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BREEAM Ecology Report
KOKO

Document information

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Date of current issue:
23/10/2017

Issue number: 2

Our reference:
2169 - KOKO Ecology BREEAM report - 1710-23rc.docx

Assessment information

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Executive Summary

Eight Associates has been commissioned by Tower Eight to carry out a Phase 1 habitat survey and protected species risk assessment and BREEAM ecology assessment in connection with the proposed KOKO development.

This report details the existing site ecology of KOKO, and has provided information that can inform the future design and ecological enhancement of the scheme. The report reviews the likely BREEAM rating against the BREEAM Land Use and Ecology 2014 criteria LE 02-LE 05, under BREEAM UK New Construction 2014 scheme.

The current BREEAM 2014 New Construction credits can be summarised as follows:

- LE 02 - Ecological value of land and protection of ecological features
  Two out of two credits to be awarded
- LE 03 - Mitigating impact on existing site ecology
  Two out of two credits to be awarded (where the ecologist's recommendations for proposed landscape planting are adopted) (1 credit mandatory for an Excellent BREEAM rating).
- LE 04 - Enhancing site ecology
  One out of two credits to be awarded (where the ecologist's recommendations are adopted).
- LE 05 - Long Term Impact on Biodiversity
  Two out of two credits to be awarded (where the contractor adopts at least 4 of the additional criteria under LE 05).

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Introduction
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Introduction

A Phase 1 habitat survey and protected species risk assessment was undertaken at the site for the proposed KOKO development to review the existing ecology. Results of these surveys are presented within this report to inform the ecological enhancement of the site post development and to enable Land Use and Ecology credit allocation within a BREEAM 2014 New Construction assessment. The report provides information on the following topics: the ecologist qualifications, legislative context and local biodiversity policy, Phase 1 habitat survey methodology, assessment against BREEAM 2014 New Construction ecology credits, conclusions and recommendations and a schedule of evidence including a site habitat map and photographs.

The ecologist qualifications are provided to demonstrate compliance with the BREEAM criteria and confirm that the ecologist is a 'Suitably Qualified Ecologist' as defined by the BRE.

The legislative context and local biodiversity policy section provides information on the national legislation in relation to wildlife and protected species and the biodiversity policy requirements of the London Borough of Camden.

The Phase 1 habitat survey methodology section details how the survey was conducted and the guidelines that were followed. The results of the survey are presented in the BREEAM 2014 New Construction ecology credit assessment section.

The BREEAM 2014 New Construction Ecology credit assessment section details the BREEAM guidelines for each applicable credit (LE 02 – LE 05) and demonstrates compliance using information gathered at the site visit and through undertaking the Phase 1 habitat survey. The BREEAM New Construction ecology assessment credits cover the following aspects: protection of ecological features, enhancing site ecology and long-term impact on biodiversity.

The report is concluded and recommendations are made to mitigate any impact from the development and ensure that site is enhanced for wildlife and a gain for biodiversity.

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Contact Details
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Ecologist's Details	
Company Name	Eight Associates
Company Address	57a Great Suffolk Street, London, SE1 0BB
Contact Name	Rachel Crookes
Contact Telephone Number	020 7043 0418
Ecology Report Reference	2169 - KOKO Ecology BREEAM report - 1710-23rc.docx

Developer / Client Details	
Company Name	Tower Eight
Company Address	1 Fellmongers Path, London SE1 3LY
Contact Name	Jasmeer Patti
Contact Telephone Number	020 7323 6809

Development Details	
Development Name	KOKO
Development Address	1A Camden High St, Kings Cross, London NW1 7JE

Site survey conducted and report produced by Rachel Crookes:	
Ecologist's Qualifications:	MSc - Conservation and Biodiversity BSc - Zoology
Evidence of practicing Ecologist	Eight Associates, Assistant Sustainability Consultant, conducting habitat and protected species surveys, producing reports to support planning and BREEAM (2016); carrying out habitat surveys of nature reserves and writing protected species survey guidelines for volunteers at the Chiltern Society (2015) carrying out water vole surveys, bat box inspections, bat radio tracking and mist netting with Aylesbury Vale Biodiversity department (2014)

Report verified by Stacey Cougill:	
Ecologist's Qualifications:	BSc – Environmental Science MSc – Conservation Biology UCert – Species Identification and Biological Recording
Evidence of practicing Ecologist	Eight Associates, Sustainability Consultant specialising in Ecology (2011 to present date), Open University, iSpot, Biodiversity Mentor (2009 – 2012) and Westminster City Council, Biodiversity Project Manager (2007-2010).
Professional Code of Conduct	I am a full member of the Chartered Institute of Ecology and Environmental Management.

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Legislative Context
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Wild Birds

The Wildlife & Countryside Act 1981 (as amended) is domestic legislation for Great Britain. The Act includes the UK's domestic implementation of the species protection of the European Directive on the Conservation of Wild Birds (79/409).

Under the Wildlife and Countryside Act 1981 all birds, their nests and eggs are protected by law and it is thus an offence, with certain exceptions to intentionally:

- Kill, injure or take any wild bird.
- Take, damage or destroy the nest of any wild bird while it is in use or being built.
- Take or destroy the egg of any wild bird.
- Have in one's possession or control any wild bird (dead or alive) or any part of a wild bird that has been taken in contravention of the Act or the Protection of Birds Act 1954.
- Have in one's possession or control any egg or part of an egg that has been taken in contravention to the Act. This includes items taken or killed before the passing of the Act.
- Have in one's possession or control any live bird of prey of any species in the world (with the exception of vultures and condors) unless it is registered and ringed in accordance with the Secretary of State's regulations.
- Have in one's possession or control any bird of a species occurring on Schedule 4 of the Act unless registered (and in some cases ringed) in accordance with the Secretary of State's regulations.
- Disturb any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

Bats

All species of bat are fully protected under the Conservation of Habitats and Species Regulations 2010. It is illegal to injure, kill, capture or disturb a bat. It is also illegal to damage, destroy or obstruct trees, buildings or other places used for roosting, even if bats are not present.

Most development and maintenance work affecting bats and / or roosts e.g. bridge / tree maintenance works, demolition, barn conversions etc, therefore require a Habitats Regulations License for work to take place legally.

All bat species are also protected under the Wildlife and Countryside Act 1981 (as amended). This means they are additionally protected from intentional or reckless disturbance, intentional or reckless obstruction of access to any place of shelter or protection; and/or, selling, offering or exposing for sale, possession or transporting for purpose of sale.

Local Policy
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London Borough of Camden Biodiversity Action Plan

The London Borough of Camden Biodiversity Action Plan (BAP) (2013-2018) outlines a series of actions to ensure that biodiversity is safeguarded in the borough and that people in Camden have opportunities to get involved with nature. There are 3 key areas of focus:

Access to Nature:
These actions aim to ensure that opportunities are available for Camden's residents to get involved in nature across the borough.

The Built Environment:
These actions aim to ensure Camden's built environment makes a positive contribution to biodiversity across the borough, through land management, the planning process and bespoke projects.

Open Spaces and Natural Habitats:
These actions aim to ensure that Camden's open spaces are managed to benefit wildlife across the borough.

The Built Environment Action Plan outlines the following priorities and opportunities for protecting and enhancing biodiversity:

The built environment provides significant opportunities for urban greening and enhancing biodiversity. In an urban borough such as Camden, buildings and infrastructure are dominant in the cityscape and we need to ensure they deliver environmental services for the benefit of our residents. Enhancements should provide multi-functional benefits that address issues of biodiversity, air quality, flood alleviation, climate change and access to the natural environment.

The main opportunities for providing biodiversity enhancements in the built environment are stated as:
- living roofs and walls;
- biodiversity enhancing landscaping;
- installation of artificial nesting and roosting sites;
- sustainable drainage systems (SuDS);
- trees.

The current planning policy requires that developers consider biodiversity in their proposals and contribute to an overall biodiversity enhancement. The BAP seeks to work with existing planning policy and provide further direction on what the priorities are in Camden and how enhancements can be delivered. The BAP also seeks to encourage retrofitting of biodiversity enhancements within the existing built environment.

London Borough of Camden Biodiversity Action Plan

The BAP includes the following Actions for the Built Environment, which are relevant to the assessed site at KOKO:

Actions for the Built Environment:

Living Roofs: All developments to include living roofs wherever feasible, in line with Camden Development Policy 22. 75% of living roofs should be biodiverse extensive roofs, in line with best practice and guidance from the Environment Agency.

Landscaping and Trees: All landscaping schemes to include biodiversity enhancing landscaping.

Green Corridors: Improve the 'green network' in Camden by retaining existing habitat corridors and securing biodiversity improvements along gaps in habitat corridors, as per the Core Strategy Policy CS15 and reflects the All London Green Grid.

SuDs: Provide input into briefs for Camden Council flood alleviation scheme designs to ensure all biodiversity opportunities taken.

Protected and / or priority bat and bird species in Camden that are relevant to the assessed development include the following:

Group / taxon	Protected and / or Priority Species
Bats	Nathusius's Pipistrelle *Pipistrellus nathusii* Common Pipistrelle *Pipistrellus pipistrellus* Soprano Pipistrelle *Pipistrellus pygmaeus*
Birds	Song Thrush *Turdus philomelos* Common Starling *Sturnus vulgaris* House Sparrow *Passer domesticus* Common Linnet *Carduelis cannabina* Brambling *Fringilla montifringilla* Sky Lark *Alauda arvensis* Common Bullfinch *Pyrrhula pyrrhula* Hawfinch *Coccothraustes coccothraustes* Eurasian Tree Sparrow *Passer montanus*

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Phase 1 Habitat Survey Methodology

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Phase 1 Habitat Survey

A survey was carried out to assess the ecology of the site on 1st August 2017, conducted by Rachel Crookes, an experienced ecologist. The survey provided an Initial Site Survey (Phase 1 Habitat survey), which involved the identification of habitat types present. A protected species risk assessment was also undertaken on site, which included an inspection of existing building facades and roof for features that could be used by roosting bats or nesting birds.

The site consists of a single building comprised of a theatre/concert venue, office and a public house. The extent of the assessed development site is shown on the 'existing site boundary plan', contained within the Appendix of this report. The project consists of the reinstatement of the Hope and Anchor Public House at ground and first floor levels, with a new Private Members' Club at first, second and third floor levels. The works at second and third floor, and at roof level will include some new building infill.

The survey was carried out prior to any works being done at the site. The time of year was optimal for Phase 1 habitat surveys. The survey represents the site's existing ecology prior to the commencement of initial site preparation works, i.e. before RIBA stage 5 Construction (previously RIBA stage K, Construction to Practical Completion), and after RIBA stage 1 Preparation and Brief (previously RIBA stage B, Design Brief). This report has been produced at detailed design stage, which has allowed the facilitation and maximisation of potential ecological enhancement on site.

The site survey was based upon the standard Phase 1 survey methodology (JNCC, 2010). An inventory of habitats present on site was recorded and mapped. The site was also checked for the presence of invasive plant species as defined by Schedule 9 of the Wildlife and Countryside Act, 1981, as amended.

A Phase 1 Habitat map (contained within the Appendix) shows the habitats present at the site survey and photographs illustrate the key habitat features within the site.

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Survey Results
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Site description

The site is located in central London within a densely built up urban environment, bounded to neighbouring building and Bayham Place to the north, Bayham Street to the east, Crowndale Road to the south and a paved public area to the west. The site is situated approximately 650m west of Camley Street Nature Park, a statutory site that contains habitat for birds, butterflies, amphibians and a rich variety of plant life. No non-statutory sites are present within 1km of the site.

The site encompasses a single building consisting of a theatre/concert venue, office and a public house. There are scattered patches of ruderal plants on the roof and walls of the building, and some introduced planting on the west-facing terrace.

Please refer to the Appendix 1 for a red line boundary plan of the development site, the existing site plan and the Phase 1 habitat map showing existing habitats on site.

Building

The building is a large complex consisting of a theatre/concert venue, office and a public house; the Grade II listed four-storey theatre takes up the majority of the building at the western end of the building makes up the majority of the building. This area has felted, flat roofs on varying levels around a copper ornamental dome. All of the external features were examined, and no cracks or crevices were seen that could be used by roosting bats. Pigeon deterrents in the form of CDs and plastic birds of prey were seen.

The mid-section is a three/four storey brick building, with various intact flat and sloping roofs lined with felt. There is also a pitched, mansard roof of slate tiles with a dormer on the eastern side. These slate tiles are in good condition, with no broken tiles or cracks that would allow bats to access the internal space. At the eastern end of the building is a flat roofed public house office, with similar surf. No gaps, holes or cracks were observed within these areas that could be used by roosting bats.

Parapet walls surround most of the flat roof structures and these are intact without cracks or missing mortar. The plant units and ducts that run across the roof also provide no opportunities for roosting bats. All of the internal loft spaces are occupied and in use, making them unsuitable for roosting bats.

Ruderal plants including buddleja *Buddleja davidii*, male fern *Dryopteris filix-mas* and nettle *Urtica dioica* are scattered across the site on the roofs, walls and base of the building. These small areas of weeds afford little ecological value.

Introduced Planting

The roof terrace to the west of the building has five planters. These planters contained exotic species including bamboo *Bambusoideae sp.* and agave *Agave sp.* These plants have little value to wildlife, due to their lack of flowers and fruiting bodies.

Fauna

A number of feral pigeons *Columba livia domestica* were seen on the building – these birds did not seem to be nesting on the roof.

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Site Evaluation and Compliance with Legislation

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Site Evaluation

No features of ecological value were observed within and surrounding the site boundary area during the survey.

The existing building provided no ecological value, with only a few scattered ruderal plants present on the gaps in the walls and on the roof that have little benefit to wildlife in the area. The existing building's walls and roofs were inspected for protected species and were found to contain no features considered to be suitable for bats to enter and roost in. No habitat suitable for nesting birds was present. No other habitats for protected species were observed on site.

Please see the Appendix for the Phase 1 Habitat Map showing existing habitats on site.

Compliance with EU and UK legislation

Roosting Bats:

The facades of the existing building on site were inspected for signs of bats / bat roost presence, including likely ingress points for roosting bats. No features were observed which were considered to have potential for roosting bats. No further surveys have been recommended.

As outlined in the 'Local Policy and Legislative Context' section of this report, all UK species of bat are fully protected under the Conservation of Habitats and Species Regulations 2010. It is illegal to injure, kill, capture or disturb a bat. It is also illegal to damage, destroy or obstruct trees, buildings or other places used for roosting, even if bats are not present.

In the unlikely event that a bat is observed during site preparation and construction at the site, all work affecting the bats should stop and an ecologist should be contacted for mitigation advice.

Nesting Birds:

There were no nesting birds observed during the site survey and the site was considered not to have habitat suitable for nesting birds.

In the unlikely event that a nest is found during site preparation and construction at the site, all work affecting the nest should stop and an ecologist should be contacted for mitigation advice. Works affecting the nest should not start again until the young have fledged.

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BREEAM 2014 Ecology Credit Assessment

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Introduction

The BREEAM 2014 Land Use and Ecology criteria have been reviewed. Advice and recommendations have been provided in regard to the following: protection of the features, enhancing site ecology and long-term impact on biodiversity.

The site assessment, including the results from the Phase 1 habitat survey and the commitment to carry out further protected species surveys have provided evidence to inform BREEAM compliance. The current BREEAM credits can be summarised as follows:

The current BREEAM credits can be summarised as follows:

- LE 02 - Ecological value of land and protection of ecological features
  Two out of two credits to be awarded
- LE 03 - Mitigating impact on existing site ecology
  Two out of two credits to be awarded (where the ecologist's recommendations for proposed landscape planting are adopted) (1 credit mandatory for an Excellent BREEAM rating).
- LE 04 - Enhancing site ecology
  One out of two credits to be awarded (where the ecologist's recommendations are adopted).
- LE 05 - Long Term Impact on Biodiversity
  Two out of two credits to be awarded (where the contractor adopts at least 4 of the additional criteria under LE 05).

BREEAM 2014 Ecology Credit Assessment

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LE 02 Ecological value of land and protection of ecological features

Ecological value of land

The land within the 'construction zone' is deemed by the suitably qualified ecologist to be of low ecological value.

One statutory site and no non-statutory sites are located within 1km of the site, which will not be affected by the works. The site is entirely dominated by the building containing the theatre, offices and public house This building is generally in good condition and does not provide ingress points that bats could use to roost in. No further surveys have been recommended.

Two small planters are located on the southern site boundary, and ruderal plants are scattered across the site - these plants cover a small area, and are considered not to have any significant ecological value.

Recommendations for mitigation and enhancement are provided within section LE 04.

At the time of survey there were no features of ecological value within the construction zone of the proposed development, therefore ***one out of one available credit can be awarded****.*

Protection of Ecological Features

The site has been deemed to be of low ecological value. No features of ecological value were observed within and surrounding the site boundary area during the site survey.

As there are no features of ecological value within the site, this credit for protection for ecological features, can be awarded by default.

One out of one available credit can be awarded.

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LE 03 Mitigating ecological impacts

Change in ecological value before and after development

If there is a minimal change to the ecological value (less than zero but greater than or equal to minus 9) then one credit may be targeted. If there is no negative change to the ecological value (equal to or greater than zero) two credits may be targeted.

Broad Habitat Type	Plant Species Richness per broad habitat type	Pre-development Area of Plot (m^2)	Post-development Area of Plot (m^2)
Buildings	0	1577	1535.36
Ruderal plants	5	6	0
Terrace planting (before)	2	5	0
Terrace planting (after)	5	0	7.56
Green roof	24	0	45.08
Total Site Area (m^2)		1588	1588
Ecological Value (area weighted plant species)		0.04	0.71
Change in Ecological Value	**0.67**		

Using the BREEAM LE 03 / LE 04 calculator, the area weighted ecological value of the site before development is **0.04**. This is based on the species present in the planters and the ruderal plants.

The post-development site will contain an area of biodiverse green roof and some terrace planting. This change to the site ecology, using the LE 03 / LE 04 calculator, this would result in a post development ecological value of **0.71** (area weighted plant species). This would result in a change in ecological value of **0.67** area weighted plant species, which equates to the maximum two credits under LE 03 (for no negative change in ecological value).

Two out of two available credits could be awarded *for LE 03 - where the above proposals for planting and species diversity are installed.*

BREEAM 2014 Ecology Credit Assessment

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LE 04 Enhancing Site Ecology

Key recommendations for enhancing site ecology

In order to gain one credit for LE 04, recommendations for the enhancement of the site's ecology, provided by the suitably qualified ecologist, will need to be adopted.

These recommendations cover the creation of new habitats of value to wildlife and are outlined with the 'BREEAM Recommendations' section (Page 17). All of the recommendations contained within this section must be adopted in full to secure this credit.

Gaining a further credit under LE 04 is dependent on the change in ecological value that is achieved as a result of the proposed landscaping plans. To gain a second credit under LE 04 BREEAM New Construction it is required that an increase in ecological value of greater than 6 area weighted plant species will be achieved, calculated using the BREEAM calculator.

As outlined under LE 03, the inclusion of the proposed planting will mitigate the loss of any site ecology occurring as a result of the new development (with a change in value post development of **0.67** area weighted plant species).

One out of two available credits could be awarded *for LE 04 - where the ecologist's recommendation for ecological enhancement,* outlined with the 'BREEAM Recommendations' section below, *are installed.*

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BREEAM 2014 Ecology Credit Assessment

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LE 05 Long Term Impact on Biodiversity

Appointment	This report confirms that a Suitably Qualified Ecologist has been appointed before the commencement of site works. The proposals for planting post development, outlined under the LE 04 credit section and recommendations for ecological enhancement contained within this report, will provide a positive change in the ecological value of the site.
EU and UK legislation relating to protection and enhancement of ecology	A review of the Government site Magic and the Camden Biodiversity Action Plan was carried out to gather existing data on designated sites, habitats and protected species / species of conservation concern around the development site. The relevant national, regional and local wildlife legislation was reviewed. From these resources, any protected or notable habitats or species that may be present within the site and/or in the immediate area that could be impacted by the current development proposal have been identified. No statutory or non-statutory sites will be affected by the development. During the site survey no species were observed that are listed in any UK or EU legislation as rare/notable/protected/priority species. The facades of the existing building on site were inspected for signs of nesting birds and bat / bat roost presence, including likely ingress points for roosting bats. No such features were seen, and no further surveys have been recommended.
Landscape/site ecology management plan covering at least the first five years after project completion	A management plan has been produced which contains the following: i. Management of any protected features on site ii. Management of any new, existing, or enhanced habitats iii. A reference to the current or future site level Biodiversity Action Plan The client has been provided with the following information: i. Scope of management plan ii. Key responsibilities, and with whom these responsibilities lie, e.g. owner, landlord, occupier *Two credits are targeted* These credits are available where the Additional Criteria are carried out. These include the following: A 'Biodiversity Champion' is nominated, the principal contractor instructs the site workforce (through specific training) on how to protect the site, the principal contractor records actions taken to protect biodiversity and makes them publicly available, if requested.

BREEAM 2014 Ecology Credit Assessment

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LE 05 Long Term Impact on Biodiversity (continued)

Has the client / developer required you, as part of your responsibilities, to provide recommendations and advice to minimise detrimental impacts on site biodiversity	Yes - The site has a low ecological value, as it consists of hard standing, scattered ruderal pants and five small planters deemed to be of negligible ecological value. The site is considered to have low potential to support roosting bats and birds. No further protected species surveys have been recommended.
Do your responsibilities to the client / developer include providing advice and recommendations for the protection of ecological features?	
Do your responsibilities to the client / developer include providing advice on the creation of a new ecologically valuable habitat, which is appropriate to the local area and is either nationally, regionally, or locally important, or supports nationally, regionally, or locally important biodiversity?	Yes - The Camden Biodiversity Action Plan has been consulted and recommendations have been made in line with priority species to ensure that improvements are made to benefit wildlife in the local area.
Do your responsibilities to the client / developer include providing advice and recommendations on when site works are to be avoided so as to minimise the disturbance to wildlife?	Yes – It is unlikely that works will impact upon or disturb wildlife due to the limited nature of the site wildlife potential. If bats are found on site, all work should cease until Natural England have been consulted for further advice and all recommendations should be adopted. If nesting birds are discovered on site during demolition or construction, works must cease until the young have fledged.

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Recommendations for Ecological Enhancement
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Recommendations for Ecological Enhancement

Adoption of the ecological recommendations provided by the suitably qualified ecologist, listed below, will be required to gain two credits for LE 04. All of the recommendations must be adopted in full to secure this credit. These recommendations have been developed to fall in line with the proposals for the new development, whilst mitigating any loss to site ecology as a result of the new development and providing an enhancement for local biodiversity.

The Camden Biodiversity Action Plan has also been considered. This has ensured that adoption of the recommendations will result in an enhancement in ecology for the site that is in line with the aims and objectives of local biodiversity policy and makes a positive contribution to biodiversity within Camden's built environment.

Adoption of the following recommendations will ensure that the proposed development provides an enhancement for biodiversity, which contributes to the local BAP and benefits both national and local priority species, known to be present within the local area.

Recommendations include:

- A biodiverse green roof with a wildflower meadow
- Native planting, or planting that will otherwise benefit wildlife
- Installation of a deadwood loggery on the green roof

Full details of the recommendations are contained below:

Biodiverse green roof

One of the Camden Biodiversity Action Plan Actions is for developments to include green roofs wherever feasible. As per the architect's proposed areas for planting, an area of biodiverse green roof is available. The green roof should be planted with at least 24 different species of plants.

The green roof is planned to consist of a lightweight pre-grown wildflower blanket with wildflowers and herbs selected to provide a viable and vibrant plant community. In order to maximise the biodiversity and benefit to local wildlife the living roof should be planted with a diversity of native plant species or species with a benefit to wildlife. A growing substrate depth of no less than 100mm is recommended. Although some maintenance will be required (to be detailed in the five year management plan), the wildflower blanket can also be allowed to be colonised with the areas local flora that self-set on the site.

The blanket should ideally have varied substrate depth and areas of rocks and sand to increase habitat for invertebrates, which will in turn provide foraging opportunity for birds. Mounds and ridges can provide varying microclimates suitable for different species and create structurally diverse vegetation. In addition, stones and mounds of cleaned bricks can provide insect and spider habitat.

The green roof will need to be maintained regularly to ensure its biodiversity potential is achieved and maintained. Details of a management regime will be provided in a landscape and management plan.

Recommendations for Ecological Enhancement
BREEAM Ecology Report
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Native plants

Where new planting is installed, for example on the terraces, this should include native species or species of benefit to wildlife.

Planting should include a diverse mix of species, including a variety of fruiting and flowering species, grasses and herbaceous plants to provide a nectar source and overwintering habitat for invertebrates and in turn a foraging habitat for birds. The planting should be biased towards (and preferably exclusively) wildlife-friendly species, such as the following:

Native species appropriate for this use include: Beech (*Fagus sylvatica)*, Box (*Buxus sempervirens*) Lavender (*Lavendula angustifolia*), Hazel (*Caryluss avellana*), Common dogwood (*Cornus sanguinea*), Wild privet (*Ligustrum vulgare*), Holly (*Ilex aquifolium*), Blackthorn (*Prunus spinosa*), Ivy (*Hedera helix),* Hawthorn (*Crataegus monogyna*), Guelder rose (*Viburnum opulus*), Honeysuckle (*Lonicera periclymenum*), Dog rose (*Rosa canina*), Heather (*Calluna vulgaris*), Viper's burgloss (*Echium vulgare*), Primrose (*Primula vulgaris*), Daffodil (*Narcissus pseudonarcissus*), Wood anemone (*Anemone nemorosa*).

Night scented plants may also be beneficial to attract insects and in turn bats. Species such as evening-primrose (*Oenathera biennis*), night-scented stock (*Mattiola bicornia*), lemon balm (*Melissa officinalis*), borage (*Borago officinalis*), may be appropriate for this purpose.

Deadwood loggery

The addition of a deadwood loggery can provide an important egg laying and larval habitat for invertebrates, increasing the variety of invertebrates that the area can sustain and providing food for birds and bats.

It is therefore recommended that a deadwood loggery be installed in an area of the green roof. This should be in a shaded location where possible, for example near a corner wall. Hardwoods such as oak, beech, sycamore or ash are recommended with bark still attached and should be maintained to promote a range of invertebrate species. These should be piled up and left to decay naturally.

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Conclusions
BREEAM Ecology Report
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Conclusions

A site survey was undertaken at the KOKO, Camden to review the ecology of the site and undertake a Phase 1 habitat survey to inform planning purposes and Ecology credit allocation within a BREEAM 2014 New Construction assessment. The site was found to be of low ecological value, and no further surveys have been recommended. The Camden Local Policy, compliance with EU & UK legislation for protected species is also discussed.

The BREEAM 2014 Assessment against ecology credits section details the BREEAM guidelines for each credit (New Construction: LE 02 – LE 05) and demonstrates compliance using information gathered at the site visit to cover ecological value of land and protection of ecological features, mitigating ecological impact, enhancing site ecology and provides long-term impact on biodiversity.

Recommendations have been made to mitigate any impact from the development and ensure that site is enhanced for wildlife and a gain for biodiversity in line with national and local policy and to enable compliance with BREEAM.

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Signature of Validation & Document References

BREEAM Ecology Report

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Validation	
I confirm the information provided in this document is truthful and accurate at the time of completion.	
KOKO –Suitably Qualified Ecologist	Stacey Cougill
Signature of Ecologist	
Date	14/08/2017

Document	Reference
Photos taken by Rachel Crookes during the site survey	1st August 2017
KOKO – Site Boundary	Existing Site Plan – AHA/KKC/EX/001 - Archer Humphreys Architects
KOKO – Phase 1 Habitat map	Created by Rachel Crookes. Base Plan source: Existing Site Plan – AHA/KKC/EX/001 - Archer Humphreys Architects
Proposed green roof areas	Proposed Green Roof details – AHA/KKC/DET/564 – Archer Humphreys Architects

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Appendix
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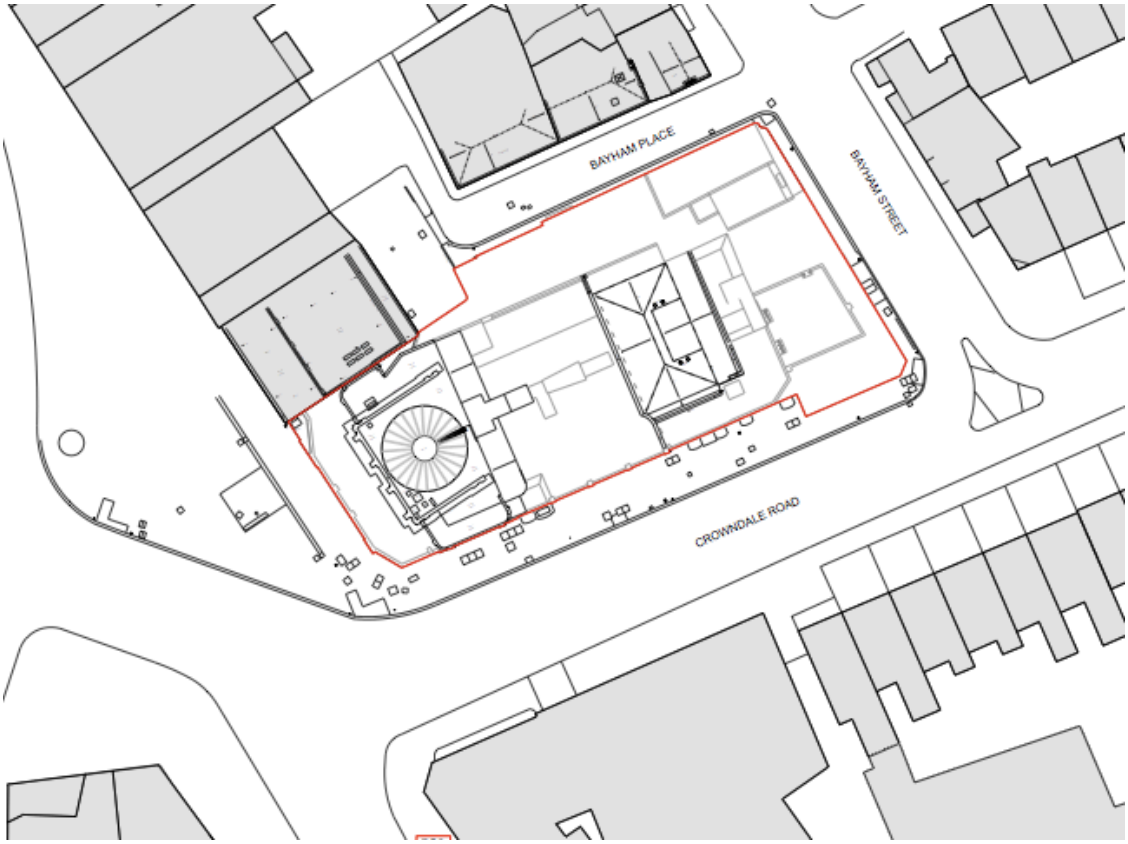
KOKO –Site location



Appendix
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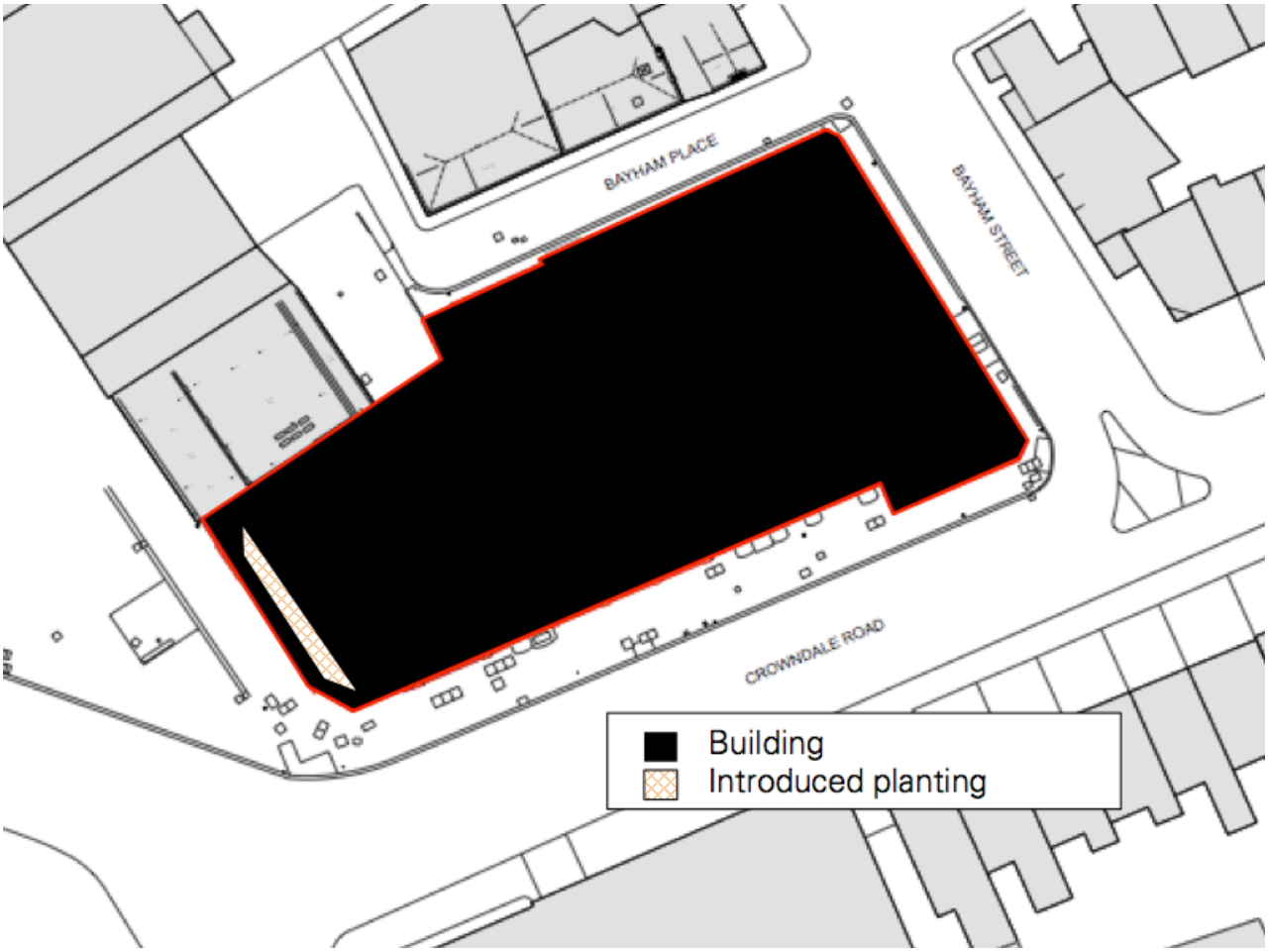
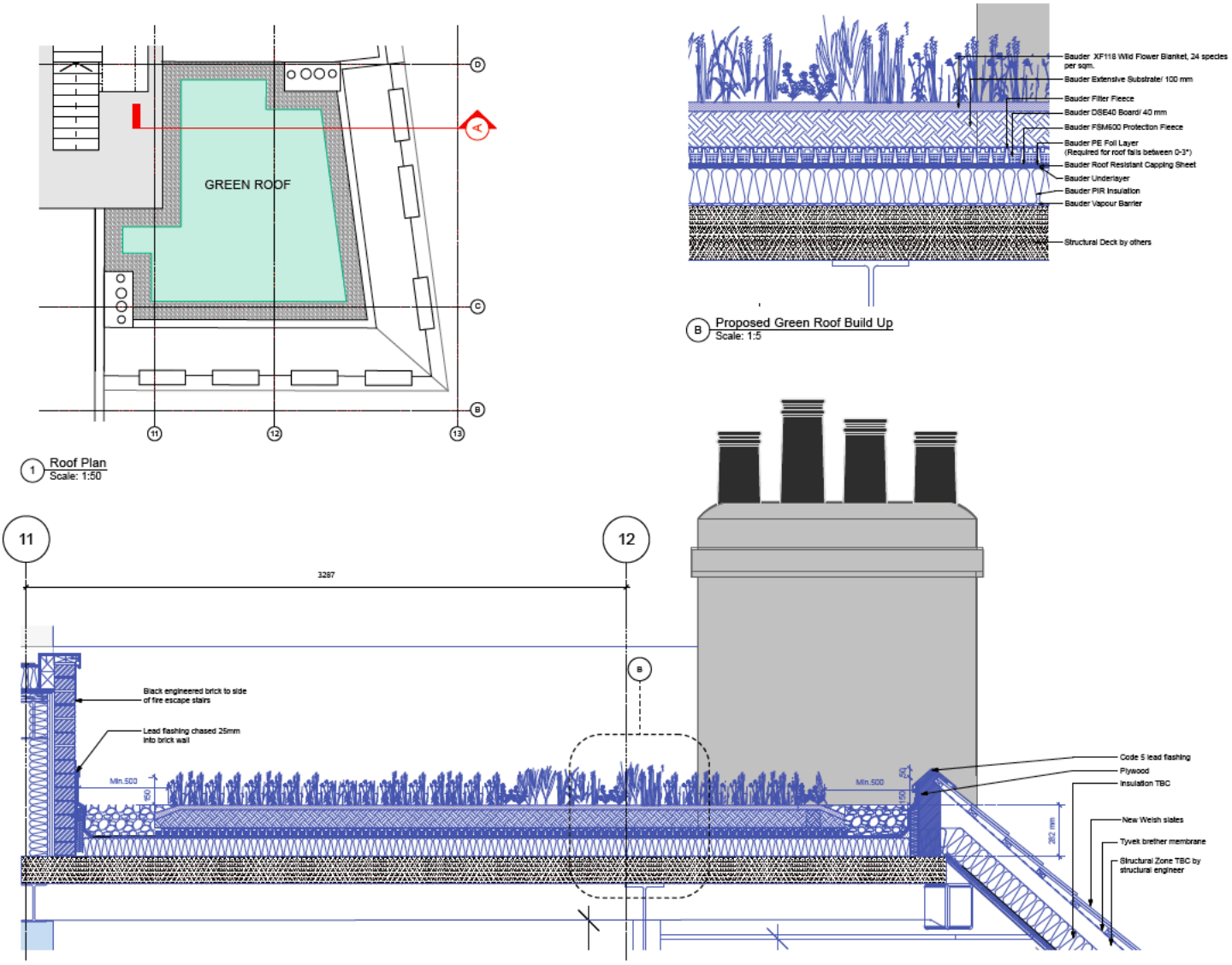
KOKO

KOKO – Phase 1 Habitat Map



Appendix
BREEAM Ecology Report
KOKO

KOKO – Proposed green roof



Appendix
BREEAM Ecology Report
KOKO

Table 1. Plant Species List for the KOKO development, compiled from the habitat survey carried out on the 1st August 2017:

Abundance was estimated using the DAFOR scale as follows: D = dominant, A = abundant, F = frequent, O = occasional, R = rare. All of the plants were found in hardstanding habitat.

Scientific name	Common name	DAFOR
Agave	*Agave sp.*	R
Bamboo	*Bambusoideae sp.*	R
Birch	*Betula sp.*	R
Buddleja	*Buddleja davidii*	O
Fleabane	*Conyza sp.*	R
Grass	*Poa annua*	R
Herb robert	*Geranium robertianum*	R
Ivy-leafed toadflax	*Cymbalaria muralis*	R
Male fern	*Dryopteris filix-mas*	O
Nettle	*Urtica dioica*	R