Greengage

Ambassadors Theatre Montagu Evans
Ecology Survey Report (BREEAM Compliant), May 2016

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Ambassadors Theatre – Ecology Survey Report (BREEAM Compliant)

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1.0 EXECUTIVE SUMMARY

1.1 Greengage Environmental Ltd were commissioned by Montagu Evans to undertake an Ecology Survey at the Ambassadors Theatre in London Borough of Camden (hereafter 'LB Camden'), in order to establish the ecological value of the site and its potential to support notable and/or legally protected species. This report has been produced in support of proposals which seek which seek to redevelop the theatre.

1.2 Also provided within the report is an assessment of the achievable BREEAM Ecology credits which includes recommendations for enhancing site ecology.

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

1.4 The existing site entirely comprises the grade II listed Ambassadors Theatre which is arranged over three-storeys and two basement levels. The building is abutted by buildings to the northwest and northeast with frontages on West Street and Tower Crescent to the southwest and southeast respectively.

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

- Has negligible potential for badgers;
- Has negligible potential for great crested newts;
- Has negligible potential for roosting bats;
- Has negligible potential for foraging bats;
- Has negligible potential for reptiles;
- Has negligible potential for dormice;
- Has negligible potential for water voles;
- Has negligible potential for otters;
- Has negligible potential for invertebrates; and
- Has negligible potential for nesting birds.

1.6 The potential for all protected species to be on-site was considered negligible and there are therefore no ecological constraints over the proposals. Furthermore, the scale and nature of the proposals will not give rise to any negative impacts upon designated sites for nature conservation.

1.7 If the proposed ecological enhancements are incorporated then the proposal 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.

1.8 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.

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

- The site has low ecological value therefore:
  - 2 credits can be recommended for LE 02 '*Ecological Value of the Site*' and '*Protection of Ecological Features'*.
- The development proposals will not result in a net negative change in ecological value at the site therefore:
  - 2 credits can be recommended for LE 03 '*Minimising Impact on Existing Site Ecology'*.
- Ecological enhancements have been proposed for the site and upon confirmation that these will be adopted the following credits can be awarded:
  - 1 credit for LE 04 '*Enhancing Site Ecology'*.
- 2 credits can be awarded for LE 05 the '*Long Term Impact on Biodiversity'*.

1.10 Therefore, following written commitment where necessary, it is recommended to award the proposed development 7 credits at this stage with regards to *BREEAM New Construction 2014: Land Use and Ecology*.

1.11 To allow the credits to be awarded, an SQE should return to the site on practical completion to confirm that all enhancement recommendations have been incorporated.

2.0 INTRODUCTION TO PROJECT

2.1 The application proposes a new dedicated theatrical transfer house to accommodate productions that have come to the end of their run in the subsidised sector. The proposed theatre will provide the opportunity for subsidised productions that would not otherwise have the opportunity to transfer to the West End.

2.2 It is currently very difficult for successful subsidised productions to transfer to the West End because the internal arrangement of most West End theatres differs substantially from more modern arrangements of the subsidised sector. The vast majority of West End theatres have traditional 'proscenium arch' stages whilst most originating theatres in the subsidised sector have more modern arrangements, such as thrust stages or are arranged 'in the round'. This means that a transfer has to be restaged, often at huge cost to the originating subsidised theatre and eroding the original artistic intention of the director, to the detriment of the audience experience.

2.3 There are currently no dedicated theatres in the West End to which productions arising in the subsidised theatre sector can transfer in the event of critical acclaim or audience demand. Typically, publically subsidised productions are pre-programmed in advance at the originating playhouses and run for a period of 6-8 weeks only. The proposed new theatre would provide an opportunity for successful subsidised shows to transfer to the West End for a further 8-16 weeks.

2.4 This increased run would provide the subsidised sector with an opportunity to increase revenue at a time of consistently squeezed funding pressures and cuts. It will also diversify the offer for theatre goers and open up a range of quality productions to be viewed as originally intended, enhancing the range and quality of productions and cementing London's status as a world cultural capital in theatre.

2.5 Such is the shortage of space in the West End that very many successful subsidised productions are simply never seen again after their original run. Others, due to the physical difficulties of restaging in a proscenium setting simply have no prospect of transfer at all, even if a space in the West End were available.

2.6 In order to create a modern and flexible internal arrangement, it is proposed that much of the building is demolished and rebuilt behind the retained West Street façade and the stucco return onto Tower Court. Historically significant elements of plasterwork are to be relocated within the new theatre.

2.7 The proposed theatre will then provide a much needed resource for the transfer of productions from the subsidised sector. In turn, the subsidised sector will be able to secure a longer run for critically acclaimed productions that would otherwise close for good, frustrating a large unmet demand from the audience. Thus, the cultural life of the West End will be enhanced along with the audience's opportunity to see good quality subsidised productions for a longer period of time. In their turn, the subsidised sector

will realise the opportunity to increase their revenue in an environment of constantly reduced funding.

2.8 The proposals have attracted wide ranging support from within the industry. Nicholas Hytner (former Artistic Director of the National Theatre) summarised the situation as:

"Over recent years, a large number of the most successful and ambitious productions in the subsidised theatre sector have been unable to find a venue for further life, leaving a significant potential audience without an opportunity to see work it would like to see. Very often this work would not justify the risks involved in a transfer to a large West End theatre. Cameron Mackintosh's plans for his new 450 seat theatre would greatly increase the chances of a future life for successful productions form theatres like the Dorfman, the Almeida, the Royal Court and the Donmar as well as offering a suitable venue for regional transfers."

2.9 Full details of the need for a dedicated transfer house and how the proposed theatre meets that need is set out in the Design and Access Statement and Planning and Heritage Statement that accompany this application.

3.0 BACKGROUND TO SURVEY

3.1 Greengage were commissioned to undertake an Ecology Survey by Montagu Evans, at the Ambassadors Theatre, in order to establish the ecological value of the site and its potential to support notable and/or legally protected species.

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

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

3.3 The site-specific consultation provided the ecological context for the Ecology Survey carried out in July 2015. Site photographs are shown in Appendix 1.0.

3.4 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.

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

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

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

4.0 SITE DESCRIPTION

4.1 The assessment site covers an area of approximately 0.04 hectares (ha) and is centred on National Grid Reference TQ299810 / TQ2999881002, OS Co-ordinates 529998, 181002.

4.2 The existing site entirely comprises the grade II listed Ambassadors Theatre which is arranged over three-storeys and two basement levels. The building is abutted by buildings to the northwest and northeast with frontages on West Street and Tower Crescent to the southwest and southeast respectively. The roof of the building is largely flat and split across two levels. Directly over the main theatre space is a triangular section of roof although this has no void and is largely comprised of glass.

4.3 The Ambassadors Theatre is located in highly urbanised environment of London's West End. The closest Underground station is Leicester Square, 150m to the south. Green space in the vicinity of the site is generally restricted to street trees and formalised landscaping associated with local office buildings.

PROPOSED DEVELOPMENT

4.4 The proposals seek for the construction of a new theatre behind the retained Grade II listed façade. The new theatre will comprise 2,287sqm of floor space over four storeys with an enlarged lower basement.

5.0 METHODOLOGY

DESK TOP REVIEW

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

CONSULTATION

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

ON SITE SURVEY

Flora

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

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

Fauna – Protected Species

5.5 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.

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

- Negligible - While presence cannot be absolutely discounted, the site includes very limited or poor quality habitat for a particular species. The site may also be outside the known national range for a species;
- Low - On-site habitat is poor to moderate quality for a given species, with few or no information about their presence from desk top study. However, presence

cannot be discounted due to the national distribution of the species or the nature of on-site and surrounding habitats;

- Moderate - The on-site habitats are of moderate quality, providing most or all of the key requirements for a species. Several factors may limit the likelihood of occurrence, habitat severance, habitat disturbance and small habitat area;
- High - On-site habitat of high quality for given species. Site is within a regional or national stronghold for that particular species with good quality surroundings and good connectivity; and
- Present - Presence confirmed for the survey itself or recent, confirmed records from information gathered through desk top study.

5.7 The species surveyed for included:

Badger (Meles meles)

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

Great Crested Newt (Triturus cristatus)

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

Bat species (Chiroptera)

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

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

5.11 Definite signs of bat activity were taken to be:

- The bats themselves;

- Droppings;
- Grease marks;
- Scratch marks; and
- Urine spatter.

5.12 Signs of possible bat presence were taken to be:

- Stains; and
- Moth and butterfly wings.

5.13 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.

5.14 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.

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

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

Reptiles

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

Dormouse (Muscardinus avellanarius)

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

Water vole (Arvicola terrestris)

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

Otter (Lutra lutra)

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

Birds

5.21 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.

5.22 The Pre-application Report specifically identified the potential for house sparrow to be nesting on-site. Therefore as part of the Ecology Survey a detailed assessment was undertaken to determine the house sparrow nesting potential. Whilst house sparrow generally nest from April to August, nesting has been observed year round. The assessment therefore involved a ground level observation of the building with the use of binoculars to record any potential nesting activity. In addition, any accessible areas of the roof were be surveyed to identify any evidence of nesting.

Notable Invertebrates

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

Other Fauna

Biodiversity Action Plan priority species

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

6.0 BASELINE CONDITIONS

DESKTOP REVIEW

Designations

6.1 Consultations with the local environmental records centre (GiGL), the Multi-Agency Geographic Information for the Countryside (MAGIC) dataset and online resources with information on non-statutory designated sites have identified no statutorily protected

Local Nature Reserves (LNRs) and 31 non-statutorily protected Sites of Importance for Nature Conservation (SINCs) within 2km of the assessment site boundary.

6.2 Several of the key SINCs are described below:

Table 6.1 Details of SINCs located close to the site

Site Name	Designation and Location	Description
Phoenix Garden	SINC 150m to the north	Community garden in the heart of the west end. There is an open meadow area, rockery and pond. The pond has a diverse range of vegetation around its edges. The site is supports small bird species including tits and finches.
Lincoln Inn Fields	SINC 500m to the northeast	The largest of the London squares it is famous for its many specimens of London plane (*Platanus* x *hispanica*). Extensive shrubberies line the perimeter. The trees and shrubs provide nesting opportunities for common birds, including blackbird, song thrush, magpie and blue tit.
Victoria Embankment Gardens: Main Gardens	SINC 500m to the southeast	Heavily used public park that includes extensive areas of shrubbery and scattered trees. These areas of vegetation provides opportunities for numerous common birds including dunnock, carrion crow, robin, woodpigeon, blue tit and starling. There are also two ponds on the site, one of which supports carp and stickleback.
Victoria Embankment Gardens: Whitehall Garden	SINC 800m to the southeast	Public park that adjoins the River Thames embankment hoist to the south of Hungerford Bridge. Breeding birds include dunnock, starling, blackbird and carrion crow.
St James's Square	SINC 700m to the southwest	Garden square which comprises amenity grassland, flower beds, shrubberies and scattered trees. The plant species present are largely non-native and there is little diversity within the grassland. Nonetheless the site supports a surprising range of common bird species.
Marlborough House Garden	SINC 1km to the south	South facing garden adjoining Marlborough House. Botanically its most interesting feature is the large lawn which contains an unusual abundance of low-growing wild flowers for a central London site. These plants form a tight mosaic with fine grasses such as bents (*Agrostis* spp.) and fescues (*Festuca* spp.); in some areas the wildflowers make up the majority of the turf.
Russell Square	SINC 1km to the north	One of the largest squares in central London, containing many mature trees. These are mostly London planes which are situated chiefly at the perimeter.
Gordon Square	SINC 1.2km to the north	Small but well-used square with numerous London planes. The squares edges have dense shrubberies, featuring mostly non-native species. Breeding birds include wren, robin, blackbird, blue tit, mistle and song thrush.

UK Post-2010 Biodiversity Framework and Biodiversity Action Plans

6.3 The Natural Environment and Rural Communities (NERC) Act 2006 states that every public authority must, in exercising its functions, have regard, so far as is consistent

with the proper exercise of those functions, to the purpose of conserving biodiversity. Biodiversity Action Plans (BAPs) provide a framework for prioritising conservation actions for biodiversity.

6.4 As a response to the 1992 Convention for Biological Diversity UK BAPs were developed which set priorities for nationally important habitats and species. To support the BAPs, Species and Habitat Statements/Action Plans (SAPs and HAPs) and priority species and habitat lists 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.

6.5 Section 41 of the NERC Act requires the Secretary of State to publish a list of species of flora and fauna and habitats considered to be of principal importance for the purpose of conserving biodiversity. The list, a result of the most comprehensive analysis ever undertaken in the UK, currently contains 1,149 species and 65 habitats that were listed as priorities for conservation action under the now defunct UK Biodiversity Action Plan (UK BAP). Despite the devolution of the UK BAP and succession of the UK Post-2010 Biodiversity Framework (and Biodiversity 2020 strategy in England), as a response to the Convention on Biological Diversity's (CBD's) Strategic Plan for Biodiversity 2011-2020 and EU Biodiversity Strategy (EUBS) , this list (now referred to as the list of Species and Habitats of Principal Importance in England) will be used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 41 of the NERC Act 2006 'to have regard' to the conservation of biodiversity in England, when carrying out their normal functions.

6.6 The original targets of the UK BAP therefore live on in this list of Species and Habitats of Principal Importance, as well as in Local Biodiversity Action Plans.

6.7 Local BAPs ensure that national action plans are translated into effective action at the local level, and establish targets and actions for locally characteristic species and

habitats. The local plans for the Ambassadors Theatre site are the Greater London Biodiversity action Plan and the Camden Biodiversity Action Plan.

Greater London Biodiversity Action Plan

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

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

Camden LBAP

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

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

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

Species Record

6.11 The information provided from the review of NBN Gateway and GiGL data search identified records of a number of protected and BAP priority species within 2km search

radius of the site. The species of relevance to the Ambassadors Theatre site, owing to the nature of habitat presence (predominately building and hardstanding), included:

- Black redstart (Phoenicurus ochruros);
- Common starling (*Sturnus vulgaris*);
- House sparrow (*Passer domesticus*);
- Song thrush (*Turdus philomelos*);
- Red-shanked Carder-bee (*Bombus ruderarius*); and
- Bats (*Plecotus* sp., *Nyctalus* sp. and *Pipistrellus* sp.).

DESCRIPTION OF SITE ECOLOGY

Detailed Description of Site: Habitats

6.12 Photographs 1-4 in 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

Badger

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

Great Crested Newt

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

Bats

Roosting

6.15 In general the roof of the building is considered unsuitable comprising various flat sections covered with plant. Directly over the main theatre space is a triangular section of roof, although this has no void and is predominately comprised of glass. An external and, where possible, internal examination of the building 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. Overall, it is considered the potential for bats roosting in the building on site surveyed is negligible.

Foraging

6.16 Foraging habitat on site and in the immediate vicinity is very limited. Opportunities for foraging are also limited in the wider area and predominately limited to small garden squares. The potential for bats to be foraging on and adjacent to the site can therefore be considered negligible.

Reptiles

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

Dormice

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

Water Voles

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

Otters

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

Invertebrates

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

Birds

6.22 External access was provided to a large section of the roof. No nesting was observed with the majority of potentially suitable nesting features protected by bird netting. Overall the potential for birds to be nesting on-site was considered negligible.

Other BAP Species

6.23 None were observed during the site walkover.

BASELINE SUMMARY

6.24 A summary of the protected species potential is given in Table 5.2 below:

Table 6.2 Baseline Summary

Receptor	Presence/Potential Presence	Comments
Badgers	Negligible	Habitat on site and locally is highly unsuitable.
Great Crested Newts	Negligible	Habitat on site and locally is highly unsuitable.
Foraging bats	Negligible	No suitable on-site habitat with foraging habitat limited in the vicinity.
Roosting bats	Negligible	No direct evidence of roosting bats. The building is well maintained with no visible potential roosting features. Furthermore, the building is located in central London and subject to high levels of disturbance.
Reptiles	Negligible	Habitat on site and locally is highly unsuitable.
Water Voles	Negligible	Habitat on site and locally is highly unsuitable.
Dormice	Negligible	Habitat on site and locally is highly unsuitable.
Otters	Negligible	Habitat on site and locally is highly unsuitable.
Invertebrates	Negligible	Lack of suitable, no suitable areas of vegetation
Birds	Negligible	No nesting birds were observed and all suitable features of the roof are covered by bird netting.

7.0 BREEAM NEW CONSTRUCTION 2014 ECOLOGY CREDIT REQUIREMENTS

7.1 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

7.2 One credit - Ecological Value of Site

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

7.3 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: 20131. and*
- *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

7.4 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'*

7.5 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

7.6 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 (see also CN4).*

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

7.7 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

7.8 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*.'

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

SUITABLY QUALIFIED ECOLOGIST

8.1 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.

8.2 Greengage include *'Suitably Qualified Ecologists'*, the necessary requirement for LE 02, ECO1 and ECO3, 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.'*

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

8.4 James, who undertook the site visit and wrote this report, has a bachelors degree in Environmental Sciences (BSc Hons) and a Masters degree in Environmental Consultancy, and is a graduate member of CIEEM.

8.5 This report was written by James Bumphrey 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

8.6 With regards to LE 02 the site is covered by buildings and hardstanding, and has negligible potential to support all protected species or habitats of ecological value.

Overall, this area is not considered to be an ecologically diverse habitat and is considered to be of low ecological value.

8.7 Consequently there is no UK wildlife legislation that is relevant to the protection of ecological features during the demolition or construction phase of the proposed development. However, in accordance with good practice, we have included key policy and legislation at Appendix 2.0 - 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 Environmental should be contacted for advice.

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

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

9.0 LE 03 - MINIMISING IMPACT ON EXISTING SITE ECOLOGY

9.1 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.

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

MINISIMING ECOLOGICAL IMPACT: AWARDING OF CREDITS

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

9.4 If the enhancements (section 9) are incorporated into the design, then the development should be awarded the 2 out of a possible 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. 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 number of plants incorporated into the scheme and reconfirm the credits under *BREEAM New Construction 2014* (LE 03 and LE 04).

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

KEY ENHANCEMENT RECOMMENDATIONS

10.1 The client has appointed Greengage the Suitably Qualified Ecologist (SQE), 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.

10.2 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.

ENHANCEMENT: BIODIVERSE ROOF

10.3 If the renovated building has the loading capacity then it is recommended that a small area of biodiverse green roof is incorporated onto one of the flat sections of roof.

Background

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

10.5 It is recommended that where possible extensive green roofs are utilised for the development. Typically green roofs on a development such as this will include a wildflower turf/blanket or a sedum blanket. Roofs comprised predominately of sedums are often favoured on lightweight green roofs as they are drought tolerant and only require a shallow substrate. Additionally, sedums provide habitat for a number of invertebrates including both spider and beetle species of national importance[9].

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

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

10.8 Brown roofs are biodiverse roofs that are not typically seeded or planted with vegetation and allowed to establish through natural colonisation. We would recommend a pre-seeded and plug planted biodiverse roof to ensure a more reliable mix of wildflowers specific to this part of London.

10.9 If the roof has the capacity to support the necessary loading weight then it is recommended that the substrate of the roof varies between 100mm and 150mm. The variation in substrate will provide a range of micro-habitats across the roof and therefore support encourage greater diversity.

Species Mix

10.10 The choice of plants in the mix below has been based on the following criteria:

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

10.11 Table 9.1 below summarises the species mix that is recommended for the biodiverse roofs, and includes further details on the wildlife benefit and growth conditions.

10.12 It is recommended that at least at least 15 of the species listed below are incorporated into the biodiverse roof at the Ambassadors Theatre site.

Table 9.1 Species Mix for Biodiverse Roof

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

Species Name	Latin Name	Height	Wildlife Benefit	Growth Conditions
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 nectar and feed on the pollen	A hardy plant which grows of many soil types and prefers full sun

Species Name	Latin Name	Height	Wildlife Benefit	Growth Conditions
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.	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

Species Name	Latin Name	Height	Wildlife Benefit	Growth Conditions
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.

Species Name	Latin Name	Height	Wildlife Benefit	Growth Conditions
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				

Species Name	Latin Name	Height	Wildlife Benefit	Growth Conditions
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.

ENHANCEMENT: BAT/BIRD BOXES

Bat Boxes

10.13 It is recommended that 2 bat boxes are incorporated into the structure of the building in sheltered conditions (i.e south facing) and at around 2-7m in height.

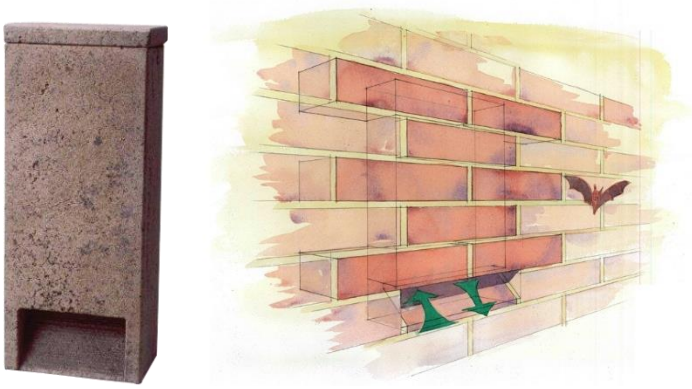
10.14 Of the 17 bat species found in the UK common or soprano pipistrelles (*Pipistrellus pipistrelles* and *P. pygmaeus*) are most commonly found in cities and stand to benefit from the inclusion of bat boxes. The soprano pipistrelle is a London BAP priority species and therefore inclusion of bat boxes within the development will complement the aims of the London BAP. In addition, the inclusion of the biodiverse roof area will provide bat foraging habitat.

10.15 It is important to maintain stable conditions within the bat boxes. Microclimate is one of the most important factors governing the uptake of a new roost by bats. Boxes should therefore be draught proof and made of thermally stable material. As is referenced above boxes should be placed in sheltered conditions, where they will receive full or partial sunlight, i.e. south facing.

10.16 Given the urban location, levels of light pollution are likely to be high. However, with smarter lighting regimes it is possible to reduce the effects of lighting without reducing the amount of lighting. It is therefore suggested that the lighting associated with the development is considerate of bats in this way. The placement of the bat boxes however should be informed as much as possible by the likely light pollution it will be subject to in that position.

10.17 Whilst Greengage does not specifically endorse any products, examples of bat boxes/bricks are provided below.

Figure 9.1 2FR Schwegler Bat Tube left and Habibat Access Box 003 right



Sparrow Nest Boxes

10.18 House sparrow numbers in urban areas have declined sharply since the 1970s[10] and it is therefore recommended that 3 house sparrow nest boxes are incorporated into the structure of the buildings soffit or eaves. Ideally these would be at a minimum of 2m above ground level facing east.

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

10.20 Some examples of house sparrow nest boxes are shown below (Figure 9.2). Schwegler Bird Brick on the left and the Schwegler House Sparrow Terrace on the right:

Figure 9.2 – Sparrow Nest Boxes Examples

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

10.21 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.

10.22 With regards to calculating the change in ecological value, if 15 species from table 9.1 above are incorporated into at least 10sqm of biodiverse roof, then the following credits will be awarded

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

10.23 The overall change in species per hectare is calculated as 0.375 which is positive change. Therefore, the proposed development is likely to be awarded the 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 LE 03 and LE 04 re shown at Appendix 3.0.

11.0 LE 05 – LONG TERM IMPACT ON BIODIVERSITY

11.1 There are 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.

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

MANDATORY REQUIREMENTS

11.3 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.

11.4 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

11.5 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 – **Required from team**; 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**;
- The contractor is required to train relevant workforce on how to protect ecology during the project – **N/A**;
- The contractor is required to record and monitor the effectiveness of protecting ecological features during the project - **N/A**;
- 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**; and
- Take full account of the UK BAP and incorporate UK BAP aspects into the project - **Met if enhancements included**.

11.1 We have listed all relevant UK and EU legislation in Appendix 2.0 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.

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

12.0 SUMMARY & CONCLUSIONS

12.1 Greengage were commissioned by Montagu Evan to undertake an Ecology Survey on the Ambassadors Theatre in LB Camden, in order to establish the ecological value of the site and its potential to support notable and/or legally protected species. This report has been produced in support of a planning application for the site.

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

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

- Has negligible potential for badgers;
- Has negligible potential for great crested newts;
- Has negligible potential for roosting bats;
- Has negligible potential for foraging bats;
- Has negligible potential for reptiles;
- Has negligible potential for dormice;
- Has negligible potential for water voles;
- Has negligible potential for otters;
- Has negligible potential for invertebrates; and
- Has low potential for nesting birds.

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

12.5 The potential for all protected species to be on-site was considered negligible and there therefore no ecological constraints over development.

12.6 If the proposed ecological enhancements are incorporated then the development will have a positive impact on the biodiversity value of the site and local area. These enhancements reflect targets of local and regional BAPs, and planning policy.

12.7 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.

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

- The site has low ecological value therefore:
    - 2 credits can be recommended for LE 02 '*Ecological Value of the Site*' and '*Protection of Ecological Features'*.
- The development proposals will not result in a net negative change in ecological value at the site therefore:
    - 2 credits can be recommended for LE 03 '*Minimising Impact on Existing Site Ecology'*.
- Ecological enhancements have been proposed for the site and upon confirmation that these will be adopted the following credits can be awarded:
    - 1 credit for LE 04 '*Enhancing Site Ecology'*.
- 2 credits can be awarded for LE 05 the '*Long Term Impact on Biodiversity'*.

12.9 Therefore, following written commitment where necessary, it is recommended to award the proposed development 7 credits at this stage with regards to *BREEAM New Construction 2014: Land Use and Ecology*.

12.10 To allow the credits to be awarded, an SQE should return to the site on practical completion to confirm that all enhancement recommendations have been incorporated.

APPENDIX 1.0: SITE PHOTOGRAPHS

Photograph 1 – Frontage showing well-maintained brickwork

Photograph 2 – Rear of building showing well-maintained brickwork and window fittings

Photograph 3 – Area of roof showing extensive plant and split flat sections

Photograph 4 – Additional view of roof

APPENDIX 2.0: POLICY AND LEGISLATION

NATIONAL POLICY

12.11 The introduction of the National Planning Policy Framework (NPPF)[11] in March 2012 sets out the Government's planning policies for England and how these are expected to be applied in the presumption in favour of sustainable development. It sets out the Government's requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so and is a material consideration for local planning authorities in determining applications.

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

REGIONAL POLICY

The London Plan: Spatial Development Strategy for Greater London[12]

12.13 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

12.14 '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

12.15 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

12.16 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

12.17 '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

12.18 '*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[13]

12.19 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

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

Overheating

12.21 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

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

Use less energy

12.23 '*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'*.

WILDLIFE & COUNTRYSIDE ACT (1981)

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

APPENDIX 3.0: BREEAM CALCULATIONS

Greengage Environmental LLP

BREEAM Ecology Credit Calculator

Job Name: Ambassadors Theatre

Job Number: 550673

Date: Sep-15

BEFORE DEVELOPMENT

Plot type	Area of plot (m^2)	Species No	Area * species
Building/hardstanding	400	0	0
Total	400	0	0

Species per plot type before development **0**

AFTER DEVELOPMENT

Plot type	Area of plot (m^2)	Species No	Area * species
Building/hardstanding	390	0	0
Biodiverse Roof	10	15	150
Total	400		150

Species per plot after development **0.375**

Species change	**0.375**	1=OK 0=ERROR
LE 03	2	1
LE 04	1	

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