

Brighter strategies for greener projects

- Client: CField Construction
- Project: Royal College Street
- Report: Ecology advice for Royal College Street

QUALITY ASSURANCE

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Prepared by:	Matthew Cameron	Matthew Cameron
Authorised by:	[Name]	[Name]
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1.0 INTRODUCTION

Greengage was commissioned by CFiled Construction to provide recommendations, detailing specifications for ecological enhancement features for Royal College Street in Borough of Camden, in order to discharge the biodiversity related condition 18 on the schedule (planning permission ref: 2020/0728/P).

Condition 18 states:

Biodiversity enhancements prior to commencement of any development other than works of demolition, site clearance & preparation, a plan showing details of biodiversity enhancements on the building (including details of bird and bat boxes) appropriate to the development's location, scale and design shall be submitted to and approved in writing by the local planning authority. The measures shall be installed in accordance with the approved plans prior to the occupation of the development and thereafter retained. Reason: In order to secure appropriate features to conserve and enhance wildlife habitats and biodiversity measures within the development, in accordance with the requirements of the London Plan and in accordance with policy A3 of the Camden Local Plan 2017.

2.0 ECOLOGICAL ENHANCEMENTS APPROPRIATE TO SCALE AND DESIGN

The quantity of green and variation of type are high.

The green space is well connected to provide the greatest possible continuous area for wildlife.

Species palettes are of low to moderate value for biodiversity (with the exception of the potting sheds). The palettes are flower rich non-natives. Ideally the species palettes would contain more native species, berry-producing and grain-producing plants. A recommended species list extracted from Camden Biodiversity Action Plan is included in Appendix B.

The site has a general lack of microhabitats, which left unaddressed would undermine the ecological enhancements of the site (eg. bird boxes or invertebrate features). There are numerous options to include these across the building, including, integrated within the fabric of the building itself. Furthermore, the invertebrate habitat features can be accents in landscaping or equally made discrete. The microhabitats discussed with the client are included with detailed specifications in section x below.

The sedum planting at the roof level is suboptimal for wildlife, which is acknowledged by Camden BAP, which encourages a maximum 30% coverage of sedum roof, complimented by mixed substrates and plants (inc wildlfowers). A recommendation to replace at least 70% of the sedum roof area is included below.

It is the opinion of Greengage that the ecological enhancements are "appropriate to scale and design" of the proposed development, assuming the recommendations to include microhabitats are taken on board and native species are included as specified below.

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3.0 PLAN OF ECOLOGICAL ENHANCEMENTS

3.1 PLAN OF ECOLOGICAL ENHANCEMENTS

Below are draft plans that would need to be agreed and incorporated into a final agreed architectural plan. These plans are not final.

Figure 1 Roof garden with ecological enhancement (first below)

Figure 2 Third floor terrace with ecological enhancements (second below)

Figure 3 Rear (eastern) elevation with ecological enhancements (third below)

Figure 4 Facade and street scene with ecological enhancements (fourth below)







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3.2 DETAILED SPECIFICATIONS OF MICRO HABITATS

Bats

For bat boxes, we usually recommend using <u>WoodStone</u> and <u>Habibat</u>. Depending on if they can be incorporated into the fabric of the building of if they client would prefer to hand them externally.

Birds

House sparrow

House Sparrow Terraces (e.g. Integrated <u>Habibat Terraced Sparrow Box</u> or surface mounted <u>Schwegler</u> <u>ISP Sparrow Terrace</u>)

House sparrow terraces should be provided on the eastern aspect of the building, as seen in Figure 3. These should comprise 3 terraces with 3 nesting chambers per unit, or 5 terraces with 2 nesting chambers per unit. Ideally, groups of three terraces should be provided together between 2-5m from the ground. Whilst in theory these can be as little as 150mm apart, spacing them at least 1m can reduce aggression between males competing to mate with females. Boxes should be located away from balconies and windows, preferably overlooking foraging areas, within the proposed landscaping.

<u>Swift</u>

Swift Box (e.g. <u>Habibat swift box</u>, or <u>concrete swift boxes</u>, which could be with a <u>call system</u>) or <u>Wedge-shaped Swift Box (Knee-wall Box</u>) which can be atop or beneath eaves. Locations can be seen in Figure 1.

These should be installed on north facing aspects of the pavilions. Entrances should be free from clutter at least 5m in height. Ideally, groups of boxes should be provided together. There needs to be a 3m clearance from the box to allow successful fledging.

Starling

Starling Nest Box South eastern Eco Starling Nest Box

Starlings nest in a loose colony so two boxes in near eachother on the southeastern aspect of the southernmost pavilion should be provided. Boxes should be orientated to face the east to prevent overheating and prevailing wind/rain. Boxes will be positioned a minimum of at least 3 metres above the ground, seen in Figure 1.

Generalist bird boxes

Two generalist boxes should be provided on the trees at street level with different size entrance holes one 28mm and one 32mm. These boxes should be sited at least 3m above the ground and facing north, as in the Figure 4.

Invertebrates

Loggeries

Three loggeries should be created within the roof garden and 3rd floor terrace, as seen in Figure 1 and Figure 2, to act as breeding habitat for stag beetles, a UK and London BAP species, as well as other saprophytic invertebrates which thrive on dead and decaying wood.

Log sizes should range from ~10cm up to ~40cm diameter with approximately one third of the logs buried. Plants such as ferns, bulbs and other woodland understorey plants should then be planted amongst the loggery.

Wood from broadleaved trees such as oak and beech, and from fruiting trees such as apple and pear where possible should be used, at least 100mm in diameter with the bark still on. Logs in contact with the substrate will remain damp underneath, which is vital for many invertebrates such as woodlice. Logs should be placed both vertically and horizontally in clusters; vertical standing wood should be incorporated by submerging the logs into the full depth of the substrate, ideally in the deeper sections, again using a range of diameters and lengths.

Figure 5 Log Piles on a Biodiverse Living Roof



<u>Sandy piles</u>

Three sand piles should be created within the roof garden and 3rd floor terrace, as seen in Figure 1 and Figure 2, and should be compacted to form a sandcastle effect. The sandy piles should be 50cm high covering one square metre, with 30° angled sides. Rocks and stones may be placed on the surface to increase stability.

<u>Rope</u>

Three rope coils should be created within the roof garden and 3rd floor terrace, as seen in Figure 1 and Figure 2. Rope made from natural fibres should be used such as Manila rope which is suitable for general outdoor use. Manila rope is made from the leaves of the plant Musa textilis and will last up to 10 years, reducing maintenance requirements. The rope should be coiled in a spiral shape to cover an area of 1m2;

the rope should be coiled loosely to ensure suitable gaps are created for invertebrates. Pegs will need to be used to harness the rope to the roof and ensure that it cannot blow away.

Figure 6 Sandy Piles and Figure 7 Rope Coils on Biodiverse Living Roof





Bee posts and habitat panels

A layout of bee features can be seen in in Figure 1 and Figure 2, panels, boxes or posts are all suitable for these locations and can be chosen by the architect.

Posts and boxes

Bee habitat features (posts/boxes) should be close to planting in order to provide a constant nectar resource on a year-round basis. Features should be positioned in sunny, south facing areas. Bee posts, bricks or hotels can be bought off the shelf as products, or simply made. These features provide excellent nesting habitat for invertebrate species, most notably solitary bee species.



Figure 8 Bee Bricks, Blocks, Posts and Boxes



Habitat Panels

As for the bee habitat features, a habitat panel can be included in sunny, south-facing areas within landscaped areas, such as the green roof, wall or ground floor planting.

Panels should use untreated wood products which provide a range of opportunities for sheltering and nesting solitary bees and other invertebrates. They can be 'designed' or integrated with interpretation panels. Design of each panel should avoid providing opportunities for numerous taxa to minimise risk of parasitism.

Figure 9 Example invertebrate habitat panels





4.0 RETENTION OF ECOLOGICAL FEATURES

Permanent retention of the ecological enhancement is dependent upon maintenance and monitoring.

Maintenance

Establishment and maintenance of all enhancement features, other than the living roofs, should be the responsibility of the owner/developer or a company appointed by the owner/developers.

Living roof maintenance should be undertaken by the roof supplier. This should take place annually for the lifetime of the green roof.

The building owner/developer should keep a record of all maintenance carried out internally or by a third party.

Monitoring

The owner/developer will be responsible for monitoring the success of the ecological features installed on site.

The building owner/developer will keep a record of all monitoring.

5.0 CONCLUSION

In conclusion condition 18 relating to biodiversity requires ecological enhancements proportionate to the scale and design of the development, a final plan with designated locations of each and every enhancement and assurance of permanent retention of features.

These criteria will be met if the measures discussed in sections 2 to 4 are carried out. As such condition 18 could be discharged.



APPENDIX A POLICY CONTEXT

London plan

Policy G1 Green infrastructure

- 1. London's network of green and open spaces, and green features in the built environment such as green roofs and street trees, should be protected, planned, designed and managed as integrated features of green infrastructure.
- 2. Boroughs should prepare green infrastructure strategies that integrate objectives relating to open space provision, biodiversity conservation, flood management, health and wellbeing, sport and recreation.
- 3. Development Plans and Opportunity Area Planning Frameworks should:
 - 1. identify key green infrastructure assets, their function and their potential function
 - 2. identify opportunities for addressing environmental and social challenges through strategic green infrastructure interventions.
- 4. Development proposals should incorporate appropriate elements of green infrastructure that are integrated into London's wider green infrastructure network.

Policy G5 Urban greening

- 5. Major development proposals should contribute to the greening of London by including urban greening as a fundamental element of site and building design, and by incorporating measures such as high-quality landscaping (including trees), green roofs, green walls and nature-based sustainable drainage.
- 6. Boroughs should develop an Urban Greening Factor (UGF) to identify the appropriate amount of urban greening required in new developments. The UGF should be based on the factors set out in Table 8.2, but tailored to local circumstances. In the interim, the Mayor recommends a target score of 0.4 for developments that are predominately residential, and a target score of 0.3 for predominately commercial development. (excluding B2 and B8 uses).
- 7. Existing green cover retained on site should count towards developments meeting the interim target scores set out in (B) based on the factors set out in Table 8.2.

Policy G6 Biodiversity and access to nature

- 8. Sites of Importance for Nature Conservation (SINCs) should be protected.
- 9. Boroughs, in developing Development Plans, should:

- a. use up-to-date information about the natural environment and the relevant procedures to identify SINCs and ecological corridors to identify coherent ecological networks
- b. identify areas of deficiency in access to nature (i.e. areas that are more than 1km walking distance from an accessible Metropolitan or Borough SINC) and seek opportunities to address them
- c. support the protection and conservation of priority species and habitats that sit outside the SINC network, and promote opportunities for enhancing them using Biodiversity Action Plans
- d. seek opportunities to create other habitats, or features such as artificial nest sites, that are of particular relevance and benefit in an urban context
- e. ensure designated sites of European or national nature conservation importance are clearly identified and impacts assessed in accordance with legislative requirements.
- 10. Where harm to a SINC is unavoidable, and where the benefits of the development proposal clearly outweigh the impacts on biodiversity, the following mitigation hierarchy should be applied to minimise development impacts:
 - a. avoid damaging the significant ecological features of the site
 - b. minimise the overall spatial impact and mitigate it by improving the quality or management of the rest of the site
 - c. deliver off-site compensation of better biodiversity value.
- 11. Development proposals should manage impacts on biodiversity and aim to secure net biodiversity gain. This should be informed by the best available ecological information and addressed from the start of the development process.
- 12. Proposals which reduce deficiencies in access to nature should be considered positively.

Policy G7 Trees and woodlands

- 13. London's urban forest and woodlands should be protected and maintained, and new trees and woodlands should be planted in appropriate locations in order to increase the extent of London's urban forest the area of London under the canopy of trees.
- 14. In their Development Plans, boroughs should:
 - a. Protect 'veteran' trees and ancient woodland where these are not already part of a protected site
 - b. Identify opportunities for tree planting in strategic locations
- 15. Development proposals should ensure that, wherever possible, existing trees of quality are retained [Category A and B]. If planning permission is granted that necessitates the removal of trees, there should be adequate replacement based on the existing value of the benefits of the trees removed, determined by, for example, i-tree or CAVAT or another appropriate valuation system. The

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planting of additional trees should generally be included in new developments – particularly largecanopied species which provide a wider range of benefits because of the larger surface area of their canopy.

Camden Local Plan 2017

Features of the Camden Local Plan 2017, adopted in 2000, include:

The Council will protect and enhance sites of nature conservation and biodiversity, through the planning system, site designations, green corridors and greening policy. Policy A3 Biodiversity.

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;
- I. 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.

London BAP

The London BAP lists 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:

- The onus placed on the importance of built structures to local wildlife;
- The bat (Chiroptera) Species Action Plan (SAP);
- The house sparrow (Passer domesticus) SAP; and
- The black redstart (Phoenicurus ochruros) SAP

Camden BAP 2013-2018

Cambden Biodiversity Action Plan provides conservation objectives for the borough from 2013-2018 and till present. The Camden BAP 2013-2018 is still referred to by the local plan as the guidance for the biodiversity protection in line with the London BAP. Whilst no Habitat Action Plans (HAPs) are of relevance to the site, the proposals may stand to contribute to the objectives of the following SAPs:

- Bats (SAP);
- Black redstart (SAP);
- House sparrow (SAP);
- Swift (Apus apus) (SAP); and
- Bumblebees (Bombus sp.) (SAP).

APPENDIX B RECOMMENDED SPECIES

Figure 10 Living roof suggested species from Camden BAP

Suggested wildflowers

Achillea millefolium / Yarrow (BL) Agrimonia eupatoria / Agrimony Anthyllis vulneraria / Kidney vetch Centaurea nigra / Common knapweed Echium vulgare / Viper's-bugloss Galium verum / Lady's bedstraw Hypericum perforatum / Perforate St. Johnswort Knautia arvensis / Field scabious

Lamium album / White dead nettle (BL) Leontodon autumnalis / Autumn hawkbit Leontodon hispidus / Rough hawkbit Leucanthemum vulgare / Oxeye daisy Linaria vulgaris / Common toadflax Lotus corniculatus / Bird's-foot trefoil Malva moschata / Musk mallow

Origanum vulgare / Wild marjoram Plantago media / Hoary plantain Primula veris / Cowslip Prunella vulgaris / Selfheal Ranunculus acris / Meadow buttercup Ranunculus bulbosus / Bulbous buttercup Reseda lutea / Wild mignonette Sanguisorba minor / Salad burnet Silene latifolia / White Campion Silene noctiflora / Night flowering catchfly Silene uniflora / Sea campion (GRG) Silene vulgaris / Bladder campion Thymus ducci / Wild Thyme (GRG) Trifolium Pratense / Red clover (BL)

Suggested grasses

Briza media / Quaking-grass Festuca ovina / Sheeps fescue Other festuca spp. Koeleria macrantha / Crested hair-grass

Hedge or shrub species

These species can be used in hedge planting (H) or some can also be wildlife-friendly freestanding shrubs (S).

Hawthorn (Craetaegus montana) (H/S)	Wild pear (Pyrus pyraster) (H)
Common Gorse (Ulex europaeus) (H/S)	Common hombeam (Caprinus betulus) (H)
Common Elder (Sambucus nigra) (S)	Wild Privet (Ligustrum vulgare)
Common Hazel (Corylus avellana) (H/S)	Dog rose (Rosa canina) (H)
Common Dogwood (Cornus sanguinea) (H)	Field rose (Rosa arvensis) (H)
Blackthorn (Prunus spinosa) (H)	Spindle (Euonymus europaeus) (H)
Alder buckthorn (Alnus glutinosa) (H/S)	Guelder rose (Vibumum opulus) (H/S)
Purging buckthorn (Rhamnus carthartica)	Bay/Crack/Goat/White Willow (Salix sp.)
Wavfaring tree (Vibumum lantana) (H)	Crab apple (Malus sylvestris) (H)
Hardy Fuschia (Fuchsia magellanica) (NN) (S)	Ivv (Hedera helix) (Climber)
Orange ball-tree (Buddleia Globosa) (NN) (S)	Silver wattle (Acacia dealbata) (NN) (S)
Witch-hazel (Hammamelis) (NN) (S)	Barberry (Berberis spp.) (NN) (S)
Hedge Veronica (Hebe spp.) (NN) (S)	Firethorn (Pvracantha coccinea) (NN) (S)
Daisy Bush (Olearia spp.) (NN) (S)	Escallonia (Escallonia macrantha) (NN) (S)
Flowering Currant (Ribes sanguinem) (NN) (S)	Wintersweet (Chimonanthus praecox) (NN)
Portuguese laurel (Prunus lustanica) (NN) (S)	(S)



Tree species

Field maple (Acer campestre) (M) Alder (Alnus glutinosa)(M) Common beech (Fagus sylvatica) (L) Silver birch (Betula pendula) (L) Bird cherry (Prunus padus) (M) Wild cherry (Prunus avium) (L) Whitebeam (Sorbus aria) (L) Crab apple (Malus sylvestris) (S) Oaks (Quercus robur and petraea) (L) Rowan (Sorbus aucuparis) (M) Lime (Tilia cordata) (L) Common Holly (Ilex aquifolium) (M) Whitebeam (Sorbus aria) (L)

Annuals and perennials (border plants)

Rooper's Red-hot poker (Kniphofi a rooperi)	Bluebell (native only) (Hyacinthoides non
(NN)	scripta)
Bugle (Ajuga reptans)	Fleabane (Erigeron)
Wood anemone (Anemone nemorosa)	Sea Holly (Eryngium matitimum)
Ox-eye chamomile (Anthemis tinctoria)	Wall Flower (Erysinum chein)
Rock cress (Arabis alpine)	Stinking Hellbore (Helleborus foetidus)
Thrift (Armeria maritima)	Foxglove (Digitalis purpurea)
Aubrieta spp. (Aubrieta spp.)	Toadflax (Linaria vulgaris)
Gold dust (Aurinia saxitalis)	Primrose (Primula vulgaris)
Tussock bellflower (Campanula carpatica)	Blessed Mary's Thistle (Silybum marianum)
Red valerian (Centranthus ruber)	Hedge Mustard (Sisymbrium officinale)
Ivy-leaved toad-flax (Cymbalaria muralis)	Wood Betony (Stachys officinalis)
Wild daffodil (Narcissus pseudonarcissus)	Snowdrop (Galanthus nivalis)
Darley Dale Heath (Erica x darleyensis) (NN)	Crocus spp. (Crocus spp.) (NN)
Squill species (Scilla spp.) (some NN)	Winter aconite (Eranthis hyemalis) (NN)
Grape Hyacinth (Muscari neglectum) (NN)	Glory-of-the-snows (Chinodoxa spp.) (NN)