MKA
ECOLOGY

Preliminary Ecological Appraisal & Preliminary Roost Assessment

Saffron Hill, Farringdon

Site	*Saffron Hill, Farringdon*
Project number	*147523*
Client name / Address	*Saffron Hill Investment Holdings Limited, c/o Guardian Trust* *Guardian Trust Company Limited (Tortola), Geneva Place – 2nd Floor, 333 Waterfront Drive, Road Town, Tortola, British Virgin Islands*

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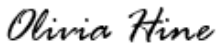
Author(s)	*Olivia Hine*	
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Declaration of compliance

This Preliminary Ecological Appraisal and Preliminary Roost Assessment 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.

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1. EXECUTIVE SUMMARY

In July 2023 MKA Ecology Ltd was commissioned to undertake a Preliminary Ecological Appraisal and Preliminary Roost Assessment of Saffron Hill, Farringdon. The appraisal included a habitat survey, protected species scoping survey and desktop study of protected and notable sites and species in the area. A Site visit was undertaken on 05 October 2023.

The Site comprises a single multistorey car park building with a two-storey office extension on the upper floors. The current development proposals involve the demolition of the existing building and erection of a new building providing Class E Commercial floorspace and flexible Class E café/restaurant space along with associated landscaping and works, including the provision of extensive biodiverse green roofing, climbing plants and landscaped terrace balconies.

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

- **Off-site habitats:** Construction activities should be designed to minimise the impacts from pollutants, such as dust and wind-blown litter. These measures should be incorporated into the Construction Management Plan (CMP);
- **Invasive non-native plants:** Butterfly-bush *Buddleja davidii* is present within the Site and, whilst not subject to legal parameters, is listed as a species of concern on the London's Invasive Species Initiative (LISI, 2019). As such, it is recommended it is disposed of appropriately during the proposed works; and,
- **Nesting birds**: It is recommended that a nesting bird check by a suitably qualified ecologist takes place prior to the commencement of works and if required, appropriate measures are implemented. It is recommended that any site clearance works be undertaken outside of the bird breeding season (September – February inclusive).

Opportunities exist to enhance the biodiversity on the Site post-development, including the provision of bird boxes targeted to London Priority species, the provision of bat boxes, the provision of invertebrate focused habitat features and the inclusion of green infrastructure, such as green roofs and green walls, within the final development. The inclusion of such features is in line with National Planning Policy Framework (NPPF) and will also contribute to ensuring a sustainable development that helps to achieve both local and national biodiversity targets.

A Biodiversity Net Gain (BNG) and Urban Greening Factor (UGF) assessment (MKA Ecology Ltd, 2024) has been undertaken to ensure that the proposed development is able to demonstrate a significant increase in biodiversity and green infrastructure provision within the Site, which should be updated following any design revisions. A Landscape and Ecology Management Plan (LEMP) should be produced to ensure the successful establishment and long-term management of newly created habitats.

2. INTRODUCTION

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

In July 2023 MKA Ecology Ltd was commissioned to undertake a Preliminary Ecological Appraisal and Preliminary Roost Assessment at Saffron Hill, Farringdon by Radcliffs Construction Consultants Ltd in order to support a planning application for the demolition of the existing building and erection of a new building providing Class E Commercial floorspace and flexible Class E café/restaurant space along with the provision of extensive biodiverse green roofing, climbing plants and landscaped terrace balconies.

The aims of the Preliminary Ecological Appraisal were to:

- Undertake a desktop study to identify the extent of protected and notable species and habitats within 2km of the Site;
- Prepare a habitat map for the Site;
- Identify evidence of protected species/species of conservation concern at the Site;
- Assess the potential impacts of the proposed development, using existing plans;
- Detail recommendations for further survey effort where required; and
- Detail recommendations for biodiversity enhancements.

The aims of the Preliminary Roost Assessment were to:

- Undertake a desktop study to identify the locations of known bat roosts and activity records within 2km of the Site;
- Assess the suitability of the buildings and trees at the Site for roosting bats, and record any evidence of bat presence;
- Identify likely ecological impacts relating to the proposed development;
- Assess the need for further survey effort, a European Protected Species Licence or mitigation, if required; and
- Propose any suitable habitat enhancements for bat species, if required.

2.2. Site description and context

The survey area is shown on the map in Figure 1. Within this report this area is referred to as the Site or Saffron Hill, Farringdon. It is located in central London to the west of Farringdon station, (centred on National Grid Reference TQ 31430 81934) and falls under the local authority of the London Borough of Camden. The Site comprises a multi-level multistorey car park with a two-storey brick-built office extension on the 6th floor. The landscape surrounding the Site is dominated by buildings, associated hardstanding and roads, with very limited greenspace.

2.3. Proposed development

The proposed development proposals involve the demolition of the existing building and erection of a new building providing Class E Commercial floorspace and flexible Class E café/restaurant space along with associated landscaping and works, including the provision of extensive biodiverse green roofing, climbing plants and landscaped terrace balconies.

2.4. Legislation and planning policy

This Preliminary Ecological Appraisal and Preliminary Roost Assessment has 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 19 December 2023 requires planning decisions to contribute to conserving and enhancing the local environment. Further details are provided in Appendix 1.

Given that the Site is located within London, consideration of the London Plan (2021) has been given. The London Plan contains a number of policies relating to biodiversity, a brief summary of which is 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.

Camden Council has produced an adopted Local Plan which contains a single policy relating to biodiversity and habitat conservation (Policy A3).

Camden Council have produced a Biodiversity Action Plan, which identifies regional priority habitats and species (Camden Council, 2017). There is also a Biodiversity Action Plan for Greater London (London Biodiversity Partnership, 2022). Additionally, Camden have produced a Biodiversity and planning guidance document (Camden Council, 2018).

Further details of these policies are provided in Appendix 1. Where relevant these are discussed in further detail in Section 5.

3. METHODOLOGIES

This Preliminary Ecological Appraisal and Preliminary Roost Assessment has been undertaken in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Preliminary Ecological Appraisal, 2nd edition (CIEEM, 2017).

3.1. Desktop study

A data search was conducted for the Site and the surrounding 10km for internationally designated sites, and the surrounding area within 2km for nationally designated sites and species records. 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.	11/10/2023
Greenspace Information for Greater London CIC (GiGL)	Information on protected and notable sites and species within 1km of the Site (TQ 31430 81934).	11/10/2023
Ordnance Survey maps and aerial photography	Information on habitats and connectivity between the Site and the surrounding landscape	11/10/2023
Plantlife Important Plant Areas (IPAs)	Information on important plant areas within 2km of the Site.	11/10/2023
Buglife Important Invertebrate Areas (IIAs)	Information on important invertebrate areas within 2km of the Site.	11/10/2023

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 Site 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 and Preliminary Roost Assessment, an assessment of the potential for the habitats on site 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 (SPI) 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 Saffron Hill, Farringdon include the following:

- Plants and fungi: Jersey cudweed *Gnaphalium luteoalbum*, bluebell *Hyacinthoides non-scripta* and cornflower *Centaurea cyanus.*
- Invertebrates: Stag beetle *Lucanus cervus*, butterfly purple emperor *Apatura iris,* and Jersey tiger moth *Euplagia quadripunctaria*.
- 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 *Castor fiber*.

In each case the likelihood of presence of these protected species at the Site 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 on site for the species although not of optimum quality. Species is present with the desktop study.
- **Low:** Some suitable habitat available on site 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. Preliminary Roost Assessment

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

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 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 on site 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). 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).
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* Bechstein's bat *Myotis bechsteinii* Alcathoe's bat *Myotis alcathoe*

Rarity within range (England)	Species
	Greater mouse-eared bat *Myotis myotis* Barbastelle *Barbastella barbastellus* Grey long-eared bat *Plecotus austriacus*
Rarer (population 10,000 to 100,000)	Lesser horseshoe bat *Rhinolophus hipposideros* Whiskered bat *Myotis mystacinus* Brandt's bat *Myotis brandtii* Daubenton's bat *Myotis daubentonii* Natterer's bat *Myotis nattereri* Leisler's bat *Nyctalus leisleri* Noctule *Nyctalus noctula* Serotine *Eptesicus serotinus* Nathusius's pipistrelle *Pipistrellus nathusii*
Common (population over 100,000)	Common pipistrelle *Pipistrellus pipistrellus* Soprano pipistrelle *Pipistrellus pygmaeus* 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) Individual bats (common species) Small numbers of non-breeding bats (common species) Mating sites (common species)
County	Maternity sites (common species) Small numbers of hibernating bats (common and rarer species) Feeding perches (rarer/rarest species) Individual bats (rarer/rarest species) Small numbers of non-breeding bats (rarer/rarest species)
Regional	Mating sites (rarer/rarest species) including well-used swarming sites Maternity sites (rarer species) Hibernation sites (rarest species) Significant hibernation sites for rarer/rarest species or all species assemblages
National/UK	Maternity sites (rarest species) Sites meeting SSSI guidelines*

Geographic frame of reference	Roost type
International	SAC sites

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

3.5. Equipment

The inspection of buildings was conducted using a variety of equipment including ladders, digital video endoscope, inspection mirrors, binoculars, high-powered torch and a digital camera.

3.6. Surveyor, author and reviewer

The survey was undertaken by Rory Roche ACIEEM, Senior Ecologist at MKA Ecology Ltd, and Olivia Hine, Graduate Ecologist at MKA Ecology Ltd. Rory has seven years' experience within the industry conducting Preliminary Ecological Appraisals and Preliminary Roost Assessments, and holds a Natural England bat licence. Olivia has a years' experience in the industry and is currently developing her skills as an ecologist. The report has been drafted by Olivia and reviewed and authorised by Rory.

3.7. 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 and Preliminary Roost Assessment.

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

Date	Time of survey	Weather conditions*
05/10/2023	09:45	Wind: BF1 Cloud: 6/8 Temp: 15°C Rain: Nil

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

3.8. 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.

4. RESULTS

4.1. Desktop study

An ecological desktop study was completed for the Site and the surrounding 10km for internationally designated sites, and the surrounding 2km for nationally designated sites and species records. Data provided by Greenspace Information for Greater London (GiGL) identified a number of UK and European protected species, SPIs and Habitats of Principal Importance (HPI) (as listed under Section 41 of the NERC Act 2006), and species of conservation concern within 2km of the Site. 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 4.3 below).

Details of internationally designated sites identified within this search are displayed in Table 7 below. This consists of one Special Protection Area (SPA) and Ramsar site.

Table 7: International designated sites within 10km of Saffron Hill, Farringdon

Site name	Area (ha)	Distance and direction	Reasons for selection
Lee Valley SPA and Ramsar	451.3	6.70km NE	The site is designated for supporting internationally important numbers of breeding and wintering wildfowl, especially gadwall *Anas strepera* and shoveler *Anas clypeata*, and for wintering bittern *Botaurus stellaris*.

Details of statutorily designated sites identified as part of the desktop study are displayed in Table 8 below. This consists of one Local Nature Reserve (LNR).

Table 8: Statutorily designated sites within 2km of Saffron Hill, Farringdon

Site name	Area (ha)	Distance and direction	Reasons for selection
Camley Street Nature Park LNR	0.84	2.00km NW	The site provides habitat for birds, butterflies, amphibians, bats and a rich variety of plant species. Notable species include the rare earthstar fungi *Geastrum triplex*, reed warbler *Acrocephalus scirpaceus*, kingfisher *Alcedo atthis* and reed bunting *Emberiza schoeniclus.*

Details of non-statutorily designated sites identified as part of the desktop study are displayed in Table 9 below. These consist of 19 Sites of Importance for Nature Conservation (SINCs).

Table 9: Non-statutorily designated sites within 1km of Saffron Hill, Farringdon

Site name	Area (ha)	Distance and direction	Reasons for selection
St John's Gardens SINC (Local)	0.14	0.15km E	Habitats present include introduced shrub, modified grassland and a number of mature scattered trees.
Spa Fields Gardens SINC (Local)	0.84	0.40 km N	The site contains a range of habitats including introduced shrub, modified grassland and scattered trees.
Skinner Street Open Space SINC (Local)	0.38	0.45km N	The site is a small park containing modified grassland and mature trees.
Charterhouse SINC (Borough Grade II)	0.85	0.50 km E	A series of ornamental gardens which are of high value to birds and invertebrates.
Wilmington Square SINC (Local)	0.39	0.63 km N	Habitats present include modified grassland, introduced shrub and scattered trees.
St Andrew's Gardens SINC (Local)	0.66	0.75 km NW	The site is a former churchyard containing mature trees, introduced shrub and grassland. A wildlife area is present in the east of the site.
Lincoln's Inn Fields SINC (Local)	2.93	0.75 km SW	The site contains mature scattered trees, grassland, hedgerows and introduced shrub which provides nest sites for common bird species, including blackbird *Turdus merula* and song thrush *Turdus philomelos*.
Spa Green Garden SINC (Local)	0.32	0.75km N	Habitats present include modified grassland, introduced shrub and scattered trees.
The Barbican and St Alphage's Gardens SINC (Borough Grade II)	3.06	0.75 km E	A series of gardens containing a variety of habitats including wildflower meadow and lakes. The sites support populations of birds and plants, including maidenhair spleenwort *Asplenium trichomanes* and black spleenwort *Asplenium adiantum-nigrum*, both of which are scarce in London.

Site name	Area (ha)	Distance and direction	Reasons for selection
Lloyd Square SINC (Local)	0.19	0.90km NW	The site comprises amenity grassland, flower beds, introduced shrub and scattered trees.
Coram's Fields SINC (Local)	2.70	0.90 km NE	The site contains a range of habitats including scattered trees, hedgerows, introduced shrub and grassland. The east of the site contains a wildlife garden with a pond, which supports common frog *Rana temporaria* and newts.
Roman Wall, Noble Street SINC (Local)	0.06	0.90km SE	Habitats present include vegetated walls and tombstones and modified grassland.
King Square Garden SINC (Local)	1.25	0.90km NE	The site contains areas of modified grassland, introduced shrub and mature scattered trees.
Fortune Street Garden SINC (Local)	0.37	0.90km E	A small park containing amenity areas.
Temple Gardens SINC (Borough Grade II)	2.20	1.00 km S	The site comprises managed lawns with a variety of mature trees, introduced shrub and flower beds. The site supports a range of widespread bird species.
Moreland Primary School Garden SINC (Local)	0.02	1.00 km NE	The site comprises a small nature garden containing a pond, wildflower bank and a vegetable garden.
St Luke's Churchyard, Old Street SINC (Local)	0.76	1.00 km NE	The site consists of a small churchyard lined by mature trees and shrubs. A large area of modified grassland is present. The site supports common bird species.
Calthorpe Community Garden SINC (Local)	0.44	1.00 km NW	The site contains a range of habitats including scattered trees, an artificial stream, pond. An area containing a mosaic of scrub and grassland with trees with abundance of deadwood is also present, providing habitat for birds and invertebrate species.
St Paul's Cathedral gardens SINC (Local)	0.71	1.00 km SE	The site comprises mature trees, grassland and areas of introduced shrub, providing habitat for common bird species including blackbird and blue tit *Cyanistes caeruleus*.

The landscape surrounding the Site is dominated by buildings with associated hardstanding and roads, with very limited greenspace. Nearby significant habitats are limited to the Thames and the above designated sites; however, there is very little connectivity between these habitats and the Site.

The Site lies within Natural England SSSI Impact Risk Zones (IRZ) (Natural England, 2019) for several SSSIs within the wider landscape. Planning proposals which would trigger consultation with Natural England comprise:

- Infrastructure: Airports, helipads and other aviation proposals;
- Air pollution: Livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 4000m²; and,
- Combustion: General combustion processes >50MW energy input, including energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.

As the development does not fall within the categories listed above, no consultation with Natural England is necessary.

The Site does not lie within any Important Plant Areas (IPA) or Important Invertebrate Areas (IPA).

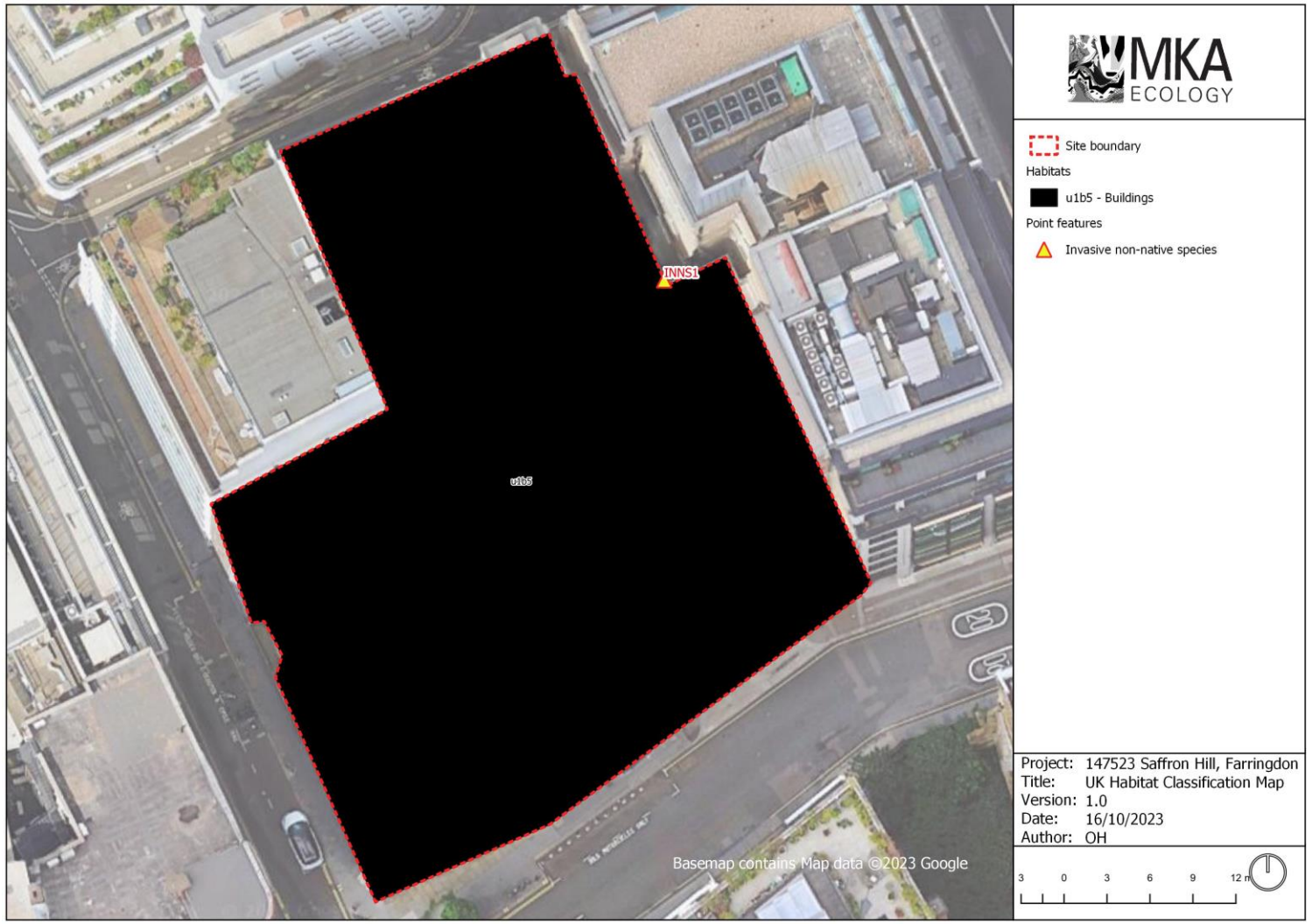
4.2. UK Habitat Classification

The Site comprises a multistorey car park building with a two-storey office extension. More detailed species lists, along with their relative abundance, can be found in Appendix 2. The UK habitat classification survey map is provided in Figure 1, at the end of this section. Descriptions of the habitat types present along with dominant species compositions are provided below.

Buildings - u1b5 (804 – car park; 815 – commercial building)
The Site comprises an open-fronted multistorey carpark building (building B1, Figure 1) of a steel frame and reinforced concrete construction (Photograph 1, Appendix 3). A brick-built two-storey office extension is located at the top of the car-park (Photograph 2, Appendix 3) which supports a felt-lined roof with metal capping. The brickwork and pebble rendering present was in good condition at the time of survey. A plant room is located on the roof of the office extension (Photograph 3, Appendix 3). The plant room has a flat roof and is constructed of breeze block and brick with corrugated metal cladding.

The building is in good condition and is largely devoid of vegetation aside from occasional instances of ephemeral species which have colonised in cracks. Species present include annual meadow grass *Poa annua*, butterfly-bush *Buddleja davidii* (Invasive Non-Native Species (INNS) 1), Photograph 4, Appendix 3) chickweed *Stellaria media agg.* and wall lettuce *Mycelis muralis*.

Figure 1: UK Habitat Classification map of Saffron Hill, Farringdon



Invasive Non-Native Species

INNS1: Butterfly-bush (Photograph 4, Appendix 3)

4.3. Protected species scoping survey

Plants and fungi

The data search returned a number of records for protected or notable plant species within 2km of the Site. These included SPIs listed under Section 41 of the NERC Act (2006), Schedule 8 of the Wildlife and Countryside Act 1981 (as amended), as well as nationally scare, and red listed species. Species of note included cornflower, jersey cudweed and bluebell. No protected or notable species were recorded on Site. Given that the Site is dominated by built form, the likelihood of the Site supporting protected or notable plant species has assessed to be **negligible**.

The data search returned a number of records for invasive non-native species, including three-cornered garlic *Allium triquetrum* and Japanese knotweed *Fallopia japonica.* These species are listed as invasive on Schedule 9 of the Wildlife and Countryside Act 1981, and on the London Invasive Species Initiative (LISI). Butterfly-bush (INNS1, Figure 1, Photograph 4, Appendix 3) was recorded on the roof of the office building extension. Whilst not listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), butterfly-bush is listed on the London Invasive Species Initiative (LISI). The presence of invasive non-native plant species onsite is **confirmed**.

Invertebrates

The data search returned a number of records for protected or notable invertebrate species within 2km of the Site; species of note include stag beetle and moth cinnabar *Tyria jacobaeae*. The nearest stag beetle record returned was located 0.14km north of the Site and dated from 2020; the most recent stag beetle record is from 2021. The nearest cinnabar moth record is located 0.72km east west of the Site and dated from 2019. Stag beetles are listed on the Wildlife and Countryside Act (1981), whilst both stag beetle and cinnabar moth are SPIs under the NERC Act (2006).

Given the heavily urban nature of the Site and the lack of significantly vegetated habitats or established deadwood features, the likelihood that the Site supports notable or protected invertebrate populations has assessed to be **negligible**. Whilst the Site is considered unlikely to support these species in its current state, given the location of the Site, recommendations have been set out in Section 5 below to enhance the opportunities for invertebrates post-development.

Fish

No records of fish were provided in the desk study. The Site does not contain any suitable habitats for fish within the redline boundary. Therefore, this species group is not considered further in this report.

Amphibians

The desk study provided a historical record of common toad and 215 records of common frog, the closest of which was located 0.49km west of the Site. No records of great created newt were provided

in the desk study; a search of Defra's MAGIC website returned no European Protected Species Licences granted for great crested newt within 2km of the Site.

Reference to Ordnance survey and aerial imagery indicated the presence of no ponds within a 500m radius of the Site. The Site lacks any form of aquatic habitat and the existing built form offers no suitable terrestrial habitat for amphibians. The only vegetated habitats present are limited in their extent and suitability, and lack connectivity to any amphibian-suitable habitat in the surrounding area. As such, the likelihood that the Site supports notable or protected amphibian populations has been assessed to be **negligible**.

Reptiles

One record of common lizard was provided in the desk study, located 0.72km east of the Site. The Site lacks vegetation and is dominated by built infrastructure which offers no suitable terrestrial habitat for reptiles. The Site is located within an extremely urbanised area, lacking connectivity to any reptile-suitable habitat in the surrounding area. As such, the likelihood that the Site supports notable or protected reptile populations has been assessed to be **negligible**.

Birds

Four 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 at Saffron Hill, Farringdon

Common name	Systematic name	S1 W&CA[1]	BoCC[2] Status	S41 SPI[3]	Local PrSp[4]
Blue tit	*Cyanistes caeruleus*	-	Green	-	-
Feral pigeon	*Columba livia*	-	Green	-	-
Black redstart	*Phoenicurus ochruros*	Yes	Amber	-	Yes
Carrion crow	*Corvus corone*	-	Green	-	-

[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 data search 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, Section 41 of the NERC Act (2006) and birds listed as Amber or Red under the Birds of Conservation Concern (Eaton et al., 2015). 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. Species of note returned by the data search include house sparrow *Passer domesticus*, black redstart *Phoenicurus ochruros* and herring gull *Larus argentatus*.

A black redstart was recorded on a nearby building during the walkover survey. Black redstart are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and are a London Priority Species. This species is known to be present in areas close to open water and requires suitable areas of sparely vegetated and stony ground for feeding. Whilst the Site is considered unlikely to support black redstart in its current state, given the location of the Site and the observation of a black redstart during the survey, recommendations have been set out in Section 5 below to enhance the opportunities for protected bird species post-development.

The area of flat roofing present on building B1 offers some limited nesting opportunities for gull species including herring gulls, which are nationally red listed. Gulls regularly nest in urban environments, especially in areas that are in close proximity to water bodies. Given building B1's flat roof, its relative proximity to the Thames, there has been assessed to be a **moderate** likelihood that the Site supports nesting gulls. Safeguards for nesting birds are recommended in Section 5 below. However, given the habitats present, the likelihood that the Site supports important assemblages of birds is **negligible**.

Badgers

No records of badger were provided in the desk study and the Site contains no suitable habitat for badger. As such, the likelihood that the Site supports badger has been assessed to be **negligible**.

Other mammals

Four records of hedgehog were provided in the desk study, the closest of which was located 0.34km east of the Site. The Site contains no suitable habitat for hedgehog, and due to the urban location lacks connectivity to any areas of suitable habitat within the wider landscape. The data search returned records for no records of other notable mammal species. The likelihood that the Site supports protected terrestrial mammals has been assessed to be **negligible**.

4.4. Preliminary Roost Assessment

The data search returned a small number of records for bats within 2km of the Site. Records are limited to those for common pipistrelle, soprano pipistrelle, *Pipistrellus* sp. and unidentified bats (*Chiroptera* and *Vespertilionidae)*. A search of Defra's MAGIC website returned no European Protected Species Licences granted for bats within 2km of the Site boundary.

The habitats present at the Site offer limited foraging and commuting opportunities for bats, given the Site predominately comprises built form, and is surrounding by urban infrastructure. The likelihood that the Site supports foraging and commuting bats has been assessed to be **negligible**.

No direct evidence of roosting bats was observed during the survey work undertaken and no features of bat roost potential were recorded on any of the buildings or trees present at the Site. The likelihood that the Site supports roosting bats has been assessed to be **negligible**. Further detailed information regarding the results of the Preliminary Roost Assessment is set out below in Table 11.

Table 11: Building inspection results

Building	Roost suitability	Description	Bat roost evidence and potential
B1	Negligible	An open-fronted multistorey carpark building of a steel frame and reinforced concrete construction. A brick-built two-storey office extension, with a plant room on the roof, is located at the top of the car-park building.	The externals of the carpark building, brick-built office extension and corrugated metal clad plant room were in a good condition at the time of survey, such that no opportunities for roosting bats are present; slight damage is present to areas of render above one window on the office building, however this did not lead to any gaps (Photograph 6, Appendix 3). The office extension and plant room support well-sealed felt roofs with metal capping (Photograph 5, Appendix 3). There was no internal loft space within the office building. No other features of bat roost potential were identified on building B1.

5. ECOLOGICAL CONSTRAINTS, OPPORTUNITIES AND RECOMMENDATIONS

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

5.1. Ecological constraints

Off-site habitats

St John's Gardens Local Grade SINC is located 0.15km from the Site. Due to the highly urban location, it is unlikely that this site will be impacted as a result of the proposed development; however, to protect this SINC, and other areas of green space surrounding the Site, construction activities should be designed to minimise the impacts from pollutants such as dust and wind-blown litter. Such measures should be incorporated into the Construction Management Plan (CMP).

Recommendation 1
Construction activities should be designed to minimise the impacts from pollutants such as dust and wind-blown litter and incorporated into the Construction Management Plan (CMP).

Plants

Butterfly-bush was recorded onsite during the survey. Whilst not listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), butterfly-bush is listed on the London Invasive Species Initiative (LISI, 2019) and are naturalised non-native species with the potential to become invasive and out-compete native plant species. Whilst there is no legal obligation to control LISI species, it is good practice to remove all instances of butterfly-bush from the Site during works, with arisings disposed of as controlled waste to prevent its further spread.

Recommendation 2
Remove instances of butterfly-bush from the Site and dispose of the arisings as controlled waste in order to avoid their spread.

Birds

A black redstart was observed on a neighbouring building during the walkover survey, it is considered unlikely the Site supports breeding black redstart. However, the Site's flat roof provides some opportunities for nesting birds such as gull species.

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 demolition works between the months of September and February inclusive (i.e. outside of the bird season) would avoid impacts on breeding birds. Where building demolition works are required during the breeding bird season (between the months of March and August inclusive), they 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 3

It is recommended that a nesting bird check by a suitably qualified ecologist takes place prior to the commencement of works and if required, appropriate measures are implemented. It is recommended that any site clearance works be undertaken outside of the bird breeding season (September – February inclusive).

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.

5.2. 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. As set out within the Environment Act (2021), biodiversity gains at the Site must demonstrably achieve 10% or more. In order to address the above legislation, it is recommended that a number of ecologically valuable habitats and features are incorporated into the Site design.

The landscaping plans include the provision of landscaped terraces with raised planters, tree planting, green walls and a biodiverse green roof. It is recommended the Site design retains these features during any future revisions.

Recommendation 4

In line with the NPPF and Environment Act, a number of ecologically valuable habitats and features should be incorporated into the Site design so as to deliver biodiversity gains at the Site.

The 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. Moreover, opportunities for orchard type planting on upper terraces and greenspaces should also be considered. Recommendations for specific fruit tree species which are known to be successful within London are included in Appendix 5. Due to "urban heat island", where sealed artificial surfaces retain heat in large cities like London, it is also possible to plant species such as apricots *Prunus armeniaca* and figs *Ficus carica*. Consideration of factors such as shade, root area and maintenance requirements should be given to ensure that appropriate cultivars for planting are chosen.

The inclusion of such fruit tree planting would provide opportunities to insect pollinators, which in turn provides benefits for other species within the ecosystem, including birds and bats. The provision of fruit trees will also partially address Policy G8 of the London Plan, albeit in a very localised manner. The planting of native trees would also be effective in addressing the requirements of Policy G7 of the London Plan and Policy A3 of the Camden Local Plan.

The landscaping plans include numerous native and wildlife attracting plants (MRG Studio, 2023).

Recommendation 5

It is recommended that British native species are incorporated into the planting scheme for the final landscaping design in order to enhance the overall value of the Site for native biodiversity.

The current development plans include the inclusion of planters on the terraces to provide screening and ecological value, and it is therefore recommended that shrubs are planted within this area that will to increase habitat diversity and structural heterogeneity at the Site. Examples of recommended species to be planted are included in Appendix 5, and have been selected to provide a year-round source of nectar and pollen for invertebrates.

The landscaping plans include numerous native and wildlife attracting plants (MRG Studio, 2023).

Recommendation 6

It is recommended that the soft landscaping areas are designed to enhance biodiversity within the Site.

Green infrastructure should be incorporated into the design scheme. Green infrastructure including green roofs and green walls has become a fundamental part of urban site and building design, creating floral and faunal opportunities in otherwise ecologically featureless areas of hardstanding. It is strongly

recommended that all green infrastructure to be created is designed with maximum biodiversity value in mind. Such green infrastructure features have been identified as an opportunity to maximise biodiversity within urban and sub-urban areas within Policies G1 and G5 within the London Plan, as set out in Appendix 1, and so the inclusion of such features would directly address local planning policy targets.

Green roofs can be installed on any flat, or slightly sloping, roof surface and can be beneficial for a wide variety of species. The principle behind a green roof is that it is intentionally planted to some extent. The current development proposals include areas of biodiverse green roofing and it is recommended the Site design retains these features during any future revisions. Should this opportunity be explored, it is recommended that the green roof is also designed to provide habitat for invertebrates, with subsequent benefits for other taxonomic groups such as birds, in particular black redstart. Design specifications will focus upon creating a structurally diverse open mosaic habitat with a variety of substrate types and pollinator-friendly plant species. This roof should not be publicly accessible to minimise disturbance of habitats. The provision of a green roof would be an attractive option for both increasing biodiversity and providing an attractive development for the local community, as well as meeting Biodiversity Net Gain and Urban Greening Factor targets.

Green walls are essentially walls with living plants growing on them, enhancing 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. Fruits trees such as apples and pears can also be used to form a green wall by training them as espaliers. Further information relating to the green wall provision is provided within Appendix 6 below.

The current development proposals include the provision of a biodiverse green roof and green walls, and it is recommended the Site design retains these features during any future revisions.

Recommendation 7

Include green infrastructure provision within the development designs in order to ensure biodiversity gains for local priority species and biodiversity in general. The provision of green roofs and green walls will address both national and local policy, as well as help meet Biodiversity Net Gain and Urban Greening Factor Targets. This will directly address Policies G1 and G5 of the London Plan, as well as Policy A3 of the Camden Local Plan.

Enhanced opportunities for breeding birds should also be incorporated into the design scheme. It is recommended that integrated boxes are included within the final development and that there is focus on black redstart and swift, together with the provision of generalist bird boxes. Black redstart is known to breed in disused buildings and urban areas and is listed on Schedule 1 of the Wildlife and Countryside

Act (1981), nationally red-listed and a London Priority Species. Swift boxes have the added advantage of being used by house sparrow, which is also a London Priority Species. Examples of suitable boxes are shown in Appendix 4 together with information concerning the correct siting of these enhancement features.

Recommendation 8

A minimum of seven bird boxes should be installed at the Site, to include swift and black redstart boxes as well as generalist boxes.

The Site itself has relatively little provision for roosting bats. With this in mind, enhanced opportunities for roosting bats should also be provided at the Site through installation of bat boxes. Examples of suitable boxes are shown in Appendix 4 together with information concerning the correct siting of these enhancement features.

Recommendation 9

Provisions should be made for roosting bats at the Site post-development, to include a minimum of five integrated or wall mounted bat bricks or bat boxes.

The creation of deadwood features, such as log piles, at the Site would be a valuable enhancement for invertebrates as a foraging and shelter resource (Appendix 5). These features should be incorporated into the proposed green roof areas (Appendix 6) to provide structurally heterogeneity and provide additional microhabitats.

Recommendation 10

Incorporate invertebrate-friendly deadwood piles into the green roof design.

It has been recommended that a Biodiversity Net Gain assessment is undertaken to ensure that the proposed development is able to demonstrate a significant increase in biodiversity within the Site. This Biodiversity Net Gain assessment has been undertaken (MKA Ecology Ltd, 2024) and will be provided alongside this report as part of the planning application for the development of the Site. It is recommended that this document be updated following any revision to the design of the Site. This will directly address the aims of the Environment Act (2021).

Recommendation 11

Ensure that the development delivers a biodiversity net gain of at least 10% and updates to the Biodiversity Net Gain assessment (MKA Ecology Ltd, 2024) are made following any design revisions.

It has been recommended that an Urban Greening Factor (UGF) assessment is undertaken to ensure that the proposed development delivers sufficient green infrastructure. The London Plan sets out targets for green infrastructure value in new urban developments. Predominantly commercial developments

must achieve a UGF score of at least 0.3; residential developments must achieve a score of 0.4. Given the Site comprises a building, the current green infrastructure value of the Site is minimal. In order to address the requirements of the London Plan, a formal Urban Greening Factor assessment has been undertaken (MKA Ecology Ltd, 2024) and will be provided alongside this report as part of the planning application for the development of the Site. It is recommended that this document be updated following any revision to the design of the Site.

Recommendation 12

Ensure that the development delivers sufficient green infrastructure by undertaking an Urban Greening Factor assessment (MKA Ecology Ltd, 2024). This will ensure the proposed development will address both national and local policy. This should be updated following any design revisions.

The Environment Act (2021) states that all Biodiversity Net Gain assessments must be accompanied by an appropriate management plan that covers the next 30 years of Site management. This serves to ensure that all proposed habitats achieve the desired ecological value used in net gain calculations. It is recommended that a Landscape and Ecology Management Plan (LEMP) is produced in order to ensure legislative compliance.

Recommendation 13

Produce a Landscape and Ecology Management Plan (LEMP) covering the next 30 years to accompany the Biodiversity Net Gain assessment.

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 Saffron Hill, Farringdon

Species	Pre-planning action required?	Pre-construction action required?	Construction phase mitigation required?	Enhancements proposed?
Plants	Removal of butterfly-bush, with arisings disposed of as controlled waste.	No.	No.	Native planting, including fruit tree and shrub planting.
Habitats	No.	No.	No.	Native planting, including fruit tree and shrub planting, green roof and green wall creation.
Birds	No.	No.	Timing of works on building OR further survey work.	Bird boxes and native planting.
Bats	No.	No.	No.	Bat boxes and native planting.
Invertebrates	No.	No.	No.	Deadwood features and native planting.

6. CONCLUSIONS

The Site is currently of limited ecological value, being dominated by built form, however some minor ecological constraints are present within the Site. The potential protected species constraints present on Site are limited to nesting birds and invasive plant species. Butterfly-bush has been identified within the Site and, therefore, it has been recommended that this species is removed sensitively and the arisings disposed of as controlled waste in order to prevent its spread. Works should be timed sensitively in order to avoid impacts on active bird nests; in the event that works are deemed necessary during the breeding bird season, it is recommended that a nesting bird check be undertaken immediately prior to their commencement.

The Site is ideally located to deliver biodiversity enhancements that will contribute to the local greenspace network, which is currently limited. Although a small Site, the proposed enhancements focus on delivering new green infrastructure and providing opportunities for local priority species. In addition, recommendations have been given in order to include diverse species planting within the proposed planters so as to be create new habitats of elevated value to wildlife. The current design proposals incorporate green infrastructure, including green roofs and green walls, and the inclusion of such features will ensure a sustainable development that helps to achieve both local and national biodiversity targets.

A number of faunal enhancements have been suggested that could be implemented in order to further promote biodiversity at the Site, including the provision of bird boxes targeted to London Priority species, the provision of bat boxes and the creation of heterogenous habitats within the proposed biodiverse green roofs for the benefit of invertebrates and subsequent predatory faunal groups. The inclusion of such features will contribute to ensuring a sustainable development that helps to achieve both local and national biodiversity targets.

A Biodiversity Net Gain and Urban Greening Factor assessment (MKA Ecology Ltd, 2024) has been undertaken to ensure that the proposed development is able to demonstrate a significant increase in biodiversity and green infrastructure provision within the Site, which should be updated following any design revisions. A LEMP should be produced so as to ensure the successful creation and long-term management of all habitats to be created at the Site.

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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* Natterjack toad *Epidalea calamita*	Schedule 2 of Conservation of Habitats and Species Regulations (2017) Schedule 5 of The Wildlife and Countryside Act 1981 (as amended)	• Deliberately capture or kill, or intentionally injure; • Deliberately disturb or recklessly disturb them in a place used for shelter or protection; • Damage or destroy a breeding site or resting place; • Intentionally or recklessly damage, destroy or obstruct access to a place used for shelter or protection; and • Possess an individual, or any part of it, unless acquired lawfully.
Reptiles		
Common lizard *Zootoca vivipara* Adder *Vipera berus* Slow-worm *Anguis fragilis* 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* 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; • Deliberately disturb; • Deliberately take or destroy eggs; • Damage or destroy a breeding site or resting place or intentionally damage a place used for shelter; or • 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 • 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; • 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); • Damage or destroy a bat roost; • Intentionally or recklessly disturb a bat at a roost; or • Intentionally or recklessly obstruct access to a roost. 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: • Damage a sett or any part of it; • Destroy a sett; • Obstruct access to, or any entrance of, a sett; or • Disturb a badger when it is occupying a sett. 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; • Damage or destroy a breeding site or resting place; • Intentionally or recklessly damage, destroy or obstruct access to a place used for shelter or protection; and • Possess an individual, or any part of it, unless acquired lawfully.
Otter *Lutra lutra*	Schedule 2 of Conservation of Habitats and Species Regulations (2017) Section 9(4)(b) and (c) of Schedule 5 of Wildlife and Countryside Act 1981 (as amended)	• Deliberately capture, injure or kill an otter; • 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; • Intentionally or recklessly disturb any otter whilst it is occupying a holt; • 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; • Possess or control live or dead water voles or derivatives; • Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection; or • 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 19 December 2023 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 180 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".

Local Planning Policy

Given that the Site is located within London, consideration of the policies relating to biodiversity within the London Plan 2021 has also been given. These include policies G1 and G5 to G8, as detailed below:

- Policy G1 Green infrastructure
  - *a) London's network of green and open spaces, and green features in the built environment, should be protected and enhanced. Green infrastructure should be planned, designed and managed in an integrated way to achieve multiple benefits.*
  - *b) Boroughs should prepare green infrastructure strategies that identify opportunities for cross-borough collaboration, ensure green infrastructure is optimised and consider green infrastructure in an integrated way.*
  - *c) Development Plans and area-based strategies should use evidence, including green infrastructure strategies, to:*
    1. *identify key green infrastructure assets, their function and their potential function*
    2. *identify opportunities for addressing environmental and social challenges through strategic green infrastructure interventions.*
  - *d) Development proposals should incorporate appropriate elements of green infrastructure that are integrated into London's wider green infrastructure network.*

- Policy G5 Urban greening
  a) *Major development proposals should contribute to the greening of London 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) *Boroughs should develop an Urban Greening Factor (UGF) to identify the appropriate amount of urban greening required in new developments. The UGF should be based on the factors set out in within the London Plan, but tailored to local circumstances. In the interim, the Mayor recommends a target score of 0.4 for developments that are predominately residential, and a target score of 0.3 for predominately commercial development (excluding B2 and B8 uses).*
  c) *Existing green cover retained on site should count towards developments meeting the interim target scores set out in (B) based on the factors set out in the London Plan*

- Policy G6 Biodiversity and access to nature
  a) *Sites of Importance for Nature Conservation (SINCs) should be protected.*
  b) *Boroughs, in developing Development Plans, should:*
     1. *use up-to-date information about the natural environment and the relevant procedures to identify SINCs and ecological corridors to identify coherent ecological networks*
     2. *identify areas of deficiency in access to nature (i.e. areas that are more than 1km walking distance from an accessible Metropolitan or Borough SINC) and seek opportunities to address them*
     3. *support the protection and conservation of priority species and habitats that sit outside the SINC network, and promote opportunities for enhancing them using Biodiversity Action Plans*
     4. *seek opportunities to create other habitats, or features such as artificial nest sites, that are of particular relevance and benefit in an urban context*
     5. *ensure designated sites of European or national nature conservation importance are clearly identified and impacts assessed in accordance with legislative requirements.*
  c) *Where harm to a SINC is unavoidable, and where the benefits of the development proposal clearly outweigh the impacts on biodiversity, the following mitigation hierarchy should be applied to minimise development impacts:*
     1. *avoid damaging the significant ecological features of the site*
     2. *minimise the overall spatial impact and mitigate it by improving the quality or management of the rest of the site*
     3. *deliver off-site compensation of better biodiversity value.*

d) Development proposals should manage impacts on biodiversity and aim to secure net biodiversity gain. This should be informed by the best available ecological information and addressed from the start of the development process.

e) Proposals which reduce deficiencies in access to nature should be considered positively.

- Policy G7 Trees and woodlands

a) London's urban forest and woodlands should be protected and maintained, and new trees and woodlands should be planted in appropriate locations in order to increase the extent of London's urban forest – the area of London under the canopy of trees.

b) In their Development Plans, boroughs should:

1. *protect 'veteran' trees and ancient woodland where these are not already part of a protected site*
2. *identify opportunities for tree planting in strategic locations.*

c) Development proposals should ensure that, wherever possible, existing trees of value are retained. If planning permission is granted that necessitates the removal of trees there should be adequate replacement based on the existing value of the benefits of the trees removed, determined by, for example, i-tree or CAVAT or another appropriate valuation system. The planting of additional trees should generally be included in new developments – particularly large-canopied species which provide a wider range of benefits because of the larger surface area of their canopy.

- Policy G8 Food growing

a) In Development Plans, boroughs should:

1. *protect existing allotments and encourage provision of space for urban agriculture, including community gardening, and food growing within new developments and as a meanwhile use on vacant or under-utilised sites*
2. *identify potential sites that could be used for food production.*

Camden Council has produced an adopted Local Plan, which contains one policy specifically relating to biodiversity and habitat conservation:

- Policy A3 – Biodiversity

The Council will protect and enhance sites of nature conservation and biodiversity. We will:

a) designate and protect nature conservation sites and safeguard protected and priority habitats and species;

b) grant permission for development unless it would directly or indirectly result in the loss or harm to a designated nature conservation site or adversely affect the status or population of priority habitats and species;

c) seek the protection of other features with nature conservation value, including gardens, wherever possible;

d) assess developments against their ability to realise benefits for biodiversity through the layout, design and materials used in the built structure and landscaping elements of a proposed development, proportionate to the scale of development proposed;

e) secure improvements to green corridors, particularly where a development scheme is adjacent to an existing corridor;

f) seek to improve opportunities to experience nature, in particular where such opportunities are lacking;

g) require the demolition and construction phase of development, including the movement of works vehicles, to be planned to avoid disturbance to habitats and species and ecologically sensitive areas, and the spread of invasive species;

h) secure management plans, where appropriate, to ensure that nature conservation objectives are met; and

i) work with The Royal Parks, The City of London Corporation, the London Wildlife Trust, friends of park groups and local nature conservation groups to protect and improve open spaces and nature conservation in Camden.

Trees and vegetation

The Council will protect, and seek to secure additional, trees and vegetation. We will:

j) resist the loss of trees and vegetation of significant amenity, historic, cultural or ecological value including proposals which may threaten the continued wellbeing of such trees and vegetation;

k) require trees and vegetation which are to be retained to be satisfactorily protected during the demolition and construction phase of development in line with BS5837:2012 'Trees in relation to Design, Demolition and Construction' and positively integrated as part of the site layout;

l) expect replacement trees or vegetation to be provided where the loss of significant trees or vegetation or harm to the wellbeing of these trees and vegetation has been justified in the context of the proposed development;

m) expect developments to incorporate additional trees and vegetation wherever possible.

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

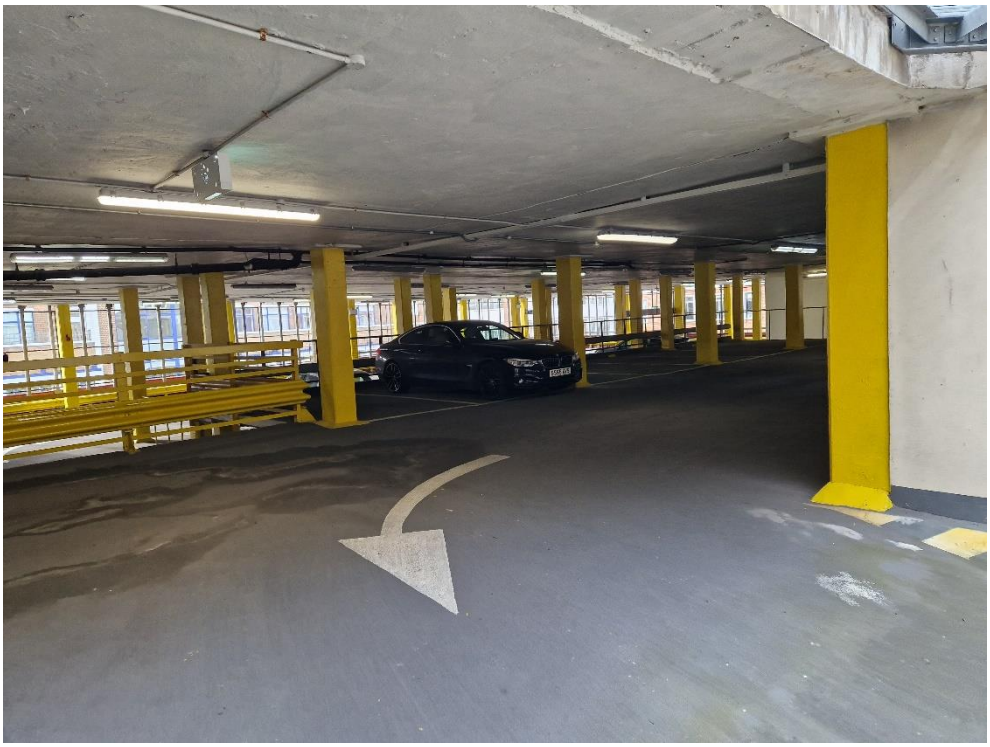
Please note that these lists are intended to be incidental records and do not constitute a full botanical survey of the site. Relative abundance is given using the DAFOR scale. Please see Table 2 for details.

Buildings - u1b5 (804 – car park; 815 – commercial building)

Common Name	Systematic Name	Relative abundance
Annual meadow-grass	*Poa annua*	R
Butterfly-bush	*Buddleja davidii*	R
Chickweed	*Stellaria media* agg.	R
Moss	*Bryophyta sp.*	R
Red fescue	*Festuca rubra* agg.	R
Wall lettuce	*Mycelis muralis*	R
Willow	*Salix sp.*	R

8.3. Appendix 3: Site photographs

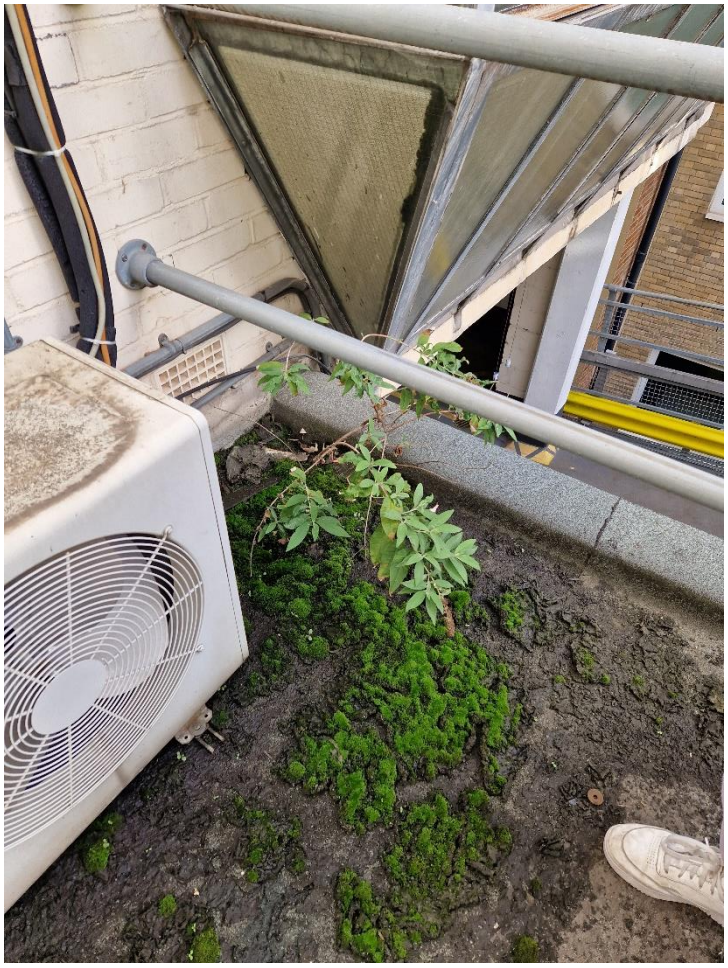
Photograph 1: Multistorey carpark in building B1



Photograph 2: Two-storey office extension on building B1

Photograph 3: Internal area of plant room on the roof of building B1

Photograph 4: Butterfly-bush (INNS1, Figure 1) and moss growing on the roof of building B1



Photograph 5: Office building with felt roof and metal capping

Photograph 6: Damage above window of the brick-built office-extension

8.4. Appendix 4: Faunal enhancement 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/ 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 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.

Black Redstart Boxes

Nest boxes that aim to attract black redstarts should be open-fronted and placed in a hidden location, such as under ledges, balconies, utility units and overhangs. These boxes are designed to allow access for smaller bird but prohibit access to species such as feral pigeon.

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.

Example	Description	Picture
Brick Box 1HE	www.gardennature.co.uk With its special narrowing entrance, this nest box is suitable for black redstart but is also suitable for pied wagtail, and occasionally house sparrow This lightweight nest box is suitable to be built in or on external walls.	
Vivara Pro Barcelona WoodStone Open Nest Box	www.nhbs.com This nest box is made mix of concrete and FSC certified wood fibres and is suitable for black redstart as well as wrens, robins, pied and grey wagtails, song thrushes and blackbirds.	

Swift boxes

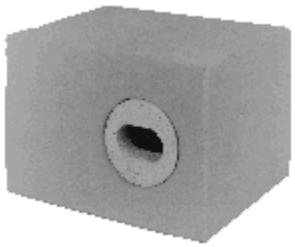
Swifts are colonial nesters and it is important to have several nest sites in one area. It is recommended that most buildings should have between 4 and 10 nest provisions. Swifts also feed almost exclusively on the aerial plankton of flying insects and airborne spiders of small to moderate size, so therefore 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**
Swift S Brick	Introduction — S Brick (actionforswifts.com) Swift S bricks provide excellent nesting opportunities for swifts whilst fitting into the brickwork seamlessly without compromising the appearance of the building. The swift boxes will likely require an attraction call system for swifts. This can be set on timer and replays the tape of birds calling to attract them to the nest site, There is no set system for this, but assembly of parts can be achieved quite easily as outlined at this website: http://actionforswifts.blogspot.com/p/attraction-call-systems-for-swifts.html. The system can be purchased for about £30.	 
Ibstock Swift Box	www.Ibstock.com This swift brick can be built into a wall on new buildings.	

Swift		
Example	**Description**	**Picture**
Woodstone Build-in Swift Box	https://gardenature.co.uk 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. 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 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/ It can be mounted on an external wall to provide three swift nesting sites.	
Swift box model 30	http://actionforswifts.blogspot.com/p/diy-swift-box-designs.html This box is suitable for any location as it has a double thickness, waterproof roof (made of uPVC). The 30° sloping roof should deter predators.	

Swift		
Example	**Description**	**Picture**
Schwegler Swift Box Number 18	www.schwegler-nature.com This Swift Box No. 18 is ideally suited for creating Swift colonies under overhanging eaves.	

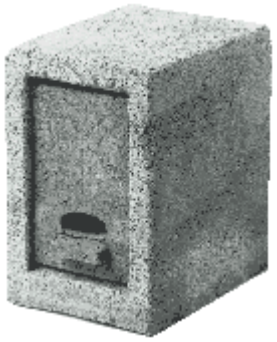
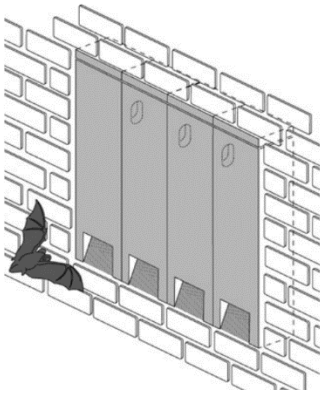
Bat box recommendations

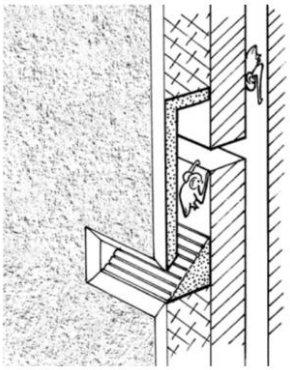
A wide range of bat boxes are available to suit a variety of species and design requirements. Bat boxes can be mounted externally on buildings, built directly into the wall structure or mounted on trees (dependent on box design).

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).

Example	**Description**	**Picture**
Schwegler General Purpose Bat Box 2F	www.schwegler-nature.com Height: 33 cm Weight: approx. 3.8 kg External diameter: 16 cm Installation: Hanging A general purpose box, suitable for all species.	

Example	Description	Picture
Schwegler General Purpose Bat Box 2F with Double Front Panel	www.schwegler-nature.com Height 33 cm Weight: approx. 4.1 kg External diameter: 16 cm Installation: Hanging This box is suitable for crevice dwellers, such as Nathusius´ pipistrelle, Daubenton`s bat and common pipistrelle.	
Schwegler 1FF	www.schwegler-nature.com Dimensions: 14(d) x 27(w) x 43(h) cm Weight: 9.9 kg Installation: Hanging This box is suitable for crevice dwellers, such as Nathusius´ pipistrelle, Daubenton`s bat and common pipistrelle. This box minimises temperature fluctuations in spring and autumn and is self-cleaning.	
Schwegler 1FQ	www.schwegler-nature.com Dimensions: 60(h) x 35(w) x 9(d) cm Weight: 15.8kg Installation: Attached to most external brick, timber or concrete walls at least 3m high. Can also be placed inside roof space This box is ideal for all types of bats that inhabit buildings. The box is weather-resistant 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.	

Example	Description	Picture
Brick Box Type 27	www.schwegler-nature.com Dimensions: 26.5(h) x 18(w) x 24(d) cm Weight: 9.5kg Installation: Can be flush with outside wall and rendered or covered so only the entrance hole is visible. This box is ideal for all types of bats that inhabit buildings.	
Schwegler 2FR	www.schwegler-nature.com Dimensions: 47(h) x 20(w) x 12.5(d) Weight: 9.8kg 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. Several tubes should be installed together (recommended three). This box is ideal for all types of bats that inhabit buildings. By installing boxes side by side a colony roosts can be created with any size requirement. This box has three different environmental partitions inside, attracting different species. The box is self-cleaning.	 
Schwegler 1WI	www.schwegler-nature.com Dimensions: 55(h) x 35(w) x 9.5(d) cm Weight: 15kg 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.	

Example	Description	Picture
	This box typically attracts building-inhabiting bat species like pipistrelles or serotine bat. This box is weather-resistant and designed for both winter hibernation and larger colonies in summer, including nursery roosts.	
Schwegler 1MF (Swift and Bat)	www.schwegler-nature.com Dimensions: 46(h) x 43(w) x 22.5(d) cm. Weight: approx. 24 kg Installation: The box can be hung against any types of wall of any type of building, between 6-7m above ground level. This box is designed for nesting swifts, however the recess in the rear panel creates a space between the wall of the building and the box, making it ideal for bats that inhabit building, such as common pipistrelle. Whilst the box may require cleaning, the back recess for bats requires no maintenance.	
Schwegler 1FE	www.schwegler-nature.com Dimensions: 30(h) x 30(w) x 8(d) cm. Weight: approx. 5.1 kg. Installation: Installation of multiple units is recommended. The box can be integrated into insulation or masonry. It can also be attached to the underlying structure to cover existing cavities, allowing bats to still sue them. Install at least 3m above the ground. This is a general purpose box, suitable for all species. There is a maintenance-free access panel for installing on or in the surface of exterior walls. The open rear enables bats to continue to use existing nesting sites in walls.	 

Deadwood features

Example	Description	Picture
'Stag beetle loggery	https://ptes.org/9-top-ways-to-help-stag-beetles-in-your-garden/ 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.	 (image credit – PTES, 2021)
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. Taylor *et al.* (2021) British Wildlife **32**(8) p547	   (image credits - Athayde Tonhasca via Scotlandsnature.blog, 2020)

8.5. Appendix 5: Habitat creation recommendations

Table A: Recommended fruit tree planting

Common Name and Variety	Systematic Name
Cherry	*Prunus avium*
Pear	*Pyrus communis*
Plum	*Prunus domestica*
Apple	*Malus domestica*
Apricot	*Prunus armeniaca*
Fig	*Ficus carica*

Table B: Recommended shrub and perennial planting

Common Name	Systematic name
Shrubs	
Lavender	*Lavandula angustifolia*
Hebe	*Hebe* sp.
Bee bush	*Abelia* sp.
Dogwood	*Cornus sanguinea*
Guelder rose	*Viburnum opulus*
Rosemary	*Rosmarinus officinalis*
Spindle	*Euonymus europaeus*
Dogrose	*Rosa canina*
Perennial planting	
Hemp agrimony	*Eupatorium cannabinum*
Common knapweed	*Centaurea nigra*
Oxeye daisy	*Leucanthemum vulgare*
Ragged Robin	*Silene flos-cuculi*
Betony	*Stachys officinalis*
Viper's bugloss	*Echium vulgare*
Primrose	*Primula vulgaris*

Common Name	Systematic name
Honeysuckle	*Lonicera periclymenum*
Forget-me-not	*Myosotis sylvatica*
Lily of the valley	*Convallaria majalis*
Fritillary	*Fritillaria meleagris*
Wood anemone	*Anemone nemorosa*
Foxglove	*Digitalis purpurea*

8.6. Appendix 6: Green infrastructure recommendations

Green roofs

It is recommended that any new buildings are designed to include green roofs, with such features being 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

It is recommended that a green wall system be installed within the Site. 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. The installation of trellises and wires on walls can aid vegetation growth and limit direct contact between the wall and plants. However, creating green walls by allowing climbing species to attach themselves to the actual structure of existing walls is also a viable option. Fruits trees such as apples and pears can also be used to form a green wall by training them as espaliers.

Careful choice of species and the orientation of these walls will increase the potential of a living wall to harbour other forms of wildlife. For north facing walls, the shade and relative cold offered in these positions, along with the potential for dry soil caused by the wall's 'rain shadow', requires careful consideration of shade tolerant species, such as ivy *Hedera Helix* and hydrangea *Hydrangea sp*. to ensure success. Creating green walls from climbing species such as ivy and hydrangea is often a cheap and simple process, as these species naturally cling to existing wall structures with small roots. Ivy is also a valuable food source for innumerable invertebrates which feed on its leaves, flowers and nectar, and it also provides valuable over-wintering and hibernation habitat.

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.

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