Greengage

156-164 Grays Inn & Panther House GVA
Preliminary Ecological Appraisal Report, January 2016

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156-164 Grays Inn Road & Panther House – Preliminary Ecological Appraisal Report

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Prepared by:	James Bumphrey	James Bumphrey
Signature:		
Authorised by:	Mitch Cooke	Mitch Cooke
Signature:		
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1.0 EXECUTIVE SUMMARY

1.1 Greengage Environmental Ltd were commissioned by GVA to undertake a Preliminary Ecological Appraisal on a site at 156-164 Grays Inn Road & Panther House in the London Borough of Camden, in order to establish the ecological value of the site and it's potential to support notable and/or legally protected species. This report has been produced in support of a planning application for the site.

1.2 Also provided within the report are recommendations for enhancing the ecological value of the site. In line with London Borough of Camden biodiversity policy these recommendations are predominately centred on the provision of a biodiverse roof.

1.3 From a review of site photographs and aerial images, prior to the site survey, it was determined that the species with the most potential to be occupying the buildings on-site were bats and nesting birds, and therefore these species were the focus of the survey.

1.4 The site predominately consists of existing commercial and retail buildings of various sizes and construction types.

1.5 The proposals comprise of the redevelopment of Panther House to connect the existing blocks and add additional floors. In addition, a new block will be created on Grays Inn Road with residential use on upper floors, and commercial and retail space on lower floors.

1.6 Details received from a desk top study and the site walkover have confirmed the site:

- Has negligible potential for roosting bats;
- Has low potential for foraging bats;
- Has low potential for nesting birds, with confirmed presence of loafing pigeon.
- Has negligible potential for badgers;
- Has negligible potential for great crested newts;
- Has negligible potential for reptiles;
- Has negligible potential for dormice;
- Has negligible potential for water voles;
- Has negligible potential for otters; and
- Has negligible potential for invertebrates.

1.7 The scale and nature of the proposals will not give rise to any negative impacts upon any sites designated for nature conservation.

1.8 The potential for the majority of protected species to be on-site was considered negligible or low. Other than a requirement to avoid impacting nesting birds (including pigeon) there are no ecological constraints over the proposed development.

1.9 Bat roosting potential within the application site was considered to be negligible. Whilst no further surveys are recommended at present, if construction has not commenced within a year of the production of this report, an updated bat scoping assessment should be completed.

1.10 Assuming any necessary mitigation or updated assessments are undertaken, and the proposed ecological enhancements are incorporated (to include biodiverse roofs, and bird and bat boxes) then the development will have a positive impact on the biodiversity value of the site and local area. These enhancements reflect targets of local and regional BAPs, and planning policy.

2.0 INTRODUCTION

2.1 Greengage were commissioned by GVA to undertake a Preliminary Ecological Appraisal (hereafter 'PEA') on a site at 156-164 Grays Inn Road & Panther House in London Borough of Camden (hereafter 'LB Camden'), in order to establish the ecological value of the site and it's potential to support notable and/or legally protected species. This report has been produced in support of a planning application for the site.

2.2 The PEA was undertaken in accordance with guidance in the *Joint Nature Conservation Committee (JNCC) (2010) Handbook for Phase 1 Habitat Survey*[1] and the *Chartered Institute of Ecological and Environmental Management (CIEEM) (2013) Guidelines for Preliminary Ecological Appraisal*[2], in accordance with *BS42020:2013: Biodiversity*[3]. The overall assessment consisted of:

- Site specific biological information gained from statutory and non-statutory consultation; and
- A site walkover and ecological survey.

2.3 The site-specific consultation provided the ecological context for the PEA site walkover carried out in October. Site photographs are shown in Appendix 1.0.

2.4 During the site walkover features within the site boundary and accessible features immediately bordering it were evaluated and the extent and distribution of habitats and plant communities were recorded, supplemented with target notes on areas or species requiring further commentary. Fauna using the area were recorded and areas of habitat suitable for statutorily protected species were identified where present, with an active search carried out for evidence of such use.

2.5 It has been assumed that all areas of the site and associated habitats will be affected by any future plans, and as such this report, identifies potential ecological constraints relating to the entire site.

2.6 The recommendations and opinions expressed in this report are based on the combination of information stated, site observations and feedback from the consultation exercise.

2.7 Detail on the surveyors and authors of this report can be found in section 4.0 of this report.

3.0 BACKGROUND

SITE LOCATION AND DESCRIPTION

3.1 The application site covers an area of approximately 0.218 hectares (ha). It is centred at NGR TQ309820 / TQ3097582052 OSGB co-ordinates 530975, 182052.

3.2 The site sits in a heavily urbanised area with a mixture of commercial and residential use buildings extending in all directions. Buildings border the site to the north and south with Grays Inn Road to the west and Mount Pleasant to the east. Green space in the immediate vicinity is largely restricted to street trees and landscaping associated with residential buildings. In the wider area there are larger areas of green space including Grays Inn Gardens, which sits approximately 100m to the south and comprises a large formally managed private garden.

3.3 The existing site can be broadly split into three sections:

- Panther House makes up the north eastern half of the site and comprises an existing brick building which is split into several sections ranging from four to six stories in height. The roofs are largely flat, although there are some small pitched sections. The buildings are built around a central courtyard which is accessed from Mount Pleasant to the east.
- 156-158 Grays Inn Road comprises a three storey building with a small frontage on Grays Inn Road which is connected to a larger workshop building at the centre of the site. The three storey building, which would appear to largely be used for storage at ground level and residential on the upper levels, has a small tiled pitched roof. The warehouse building has vehicular access from Grays Inn Road. The roof is pitched with glass and tiled sections.
- 160-164 Grays Inn Road, sitting in the western portion of the site, is a two storey flat roofed building with commercial units along its Grays Inn Road frontage.

PROPOSED DEVELOPMENT

3.4 The proposals consist of the redevelopment of Panther House to connect the existing blocks and add additional floors. In addition, a new block will be created on Grays Inn Road with residential use on upper floors, and commercial and retail space on lower floors.

4.0 METHODOLOGY

DESK TOP REVIEW

4.1 A review of readily available ecological information and other relevant environmental databases (including Defra's Multi-Agency Geographic Information for the Countryside (MAGIC) website[4] and the National Biodiversity Network Gateway[5]) was undertaken for the site and its vicinity. This provided the overall ecological context for the site, to better inform the PEA.

CONSULTATION

4.2 Site specific information has been sourced through direct consultation with Greenspace Information for Greater London (GiGL) in relation to wildlife, parks, statutory and non-statutory designated sites, notable habitats and other open spaces. Records from within 2km of the assessment site boundary were reviewed to better inform the PEA.

ON SITE SURVEY

Flora

4.3 The extent and distribution of any habitats on site were identified and mapped according to the standard Phase 1 Survey methodology[6] , supplemented with target notes describing the dominate botanical species and any valuable or interesting features.

4.4 As stated above, the survey was carried out in October 2015 within the optimal time period for botanical identification which is generally considered to be from April – October.

Fauna – Protected Species

4.5 The PEA specifically includes surveys to identify the potential for protected species to be present, and to ascertain the likelihood of species protected by statute inhabiting the site. This involved identifying potential habitats in terms of refugia, breeding sites and foraging areas.

4.6 The likelihood of occurrence is ranked as follows and relies on the current survey and evaluation of existing data through the desk top study.

- Negligible - While presence cannot be absolutely discounted, the site includes very limited or poor quality habitat for a particular species. The site may also be outside the known national range for a species;
- Low - On-site habitat is poor to moderate quality for a given species, with few or no information about their presence from desk top study. However, presence cannot be discounted due to the national distribution of the species or the nature of on-site and surrounding habitats;
- Moderate - The on-site habitats are of moderate quality, providing most or all of the key requirements for a species. Several factors may limit the likelihood of occurrence, habitat severance, habitat disturbance and small habitat area;
- High - On-site habitat of high quality for given species. Site is within a regional or national stronghold for that particular species with good quality surroundings and good connectivity; and
- Present - Presence confirmed for the survey itself or recent, confirmed records from information gathered through desk top study.

4.7 As is referenced above, it was determined that the species with the most potential to be occupying the buildings on-site were bats and nesting birds, and therefore these species were the focus of the survey:

Bat species (Chiroptera)

4.8 The site visit was undertaken in daylight and the evaluation of bat potential comprised an assessment of natural features on site that aimed to identify characteristics suitable for bat roosts, foraging and commuting. In accordance with the guidelines and methods given in English Nature's (now Natural England) Bat Mitigation Guidelines[7] consideration was given to:

- The availability of access to roosts for bats;
- The presence and suitability of crevices and other places as roosts; and
- Signs of bat activity or presence.

4.9 Definite signs of bat activity were taken to be:

- The bats themselves;
- Droppings;
- Grease marks;
- Scratch marks; and
- Urine spatter.

4.10 Signs of possible bat presence were taken to be:

- Stains; and
- Moth and butterfly wings.

4.11 Features with potential as roost sites include mature trees with holes, crevices or splits (the most utilised trees being oak, ash, beech, willow and Scots pine), caves, bridges, tunnels and buildings with cracks or crevices serving as entrance or exit holes.

4.12 Additionally, linear natural features such as tree lines, hedgerows and river corridors are often considered valuable for foraging and commuting. Consideration was given to the presence of these features both immediately within and adjacent to the assessment area.

4.13 The availability of access to roosts was assessed based upon the presence of holes large enough to allow entry of bats.

4.14 The exterior and interior of the buildings where appropriate were checked for gaps, cavities, access points and crevices, and any signs of bat droppings, in accordance with English Nature (now Natural England) guidelines.

Birds

4.15 During the walkover survey, the potential for breeding birds was assessed. In particular, this includes areas of vegetation and features of existing buildings. trees, scrub, heathland and wetlands that could support nests for common or notable birds. Potentially suitable features of buildings include window ledges, accessible roof spaces and loose brickwork.

4.16 Potential for additional species was also noted where present:

Badger (Meles meles)

4.17 The potential for badgers to inhabit or forage within the study area was established during the site walkover. Evidence of badger activity includes the identification of setts (a system of underground tunnels and nesting chambers), grubbed up grassland (caused by the animals digging for earthworms, slugs, beetles etc.), badger hairs, paths, latrines and paw prints.

Great Crested Newt (Triturus cristatus)

4.18 During the site walkover, an assessment was carried out to identify any potential habitats that may support great crested newts (GCN) and other native amphibians. The aquatic and terrestrial habitats required generally include small, still ponds or water bodies suitable for breeding; and woodland or grassland areas where there is optimal invertebrate prey potential.

Reptiles

4.19 The potential for reptile species on site was assessed during the walkover survey. Possible species include the grass snake (*Natrix natrix*), smooth snake (*Coronella austriaca*), adder (*Vipera berus*), common and sand lizards (*Lacerta vivipara* and *L. agilis*) and the slow worm (*Anguis fragilis*). These native reptile species generally require open areas with low, mixed-height vegetation, such as heathland, rough grassland, and open scrub or, in the case of grass snake, waterbody margins. Suitable well drained and frost free areas are needed so they can survive the winter.

Dormouse (Muscardinus avellanarius)

4.20 During the walkover survey the potential for dormice to be present on site was assessed. This included observations for suitable habitat such as well-layered woodland, scrub and linking hedgerows, particularly those species offering suitable food sources such as honeysuckle and hazel, in addition to direct evidence such as characteristically gnawed hazelnuts, chewed ash keys and honeysuckle flowers, or nests.

Water vole (Arvicola terrestris)

4.21 Water vole potential was assessed during the walkover survey. The potential is identified by the presence of ditches, rivers, dykes and lakes with holes and runs along the banks. Latrines, footprints or piles of food can also be noted.

Otter (Lutra lutra)

4.22 Where desk-top review or consultation indicates the presence of otters in a river catchment, the presence of water bodies with good cover and potential holt (den) sites would be noted.

Notable Invertebrates

4.23 As part of the walkover survey the quality of invertebrate habitat and the potential for notable invertebrate species was considered. There is a wide variety of habitats suitable for invertebrates including wetland areas, heathland, areas of bare sandy soil, ephemeral brownfield vegetation and meadows.

Other Fauna

Biodiversity Action Plan priority species

4.24 Where consultation and desk-study indicates the presence of BAP priority species not protected by statute, effort was made to establish the potential for the site to support these species.

LIMITATIONS

4.25 There were no significant limitations to the survey. Surveyors were able to access all external areas of the site and the survey was undertaken at a suitable time of year for botanical identification. Access was provided to the only enclosed roof void on the site which sits above 156 Grays Inn Road.

SURVEYOR COMPETANCIES

4.26 James Bumphrey, who visited the site and wrote this report, has a bachelors degree in Environmental Sciences (BSc Hons), a masters in Environmental Consultancy and is a graduate member of CIEEM.

4.27 Mitch Cooke, who reviewed this report, has a degree in Ecology (Hons), an MSc in Environmental Assessment and Management, and is a full member of CIEEM with over 20 years' experience in ecological survey and assessment. Mitch has set up and developed ecological and environmental teams for over 10 years and has undertaken and managed numerous ecological surveys and assessments. He is the Partner at Greengage and manages the team.

5.0 BASELINE CONDITIONS

DESK TOP REVIEW

Designations

5.1 Consultations with the local environmental records centre (GiGL), the Multi-Agency Geographic Information for the Countryside (MAGIC) dataset and online resources with information on non-statutory designated sites have identified 1 statutorily protected Local Nature Reserve (LNRs) and 40 non-statutorily protected Sites of Importance for Nature Conservation (SINCs) within 2km of the assessment site boundary. SINC is a non-statutory designation, which aims to protect areas that are valuable for plants and wildlife.

5.2 There are no designated sites on the site itself.

5.3 Table 5.1 below provides a summary of the local designations that are of most relevance to the site owing to the proximity.

Table 5.1 Summary of Local Designations

Site	Designation	Description
Camley Street Nature Park	LNR 1.8km northwest	Urban wild space containing a range of habitat examples created by on former vacant land. The wildlife interest is of high local educational and social value owing to the severe deficiency of wildlife sits in Greater London. The site is primarily an educational resource and a means of increasing local community awareness of the natural environment.
Coram's Fields	SINC 0.3km northwest	There are numerous mature London plane trees mostly at the perimeter and a hedge of beech. At the western edge of the site white mulberry (*Morus alba*) and black mulberry (*Morus nigra*) have been planted. To the east an area is being developed as a wildlife garden.
St George's Garden	SINC 0.5km northwest	This is an old churchyard site that is now a recreational area. It contains many mature trees, particularly London plane (*Platanus* x *hispanica*), weeping ash (*Fraxinus excelsior* var. *pendula*) and common lime (*Tilia* x *europaea*). There are areas of planted shrubberies with cherry laurel (*Prunus laurocerasus*), spotted laurel (*Aucuba japonica*) and other non-native species but these also contain insect attracting plants such as buddleia (*Buddleja davidii*), rose (*Rosa* sp.) and lavender (*Lavandula* sp.). Blackbirds and wrens are known to be resident here.
Calthorpe Common Garden	SINC 0.6km northwest	This garden is located in a very built up area of London just off the Gray's Inn Road. The site contains a number of scattered trees most notable are young beech (Fagus sylvatica), ash (*Fraxinus excelsior*), hawthorn (*Crataegus monogyna*), flowering cherry (*Prunus* sp.) and oak

Site	Designation	Description
		(*Quercus* sp.). There is an artificial stream planted with yellow iris (*Iris pseudacorus*) and hard rush (*Juncus inflexus*). The rockery gardens are planted with a number of insect-attracting species, for example rosemary (*Rosemarinus officinalis*), Canadian goldenrod (Solidago canadensis), foxglove (*Digitalis purpurea*), Michaelmas-daisy (*Aster* sp.), ivy (*Hedera helix*) and oxeye daisy (*Leucanthemum vulgare*).
St Andrew's Garden	SINC 0.4km northwest	It is only the larger monuments that have been left in place in this ex-churchyard. Headstones have been moved to the perimeter. Lawns, flowerbeds and shrubberies combine to make this a particularly attractive site. Mature common lime (*Tilia* x *europaea*), beech (*Fagus sylvatica*), and London plane (*Platanus* x *hispanica*) trees line the paths and boundaries. Planted shrubberies include many insect-attracting plants including buddleia (*Buddleja davidii*), lilac (*Syringa vulgaris*), hazel (*Corylus avellana*) and rose (*Rosa* sp.). The lawns contain a number of wildflower species, for example e.g. lesser celandine (*Ranunculus ficaria*) and yarrow (*Achillea millefolium*). Blackbirds and wrens are resident here.
Wilmington Square	SINC 0.6km north	This is a very picturesque town square which has a pedestrian walkway rather than a road along its northern edge; an unusual feature resulting from the original developers running out of funding. Being south-facing this square benefits greatly as a sun-trap, and has been planted with a wide range of native trees and shrubs.
St John's Gardens	SINC 0.5km east	This tiny park is the most southerly-placed site of nature conservation importance in Islington. It was formerly part of the graveyard of nearby St John's Chapel. The high density of mature trees, mainly plane (*Platanus* x *hispanica*) with some birch (*Betula pendula*), make the park a cool and shady haven where people may sit and relax. Birds that have been seen here include dunnocks and even a migrant willow warbler.
Lincoln Inn Fields	SINC 0.8km south	This is one of the largest town squares in central London. There are ample specimens of London plane (*Platanus* x *hispanica*), some of them of great antiquity (possibly being amongst the first planted in this country). Other trees include tree-of-heaven (Ailanthus altissima), ash (*Fraxinus excelsior*), holly (*Ilex aquilifolium*), holm oak (*Quercus ilex*), oak (*Quercus robur*), false acacia (*Robinia pseudacacia*) and flowering cherry (*Prunus* sp.). Extensive planted shrubberies occur at the perimeter. Typical species are lilac (*Syringa vulgaris*), snowberry (*Symphoricarpos rivularis*), barberry (*Berberis* sp), box (*Buxus sempervirens*), mock orange (*Philadelphus* sp) and spotted laurel (*Aucuba japonica*). A number of common birds have made their home here, for example blackbird, song thrush, magpie and blue tit.
Russell Square	SINC 1km west	This square is one of the largest in central London and contains many London plane (*Platanus* x *hispanica*) trees situated chiefly at the perimeter and at its centre. Other

Site	Designation	Description
		species include common lime (*Tilia* x *europaea*), ash (*Fraxinus excelsior*), horse-chestnut (*Aesculus hippocastanum*), tree of-heaven (*Ailanthus altissima*), hawthorn (*Crataegus monogyna*) and holly (*Ilex aquilifolium*). There is a recently planted hedge of hornbeam (*Carpinus betulus*) located at the site's boundary and planted shrubberies.

Biodiversity Action Plans

5.4 UK Biodiversity Action Plans (BAPs) have been developed which set priorities for nationally important habitats and species. To support the BAPs, Species/Habitat Statements (otherwise known as Species/Habitat Action Plans) were produced that provide an overview of the status of the species and set out the broad policies that can be developed to conserve them. A list of priority species of conservation importance was also developed.

5.5 The UK BAP was succeeded in 2012 by the *UK-Post 2012 Biodiversity Framework* which informed the creation of the *Biodiversity 2020* strategy; England's contribution towards the UK's commitments under the *United Nations Convention of Biological Diversity*.

5.6 Despite this, the UK BAP priority species lists and conservation objectives still remain valid through integration with local BAPs (which remain valid), and in the form of the Habitats and Species of Principle Importance list (as required under section 41 of the Natural Environment and Rural Communities (NERC) Act).

5.7 Local Biodiversity Action Plans (LBAPs) ensure that national action plans (the UK BAP/Biodiversity 2020) are translated into effective action at the local level, and establish targets and actions for locally characteristic species and habitats.

5.8 The site is subject to the London BAP and Camden LBAP.

Greater London Biodiversity Action Plan

5.9 The London BAP[8] lists 26 priority habitats and species to protect and enhance, which are of importance to London's nature conservation. Notable features of the London BAP that are of relevance to this report are:

- Bats Species Action Plan; and
- House sparrow Species Action Plan.
- One other notable species which is listed as an 'important species' but does not have a specific action plan is black redstart, for which there are local records.

Camden LBAP

5.10 This Camden BAP translates the UK Biodiversity framework, England Biodiversity Strategy and the regional London BAP targets onto the local level. The Plan outlines a series of actions to ensure that biodiversity is safeguarded in the borough and that Camden's residents are given opportunities to access the natural environment.

5.11 The focus and content of the BAP has been informed by an evidence base (the Camden Biodiversity Audit) and policy requirements. This was further shaped through stakeholder engagement, including a biodiversity workshop with key partners. As a result there are be three key areas of focus:

1. Access to Nature
2. The Built Environment
3. Open Spaces and Natural Habitats

Species Record

5.12 The information provided from the review of NBN Gateway and GiGL data search identified records of a number of protected and BAP priority species within 1km search radius of the site. The species of relevance to the site, owing to the nature of habitat presence (predominately building and hardstanding), included:

- Black redstart (*Phoenicurus ochruros*);
- Common starling (*Sturnus vulgaris*);
- House sparrow (*Passer domesticus*);
- Common swift (*Apus apus*);
- Kestrel (*Falco tinnunculus*);
- Red-shanked carder-bee (*Bombus ruderarius*);
- Bats (*Myotis* sp., *Plecotus* sp., *Nyctalus* sp. and *Pipistrellus* sp.).

DESCRIPTION OF SITE ECOLOGY

Detailed Description of Site: Habitats

5.13 The habitats presented across the assessment site consist of the following Joint Nature Conservation Committee (JNCC) Phase 1 Habitat categories:

- Building/Hard-standing (J3.6);

5.14 Figure 1.0 includes several Target Notes which are described below:

Target Note 1

5.15 Pitched roof comprising glass panes.

Target Note 2

5.16 Small section of tiled pitched roof which sits above the residential unit associated with 154-158 Grays Inn Road.

Target Note 3

5.17 Window ledges on the northern end of Panther House, on which loafing feral pigeon (*Columba livia domestica*) were noted.

DETAILED DESCRIPTION OF SITE PROTECTED: SPECIES POTENTIAL

Bats

Roosting

5.18 A full assessment of the potential for bats to be roosting on site was completed. The façades of all buildings were found to be in relatively good condition and largely lacking in cracks or loose brickwork. All windows were also generally well-sealed.

5.19 The roofs across the majority of the site were considered highly unsuitable, with large flat sections and many of the pitched sections constructed from glass and lacking enclosed void space. The one exception to this was the enclosed attic space present within the small section of tiled pitched roof which sits above the residential unit associated with 154-158 Grays Inn Road. However, an internal assessment of this space identified no field signs and no potential egress or ingress points. Whilst there were several loose roof tiles overall, owing to the sits highly urbanised location and lack of connections to extensive areas of suitable foraging habitat, the potential for bats to be roosting was considered negligible.

Foraging

5.20 Foraging habitat on site and in the immediate vicinity is limited. In the wider area there are greater opportunities for foraging, predominately in the form of the private gardens and soft landscaping associated with the areas residential. In the wider area there are several larger expanses of green space including Grays Inn Gardens 100m to the south, although these are not connected to the site. The potential for bats to be foraging on and adjacent to the site can therefore be considered low.

Birds

5.21 Feral pigeon (*Columba livia domestica*) were observed loafing on window ledges on the northern exterior of Panther House, although no active nests were recorded.

5.22 Whilst no active nests were recorded, pigeons are clearly using the site and therefore potential for them to be nesting on site is considered moderate. Although pigeons are considered a 'nuisance' species they are legally protected whilst on the nest. General recommendations to avoid impacting nesting birds is to avoid demolition during nesting season which is usually taken to run from March to August for the majority of bird species. However, feral pigeons have been known to nest throughout the year and therefore it is recommended that preventative measures are put in place by a specialist pest controller to rule out the potential for a nest to become established.

5.23 There are records of black redstart 250m to the north of the site. In urban areas black redstart typically nest in holes or on the internal ledges of buildings, especially those that are derelict. Whilst there are some potentially suitable external ledges across the site, these are relatively exposed with the buildings generally lacking in cavities or holes. Furthermore, there is also a lack of foraging habitat, which includes large areas of bare ground and open water, on site and in the wider locality.

5.24 Further to black redstart, there are also local records for three other BAP bird species known to nest in buildings; house sparrow, swift and starling, although none were observed on-site. Overall the potential for black redstart, house sparrow, swift and starling to be nesting on site is considered low.

5.25 Despite there being no evidence of the aforementioned birds using the application site and the buildings were considered largely unsuitable, where possible, ecological enhancement recommendations will look to target these species.

Badger

5.26 No direct evidence of badgers was identified during the site visit. The site itself and much of the surrounding area has negligible potential for foraging badgers; there is no suitable habitat. The overall potential for badgers is considered to be negligible.

Great Crested Newt

5.27 There are no watercourses or waterbodies directly present on the application site and terrestrial habitats on site were considered largely unsuitable, with the site covered almost exclusively by building and urban hard-standing. Therefore, it is concluded that the land does not support habitat suitable for GCN and the potential is negligible.

Reptiles

5.28 No reptiles were identified during the site visit. General habitats across the site were not suitable as there were no open areas with low height vegetation, such as heathland, rough grassland and open scrub. Overall, potential is therefore considered negligible.

Dormice

5.29 No direct evidence of dormouse activity or suitable habitat was identified during the site visit. As such, the potential for the site to support dormice is considered negligible.

Water Vole

5.30 There are no water bodies on site to provide habitat for water voles. Overall the potential is considered to be negligible.

Otter

5.31 There are no water bodies on site to provide habitat for otters. Overall the potential is considered to be negligible.

Invertebrates

5.32 There are no areas on site that provide good habitat opportunities for invertebrates. The potential can be considered as negligible.

Other BAP Species

5.33 None were observed during the site walkover.

CONSERVATION VALUE – RATCLIFFE CRITERIA

5.34 The nature conservation value of the site was assessed using the Ratcliffe Criteria[9], a widely accepted and long established method for assessing the nature conservation value of a site.

5.35 The results of the use of Ratcliffe Criteria are indicated below:

Size – A habitat's importance for nature conservation generally increases with its size.
The site is 0.218ha and covered by building and hardstanding; these habitats are of limited importance for nature conservation in this instance.
VALUE: Low

Naturalness – Sites which have remained relatively unaltered by man tend to be the most valuable. Further, the sites which are considered most natural are generally those which are hardest to recreate. NB throughout the UK there is probably no site that can be considered completely natural and therefore an assessment must be made related to degrees of naturalness
All areas of the habitats show that they have been altered by previous development and usage on site. There are no green spaces that would be considered naturalised.
VALUE: Low

Diversity – Variety is better than uniformity, species or habitat richness is generally better than a poor species or habitat complement. It should be noted that certain habitats are intrinsically poor in species diversity and that this should be borne in mind when making any assessment.
The site is covered by buildings and hardstanding. This does not represent a diverse habitat.
VALUE: Low

Fragility – A habitat that is fragile is one that is sensitive to changing influences. Habitats that are liable to such influences are likely to be of higher value than those that are not.
Habitats associated with the site are common across London and the UK. These habitats are not considered fragile and are less sensitive to potential future redevelopment or changes in land use.
VALUE: Low

Typicalness – Those habitats, which are representative or typical of good examples of their type, are considered of higher value than those which are not.
The site is typical of the area, with this part of London dominated by urban development. These habitats, whilst typical however, are of limited ecological value in this instance.
VALUE: Low

Rarity – A site where rare or protected species or habitats exist is considered of higher value.
The potential for the majority of protected species is considered to be negligible or low.
VALUE: Low

Position in an ecological or geographical unit – Sites, and their associated habitats, which are contiguous with other similar sites, tend to be more valuable than those sites which are situated in isolation.
The site is situated in central london within an area dominated by urban development. The site is similar to contiguous areas but these areas are of predominately low ecological importance.
VALUE: Low

Intrinsic Value – This criterion is based upon the value humans place on a feature of ecology as opposed to its actual nature conservation value.
The site shows limited intrinsic value from an ecological perspective.
VALUE: Low

Potential Value – Habitats that, through an adjustment of current influences, have the potential to be of higher nature conservation value than they are currently.
There are opportunities to increase the ecological value of the site. Ecological enhancement features can be incorporated into the built form of the proposed development. The planning policy context calling for ecological enhancement is presented at Appendix 2.0. Features such as biodiverse roofs, and bird and bat boxes are proposed for the site.
VALUE: Moderate

Re-creatibility – A site that is difficult to recreate, generally because of its more natural development, is deemed to be of higher nature conservation value than one which can be recreated reasonably simply (additional assessment criterion from Ratcliffe).
The site is lacking in mature habitats, with the entire site easily reproducible.

VALUE: Low

6.0 EVALUATION SUMMARY AND IMPACT ASSESSMENT

6.1 Using the Ratcliffe Criteria it is determined that overall the site has a **LOW** conservation interest.

6.2 The assessment site and its surroundings have potential to support the following ecological receptors of note, which could therefore, be impacted upon by any future prospective development proposals, as indicated in Table 6.1 below:

Table 6.1 Baseline Summary

Receptor	Presence/Potential Presence	Comments
Statutory Designated Sites	Present in wider area	One within a 2km radius of the site.
Non-Statutory Designated Sites	Present in wider locality	40 within a 2km radius of the site.
Foraging bats	Low	Suitable habitat in the vicinity is limited, none on the site itself
Roosting bats	Negligible	No direct evidence of roosting bats on site. No further surveys at this stage but updated survey recommended a year from the completion of report.
Birds	High – Feral pigeons Low – Several BAP species	Confirmed presence of feral pigeon. Records for several BAP species in the locality.
Badgers	Negligible	Local habitat is unsuitable limited. No direct evidence of badgers on site.
Great Crested Newts	Negligible	Local habitat is unsuitable. No direct evidence of great crested newts on site.
Reptiles	Negligible	No suitable habitat on site. Site poorly connected.
Water Voles	Negligible	No suitable habitat on site. No direct evidence of water voles on site.
Dormice	Negligible	No suitable habitat on site. No direct evidence of dormice on site.
Otters	Negligible	No suitable habitat on site. No direct evidence of otters on site.

Receptor	Presence/Potential Presence	Comments
Invertebrates	Negligible	Lack of habitat mosaic, limited suitable areas of vegetation

6.3 The site does not stand to support any notable/protected habitats or species, other than nesting birds.

6.4 Whilst the site is located within a 2km radius of a statutorily designated site it is considered that the proposed development does not stand to impact this site owing to the nature of the proposals and the distance that separates them.

6.5 There are a variety of opportunities to incorporate ecological enhancements to reflect local conservation targets (such as those described in the Camden LBAP). The following habitats/species should be targeted within any enhancements:

- The built form
- Birds – including swift, house sparrow and black redstarts
- Bats
- Invertebrates

6.6 Recommendations for ecological enhancements are included in the following section.

7.0 ENHANCEMENT RECOMMENDATIONS

BIODIVERSE ROOF

7.1 It is understood that, in accordance with LB Camden planning policy, livings roofs are to be incorporated into the scheme.

7.2 A living or green roof is a roof, deck or other structure onto which vegetation is intentionally grown or habitats for wildlife are established. They can broadly be defined as either extensive or intensive. An extensive green roof is usually covered by a blanket of vegetation and not accessible for recreation, whereas an intensive green roof is typically designed primarily for recreation and is also often referred to as a roof garden.

7.3 Specifications for the roof are yet to be decided, but typically living roofs on such a development will include a wildflower turf/blanket or a sedum blanket. Roofs comprised predominately of sedums are often favoured on lightweight green roofs as they are drought tolerant and only require a shallow substrate. Additionally, sedums provide habitat for a number of invertebrates including spider and beetle species of national importance[10].

7.4 Whilst sedum blankets are beneficial to biodiversity, greater value would be provided by incorporating a biodiverse roof. A biodiverse roof either tries to replicate the existing environment of the site or create a habitat to support a variety of plants, birds, animals and invertebrates.

7.5 The construction of a biodiverse roof is relatively similar to a standard extensive green roof with the main difference being the choice of growing medium. The growing medium typically has a low organic content and will comprise locally sourced rubble, gravel and spoil, although pre-prepared medium mixes can be sourced from most green roof suppliers.

7.6 It is therefore recommended that the living roofs across the development are built to a biodiverse roof specification which is pre-seeded and plug planted to ensure a more reliable mix of wildflowers specific to this part of London.

7.7 All UK species of bat (BAP Species) feed upon invertebrates, so an increase in invertebrate diversity and populations will potentially encourage bats to forage and feed across the site. A greater invertebrate diversity may also provide a foraging resource for the house sparrow and black redstart.

7.8 The biodiversity value of the roof could be further increased through installing features such as a substrate of varying depths, piles of sand, bare patches, areas of shingle and log piles.

7.9 The species mix has been carefully chosen to optimise biodiversity across the roof spaces. The choice of plants has therefore, been based on the following criteria:

- Ability to grow in drought conditions and be wind tolerant;
- Relatively low growth height to be able to survive the harsh conditions at proposed roof heights;
- Range of vegetation heights for structural diversity;
- They are of wildlife benefit, providing valuable nectar sources and attracting invertebrates;
- Local commonly found growing in this area and typical of brownfield habitat;
- Wide ranging corolla (shape/size of flower petals) that is vital to attract a number of different invertebrate species, and in particular London BAP or Red Data book species; and
- Wide ranging flowering periods to enable a long and variable flowering season throughout the year.

7.10 Table 7.1 below summarises the species mix that is recommended for the biodiverse roof, and includes further details on the wildlife benefit and growth conditions.

7.11 A substrate depth varying between 100mm and 150mm is recommended to support the species below. The variation in substrate will also provide a range of micro-habitats across the roof and therefore support encourage greater diversity.

Table 7.1 Species Mix for Biodiverse Roof

Species Name	Latin Name	Height	Wildlife Benefit	Growth Conditions
Agrimony	*Agrimonia eupatoria*	Up to 65cm	The food plants by the larvae of some Lepidoptera species including Grizzled Skipper and Large Grizzled Skipper	A hardy plant that prefers partial shade
Autumn Hawkbit	*Leontodon autumnalis*	15-30cm	Late flowering, attracts beetles and butterflies	Drought tolerant, low nutrients, wind tolerant, open conditions
Birds Foot Trefoil	*Lotus corniculatus* (do not confuse with introduced sown variety *L. Corniculatus* var *sativus)*	20-40cm	Mid flowering, good nectar source for many insects and a larval source for many species of Lepidoptera - beneficial for black redstarts	Drought and wind tolerant, low growing, sprawling habit. Common on grasslands and along roadsides. A member of the legume family therefore nitrogen fixing and will increase the nutrient value of the substrate over time

Species Name	Latin Name	Height	Wildlife Benefit	Growth Conditions
Biting Stonecrop	*Sedum acre*	10-15cm	Branched clusters of bright yellow flowers, which have long protruding stamens and are attractive to bees for pollen and nectar.	This is a spreading plant that thrives on virtually soil-less conditions. Favours full sunlight.
Black Medick	*Medicago lupulina*	Up to 50cm	Early flowering, attracts butterflies, hoverflies and bees. Beneficial for black redstarts	Low growing, ground hugging plants. Very common on roads and roadsides and is drought and wind tolerant, and can survive relatively cold conditions. A member of the legume family therefore nitrogen fixing and will increase the nutrient value of the substrate over time
Bladder Campion	*Silene vulgaris*	40-80cm	The Bladder Campion is an important nectar source for butterflies and a favourite food plant of frog hoppers, the insects which create cuckoo spittle	It prefers neutral, dry soils and is generally found alongside paths and in open grassy or rough ground.
Breckland Thyme	*Thymus serpyllum*	5-20cm	Flowers are attractive to bees	Easily grown in average, dry to medium, well-drained soils in full sun. Tolerates drought and poor soils of low fertility. Loose, sandy or rocky soils with excellent drainage are best habitat
Bugle	*Ajuga reptans*	10-25cm	The flower is an important early source of nectar for butterflies, especially the Duke of Burgundy, Marsh Fritillary and the Pearl-Bordered Fritillary.	A small, spreading plant that produces a ring of blue flowers on top of each set of leaves. Prefers sunny of semi-shaded conditions
Bulbous Buttercup	*Ranunculus bulbosus*	20-50cm	The food plant of the larvae of some Lepidoptera species including Hebrew Character and Small Angle Shades	Favours nutrient-poor, well-drained soils
Common Corncockle	*Agrostemma githago*	Up to 80cm	Attracts lady-beetles and parasitic wasps	Hardy plant found in many conditions. Likes disturbed, nutrient poor soils
Common Field Speedwell	*Veronica persica*	10-30cm	Flowers most of the year, attracts butterflies.	Low growing, hardy plant, nutrient rich

Species Name	Latin Name	Height	Wildlife Benefit	Growth Conditions
Common Forget-Me-Not	*Myosotis arvensis*	10-35cm	Food plant of the larvae of some Lepidoptera species including *Setaceous Hebrew Character*	Shows a preference for soils with low pH
Common Mouse Ear	*Cerastium fontanum*	Up to 50cm	Early to late flowering, flowers are self or insect pollinating	Low growing, likes dry grassland and wasteland conditions, prefers richer nutrient levels
Common Poppy	*Papaver rhoeas*	Up to 60cm	Has no nectar but the flowers provide pollen for bees. Beetles feed in the seed capsules and some species may overwinter here when the capsules are empty	Hardy plant grows on disturbed soils
Common Vetch	*Vicia sativa*	15-40cm	Mid flowering, attracts bees, wasps, butterflies and aphids – aphids are beneficial for house sparrows	Particularly attractive to aphids, an essential food source for house sparrow chicks. A member of the legume family therefore nitrogen fixing and will increase the nutrient value of the substrate over time
Corn Camomile	*Anthemis arvensis*	Up to 30cm	Attract a range of pollinating insects	Preference for light chalky or sandy soils
Cornflower	*Centaurea cyanus*	30-80cm	Attract many beneficial insects that come to nectar and feed on the pollen	A hardy plant which grows of many soil types and prefers full sun
Cowslip	*Primula veris*	Up to 25cm	Food plant of the Duke of Burgundy Fritillary butterfly, Plain Clary and Northern Rustic moths	A hardy plant preferring well drained soils and full sun
Cut Leaved Crane's-Bill	*Geranium dissectum*	10-40cm	Mid to late flowering, attracts beetles and butterflies.	Likes stony ground, wasteland, and thin soils. Low growing sprawling plant
Dove's-Foot Crane's-Bill	*Geranium molle*	Up to 20cm	Early flowering, attracts range of insects and beneficial for black redstarts	Low growing, sprawling habit. Drought tolerant and common on roadsides, wastelands and brownfield sites
Fox And Cubs	*Hieracium aurantiacum*	15-35cm	Mid flowering, attracts flies, good nectar source	Drought tolerant, hardy plant, low growing

Species Name	Latin Name	Height	Wildlife Benefit	Growth Conditions
Hares Foot Clover	*Trifolium arvense*	10-40cm	Late flowering, attracts flies, good nectar source	Drought and wind tolerant. A member of the legume family therefore nitrogen fixing and will increase the nutrient value of the substrate over time
Hoary Plantain	*Plantago media*	30-55cm	Mid flowering, large flowerhead, attracts bees and wasps	Drought tolerant, low growing
Kidney Vetch	*Anthyllis vulneraria*	Up to 60cm	Late flowering, attracts bees and wasps and butterflies.	Low growing, ground covering plant, found on wastelands, railway embankments etc. Drought tolerant. A member of the legume family therefore nitrogen fixing and will increase the nutrient value of the substrate over time
Knapweed	*Centaurea scabiosa*	Up to 50cm	Very attractive to butterflies and bees.	Tolerant of a wide range of soils. It's common throughout the British Isles.
Lemon-scented Thyme	*Thymus x citriodorus*	10cm	Very attractive to numerous species of butterflies and bees	Hardy low growing plant. Frost tolerant.
Musk Mallow	*Malva moschata*	Up to 80cm	Particularly attractive to several species of bees.	Prefers dry and fertile soils and full sun.
Ox Eye Daisy	*Leucanthemum vulgare*	Up to 60cm	Late flowering, attracts beetles and hoverflies.	Grows on disturbed soils and wastelands as well as wildflower meadows, tolerant of a wide range of environmental conditions including drought
Pale Toadflax	*Linaria repens*	Up to 80cm	Has pollen for bees and pollen beetles, *Brachtypterus spp*., in the flowers.	Grows on dry banks and stony ground over much of England and Wales.
Perforate St Johns Wort	*Hypericum perforatum*	20-50cm	Mid flowering, attracts bees, wasps and beetles. Beneficial for black redstarts.	Found on wastelands, dry stony ground, drought tolerant, robust plant
Red Campion	*Silene dioica*	30-80cm	The nectar of the flowers is utilised by bumblebees and butterflies, and several species of moth feed on the foliage	Grows in a variety of conditions but prefers to grow on damp, non-acid soils.

Species Name	Latin Name	Height	Wildlife Benefit	Growth Conditions
Red Clover	*Trifolium pratense*	20-60cm	Late flowering, attracts bumble bees, common carder bee, butterflies and weevils.	Low growing drought tolerant, hardy plant, low nutrient growth. A member of the legume family therefore nitrogen fixing and will increase the nutrient value of the substrate over time
Reflexed Stonecrop	*Sedum reflexum*	10cm	An excellent source of nectar for bees and butterflies	Low growing plant which grows in small bushes, spreading on the ground
Ribwort Plantain	*Plantago lanceolata*	10-40cm	Beneficial for black redstarts	Drought tolerant and very common on wasteland, brownfield sites and roadsides
Rough Hawkbit	*Leontodon hispidus*	20-50cm	Yellow flower attracts butterflies and bees	A slow-growing, rosette-forming perennial of dry, neutral or calcareous soils. Dislikes nutrient-rich soils.
Scented Mayweed	*Matricaria recutita*	15-50cm	This plant is a very good source of nectar for bees and flies. One small weevil, *Omphalapion hookeri* lives on the seedheads. Scented mayweed is highly attractive to ladybirds that feed on aphids	It thrives best on lighter soils but can grow on loams and heavy clays. Prefers full sun.
Self Heal	*Prunella vulgaris*	30-60cm	Mid flowering, good for bees. Beneficial for black redstarts	Prefers sun or semi-shade and some moisture but drought tolerant, low growing creeping plant.
Tunic Flower	*Petroraghia saxifraga*	10-15cm	Flowers attracts numerous butterfly and bee species.	Grows in sunny location in poor to moderately fertile soil, low water. Tolerates drought and neglect.
Viper's Bugloss	*Echium vulgare*	30-60cm	An important food source for species of bumblebee and butterflies.	Grows in dry, sunny position in well-drained or sandy soils.
White Clover	*Trifolium repens*	20cm	Late flowering, attracts, honey bee, bumble bees, weevils	Low growing, relatively drought tolerant, will not grow well in shade, low nutrient growth. A member of the legume family therefore nitrogen fixing and will increase the nutrient value of the substrate over time.

Species Name	Latin Name	Height	Wildlife Benefit	Growth Conditions
White Stonecrop	*Sedum album*	20cm	It provides nectar and pollen for bees including the buff-tailed bumble bee. Used as food plants by the larvae of some Lepidoptera species.	Grows well in a city environment. Is drought tolerant and prefers sunny positions.
Wild Basil	*Clinopodium vulgare*	30-70cm	Pollinated by bees and attractive to butterflies.	Very hardy plant and drought resistant.
Wild Marjoram	*Origanum vulgare*	30-60cm	Late flowering, attracts butterflies and bees	Drought resistant, low growing
Wild Mignonette	*Reseda lutea*	30-50cm	The green-yellow flowers are very attractive to bees.	Grows in waste, scrubby, disturbed soils that are well drained and in full sunlight.
Wild Pansy	*Viola tricolor*	Up to 40cm	Attractive to, and pollinated by, a variety of species of bee.	Prefers sandy substrates and partial shade.
Wild Thyme	*Thymus serpyllum*	2-10cm	It is an important nectar source plant for honeybees as well as the large blue butterfly which feeds exclusively on wild thyme	A hardy plant that thrives in full sun and often grows in pavement cracks. A low growing, creeping plant
Yarrow	*Achillea millefolium*	Up to 80cm	Attracts beneficial Syrphid flies.	Drought tolerant plant that prefers full sun and shallow, disturbed and nutrient poor soils.
Zigzag Clover	*Trifolium medium*	20-60cm	Attracts bumblebees and butterfly species.	Low growing drought tolerant, hardy plant, low nutrient growth. A member of the legume family therefore nitrogen fixing and will increase the nutrient value of the substrate over time
Mosses				
Springy Turf Moss	*Rhytidiadelphus squarrosus*	Up to 15cm		It tolerates a wide range of soils and colonises on man-made habitats.
Wall Screw Moss	*Tortula muralis*	5-10cm		Commonly found on stone and concrete areas.
Grey Cushion Moss	*Grimmia pulvinata*	2cm		Grows on rocks and concreted areas.

Biodiverse Roof Management Plan

7.12 The intention of this Plan is to maintain and enhance the biodiverse roof habitats installed on site. It should help achieve initiatives and targets set out within the recommended enhancements in this report.

7.13 As the site is currently of low ecological value, the plan needn't consider the management of any protected features on the site.

7.14 The Plan will follow a clearly defined 5 year timetable in the first instance that will be used as a reference point for site maintenance, monitoring and any future planting and enhancement works that may be necessary for the biodiverse roof.

7.15 Biodiverse roofs are dynamic, and the species composition is anticipated to change over time, due to plant selection resulting from the prevailing climatic conditions, natural colonisation, and succession. As a result, some of the actions within the first 5 years will be dependent upon rate of growth or success of initial planting/sowing and enhancements. In general, where measures have not been stated it is due to a non-intervention policy once the features have been established.

7.16 This Plan will also be iterative in the medium to long-term, adapting in a staged process to the changing roof composition and in response to the feedback from monitoring exercises. Suggestions can be made to alter the enhancement measures or supplement the planting regime as necessary. Primarily, the Plan will include actions to maintain the ecological objectives for the biodiverse roof, which are:

- Optimise biodiversity measured by the range of wildlife benefiting plant species, lichens, mosses and fungi, and invertebrate and bird species using the biodiverse roofs;
- Encourage invertebrates through diverse range of floral species and suitable invertebrate niche habitats;
- Encourage species highlighted in the UK BAP, Red Data Book and Natural England's Species Recovery Programme such as the black redstart, the house sparrow, the brown-banded carder bee and ground nesting mining bees.

7.17 The monitoring programme will measure the success of the biodiverse roofs for their overall biodiversity value, observing any natural colonisation, the success of the seed mix and plug planting and use of the roof by birds and invertebrates as key biodiversity indicators. The monitoring for birds and invertebrates in particular will occur annually for the first 3 years and is recommended biennially thereafter. Monitoring will focus on the diversity and abundance of these species.

7.18 At or just after Practical Completion of the biodiverse roofs, we will inspect the ecological enhancements implemented as a result of the recommendations in this report. We propose to undertake three further site surveys over the following 3 years after practical completion to monitor the effectiveness for increasing biodiversity.

7.19 It is also recommended that an ecologist is present during the installation of the biodiverse roof.

7.20 After the initial 3 years of establishment and annual surveys, we highly recommend that biennial site surveys over the following 10 years are undertaken to monitor the effectiveness of the ecological enhancement and amend the Plan accordingly.

7.21 Indicators of success will include the successful establishment of a wide variety of plant species, natural colonisation of floral species in the bare areas on the roofs, evidence of invertebrates inhabiting the ecological features incorporated on the roofs, evidence of bird activity on the roofs such as birds using the nest boxes or signs that the black redstart is using the living roofs.

7.22 Table 7.2 summarises management actions for the first 5 years. Assuming that practical completion of the biodiverse roof is undertaken by Spring 2017, Year 1 Spring will be Spring 2017. It also outlines the necessary responsibilities and key objectives for the next 5 years. Should the Plan need to be extended beyond 5 years, it will be done so in appropriate stages, considered to be 5 – 10 years, 10 – 15 and up to 25 years. Hence, the Plan is iterative and feedback from the monitoring exercises will inform and develop the Plan, which will be amended and updated accordingly to maintain the objectives.

Table 7.2 Biodiverse Roof Management Plan

Year and Season	Action	Comments
Year 1 – Spring	-	-
Year 1 – Summer	Annual monitoring programme (survey to be undertaken between May and August) Survey for signs of invertebrates and bird species using the roof areas Check any enhancement measures are intact	An annual monitoring programme will measure the success of the roofs for their biodiversity value, including surveying for dominant plant species - this will inform the need for any improvements/alterations Survey for signs that invertebrates are inhabiting enhancement features and other fauna are using the site for foraging, nesting or perching During the monitoring programme it will be necessary to check any enhancement measures are intact, such as the wire netting not been blown away and the rope coils nailed down

Year 1 - Autumn	Re – plant or supplement planting if necessary Weed out competitive species if necessary	Feedback from the monitoring programme will inform the need for any further planting or weeding if required
Year 1 – Winter	Check if any litter needs removing and dispose where necessary	-
Year 2 – Spring	Annual monitoring programme (survey to be undertaken between May and August) Survey for signs of invertebrates and bird species using the roof areas Check any enhancement measures are intact	An annual monitoring programme will measure the success of the roofs for their biodiversity value, including surveying for dominant plant species - this will inform the need for any improvements/alterations Survey for signs that invertebrates are inhabiting enhancement features and other fauna are using the site for foraging, nesting or perching During the monitoring programme it will be necessary to check any enhancement measures are intact, such as the wire netting not been blown away and the rope coils nailed down
Year 2 – Summer	-	-
Year 2 – Autumn	Re – plant or supplement planting if necessary Weed out competitive species if necessary	Feedback from the monitoring programme will inform the need for any further planting or weeding if required
Year 2 – Winter	Check if any litter needs removing and dispose where necessary	-
Year 3 – Spring	-	-
Year 3 – Summer	Annual monitoring programme (survey to be undertaken between May and August) Survey for signs of invertebrates and bird species using the roof areas Check any enhancement measures are intact	An annual monitoring programme will measure the success of the roofs for their biodiversity value, including surveying for dominant plant species - this will inform the need for any improvements/alterations Survey for signs that invertebrates are inhabiting enhancement features and other fauna are using the site for foraging, nesting or perching During the monitoring programme it will be necessary to check any enhancement measures are intact, such as the wire netting not been blown away and the rope coils nailed down
Year 3 – Autumn	Re – plant or supplement planting if necessary Weed out competitive species if necessary	Feedback from the monitoring programme will inform the need for any further planting or weeding if required

Year 3 – Winter	Check if any litter needs removing and dispose where necessary	-
Year 4 – Spring	-	-
Year 4 – Summer	-	-
Year 4 – Autumn	Check any enhancement measures are intact Check if any litter needs removing and dispose where necessary	Check any enhancement measures are intact, such as the wire netting not been blown away and the rope coils nailed down
Year 4 – Winter	-	-
Year 5 – Spring	Biennial monitoring programme of dominant plant species, invertebrates and birds diversity & abundance (survey to be undertaken between May and August)	A biennial monitoring programme is recommended to continue to measure the success of the roofs for their biodiversity value, including surveying for dominant plant species - this will inform the need for any improvements/alterations to the long term Ecological Management Plan (covering a period up to 25 years) Survey for signs that invertebrates are inhabiting enhancement features and other fauna are using the site for foraging, nesting or perching During the monitoring programme it will be necessary to check any enhancement measures are intact, such as the wire netting not been blown away and the rope coils nailed down
Year 5 - Summer	-	-
Year 5 – Autumn	Re – plant or supplement planting if necessary Weed out competitive species if necessary	Feedback from the monitoring programme will inform the need for any further planting or weeding if required
Year 5 – Winter	Check if any litter needs removing and dispose where necessary	-

BIRD AND BAT BOXES

Bat Boxes

7.23 All bats are London and UK BAP species. It is recommended that bat roosting habitat is created on site through the installation of bat boxes.

7.24 Boxes should be placed in sheltered conditions, where they would receive full or partial sunlight. To help maintain the ideal temperatures within the roosts (summer 30-40ºC, winter 0-6ºC) they would ideally be orientated on south west facing aspects.

7.25 The placement of the bat boxes should also be informed as much as possible by the likely light pollution they would be subject to in that position.

7.26 A small entry slit (~20mm width) should be included at the bottom of the bat box, located to allow guano to drop or be pushed out by bats, with a roughened landing strip to aid entry.

7.27 Whilst Greengage does not specifically endorse any products, the following are examples of the types of bat boxes that are recommended. Types of boxes have been chosen to minimise the maintenance and maximise the likelihood of use.

Figure 7.1 Schwegler 1FE Bat Access Panel (left) and Ibstock enclosed bat box (right)

House Sparrow Boxes

7.28 House sparrow numbers in urban areas have declined sharply since the 1970s[11]. Recent declines have been caused by a combination of reduced plant food in winter, reduced insect availability for chicks, and a reduction in the available nest sites. Consequently, in addition to being a London and UK BAP species, the house sparrow is now red listed[12] as a species of high conservation concern. To complement the aims of the aforementioned BAPSs it is recommended that house sparrow nest boxes are provided at the site.

7.29 Ideally, the boxes should be out of direct sunlight and preferably east facing at a minimum height of 2m.

7.30 House sparrows nest in lose colonies of 10 to 20 pairs and it is therefore important to have multiple nest sites in one area. Whilst in theory these can be as little as 150mm apart, spacing them at least 1m can reduce aggression between males vying to mate with females.

7.31 It is recommended that the boxes are incorporated into the fabric of the building. However, an example of a box that can be externally attached has also been provided in Figure 7.2 below (Greengage do not specifically endorse any of these products).

Figure 7.2 – Schwegler House Sparrow Terrace (left) and CedarPlus Triple Sparrow House (right)

Swift Nest Boxes

7.32 It is recommended that boxes designed for swifts are incorporated into the development. Though Greengage does not specifically endorse any products, Figure 7.3 below shows a suitable model which can be used.

7.33 The swift nest boxes should be placed out of direct sunlight (i.e. on the northern frontage of the building), under the highest eaves, with at least a 5 meter clearance below. The nest boxes should be aggregated as swifts are colonial by nature.

Figure 7.3 Schwegler No. 17b single cavity swift nest box.

8.0 SUMMARY & CONCLUSIONS

8.1 Greengage were commissioned by GVA to undertake PEA on a site at 156-164 Grays Inn Road & Panther House in LB Camden, in order to establish the ecological value of the site and it's potential to support notable and/or legally protected species. This report has been produced in support of a planning application for the site.

8.2 From a review of site photographs and aerial images, prior to the site survey, it was determined that the species with the most potential to be occupying the buildings on-site were bats and nesting birds, and therefore these species were the focus of the survey.

8.3 The site predominately consists of existing commercial and retail buildings of various sizes and construction types.

8.4 Details received from a desk top study and the site walkover have confirmed the site:

- Has negligible potential for roosting bats;
- Has low potential for foraging bats;
- Has low potential for nesting birds, with confirmed presence of loafing pigeons.
- Has negligible potential for badgers;
- Has negligible potential for great crested newts;
- Has negligible potential for reptiles;
- Has negligible potential for dormice;
- Has negligible potential for water voles;
- Has negligible potential for otters; and
- Has negligible potential for invertebrates.

8.5 The scale and nature of the proposals will not give rise to any negative impacts upon designated sites for nature conservation.

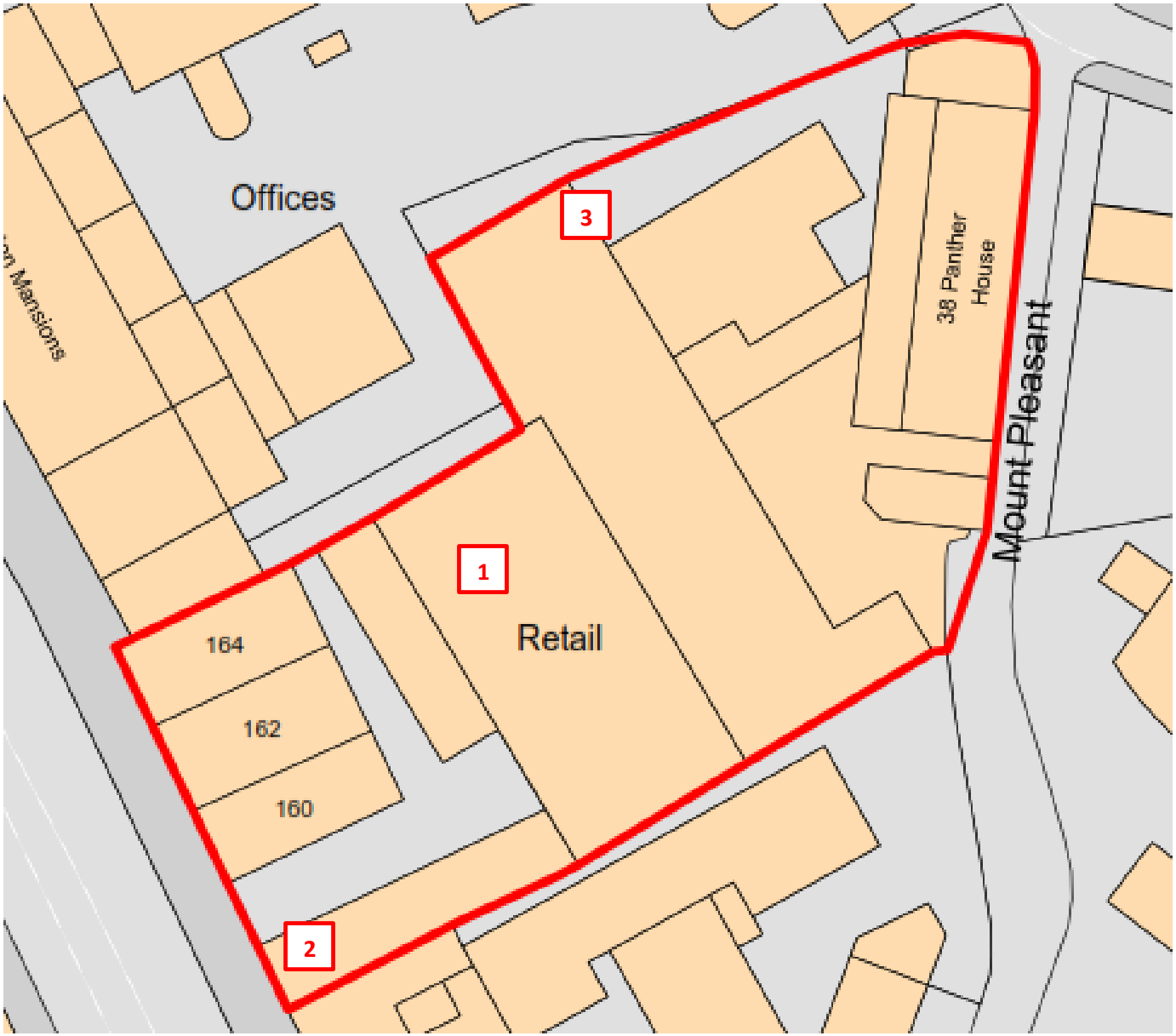
8.6 The potential for the majority of protected species to be on-site was considered negligible or low and there are therefore no ecological constraints over the proposed development other than a requirement to avoid impacting nesting birds (including pigeon).

8.7 Bat roosting potential within the application site was considered to be negligible. Whilst no further surveys are recommended at present, if construction has not commenced within a year of the production of this report, an updated bat scoping assessment should be completed.

8.8 Assuming any necessary mitigation or updated assessments are undertaken, and the proposed ecological enhancements are incorporated (to include biodiverse roofs, and

bird and bat boxes) then the development will have a positive impact on the biodiversity value of the site and local area. These enhancements reflect targets of local and regional BAPs, and planning policy (Appendix 2.0).

FIGURE 1.0 EXISTING SITE



1 Target Notes

Assessment Site

Figure 1.0 Site Plan

Greengage

APPENDIX 1.0 SITE PHOTOGRAPHS

Photograph 1 –Panther House

Photograph 2 – Roofs of Panther House

Photograph 3 –Internal view of roof void associated with 156-158 Grays Inn Road

Photograph 4 – External view of pitched roof associated with 156-158 Grays Inn Road

Photograph 5 - warehouse building associated with 156-158 Grays Inn Road

Photograph 6 – Front of 160-164 Grays Inn Road

Photograph 7 – Rear view of 160-164 Grays Inn Road

APPENDIX 2.0 POLICY AND LEGISLATION

NATIONAL POLICY

The introduction of the National Planning Policy Framework (NPPF) in March 2012 sets out the Government's planning policies for England and how these are expected to be applied in the presumption in favour of sustainable development. It sets out the Government's requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so and is a material consideration for local planning authorities in determining applications.

The Governments objectives for planning are to promote sustainable development, to conserve enhance and restore the diversity of England's wildlife and geology and to contribute to rural renewal and urban renaissance.

REGIONAL POLICY

The London Plan: Spatial Development Strategy for Greater London

The London Plan is comprised of separate chapters relating to a number of areas, including London's Places, People, Economy and Transport. The following policies have been identified within the London Plan, which relate specifically to ecology and this development.

Policy 2.18 Green Infrastructure

'Policy 2.18 aims to protect, promote, expand and manage the extent and quality of, and access to, London's network of open and green spaces'.

Policy 5.10 Urban Greening

This policy encourages the 'greening of London's buildings and spaces and specifically those in central London by including a target for increasing the area of green space (including green roofs etc) within the Central Activities Zone'.

Policy 5.11 Green Roofs and Development Site Environs

Policy 5.11 specifically supports the inclusion of planting within developments and encourages boroughs to support the inclusion of green roofs.

Policy 5.13 Sustainable Drainage

'Policy 5.13 promotes the inclusion of sustainable urban drainage systems in developments and sets out a drainage hierarchy that developers should follow when designing their schemes'.

Policy 7.19 Biodiversity and Access to Nature

'The Mayor will work with all the relevant partners to ensure a proactive approach to the protection, enhancement, creation, promotion and management of biodiversity in support of the Mayors Biodiversity Strategy.'

Supplementary Planning Guidance (SPG): Sustainable Design and Construction 2014

As part of the London Plan 2011 implementation framework, the SPG, relating to sustainable design and construction, was released in April 2014 for consultation which includes the following sections detailing Mayoral priorities in relation to biodiversity of relevance to this development.

Nature conservation and biodiversity

The Mayor's priorities include ensuring 'developers make a contribution to biodiversity on their development site'.

Overheating

Where priorities include the inclusions of 'measures, in the design of schemes, in line with the cooling hierarchy set out in London Plan policy 5.9 to prevent overheating over the scheme's lifetime'

Urban greening

A Priority is for developers to 'integrate green infrastructure into development schemes, including by creating links with wider green infrastructure network'.

Use less energy

'The design of developments should prioritise passive measures' which can include 'green roofs, green walls and other green infrastructure which can keep buildings warm or cool and improve biodiversity and contribute to sustainable urban drainage'.

LOCAL POLICY

Camden Development Policies

Camden development policies set out detailed planning criteria that are used to

determine applications for planning permission in the borough. Development Policy 22 (DP22) contains strategies that mirror those in CPG3, aiming to promote sustainable design and construction at a local level. It outlines that schemes must demonstrate sustainable development principles and incorporate green or brown roofs and green walls wherever suitable. The Council requires development to be resilient to climate change by ensuring schemes include appropriate climate change adaptation measures.

Development Policy 24 (DP24) proposes that design quality should be kept to a consistently high standard. New developments should consider any existing natural features, such a topography, trees and biodiversity, among other aspects of the local environment.

Camden Planning Guidance

Camden Planning Guidance (CPG) presents advice and information on how Camden will apply their policies. CPG3 surrounds Sustainability and includes guidance that all developments should include green or brown roofs and have considered biodiversity in the developmental design. It sets out the implications of various environmental variables, including the negative impacts lighting can have on biodiversity. The policy explains that mitigation is highly sought after, if developments with adverse effects cannot be avoided.

Core Strategy

The local objectives for biodiversity within parks and open spaces are outlined in the Core Strategy 15 (CS15) policy. This has the intention to protect and improve sites of nature conservation and biodiversity, by including green or brown roofs and green walls, protecting trees, and promoting the provision of new trees and vegetation.

WILDLIFE & COUNTRYSIDE ACT (1981)

8.9 This policy strengthened the protection for SSSIs, providing additional safeguards for particular types of area and restricting the killing, taking from the wild and disturbance of various species. All of the UK's wild bird species are protected under the 1981 Act. Extra protection is given to birds listed in Schedule 1 of the 1981 Act.

Nesting Birds

All birds, their nests and eggs are protected by law and it is thus an offence, with certain exceptions intentionally to:

- Kill, injure or take any wild bird;
- Take, damage or destroy the nest of any wild bird while it is in use or being built; and
- Take or destroy the egg of any wild bird

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