- Knot holes arising from naturally shed branches, or branches previously pruned back to the branch collar;

- Man-made holes (e.g. cavities that have development from flush cuts) or cavities created by branches tearing out from parent stems;
- Cankers (caused by localised bark death) in which cavities have developed;
- Other hollows or cavities, including butt-rots;
- Double-leaders forming compression forks with included bark and potential cavities;
- Gaps between overlapping stems or branches;
- Partially detached ivy with stem diameters in excess of 50mm; and
- Bat, bird or dormouse boxes.

The following types of evidence of use by bats were recorded for trees:

- Presence of bats;
- Bat droppings in, around or below a potential roost feature;
- Odour emanating from a potential roost feature;
- Audible squeaking at dusk or in warm weather; and
- Staining below the potential roost feature.

Buildings and trees were assessed for their bat roost suitability according to the scheme presented in Collins (2016). These categories are shown in Table 3.

**Table 3: Categories to assess roost suitability in buildings and trees (adapted from Collins, 2016)**

| Roost suitability | Description |
|---|---|
| Negligible | Negligible habitat features onsite likely to be used by roosting bats. |
| Low | A structure with one or more potential roost sites that could be used by individual bats opportunistically. 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 or hibernation).<br><br>A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential |
| Moderate | A structure or tree 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 – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed). |

| Roost suitability | Description |
|---|---|
| High | A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potential for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. |

*For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

The guidelines for categorisation of bats in England by distribution and rarity (adapted from Wray *et al*., 2010) are shown in the tables below.

**Table 4: Rarity of bat species within England**

| Rarity within range (England) | Species |
|---|---|
| Rarest (population under 10,000) | Greater horseshoe bat *Rhinolophus ferrumequinum*<br>Bechstein's bat *Myotis bechsteinii*<br>Alcathoe's bat *Myotis alcathoe*<br>Greater mouse-eared bat *Myotis myotis*<br>Barbastelle *Barbastella barbastellus*<br>Grey long-eared bat *Plecotus austriacus* |
| Rarer (population 10,000 to 100,000) | Lesser horseshoe bat *Rhinolophus hipposideros*<br>Whiskered bat *Myotis mystacinus*<br>Brandt's bat *Myotis brandtii*<br>Daubenton's bat *Myotis daubentonii*<br>Natterer's bat *Myotis nattereri*<br>Leisler's bat *Nyctalus leisleri*<br>Noctule *Nyctalus noctula*<br>Serotine *Eptesicus serotinus*<br>Nathusius pipistrelle *Pipistrellus nathusii* |
| Common (population over 100,000) | Common pipistrelle *Pipistrellus pipistrellus*<br>Soprano pipistrelle *Pipistrellus pygmaeus*<br>Brown long-eared bat *Plecotus auritus* |

**Table 5: Level of importance of roost type**

| Geographic frame of reference | Roost type |
|---|---|
| District, Local or Parish | Feeding perches (common species)<br>Individual bats (common species)<br>Small numbers of non-breeding bats (common species)<br>Mating sites (common species) |

| Geographic frame of reference | Roost type |
|---|---|
| County | Maternity sites (common species)<br>Small numbers of hibernating bats (common and rarer species)<br>Feeding perches (rarer/rarest species)<br>Individual bats (rarer/rarest species)<br>Small numbers of non-breeding bats (rarer/rarest species) |
| Regional | Mating sites (rarer/rarest species) including well-used swarming sites<br>Maternity sites (rarer species)<br>Hibernation sites (rarest species)<br>Significant hibernation sites for rarer/rarest species or all species assemblages |
| National/UK | Maternity sites (rarest species)<br>Sites meeting SSSI guidelines* |
| International | SAC sites |

*Sites meeting SSSI (Sites of Special Scientific Interest) selection guidelines include Barbastelle maternity roosts and mixed species hibernacula assemblages

### 3.6. Date, time and weather conditions

See Table 6 below for details of the date, time and prevailing weather conditions recorded during the site visit for the Preliminary Ecological Appraisal.

**Table 6: Date, time and weather conditions of survey visit**

| Date | Time of survey | Weather conditions* |
|---|---|---|
| 07/10/2022 | 11:25 | Wind: 2<br>Cloud: 6/8<br>Temp: 17°C<br>Rain: None |

*Wind as per Beaufort Scale / Cloud cover given in Oktas.

### 3.7. Constraints

A single visit cannot always ascertain the presence or absence of a protected species. However, an assessment is made of the likelihood for protected species to occur based on habitat characteristics and the ecology of each species. Where there is potential for protected species, additional survey work may be required to ascertain their presence or absence.

Data on species records obtained from local biological records centres are sometimes only available at low spatial resolutions and are constrained by the voluntary nature of the contributions and what has been chosen to be submitted as records. While these records provide a useful indication of species recorded in the local area, in particular protected or notable species, the data is not necessarily an accurate reflection of species assemblages or abundance in the vicinity.

The assessment was undertaken outside the optimum period of April to the end of September. However, within the scope of the study it was possible to identify key habitats present and assess their likelihood of supporting a greater range of species.

Access was provided into only two of the units, one storage unit and one garage. A full internal inspection of all buildings was therefore not carried out as part of the Preliminary Roost Assessment. It can be assumed that the internal structure of all the units reflects the two for which access was available. As such, the lack of access into all structures is not deemed to be a significant constraint on the Preliminary Roost Assessment results.

# 4. RESULTS

## 4.1. Desktop study

An ecological desktop study was completed for the Sites and the surrounding 2km for local and national sites and up to 10km for international sites. Data provided by Greenspace Information for Greater London (GiGL) identified numerous records UK and European protected species, Species and Habitats of Principal Importance (as listed under Section 41 of the NERC Act 2006), and species of conservation concern within 2km of the Sites. It should be noted that this is not a comprehensive list of the distribution or extent of the local flora and fauna of conservation importance. These species records are discussed in greater detail in the protected species scoping survey section (Section 0 below).

Details of internationally designated sites within 10km of the Site were identified as part of the desktop study are displayed in Table 7 below. These consist of two Special Areas of Conservation (SAC).

**Table 7: Internationally designated sites within 10km of Whitnell Way**

| Site name | Area (ha) | Distance and direction | Reasons for selection |
|---|---|---|---|
| Wimbledon Common SAC | 351.38 | 1.00km S | • Supports numerous habitats, including waterbodies, heathland, grassland and woodland.<br>• Designated for the presence of stag beetle |
| Richmond Park SAC | 846.43 | 2.11km W | • Supports numerous habitats, including waterbodies, heathland, grassland and woodland.<br>• Designated for the presence of stag beetle |

Details of statutorily designated sites identified as part of the desktop study are displayed in Table 8 below. These consist of one Sites of Special Scientific Interest (SSSI) and one Local Nature Reserve (LNR).

**Table 8: Statutorily designated sites within 2km of Whitnell Way**

| Site name | Area (ha) | Distance and direction | Reasons for selection |
|---|---|---|---|
| Wimbledon Common SSSI | 351.38 | 0.99km SE | • Supports numerous habitats, including waterbodies, heathland, grassland and woodland.<br>• Designated for the presence of stag beetle |

| Site name | Area (ha) | Distance and direction | Reasons for selection |
|---|---|---|---|
| Barnes Common LNR | 41.68 | 1.32km NW | • Habitats onsite include acid grassland, acid scrub, woodland and neutral grassland<br>• Designated for protection against damage and secure long-term protection for wildlife habitat. |

Details of non-statutorily designated sites identified as part of the desktop study are displayed in Table 9 below. These consist of 21 Sites of Importance for Nature Conservation (SINC).

**Table 9: Non-statutorily designated sites within 2km of Whitnell Way**

| Site name | Area (ha) | Distance and direction | Reasons for selection |
|---|---|---|---|
| Putney Old Burial Ground SINC (Local) | 0.35 | 0.35km N | • Habitats include scattered trees, semi-improved neutral grassland and vegetated wall/tombstones.<br>• Designated for access to wildlife sites in an area of deficiency. |
| Wimbledon Common and Putney Heath SINC (Metropolitan grade) | 448.20 | 0.42km S | • Habitats include acid grassland, bog, heathland, waterbodies, running water, scrub and secondary woodland.<br>• An important site for numerous invertebrates, breeding bird, bat and reptile species. |
| East Putney Railway Cutting SINC (Borough Grade II) | 1.44 | 0.72km E | • Habitats include scrub, secondary woodland, semi-improved neutral grassland and tall herbs.<br>• Important site for birds including house sparrow. Locally scarce plants such as great horsetail *Equisetum telmateia* occur in places. |

| Site name | Area (ha) | Distance and direction | Reasons for selection |
|---|---|---|---|
| Putney Railway Cutting SINC (Borough Grade II) | 4.92 | 0.74km NE | • Habitats include scrub, secondary woodland, semi-improved neutral grassland, tall herbs and vegetated wall/tombstones.<br>• Important site for birds including house sparrow *Passer domesticus*. Locally scarce plants such as great horsetail occur in places. |
| Putney Park Lane and The Pleasance SINC (Local) | 3.02 | 0.85km NW | • Habitats include amenity grassland, scattered trees, scrub and semi-improved neutral grassland.<br>• White-letter hairstreak *Satyrium w-album*, a NERC species, is present onsite. |
| River Thames and tidal tributaries SINC (Metropolitan grade) | 2304.92 | 1.16km NE | • Habitats include intertidal, marsh/swamp, waterbodies, reed bed, running water, saltmarsh, secondary woodland, vegetated wall/tombstones, wet ditches, wet grassland and wet woodland.<br>• An important site for wildfowl and wading birds, specifically back redstart *Phoenicurus ochruros*. |
| Southfields Railsides SINC (Borough Grade II) | 4.31 | 1.32km SE | • Habitats include roughland, scattered trees, scrub, secondary woodland and semi-improved neutral grassland.<br>• Acts as an important wildlife corridor within the borough. Locally scarce great horsetail is present. |
| Roehampton University SINC (Borough Grade I) | 20.16 | 1.32km W | • Habitats include acid grassland, amenity grassland, shrubbery, waterbodies, scattered trees and secondary woodland.<br>• Notable species present onsite include common club-rush *Schoenoplectus lacustris* and nodding bur-marigold *Bidens cernua*, which are uncommon in London. |

| Site name | Area (ha) | Distance and direction | Reasons for selection |
|---|---|---|---|
| Putney Lower Common SINC (Borough Grade I) | 17.22 | 1.33km NW | • Habitats include scattered trees, scrub and semi-improved grassland.<br>• Supports a number of common bird species and other taxa. |
| Wandsworth Park SINC (Local) | 8.92 | 1.35km NE | • Habitats include amenity grassland, shrubbery and scattered trees.<br>• Designated for access to wildlife sites in an area of deficiency. |
| Barnes Common SINC (Metropolitan grade) | 51.40 | 1.38km NW | • Habitats include acid grassland, ruderal vegetation, scrub and secondary woodland.<br>• Burnet rose *Rosa pimpinellifolia* is present, the only naturally occurring one in London. |
| Barn Elms Playing Fields SINC (Borough Grade II) | 3.88 | 1.54km N | • Habitats include marsh/swamp, waterbodies, scrub, secondary woodland and semi-improved neutral grassland. |
| Edgecombe Hall Estate SINC (Local) | 2.47 | 1.45km SE | • Habitats include amenity grassland, waterbodies, scattered trees, secondary woodland and semi-improved neutral grassland.<br>• Star sedge *Carex echinata*, rare in London, is present. |
| Roehampton Club Golf Course SINC (Borough Grade II) | 34.16 | 1.46km W | • Habitats include acid grassland, scattered trees, secondary woodland and semi-improved neutral grassland. |
| Fulham Palace, Bishop's Park and All Saints Churchyard SINC (Borough Grade I) | 15.88 | 1.54km NE | • Habitats include amenity grassland, waterbodies, scattered trees, secondary woodland, semi-improved neutral grassland and vegetated wall/tombstones. |
| Hurlington Club Grounds SINC (Borough Grade I) | 9.10 | 1.70km NE | • Habitats include amenity grassland, flower beds, planted shrubbery, waterbodies, scattered trees, secondary woodland and wet woodland.<br>• Supports a number of bird species uncommon in London, including blackcap *Sylvia atricapilla*, treecreeper *Certhia familiaris* and tawny owl *Strix aluco*. |

| Site name | Area (ha) | Distance and direction | Reasons for selection |
|---|---|---|---|
| Edgecombe Hall Estate SINC (Local) | 2.47 | 1.72km SE | • Habitats include amenity grassland, waterbodies, scattered trees, secondary woodland and semi-improved neutral grassland.<br>• Star sedge, rare in London, is present onsite. |
| Richmond Park and associated areas SINC (Metropolitan) | 1063.55 | 1.84km W | • Habitats include acid grassland, bracken, waterbodies, secondary woodland, veteran trees and wet grassland.<br>• Internationally important site for invertebrates including stag beetle. Regionally and locally uncommon plant species can also be found here. |
| Southfields Railsides SINC (Borough Grade II) | 4.31 | 1.90km SE | • Habitats include roughland, scattered trees, scrub, secondary woodland and semi-improved neutral grassland.<br>• Important site for birds including house sparrow. Locally scarce plants such as great horsetail occur in places. |
| King George's Park SINC (Borough Grade II) | 22.56 | 1.91km SE | • Habitats include amenity grassland, waterbodies and scattered trees.<br>• Acts as an important wildlife corridor. |
| Bank of England Sports Club Grounds SINC (Borough Grade II) | 15.60 | 1.93km W | • Habitats include amenity grassland, scattered trees, secondary woodland and semi-improved neutral grassland.<br>• Supports a number of common woodland bird species. |

The Sites are located to the south of Putney and is surrounded by residential development and areas of amenity space. In the wider landscape, there is further residential and commercial development and large areas of open greenspace, including the Thames to the north with Wimbledon Common SAC and Wimbledon Common and Putney Heath SINC located to the south, bisected by the A3.

The Sites lie within a Natural England SSSI Impact Risk Zone (Natural England, 2019). As such all residential development of 100 units or more will require LPA consultation with Natural England on the likely ecological risks associated with the development.

Whilst the Sites do not lie within any Plantlife Important Plant Areas (IPA), they do lie in at the edge of two Important Invertebrate Areas (IIA); the Thames Estuary IIA and the Thames Basin Lowlands IIA. IIAs are nationally or internationally significant places for the conservation of invertebrates and the habitats upon which they rely and, whilst more specific information regarding the importance of specific areas within an IIA is not currently available, consideration of invertebrates will be given with regard to the proposed development and, as such, further consideration of this species group is set out below.

A search of the Wandsworth planning portal returned a small number of planning applications, primarily historical applications relating to the nearby primary school.

### 4.2. UK Habitat Classification

The Sites were found to comprise hardstanding, buildings, scattered trees, a hedgerow and modified grassland. More detailed species lists, along with their relative abundance, can be found in Appendix 2. The UK habitat classification survey maps are provided in Figures 1, 2 and 3 at the end of this section. Descriptions of the habitat types present along with dominant species compositions are provided below.

*Modified grassland g4 (11 Scattered trees, 75 Active management)*

Several areas of grassland are present within the Sites (Photograph 1, Appendix 3). These are dominated by perennial ryegrass *Lolium perenne* with occasional instances of red fescue *Festuca rubra*. Herbaceous species are also present, with higher abundances present in the Site 1. Most frequent herbaceous species include common daisy *Bellis perennis* white clover *Trifolium repens* with occasional instances of ragwort *Senecio* sp. and common field speedwell *Veronica persica* and rare instances of spotted medick *Medicago arabica* and knotweed *Persicaria capitata*. These were well managed at the time of the survey, supporting short swards of between 5-7cm and small areas of bare ground. Several semi-mature scattered trees are present within the grassland areas, including ash *Fraxinus excelsior*, rowan *Sorbus aucuparia* and copper beech *Fagus sylvatica* 'Purpurea'.

*Other hedgerow h2b*

Cherry laurel *Prunus laurocerasus* hedgerows are present in Site 2, bounding the car park (Photograph 2, Appendix 3; Invasive species 1, Figure 2). There are also sections of these hedge that are dominated by rose *Rosa* sp with instances of bramble *Rubus fruticosus* agg. (Photograph 3, Appendix 3). Due to the hedgerow comprising a non-native species, it does not constitute a Habitat of Principle Importance.

*Developed land; sealed surface u1b (11 Scattered trees)*

The majority of both Sites are dominated by hardstanding that make up pedestrian footpaths, access roads and car parks (Photograph 4, Appendix 3). These areas were all recorded to be in good condition at the time of the survey with no ephemeral growth present.

*Buildings u1b5*

Two brick-built structures are present within the Sites, which function as garage blocks and storage units (Photograph 4, Appendix 3), labelled B1 and B2 on Figures 1 and 3. These were all recorded to be in good condition at the time of the survey, with little evidence of wear. Individual building descriptions are provided in the results of the Preliminary Roost Assessment in Section 4.4 below.

*Suburban/ mosaic of developed/ natural surface u1d (1160 Introduced shrubs)*

Areas of introduced shrubs are present on Sites 1 and 2. These are dominated by cherry laurel within stances of rose *Rosa* sp, and bamboo *Bambusa* sp. (Photograph 5, Appendix 3; Invasive species 2, Figure 2). Of these, cherry laurel and bamboo are considered as invasive species (LISI, 2019).

**Figure 1: UK Habitat Classification map of Whitnell Way, Ashburton Estate – Site 1**

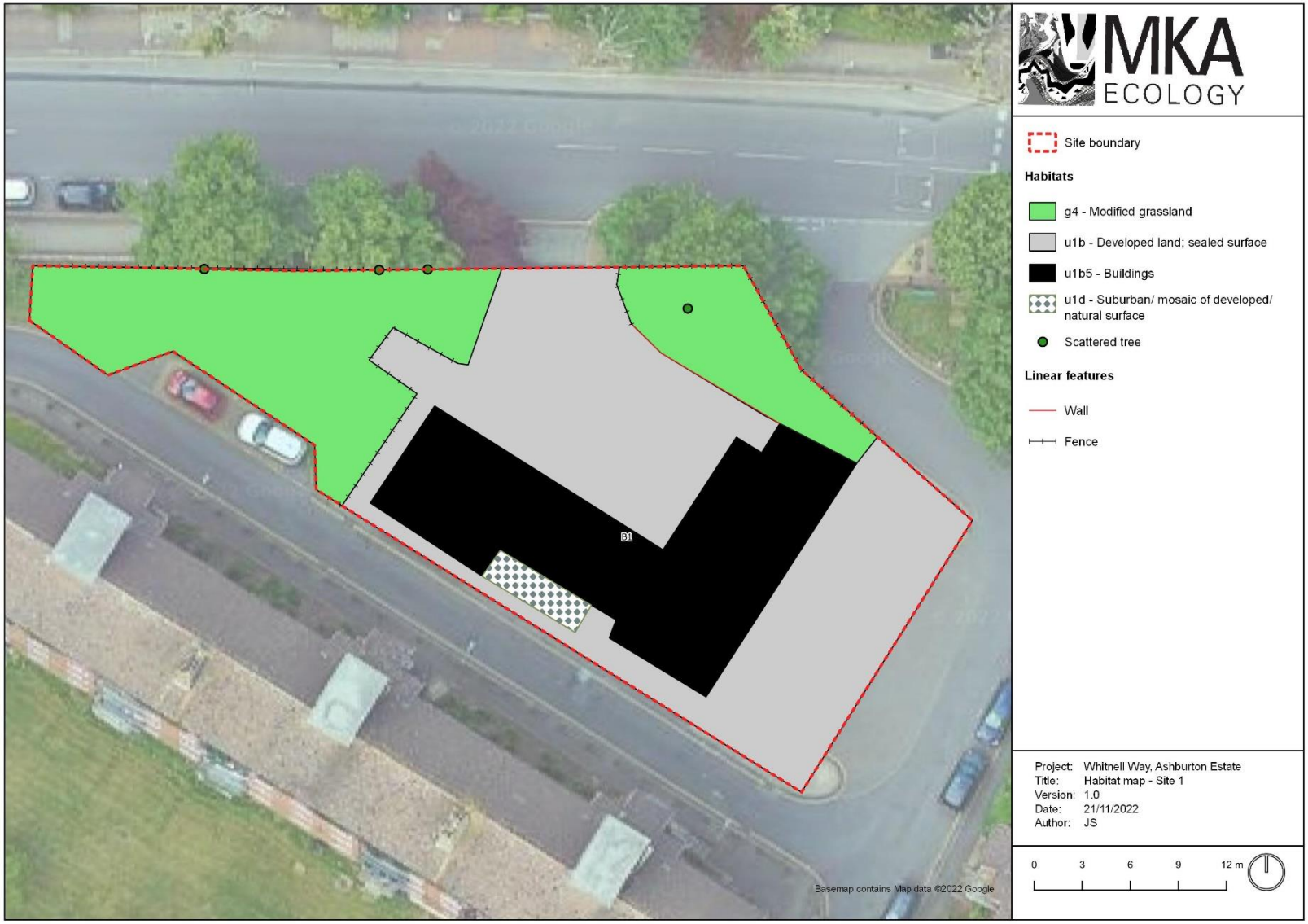
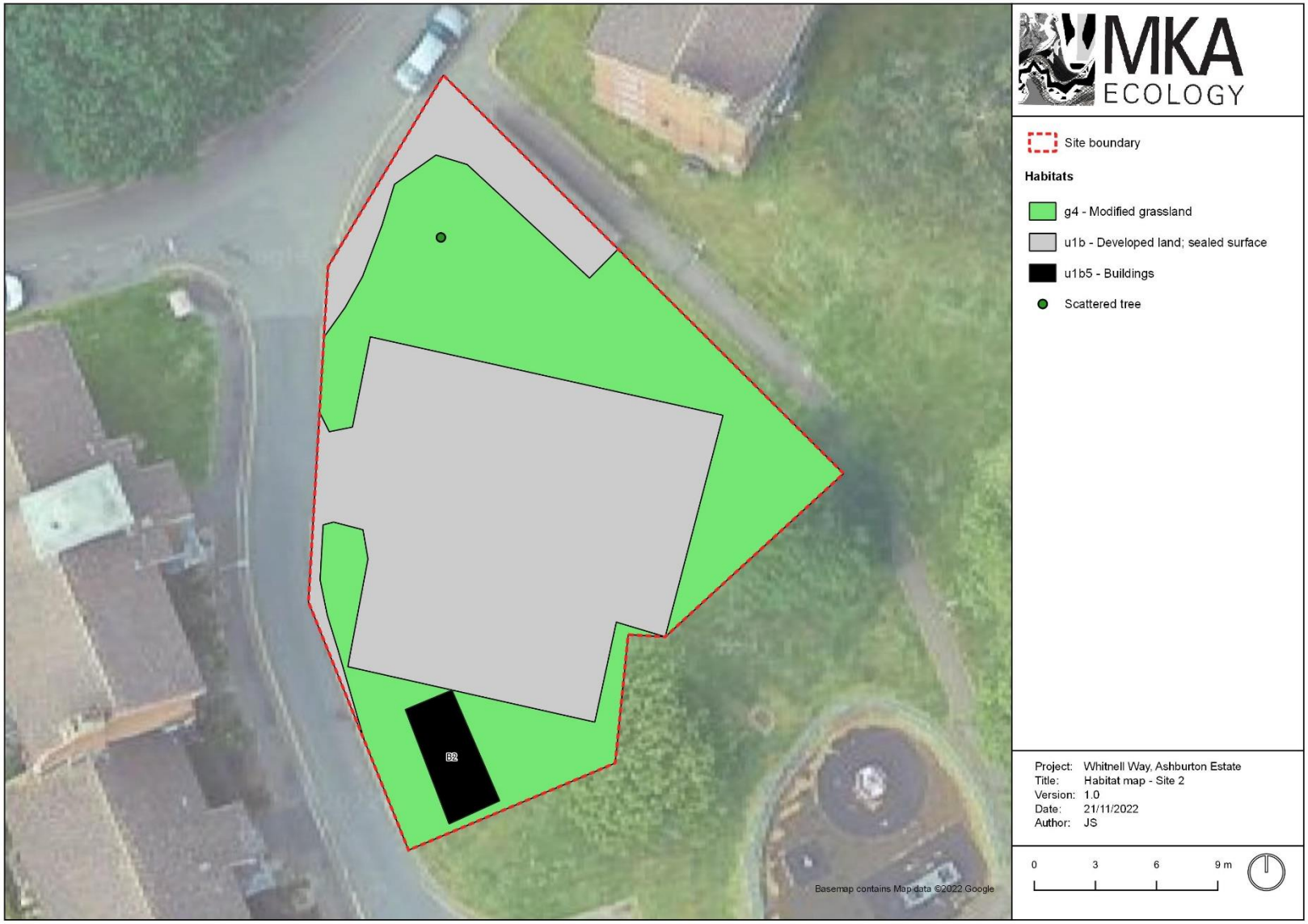


**Figure 2: UK Habitat Classification map of Whitnell Way, Ashburton Estate – Site 2**

**Figure 3: UK Habitat Classification map of Whitnell Way, Ashburton Estate – Site 3**



Invasive plants:

1. Cherry laurel
2. Bamboo

### 4.3. Protected species scoping survey

*Plants and fungi*

The desk study returned very few recent records for notable and protected plant species within 2km of the Sites. These are limited to large-leaved lime *Tilia platyphyllos*. Historical records are also present for divided sedge *Carex divisa* and bluebell *Hyacinthoides non-scripta*.

The Sites are dominated by hardstanding which is not suitable for protected or notable plant species. Additionally, the areas of existing vegetation are subject to regular management and support a low diversity of species such that they are unlikely to support protected or notable species. Overall, due to the lack of records returned from the desk study and the lack of species diversity, the risk of the Sites supporting protected or notable plant species is considered to be **negligible**.

Cherry laurel and bamboo were identified within Site 2 and 3 (Invasive species 1 and 2, Figure 1). These are listed as species of concern on the London's Invasive Species Initiative (LISI, 2019). The presence of invasive plant species is therefore **confirmed**.

*Invertebrates*

The desk study returned a small number of recent records for protected and notable invertebrate species within 2km of the Sites. These records include stag beetle, small heath and white-letter hairstreak.

The majority of the habitats onsite do not offer any opportunities for invertebrates. Although there are small areas of grassland and introduced shrub planting these are limited in extent, structure and diversity as well as being well managed. As such, they are unlikely to provide significant opportunities for invertebrates. Overall, the Sites offer very little suitable habitat for invertebrates and has **negligible** potential to support significant invertebrate assemblages.

*Fish*

The desk study returned no records for protected fish within 2km of the Site. The Sites have no aquatic habitats present and are, therefore, entirely unsuitable for fish. As such, the Sites have **negligible** potential to support this species group.

*Amphibians*

The desk study returned a small number of recent records for common frog and common toad within 2km of the Sites, with the most recent record from 2017 over 1.5km from the Sites. A search of Defra's

MAGIC website returned no European Protected Species Licences (EPSL) granted for great crested newt within 2km of the Sites.

The Sites lack any waterbodies and no waterbodies are present within 500m of the Sites. The Sites themselves provide no suitable terrestrial habitat and are isolated from any potentially suitable habitats by large areas of development and busy roads, preventing dispersal. Overall, the Sites have been assessed as having **negligible** suitability to support amphibians.

*Reptiles*

The desk study returned a small number of records for common lizard within 2km of the Sites. The most recent record is from 2020 associated with Wimbledon and Putney Commons.

The majority of the habitats onsite provide no opportunities for reptiles. Whilst there are small areas of grassland and introduced shrubs, these are limited in extent and separated from more suitable habitats by residential development and roads. Overall, there is a **negligible** likelihood of reptiles being present onsite.

*Birds*

The desk study returned numerous records for protected and notable bird species within 2km of the Site, including species listed on Annex 1 of the Birds Directive, Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), Section 41 of the NERC Act 2006 and birds listed as Amber or Red under the Birds of Conservation Concern (Eaton et al., 2015). Species of note include swift *Apus apus*, house sparrow *Passer domesticus*, starling *Sturnus vulgaris* and dunnock *Prunella modularis*.

Six species were recorded during the site visit. These species are shown in Table 10 together with their conservation status. It is important to note that this is not a full inventory of species for the Site.

**Table 10: Bird species recorded during site visit at Whitnell Way, Ashburton Estate**

| Common name | Systematic name | S1 W&CA[1] | BoCC[2] Status | S41 SPI[3] | Local PrSp[4] |
|---|---|---|---|---|---|
| Magpie | *Pica pica* | - | Green | - | - |
| Feral pigeon | *Columba livia* | - | Green | - | - |
| Carrion crow | *Corvus corone* | - | Green | - | - |
| Robin | *Erithacus rubecula* | - | Green | - | - |
| Blackbird | *Turdus merula* | - | Green | - | - |
| Ring-necked parakeet | *Psittacula krameria* | - | Invasive | - | - |

[1] Schedule 1 of The Wildlife and Countryside Act 1981 (see Appendix 1)
[2] Birds of Conservation Concern (see Appendix 1)

[3] Section 41 (NERC Act 2006) 'Species of Principal Importance' (see Appendix 1)
[4] Local Priority Species

The scattered trees offer habitat suitable to support common nesting birds. However, the density of these trees are relatively low and are unlikely to support large numbers of birds or notable or protected bird species. Overall, the Site has a **moderate** likelihood of supporting common nesting bird species and a **negligible** likelihood of supporting notable or protected bird species.

*Badgers*

The desk study returned no records for badger within 2km of the Sites. The habitats within the Sites are very limited in extent, so do not provide significant foraging opportunities for badger and no sett building opportunities. Additionally, there are likely to be significant opportunities for this species group in the wider landscape so it is unlikely badger would disperse into the boundaries of the Sites. However, badger may use the Sites to travel around the wider landscape. Overall, there is a **low** potential for the Sites to be used by foraging and commuting badger.

*Hedgehogs*

The desk study returned numerous recent records for hedgehog within 2km of the Site, the most recent of which was returned in 2021 1km north of the Site. The habitats within the Sites are very limited in extent, so do not provide significant opportunities for hedgehog. Additionally, there are likely to be significant opportunities for hedgehog in the nearby designated site so it is unlikely hedgehog would disperse into the boundaries of the Sites. Overall, the Sites have been assessed as having **negligible** potential to support hedgehog.

*Other mammals*

The habitats within the Site are not considered to provide suitability for mammal species, such as badger, otter, water vole, beaver, brown hare, dormouse or harvest mouse. These species and the risk of their presence is considered to be **negligible**. These species groups are not considered further in this report.

### 4.4. Preliminary Roost Assessment

*Desktop study*

The desk study returned a large number of recent records for bats within 2km of the Site. These include records for serotine *Eptesicus serotinus*, Daubenton's bat *Myotis daubentonii*, Leisler's bat *Nyctalus leisleri*, noctule *Nyctalus noctula*, Nathusius's pipistrelle *Pipistrellus nathusii*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus* and brown long-eared bat *Plecotus auritus*. There are also a number of records for unidentified bat species. A search of MAGIC returned one EPSL granted for bats within 2km of the Site. The licence has been granted 1.87km west of the Site and allowed for the damage and destruction of a resting place for soprano pipistrelle.

*Preliminary Roost Assessment results*

Table11 below outlines the results of the Preliminary Roost Assessment in more detail.

**Table 11: Building inspection results**

| Building | Roost suitability | Description | Bat roost evidence and potential |
|---|---|---|---|
| Building 1 | Negligible | A single-storey brick-built building with sections of flat roof at various heights (Photograph 4, Appendix 3). | No direct evidence of bats was found during the survey. The building was recorded to be in good condition with no features suitable to support bats identified. |
| Building 2 | Negligible | A single-storey brick-built storage block with a flat roof (Photograph 5, Appendix 3) | No direct evidence of bats was found during the survey. The building was recorded to be in good condition with no features suitable to support bats identified. |

*Foraging and Commuting bats*

The majority of the Sites comprise hardstanding and buildings, which offer no suitable habitat for foraging and commuting bats. The introduced shrubs, trees and hedgerows may provide some foraging opportunities, but these are limited in extent. Additionally, as the Sites act as car parks it is highly likely that they are lit throughout the night, which would further limit the suitability of these areas for bats. There are likely significant foraging and commuting opportunities in the wider landscape, particularly with the Putney Old Burial Ground SINC within 0.35km of the Sites. As such, the Sites may act as steppingstones to the wider landscape. Overall, the Sites have been assessed as having **low** suitability to support commuting and foraging bats.

# 5. ECOLOGICAL CONSTRAINTS, OPPORTUNITIES AND RECOMMENDATIONS

This section outlines key ecological issues for consideration, recommendations for further work and ecological enhancements where appropriate.

*Designated Sites*

The Sites are located within 1km of the Wimbledon Common SAC. As the Sites are currently being brought forward for consultation, it is not deemed necessary to undertake further assessment of impacts to this designated site at this stage. If any of the Sites are brought forward for development, liaison with the Local Planning Authority (LPA) and Natural England should be sought to determine whether further assessment is necessary.

The Sites lie within a Natural England SSSI IRZ. This IRZ criteria covers all residential development of 100 units or more. Should the proposed development meet this criterion, LPA consultation with Natural England on the likely ecological risks associated with the proposed development will be required.

The Sites are located within 0.35km of Putney Old Burial Ground SINC and 0.42km of Wimbledon Common and Putney Heath SINC. Given the proximity of these designations, pollutants and dust associated with construction works are likely to have an impact on this site. However, should construction activities be designed to minimise impacts from pollutants (such as surface run-off, dust, wind-blown litter), the integrity of the nearby located SINCs would be unaffected by the proposals.

The mitigation measures to be adopted throughout the construction phase of the development should be documented within a Construction and Environmental Management Plan (CEMP) and include:

- Measures to minimise dust arising, when necessary, including the use of dust control machinery and wet machinery;
- Measures to prevent pollution / contamination events through surface run-off; and
- Measures to minimise other pollution events such as noise, vibration and wind-blown litter.

**Recommendation 1**

Mitigation measures should be place to protect the nearby SINCs through the production of a CEMP.

*On-site habitats*

Most of the habitats onsite are of limited ecological value, with the scattered trees providing the most value. It is recommended that these trees are retained within future proposals. Where trees can be retained, these should be protected during demolition and construction using root protection fencing

around the root zones in accordance with British Standards BS 5837 2012: Trees in Relation to Construction.

**Recommendation 1**

Trees should be retained where possible and protected during works.

*Plants*

No notable or protected plant species were found during the survey. However, cherry laurel and bamboo have been identified on Site 2. Whilst these species are not listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), they are listed as a species of concern by LISI (2019). These species are a naturalised non-native species and has the potential to become invasive and out-compete native plant species. Whilst there is no legal obligation to control LISI species or to remove them as controlled waste, in this instance it would be good practice to remove incidences of cherry laurel and bamboo and to dispose the arisings as controlled waste to avoid their spread. Should such mitigation measures be incorporated into the development of the Sites, the removal and control of these non-native and invasive species listed on LISI will result in an ecological benefit within the Sites.

**Recommendation 3**

Ensure instances of cherry laurel and bamboo are managed to ensure these species do not spread. Removed instances should be disposed of as controlled waste.

*Birds*

The scattered trees, introduced shrubs and flat roofed buildings provide suitable habitat for breeding birds. All wild birds, their active nests and eggs are protected under The Wildlife and Countryside Act 1981 (as amended), which makes it an offence deliberately, or recklessly, to kill or injure any wild bird or damage or destroy any active birds' nest or eggs.

Scheduling building and vegetation removal works between the months of September and February inclusive (i.e. outside of the bird season) would avoid impacts on breeding birds.

Where building and vegetation clearance works are required during the breeding bird season (between the months of March and August inclusive), such works can only proceed following the completion of a nesting bird check undertaken by an experienced ornithologist. Any active birds' nest identified during this check must be protected from harm until the nesting attempt is complete. This will require a buffer to be left around the nest, the size of which will depend upon the species involved (as a general rule, this will be 10m in all directions around the nest). Any buffers established as a result of the initial nesting bird check must be subjected to a second check after the original nesting attempt is completed, before such areas can be removed during the breeding bird season.

**Recommendation 4**

Schedule building and vegetation clearance works between the months of September and February inclusive to avoid impacts on breeding birds. Where this timing is not feasible works should be preceded by a nesting bird check.

**It is strongly recommended that any potential nesting bird habitat is cleared outside the breeding bird season in order to avoid potentially lengthy delays if nests are found during nesting bird checks.**

*Bats*

Bat roosting behaviour, commuting and foraging activity can additionally be dramatically affected by artificial lighting (BCT, 2018). It is strongly recommended that any proposed exterior lighting is designed and managed appropriately to ensure that the area remains suitable for foraging bats. A sensitive lighting scheme should be developed to allow suitable roosting and foraging areas for bats.

**Recommendation 5**

Light pollution from any lighting should be minimised both during and after the construction phase. A sensitive lighting scheme should be developed and secured through a planning condition to allow for suitable roosting and foraging areas for bats within the Site with maximum use of appropriate luminaries and directed lighting.

*General safeguards*

During construction any excavations will not be left open overnight. Where this is not possible, they will be securely covered or a means of escape for any animals that may become trapped will be provided, such as a wooden board. All excavations will be checked for the presence of animals each morning and immediately prior to backfilling.

**Recommendation 6**

During construction any excavations created should either be covered in order to prevent animals becoming entrapped, or if not feasible, measures should be implemented to allow entrapped animals to escape.

*Opportunities for biodiversity enhancement*

Following the issue of the National Planning Policy Framework (NPPF; see Appendix 1), all planning decisions should aim to maintain and enhance, restore or add to biodiversity and geological conservation interests. Ecological enhancements should aim to deliver biodiversity gains for the proposed development site.

The Environment Act (2021) includes a mandatory requirement for development sites to deliver at least 10% biodiversity net gain from autumn 2023. As such, it is recommended that a Biodiversity Net Gain

assessment be undertaken for the proposed development at the Sites, to ensure that the future development is able to demonstrate a significant increase in biodiversity within the Site in its design. This should align with the Urban Greening Factor assessment for the proposed development.

**Recommendation 7**

A Biodiversity Net Gain assessment should be undertaken at the more detailed design stage to ensure that the proposed development is able to demonstrate a significant increase in biodiversity within the Site in its design. This will ensure the proposed development will address both national and local policy.

Urban greening has become a fundamental element of site and building design, and can be achieved by incorporating features such as high-quality landscaping (including trees, shrub and grassland), green roofs and green walls within developments. Policy G5 of the London Plan, as well as Policy LP59 of the draft Local Plan, aims to encourage greening of infrastructure in urban areas on previously developed land which has little or no existing natural surface. Given the dominance of the Sites by buildings and hardstanding, which form sealed surfaces, the current green infrastructure value of the Sites is minimal. It is considered that green infrastructure provision will contribute to achieving the goals of this policy. In order to address the requirements of the London Plan, a formal Urban Greening Factor assessment will be undertaken and provided alongside this report as part of the planning application for the development of the Sites. It is recommended that this document be updated following any revision to the design of the Sites.

**Recommendation 8**

Ensure that the development delivers a sufficient green infrastructure by undertaking an Urban Greening Factor assessment at the more detailed design stage. This will ensure the proposed development will address both national and local policy.

In order to ensure proposed enhancements are effectively delivered and ensure positive long-term management for biodiversity a Landscape Ecology Management Plan (LEMP) should be developed.

**Recommendation 9**

A LEMP should be developed to ensure effective delivery and management of enhancements.

Planting of native species or those with a known attraction or benefit to local wildlife is recommended in landscape proposals. This will help to increase native plant species diversity, provide more ecologically valuable habitats, and result in a greater diversity of other dependent taxonomic groups. It is recommended that new planting should incorporate a number of night-flowing species to increase insect activity at night. Suitable night-flowing flora include common evening-primrose *Oenothera biennis*.

**Recommendation 10**

It is recommended that native British species are incorporated within the planting scheme for the final landscaping design in order to enhance the overall value of the Site for biodiversity, in line with the requirements of the NPPF. This should include night-flowering species.

A number of simple measures to improve biodiversity at the Sites can be implemented. The grassland habitats onsite provide an opportunity to create bee lawns that can act as an important resource for bumblebees and other insect pollinators, which in turn provides benefits for other species within the ecosystem, including bats. A bee lawn can be created by over-seeding the lawn with suitable plants such as selfheal *Prunella vulgaris* or bird's-foot-trefoil *Lotus corniculatus* and by reducing the mowing height and frequency. For more detailed information about the creation of a bee lawn please refer to Appendix 5.

**Recommendation 11**

Incorporate simple biodiversity enhancement measures at the Sites, such as the creation of a bee lawn.

There is the opportunity to incorporate species-rich hedgerow planting within the future designs for the Sites. The inclusion of hedgerows will improve the connectivity of the Sites with the surrounding landscape. To achieve a species-rich state, the hedgerow should comprise a minimum of five native woody hedgerow species. Suitable native species for such planting are presented in Appendix 5.

**Recommendation 12**

It has been recommended species-rich hedgerows are incorporated into the proposals to improve the connectivity of the Site.

The creation of a wildlife pond is recommended to provide increased opportunities for a number of taxonomic groups, and that such a feature is designed with biodiversity in mind. This should consist of marginal plants, with a section of open, permanent water which is of a sufficient depth (>1m). It is recommended that to ensure a more natural-looking landscape and to maximise biodiversity that edges of the pond are scalloped and depth is undulating to provide suitable habitats for a number of species, both flora and fauna. It has the added benefit of acting as an educational feature. Further detail on the creation of a wildlife pond, along with suggestions for native species to be planted within pond, are provided in Appendix 5.

**Recommendation 13**

Consideration should be given to the creation of a pond, which would form a valuable biodiversity feature.

Enhanced opportunities for breeding birds should be incorporated into the design scheme. Bird boxes should be mounted on retained mature trees at the Sites. It is recommended that there is focus on London priority species including swift and starling *Sturnus vulgaris*, together with the provision of generalist bird boxes. There are numerous records for tawny owl nearby to the Sites. As such, provisions for this species should also be included within future designs.

Examples of suitable boxes are shown in Appendix 4 together with information concerning the correct siting of these enhancement features.

**Recommendation 14**

A minimum of four bird boxes per Site should be installed, to include swift boxes, starling boxes and generalist boxes. One tawny owl box should also be included within future designs.

There is the opportunity to improve the Sites for use by bats. With this in mind, enhanced opportunities for roosting bats should be included to provide improved provisions for roosting bats. Examples of suitable boxes are shown in Appendix 4 together with information concerning the correct siting of these enhancement features.

**Recommendation 15**

It is recommended that a minimum of four integrated bat boxes are included in the design scheme.

The installation of boundary fences between gardens can impact on hedgehogs through loss of habitat connectivity. At least one 13cm x 13cm hole should be installed at the bottom of each boundary fence (with a focus on fences separating residential gardens, and excluding fences adjacent to roads), in order to maintain connectivity for hedgehogs between properties. These 'hedgehog highways' (PTES, 2018) should have appropriate signage installed to indicate their purpose and stipulate that they should remain open.

**Recommendation 16**

Maintain habitat connectivity for hedgehog through the installation of at least one 13cm x 13cm hole at the bottom of each boundary fence (with a focus on fences separating residential gardens, and excluding fences adjacent to roads). These should be accompanied with appropriate signage indicating their purpose and stipulating that they should remain open.

Amphibians naturally proceed along any vertical barrier they meet. In the context of a road, this is where the kerb line meets the road surface. When they reach a gully, many fall in and subsequently die of starvation. Inclusion of Wildlife Kerbs next to roadside gullies will allow amphibians to safely pass via a bypass recess in the front face of the kerb. An example of a wildlife kerb is provided in Appendix 4.

**Recommendation 17**

Include wildlife kerbs on any new access roads or streets to allow amphibians to safely bypass roadside gullies.

Urban greening has become a fundamental element of site and building design, and can be achieved by incorporating features such as high-quality landscaping (including trees), green roofs and green walls within developments. Policy G1 Green infrastructure of the London Plan aims to encourage greening of infrastructure in urban areas on previously developed land which has little or no existing natural surface. Given the Site comprises solely of the existing building, the current green infrastructure value of the Sites is minimal. These features have been identified as opportunities to maximise biodiversity within urban and sub-urban areas.

Green roofs can be installed on any flat, or slightly sloping, roof surface and can be highly beneficial for a wide variety of species. The principle behind a green roof is that it is intentionally planted to some extent. Design specifications should focus upon creating a structurally diverse open mosaic habitat, incorporating a variety of substrate types and pollinator-friendly plant species. Details on type and creation of green roofs are included in Appendix 4.

Green walls are essentially walls with living plants growing on them, where plants serve to enhance otherwise featureless areas. The process of allowing and encouraging plants to grow on and up walls allows the natural environment to be extended into urban areas. Green walls that comprise climbers and light weight support structures such as wires and trellis are relatively cheap to develop and maintain. Creating green walls by allowing climbing species to attach themselves to the actual structure of existing walls or fences is also a viable option. These can provide a food source for invertebrates on which, in turn, other species may feed. They also provide breeding and nesting habitat for invertebrates, birds (including house sparrow, a London biodiversity action plan priority species) and possibly bats and are ideal for including artificial animal breeding structures such as nest boxes. Moreover, these features should be combined with nest box provision to provide habitat for declining species of local priority such as black redstart. Details on the creation of green walls are included in Appendix 4.

**Recommendation 18**

Consider the inclusion of green infrastructure within the design scheme; this will directly address Policies G1 and G5 of the London Plan.

*Summary of recommendations*

Table 12 below summarises the recommendations made within this report, and specifies the stage of the development at which action is required. Colour coding of cells within the table is as follows:

**Key:**

No action required for this species group at this stage

Action required (see notes for details)

Level of action required will be determined following the further survey work

**Table 12: Summary of recommendations at Whitnell Way, Ashburton Estate**

| Species | Pre-planning action required? | Pre-construction action required? | Construction phase mitigation required? | Enhancements proposed? |
|---|---|---|---|---|
| **Designated sites** | Potential consultation between the LPA and Natural England regarding potential impacts on the nearby SAC and SSSI.<br><br>Production of a CEMP to ensure the protection of the Putney Old Burial Ground SINC and Wimbledon | Production of a CEMP | Enact CEMP | No |

| Species | Pre-planning action required? | Pre-construction action required? | Construction phase mitigation required? | Enhancements proposed? |
|---|---|---|---|---|
| | Common and Putney Heath SINC. | | | |
| **Habitats** | Retain and protect trees. | No | Retain and protect trees. | Native planting and new habitat creation |
| **Plants** | No | No | Removal of cherry laurel and bamboo with arisings disposed of as controlled waste. | No |
| **Bats** | Bat boxes and native planting | No | Incorporate integrated bat boxes into new buildings | Bat boxes and native planting |
| **Birds** | Bird boxes and native planting | No | Timing of works for vegetation removal OR further survey work<br>Incorporate integrated bird boxes into new buildings | Bird boxes and native planting |
| **Mammals** | No | Production of a CEMP | Enact CEMP | Hedgehog highways |

# 6. CONCLUSIONS

A Preliminary Ecological Appraisal and Preliminary Roost Assessment was undertaken in October 2022. This identified that the Sites are dominated by hardstanding and buildings, with scattered trees, introduced shrubs, areas of modified grassland and a hedgerow. The scattered trees are of ecological value and it is therefore recommended that these features be retained, and protected, where possible.

Due to the proximity of the Sites to Wimbledon Common SAC, liaison with the LPA and Natural England should take place should the Sites be brought froward for development. Due to the proximity to the Putney Old Burial Ground SINC and Wimbledon Common and Putney Heath SINC to the Sites, mitigation measures to minimise impacts from pollutants should be put in place to protect these designated sites during construction. A CEMP should be produced to detail required mitigation.

The potential protected species constraints that were identified onsite relate to invasive species, breeding birds and foraging and commuting bats. Works should be timed sensitively to avoid impacts on active birds' nests or further surveys done prior to vegetation clearance. A sympathetic lighting scheme should be developed to minimise impacts on bat activity as a result of the proposed works. Safeguards should be put in place to protected small mammals during works.

A Biodiversity Net Gain and Urban Greening Factor assessment should be undertaken to ensure that the proposed development is able to demonstrate a significant increase in biodiversity and green infrastructure provision within the Sites. This should inform a LEMP to ensure the successful establishment and long-term management of newly created habitats.

A number of biodiversity enhancements have been suggested that could be implemented in order to promote biodiversity, including the creation of species rich hedgerows, the creation of bee lawns native planting, the provision of bird boxes targeted to London Priority species, bat boxes, deadwood habitat piles, wildlife kerbs, hedgehog highways and the inclusion of green infrastructure, such as green roofs and green walls, within the final development.

Should all recommendations within this report being followed and adhered to, it is unlikely that there will be impacts on any designated sites or protected species. The recommendations outlined within this report will ensure that the proposals are in compliance with the National Planning Policy Framework and will also contribute to ensuring a sustainable development that helps to achieve both local and national biodiversity targets.

# 7. REFERENCES

BCT (2018) *Bats and artificial lighting in the UK*. Bats and the Built Environment series, Guidance Note **8** Bat Conservation Trust (BCT)

British Ornithologists' Union (2017). *The British List: A Checklist of Birds of Britain (9th edition).* Ibis **160**: 190-240.

British Standards Institution (2013) *British Standard 42020:2013, Biodiversity – Code of practice for planning and development.* British Standards Institution: London.

Butcher, B., Carey, P., Edmonds, R., Norton, L., & Treweek, J (2020) *The UK Habitat Classification User Manual Version 1.1* http://www.ukhab/org/

CIEEM (2013) *Code of Professional Conduct*. Chartered Institute of Ecology and Environmental Management (CIEEM), Winchester.

CIEEM (2017) *Guidelines for Preliminary Ecological Appraisal, 2nd edition*. Chartered Institute of Ecology and Environmental Management (CIEEM), Winchester.

Eaton, M.A., Aebischer, N.J., Brown, A.F., Hearn, R.D., Lock, L., Musgrove, A.J., Noble, D.G., Stroud, D.A. and Gregory, R.D. (2015). *Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man*. British Birds **108**: (708–746).

GiGL (2017). London BAP Priority Species. Greenspace Information for Greater London (GiGL), London

Greater London Authority (2021). *The London Plan: The Spatial Development Strategy for Greater London.* London

Greater London Authority (2008). London Biodiversity Action Plan – Review of Priority Species. Greater London Authority, London.

Institute of Lighting Professionals (2018). *Guidance Note 8 Bats and Artificial Lighting*. [ONLINE]. Available at: https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/

LISI (2019). *London Invasive Species Initiative* Species of Concern. Available at: http://www.londonisi.org.uk/what-and-where/species-of-concern/.

London Borough of Wandsworth (2016) *Wandsworth Local Plan Core Strategy*. Available at https://www.wandsworth.gov.uk/media/3753/local_plan_core_strategy.pdf

London Borough of Wandsworth (2020) *Wandsworth Local Plan – Pre-publication Regulation 18 Consultation Version*. Available at https://www.wandsworth.gov.uk/media/8078/draft_local_plan_low_res.pdf

Natural England (2019). *Natural England's Impact Risk Zones for Sites of Special Scientific Interest: User Guidance*. Available at https://data.gov.uk/dataset/5ae2af0c-1363-4d40-9d1a-e5a1381449f8/sssi-impact-risk-zones-england

PTES (2018). *Hedgehogs and development.* People's Trust for Endangered Species (PTES), Available at: https://www.britishhedgehogs.org.uk/wp-content/uploads/2019/05/developers-1.pdf

Stace, C. (2019) *New flora of the British Isles* (4th ed). C&M Floristics, Stowmarket

Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I (2021). *The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain*. British Birds 114: 723-747. Available online at: https://britishbirds.co.uk/content/status-our-bird-populations.

# 8. APPENDICES

## 8.1. Appendix 1: Relevant wildlife legislation and planning policy

Please note that the following is not an exhaustive list, and is solely intended to cover the most relevant legislation pertaining to species commonly associated with development sites.

| Subject | Legislation (England) | Relevant prohibited actions |
|---|---|---|
| *Amphibians* | | |
| Great crested newt *Triturus cristatus*<br><br>Natterjack toad *Epidalea calamita* | Schedule 2 of Conservation of Habitats and Species Regulations (2017)<br><br>Schedule 5 of The Wildlife and Countryside Act 1981 (as amended) | • Deliberately capture or kill, or intentionally injure;<br>• Deliberately disturb or recklessly disturb them in a place used for shelter or protection;<br>• Damage or destroy a breeding site or resting place;<br>• Intentionally or recklessly damage, destroy or obstruct access to a place used for shelter or protection; and<br>• Possess an individual, or any part of it, unless acquired lawfully. |
| *Reptiles* | | |
| Common lizard *Zootoca vivipara*<br><br>Adder *Vipera berus*<br><br>Slow-worm *Anguis fragilis*<br><br>Grass snake *Natrix helvetica helvetica* | Part of Sub-section 9(1) of Schedule 5 of The Wildlife and Countryside Act 1981 (as amended) | • Intentionally kill or injure individuals of these species (Section 9(1)). |

| Subject | Legislation (England) | Relevant prohibited actions |
|---|---|---|
| Sand lizard *Lacerta agilis*<br><br>Smooth snake *Coronella austriaca* | Full protection under Section 9 of Schedule 5 of The Wildlife and Countryside Act 1981 (as amended) | • Deliberately or intentionally kill, capture (take) or intentionally injure;<br>• Deliberately disturb;<br>• Deliberately take or destroy eggs;<br>• Damage or destroy a breeding site or resting place or intentionally damage a place used for shelter; or<br>• Intentionally obstruct access to a place used for shelter. |
| *Birds* | | |
| All wild birds | Wildlife and Countryside Act 1981 (as amended) | • Intentionally kill, injure, or take any wild bird or their eggs or nests. |
| 'Schedule 1' birds | Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) | • Disturb any wild bird listed on Schedule 1 whilst it is building a nest or is in, on, or near a nest containing eggs or young; or<br>• Disturb the dependent young of any wild bird listed on Schedule 1. |
| *Mammals* | | |
| Bats (all UK species) | Schedule 2 of Conservation of Habitats and Species Regulations (2017) | • Deliberately capture, injure or kill a bat;<br>• Deliberately disturb a bat (disturbance is defined as an action which is likely to: (i) Impair their ability to survive, to breed or reproduce, or to rear or nurture their young; (ii) Impair their ability to hibernate or migrate; or (iii) Affect significantly the local |

| Subject | Legislation (England) | Relevant prohibited actions |
|---|---|---|
| | Schedule 5 of Wildlife and Countryside Act 1981 (as amended) | distribution or abundance of the species);<br>• Damage or destroy a bat roost;<br>• Intentionally or recklessly disturb a bat at a roost; or<br>• Intentionally or recklessly obstruct access to a roost.<br><br>In this interpretation, a bat roost is "*any structure or place which any wild [bat]...uses for shelter or protection*". Legal opinion is that the roost is protected whether or not the bats are present at the time. |
| Badger *Meles meles* | Protection of Badgers Act 1992 | Under Section 3 of the Act:<br>• Damage a sett or any part of it;<br>• Destroy a sett;<br>• Obstruct access to, or any entrance of, a sett; or<br>• Disturb a badger when it is occupying a sett.<br><br>A sett is defined legally as any structure or place which displays signs indicating current use by a badger (Natural England 2007). |
| Hazel dormouse *Muscardinus avellanarius* | Schedule 2 of Conservation of Habitats and Species Regulations (2017) | • Intentionally or deliberately capture or kill, or intentionally injure; |

| Subject | Legislation (England) | Relevant prohibited actions |
|---|---|---|
| | Schedule 5 of Wildlife and Countryside Act 1981 (as amended) | • Deliberately disturb or intentionally or recklessly disturb them in a place used for shelter or protection;<br>• Damage or destroy a breeding site or resting place;<br>• Intentionally or recklessly damage, destroy or obstruct access to a place used for shelter or protection; and<br>• Possess an individual, or any part of it, unless acquired lawfully. |
| Otter *Lutra lutra* | Schedule 2 of Conservation of Habitats and Species Regulations (2017)<br><br>Section 9(4)(b) and (c) of Schedule 5 of Wildlife and Countryside Act 1981 (as amended) | • Deliberately capture, injure or kill an otter;<br>• Deliberately disturb an otter in such a way as to be likely to significantly affect the local distribution or abundance of otters or the ability of any significant group of otters to survive, breed, rear or nurture their young;<br>• Intentionally or recklessly disturb any otter whilst it is occupying a holt;<br>• Damage or destroy or intentionally or recklessly obstruct access to an otter holt. |
| Water vole *Arvicola amphibius* | Section 9 of Schedule 5 of Wildlife and Countryside Act 1981 (as amended) | • Intentionally kill, injure or take water voles;<br>• Possess or control live or dead water voles or derivatives;<br>• Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection; or<br>• Intentionally or recklessly disturb water voles whilst occupying a structure or place used for that purpose. |

| Subject | Legislation (England) | Relevant prohibited actions |
|---|---|---|
| *Crustaceans* | | |
| White-clawed crayfish *Austropotamobius pallipes* | Section 9(1) of Schedule 5 of Wildlife and Countryside Act 1981 (as amended) | • Intentionally kill, injure or take white-clawed crayfish by any method. |

### The Environment Act 2021

The Environment Act 2021, sets out key legislation after the UK's exit from the European Union. With the largest changes to green regulations in decades, the Act includes the establishment of an Office for Environmental Protection, targets on air pollution, water quality and biodiversity, and the enshrinement of the 25 Year Environment Plan in law. The Act also makes provisions for a mandatory 10% net gain in biodiversity for all developments covered by the Town and Country Planning Act and it also introduces a statutory requirement for Local Nature Recovery Strategies.
Full legislation text available at: https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted

### The Conservation of Habitats and Species Regulations 2017 (as amended)

Full legislation text available at: The Conservation of Habitats and Species Regulations 2017 (as amended) (legislation.gov.uk)

### The Wildlife and Countryside Act 1981 (as amended)

Full legislation text available at: http://www.legislation.gov.uk/ukpga/1981/69/contents.

### Countryside and Rights of Way Act 2000

Full legislation text available at: http://www.legislation.gov.uk/ukpga/2000/37/contents

### Protection of Badgers Act 1992

Full legislation text available at: http://www.legislation.gov.uk/ukpga/1992/51/contents

### Section 41 of Natural Environments and Rural Communities (NERC) Act 2006

Full legislation text available at: http://www.legislation.gov.uk/ukpga/2006/16/section/41

Many of the species above, along with a host of others not afforded additional protection, are listed on Section 41 of the NERC Act 2006.

Section 41 (S41) of the Natural Environment and Rural Communities (NERC Act 2006) requires the Secretary of State to publish a list of habitats and species that are of principal importance for the conservation of biodiversity in England. The list (including 56 habitats and 943 species) has been drawn up in consultation with Natural England and draws upon the UK Biodiversity Action Plan (BAP) List of Priority Species and Habitats.

The S41 list should be used to guide decision-makers such as local and regional authorities to have regard to the conservation of biodiversity in the exercise of their normal functions – as required under Section 40 of the NERC Act 2006. The duty applies to all local authorities and extends beyond just conserving what is already there, to carrying out, supporting and requiring actions that may also restore or enhance biodiversity.

### Schedule 9 of Wildlife and Countryside Act 1981 (as amended)

In addition to affording protection to some species, The Wildlife and Countryside Act 1981 (as amended) also names species which are considered invasive and require control. Section 14 of the Act prohibits the introduction into the wild of any animal of a kind which is not ordinarily resident in, and is not a regular visitor to, Great Britain in a wild state, or any species of animal or plant listed in Schedule 9 to the Act. In the main, Schedule 9 lists non-native species that are already established in the wild, but which continue to pose a conservation threat to native biodiversity and habitats, such that further releases should be regulated.

### Wild Mammals (Protection) Act 1996

Full legislation text is available at: http://www.legislation.gov.uk/ukpga/1996/3/contents

Under this legislation it is an offence to cause unnecessary suffering to wild mammals, including by crushing and asphyxiation. It largely deals with issues of animal welfare, and covers all non-domestic mammals including commonly encountered mammals on development sites such as rabbits, foxes and field voles.

### Birds of Conservation Concern (BoCC)

This is a quantitative assessment of the status of populations of bird species which regularly occur in the UK, undertaken by the UK's leading bird conservation organisations. It assesses a total of 245 species against a set of objective criteria to place each on one of three lists – Green, Amber and Red – indicating an increasing level of conservation concern. There are currently 70 species on the Red list, 103 on the Amber list and 72 on the Green list. The classifications described have no statutory implications, and are used merely as a tool for assessing scarcity and conservation value of a given species.

### National Planning Policy Framework (NPPF)

Full text is available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2

The revised NPPF was updated on 20 July 2021 setting out the Government's planning policies for England and the process by which these should be applied. The policies within the NPPF are a material consideration in the planning process. The key principle of the NPPF is a presumption in favour of

sustainable development, with sustainable development defined as a balance between economic, social and environmental needs.

Policies 174 to 188 of the NPPF address conserving and enhancing the natural environment, stating that the planning system should:

- Contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes;
- Recognise the wider benefits of ecosystem services; and
- Minimise impacts on biodiversity and provide net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity.

Furthermore, there is a focus on re-use of existing brownfield sites or sites of low environmental value as a priority, and discouraging development in National Parks, Sites of Specific Scientific Interest, the Broads or Areas of Outstanding Natural Beauty other than in exceptional circumstances.

Where possible, planning policies should also

"*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*".

Wandsworth Council has produced an adopted Local Plan, within which policy PL4 Open space and the natural environment relates to biodiversity and habitat conservation.

- PL4 Open space and the natural environment
    - *a) The Council will protect and improve public and private open space and Green Infrastructure in the borough, including Metropolitan Open Land, such as the major commons, parks, allotments, trees and playing fields as well as the smaller spaces, including play spaces, as identified in the Open Space Study and Play Strategy.*
    - *b) Playing fields will be protected and opportunities for participation in sport, recreation and children's play will be promoted. Where there is no future demand for playing fields or other outdoor sports use, other open space uses will be sought.*
    - *c) The Council will require the provision of open space and/or secure public access to private facilities, in appropriate developments, and as a priority in areas identified as deficient in open space, play space or sport and recreation facilities and/or to meet priorities identified in the Council's Play Strategy, Active Wandsworth Strategy, Parks Management Strategy and All London Green Grid (ALGG) Area Frameworks. The requirements for open space provision are set out in the Planning Obligations SPD.*

*d) The borough's green chains and the open spaces along them will be protected and enhanced taking into account opportunities identified in the ALGG Area Frameworks.*

*e) The biodiversity value of the borough will be protected and enhanced including that of the River Thames, River Wandle and Beverley Brook and species and habitats identified in the London Biodiversity Action Plan and through Local Nature Partnerships.*

*f) New development should avoid causing ecological damage and propose full mitigation and compensation measures for ecological impacts which do occur. Where appropriate new development should include new or enhanced habitat or design and landscaping which promotes biodiversity, and provision for management, particularly in areas identified as deficient in nature conservation.*

*g) The Council will work with partners to develop and implement proposals for the Wandle Valley Regional Park.*

A new Local Plan is currently in development, which will supersede the existing Local Plan. Within this document the following policies relate to biodiversity and habitat conservation:

- LP55 Protection and Enhancement of Green and Blue Infrastructure

*A. The Council will protect the natural environment, enhance its quality and extend access to it. In considering proposals for development the Council aims to create a comprehensive network of green and blue corridors and places, appropriate to the specific context. In doing so, it seeks to connect and enrich biodiversity through habitat improvement and protection at all scales, including priority habitats and extend access to, and maximise the recreation opportunities of, our urban open spaces.*

*B. The Council will protect and extend access to existing public and private green and blue infrastructure in the borough and where appropriate secure its enhancement, including Metropolitan Open Land, major commons, wetlands, rivers, ponds, parks, allotments, trees and playing fields as well as smaller spaces, including play spaces.*

*C. Areas of open space, including those identified on the Policies Map, and smaller areas not identified on the Policies Map will be protected, enhanced and made more accessible. Green chains and open spaces along them will be protected, made more accessible, and, where appropriate, enhanced in accordance with opportunities identified in the relevant All London Green Grid Area Framework.*

*D. New development on or affecting public and private green and blue infrastructure will only be permitted where it does not harm the character, appearance or function of the green or blue infrastructure. In assessing proposals, any impacts of the cumulative effect of development will be taken into account.*

*E. Any development which results in a reduction of green or blue infrastructure assets including protected open space as set out in (B) and (C) above will not be supported unless adequate replacement is provided for. In determining the amount, form and*

*accessibility of open space provided for within a new development scheme account will not be taken of the proximity and adequacy of existing open space*

- LP57 Biodiversity
    - *A. The Council will protect and, where appropriate, secure the enhancement of the borough's priority species, priority habitats and protected sites as well as the connectivity between such sites. This includes but is not limited to Special Areas of Conservation, Sites of Special Scientific Interest, Local Nature Reserves, Local Wildlife Sites.*
    - *B. Development proposals will be required to protect and enhance biodiversity, through:*
        1. *ensuring that it would not have an adverse effect on the borough's designated sites of habitat and species of importance (including buffer zones), as well as other existing species, habitats and features of biodiversity value;*
        2. *The incorporation and creation of new habitats or biodiversity features on development sites including through the design of buildings and use of Sustainable Drainage Systems where appropriate. Major developments will be required to deliver a net gain in biodiversity, through the incorporation of ecological enhancements;*
        3. *ensuring that new biodiversity features or habitats connect to the existing ecological and green and blue infrastructure networks and complement surrounding habitats;*
        4. *enhancing wildlife corridors for the movement of species, including river, road and rail corridors, where opportunities arise; and*
        5. *maximising the provision of ecologically functional habitats within soft landscaping.*
    - *C. Development which would have an adverse impact on priority species or priority habitat(s) will only be permitted where:*
        1. *it has been demonstrated that there is no alternative site layout or site that would have a less harmful impacts;*
        2. *the benefits of the development would outweigh the harm; and*
        3. *the impact has been adequately mitigated either through on or off-site site measures.*

- LP58 Tree Management and Landscaping
    - *A. The Council will require the retention and protection of existing trees and landscape features, including veteran trees.*
    - *B. Where appropriate, planning applications must be supported by sufficient evidence to demonstrate that provision has been made for the incorporation of new trees, shrubs and other vegetation of landscape significance that complement existing, or create new, high quality green areas, which deliver amenity, environmental, and biodiversity benefits.*

*C. To ensure development protects, respects, contributes to and enhances trees and landscapes, the Council, when assessing development proposals, will:*

- *Trees and Woodland*
    1. *resist the loss of trees, including veteran trees and trees considered to be of townscape or amenity value, unless the tree is dead, dying or dangerous; or the tree is causing significant damage to adjacent structures; or the tree has little or no amenity value and it is not possible to retain the tree as part of the development; or felling is for reasons of good arboricultural practice;*
    2. *resist development proposals that would result in the loss or deterioration of irreplaceable habitat such as ancient woodland;*
    3. *require the design and layout of the proposal to ensure that a harmonious relationship between trees and their surroundings will be provided and will resist development which would result in pressure to significantly prune or remove trees;*
    4. *consent for works to protected trees (TPOs and trees in Conservation Areas) will only be granted where;*
        a. *proposed works of pruning are in accordance with good arboricultural practice, or*
        b. *proposals for felling are properly justified through a detailed arboricultural and/or structural engineer's report; and*
        c. *adequate replacement planting is proposed.*
    5. *require, where practicable, an appropriate replacement on-site for any tree that is felled; a financial contribution to the provision for an off-site tree in line with the monetary value of the existing tree to be felled will be required in line with the 'Capital Asset Value for Amenity Trees' (CAVAT);*
    6. *resist development that would result in the loss or deterioration of irreplaceable habitat such as ancient woodland;*
    7. *resist development which results in the damage or loss of trees that are considered to be of townscape or amenity value; the Council will require that site design or layout ensures a harmonious relationship between trees and their surroundings and will resist development which will be likely to result in pressure to significantly prune or remove trees;*
    8. *require new trees to be of a suitable species for the location in terms of height and root spread, taking account of space required for trees to mature; the use of native species will be encouraged where appropriate; and*
    9. *require that trees are adequately protected throughout the course of development, in accordance with British Standard 5837 (Trees in relation to design, demolition and construction).*

*D. The Council will serve a Tree Preservation Order or attach planning conditions which protect any trees considered to be of value to the townscape and amenity in order to secure their retention.*

- LP59 Urban Greening Factor
    - *A. All development proposals should contribute to the greening of Wandsworth borough by including urban greening as a fundamental element of site and building design, and by incorporating measures such as high-quality landscaping (including trees), green roofs, green walls and nature-based sustainable drainage.*
    - *B. Development proposals will be required to:*
        1. *follow the guidance on the Urban Greening Factor in the emerging London Plan for calculating the minimum amount of urban greening required as well as for the thresholds different types of development will be required to meet; and*
        2. *incorporate as much soft landscaping and permeable surfaces as possible;*
        3. *take into consideration the vulnerability and importance of local ecological resources (such as water quality and biodiversity) when applying the principles of the Urban Greening Factor.*
    - *C. If it can be clearly demonstrated that meeting the thresholds would not be feasible, in exceptional circumstances a financial contribution may be acceptable to provide for the improvement of biodiversity and green and blue infrastructure assets within the locality.*

Additionally, given that the Site is located within London, consideration of the London Plan 2021 has also been given. The London Plan contains a number of policies relating to biodiversity, a brief summary of which are set out below:

- Policy G1 Green infrastructure;
- Policy G5 Urban greening;
- Policy G6 Biodiversity and access to nature;
- Policy G7 Trees and woodlands; and
- Policy G8 Food growing.

### Local Priority Habitats and Species

The London Biodiversity Action Plan, led by the London Biodiversity Partnership, identified a total of 214 priority species that are under particular threat in London. The full text is available here: https://www.gigl.org.uk/london-bap-priority-species/

## 8.2. Appendix 2: UK Habitat Classification species list

Please note that these lists are intended to be incidental records and do not constitute a full botanical survey of the site. Relative abundance is given using the DAFOR scale. Please see Table 2 for details.

*Modified grassland g4 (11 Scattered trees,, 17 Active management)*

| Common Name | Systematic Name | Relative abundance |
|---|---|---|
| Perennial rye-grass | *Lolium perenne* | D |
| Common daisy | *Bellis perennis* | F |
| Chickweed | *Stellaria media* | O |
| Dandelion | *Taxacum officinale* agg. | O |
| Dove's-foot crane's-bill | *Geranium molle* | O |
| Red fescue | *Festuca rubra* | O |
| Ribwort plantain | *Plantago lanceolata* | O |
| Germander speedwell | *Veronica chamaedrys* | R |
| Hawkbit | *Leontodon* sp. | R |
| Spotted medick | *Medicago arabica* | R |
| Wood avens | *Geum urbanum* | R |

*Other hedgerow h2b*

| Common Name | Systematic Name | Relative abundance |
|---|---|---|
| Cherry laurel | *Prunus laurocerasus* | D |
| Rose | *Rosa* sp. | O |

*Suburban/ mosaic of developed/ natural surface u1d (1160 Introduced shrubs)*

| Common Name | Systematic Name | Relative abundance |
|---|---|---|
| Cherry laurel | *Prunus laurocerasus* | A |
| Firethorn | *Pyracantha* sp. | F |

*Scattered trees 11*

| Common Name | Systematic Name | Relative abundance |
|---|---|---|
| Ash | *Fraxinus excelsior* | O |

| Common Name | Systematic Name | Relative abundance |
|---|---|---|
| Copper beech | *Fagus sylvatica* 'Purpurea' | O |
| Hazel | *Corylus avellana* | O |
| Hornbeam | *Carpinus betulus* | O |
| London Plane | *Platanus × acerifolia* | O |
| Rowan | *Sorbus aucuparia* | O |

## 8.3. Appendix 3: Site photographs

**Photograph 1: Modified grassland**

**Photograph 2: Cherry laurel hedgerow in Site 2**

**Photograph 3: Sections of hedges dominated by rose**

**Photograph 4: Example of hardstanding areas and Building 1 on Site 1**

**Photograph 5: Building 2, Site 3**

## 8.4. Appendix 4: Faunal recommendations

**Bird box recommendations**

A large number of bird boxes are available, designed for the specific needs of individual species. These are normally either designed to be mounted onto trees, external walls or integrated into a building. In general, bird boxes should be mounted out of direct sunlight and prevailing winds, out of reach of predators, with suitable foraging habitat for the subject species close by. Bird boxes should also be left up over winter as they can provide useful roosting sites for birds in bad weather.

Nest boxes should be cleaned at the end of each bird breeding season. All nesting material and other debris should be removed from the box. It should then be scrubbed clean with boiling water to kill any parasites (avoid using any chemicals). Once the box is clean, it should be left to dry out thoroughly. Under the Wildlife and Countryside Act 1981 it is an offence to disturb breeding birds and therefore annual cleaning is best undertaken from October to January when there is no risk of disturbing breeding birds.

*Generalist boxes*

Boxes to attract garden birds and woodland breeding species such as tits, nuthatch, redstart and pied flycatcher can be placed in gardens, orchards, woodlands and a wide variety of other habitats. The species of birds attracted to the box will depend upon the size of the entrance hole (see table below).

Boxes should be fixed two to five metres up a tree or wall, out of the reach of predators such as domestic cats. Unless there are trees or buildings, which give permanent shelter, it is best facing between north and east.

| **General** | | |
|---|---|---|
| **Example** | **Description** | **Picture** |
| Bird Brick Houses Integrated bird box | http://www.birdbrickhouses.co.uk/brick-nesting-boxes/integrated-bird-box/<br><br>Integrated into outside skin of 75mm and most 3” brickwork courses. Comes with a variety of hole sizes to suit particular bird species. |  |
| **Entrance Hole** | **Species** | |

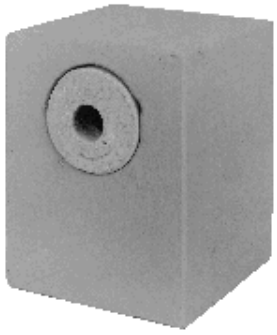
| | | |
|---|---|---|
| 28mm | Blue-, Marsh-, Coal- and Crested Tit, Wren. | |
| 34mm | Great-, Blue-, Marsh-, Coal- and Crested Tit, Nuthatch, Pied Flycatcher, House Sparrow | |
| 40mm | Redstart and Black Redstart | |
| 50m | Starling | |
| 60m | Spotted Flycatcher | |
| Schwegler No. 1B General Purpose Nest box | www.schwegler-nature.com<br><br>Suitable for various garden and woodland birds, created with different sized entrance holes to avoid competition between species. Other variations (e.g. 2M) can be free hanging, to deter predators. |  |
| **Entrance Hole** | **Species** | |
| 26 mm | Blue-, Marsh-, Coal- and Crested Tit, possibly Wren. All other species are prevented from using the nest box due to this smaller entrance hole | |
| 32 mm | Great-, Blue-, Marsh-, Coal- and Crested Tit, Redstart, Nuthatch, Pied Flycatcher, Tree and House Sparrows. | |
| Oval | Redstart; also used by species that nest in the diameter 32 mm boxes. However, because more light enters the brood chamber, it is preferred by Redstarts. | |

*House Sparrow boxes*

House Sparrow typically nest in loose colonies of around 10-20 pairs and, as they do not defend a territory, boxes can be placed as close as 20-30cm apart. Several individual boxes can be placed together or a terrace (see below) can be installed. House Sparrow's typical range is less than 2km; however, during breeding season adult birds will forage within just 60–70 m metres of their nest site with residential gardens, with native deciduous shrubbery, trees and grassland being favourable foraging habitat

The brick design box can be incorporated into the building or attached the outside of the building. Ideally the box will be placed at soffit/eaves level or at least 2m high.

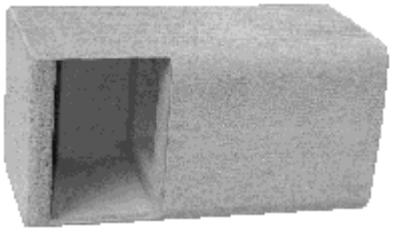
The ideal nest box for this species will be approximately 350mm (h) x 150mm (w) x 150mm (d) with a hole approximately 32mm in diameter.

| **House Sparrow** | | |
|---|---|---|
| **Example** | **Description** | **Picture** |
| Schwegler Brick Box Type 24 | (www.schwegler-nature.com)<br><br>This brick design can be built into the wall of the new development and the external surface, excluding the hole, can be rendered to match the surrounding wall. |  |
| WoodStone Build-in House Sparrow Nest Box | www.nhbs.com<br><br>This nest box is constructed from a mix of concrete and wood fibres. It is designed to be built into walls and is three brick high making it easy to incorporate into walls during construction or renovation. The front can be removed for cleaning or inspection. |  |

*Black redstart box recommendations*

Providing nest boxes for black redstart is often only successful when suitable foraging habitat is available in the surrounding area, such as areas of sparse wasteland vegetation and a stony substrate, as well as areas for perching and singing. The provision of such habitats can be achieved by creating foraging areas through the green roof to be included within the final development.

Black redstart typically nests on a building ledge or within a hole in the wall. The ideal nest box would therefore be built into the wall with an open front. Boxes for black redstart should be open fronted with a narrow entrance to present access by predators.

| **Black redstart** | | |
|---|---|---|
| **Example** | **Description** | **Picture** |
| Schwegler open fronted brick box 1HE | www.schwegler-nature.com<br><br>This brick design can be built into the wall of the new development and the external surface, excluding the hole, can be rendered to match the surrounding wall. It has the added benefit of a narrow entrance which can help to prevent predation. |  |

*Starling boxes*

Starlings are often found in areas where there are established pasture fields close to their roosting site, with further foraging provided by hedges close by.

The nest box should be placed at soffit/eaves level, or at a similar height on a tree, and should not be situated closer than 3m to the ground. Although Starlings do not defend a territory, boxes should be spaced at least several metres apart.

The ideal nest box for starlings is approximately 400mm (h) x 180mm (w) x 180mm (d) with a hole approximately 45mm in diameter.

| **Starling** | | |
|---|---|---|
| **Example** | **Example** | **Example** |
| Woodstone starling nest | https://www.birdfood.co.uk/woodstone-starling-nest-box.html<br><br>May also be attractive to woodpeckers but only as a roost site |  |

| | | |
|---|---|---|
| Schwegler Starling box 3S | www.schwegler-nature.com<br><br>Can be mounted on buildings or trees, ideally out of direct sunlight. |  |
| Schwegler 3SV Nest Box – 45mm | https://gardenature.co.uk<br><br>With a large, 45mm, entrance hole, this nest box is ideally suited to support starlings and can be mounted on buildings or trees.<br><br>This box is made from a wood-concrete mix and has a removable front panel that aids cleaning. |  |

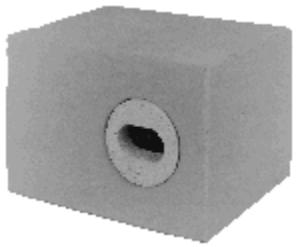
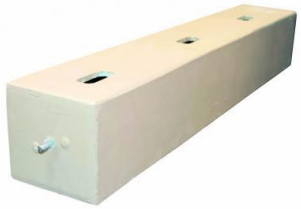
*Swift boxes*

Swifts are colonial nesters and it is important to have several nest sites in one area. It is recommended that most buildings should have between 4 and 10 nest provisions. Swifts also feed almost exclusively on the aerial plankton of flying insects and airborne spiders of small to moderate size, so therefore require habitats which support these invertebrates.

Nest boxes designed for swifts should be installed at least 5m high, around the eaves of the building or under deeply overhanging eaves to allow swifts to drop into the air to forage. The boxes should be positioned away from climbing plants to avoid access for predators such as rodents.

Swifts typically nest in flat spaces within buildings or within a crevice or cavity. The ideal nest box should have an oval or rectangular hole around 30mm (h) x 65mm (w). The internal dimensions of the box should be approximately 400mm (w) x 200mm (d) x 150mm (h).

Swifts can be attracted to areas that they have not previously colonised using 'swift response calls'. Audio CDs are available for this purpose and are available on the Schwegler website (www.schwegler-nature.com).

| **Swift** | | |
|---|---|---|
| **Example** | **Description** | **Picture** |
| Ibstock Swift Box | www.Ibstock.com<br><br>This swift brick can be built into a wall on new buildings. |  |
| Woodstone Build-in Swift Box | https://gardenature.co.uk<br><br>This nest box is made from a concrete and wood fibre mix. It can be mounted on a wall, or it can be built into the fascia of a wall. The front of the Woodstone swift box can be removed for cleaning.<br><br>It should be fitted at least 5 metres above the ground ensuring there is an unobstructed flight path for birds entering and leaving the box. |  |
| Schwegler Brick Box Type 25 | www.schwegler-nature.com<br><br>This brick design can be built into the wall of the new development and the external surface, excluding the hole, can be rendered to match the surrounding wall. |  |
| Triple Genesis Swift Nest Box | https://www.wildcare.co.uk/<br><br>It can be mounted on an external wall to provide three swift nesting sites. |  |

**Bat box recommendations**

A wide range of bat boxes are available to suit a variety of species and design requirements. Bat boxes can be mounted externally on buildings, built directly into the wall structure or mounted on trees (dependent on box design).

Boxes are more likely to be inhabited if they are located where bats feed and it may help to place the box close to features such as tree lines or hedgerows, which bats are known to use for navigation and can provide immediate cover for bats leaving the roost. Boxes should be placed in areas sheltered from strong winds and are exposed to the sun for part of the day. Access to any bat roosting features should not be lit and should also be at a reasonable height to avoid predation (at least 2m if possible, preferably 4-5m).

*Mounted to building externals*

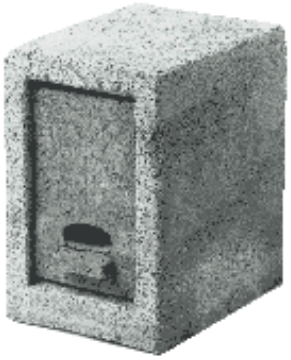
| Example | Description | Picture |
|---|---|---|
| Beaumaris bat box | https://www.wildcare.co.uk<br><br>Dimensions:<br>Small: (h) 40 x (w) 28 x (d) 6.5 cm<br>Large: (h) 50 x (w) 38 x (d) 6.5 cm<br><br>Suitable for crevice dwelling bats, the Beaumaris Bat Box is made from 100% woodstone and is available in two sizes.<br>These boxes have a rough interior to provide grip. They have good thermal insulation, reducing temperature fluctuations within the box. They are painted black to best absorb the sun's heat, which is important as bats need to increase their body temperature before they emerge in the evening. Suitable for wall mounting. |  |

| | | |
|---|---|---|
| Vivara Pro Low Profile Woodstone bat box | https://www.nhbs.com/low-profile-woodstone-bat-box<br>Dimensions: (h) 440 x (w) 290 x (d) 90 mm, Weight: 4.7 kg<br>Installation: attached to most external walls at least 3m high<br><br>This box is manufactured from WoodStone, a breathable and insulating material made from concrete and FSC Certified wood fibres. WoodStone is designed to be robust and hard-wearing, providing a warm and stable temperature for summer bat roosts. |  |
| Schwegler 1FQ | www.schwegler-nature.com<br><br>Dimensions: (h) 60 x (w) 35 x (d) 9 cm<br>Weight: 15.8kg<br>Installation: Attached to most external brick, timber or concrete walls at least 3m high. Can also be placed inside roof space or historic buildings.<br><br>This box is ideal for all types of bats that inhabit buildings. The box is weather-resistant, provides varied roosting environments for each species requirements and is also temperature controlled and self-cleaning. The front panel of the box can also be painted during manufacture, to match an existing colour. |  |
| Schwegler 1WQ | www.schwegler-nature.com<br><br>Dimensions: (h) 58 x (w) 38 x (d) 11.5 cm<br>Weight: approx. 21 kg<br>Installation: Attached to most types of external brick, timber or concrete walls at least 3.5m. It will also attract bats if it is placed inside a roof space or inside historic buildings. |  |

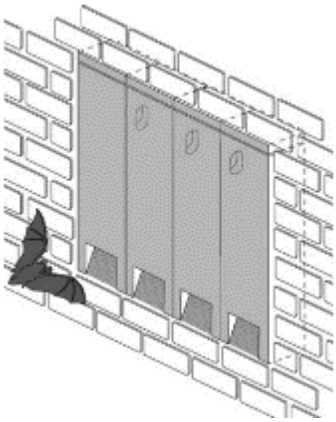
| | | |
|---|---|---|
| | This box typically attracts building-inhabiting bat species. It is weather-resistant and designed for both winter hibernation and larger colonies in summer, including nursery roosts. The box has a double walled system which provides insolation and self-ventilation. The box as a variety of roosting features, making it suitable for different species, allowing individuals to find optimum conditions and it is self-cleaning. | |

*Integrated into fabric of building*

| Example | Description | Picture |
|---|---|---|
| Ibstock brick enclosed bat boxes | https://ibstockbrick.co.uk/kevington/eco-products/<br><br>Dimensions: 215 x 215 or 215 x 290 (mm)<br><br>These boxes are ideal for new-build homes and are designed specifically for pipistrelle bats. They come in a range of sizes brick types. They are self-cleaning, so require no maintenance. |  |
| Habibat integrated bat boxes | http://www.habibat.co.uk/integrated-bat-boxes<br><br>These integrated bat boxes are made of insulating concrete which provides an internal roost space, and can be integrated into the fabric of a building as it is built or renovated.<br><br>They offer boxes in a range of sizes and styles, and can all be customised with a range of finishes. This includes, brick, block, stone, wood or a rendered finish, ensuring the box is unobtrusive and aesthetically pleasing |  |

| Example | Description | Picture |
|---|---|---|
| Bird Brick House bat box | https://www.birdbrickhouses.co.uk/brick-nesting-boxes/bat-box/<br><br>These bat boxes can be supplied in brick fronted, half bond and quarter bond brickwork or alternatively with a stainless steel mesh fitted to the front. The mesh is designed for optimum adhesion in render and stonework applications. A basic version can be fitted directly behind weatherboarding or into studwork. These bat boxes are suitable for a range of bat species, the entrance hole and internal design can be tailored to suit different species of bat |  <br>  |
| Brick Box Type 27 | www.schwegler-nature.com<br><br>Dimensions: (h) 26.5 x (w) 18 x (d) 24 cm<br>Weight: 9.5kg<br>Installation: Can be flush with outside wall and rendered or covered so only the entrance hole is visible.<br><br>This box is ideal for all types of bats that inhabit buildings. This box is designed to be similar to a natural woodpecker hole with the same shallow, oval depression in the floor. |  |
| Schwegler 1FE | www.schwegler-nature.com<br><br>Dimensions: (h) 30 x (w) 30 x (d) 8 cm<br>Weight: 5.1kg<br>Installation: Fixed to external walls or set into masonry and rendered.<br><br>This box is ideal for all types of bats that inhabit buildings. This box is suitable for roosting and can be used to allow bats to crawl into existing roosting areas, such as cavities within buildings or used as a complete bat roost itself, without requiring cavities behind it. The box is |  |

| Example | Description | Picture |
|---|---|---|
| | self- cleaning and can be painted over with air-permeable paint. |  |
| Built-in Woodstone bat box | https://www.nhbs.com/build-in-woodstone-bat-box<br>Dimensions: (H) 500 x (W) 210 x (D) 160mm, Weight: 9.48kg<br><br>This bat box has been specifically designed to fit into the cavity of house walls, with the entrance sitting flush with the outside bricks. It is manufactured from WoodStone with removable side panels so that several boxes can be placed side by side. WoodStone is a mixture of sawdust from FSC wood sources and concrete, and it is designed to last for years. It is breathable and Woodstone maintains a consistent temperature inside, providing excellent insulation for roosting bats. |  |

| Example | Description | Picture |
|---|---|---|
| Schwegler 1FR and 2FR | www.schwegler-nature.com<br><br>Dimensions: (h) 47 x (w) 20 x (d) 12.5<br>Weight: 9.8kg<br>Installation: Can be installed on external walls – either flush or beneath a rendered surface in concrete and, during renovation work, under wooden panelling or in building cavities. Comes as single tube (1FR) or multiple tubes (2FR).<br><br>This box is ideal for all types of bats that inhabit buildings and is designed as a summer roost. It provides a variety of roosting features and is designed to maintain climatic conditions. It is self-cleaning and weather-resistant.<br><br>By installing boxes side by side, colony roosts can be created with any size requirement. This box has three different environmental partitions inside, attracting different species and can be connected to another box by preformed passages made in the sides of the units. |  <br>  <br>  |
| Schwegler 1WI | www.schwegler-nature.com<br><br>Dimensions: (h) 55 x (w) 35 x (d) 9.5 cm<br>Weight: 15kg<br>Installation: Attached to most types of external brick, timber or concrete walls. It can be installed flush-mounted and rendered over or simply against the wall. It should be installed at a height of at least 3m.<br><br>This box is weather-resistant and designed for both winter hibernation and larger colonies in summer, including nursery roosts. the box is self-cleaning. |  |

*Tree mounted*

| Example | Description | Picture |
|---|---|---|
| Vivara Pro Woodstone bat box | https://www.nhbs.com/equipment<br><br>Dimensions: (h) 250 x (w) 190 x (d) 165 mm, Weight: 4.5 kg<br><br>This box is made from woodstone and it is designed to last for years. The box can be attached to either a wall or a tree and should be sited at a height of at least 3 m from the ground. Bats prefer to change roosts to benefit from varying ambient temperatures, so bat boxes should ideally be clustered in small groups. |  |
| Eco Kent bat box | https://www.nestbox.co.uk/products/eco-kent-bat-box<br><br>Dimensions: (h) 52 x (w) 23 x (d) 16 cm<br>Weight: 4.5kg<br><br>This bat box is ideal for crevice-dwelling species such as common and soprano pipistrelle. It has a 100% recycled outer shell to protect the wooden interior to create a long-lasting box. It is also a self-cleaning, maintenance free box. |  |
| Bark Boxes | https://www.barkboxes.co.uk/<br><br>Bark Boxes are constructed using a tough felt made of recycled polyamide combined with a cement and recycled cellulose fibre mix. The cellulose fibre will allow the outer layers to mellow and support lichens and mosses in time.<br><br>Each box has a curved back to fit well on a tree. Boxes have endoscope holes for inspection and/or drainage holes. They come in a range of sizes and can be |  <br>  |

| Example | Description | Picture |
|---|---|---|
| | designed for crevice-dwelling and void-dwelling bats, including maternity chambers and hibernation boxes. | |

**Sensitive lighting recommendations**

Artificial lighting has been shown to have a negative impact on bats. It can cause bats to desert or become entombed within a roost, affect feeding behaviour and create barriers which bats cannot cross. There are several factors to consider within a sensitive lighting scheme in order to minimise light spill onto features identified as important for bats during previous survey effort.

***Avoid lighting the key habitats and features***

Where possible, there should be no artificial lighting on any roost entrances or associated flight paths, as well as habitats or features used by large numbers of bats, rare species or highly light-averse species. An unlit 'dark zone' should be created around the features of importance through the careful placement of artificial lighting and structures such as walls or fences. It is important to remember that there is no legislation requiring a road or area to be lit.

***Appropriate luminaire recommendations***

Bats are particularly sensitive to blue, green and UV light and therefore luminaries should be selected which emit "warm white" light (2700K to 3000K) and wavelengths with peaks greater than 550nm. LED lights should be used where possible as they fit these criteria and have other advantageous characteristics such as sharp cut-offs, usability at lower intensities and dimming capabilities.

***Column height and timing***

Column height should be carefully considered in order to minimise light spill. Luminaires should always be mounted on the horizontal and only luminaires with an upward light ratio of 0% and with good optical control should be used. Low-level lighting from bollards should be avoided where possible, and specialist bollard or low-level downward directional luminaires should only be used as directed by the lighting professional. Any external security lighting should be set on motion sensors and short (one minute) timers.

***Internal lighting***

Where possible, the site design should minimise the number and size of windows facing the features of importance. Where windows are required, recessed lighting should be used rather than pendant lighting to minimise light spill. Furthermore, factory-tinted glazing treatments can be used to minimise internal light transmission

*Wildlife Kerbs*

Amphibians and small mammals (voles, mice and shrews) naturally proceed along any vertical barrier they meet. In the context of a road, this is where the kerb line meets the road surface. When they reach a gully, many will fall in and subsequently die of starvation. Amphibians commuting to and dispersing from breeding ponds are particularly vulnerable if they have to cross a road.

The simple design of the ACO Wildlife Kerb features a bypass recess in the front face which allows amphibians and other wildlife to follow the kerb line safely.

| **Wildlife Kerb** | | |
|---|---|---|
| **Example** | **Description** | **Picture** |
| ACO Wildlife Kerb | https://www.aco.co.uk/products/wildlife-kerb<br><br>Matches the standard HB2 kerb profile. Bypass pocket is set into the kerb to prevent wildlife falling into the road gully. |  |

**Invertebrate recommendations**

*Deadwood features*

| **Example** | **Description** | **Picture** |
|---|---|---|
| 'Stag beetle loggery | https://ptes.org/9-top-ways-to-help-stag-beetles-in-your-garden/<br><br>Large volume deadwood dug into the soil (a minimum of 500mm depth) to provide food for the larvae of deadwood specialists such as stag beetles. |  <br>(image credit – PTES, 2021) |

| Example | Description | Picture |
|---|---|---|
| Artificial rot hole | Once felled, an artificial cavity can be carved easily with a chainsaw to create a rot hole. The ensuing pool and rotting wood provide habitat for a number of specialist invertebrates. These examples were targeted at a pinewood specialist in Caledonian forests in Scotland, but are of equal value to other species in lowland England.<br><br>Taylor *et al.* (2021) British Wildlife **32**(8) p547 |  <br>  <br>  <br>(image credits - Athayde Tonhasca via Scotlandsnature.blog, 2020) |

## 8.5. Appendix 5: Habitat creation recommendations

**Native species planting recommendations**

Details of suitable species to include in the areas of proposed soft landscaping are provided in the tables below. Native species-rich hedgerows contain at least five woody species.

**Table A: Species recommended for hedgerow planting**

| Common name | Systematic name |
|---|---|
| Field maple | *Acer campestre* |
| Dogwood | *Cornus sanguinea* |
| Spindle | *Euonymus europaeus* |
| Wild privet | *Ligustrum vulgare* |
| Dog rose | *Rosa canina* |
| Wayfaring tree | *Viburnam lantana* |
| Guelder rose | *Viburnam opulus* |
| Hazel | *Corylus avellana* |
| Beech | *Fagus sylvatica* |
| Holly | *Ilex aquifolium* |
| Elder | *Sambucus nigra* |
| Hawthorn | *Crataegus monogyna* |
| Small-leaved lime | *Tilia cordata* |
| Blackthorn | *Prunus spinosa* |

**Table B: Recommended species for fruit, nut and berry planting**

| Common name | Systematic name |
|---|---|
| Crab apple | *Malus sylvestris* |
| Sweet cherry | *Prunus avium* |
| Elder | *Sambucus nigra* |
| Hazel | *Corylus avellane* |
| Hawthorn | *Crataegus monogyna* |

**Table C: Recommended species for shrub planting**

| Common Name | Systematic name |
|---|---|
| Lavender | *Lavandula angustifolia* |
| Hebe | *Hebe* sp. |
| Bee bush | *Abelia* sp. |
| Dogwood | *Cornus sanguinea* |

| Common Name | Systematic name |
|---|---|
| Guelder rose | *Viburnum opulus* |

**Wildlife pond recommendations**

A wildlife pond forms a feature is of elevated value in the local area due to the range of opportunities that it affords a variety of faunal groups. The creation of such a feature should be undertaken with biodiversity in mind. This should consist of marginal plants, with a section of open, permanent water which is of a sufficient depth (>1m). It is recommended that to ensure a more natural-looking landscape and to maximise biodiversity that edges of the pond are scalloped and depth is undulating to provide suitable habitats for a number of species, both flora and fauna.

The spoil arising from the digging of a new pond can be left on site as un-compacted mounds or banks. If mixed with other materials such as clean rubble, this can provide a good newt shelter/hibernation site, with cracks, fissures and, in time, small mammal burrows and tussocky vegetation. Ponds should be created so as to support a wide range of invertebrates, with a quantity of native marginal, floating and submerged vegetation (of local provenance), with some areas of open water.

The marginal (shallow water) areas of the new pond should be planted with native aquatic species. Marginal pond plants are water plants which grow in shallow water with their roots submerged and their leaves and flowers above the water surface. Planting of native aquatic vegetation in the pond and on the pond margins will help to increase the invertebrate diversity and also assist stabilisation of the banks and oxygenation of the water.

The following plants are all native to the UK and have been chosen for their value to wildlife, in particular invertebrates.

**Table D: Suggested wetland species to be planted within and around the wildlife pond**

| Common Name | Systematic name | Position in water |
|---|---|---|
| Arrowhead | *Sagittaria sagittifolia* | Pond marginal plant, 5-30cm |
| Banded horsetail | *Equisetum fluvitale* | Pond marginal up to 30cm |
| Bog arum | *Calla palustris* | Pond marginal shelf up to 15cm deep; or very wet soil. In established ponds with good layer of sediment in bottom can be left to free float. |
| Bog bean | *Menyanthes trifoliata* | Pond marginal shelf up to 0-60cm deep, or very wet soil. Best planted in a shallow square 2 litre aquatic basket: |

| Common Name | Systematic name | Position in water |
|---|---|---|
| Brooklime | *Veronica beccabunga* | Pond marginal shelf up to 5cm deep; or very wet soil |
| Cyperus sedge | *Carex pseudocyperus* | Pond marginal shelf up to 5cm deep or very wet soil |
| Flowering rush | *Butomus umbellatus* | Pond marginal shelf in full sun, up to 25cm deep or very wet soil |
| Greater pond sedge | *Carex riparia* | Pond marginal shelf up to 10cm deep or very wet soil, full sun or partial shade. |
| Hard rush | *Juncus inflexus* | Pond marginal shelf up to 20cm deep; or very wet soil |
| Hornwort | *Ceratophyllum demersum* | Floats freely in any depth of water in a sunny or partially shaded pond. Plant two bunches per m². |
| Marsh marigold | *Caltha palustris* | Pond marginal shelf up to 20cm deep; or very wet soil (low density planting) |
| Marsh woundwort | *Stachys palustris* | Marginal plant up to 10cm |
| Pendulous sedge | *Carex pendula* | Pond marginal shelf up to 10cm deep; or very wet soil |
| Pennyroyal | *Mentha pulegium* | Pond marginal shelf up to 15cm deep or very wet soil |
| Purple loosestrife | *Lythrum salicaria* | Pond marginal shelf up to 10cm deep or very wet soil (low density planting) |
| Soft rush | *Juncus effusus* | Pond marginal shelf up to 20cm deep; or very wet soil |
| Square-stemmed St John's wort | *Hypericum tetrapterum* | Pond marginal plant, 5-10cm |
| Sweet galingale | *Cyperus longus* | Pond marginal shelf up to 50cm deep; or very wet soil |
| Water figwort | *Scrophularia auriculata* | Pond marginal plant 5-10cm |
| Water mint | *Mentha aquatica* | Pond marginal shelf up to 30cm deep; or very wet soil |
| Water violet | *Hottonia palustris* | Can grow submerged in depths up to 60cm deep when established; but plant at depths of 10cm at first planting |
| Watercress | *Rorippa nasturtium aquaticum* | Pond marginal shelf up to 10cm deep, or very wet soil |
| Water forget-me-not | *Myosotis scorpioides* | Pond marginal shelf up to 10cm deep or very wet soil |

| Common Name | Systematic name | Position in water |
|---|---|---|
| Yellow flag iris | *Iris pseudacorus* | Pond marginal shelf up to 10cm deep; or very wet soil |

**Bee lawns**

Amenity spaces are important habitats and resources for many pollinators including bees, butterflies, hoverflies and beetles, which in turn provide resources for other species such as reptiles and bats. A bee lawn would be specifically cultivated to attract insect pollinators. A bee lawn can be created by planting a seed mix containing flowering plants that are low-growing, attractive to pollinators and are also resistant to relatively frequent mowing. This would create a shorter, neater alternative to a wildflower meadow, but still contain a wide variety of pollinator friendly plants. The flowers to be planted should be a variety of shapes, colours and sizes to increase the diversity of pollinators which will be attracted including, but not limited to, bumblebees, solitary bees, flies and butterflies.

Mowing bee lawn area approximately once every three weeks and raising the mower blades to their highest level (around 8cm is optimal) will allow these flowering plants to grow and thrive for the entire summer period and increase drought resistance.

Pre-made seed mixes for bee lawns are already available from a limited number of online sellers. Most wildflower mixes sold online are made up of taller meadow species that would not be suitable for a short garden lawn. A bee lawn can also be created by over-seeding existing grassland with suitable plants, such as white clover *Trifolium repens,* alsike clover *Trifolium hybridum* or selfheal *Prunella vulgaris*. These varieties grow relatively short and produce flowers that are highly attractive to bees.

Finally, if you have a pre-existing list of flowering plants that you would want in a bee lawn, there are websites which allow you to create your own bespoke seed mix to suit the particular area you are planting, one such website is https://www.phoenixamenity.co.uk/. Links to specific web pages for all three suppliers cited above are provided at the end of this document. The following table outlines some of the key flowering plants you may like to include if you were putting together your own seed mix:

**Table E: Bee lawn species recommendations**

| Species Name | Description | Picture |
|---|---|---|
| Birds-foot Trefoil (*Lotus corniculatus*) | Low, creeping perennial with bright yellow flowers tinged with orange, and is nitrogen fixing. Heavily used by bumblebees and solitary bees as a source of nectar and pollen; also used by some butterfly species. It is used by a variety of lepidoptera as a larval foot plant e.g. common blue butterfly (*Polyommatus icarus*) and Six-belted clearwing moth (*Bembecia ichneumoniformis*). |  © RHS/Helen Bostock |
| Clover spp. (*Trifolium spp.*) | Clover species are much favoured by many bumblebees (in particular the long-tongued species) and are also nitrogen fixers. White clover is the most common species but Red clover and Alsike clover can also be planted. This low-growing flower has an ability to survive even close mowing. |  ©Jouko Lehmuskallio |
| Wild Thyme (*Thymus polytrichus*) | Wild thyme often grows in dense patches, its small pink/purple flowers are attractive to many different types of pollinators such as butterflies and smaller bees. |  |
| Creeping Buttercup (*Ranunculus repens*) | Forms a network of shoots and runners across the ground and spreads quickly. Buttercup flowers are a bright shiny yellow and as an open flower it is a source of nectar for a wide variety of pollinators. Flowering may not take place in the first year and flowering can be late with plants sometimes flowering in October. |  |

| Species Name | Description | Picture |
|---|---|---|
| Common Knapweed (*Centaurea nigra*) | Very hardy thistle-like plant with bright purple flowers; very popular plant with pollinators (bees, butterflies, beetles, flies etc.) as it produces large volumes of nectar over the summer period. |  |
| Cowslip (*Primula veris*) | Flowering in spring, cowslips are easily recognisable with their long tubular yellow flowers that grow in clusters on ~25cm tall stalks. Cowslips usually flower in April-March, before grasses tend to get long. These flowers would be more suited to later and less frequent mowing. |  ©Laurie Campbell |
| Eyebright (*Euphrasia sp.*) | Small plant producing very small (5-10mm) white flowers. Semi-parasitic, they take nutrients from the roots of nearby plants, so do well in a meadow setting. This flower is almost exclusively pollinated by bees, with the yellow spot on the petals used to guide them in. |  © Trevor Dines |
| Germander Speedwell (*Veronica chamaedrys*) | Another low growing, creeping species; Germander Speedwell tends to grow in patches or mats among grasses and the small blue/purple flowers are particularly attractive to smaller pollinators such as small flies and solitary bees. |  |

| Species Name | Description | Picture |
|---|---|---|
| Chammomile (*Chamaemelum nobile*) | Small plant with daisy-like flowers, historically used for lawns and therefore very suited to a frequently mown area. This flower is chiefly pollinated by small flies, so a useful addition to a lawn to attract alternate insect pollinators to bees and butterflies. |  |
| Selfheal (*Prunella vulgaris*) | A violet blue flower atop a hairy stem, with the rest of the plant forming a mat among the grasses. This plant is often found among turf and is therefore resistant to mowing. These flowers are particularly attractive to *Lycaenidae* butterflies, small moths and solitary bees. | © First Nature  |

Other flowering plants to consider including would be:

- Kidney Vetch (*Anthyllis vulgaris*)
- Daisy (*Bellis perennis*)
- Oxeye Daisy (*Leucanthemum vulgare*)
- Ragged Robin (*Lychnis flos-cuculi*)
- Yarrow (*Achillea millefolium*)
- Ribwort Plantain (*Plantago lanceolata*)
- Salad Burnet (*Sanguisorba minor*)
- Wild Marjoram (*Origanum vulgare*)
- Toadflax (*Linaria vulgaris*)
- Yellow Rattle (*Rhinanthus minor*) – This plant is particularly useful if the lawn is being created on previously well fertilised, grass heavy soils, as it is very good at drawing away nutrients and suppressing grass growth. (Sourced seeds must be as fresh as possible for best chance of growth).

Below are some additional tips provided by Buglife designed to ensure a garden that is attractive to bumblebees and other insect pollinators:

- Most bumblebees prefer perennial flowers from year-to-year. Herbs and traditional cottage garden plants are therefore ideal.
- They require a constant succession of flowers from spring to autumn, to ensure a regular food supply.
- Flowers are ideally planted in large groups or patches of the same variety, to provide good foraging sites. Bumblebees prefer one type of flower whilst foraging and will expend energy scouting for more.
- A selection of flowers of different shapes will appeal to different species, as they have different tongue lengths.
- If possible, a part of the garden should be less intensively cultivated to provide suitable nesting sites. Bumblees often nest in long, tussocky grass, within undisturbed compost heaps or underneath hedgerows.
- Bird's-foot trefoil *Lotus corniculatus* and red clover *Trifolium pratense* are important flowers for bumblebees.
- Avoid insecticide use, bedding plants (sold as polystyrene strips in garden centres) and 'double flowers' (flowers where stamens are replaced by extra rows of petals).

**Green Roof Recommendations**

Green roofs are considered a part of urban biodiversity conservation in the UK. Green roofs can be intensive ornamental roof gardens and extensive roofs with more naturalistic plantings or self-established vegetation. Several species identified under a review of the UK Biodiversity Action Plans have been linked to green roofs such as bats, several birds, beetles, flies, bees, wasps and spiders. Green roofs support many invertebrate species including Red Data Book species, this also provides foraging habitat for bird species including black redstart.

Green roofs are often an ideal way of increasing biodiversity in an urban location. There are many other advantages of green roofs, such as a reduction in the urban heat island effect, reduction of surface run off volumes and rates of rainfall leaving roofs, thermal and sound insulation and improving air quality. Green roofs can be installed on any flat, or slightly sloping, roof surface and can be highly beneficial for a wide variety of species. A breakdown of the various green roofing types available are set out below:

***Extensive green roof***

The primary function of an extensive green roof is that of an ecological landscape, they are intended to be viewed from another location and are not usually trafficked. They are designed specifically to create habitats for plants and animals and are extremely valuable in urban environments in order to create habitats lost by development. Extensive green roofs are more lightweight than other types of green roof, therefore they require less maintenance and are easier and less costly to install. In general, they do not require irrigation although they should be watered when first installed.

***Intensive green roof***

Intensive green roofs are primarily designed to create recreational and amenity spaces for people to enjoy. They also provide a positive impact to sustainability and biodiversity, but not to the extent of an extensive green roof. Intensive green roofs have a much higher cost than extensive green roofs and require frequent maintenance. In general, they have deep soils so require a strong building on which to be built upon.

***Biodiverse green roof***

Biodiverse roofs are a type of extensive green roof that are created primarily for biodiversity purposes and aim to recreate the habitat that was lost when the building was created. They are based on shallow, low nutrient substrates (an average depth of 130mm with no more than 20% organic material) and have low maintenance requirements. By varying substrate depth, small localised changes to the micro-climate and also hydrological variations are provided, all of which encourage a wider range of invertebrates with different habitat preferences. In general, biodiverse roofs use a native plant mix, however they can also include a range of sedums.

Areas of different substrate types, such as bare ground and sand, on the roof will increase the availability of habitat for a wide range of invertebrates. Bare ground areas warm up quickly in the sun and benefit a range of species including butterflies, mining bees, solitary wasps and spiders. Deadwood features, such as log piles, will also be placed on the roof to diversify the habitat structure and provide habitat for numerous deadwood specialist invertebrates. Sand banks are also beneficial for a large number of ground nesting solitary bees; these can be created by using sand and shaping it into a mound which is south facing to receive the most sunshine throughout the day. Rock piles will also add habitat to the roof which can also be used by basking insects. Lined depressions within the green roof would also allow rainfall accumulation and the creation of temporary dew ponds, which would provide additional opportunities for aquatic insects and predatory fauna.

In order to provide additional benefits to black redstart, and to aid in the colonisation of the recommended nest boxes, it is recommended that structural diversity be achieved by using a variety of substrate grades and built features, this can be achieved by using an aggregate mixture of crushed brick and concrete graded from 25mm to dust. This substrate would ideally be sourced directly from the development site and would then be colonised by local species. Features such as logs or wooden planks would also be of benefit, which will provide a more varied topography and further opportunities for perching, singing and shelter.

**Green roofed shelters**

The current development design includes cycle stores and it is recommended that these structures are designed to include green roofs. It is recommended that the store roofs be sown with drought tolerant specimens that would rely on rainwater topped up by incidental watering by facilities, unless an inbuilt

irrigation system could be incorporated. Examples of green shelters and cycle stores are shown in Figures 1 to 2 below.

**Figure 1. Example of green roofed cycle store**
**http://greenroofshelters.co.uk/**

**Figure 2. Example of green roofed shelter**
**http://greenroofshelters.co.uk/**

By choosing a good mix of drought-tolerant foodplants, as well as some bare ground, green roofs can be very cheap and extremely effective in boosting biodiversity. The key is to connect their functionality with the landscaping across the rest of the site. The green roofed areas are also suitable for ground-nesting pollinators along with a suite of supplementary pollen, nectar and foliage provision that wouldn't compete with the more robust planting at ground level, comprising a mix of sedums with a mix of annual/biennial species in order to ensure a self-sustaining pattern of bare ground and seasonal cover. Such species could comprise Viper's Bugloss *Echium vulgare*, Common Centaury *Centaurium erythraea*, Yellow Rattle *Rhinanthus minor*, Mignonette *Reseda sp*. and Borage *Borago officinalis*, along with some low-growing hardy species such as Dog Violet *Viola riviniana* and Germander Speedwell *Veronica chamaedrys*.

***Green walls***

Green walls are walls with vegetation growing on them, enhancing otherwise featureless areas of bare wall. They may be natural, such as brick or stone-built walls which have been naturally colonized by lichens, mosses, ferns and flowering plants or they can be large scale engineered green walls. The process of allowing and encouraging plants to grow on and up walls allows the natural environment to be extended into urban areas.

Green walls can provide a food source for invertebrates on which, in turn, other invertebrates and birds may feed. They also provide breeding and nesting habitat for invertebrates, birds (including house sparrow, a London biodiversity action plan priority species) and possibly bats and are ideal for including artificial animal breeding structures such as nest boxes or bat roosting boxes. Green walls can mimic natural rock faces of cliff and rock slopes and provide resting and feeding places for birds, invertebrates and even small mammals. Climbers provide nesting habitat for birds such as wrens, blackbirds, song

thrushes and house sparrows. The combination of green walls with green roofs provides a route for wildlife between habitats at ground and roof level. Green walls that comprise climbers and light weight support structures such as wires and trellis are relatively cheap to develop and maintain.

Engineered green walls, or 'vertical gardening', provide an opportunity for impressive visual impact whilst providing a living vertical habitat with biodiversity value. They may be either designed as a large structure attached to a wall containing a variety of planted species and an irrigation system which provides the plants with water and nutrients, or as a hanging wall at the top of a building where plants are allowed to hang down from suspended planters, entailing no direct contact between the plants and the wall. Whilst providing impressive displays many engineered green walls comprise mainly non-native plants and can be expensive to maintain and as such their inclusion needs careful consideration.

MKA
ECOLOGY

**MKA Ecology Limited, New Cambridge House, Bassingbourn Road, Litlington, Cambridgeshire SG8 0SS**
**01763 262 211 | info@mkaecology.co.uk | www.mkaecology.co.uk**
**Company registration no 5858121 | VAT no. 825137440**