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## Cambridge Road Estate – Bat Survey Report

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Prepared by:	Daniel Perlaki	Daniel Perlaki
Signature:		
Authorised by:	Mike Harris	Mike Harris
Signature:		
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## 1.0 EXECUTIVE SUMMARY

- 1.1 Greengage Environmental Ltd was commissioned to undertake a suite of bat surveys of the Cambridge Road Estate in the Royal Borough of Kingston by Cambridge Road (RBK) LLP.
- 1.2 This document is a report of this survey and has been produced to support a hybrid Outline Planning Application for a mixed use development, including demolition of existing buildings and erection of up to 2,170 residential units (Use Class C3), 290sqm of flexible office floorspace (Use Class E), 1,395sqm of flexible retail/commercial floorspace (Use Class E/Sui Generis), 1,250sqm community floorspace (Use Class F2), new publicly accessible open space and associated access, servicing, landscaping and works.
- 1.3 Detailed permission is sought for access, layout, scale, appearance and landscaping of Phase 1 for erection of 452 residential units (Use Class C3), 1,250sqm community floorspace (Use Class F2), 290sqm of flexible office floorspace (Use Class E), 395sqm of flexible retail/commercial floorspace (Use Class E/Sui Generis), new publicly accessible open space and associated access, servicing, parking, landscaping works including tree removal, refuse/recycling and bicycle storage, energy centre and works (“the Proposed Development”).
- 1.4 This survey aimed to establish the presence/likely absence of roosting bats in order to inform appropriate mitigation, compensation and enhancement actions in light of proposed development works. The survey also sought to identify the relative importance of the site for foraging and commuting bats, in addition to identifying spatial and temporal trends in the ways in which the site and/or features of the site are used.
- 1.5 Roosting bats were confirmed as being likely absent from the site, therefore formal mitigation for roosting bats is not required. Activity surveys identified use of specific areas of the site as a foraging and commuting resource by a small number of common (Pipistrellus pipistrellus) and soprano pipistrelles (P. pygmaeus). Limited commuting activity of common noctules (Nyctalus noctula) and Nathusius’ pipistrelles (P. nathusii) was also recorded.
- 1.6 Without any mitigation, the proposed development may stand to permanently destroy bat foraging and commuting habitat and potential roosting features. As such, compensation and enhancement recommendations are outlined in this report. These include:
- J Ensuring creation/retention of linear habitat features across the site to maintain/enhance its value as a commuting corridor, where possible. Where this is not possible, foraging and commuting features should be replaced on at least a like for like basis in terms of area;

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- J Provision of extensive, substrate-based biodiverse roofs on all suitable flat roof areas, with vertical greening using climbing plants and trellises on all suitable surfaces;
  - J Implementation of a bat-sensitive lighting strategy during construction and operation in line with best practice guidance; and
  - J Landscaping design to include night-scented species likely to attract invertebrate prey.
- 1.7 It is recommended that measures to mitigate, compensate and enhance the site for roosting, foraging and commuting bats is detailed within a high-level, overarching site wide Ecological Management Plan (EMP). Individual Plot/Phase EMPs could then be produced with specific detail for that plot/phase using the high-level information from the site wide EMP. This approach would allow for a consistent approach to ecological mitigation and enhancement across the site, ensuring the measures implemented work both at the individual plot/phase level and at the wider site level. Both the overarching site wide and the individual plot/phase EMPs could be secured through planning condition.
- 1.8 As the development is to be brought forward over five phases, should bat survey data be >18 months old at commencement of a phase, updated surveys may be required. The requirement for further surveys would be identified by an updated, phase-specific Preliminary Ecological Appraisal.
- 1.9 Should recommendations outlined in this report be adhered to, the proposed development is considered to have a negligible impact on roosting, foraging and commuting bats and potentially have a minor beneficial impact at the local scale.

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## 2.0 INTRODUCTION

- 2.1 Greengage was commissioned by Cambridge Road (RBK) LLP to undertake a suite of Bat Surveys of the Cambridge Road Estate in the Royal Borough of Kingston upon Thames.
- 2.2 This document is a report of this survey and has been produced to support a hybrid Outline Planning Application for a mixed use development, including demolition of existing buildings and erection of up to 2,170 residential units (Use Class C3), 290sqm of flexible office floorspace (Use Class E), 1,395sqm of flexible retail/commercial floorspace (Use Class E/Sui Generis), 1,250sqm community floorspace (Use Class F2), new publicly accessible open space and associated access, servicing, landscaping and works.
- 2.3 Detailed permission is sought for access, layout, scale, appearance and landscaping of Phase 1 for erection of 452 residential units (Use Class C3), 1,250sqm community floorspace (Use Class F2), 290sqm of flexible office floorspace (Use Class E), 395sqm of flexible retail/commercial floorspace (Use Class E/Sui Generis), new publicly accessible open space and associated access, servicing, parking, landscaping works including tree removal, refuse/recycling and bicycle storage, energy centre and works (“the Proposed Development”).
- 2.4 This survey aimed to establish the ecological value of this site and the presence/likely absence of roosting bats and identify the relative importance of the site for bats. The survey sought to determine patterns of use, both temporarily and spatially and identify bat behaviours in order to inform appropriate mitigation, compensation and enhancement actions in light of proposed development works.

### SITE DESCRIPTION

- 2.5 The survey area extends to approximately 9 hectares and is centred on National Grid Reference TQ190690, OS Co-ordinates 519074, 169085.
- 2.6 The estate is located within the Norbiton Ward in the Royal Borough of Kingston upon Thames, approximately 850m east of Kingston town centre. The site is bound to the north by A2043 – Kingston Road and to the south by Kingston Cemetery and Crematorium. The estate currently contains 832 residential homes distributed across:
- ) Four 15-storey residential tower blocks;
  - ) Sixteen 5/4-storey terraced flats; and
  - ) Numerous areas of 2-storey terraced housing.
- 2.7 The estate and assessment boundary also includes the Bull and Bush Hotel and Pub, Piper Community Hall and a convenience shop.
- 2.8 The site is situated in a residential area, sub-urban in character. Residential development dominates land use to the north, east and west of the site, including a newly constructed

student accommodation adjacent the site to the north. South of the site is the cemetery, beyond which lies the Hogsmill River (300m south). Southeast of the site features outdoor recreation areas. Green infrastructure provision in the area is formed by street trees, the cemetery, Hogsmill River, recreation grounds and residential gardens.

## ECOLOGICAL CONTEXT

### Preliminary Ecological Appraisal

- 2.9 Greengage undertook a Preliminary Ecological Appraisal (PEA) of the estate on 17<sup>th</sup> and 19<sup>th</sup> June 2019 to appraise its ecological value, identify and map any habitats on the site and identify its potential to support notable and/or protected species (document reference: 551291dpOct19FV02\_PEA). An update walkover survey of the site was completed on the 12<sup>th</sup> October 2020 to assess any change in habitats and overall ecological value on site since the June 2019 survey. The update walkover survey (document reference: 551291dpOct20FV01\_PEA\_Update) concluded that there had been no significant change on site and that the recommendations and conclusions made within the PEA report (document reference: 551291dpOct19FV02\_PEA) were still correct and valid.
- 2.10 The site walkover surveys, both the June 2019 and October 2020 surveys, included an assessment of the value of the site for foraging and commuting bats. Linear natural features such as tree lines, hedgerows and river corridors are often considered valuable for commuting and semi-natural habitats such as woodland, meadows and waterbodies can provide important foraging resources. Consideration was given to the presence of these features both immediately within and adjacent to the assessment area.
- 2.11 Habitats across the site were noted to be common and widespread, being composed of almost exclusively buildings, hardstanding, introduced shrub and amenity grassland. There is extensive security and streetlighting across the site. As such, the site was considered to have low potential to support foraging and commuting bats.

### Preliminary Roost Appraisal

- 2.12 A Preliminary Roost Appraisal (PRA) was also undertaken on 17<sup>th</sup> and 19<sup>th</sup> June 2019 to assess the potential for the site to support roosting bats.
- 2.13 The site visit was undertaken in daylight and the evaluation of bat potential comprised an assessment of natural and built features on site that aimed to identify characteristics suitable for bat roosts. In accordance with Bat Conservation Trust's Good Practice Guidelines<sup>1</sup> and methods given in English Nature's (now Natural England) Bat Mitigation Guidelines<sup>2</sup> consideration was given to:
- J The availability of access to roosts for bats;
  - J The presence and suitability of crevices and other places as roosts; and



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- J Signs of bat activity or presence.
- 2.14 Numerous features associated with the built form across the site were identified as having potential to support roosting bats. The majority of the individual buildings/structures were considered to have negligible or low potential to support bats. This was due to there being only a small number, one in many cases, of potential access / egress point(s) on individual buildings/structures. However, given the size of the site and the close proximity of all of the buildings / structures, the overall potential for the site to support roosting bats was raised to moderate.
- 2.15 Potential roosting features recorded include:
- J Missing, broken or slipped hanging tiles on the facias of two-storey terrace units;
  - J A hole in a soffit box of a two-storey building off Cambridge Grove Road;
  - J Missing/broken bricks on the four-storey blocks off Burritt Road;
  - J Lifted pitched roof/ridge tiles on three-storey units of Cambridge Grove Road;
  - J Gaps leading into an underground storage/parking area;
  - J Lifted ridge tile on the more recently constructed units on Willingham Way; and
  - J Lifted wooden cladding on Piper Hall.
- 2.16 The underground parking/storage areas were not inspected internally, therefore the presence of potential roosting features within these areas could not be assessed. Because potential roosting features within these areas could not be confirmed as absent, these areas and ingress points into them were considered potential roosting features.
- 2.17 Additionally, a single tree in the south of the site was identified as having low potential to support roosting bats.
- 2.18 Locations of all potential roosting features are shown on Figure 1.

## 3.0 METHODOLOGY

3.1 The following bats surveys were recommended to be undertaken on site as a result of the findings of the PEA:

- J Dusk emergence and dawn re-entry surveys on buildings with potential to support roosting bats;
- J Walked dusk activity transect surveys; and
- J Static activity surveys.

3.2 The methodology followed during the aforementioned surveys was detailed within a Bat Survey Method Statement (Report ref: 551291mjJuly19FV02\_Bats\_Methods) produced by Greengage in August 2019. A copy of the final Method Statement is provided in Appendix 1 of this report.

### SURVEYORS

3.3 A summary of the credentials of the lead surveyors is provided below. In addition to the lead surveyors below, the team was supported by multiple experienced bat surveyors provided by the Surrey Wildlife Trust Ecology Services.

3.4 Mike Harris, who lead the surveys and reviewed this report, has a Bachelor's degree in Environmental Biology (BSc Hons), a Natural England Great Crested Newt Licence (2015-17819-CLS-CLS) and Dormouse Licence (2016-21291-CLS-CLS), is a Chartered Environmentalist (CEnv) and is a Full member of CIEEM. Mike has over 17 years' experience in ecological surveying and has undertaken and managed numerous ecological surveys and assessments.

3.5 Daniel Perlaki, who undertook the surveys at site and prepared this report, has an undergraduate degree in Ecology (BSc Hons), a Master's degree in Conservation Science and Policy and is a Graduate member of CIEEM. Dan has over 3 years' worth of experience leading on bat surveys across the country.

3.6 Morgan Taylor, who assisted the surveys, has a bachelors and master's degree in marine biology (MSci Hons), a Natural England CL17 Bat Survey Level 2 Class Licence (2015-7369-CLS-CLS) and CL10 Dormouse Survey Licence (2017-30817-CLS-CLS). Morgan is a Chartered Environmentalist, Full member of CIEEM and has over 8 years' experience in ecological surveying having undertaken assessments of numerous development sites of this type. He leads the Ecology team at Greengage.

3.7 Vincenzo De Iacovo BSc (Hons) has over 9 years' experience as a practising ecologist and has been involved in a wide range of protected species survey, mitigation and monitoring project work all over the UK and Ireland. Vincenzo is an active member of the Surrey Bat Group and has experience undertaking various conservation work and surveys including harp trapping, roost visits, hibernation and bat box checks. Vincenzo is a Natural England Volunteer Roost Visitor and also a bat cared for ground bats.

Vincenzo holds tree climbing certificates and has undertaken tree climbed assessments of bat features in trees for various ecological consultancies. In addition to his extensive experience of working with widespread UK bats Vincenzo also holds a European Protected Species survey (Level 2) licence for bats.

- 3.8 James Bumphrey, who assisted the surveys, has an undergraduate degree in Environmental Sciences (BSc Hons), a Master's degree in Environmental Consultancy, a Natural England Great Crested Newt Licence (2018-35160-CLS-CLS) and is a Graduate member of CIEEM. James has 6 years' experience surveying bats on sites like this.
- 3.9 Olivia Guindon, who assisted the surveys, has a Bachelor's degree in Ecology and Wildlife Conservation (BSc Hons), a Master's degree in Species Identification and Survey Skills and is a Graduate member of CIEEM. Olivia has been a bat surveyor for three years.
- 3.10 Laura Thomas, who assisted the surveys, has an undergraduate degree in Biology (BSc Hons) and a Master's degree in Evolutionary and Behavioural Ecology and is a Graduate member of CIEEM. Laura has over 3 years' experience in the commercial sector.
- 3.11 This report was written by Daniel Perlaki and reviewed and verified by Mike Harris 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.

## CONSTRAINTS

### Emergence/Re-entry Surveys

- 3.12 The surveys were undertaken during an optimal time of year during ideal conditions by a suitably qualified ecologist. It was possible to access all areas of the site required.
- 3.13 On two surveys, brief periods of light rain were recorded. As these did not last longer than 15 minutes, this is not considered a significant constraint.
- 3.14 No significant constraints that stand to impact conclusions drawn in this report therefore presented themselves.

### Activity Surveys

- 3.15 There are inherent constraints associated with the use of static bat detectors. Range and direction of bats from microphones can result in recording failures. The microphones used are omni-directional, with a wide beam pattern and were set to a high sensitivity. However, obstacles in cluttered environments can block microphones from recording.

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- 3.16 The measure used to compare relative importance of location for bats is bat passes per night. It is important to consider that bat passes may naturally vary night on night, season on season, relative to weather conditions and conditions such as moon irradiance levels etc. To mitigate for this, detectors were installed for a minimum of six nights.
- 3.17 'Bat passes' were defined as any call or series of calls separated by more than one second from another call or series of calls. The number of bat calls or bat passes does not directly relate to the number of bats in a location as individual bats cannot be differentiated.
- 3.18 The detector named 'CRE4', located in the park to the north of the site failed to record during the first monitoring period, therefore it was installed between 12th and 22nd September. This data is not concurrent with other data collected by other detectors, therefore is not directly comparable. However, as data was collected over 10 nights with a variety of weather conditions, comparison of mean passes per night is still considered valid.
- 3.19 CRE4 failed to record again during the second monitoring period. However, due to the high level of information gathered across the whole site during all the surveys (static, walked transect and dusk emergence and dawn return to roost surveys, the overall data gathered across the site is considered to be robust and sufficient.

## 4.0 RESULTS

### EMERGENCE/RE-ENTRY SURVEYS

- 4.1 Survey dates and conditions are provided in table 4.1.
- 4.2 No emergencies or re-entries were recorded on any of the survey visits. As such, roosting bats can be considered likely absent from the site. Very low/low levels of bat activity were recorded during each emergence/re-entry survey visit, with common and soprano pipistrelles accounting for all recordings.
- 4.3 Weather conditions during each survey visit were suitable, however ambient street lighting levels across the site were noted as being very high, particularly in the north of the site (see Figure 5.1 below).
- 4.4 An average of 2.72 passes per survey visit were recorded across all survey visits.

Table 4.1 Auxiliary Emergence/Re-Entry Survey Data

Date	Sunset/ Sunrise Time	Survey Start	Survey Finish	Weather Conditions	Surveyors
22/07/2019	21:04	20:49	22:34	21°C, 0/8 cloud	Morgan Taylor, SWTESx10, Olivia Guindon, Mike Harris, Emma Griffiths, Daniel Perlaki
29/07/2019	20:54	20:39	22:24	21°C, 3-5/8 cloud, light breeze	Mike Harris, Emma Griffiths, Alice Petherick
31/07/2019	20:51	20:36	22:21	21°C, 3/8 cloud 7kmph wind	Vincenzo De Iacovo, Alice Petherick, Daniel Perlaki, James Bumphrey, Emma Griffiths
01/08/2019	20:49	20:34	22:19	23°C, 8/8 cloud, 1kmph wind, light drizzle 21:38- 21:48	Vincenzo De Iacovo, SWTES x4, Mike Harris
20/08/2019	05:54	04:24	05:54	13°C, 0/8 cloud, 5kmph wind	Daniel Perlaki, Laura Thomas
22/08/2019	05:57	04:27	05:57	13°C, 0/8 cloud, 5kmph wind	Daniel Perlaki, Olivia Guindon, Matthew Dale
23/08/2019	05:59	04:29	05:59	15°C, 0/8 cloud, 7kmph wind, humid	Olivia Guindon, Jess Cole, Daniel Perlaki
28/08/2019	06:07	04:37	06:07	18-19°C 0-2/8 cloud, no wind. Light drizzle from 05:10 to 05:25 and 05:30- 05:35	Mike Harris, SWTESx2, Vincenzo De Iacovo
29/08/2019	06:08	04:38	06:08	14°C, 7/8 CLOUD, 6KMPH WIND	Daniel Perlaki, Vincenzo De Iacovo, SWTES X1
30/08/2019	06:10	04:40	06:10	18°C, 2/8 cloud, 1kmph wind	Alice Petherick, SWTES X1, Mike Harris
02/09/2019	06:15	04:45	06:15	10-11°C, 0/8 cloud, no wind	Mike Harris, Vincenzo De Iacovo
03/09/2019	06:16	04:46	06:16	15°C, 8/8 cloud, 6kmph wind	Daniel Perlaki, Vincenzo De Iacovo
05/09/2019	06:19	04:49	06:19	12°C, 7/8 cloud, 8kmph wind, chill wind	Daniel Perlaki, Vincenzo De Iacovo, SWTES X1, Laura Thomas
06/09/2019	06:21	04:51	06:21	11°C, 8/8 cloud, 6 kmph wind	Daniel Perlaki, Laura Thomas

ACTIVITY SURVEY

4.5 Walked transect surveys were undertaken on the following dates:

Table 4.2 Auxiliary Activity Survey Data

Date	Sunset Time	Survey Finish	Weather Conditions	Surveyors
19/09/2019	20:16	22:16	0/8 cloud, 9kmph wind, 16-14°C	James Bumphrey, Emma Griffiths, Mike Harris, Laura Thomas
10/10/2019	20:20	22:20	8/8 cloud, 9kmph wind, 16°C	Daniel Perlaki, Laura Thomas, Olivia Guindon, Jess Cole
06/04/2020	19:44	21:44	1/8 cloud, very light wind. Optimal conditions, 14-11°C	Mike Harris, Daniel Perlaki
16/04/2020	20:00	22:00	4/8 cloud cover, very light wind, 15-13°C	Mike Harris, Daniel Perlaki

4.6 To supplement data obtained through the walked transects, two static bat detectors were set up along each of the transect sections, with a total of four installed per monitoring period. The location of the static detectors is shown on Figure 2.

4.7 Each detector was installed for a minimum period of five consecutive nights and was programmed to record from sunset to sunrise. They were installed for two monitoring periods in 2019 and one monitoring period in 2020 over the following dates:

- ) 27<sup>th</sup> August – 5<sup>th</sup> September 2019 (CRE4 placed out again from 12<sup>th</sup> to 22<sup>nd</sup> September due to it failing to record between 27<sup>th</sup> August and 5<sup>th</sup> September);
- ) 10<sup>th</sup> – 16<sup>th</sup> October 2019; and
- ) 6<sup>th</sup> – 16<sup>th</sup> April 2020.

4.8 Following completion of each monitoring period, the static detectors were collected, and data analysed using Analook software. Bat calls were identified to species level. Additionally, any social calls were distinguished from echolocation.

Walked Transects

4.9 Areas of bat activity observed during the walked transects is shown on Figure 3.

4.10 Bat activity recorded during the walked transect surveys was limited to specific areas of the site (see Figure 3), with large areas recording no activity. The main areas in frequent use by foraging and commuting pipistrelles were along the Bonner Hill Road adjacent to Kingston Cemetery and Crematorium and in a play area at the western point of the site.

Static Monitoring

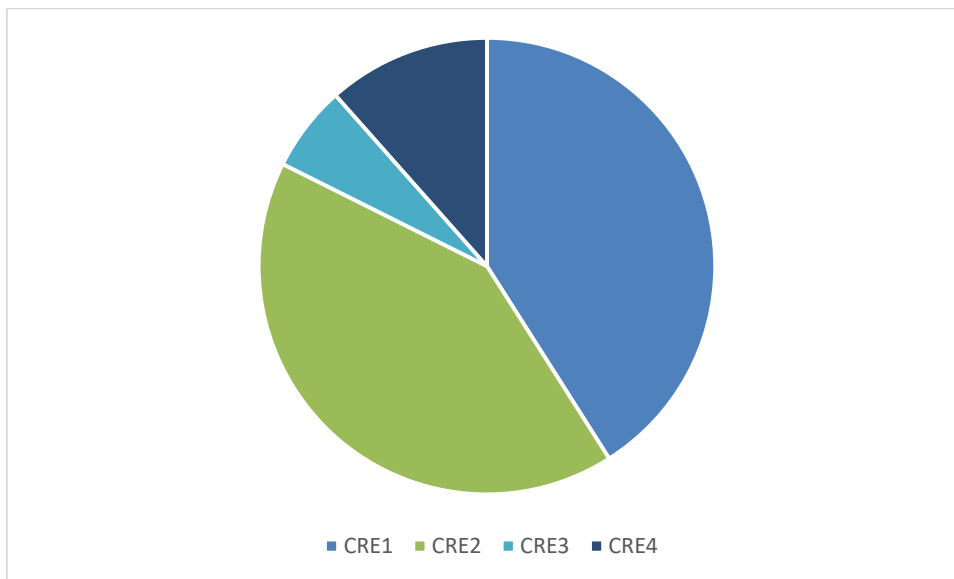
4.11 For the following graphs, species codes have been used. They are as follows:

Table 4.3 Species codes

Code	Common name	Latin name
PIPI	Common pipistrelle	Pipistrellus pipistrellus
PIPY	Soprano pipistrelle	Pipistrellus pygmaeus
PINA	Nathusius' pipistrelle	Pipistrellus nathusii
NYNO	Noctule	Nyctalus noctula
PipSoc	Pipistrelle social call (identified to genus level)	N/A

4.12 Of the static bat detector locations, CRE1 and CRE2 recorded the highest levels of bat activity, recording 40.9% and 41.4% respectively of all bat calls during all monitoring periods. CRE3 and CRE4 recorded the remaining 6.1% and 11.5% respectively.

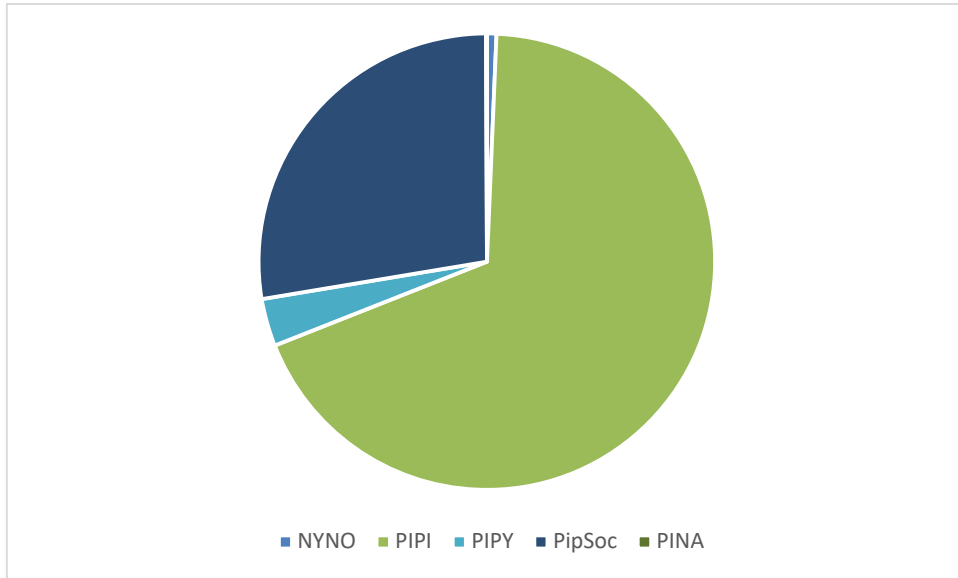
**Figure 4.1** Bat Activity Distribution





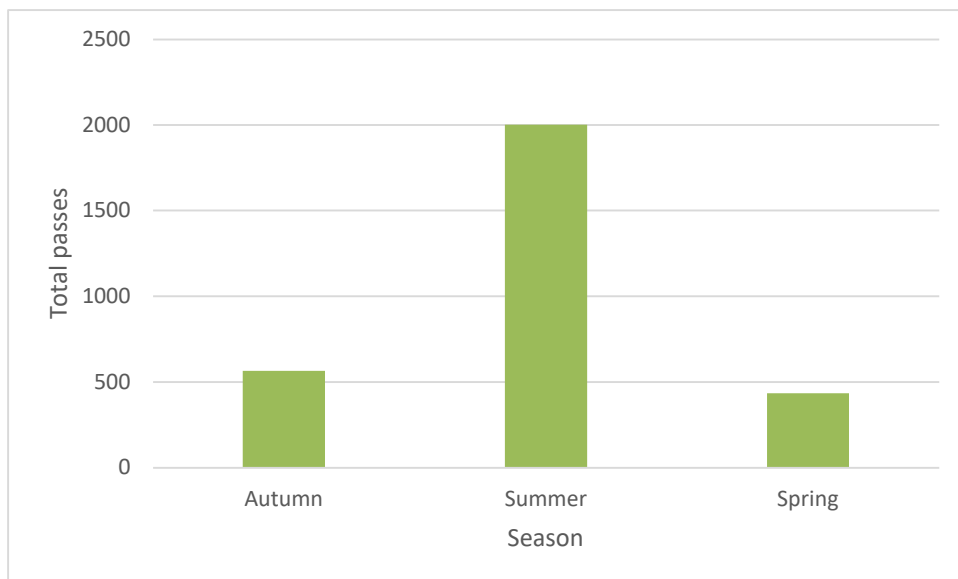
4.13 Of all species recorded, common pipistrelle was the most represented, with echolocation calls accounting for 68.4% of all recordings. Social calls could not be identified beyond genus level, however pipistrelle social calls accounted for 27.5% of all recordings. Noctules, soprano pipistrelles and Nathusius' pipistrelles accounted for 0.7%, 3.4% and 0.1% of recordings, respectively.

**Figure 4.2** Species Composition



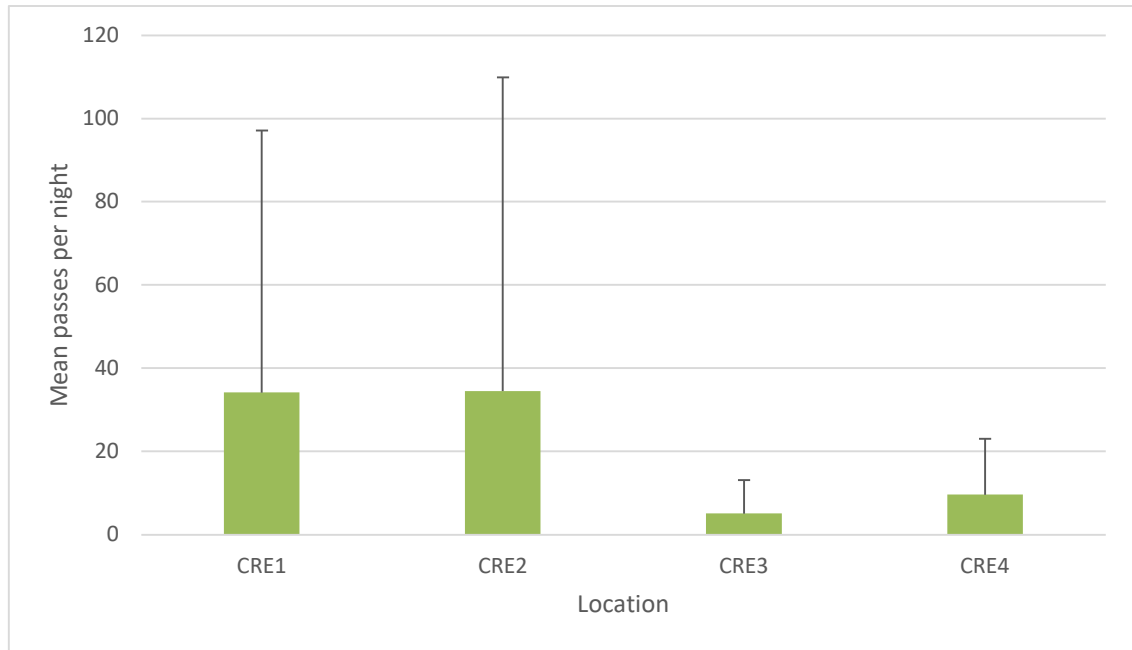
4.14 Temporally, the majority of activity recorded (66.7%) was recorded in the Summer monitoring period, with 18.8% and 14.5% being recorded in the Autumn and Spring monitoring periods respectively.

**Figure 4.3** Temporal Trends



- 4.15 Of all the locations monitored, CRE2 has the highest 'mean passes per night', indicating the highest level of activity, with CRE1 being the second highest. They registered an average of 34.5 and 34.2 passes per night respectively. CRE3 and CRE4 registered a greatly reduced average of 5.1 and 9.6 passes per night respectively.

**Figure 4.4** Mean passes per night per location (error bars show standard deviation)



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## 5.0 EVALUATION AND DISCUSSION

### EMERGENCE/RE-ENTRY SURVEYS

- 5.1 Roosting bats were confirmed as being likely absent from the buildings surveyed. It is considered likely that the high levels of street- and security-lighting across much of the site is the primary deterrent to roosting bats.
- 5.2 The vast majority survey visit was undertaken during optimal survey conditions. Only two survey visits featured brief spells of light rain for no longer than 15 minutes and on these surveys, bat activity was still recorded, indicating bats were still active and roosts could have been detected.

### ACTIVITY SURVEY

- 5.3 The bat species recorded are expected, given the location of the site. Pipistrelles and noctules are relatively light-tolerant compared with most bat species, and they are relatively common in Greater London.
- 5.4 The average number of passes recorded per night at all locations is 20.84. Supplementary data from the walked transects suggest that low numbers of bats are responsible for much of this activity. Activity is largely confined to commuting across the site with very little sustained foraging recorded.
- 5.5 Bat activity is spatially uneven across the site, largely confined to specific areas. These share certain characteristics, such as being well vegetated, having good tree canopy cover and being linear landscape features. Notably, the highest levels of activity and the only sustained foraging recorded during the walked transect surveys was in a playground western point, which is also subject to significantly lower levels of external street lighting.
- 5.6 Much of the activity recorded on Bonner Hill Road was determined to be bats heard foraging over Kingston Cemetery rather than over the site itself. However, it seems bats entering the site from the cemetery do so by commuting up Willingham Way.
- 5.7 Much of the site, particularly around the tower blocks to the north, is subject to very high levels of external lighting. This is considered highly likely to act as a deterrent to bats in the area. Figure 5.1 shows external lighting at 22:13 on 1<sup>st</sup> August, approximately 90 minutes after sunset.

**Figure 5.1** High levels of external lighting



- 5.8 Additionally, large areas of the site are completely unvegetated, offering no foraging opportunities.

**Figure 5.2** Unvegetated areas of hardstanding



## FURTHER SURVEY RECOMMENDATIONS

### Emergence/Re-entry Surveys

- 5.9 The requirement for further activity and emergence/re-entry surveys will be identified by an updated, phase specific PEA at the commencement of each subsequent

development phase. Where survey data for a phase is older than 18 months at the time the commencement of a phase, it is considered likely that updated surveys will be required.

## RECOMMENDATIONS

### Mitigation

#### Foraging and Commuting Bats

- 5.10 As bat activity is inconsistent across the site, it is recommended that the character of specific areas where bat activity is higher is retained and/or restored and enhanced through the proposed development.
- 5.11 Lighting strategies throughout demolition, construction and occupation should be designed with bats in mind, following best practice guidance from the Bat Conservation Trust and Institute of Lighting Professionals<sup>3</sup>. Specifically:
- ) Hours of operation should be minimised. External lighting at night should be avoided and subject to controls to prevent illumination when not required;
  - ) Light-spill should be minimised. Use of directional luminaires, hoods and cowls is recommended to prevent light-spill, particularly onto semi-natural features/habitats. No lights with an upward light ratio should be installed;
  - ) Luminaire choice should take into account impacts to bats. Warm-white spectrum lights below 2700Kelvin should be used to reduce the blue component of light. Additionally, luminaires should feature peak wavelengths higher than 550nm to avoid the component of light which is most harmful; and
  - ) External lighting columns should be as low to the ground as possible.
- 5.12 Landscaping proposals should be designed to compensate for the loss of existing habitats on site. Provision of night-scented flowers to attract invertebrate prey, replacement of any removed street trees and maintenance of existing levels of soft landscaping should be ensured.

#### Roosting Bats

- 5.13 To compensate for the loss of potential roosting features present on the existing site, the built form of new buildings should feature integrated bat boxes. These should be located in areas away from artificial light sources and where they will receive good amounts of sun.

**Figure 5.3** Green&Blue Bat Block which can be incorporated within cladding/brick courses



#### Enhancement

##### Foraging and Commuting Bats

- 5.14 Many areas of the site not in use by foraging or commuting bats have the opportunity to be enhanced through site layout, landscaping proposals and ecological enhancement. Linear streets lined with street trees connecting parks and green infrastructure elements on the proposed development site to Kingston Cemetery and Crematorium will increase the ability of bats to move between foraging resources on- and off-site.
- 5.15 Bat-sensitive lighting recommendations outlined above should also significantly improve the value of the site for foraging and commuting bats by reducing external luminosity and light-spill below existing levels.
- 5.16 Landscaping should go above compensating for the loss of existing habitats on site. Biodiverse roofs should be included to provide a foraging resource. Parks and greenspaces within the site should feature 'wild' areas where grassland is mown less frequently, and wildflowers/scrub are able to establish. To measurably demonstrate an enhancement of the ecological value of the site, a Biodiversity Net Gain Assessment of the masterplan site will be undertaken. Specific interventions have been included to enhance the value of the site for foraging bats.
- 5.17 Given the existing low value of the site for foraging and commuting bats, the proposed development stands to significantly improve the site in this respect.

##### Roosting Bats

- 5.18 In addition to compensating for the loss of existing potential roosting features, additional bat boxes should be provided to increase the number of roosting opportunities at site.

Specific detail relating to location, numbers and specification will be provided within phase specific Ecological Management Plans (EMPs) which should be secured through planning condition on a phase-by-phase basis.

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## 6.0 SUMMARY & CONCLUSION

- 6.1 Greengage was commissioned by Cambridge Road (RBK) LLP to undertake bat surveys at the Cambridge Road Estate in the Royal Borough of Kingston upon Thames. The surveys sought to confirm the presence/likely absence of roosting bats from the site in order to identify suitable mitigation and enhancement recommendations. The survey also sought to identify the relative importance of the site for foraging and commuting bats, in addition to identifying spatial and temporal trends in the ways in which the site and/or features of the site are used.
- 6.2 The emergence/re-entry surveys confirmed the likely absence of roosting bats from the buildings surveyed. As such, impacts upon roosting bats are considered to be negligible and no formal mitigation is required for roosting bats.
- 6.3 Activity surveys identified spatial trends in use of the site by bats. Common and soprano pipistrelles were the most frequently encountered species. Foraging and commuting activity was limited to foraging in selected areas of green space on site and along Bonner Hill Road. Levels of activity were considered to be low-moderate, with a small number of bats being responsible for frequent use of the site.
- 6.4 As the development is to come forward in a phased approach, where data for a phase will be over 18 months old at the commencement of said phase, updated emergence/re-entry surveys will be required. The requirement for this will be assessed through an updated phase-specific PEA.
- 6.5 Key mitigation, compensation and enhancement actions are described to enable legislative and policy compliance (see context at Appendix 2), aiming to protect features of the site currently favoured by bats and to mitigate impacts upon them. Enhancement recommendations are outlined to improve the ecological value of the site, specifically for foraging, commuting and roosting bats.
- 6.6 Key actions should be included within EMP and CEMP documents for the masterplan site which could be secured through planning condition.



FIGURE 1 SURVEYOR LOCATIONS AND POTENTIAL ROOSTING  
FEATURES

# CAMBRIDGE ROAD ESTATE



□ Approx Red Line Boundary

★ Surveyor locations

**Potential Bat Roost Feature**

- Hole in soffit box
- Missing/broken brick
- Lifted roof tiles
- Gap into underground storage/parking
- Gap in boarded up window
- Holes in wall under stairwell
- Slipped/missing clay tiles
- Lifted ridge tile
- Lifted wooden cladding
- Tree with low roost potential



Greengage Environmental Ltd  
64 Great Suffolk Street, London SE1 0BL

[www.greengage-env.com](http://www.greengage-env.com)

**Fig 1.0 Access and Egress Points and Proposed Surveyor Locations**



FIGURE 2 WALKED TRANSECT ROUTES AND STATIC DETECTOR  
LOCATIONS