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## Cambridge Road Estate – Bat Survey Report

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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.

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## 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

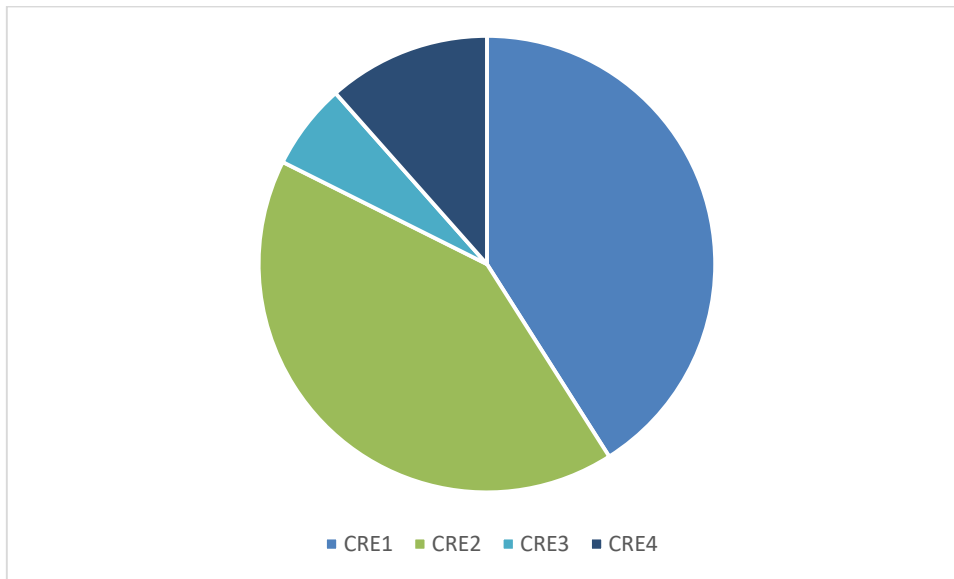
4.11 For the following graphs, species codes have been used. They are as follows:

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

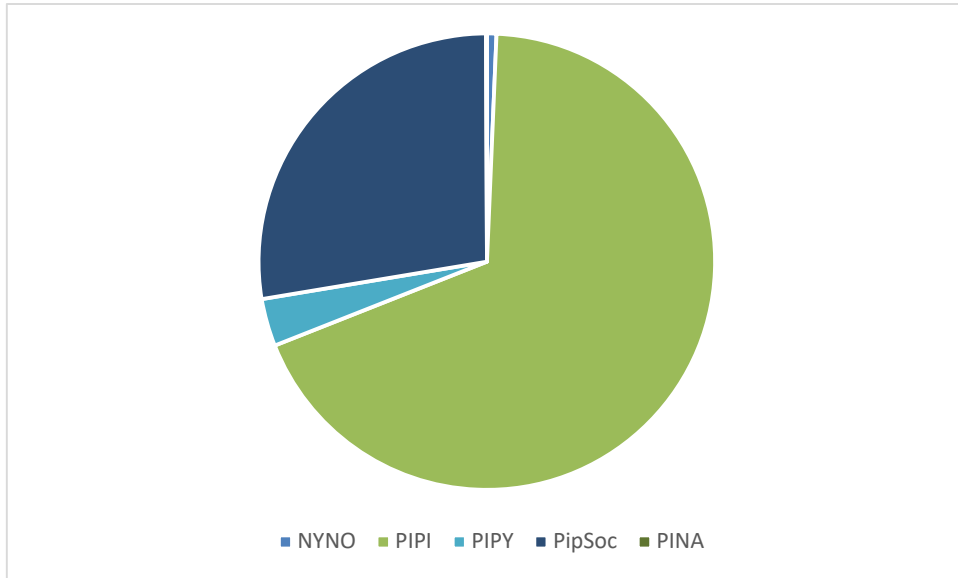
4.12 Of the static bat detector locations, CRE1 and CRE2 recorded the highest levels of bat activity, recording 40.9% and 41.4% respectively of all bat calls during all monitoring periods. CRE3 and CRE4 recorded the remaining 6.1% and 11.5% respectively.

**Figure 4.1** Bat Activity Distribution



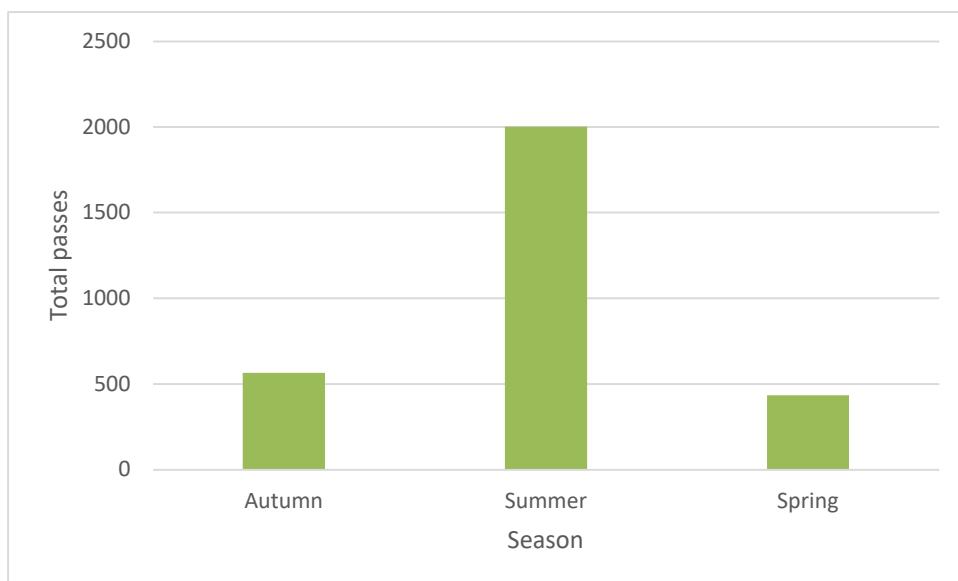
4.13 Of all species recorded, common pipistrelle was the most represented, with echolocation calls accounting for 68.4% of all recordings. Social calls could not be identified beyond genus level, however pipistrelle social calls accounted for 27.5% of all recordings. Noctules, soprano pipistrelles and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

**Figure 4.2** Species Composition



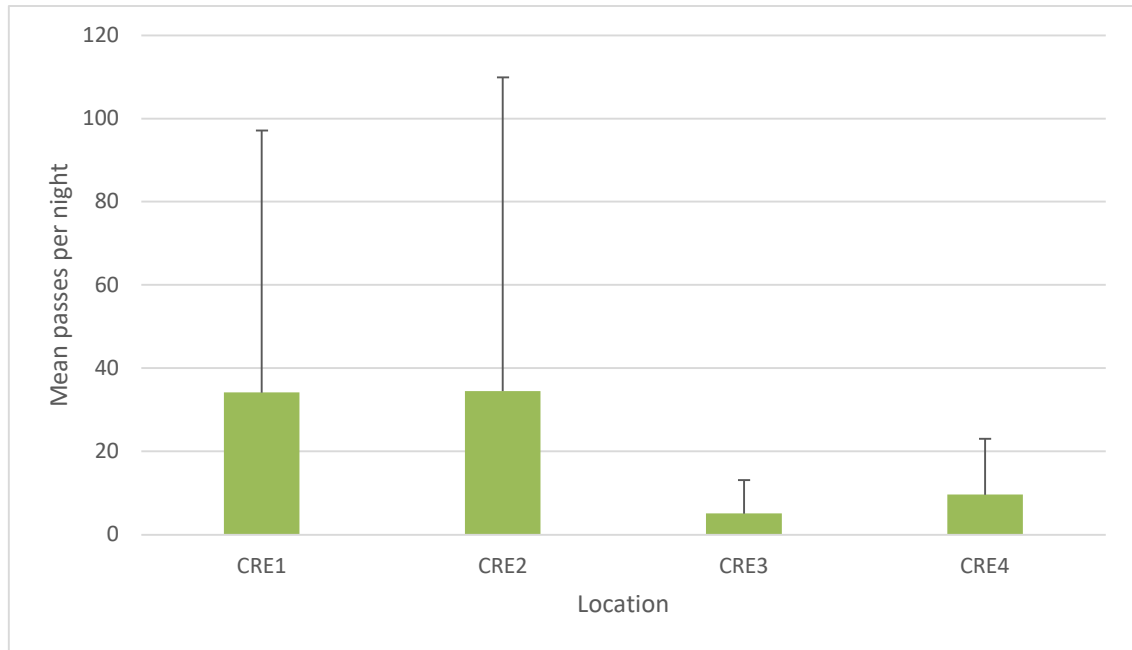
4.14 Temporally, the majority of activity recorded (66.7%) was recorded in the Summer monitoring period, with 18.8% and 14.5% being recorded in the Autumn and Spring monitoring periods respectively.

**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



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



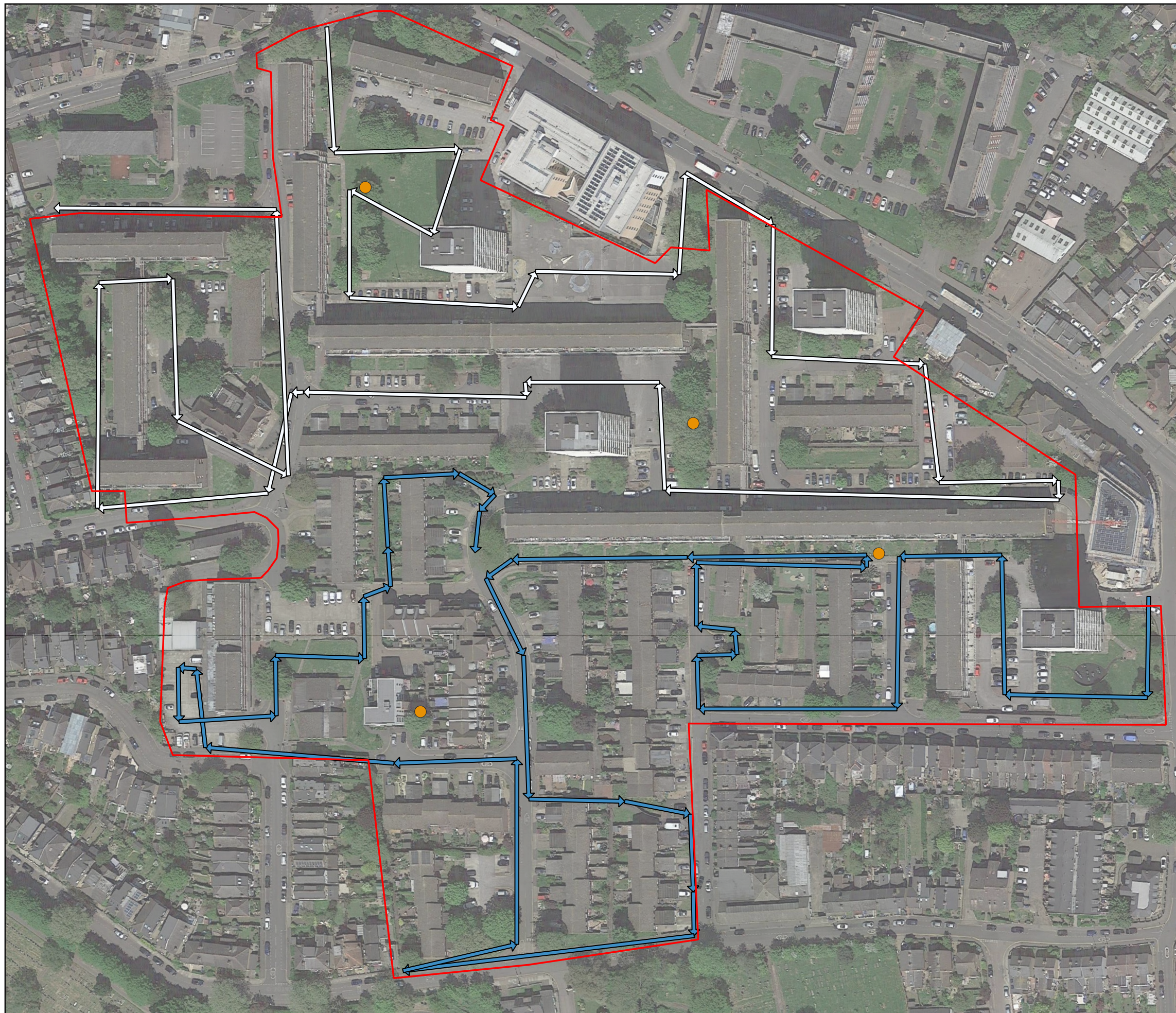


## FIGURE 2 WALKED TRANSECT ROUTES AND STATIC DETECTOR LOCATIONS



# CAMBRIDGE ROAD ESTATE

- Approx Red Line Boundary
- Transect Route**
  - 1
  - 2
- Indicative Static Detector Locations



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**Fig 2.0 Proposed Bat Activity Survey Plan**





## FIGURE 3 BAT ACTIVITY HEATMAP

# APPENDIX 1 BAT SURVEY METHOD STATEMENT

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## APPENDIX 2 RELEVANT LEGISLATION AND POLICY

### LEGISLATION

#### Legislation Relating to Bats

All UK bats and their roosts are protected by law. Since the first legislation was introduced in 1981, which gave strong legal protection to all bat species and their roosts in England, Scotland and Wales, additional legislation and amendments have been implemented throughout the UK.

Six of the 18 British species of bat have Biodiversity Action Plans (BAPs) assigned to them, which highlights the importance of specific habitats to species, details of the threats they face and proposes measures to aid in the reduction of population declines.

Although habitats that are important for bats are not legally protected, care should be taken when dealing with the modification or development of an area if aspects of it are deemed important to bats such as flight corridors and foraging areas.

The Wildlife & Countryside Act 1981 (WCA) was the first legislation to provide protection for all bats and their roosts in England, Scotland and Wales (earlier legislation gave protection to horseshoe bats only.)

All eighteen British bat species are listed in Schedule 5 of the Wildlife and Countryside Act, 1981 and under Annex IV of the Habitats Directive, 1992 as a European protected species. They are therefore fully protected under Section 9 of the 1981 Act and under Regulation 43 of the Conservation of Habitats and Species Regulations 2017, which transposes the Habitats Directive into UK law. Consequently, it is an offence to:

- J Deliberately capture, injure or kill a bat;
- J Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats;
- J Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time);
- J Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat; and
- J Intentionally or recklessly obstruct access to a bat roost.

This legislation applies to all bat life stages.

The implications of the above in relation to the proposed development are that where it is necessary during construction to remove trees, buildings or structures in which bats roost, it must first be determined that work is compulsory and if so, appropriate licenses must be obtained from Natural England.

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## PLANNING POLICY

### National

#### National Planning Policy Framework

The National Planning Policy Framework (NPPF) 2019<sup>4</sup> sets out the Government's planning policies for England, including how plans and decisions are expected to apply a presumption in favour of sustainable development. Chapter 15 of the NPPF focuses on conservation and enhancement of the natural environment, stating plans should 'identify and pursue opportunities for securing measurable net gains for biodiversity'.

It goes on to state: 'if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused'. Alongside this, it acknowledges that planning should be refused where irreplaceable habitats such as ancient woodland are lost.

### Regional

#### The London Plan: Spatial Development Strategy for Greater London<sup>5</sup>

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

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

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

Policy 5.11 specifically supports the inclusion of planting within developments and encourages boroughs to support the inclusion of green roofs.

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#### Policy 5.13 Sustainable Drainage

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

‘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.’

The Draft New London Plan (emerging)

#### Policy G1 Green infrastructure

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

#### Policy G2 London’s Green Belt

- A. The Green Belt should be protected from inappropriate development:
  - 1. development proposals that would harm the Green Belt should be refused
  - 2. the enhancement of the Green Belt to provide appropriate multi-functional uses for Londoners should be supported.

#### Policy G5 Urban greening

- A. Major development proposals should contribute to the greening of London by including urban greening as a fundamental element of site and building design, and by incorporating measures such as high-quality landscaping (including trees), green roofs, green walls and nature-based sustainable drainage.

- B. Boroughs should develop an Urban Greening Factor (UGF) to identify the appropriate amount of urban greening required in new developments. The UGF should be based on the factors set out in Table 8.2, but tailored to local circumstances. In the interim, the Mayor recommends a target score of 0.4 for developments that are predominately residential, and a target score of 0.3 for predominately commercial development.

#### Policy G6 Biodiversity and access to nature

- C. Where harm to a SINC (other than a European (International) designated site) is unavoidable, the following approach should be applied to minimise development impacts:
1. avoid adverse impact to the special biodiversity interest of the site
  2. minimise the spatial impact and mitigate it by improving the quality or management of the rest of the site
  3. seek appropriate off-site compensation only in exceptional cases where the benefits of the development proposal clearly outweigh the biodiversity impacts.
- D. Biodiversity enhancement should be considered from the start of the development process.
- E. Proposals which create new or improved habitats that result in positive gains for biodiversity should be considered positively, as should measures to reduce deficiencies in access to wildlife sites.

#### Policy G7 Trees and woodlands

- C. Development proposals should ensure that, wherever possible, existing trees of quality are retained [Category A and B]. If it is imperative that trees have to be removed, there should be adequate replacement based on the existing value of the benefits of the trees removed, determined by, for example, i-tree or CAVAT. The planting of additional trees should generally be included in new developments – particularly large-canopied species which provide a wider range of benefits because of the larger surface area of their canopy.

#### Supplementary Planning Guidance (SPG): Sustainable Design and Construction 2014

As part of the London Plan 2011 implementation framework, the SPG, relating to sustainable design and construction, was adopted in April 2014 and includes the following sections detailing Mayoral priorities in relation to biodiversity of relevance to The Site.

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### Nature conservation and biodiversity

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

### Overheating

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

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

### Use less energy

'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'.

### London Environment Strategy 2018<sup>6</sup>

The Mayor's Environment Strategy was published in May 2018. This document sets out the strategic vision for the environment throughout London. Although not primarily a planning guidance document, it does set strategic objectives, policies and proposals that are of relevance to the delivery of new development in a planning context, including:

#### Objective 5.1 Make more than half of London green by 2050

Policy 5.1.1 Protect, enhance and increase green areas in the city, to provide green infrastructure services and benefits that London needs now.

This policy states:

"New development proposals should avoid reducing the overall amount of green cover and, where possible, seek to enhance the wider green infrastructure network to increase the benefits this provides. [...] New developments should aim to avoid fragmentation of existing green space, reduce storm water run-off rates by using sustainable drainage, and include new tree planting, wildlife-friendly landscaping, or features such as green roofs to mitigate any unavoidable loss".

This supports the 'environmental net gain' approach promoted by government in the 25 Year Environment Plan.

Proposal 5.1.1.d The London Plan includes policies to green streets and buildings, including increasing the extent of green roofs, green walls and sustainable drainage.

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### Objective 5.2 conserving and enhancement wildlife and natural habitats

Policy 5.2.1 Protect a core network of nature conservation sites and ensure a net gain in biodiversity

This policy requires new development to include new wildlife habitat, nesting and roosting sites, and ecologically appropriate landscaping will provide more resources for wildlife and help to strengthen ecological corridors. It states:

“Opportunities should be sought to create or restore priority habitats (previously known as UK Biodiversity Action Plan habitats) that have been identified as conservation priorities in London [and] all land managers and landowners should take BAP priority species into account”.

Local

Kingston Core Strategy

### Policy CS 3 - The Natural and Green Environment

The Council will protect and improve Kingston’s valued natural and green environment by:

- a. seeking to ensure that residents have access to an interconnected network of safe, well managed and maintained areas of open space through the implementation of routes in the ‘South West London Greenways Network Expansion - Feasibility Report’, Kingston’s Green Spaces Strategy, Park Management Plans and Annual Implementation Plans
- b. protecting Kingston’s open space network from inappropriate development through its open spaces designations; Green Belt, Metropolitan Open Land (MOL), Thames Policy Area, Sites of Importance for Nature Conservation (SINCs), Local Nature Reserves, Local Open Space, School Open Spaces, Green Corridors, Green Chains and Allotments, as shown on the Proposals Map
- c. facilitating regeneration, infrastructure upgrades and environmental improvement to the Hogsmill Environs
- d. incorporating appropriate elements of public open space into new developments and/or making a financial contribution to improving existing open spaces, with additional facilities and better management to Green Flag standards
- e. promoting the management of biodiversity in light of the threats arising from climate change and future development growth, by working in partnership with a range of organisations on projects to protect and enhance Kingston’s Open Space Network. This will not only provide increased wildlife habitats, but will also link wider parts of Kingston, allowing easier movement and reducing isolation of habitats.

### Policy DM 6 - Biodiversity



The Council will:

- a. ensure new developments protect and promote biodiversity as part of sustainable design, through the inclusion of sustainable drainage, tree planting, soft landscaping, habitat enhancement and/or improvement, green roofs and new or improved semi-natural habitats, where appropriate
- b. require an ecological assessment on major development proposals, or where a site contains or is next to significant areas of habitat or wildlife potential. This should be completed before design work or submission of the planning application.
- c. ensure that new development does not result in a net loss of biodiversity and, where appropriate, should include new or improved habitats and provision for natural and semi-natural public green space, as set out in the Planning Obligations SPD or Community Infrastructure Levy charge.

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