Greengage

48 Churchway, Moorgarth Living
Preliminary Ecological Appraisal (BREEAM Compliant), September 2018

QA

48 Churchway – Preliminary Ecological Appraisal (BREEAM Compliant)

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1.0 EXECUTIVE SUMMARY

1.1 Greengage Environmental Ltd was commissioned by Moorgarth Living to undertake a Preliminary Ecological Appraisal of 48 Churchway ('the site') located in the London Borough of Camden, in order to establish the ecological value of the site and its potential to support notable and/or legally protected species.

1.2 This document is a report of this survey and has been produced to support a planning submission for the site which seeks for an infill office building, roof replacement and internal refurbishment.

1.3 Also provided within the report is an assessment of the achievable *BREEAM New Construction 2014* Land Use and Ecology credits which includes recommendations for enhancing site ecology.

1.4 The survey extends to 0.07 hectares (ha) and currently comprises single storey and basement building flanked by Seymour House and Winsham House on Churchway.

1.5 Details received from a desk top study and the site walkover have confirmed the site has negligible or low potential to support all rare, notable or protected species and is the scale and nature of the proposals will not give rise to any negative impacts upon designated sites for nature conservation. No formal ecology mitigation measures are therefore required.

1.6 If the recommended ecological enhancements are incorporated, then the proposals will have a positive impact on the biodiversity value of the site and local area. These enhancements reflect targets of local and regional Biodiversity Action Plans and planning policy.

BREEAM Ecology

1.7 Within *BREEAM New Construction 2014* there are 4 headings (LE 02 – LE 05) relating to the provision of 8 available credits for Land Use and Ecology. This report provides the information and background to the credits that are deemed suitable to be awarded.

1.8 A summary of those credits being awarded under *BREEAM New Construction 2014* are as follows:

- Two credits can be awarded for LE02 '*Ecological Value of the Site and Protection of Features*' owing to the lack of natural habitats or features of ecological value.
- Two credits can be awarded for LE02 '*Minimising Impact on Existing Site Ecology*' because the change in ecological value of the site is equal to or greater than zero plant species, i.e. there will be no negative change.

- One credit can be awarded for LE04 '*Enhancing Site Ecology'* subject to the implementation of the recommended ecological enhancements.
- Two credits can be awarded for LE05 the '*Long Term Impact on Biodiversity'* assuming the actions described in this report are met.

1.9 Accordingly, following the written commitment where necessary, it is recommended to award the development **seven credits** at this stage with regards to Land Use and Ecology under *BREEAM New Construction 2014.*

1.10 To allow the credits to be awarded at the BREEAM post-construction stage, a Suitably Qualified Ecologist (SQE) should return to the site on practical completion to undertake a post-construction review and confirm that all enhancement recommendations have been implemented correctly.

2.0 INTRODUCTION

2.1 Greengage was commissioned to undertake a Preliminary Ecological Appraisal (hereafter 'PEA') by Moorgarth Living of 48 Churchway in Camden in order to establish the ecological value of the site and its potential to support notable and/or legally protected species.

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:

- A review of site specific biological information gained from a desk study; and
- A site walkover and ecological survey.

2.3 The desk study provided the ecological context for the ecological site walkover carried out on 6th June 2018. 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 (where necessary) 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 The recommendations and opinions expressed in this report are based on the combination of information stated, site observations and feedback from the consultation exercise.

2.6 Detail on the surveyors and authors of this report can be found in the latter sections addressing the BREEAM credits.

3.0 SITE DESCRIPTION

3.1 The assessment site covers an area of approximately 0.08 hectares (ha) and is centred on National Grid Reference TQ297827.

3.2 The assessment site comprises an elongated, single storey and basement building flanked by Seymour House and Winsham House on Churchway. Buildings and hardstanding entirely cover the site and there are no natural habitats or vegetation within the application site boundary. Two mature sweetgum trees are immediately adjacent to the site, located within neighbouring courtyards.

3.3 The site is located in a central London location approximately 150m from Euston Train Station in Camden. Open green space is contained within small urban pocket parks. The Regent's Park is approximately 1km west and the River Thames is approximately 2.3km south (see Figure 3.1 below).

Figure 3.1 Site Location Plan (Imagery: Google Aerial 2019)

PROPOSED DEVELOPMENT

3.4 This report has been prepared to support a detailed planning application for the site. The proposed works are to 48 Churchway and include the demolition of the 'shed' building

and the removal of the roof of the 'link' section to 41-43 Chalton Street. The development will provide internal fit out plus 4 storeys of new office space.

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 (NBN) Atlas[5] was undertaken for the site and its vicinity. This provided the overall ecological context for the site, to better inform the PEA. Owing to the urban nature of the site and lack of more naturalised habitats, direct consultation with the local environmental records centre (GiGL) was not deemed necessary in this instance.

ON SITE SURVEY

Flora

4.2 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.

4.3 The site visit was undertaken on 6th June 2018, within the optimal period for ecological assessment, in sunny and mild weather conditions.

Fauna – Protected Species

4.4 The Ecology Survey 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.

4.5 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.

4.6 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.

4.7 The methodology was as follows:

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 Bat Conservation Trust survey guidelines[7] and methods given in English Nature's (now Natural England) *Bat Mitigation Guidelines*[8] 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.

Birds

4.13 During the walkover survey, the potential for breeding birds was assessed. In particular, this includes areas of trees, scrub, heathland and wetlands that could support nests for common or notable birds.

Other Rare, Notable and Protected Species

4.14 The potential for the following additional species was also noted where present:

- Badger;
- Great crested newt;
- Reptiles;
- Dormouse;
- Water vole;
- Otter; and
- Invertebrates.

Other Fauna

Biodiversity Action Plan priority species

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

CONSTRAINTS

4.16 The PEA was undertaken at an optimal time of year during ideal conditions by a suitably qualified ecologist. Access was provided to all relevant parts of the site. No significant constraints that stand to impact conclusions drawn in this report presented themselves.

5.0 BASELINE CONDITIONS

DESKTOP REVIEW

Designations

5.1 A review on online local environmental records for a 2km radius of the site has identified two Local Nature Reserves (LNR and a number of non-statutorily protected Sites of Importance for Nature Conservation (SINCs) within the search area.

5.2 Several of the key designated sites are described below:

Table 5.1 Details of designated sites located close to the site

Site Name	Location	Description
Camley Street Natural Park LNR and Metropolitan SINC	0.65km northeast	Over 300 plants have been recorded on the site, including the natural arrivals common broomrape, hairy buttercup and common spotted-orchid. A variety of trees and shrubs grow in the park and these provide food and shelter for many different birds and insects. The meadow is at its best from late spring to early autumn when a multicoloured kaleidoscope of wildflowers comes into bloom. The marsh provides habitat for frogs, newts and toads as well as marsh marigold, yellow flag iris and butterwort. Breeding birds include moorhen, song thrush and reed warbler. Kingfishers, geese and mallards are also often present, as are reed buntings, which are more usually seen in outer London. Bats (such as the soprano pipistrelle) moving along the Regent's Canal can also be seen at dusk.
Barnsbury Wood LNR	1.8km northeast	In the nineteenth century the site was the garden of the vicarage of St Andrew's Church in Huntingdon Street. In the early twentieth century the garden was abandoned and became woodland. Islington Council purchased it in 1974, proposing to develop it, but in the 1990s it was decided to leave it as woodland and it was declared a Local Nature Reserve. Trees include sycamore, ash, lime and horse chestnut. Birds include the long-tailed tit, and there are invertebrates such as the lesser stag beetle and the sixteen spot ladybird.
Regents Park Metropolitan SINC	1km west	Annually over 100 species of birds are noted in or over the park, and more than 200 have been noted since record-keeping began in the mid-19th century. Nesting in the mature trees are tawny owl, green woodpecker and kestrel, while nearer the ground are robins, tits, thrushes and blackbirds. Many wintering and migrating birds can also be observed. The heronry on one of the islands in the boating lake is one of London's largest breeding colonies, with over 20 nesting pairs each year. The lake itself supports breeding wild pochards alongside the captive wildfowl

		collection. Reed warblers arrive in the spring to breed here also. Various wetland enhancements have recently extended the reedbed areas. The park also supports many butterflies and moths, thanks again to the diversity of the habitats. Interesting butterflies include holly blue, marbled white and the white-letter hairstreak. Dragonflies are drawn to the water areas, and at least nine species have been recorded. A large number of spider and beetle species have also been recorded.
St James's Garden Local SINC	0.4km west	The garden contains a good number of mature trees, mostly London plane, with weeping ash, holly and yew also present. There are also extensive shrubberies, providing nest sites for birds. The lawns are regularly mown, but contain a surprising number of wildflowers, including red dead-nettle, wavy bitter-cress, red campion, creeping buttercup, ivy-leaved speedwell and common stork's-bill, the latter rare in inner London. There are two small wild areas: one behind the basketball court and another in the southwestern corner of the site. These contain a good variety of wildflowers, including cow parsley, hedge bindweed, creeping thistle, nipplewort, hawkweed ox tongue and red campion.
St Pancras Gardens Borough SINC II	0.6km north	The site contains some fine mature trees, particularly London plane, common lime and poplar as well as diverse planted shrubberies. There is a hedge of young yew near the railway. In an area behind the church there is an unusual tree which has grown to penetrate some of the gravestones, so that the wood and the stone are now combined. A few of the monuments have a sparse covering of lichens and mosses. Beside the railway boundary two nature areas have been established. These have creeping thistle, common knapweed, field scabious, oxeye daisy, salad burnet and common nettle amongst other plants. All of these attract insects.
London Canals Metropolitan SINC	0.8km northeast	London's canals support a wide range of aquatic flora, amongst which are found a number of locally uncommon species. These include narrow-leaved water plantain (Alisma lanceolatum), rigid hornwort (Ceratopyllum demersum) and shining pondweed (Potomageton lucens), all species of clean, clear waters. Many waterside plants, including several London rarities, also grow on the brickwork and banks of the canal. The canals also support an important invertebrate fauna (including several species of dragon/damselflies), a diverse fish community, and breeding waterfowl. London's network of canals fulfil an important function in allowing nature into heavily built-up environments. The towpath and associated areas of waste ground, especially in East London, support a number of uncommon species of disturbed ground. The whole of the Grand Union Canal system in London, including the Regent's and Hertford Union Canals, is included in this single Metropolitan site.

5.3 There is no predicted impacts on any of the designated sites noted above due to the scale and nature of proposals, distance, and lack of contiguous habitat between the application site and SINCs/LNRs.

UK Post-2010 Biodiversity Framework and 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 The following UK BAP priority habitats were present at site or in the immediate vicinity:

- Greater London BAP
- Camden BAP

5.8 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.

Greater London BAP

5.9 The London BAP[9] 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.

5.10 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 to the site.

London BAP

5.11 Relevant features within the London BAP include:

- Bats SAP;
- House sparrow SAP;
- Black redstart important species;
- Private gardens HAP; and
- Built structures important habitat.

Camden BAP

5.12 Relevant features within the Camden BAP include:

- Target of all new developments including living roofs where feasible and that 75% living roofs should be biodiverse;
- Encourage installation of bird and bat bricks in new developments;
- Green roofs priority habitat;
- Gardens priority habitat; and
- Bats, butterflies, sparrows, swift, stag beetle and bees priority species.

DESCRIPTION OF SITE ECOLOGY

Detailed Description of Site: Habitats

5.13 Photographs 1-8 at Appendix 1.0 refer to the site. The only JNCC habitat present on-site is Buildings/Hardstanding (J3.6).

DETAILED DESCRIPTION OF SITE PROTECTED: SPECIES POTENTIAL

5.14 Owing to the urban nature of the site and absence of natural habitats, the primary focus of the assessment was bats and nesting birds, as described below.

Bats

Roosting

5.15 An external and, where possible, internal examination of the buildings was carried out as part of the inspection for bat potential. No field signs of any bat use were recorded; there were no droppings, dead individuals and no feeding signs, staining from urine, smell or bats recorded in the internal spaces. Wall structures and window fittings were generally intact and in a good condition with no ingress or egress access holes for bats.

5.16 In general, the roof of the building on Churchway was considered unsuitable for roosting bats being constructed of corrugated metal sheets with no visible crevices and no access to an internal void. There were no hanging tiles, lead flashing, or other features observed that may be used by roosting bats. A single missing slate tile was observed on the roof of 41 Charlton however there was no evidence of that would indicate usage by roosting bats.

5.17 Overall, it is considered the potential for bats roosting in the buildings on site is negligible.

Foraging

5.18 Foraging habitat on site is absent and in the immediate vicinity is limited. Natural habitats are limited to nearby trees including a line of mature hornbeam (*Carpinus betulus*) on Chalton Street and the two sweetgum (*Liquidambar styraciflua*) specimens in adjacent courtyards. The potential for bats to be foraging on and adjacent to the site can therefore be considered low and no further surveys are recommended.

Birds

5.19 No evidence of nesting was recorded from the ground level assessment of the buildings. Generally, the construction style of the building made it unsuitable for notable potential nesting species such as black redstart, house sparrow and starling and there are no areas of trees or dense vegetation onsite that would support nesting of small urban passerine species. Overall the potential for birds to be nesting onsite was considered negligible.

Other Protected Species

5.20 The potential for the following additional species was considered negligible:

- Badger;
- Great crested newt;
- Reptiles;
- Dormouse;
- Water vole;
- Otter; and
- Invertebrates.

Other BAP Species

5.21 None were observed during the site walkover however ecological enhancements that target local BAP species have been recommended for inclusion within the proposals.

6.0 BREEAM NEW CONSTRUCTION 2014 ECOLOGY CREDIT REQUIREMENTS

6.1 The following section gives an overview of the potentially achievable credits under *BREEAM New Construction 2014* (LE 02-LE 05).

BREEAM NEW CONSTRUCTION 2014

LE 02 Ecological Value of Site and Protection of Ecological Features

6.2 One credit - Ecological Value of Site

- *'Where Land within the construction zone is defined as 'land of low ecological value'*

6.3 One credit - Protection of Ecological Features

- *'All existing features of ecological value within and surrounding the construction zone and site boundary area are adequately protected from damage during clearance, site preparation and construction activities in line with BS42020: 2013[10]; and*

6.4 In all cases, the principal contractor is required to construct ecological protection prior to any preliminary site construction or preparation works (e.g. clearing of the site or erection of temporary site facilities). '

LE 03 Minimising Impact on Existing Site Ecology

6.5 Two credits - Change in ecological value 1:

- *'The change in ecological value of the site is equal to or greater than zero plant species, i.e. no negative change'*

6.6 One credit - Change in ecological value 2:

- *'Where the change in ecological value of the site is less than zero but equal to or greater than minus nine plant species i.e. a minimal change* '

LE 04 Enhancing Site Ecology

6.7 One credit – Ecologist's report and recommendations

- *'A suitably qualified ecologist (SQE) has been appointed by the client or their project representative by the end of the Preparation and Brief stage (RIBA Stage 1 or equivalent) to report on enhancing the ecology of the site, and:*
    - *a. The SQE provides an Ecology Report with appropriate recommendations for the enhancement of the site's ecology.*

- *b. The report is based on a site visit/survey by the SQE.*

- *The recommendations of the Ecology Report for the enhancement of site ecology have been, or will be, implemented in the final design and build.'*

6.8 Two credits - Increase in ecological value

- '*The criteria of the first credit are met.*
- *The recommendations of the Ecology Report for the enhancement of site ecology have been implemented in the final design and build, and the suitably qualified ecologist confirms that this will result in an increase in ecological value of the site, with an increase of six plant species or greater.*
- *The increase in plant species has been calculated using the BREEAM LE 03/LE 04 calculator, using actual plant species numbers.'*

LE 05 Long Term Impact on Biodiversity

6.9 Up to two credits:

- *'Where a Suitably Qualified Ecologist (SQE) is appointed prior to commencement of activities onsite and they confirm that all relevant UK and EU legislation relating to the protection and enhancement of ecology has been complied with during the design and construction process.*
- *Where a landscape and habitat management plan, appropriate to the site, is produced covering at least the first five years after project completion in accordance with BS 42020:20131 Section 11.1. This is to be handed over to the building owner/occupants for use by the grounds maintenance staff.*
- *Where, in addition to criteria 1 and 2, measures to improve the assessed sites long term biodiversity are adopted.'*

7.0 LE 02 - ECOLOGICAL VALUE OF SITE AND PROTECTION OF ECOLOGICAL FEATURES

SUITABLY QUALIFIED ECOLOGIST

7.1 Compliance with these credits is demonstrated by having a suitably qualified ecologist verifying the land as being of low ecological value, through a site specific ecological survey and associated ecological report.

7.2 Greengage include *'Suitably Qualified Ecologists'*, the necessary requirement for LE 02, to establish the ecological value of the site. A '*Suitably Qualified Ecologist'* (SQE) is defined as:

- *'An individual with a degree or equivalent qualification in ecology or a related subject;*
- *They should be a practicing ecologist with a minimum of three years' experience; and*
- *Is covered by a professional code of conduct and subject to peer review.'*

7.3 Specifically, 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 (Mr Mitchel Alexander Cooke CEnv MCIEEM membership no. 1836) 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 Director at Greengage Environmental and manages the team.

7.4 Naomi Foot, who undertook the site visit and prepared this report, has an undergraduate degree in Ecology and Conservation (BSc Hons), a Masters degree in Applied Ecology and is a Graduate member of CIEEM with over 3 years' commercial experience carrying out surveys of this type.

7.5 This report was written by Naomi Foot and reviewed and verified by Mitch Cooke who confirms in writing (see the QA sheet at the front of this report) that the report is in line with the following:

- Represents sound industry practice;
- Reports and recommends correctly, truthfully and objectively;
- Is appropriate given the local site conditions and scope of works proposed; and
- Avoids invalid, biased and exaggerated statements.

ECOLOGICAL VALUE OF SITE AND PROTECTION OF ECOLOGICAL FEATURES: AWARDING OF CREDITS

7.6 With regards to LE 02, the site is covered by buildings and associated hardstanding, and has negligible potential to support the majority of protected species or habitats. Overall, the site is not considered to contain ecologically diverse habitats and is considered to be of low ecological value.

7.7 Two mature trees are found adjacent to the site. As the canopies are at least 0.5m from the site boundary, it is not anticipated that any facilitation pruning works would be required to allow construction working space and there is no anticipated impact on ecological receptors i.e. nesting birds. There is also no predicted impact on the longterm health of the trees owning to the existing basement (prevent root growth into the site). However, care should be taken when erecting scaffolding to ensure any accidental damage to limbs is avoided (see Arboricultural Impact Assessment report for more detail)[11].

7.8 Consequently, there is no relevant UK wildlife legislation to the protection of ecological features during the demolition or construction phase of the proposed development. In accordance with best practice, a summary of legislation and policy is provided at Appendix 2. In the event that any wildlife is discovered during the site works then all works that will affect said wildlife should cease and an ecologist from Greengage should be contacted for advice.

7.9 In summary, we recommend for the following credits are awarded for the development:

- 1 credit is awarded for BREEAM LE 02 '*Ecological Value of the Site'*; and
- 1 credit is awarded for BREEAM LE 02 '*Protection of Ecological Features'*.

8.0 LE 03 - MINIMISING IMPACT ON EXISTING SITE ECOLOGY

8.1 BREEAM calculates the change in ecological value by comparing the diversity of plant species pre- and post-construction. The ecological value of the site is expressed as an area weighted average of plant species for the land types present on the site. Using the BREEAM assessment calculator, the pre-construction habitat type is compared with post-construction and the total change in species diversity is calculated.

8.2 Appendix 3.0 shows the BREEAM calculator results which are relevant for credits under *BREEAM New Construction 2014* (LE 03 and LE 04).

MINISIMING IMPACT ON EXISTING SITE ECOLOGY: AWARDING OF CREDITS

8.3 As the application site has no existing ecologically valuable habitats and is of low ecological value, mitigation measures are not required to compensate for any loss of existing site ecology.

8.4 If the enhancements (Chapter 9) are incorporated into the design, then the development should be awarded the maximum 2 credits under LE 03, due to there being a no negative change in the ecological value of the site as a result of development.

8.5 Written commitment by the client will be required to confirm the enhancements will be undertaken, in addition to providing the final planting schedule to confirm the exact areas and species list incorporated into the scheme and reconfirm the credits under *BREEAM New Construction 2014* (LE 03 and LE 04).

9.0 LE 04 - ENHANCING SITE ECOLOGY & CHANGE IN ECOLOGICAL VALUE

ENHANCEMENT RECOMMENDATIONS

9.1 The client has appointed Greengage, the Suitably Qualified Ecologist (SQE), at the design and brief stage to advise on the ecological value of the application site and therefore 1 credit is recommended to be awarded under LE 04 if the applicant confirms that the recommendations made by the SQE will be implemented on each site.

9.2 Whilst the SQE was not appointed at RIBA Stage 1 or equivalent, the appointment was at the early design stage and it has been possible to incorporate ecological enhancement features into the scheme. The last appointment has not resulted in any negative impacts upon ecological receptors as the baseline value of the site is negligible.

9.3 Further credits are available for enhancing the ecological value of the application site under LE 04 that will be awarded on receipt of written confirmation that the following enhancement measures have been adhered to. The recommendations have been discussed with the architect and incorporated into the design.

9.4 As an overview, the recommended enhancement features include:

- Biodiverse (green-blue) roof – minimum 50 sqm seeded/plug planted with at least 15 wildlife friendly species;
- Bird nest boxes – 4 no. boxes integrated into building for locally important species.

9.5 Further detail is provided on the specifications of these enhancement features in the following sections.

ENHANCEMENT: BIODIVERSE ROOF

9.6 Policy CC2 of the Camden Local Plan promotes incorporation of living roofs and other green infrastructure interventions to aid adapting to climate change. Combination green and blue roofs are supported where appropriate. It is understood that a form of SuDS is expected to be provided within the proposals; we therefore suggest that a green-blue roof is incorporated to meet these SuDS and BREEAM Ecology requirements.

9.7 The 'green' element of the green-blue roof will follow the substrate-based 'biodiverse' roof model, seeded and plug planted, to optimise gains for local ecology. The substrate will be formed of a low-nutrient mix of typically recycled crushed brick and expanded clay shale and a small organic component of composted pine bark and installed at a depth of 80-150mm undulating across the roof. This will encourage growth of different species generally across the roof area and the micro-habitats will further enhance the roof for invertebrates.

9.8 Natural colonisation can be an unpredictable process that relies on a source of propagules in the local vicinity. To support rapid establishment and promote a more predictable mix of species of biodiversity benefit, it is recommended to seed and plug-plant the biodiverse roof with specially chosen wildflower species. The species mix has been carefully chosen to optimise biodiversity across the roof spaces. The choice of plant 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 to southeast England, 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 UK BAP or Red Data book species; and
- Wide ranging flowering periods to enable a long and variable flowering season throughout the year.

9.9 The table at Appendix 4 summarises the species mix that has been selected for the biodiverse roof and includes further details on the wildlife benefit and growth conditions. The example species mix has been specified due to being native and the wildflowers' local provenance to this area of southeast England. The species are also commonly found on industrial, wasteland and brownfield sites in this region and is typical of the local flora.

9.10 It is recommended that at least at least 15 of the species listed at Appendix 4 are incorporated into the living roof strategy at the Churchway site.

Figure 9.1 Example of biodiverse roof in Bristol

ENHANCEMENT: BIRD NEST BOXES

9.11 Integrated nest boxes targeting locally important BAP species should be provided within the built form to help meet local policy requirements and objectives within the Camden BAP. It is recommended to include:

- 2 no. house sparrow boxes on north/east elevation below eaves;
- 2 no. swift boxes on north/east elevation below eaves; and
- 1 no. black redstart box on the biodiverse roof.

9.12 Whilst Greengage does not specifically endorse any product, the following models would be suitable for inclusion.

House sparrow terrace[12]

Swift box[13]

Black redstart brick[14]

AWARDING OF CREDITS LE 04 - ENHANCING SITE ECOLOGY & CHANGE IN ECOLOGICAL VALUE

9.13 The ecological value before and after development has been measured based on the species per hectare values for the current site obtained from data collected during the site walkover, and for the proposed development based on species per hectare values for habitat types recommended by the SQE.

9.14 It is understood that an area of blue-green roof is to be provided under PV panels across two areas (29.488m^2 and 30.591m^2) totaling 60.079 sqm.

9.15 If at least 15 species from Appendix 4 (or similar species of known wildlife value) are incorporated into 60sqm of biodiverse roof, then the change in species per hectare is calculated as a positive change of 1.13 and the following credits would be awarded:

- 1 out of an available 2 credits for BREEAM LE04 '*Enhancing Site Ecology*'.

9.16 The proposed development is likely to be awarded the above credits upon receipt of written confirmation that the key enhancement recommendations have been adhered to and on presentation of the final plans and plant list. The calculations for LE03 and LE04 are shown at Appendix 3.0.

10.0 LE 05 – LONG TERM IMPACT ON BIODIVERSITY

10.1 There is a maximum of 2 credits available under the BREEAM issue *'Long Term Impact on Biodiversity'* (LE 05). The full 2 credits can be awarded where evidence is provided to demonstrate that the client has committed to achieving the mandatory requirements and at least 4 of the additional requirements. Alternatively, 1 credit can be awarded where evidence is provided to demonstrate that the client has committed to achieving the mandatory requirements and at least 2 of the additional requirements.

10.2 A summary of each requirement and an explanation of how they will be met (if applicable) are given below.

MANDATORY REQUIREMENTS

10.3 The mandatory requirements for LE 05 are summarised as follows:

- Appointment of 'suitably qualified ecologist';
- 'Suitably qualified ecologist' confirms that all relevant legislation relating to the protection and enhancement of ecology is complied with during design and construction process; and
- Production of a Landscape and Habitat Management Plan appropriate for the site to cover the first 5 years after project completion – information provided on scope of plan and key responsibilities.

10.4 The management and aftercare of areas of nature conservation value that are to be retained, enhanced or created, is essential to ensure that they attain their full potential for both wildlife and people. Typically, a management plan is recommended to include:

- Management of any protected features on site if they are present;
- Management of any new, existing or enhanced habitats; and
- A reference to the current or future site level Biodiversity Action Plan.

ADDITIONAL REQUIREMENTS

10.5 The additional requirements for LE 05 are summarised as follows:

- The contractor is required to nominate a 'Biodiversity Champion' who oversees site activities;
- The contractor is required to train relevant workforce on how to protect ecology during the project;
- The contractor is required to record and monitor the effectiveness of protecting ecological features during the project;
- New habitat relevant to local Biodiversity Action Plans (BAP) is created;

- Programme site works to minimise disturbance to wildlife, a clear plan or timetable needs to demonstrate how this will happen; and
- Take full account of the UK BAP and incorporate UK BAP aspects into the project.

LE05 'LONG TERM IMPACT ON BIODIVERSITY': AWARDING OF CREDITS

Mandatory requirements

- Appointment of 'suitably qualified ecologist' - **Met**;
- 'Suitably qualified ecologist' confirms that all relevant legislation relating to the protection and enhancement of ecology is complied with during design and construction process - **Met**; and
- Production of a Landscape and Habitat Management Plan appropriate for the site to cover the first 5 years after project completion – information provided on scope of plan and key responsibilities – **It is recommended that a Landscape and Habitat Management Plan is produced to ensure the biodiverse roof is suitably installed and other features are adequately maintained**.

Additional requirements

- The contractor is required to nominate a 'Biodiversity Champion' who oversees site activities - **N/A as low baseline ecological value and negligible potential for protected species**;
- The contractor is required to train relevant workforce on how to protect ecology during the project – **N/A as no specific requirements for protection**;
- The contractor is required to record and monitor the effectiveness of protecting ecological features during the project - **N/A as no ecology related activities anticipated**;
- New habitat relevant to local Biodiversity Action Plans (BAP) is created - **Met if enhancements included**;
- Programme site works to minimise disturbance to wildlife, a clear plan or timetable needs to demonstrate how this will happen – **N/A as negligible potential for works to impact local wildlife**; and
- Take full account of the UK BAP and incorporate UK BAP aspects into the project - **Met if enhancements included**.

10.6 We have listed all relevant UK and EU legislation in Appendix 2 of this report. It is important that the team and construction workforce commit to complying with this legislation and guidance during the design and construction process.

10.7 Therefore, assuming the enhancements detailed in this report are implemented the maximum 2 credits can be awarded.

11.0 SUMMARY & CONCLUSIONS

11.1 Greengage undertook a Preliminary Ecological Appraisal of 48 Churchway in Camden, in order to establish the ecological value of the site and its potential to support notable and/or legally protected species.

11.2 This document has been produced as a report of the PEA findings to support planning proposals and to inform as assessment under *BREEAM New Construction 2014*.

11.3 The existing site is covered by buildings and hardstanding and has negligible potential to support the majority of rare, notable or protected species.

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

11.5 If the recommended ecological enhancements are incorporated, then the proposals 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.

11.6 Within *BREEAM New Construction 2014* there are 4 headings (LE 02 – LE 05) relating to the provision of 8 available credits for Land Use and Ecology. This report provides the information and background to the credits that are deemed suitable to be awarded.

11.7 A summary of those credits being awarded under *BREEAM New Construction 2014* are as follows:

- Two credits can be awarded for LE02 '*Ecological Value of the Site and Protection of Features*' owing to the lack of natural habitats or features of ecological value.
- Two credits can be awarded for LE02 '*Minimising Impact on Existing Site Ecology*' because the change in ecological value of the site is equal to or greater than zero plant species, i.e. there will be no negative change.
- One credit can be awarded for LE04 '*Enhancing Site Ecology'* subject to the implementation of the recommended ecological enhancements.
- Two credits can be awarded for LE05 the '*Long Term Impact on Biodiversity'* assuming the actions described in this report are met.

11.8 Accordingly, following the written commitment where necessary, it is recommended to award the development **seven credits** at this stage with regards to Land Use and Ecology under *BREEAM New Construction 2014.*

11.9 To allow the credits to be awarded at the BREEAM post-construction stage, a Suitably Qualified Ecologist (SQE) should return to the site on practical completion to undertake a post-construction review and confirm that all enhancement recommendations have been implemented correctly.

FIGURE 1.0: PROPOSED GROUND FLOOR LAYOUT PLAN

CHURCHWAY

WINSHAM HOUSE

SEYMOUR HOUSE

OFFICE

ENTRANCE

BIN STORE

1280 L

1280 L

Bike stair channel

Pavement lights

New rooflight structure above

Retained existing roof structure above

Sheffield bike stands

AL (00) 210,01

AL (00) 212,01

AL (00) 311,01

AL (00) 310,01

AL (00) 211,01

SCALE (m)

0 1 2 5 10

DRAWING NOTES

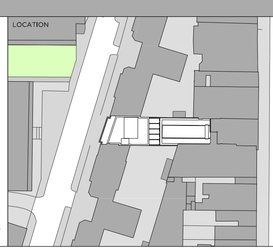
REVISION	DATE	NOTE
P01	17.08.18	PLANNING

TEAM	
CLIENT	Moorgarth Living
PLANNING CONSULTANT	DP9
STRUCTURAL ENGINEER	Mason Navarro Pledge
CIVIL ENGINEER	Mason Navarro Pledge
MEP ENGINEER	Elementa
TRANSPORT CONSULTANT	Caneparo Associates
WASTE CONSULTANT	Caneparo Associates
FIRE CONSULTANT	Elementa
COST CONSULTANT	Rider Levett Bucknall
PROJECT MANAGER	Rider Levett Bucknall
ECOLOGIST	Greengage
DAYLIGHT CONSULTANT	Delva Patman Redler
ACCESS CONSULTANT	-
ACOUSTIC CONSULTANT	AAD
APPROVED INSPECTOR	Bureau Veritas

GENERAL NOTES

1. Do not scale from this drawing.
2. All dimensions to be checked on site by the contractor and such dimensions to be his responsibility.
3. Report all drawing errors, omissions and discrepancies to the architect.
4. This document may be issued in an uncontrolled CAD format to enable others to use it as background information to make alterations and/or additions. In that instance the file will be accompanied by a PDF version. It is for those making such alterations and additions to ensure that they make use of current background information. Gibson Thornley Architects accepts no liability for any such alterations or additions to the background information or arising out of changes to background information which occur prior to alterations of additions being made.

LOCATION



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JOB TITLE
CHURCHWAY

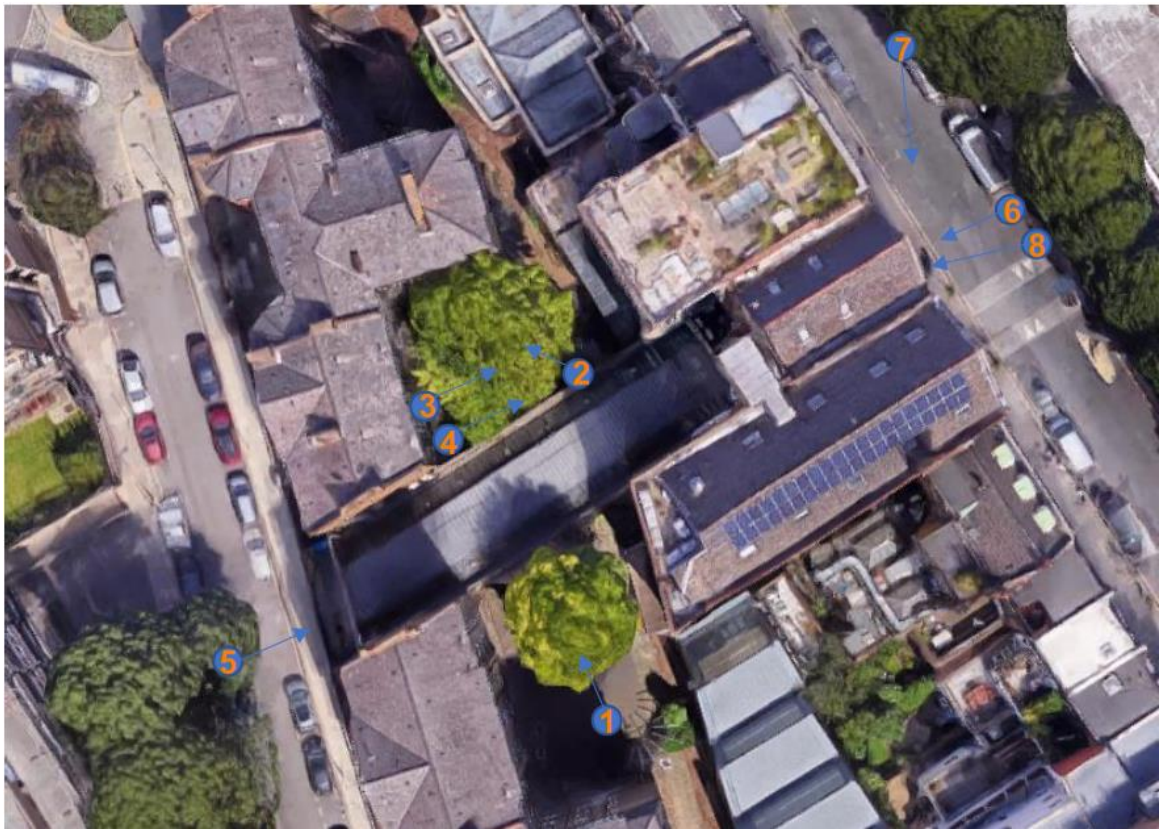
DRAWING TITLE
PROPOSED GROUND FLOOR PLAN

DRAWN BY	CHECKED	SCALE	STATUS
HO	BG	1:50@A1 1:100@A3	PLANNING

PROJECT	ZONE	TYPE	CLASSIFICATION	DRAWING NO	REVISION
17009	-	AL	[00]	111	P01

APPENDIX 1.0: SITE PHOTOGRAPHS

Figure 1.0 Photograph Location Plan (numbers correlate to photographs below)



Photograph 1 – Mature Sweetgum tree in courtyard of adjacent Seymour House

Photograph 2 – Mature Sweetgum tree in courtyard of adjacent Winsham House

Photograph 3 – rear (western) aspect of buildings on Chalton Road

Photograph 4 – rear (western) aspect of buildings on Chalton Road

Photograph 5 – 41-43 Churchway frontage flanked by Seymour House and Winsham House

Photograph 6 – Chalton Road frontage

Photograph 7 – Chalton Road frontage

Photograph 8 – Single missing tile on pitched roof of 41 Chalton

APPENDIX 2.0: POLICY AND LEGISLATION

NATIONAL POLICY

The National Planning Policy Framework (NPPF) 2018 sets out the Government's planning policies for England, including how plans and decisions are expected to apply a presumption in favour of sustainable development. Chapter 15 of the NPPF focuses on conservation and enhancement of the natural environment, stating plans should '*identify and pursue opportunities for securing measurable net gains for biodiversity*'.

It goes on to state:

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

Alongside this is acknowledges that planning should be refused where irreplaceable habitats such as ancient woodland are lost.

Particular focus is given to the protection and enhancement of designated sites and priority habitats and species. It acknowledges the importance of protecting and improving green corridors and ecological connectivity, providing strategic, multifunctional green infrastructure gains.

REGIONAL POLICY

The London Plan: Spatial Development Strategy for Greater London[15]

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 Local Plan (2017)

The Local Plan was adopted by Council on 3 July 2017 and has replaced the Core Strategy and Camden Development Policies documents as the basis for planning decisions and future development in the borough.

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.

Policy CC2 Adapting to climate change

The Council will require development to be resilient to climate change. All development should adopt appropriate climate change adaptation measures such as:

a. the protection of existing green spaces and promoting new appropriate green infrastructure;

b. not increasing, and wherever possible reducing, surface water runoff through increasing permeable surfaces and use of Sustainable Drainage Systems;

c. incorporating bio-diverse roofs, combination green and blue roofs and green walls where appropriate; and

d. measures to reduce the impact of urban and dwelling overheating, including application of the cooling hierarchy.

Any development involving 5 or more residential units or 500 sqm or more of any additional floorspace is required to demonstrate the above in a Sustainability Statement.

Legislation Relating to Bats

All UK bats and their roosts are protected by law. Since the first legislation was introduced in 1981, which gave strong legal protection to all bat species and their roosts in England, Scotland and Wales, additional legislation and amendments have been implemented throughout the UK.

Six of the 18 British species of bat have Biodiversity Action Plans (BAPs) assigned to them, which highlights the importance of specific habitats to species, details of the threats they face and proposes measures to aid in the reduction of population declines.

Although habitats that are important for bats are not legally protected, care should be taken when dealing with the modification or development of an area if aspects of it are deemed important to bats such as flight corridors and foraging areas.

The Wildlife & Countryside Act 1981 (WCA) was the first legislation to provide protection for all bats and their roosts in England, Scotland and Wales (earlier legislation gave protection to horseshoe bats only.)

All eighteen British bat species are listed in Schedule 5 of the Wildlife and Countryside Act, 1981 and under Annexe IV of the Habitats Directive, 1992 as a European protected species. They are therefore fully protected under Section 9 of the 1981 Act and under Regulation 39 of the Conservation of Habitats and Species Regulations 2010, which transposes the Habitats Directive into UK law. Consequently, it is an offence to:

- Deliberately capture, injure or kill a bat;
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats;
- Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time);
- Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat; and
- Intentionally or recklessly obstruct access to a bat roost.

This legislation applies to all bat life stages.

The implications of the above in relation to the proposals are that where it is necessary during construction to remove trees, buildings or structures in which bats roost, it must first be determined that work is compulsory and if so, appropriate licenses must be obtained from Natural England.

Legislation Relating to Nesting Birds

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

- intentionally kill, injure or take any wild bird;
- intentionally take, damage or destroy the nest of any wild bird whilst it is in use or being built; and
- intentionally take or destroy the egg of any wild bird.

APPENDIX 3.0: BREEAM CALCULATIONS

Greengage Environmental Ltd

BREEAM Ecology Credit Calculator

Job Name: Shaftesbury Centre

Job Number: 550997

Date: Aug-18

BEFORE DEVELOPMENT

Plot type	Area of plot (m^2)	Species No	Area * species
Building/hardstanding	800	0	0
Total	800	0	0

Species per plot type before development **0**

AFTER DEVELOPMENT

Plot type	Area of plot (m2)	Species No	Area * species
Building/hardstanding	739.921	0	0
Blue Green Roof	60.079	15	901.185
Total	800		901.185

Species per plot after development **1.12648125**

Species change **1.1264813**

1=OK
0=ERROR

LE03 2 1

LE04 1

-

APPENDIX 4.0: SPECIES LIST 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
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
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	A hardy plant which grows of many soil types and prefers full sun

			nectar and feed on the pollen	
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
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. Beneficial for black redstarts.	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.
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.
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.

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15 The London Plan (2015 consolidated with alterations since 2011) and the Minor Alterations to the London Plan (2016)