





Five Year Ecological Management Plan

# Bentham House, University College London

For

University College London

Project No.: APBH105 / 001 / 001

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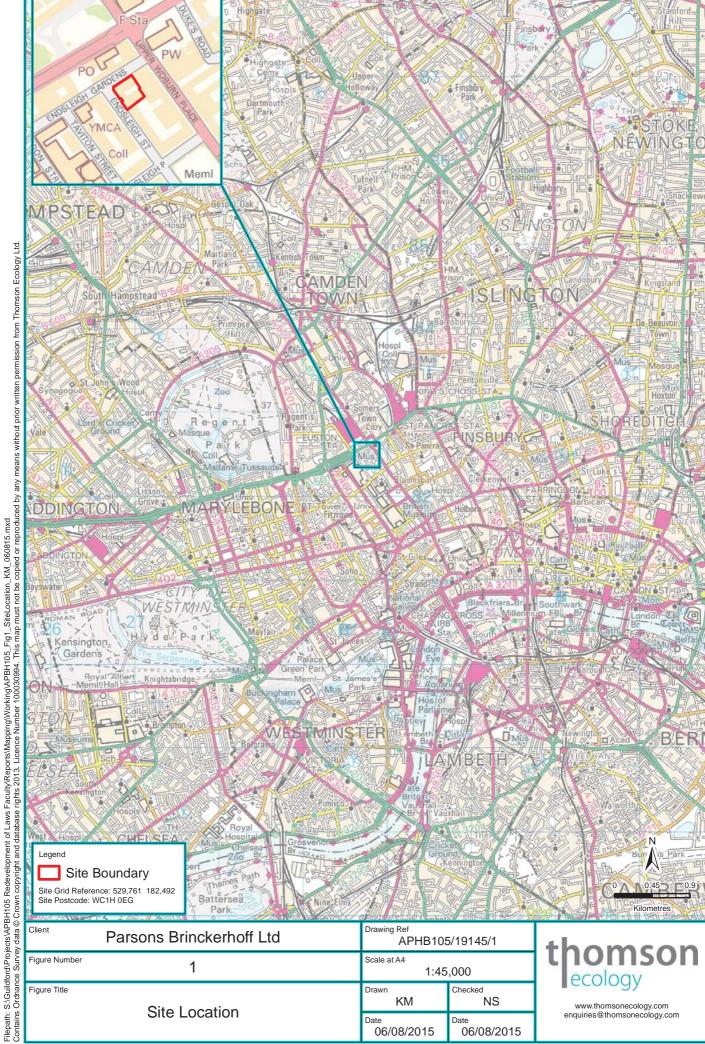


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FIGURE 1 SITE LOCATION

FIGURE 2 ECOLOGICAL FEATURES TO BE CREATED OR RETAINED







## 1. Introduction

## 1.1 Development Background

- 1.1.1 University College London (UCL) has obtained full planning permission from the London Borough of Camden to enlarge, extend and refurbish Bentham House and the Gideon Schreier Wing at the UCL Campus (planning application 2014/5034/P), which are located in the London Borough of Camden. The submission to, and approval of, this plan by the local planning authority is a condition of this planning consent.
- 1.1.2 The proposal involves enlargement and external alterations, including recladding, and the addition of one storey to the Gideon Schreier Wing, a new five storey extension to its rear and associated provision of external parking and landscaping alongside the refurbishment of the existing university building to increase the capacity of the Faculty of Law Department of UCL. The proposal described above is hereafter referred to collectively as 'the development'.
- 1.1.3 The development is bordered to the south-west by Endsleigh Street and to the north-west by Endsleigh Gardens, see Figure 1. The footprint of the development falls within urban land that is in use as a higher education institute and the area of the development is approximately 1,125m² (Grid Reference TQ 297 825). The area affected by the development is hereafter referred to as 'the site'.
- 1.1.4 UCL commissioned Thomson Ecology Ltd. on 13<sup>th</sup> July 2015 to write a landscape and habitat management plan to fulfil Condition 11 of the planning permission dated 4<sup>th</sup> November 2014. To fulfil this condition an ecological management plan needed to be prepared by a suitably qualified ecologist and incorporate the recommendations of the Ecological Report to inform BREEAM 2011 Assessment (LE02 to LE05) prepared by Thomson Ecology Ltd. (Report Reference APBH102/001/002, issued August 2014) and be supported by appropriate digitised mapping.
- 1.1.5 This ecological management plan will also consider recommendations made in the desk study and extended Phase 1 survey evaluating the site for protected species, completed by London Conservation Services (Wileman, 2012). Furthermore, priorities and actions within the UCL Green Biodiversity Strategy (2014) and the London Borough of Camden Biodiversity Action Plan (2012) have also been considered where appropriate, in particular with regards to swift and other nesting birds. This ecological plan is based on the proposals shown within the Design and Access statement (Levitt Bernstein, 2014) submitted with the planning application.
- 1.1.6 This management plan has been written by Jennifer Care BSc (Hons) MSc and signed off by Gabrielle Graham BSc (Hons) MSc MCIEEM. Gabrielle meets the criteria for a Suitably Qualified Ecologist by:
  - Holding a degree in Ecological Science;
  - Being employed as a practising ecologist with over five years relevant experience (within the last five years); and
  - Being a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). This makes her subject to peer review and bound by a professional code of conduct.



## 1.2 The Management Plan

- 1.2.1 The ecological management plan is divided into sections covering the features and habitats to be created and/or retained at the site as shown on Figure 2. These sections are as follows:
  - Potential introduced shrub;
  - Green roofs;
  - Buildings; and
  - Bird and bat boxes.
- 1.2.2 A summary schedule is given in Appendix 1.
- 1.2.3 A mature London plane (*Enteropogon acicularis*) (previously identified as a sycamore (*Acer pseudoplatanus*)) is located adjacent to the development which, whilst not on land owned by UCL, should be protected from potential impacts from the development works by following the recommendations laid out in BS: 5837:2012 (British Standards Institution, 2012) where these are within the work's zone of influence.
- 1.2.4 As recommended in Ecological Report to inform BREEAM 2011 Assessment (LE02 to LE05) prepared by Thomson Ecology Ltd. (Report Reference APBH102/001/002, issued August 2014), a Ground Level Tree Assessment (GLTA) was undertaken on this tree on 28th October 2015 to assess its potential to support roosting bats and determine any actions which may be required to prevent an offence through roost disturbance (Letter Report Reference APBH105/003/001). No potential roosting features available for bats were identified and the tree was deemed to have negligible potential to support roosting bats. As such, there are no legal issues regarding bats and the development.

## 1.3 Legal and Planning Policy Considerations

1.3.1 The following legal and planning policy considerations should be taken into account during subsequent management to ensure compliance.

#### **Birds**

- 1.3.2 All wild birds in the UK are protected from killing and injury under the Wildlife and Countryside Act 1981 (as amended). Furthermore, this legislation also protects the eggs and active nests (*i.e.* those in use or being built) of birds from damage or destruction.
- 1.3.3 To avoid offences being committed with regards to birds it is recommended that:
  - Pruning and/or trimming of the tree and any shrubs be conducted outside of the breeding bird season (i.e. works should be undertaken between September and February inclusive);
  - Any works to buildings are conducted outside of the breeding bird season (*i.e.* works should be undertaken between September and February inclusive); and
  - Bird boxes are left undisturbed during the breeding bird season (March to August inclusive).

#### **Bats**



- 1.3.4 All British bat species are fully protected under the Conservation of Habitats and Species Regulations 2010 (as amended), and they are protected from disturbance under the Wildlife and Countryside Act 1981 (as amended), provisions are made for bats under the Countryside and Rights of Way Act 2000 and the Natural Environment and Rural Communities Act 2006. Taken together these protect bats from killing, injury, sale and disturbance (the latter at their place of roost specifically). Roosts themselves are protected from damage, destruction or obstruction. Licences are required from Natural England to handle or disturb roosting bats.
- 1.3.5 If bat boxes are installed then in order to avoid offences being committed it is recommended that they are left undisturbed unless damaged to the extent that it is obvious that no bats are roosting within them (*i.e.* large holes allow the inside of the box to be viewed from the ground).

### 1.4 Aims and Objectives

- 1.4.1 The aim of this management plan is to ensure that the identified habitats and features both existing and new are established and sustained over the first five years after project completion.
- 1.4.2 The objectives of this management plan are:
  - To maintain the diversity of native species in green roofs and shrub (if these are introduced) on the site; and
  - To maintain the bird boxes (and bat boxes if installed) in good condition.



# 2. Management Plan

#### 2.1 Potential introduced shrub

- 2.1.1 Discussions are ongoing as to whether the original planters of introduced shrub (identified within the Ecological Report to inform BREEAM 2011 Assessment (LE02 to LE05) prepared by Thomson Ecology Ltd. (Report Reference APBH102/001/002) will be replaced with new shrub or not. This section provides recommendations for management of new introduced shrub if it becomes part of the final landscaping following development.
- 2.1.2 Shrubs will require trimming to ensure they do not become overgrown. The optimal cutting regime is once every two to three years. Trimming of shrubs should be undertaken outside of the breeding bird season to avoid the risk of damage or disturbance to active bird nests. Therefore trimming will take place during September to February, inclusive. If this cannot be achieved, further advice should be sought from an appropriately qualified ecologist.
- 2.1.3 If gaps develop in planted shrub areas for any reason (*e.g.* disease, wind-damage or other problems) these should be filled, where possible, by replanting with native species of local provenance or species of known benefit to wildlife.
- 2.1.4 Ideally the native species chosen for replanting should be attractive to insects, which will provide food for bats, birds and invertebrates. Suitable species include holly (*Ilex aquifolium*) and ivy (*Hedera helix*), both of which are already present, hazel (*Corylus avellana*) and honeysuckle (*Lonicera periclymenum*).
- 2.1.5 A summary of the management of the introduced shrub is provided in Table 1.

Table 1: Introduced shrub management summary

Location:	All introduced shrub
Objective:	To maintain at least two native species within the planted shrub areas.
Management:	Prune from September to February inclusive, if necessary.
Monitoring:	Count the number of native species during the summer and inspect for dead individuals and gaps.
Remedial Action:	Replace dead or dying individual plants <sup>1</sup> , ensuring the minimum number of native species is maintained.

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<sup>&</sup>lt;sup>1</sup> However, if a plant died of disease it may be necessary to replace with a different suitable species rather than like-for-like to reduce the likelihood of the same disease in the new plant.



### 2.2 Green roofs

- 2.2.1 There are a range of options available for green roofs to cater for differing requirements. For example, in designing a green roof factors such as the load-bearing capacity of the roof and its slope, aspect and drainage or irrigation should be considered alongside the purpose it is designed to serve. It is recommended that specialist professional advice is sought for the design, installation and maintenance of the green roofs.
- 2.2.2 However, the green roof should contain a minimum of 22 native species of local provenance (where possible) to meet the recommendations in the BREEAM report (Thomson Ecology Report Reference APBH102/001/002, issued August 2014). These species could include some of those listed in Table 2. Plant species nomenclature follows Stace (2010).

Table 2: Native species which could be incorporated into green roofs

Common Name	Species Name
Autumn Hawkbit	Leontodon autumnalis
Biting Stonecrop	Sedum acre
Bladder Campion	Silene vulgaris
Buck's-horn Plantain	Plantago coronopus
Bulbous Buttercup	Ranunculus bulbosus
Cat's-ear	Hypochaeris radicata
Clustered Bellflower	Campanula glomerata
Common Bird's-foot-trefoil	Lotus corniculatus
Common Dog-violet	Viola riviniana
Common Rock-rose	Helianthemum nummularium
Common Sorrel	Rumex acetosa subsp. acetosa
Common Stork's-bill	Erodium cicutarium
Common Toadflax	Linaria vulgaris
Cowslip	Primula veris
Creeping Cinquefoil	Potentilla reptans
Daisy	Bellis perennis
Dove's-foot Crane's-bill	Geranium molle
English Stonecrop	Sedum anglicum
Ground-ivy	Glechoma hederacea
Hairy Stonecrop	Sedum villosum
Hairy Violet	Viola hirta
Harebell	Campanula rotundifolia
Hoary Cinquefoil	Potentilla argentea
Horseshoe Vetch	Hippocrepis comosa
Kidney Vetch	Anthyllis vulneraria
Lady's Bedstraw	Galium verum
Meadow Saxifrage	Saxifraga granulata
Orpine	Sedum telephium
Oxeye Daisy	Leucanthemum vulgare
Perforate St John's-wort	Hypericum perforatum
Primrose	Primula vulgaris



Common Name	Species Name
Quaking-grass	Briza media
Red Fescue	Festuca rubra
Ribwort Plantain	Plantago lanceolata
Rock Stonecrop	Sedum forsterianum
Rough Hawkbit	Leontodon hispidus
Selfheal	Prunella vulgaris
Sheep's Sorrel	Rumex acetosella
Sheep's-fescue	Festuca ovina
Small Scabious	Scabiosa columbaria
Thrift	Armeria maritima subsp. maritima
White Campion	Silene latifolia
White Clover	Trifolium repens
White Stonecrop	Sedum album
Wild Marjoram	Origanum vulgare
Wild Pansy	Viola tricolor
Wild Strawberry	Fragaria vesca
Wild Thyme	Thymus polytrichus
Yarrow	Achillea millefolium

#### Maintenance

- 2.2.3 As with ground level planting, green roofs require some maintenance to ensure that the original species planted establish and thrive. The green roofs should be managed in accordance with the manufacturer's recommendations. This may include activities such as:
  - · Removal of unwanted plants or plant material;
  - · Replacement of any naturally failed plants; and
  - Correction of any localised plant system problems that may have occurred post installation.
- 2.2.4 In addition to the maintenance recommended by the manufacturer, the number of native species present should be counted during the summer. The minimum number of native species should be maintained by replacing dead individuals and filling gaps with appropriate native species, of local provenance where possible, at a time of year and using a method recommended by the manufacturer.



## 2.3 Buildings

- 2.3.1 During the extended Phase 1 habitat survey (Wileman, 2012) the Bloomsbury campus was considered as an entity, encompassing six blocks of buildings and associated grounds amounting to approximately 7ha in area. The desk study within this report identified bat records within a 2km search area and stated that some of the buildings have cracks and holes suitable to be used as roosts for bats. No further bat surveys were undertaken for the extended Phase 1 habitat survey report and it did not specify which buildings had potential for bat roosts. The survey undertaken to inform the subsequent BREEAM report for Bentham House and the Gideon Schreier Wing (Thomson Ecology report reference APBH102/001/002, issued August 2014) did not identify any potential for roosting bats in the buildings or recommend further survey for them. However, if the proposed work is not started within two years from the ecological surveys conducted for the BREEAM assessment, then a further assessment for bats should be undertaken.
- 2.3.2 The eves and overhanging masonry on the buildings recorded on site could provide habitat suitable for breeding birds such as starlings (*Sturnus vulgaris*) and house sparrows (*Passer domesticus*). Given the protection afforded to birds, any works should take place between September and February inclusive, outside the breeding bird season.
- 2.3.3 If the above timing is not possible, all areas to be cleared should firstly be checked by a suitably qualified ecologist for nesting birds. This would involve watching the areas for signs of bird activity for active nest sites. If an active nest is found, works in this area should cease until the chicks have fledged.
- 2.3.4 However, if roof nesting feral pigeons (*Columba livia domestica*), are presenting a demonstrable risk to public health and safety then they may be killed or taken by an 'authorised person' under a general licence, issued by the government. This licence can only be acted upon in circumstances where the authorised person is satisfied that all non-lethal methods of control (installation of deterrents or scaring devices) are likely to fail or are impracticable and they must be able to demonstrate, if legally challenged, which non-lethal methods of control have been tried and found to fail and why these methods have failed.



#### 2.4 Bird and bat boxes

#### Installation

- 2.4.1 Bird boxes should typically be installed at least 4m from the ground. This is high enough to ensure human interference and potential predation is minimised, whilst low enough to reduce exposure to adverse weather conditions, particularly strong winds.
- 2.4.2 A number of designs of bird boxes are commercially available. It is recommended that a range of different types are chosen (particularly for birds e.g. swifts, starlings and house sparrows) to encourage their use by a variety of species. Ideally internal (as opposed to external) nest boxes will be installed as part of the works as these will have a lower visual impact and can often be customised to match a finish and are more secure important as pedestrian routes are present around much of the buildings. All boxes should be sited away from windows and not above doorways.
- 2.4.3 It is useful to place different bird boxes in a range of locations at slightly different heights and facing in slightly different directions to give a choice of nesting options. Boxes for some species also have their own, specific, requirements. However, typically the direction should be chosen to avoid facing boxes into the prevailing weather. An orientation from north through east to southeast usually provides suitable conditions for bird boxes.
- 2.4.4 Indicative locations for the bird boxes are shown on Figure 2. Recommendations include installation of boxes for common starling and house sparrow, both of which are priority species for the conservation of biodiversity listed under section 41 of the Natural Environment and Rural communities (NERC) Act 2006. The desk study within the extended Phase 1 habitat survey report (Wileman, 2012) found these species to be present within 2km of the site and deemed them the most likely protected bird species in the area to be using the site. Although the Phase 1 habitat survey report also suggested the site could support dunnock (*Prunella modularis*) (also a priority species) and the protected black redstart (*Phoenicurus ochuros*), the former does not typically use nest boxes and for the latter the boxes required do not fit easily with this development. If possible, boxes for swifts (*Apus apus*) should also be installed as this species has been identified as a flagship species for the built environment by the London Borough of Camden with actions to increase the availability of suitable nesting sites.
- 2.4.5 Further details of the recommended bird boxes are provided below:
  - One (two if possible, separated horizontally from each other as far as possible) starling brick(s) (hole of 45mm) installed at least 2m high in the north-east facing wall of the plant room on the fifth floor;
  - One sparrow terrace (holes of 32mm) and one great tit brick (28mm hole) installed over 2m high in the wall facing south-south-east of the Gideon Schreier building, in the floor above the blue tit brick. These boxes should be separated horizontally from each other as far as possible;
  - One blue tit brick (25mm hole) a minimum of 4m up the south-south-eastern wall of the Gideon Schreier building in a position close to the sycamore, but with a clear flight line to the entrance hole; and



- Ideally between three and five swift bricks installed in the shade directly under the overhang
  just below the roof on the Endsleigh Street side of the Gideon Schreier building. These
  should be installed in a straight line. Swift nest boxes do not normally require cleaning.
- 2.4.6 Examples of the proposed bird boxes are provided in Appendix 2.
- 2.4.7 The desk study within the extended Phase 1 habitat survey report (Wileman, 2012) also identified this site, as part of the wider Bloomsbury Campus, as having the potential to support bats. These protected species could be helped by the provision of bat boxes or bat bricks. The Bat Conservation Trust advises that these are located:
  - Where bats are known to feed close to hedges and tree lines (along linear features);
  - At least 4m above the ground; and
  - Sheltered from strong winds and exposed to the sun for part of the day (usually south or south-west).
- 2.4.8 Bat bricks would be recommended for this development as these will have a lower visual impact and would be more secure, as pedestrian routes are present around the buildings. These can be installed flush with the wall and can be rendered or covered so that only the entrance hole is visible. Bat bricks should be located away from artificial light where possible and positioned at least 2m away from any bird boxes to deter birds from using the bat brick.

### Maintenance

- 2.4.9 All bird boxes (except swift boxes) should be cleaned annually, outside of the breeding bird season (i.e. September to February inclusive). Hole-fronted boxes are best cleaned out in October. Open-fronted boxes are best cleaned out in late winter (i.e. February).
- 2.4.10 Any old nests should be removed entirely and the box should be cleaned with boiling water to kill-off any remaining parasites. Any damaged boxes should be repaired or replaced as necessary.
- 2.4.11 A summary of the management of the bird boxes is given in the following table:

Table 3: Bird box management summary

Location:	All bird boxes	
Objective:  To maintain at least four bird boxes in good condition across site.		
Management:	If necessary, clean out hole-fronted boxes in October and open- fronted boxes in February.	
Monitoring:	Check hole-fronted boxes in October and open-fronted boxes in February for damage.	
Remedial Action: Replace any damaged boxes.		

2.4.12 If bat bricks are installed these should not require any maintenance other than replacement or repair if damaged. Roosting bats are protected from disturbance under UK and EU legislation, therefore, if any boxes need to be removed this must be done by a licensed bat worker.



# 3. Key Responsibilities

- 3.1.1 UCL will be responsible for implementing this management plan.
- 3.1.2 Personnel (e.g. a Biodiversity Champion) should be appointed to take key responsibility for implementing this management plan. Obvious candidates include the persons in charge of taking care of the building and roof garden (e.g. the Head Groundsman or Site Caretaker). The Biodiversity Champion should have the authority to influence site activities and ensure that detrimental impacts on site biodiversity are minimised in line with the recommendations of this ecological management plan.



## 4. References

- 4.1.1 British Standards Institution (2012). *BS: 5837:2012 Trees in Relation to Design, Demolition and Construction. Recommendations.*
- 4.1.2 HM Government (2012). Conservation of Habitats and Species (Amendment) Regulations.
- 4.1.3 HM Government (2000). Countryside and Rights of Way Act.
- 4.1.4 HM Government (1981). Wildlife and Countryside Act (as amended).
- 4.1.5 Levitt Bernstein (2014). UCL Faculty of Laws, Bentham House. Stage D Executive Summary.
- 4.1.6 Stace C.A. (2010). *New flora of the British Isles (3rd ed.)*, Cambridge University Press, Cambridge.
- 4.1.7 Thomson Ecology Ltd. (2014) *Ecological Report to inform BREEAM New Construction 2011*Assessment (LE02 to LE05), BREEAM, Bentham House, University College London. APBH102
  / 001 / 002.
- 4.1.8 Thomson Ecology Ltd. (2015) *Ground Level Tree Assessment for Bats Letter Report.* APBH105/003/001.
- 4.1.9 Camden London Borough Council (2012). Camden Biodiversity Action Plan 2013-2018
- 4.1.10 UCL (2014). Green Biodiversity Strategy and Action Plan. Championing biodiversity across and urban estate.
- 4.1.11 Wileman, T. (2012). University College London Bloomsbury Campus Extended Phase 1 Habitat Survey Report. London Conservation Services.



# 5. Appendix 1- Five Year Schedule

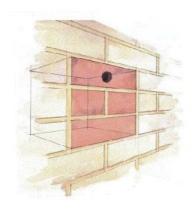
5.1.1 The following table summarises the management activities over a five year cycle.

Year	Feature	Spring	Summer	Autumn	Winter
1	Potential introduced shrub	Shrub establishment; replace any dead or dying individuals.	Count the number of different native shrub species.	Pruning (if necessary)	Pruning (if necessary)
	Green roofs	As per the manufacturer's recommendations.	As per the manufacturer's recommendations and count the number of different native plant species.	As per the manufacturer's recommendations.	As per the manufacturer's recommendations.
	Bird boxes	Installation of bird bricks.	None required	Clean out hole- fronted bird boxes (all bird bricks except swift) if necessary	Clean out open- fronted bird boxes if necessary
2-5	Potential introduced shrub	Replace any dead or dying individuals. Count the number of different native shrub species.	None required	Pruning (if necessary)	Pruning (if necessary)
	Green roofs	As per the manufacturer's recommendations.	As per the manufacturer's recommendations and count the number of different native plant species.	As per the manufacturer's recommendations.	As per the manufacturer's recommendations.
	Bird boxes	Replace any damaged bird bricks.	None required	Clean out hole- fronted bird boxes (all bird bricks except swift) if necessary	Clean out open- fronted bird boxes if necessary



# 6. Appendix 2- Examples of bird boxes

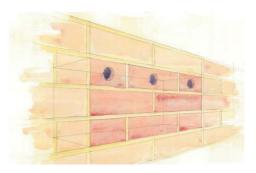
# 6.1.1 Starling brick



6.1.2 Sparrow Terrace







## 6.1.3 Swift bricks







# 6.1.4 Blue tit/great tit brick



