Kingscroft Farm, Havant

Bat Activity Surveys

Author(s):
Katalin Balazs & Adam Jessop

Client:
Foreman Homes

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Report	Bat Activity Surveys
Site Name	Land at Kingscroft Farm, Havant
Author(s)	Katalin Balazs BSc MSc & Adam Jessop MSc ACIEEM
Client	Foreman Homes Ltd
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Ecosupport Ltd K4 Keppel, Daedalus Park, Daedalus Drive, Lee-on-the-Solent, Hampshire, PO13 9FX

T: 01329 832841 info@ecosupport.co.uk www.ecosupport.co.uk

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1.0 INTRODUCTION

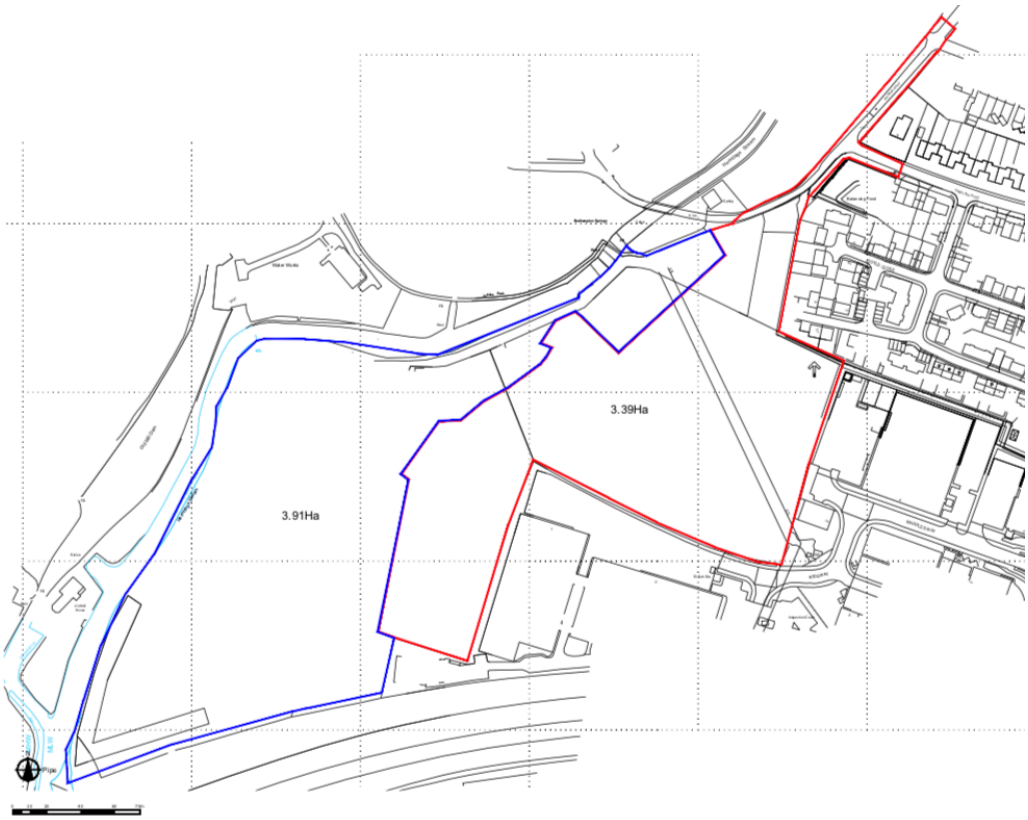
1.1 Background

This document outlines the results of the phase II bat surveys carried out by Ecosupport Ltd during April - September 2022 of the land at Kingscroft Farm, Havant site. These surveys were required to support a planning application for a development on the site after a PEA conducted identified the site to have ***Moderate potential*** for foraging and commuting bats, therefore highlighting the requirement to undertake activity surveys on-site to assess the usage by foraging and commuting bats (Ecosupport 2022).

1.2 Site Description & Location

The site comprises of a series of land parcels (some of which are used as horse pasture) located to the north of the A27, Havant, PO9 1QJ (centred on OS grid reference SU 704 061) (**Fig 1**). The north and west of the site are bounded by Hermitage Stream, the east by an industrial estate and the south by the A27. The immediate surrounding environ is predominantly urbanised although the site is located within 0.4 km of the intertidal habitats associated within the Solent area SPA, SAC and Ramsar.

Figure 1. Redline location plan of the site (provided by HGP Architects Ltd.).



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1.3 Brief Description of the Proposals

The development will entail the construction of up to 120 new residential dwellings with landscaping and areas of POS.

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2.0 REVELVANT LEGISLATION & POLICY

2.1 Legislation & Policy Context

2.1.1 Relevant legislation

The Wildlife & Countryside Act 1981 (as amended) is the primary piece of legislation by which biodiversity in the UK is protected. The most relevant areas of the Act to development related activities are:

- The protection of certain species listed in Schedule 5, which prohibits killing, injury, disturbance, damage and / or destruction of breeding sites and / or resting places and sale (it should be noted that all parts of this protection do not apply to all Scheduled species).

*The Conservation of Habitats and Species Regulations (2018), t*his transposes the EU Habitats Directive (Council Directive 92/43/EEC) into UK domestic law. It provides protection for sites and species deemed to be of conservation importance across Europe. It is an offence to deliberately capture, kill or injure species listed in Schedule 2 or to damage or destroy their breeding sites or shelter. It is also illegal to deliberately disturb these species in such a way that is likely to significantly impact on the local distribution or abundance or affect their ability to survive, breed and rear or nurture their young.

The Natural Environment and Rural Communities (NERC) Act 2006 requires that public bodies to have regard to the conservation of biodiversity. This means that Planning Authorities must consider biodiversity when planning or undertaking activities. Section 41 of the Act lists species found in England which were identified as requiring action under the UK Biodiversity Action Plan and which continue to be regarded as conservation priorities under the *UK Post-2010 Biodiversity Framework*.

2.1.2 National Planning policy

Section 15 of the National Planning Policy Framework (NPPF) 'Conserving and enhancing the natural environment' states that planning policies and decisions should contribute to and enhance the natural environment. They should do this by protecting and enhancing sites of biodiversity and minimising impacts on and providing net gains for biodiversity, including establishing coherent ecological networks.

The plan states to protect and enhance biodiversity plans should identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks. This includes the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them. Plans should identify the protection and recovery of priority species and opportunities for securing measurable net gains for biodiversity.

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When determining planning applications, local planning authorities should apply the following principles:

- if significant harm to biodiversity resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

- development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact;

- development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

- development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

2.1.3 Local - Havant Borough Council Draft Local Plan 2036

Policy E15 Ecological Conservation

Development on any site in the Borough should conserve and enhance the natural environment wherever possible. Planning permission on any site in the Borough will be permitted where:

a) The applicant has identified and assessed the level of ecological value of the site through appropriate assessment(s) and any matters arising have been addressed through the development proposal at the earliest stage possible;

b) The development results in a net gain in biodiversity wherever possible;

c) Development avoids the fragmentation and isolation of habitats and wildlife corridors within or close to the development site;

d) The development is informed and influenced by the presence of woodlands, trees and hedgerows on site, particularly those protected by a Tree Preservation Order (TPO) or within a conservation area. If the removal of any tree is unavoidable because it would be in best arboricultural practice a replacement tree of at least equal value to that lost should be planted on site unless it is shown to be impractical to do so; and

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e) Any necessary mitigation plan includes provision for ongoing management and maintenance.

In addition to the above, priority habitats in the Borough have been identified and afforded protection by a network of designated sites. Development proposals which could affect a designated site will need to consider the impact and respond appropriately:

*For **international nature conservation designations**, planning permission will be refused where:*
f) There is likely to be a significant effect on the SPA, SAC or Ramsar designation and the proposal is not directly connected with or necessary to the management of that site; and
g) The development proposal is not in compliance with the relevant regulations and national policy regarding the assessment of implication for SPAs, SACs or Ramsar sites.

*For **national nature conservation designations**, planning permission will only be permitted where:*
h) Development does not have an adverse effect on a SSSI, either individually or in combination with other developments.
*For **local nature conservation designations**, planning permission will be permitted where either:*
i) The value of the designation is retained or enhanced in line with its original criteria for designation through avoidance or mitigation measures; or
j) The benefit of the development can be shown to clearly outweigh the substantive nature conservation value of the site and the impact cannot be avoided or mitigated.

Policy E18 Protected Species
Development proposals which are likely to affect protected species and/or their supporting habitats will only be permitted where:
a) Appropriate surveys are undertaken to establish the presence/likely absence of protected species. If protected species are likely to be present, planning permission will only be granted where either:
b) A Mitigation Plan is provided which is based upon appropriate ecological assessments to the satisfaction of the Local Planning Authority; or
c) A Compensation Plan is provided if it is not possible to mitigate the impact; and d. Review and monitoring plans are put in place, where appropriate.

*For sites that contain or are **adjacent to sites likely to contain Bechstein's bat**, planning permission will only be granted where:*

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e) Survey methods appropriate to Bechstein's bat are used and undertaken by a suitably-qualified ecologist. If the presence of Bechstein's bat is established, planning permission would only be granted where:
f) The net loss of woodland (including groups of trees) is avoided;
g) Impacts on Bechstein's bat breeding habitat (i.e. net loss of/excessive disturbance to woodland or trees containing maternity roosts) are avoided;
h) Proposals include appropriate buffers to woodlands, hedgerows and other flight corridors, taking into account the location of roosts and foraging/commuting habitats; and
i) Review and monitoring plans are put in place, where appropriate.

Where the above measures cannot be met planning permission will be refused, unless the applicant can show, subject to meeting the tests of the Habitats Regulations, that there would not be an adverse effect on the population of the relevant protected species.

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3.0 METHODS

3.1 Walked Transects

Based on the ***Moderate*** foraging and commuting habitat suitability assessment, walked transects were carried out on site between April and September 2022 (with a dusk/dawn undertaken in July 2022). Based on the sites area and available habitat, a single transect was considered sufficient to cover the whole site, with a total of 12 listening stations used (**Fig 2**). Approximately 8 minutes was spent at each listening station during which passes of species were noted, with any passes recorded whilst walking between points also noted. An Elekon Batlogger full spectrum detector (for analysis of calls via sonogram) detector was utilised during all surveys. The surveys were carried out by Maddie Errington, Karen Niven, Gareth Ainscough, Ollie Silvester, Lyndsey Mcbean, Kelly Clarke, Aaron Domblides and Chris Drake (all experienced surveyors with Ecosupport).

Figure 2. Walked transect route (red line) with numbered listening points (white numbers) used.

3.2 Static Monitoring

An additional aspect of the recommended bat monitoring within the BCT guidelines (Collins (ed) 2016) is for static detectors to be placed at different locations along the transect route for 5 consecutive nights each month. A total of 12 static deployments spread across 6 months

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have been undertaken (April – September 2022). The locations of the static bat detectors are shown in **Fig 3** below.

Figure 3. Approximate locations of Minibat and Anabat static detectors across site. A = April 2022, B = May 2022, C = June 2022, D = July 2022, E = August 2022, F = September 2022.

3.3 Limitations

3.3.1 Walked Transects

There were not considered to be any limitations of these surveys as they were completed during appropriate survey periods and during suitable weather conditions (as per BCT guidelines (Collins (ed) 2019).

3.3.2 Static Deployments

Due to repeated technical issues with the static detectors deployed, only one static was successfully deployed during August. Notwithstanding this, with all other detectors successfully deployed during the remainder of the season and a full seasons of walked transects undertaken, it is not considered this would have materially affected the evaluation of the sites value for bats.

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4.0 RESULTS

4.1 Transect Surveys

Table 1 below provides the dates and other relevant information recorded during the walked transect surveys with the results presented below in **Figure 4**.

Table 1. Relevant information recorded during the transect surveys.

Date	Temp (°C)	Cloud Cover (%)	Precipitation	Wind (Beaufort scale)	Start Time	Finish Time	Starting Point / Direction of Travel
21/04/2022	15	0	Dry	2	20:10	22:10	1 clockwise
19/05/22	14	95	Dry	2	20:52	22:52	10 clockwise
20/06/22	14	20	Dry	0	21:22	23:22	10 anticlockwise
07/07/22	15	100	Dry	1	3:00	5:00	10 clockwise
23/08/22	18	80	Dry	0	20:09	22:09	1, clockwise
21/09/22	18	0	Dry	1	19:06	21:06	2, clockwise

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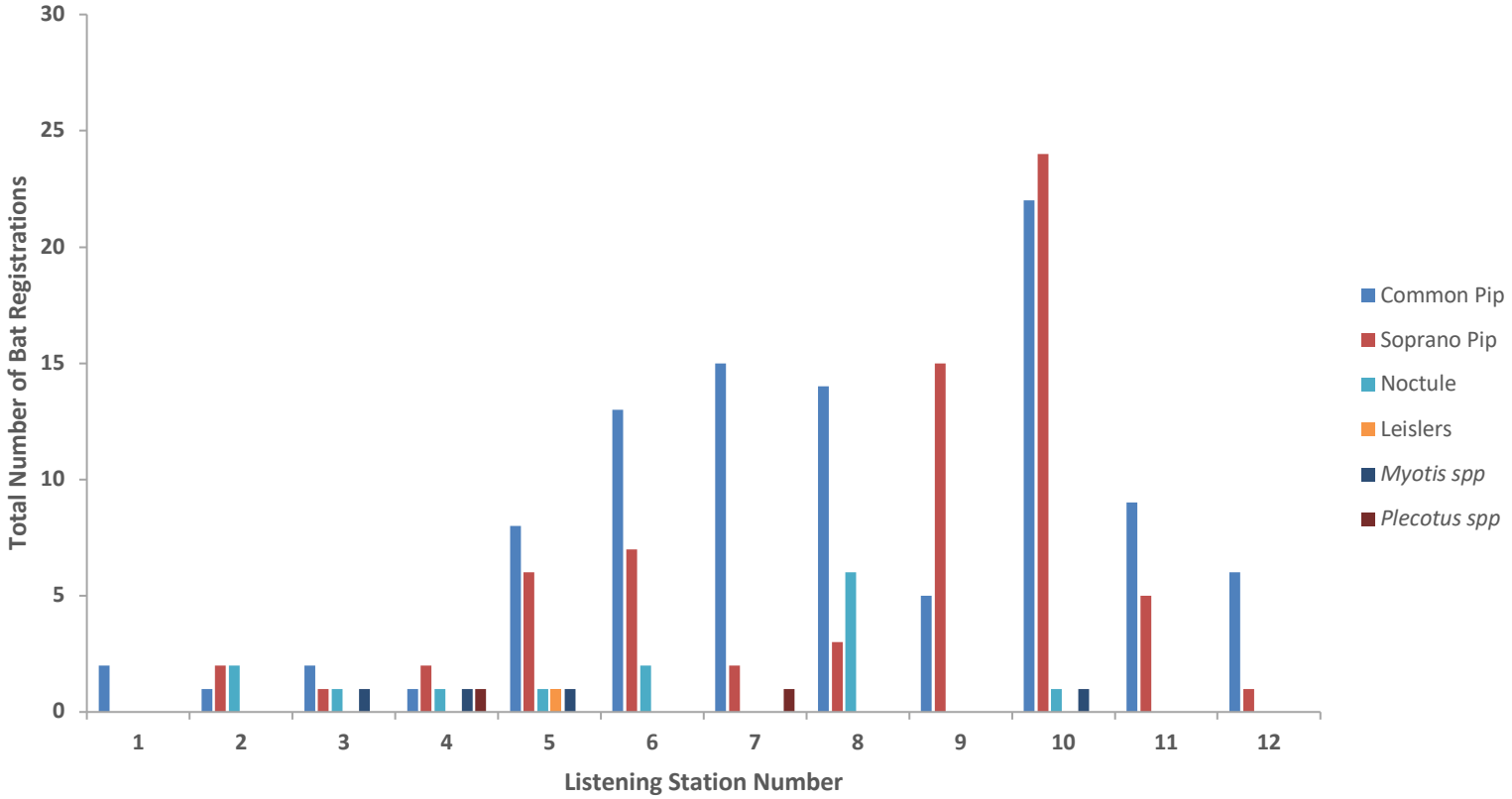
Figure 4. Graphical representation of the number and species composition of bat recordings noted during the walked transects (n = 6) at the different listening stations from the completed surveys (April – September 2022) totalled.



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As shown in **Fig 4** above, activity levels on site were considered to be relatively low, with at least 6 species recorded. The most frequently recorded species across all areas of the site was Common Pipistrelle (*Pipistrellus pipistrellus*) along with Soprano Pipistrelle (*Pipistrellus pygmaeus)* and occasional Noctule (*Nyctalus noctula*), Leislers (*Nyctalus Leisleri*), *Myotis* spp and *Plecotus* spp. Species diversity was generally even across the site with slightly higher diversity along the southern boundary of the site (likely due to the better connectivity of the hedgerow).

4.2 Static Monitoring

The results of the static detector monitoring carried out during April to September 2022 are provided in **Table 2** below.

Table 2. Analysis from Minibat and Anabat static deployment from April to September 2022 (see **Fig 3** for approximate location).

Location	Date	Species	Total passes	Average passes per night	Average passes per hour
A1	25th - 29th April 5 Nights 9.50 hrs p/n	C.pip	1440	288.00	30.32
		S.pip	128	25.60	2.69
		Noctule	4	0.80	0.08
		Myotis spp.	2	0.40	0.04
A2	25th - 29th April 5 Nights 9.50 hrs p/n	C.pip	886	177.20	18.65
		S.pip	741	148.20	15.60
		Noctule	15	3.00	0.32
		Leisler's	4	0.80	0.08
		Serotine	12	2.40	0.25
		Myotis spp.	17	3.40	0.36
B1	19th - 24th May 5 Nights 8.25 hrs p/n	C.pip	21	4.20	0.51
		S.pip	12	2.40	0.29
		Noctule	5	1.00	0.12
		Myotis spp.	1	0.20	0.02
B2	19th - 24th May 5 Nights 8.25 hrs p/n	C.pip	101	20.20	2.45
		S.pip	311	62.20	7.54
		Noctule	1	0.20	0.02
		Leisler's	2	0.40	0.05
		Myotis spp.	5	1.00	0.12
C1	16th - 20th June 5 Nights 7.5 hrs p/n	S.pip	8	1.60	0.21
		Noctule	5	1.00	0.13
		Serotine	3	0.60	0.08

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C2	16th - 20th June 5 Nights 7.5 hrs p/n	C.pip	59	11.80	1.57
		S.pip	32	6.40	0.85
		Noctule	11	2.20	0.29
		Serotine	3	0.60	0.06
D1	1st - 5th July 5 Nights 7.5 hrs p/n	C.pip	141	28.20	3.76
		S.pip	195	39.00	5.20
		Serotine	2	0.40	0.04
		Myotis spp.	12	2.40	0.32
D2	1st - 5th July 5 Nights 7.5 hrs p/n	C.pip	242	48.40	6.45
		S.pip	110	22.00	2.93
		Noctule	11	2.20	0.29
		Myotis spp.	3	0.60	0.08
E1	11th - 15th August 5 Nights 9.5 hrs p/n	Noctule	2	0.40	0.04
		C.pip	110	22	2.3
		S.pip	28	5.6	0.58
		Plecotus spp	11	2.2	0.23
E2	11th - 15th August 5 Nights 9.5 hrs p/n	***Static deployment failed***			
F1	21th - 25th September 5 Nights 11.75 hrs p/n	C.pip	3	0.60	0.05
		S.pip	17	3.40	0.29
		Serotine	5	1.00	0.09
		Myotis spp.	8	1.60	0.14
F2	27th - 2nd September 6 Nights 12.25 hrs p/n	C.pip	8	1.33	0.11
		S.pip	39	6.50	0.53
		Noctule	2	0.33	0.03
		Serotine	10	1.67	0.14
		Myotis spp.	45	7.50	0.61

In contrary to the walked transects, overall activity levels on site were high with a large number of different species of bats using the site as a foraging and commuting area. Common Pipistrelles were the most commonly registered species across the site closely followed by Soprano Pipistrelles. In addition, *Myotis Spp.* and *Noctule* were recorded in higher numbers. Smaller numbers of *Plecotus spp.*, Serotines and Leisler's were recorded across the site. Activity levels and species diversity were generally slightly higher towards the western boundary, likely due to the scrubs and river on site, as well as the connectivity to the adjacent field.

Ecosupport Ltd K4 Keppel, Daedalus Park, Daedalus Drive, Lee-on-the-Solent, Hampshire, PO13 9FX

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4.3 Evaluation

4.3.1 Foraging and Commuting Bats

Overall the bat activity levels on site were considered to be moderate and largely dominated by Soprano and Common Pipistrelle (considered to be common species within the UK) along with low - moderate levels of Noctule and *Myotis* spp (rarer species as per Wray et al 2010) and occasional activity from Serotine, Leisler's (rarer) and *Plecotus* spp (common). Activity levels were relatively even across the site with a slightly higher amount of activity and species diversity associated with the existing boundary features (hedgerows).

Guidance on valuing bat foraging and commuting habitat is provided by Wray *et al* (2010), which uses a points-based system. Using this system, as it stands using the data so far collected, the site scores ***23 points*** for commuting bats and ***17 points*** for foraging bats (see **Table 3**) and is correspondingly considered to be of ***Local*** value for foraging and commuting bats.

Table 3. Valuation of habitat for (a) commuting and (b) foraging bats after Wray et al. (2010). The points scored by the site are indicated in bold type.

Species	Number of bats	Roosts nearby	Habitat features
(a) Commuting habitat			
Common (2)	Individual bats (5)	None (1)	Absence of (other) linear features (1)
		Small number (3)	Un-vegetated fences and large field sizes (2)
Rarer (5)	**Small numbers (10)**	**Moderate number/not known (4)**	Walls, gappy or flailed hedges, isolated well grow hedges, moderate field sizes (3)
		Large number of roosts or close to a SSSI for the species (5)	**Well grown and well-connected hedges, small field sizes (4)**
Rarest (20)	Large numbers (20)	Close or within a SAC for the species (20)	Complex network of well-established hedges, small fields and rivers/ streams (5)
(b) Foraging habitat			
Common (2)	**Individual bats (5)**	None (1)	Industrial or other site without established legislation (1)
		Small number (3)	Suburban areas or intensive arable land (2)

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Rarer (5)	Small numbers (10)	**Moderate number/not known (4)**	**Isolated woodland patches, less intensive arable and/or small towns/villages (3)**
		Large number of roosts or close to a SSSI for the species (5)	Larger or connected woodland blocks, mixed agriculture and small villages/hamlets (4)
Rarest (20)	Large numbers (20)	Close or within a SAC for the species (20)	Mosaic of pasture, woodlands and wetland areas (5)

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5.0 MITIGATION, COMPENSATION & ENHANCEMENTS

5.1 Lighting Strategy

5.2.1 Overview

At this stage it is understood that a lighting plan (with spill contours) for the scheme has not yet been carried out although when it is created, it will be informed by information provided within *Guidance Note 08/18 Bats and Artificial Lighting in the UK* (ILP / BCT 2018) in collaboration with the ecologist. Public spaces have been designed with lighting in mind, and encourage the use of low-level and / or eco-friendly lighting.

Some of the key principles to provide mitigation for the impacts of additional lighting upon bats as outlined within that document (and areas on site that would be more sensitive and thus require more targeted lighting mitigation) are outlined below.

5.2.2 Dark Corridors

As the application is outline, details on the landscape proposals are not yet available although broad measures based on the indicative layout are shown in **Fig 5** below (further details on this can be outlined through the provision of a Biodiversity Enhancement and Mitigation Plan (BEMP) which can be secured via a suitably worded condition of planning).

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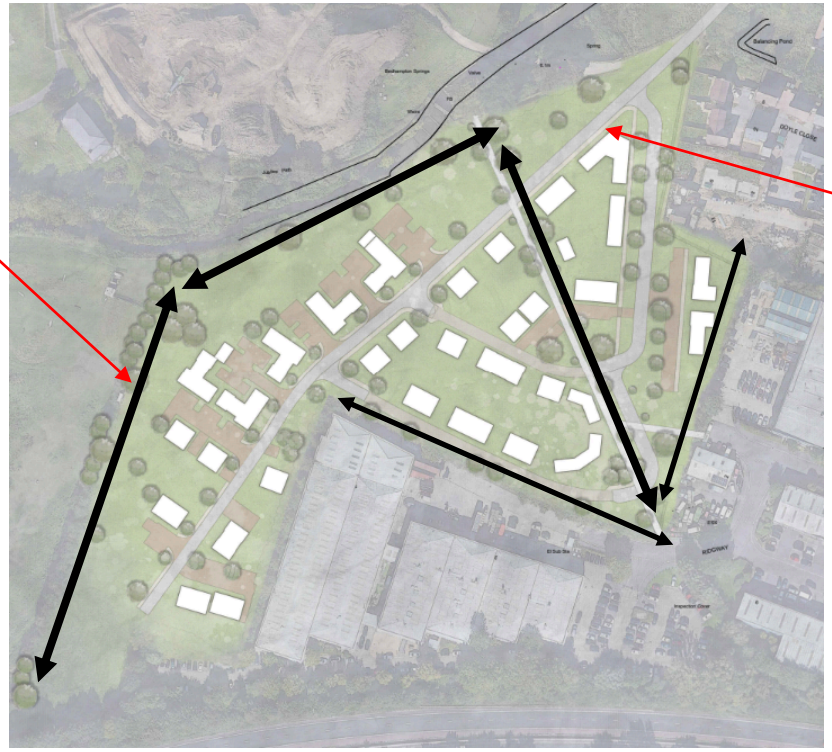
T: 01329 832841 info@ecosupport.co.uk www.ecosupport.co.uk

Figure 5. Indicative layout of the scheme with measures that can be provided to mitigate for impacts upon foraging / commuting bats. The existing and new commuting routes are indicated by the arrows (which will in effect be dark corridors).

3 – 5 m minimum width 'dark corridors' maintaining buffers to existing linear features. These areas will be enhanced through planting of a number of new shrubs, trees and shade tolerant herbaceous species to generate an understorey (as well as areas of unmanaged grassland for reptiles). Should any lighting for the adjacent car spaces / roads be required, use of low-level bollard lighting will be necessary to minimise light spill. Any external security lighting will be set on motion-sensors and short (1min) timers.



Street lighting along roads to be spaced as far apart as possible to reduce light intensity. Lights will be directed/placed away from new planting and the central dividing hedgerow between the two fields, and will not spill over the horizontal plain (so as not to impact high-flying bats such as Noctules) Warm white LED lights are recommended as they produce a "Warm" light and have reduced impacts on foraging and commuting bats (for full lighting recommendations please see section 5.2.2 below)

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5.2.2 Sensitive Lighting

A document (*Guidance Note 08/18 Bats and Artificial Lighting in the UK*) has been produced via a collaboration between the Institute of Lighting Professionals (ILP) and the Bat Conservation Trust (BCT), which outlines the latest recommendations to minimise the impacts of increased artificial lighting on bats. The key recommendations within this document have been outlined below and will be implemented provided there are no conflicts with any legal limits of illumination (in which case a suitable compromise should be reached).

'Luminaires come in a myriad of different styles, applications and specifications which a lighting professional can help to select. The following should be considered when choosing luminaires:

- *All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used. LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.*
- *A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce blue light component.*
- *Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).*
- *Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill.*
- *The use of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered. However, this often comes at a cost of unacceptable glare, poor illumination efficiency, a high upward light component and poor facial recognition, and their use should only be as directed by the lighting professional.*
- *Column heights should be carefully considered to minimise light spill.*
- *Only luminaires with an upward light ratio of 0% and with good optical control should be used – See ILP Guidance for the Reduction of Obtrusive Light.*
- *Luminaires should always be mounted on the horizontal, i.e. no upward tilt.*
- *Any external security lighting should be set on motion-sensors and short (1min) timers.*
- *As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed'* (**Fig 6**).

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Figure 6. (a) Shield 'barn doors' (b) cowl hood; (c) shield and; (d) external louvre Images from ILP (2011).

5.3 Enhancements

5.3.1 Planting

It is understood that most of the trees on site will be retained and only a few trees will be required to be removed to accommodate the development, all of which are low value trees.

If a landscape masterplan is not available / been prepared, high-level recommendations should be made for replacement and new tree planting where this is possible on the layout provided. The landscape design of the scheme will have to allow for the creation of a 3 - 5m buffer running along all the outer hedgerows and Hermitage Stream, which will create valuable dark corridors for sensitive foraging and commuting bats. The detailed landscape proposals should include a mixture of native trees and specimen trees within the landscape margins and green open space. Specimen trees of landscape and amenity value should be incorporated into new street scenes where possible, which would be in-line with Sections 12 and 15 of the National Planning Policy's aspirations for new residential development to include tree-lined streets.

5.3.2 Bat Boxes

To act as a biodiversity enhancement and in the interests of promoting net gain principles (in line with National and Local planning policy), it is proposed that 50% of the new dwellings (so 70 mimum) will have an Ibstock (**Fig 7**) (https://ibstockbrick.co.uk/kevington/eco-products/)

Ecosupport Ltd K4 Keppel, Daedalus Park, Daedalus Drive, Lee-on-the-Solent, Hampshire, PO13 9FX

T: 01329 832841 info@ecosupport.co.uk www.ecosupport.co.uk

(or similar) bat box integrated into the gable ends of the dwellings. These features are entirely self-contained and available in a variety of different colours to match different construction materials. Ideally these boxes should be located away from windows and positioned in order to benefit from some degree of sunlight exposure.

Figure 7. Ibstock bat brick 'B' which will be integrated into the gable walls of 70 of the new dwellings on site.

In addition to the integrated bat bricks, the following wood concrete models (available from NHBS) will also be erected within tree lines / hedgerows present across the application site:

- 4 'General Purpose Bat Boxes'
- 1 'CJ Wildlife - Large Multi Chamber Woodstone Bat Box'
- 1 'CJ Wildlife - Large Multi Chamber Woodstone Bat Box' with wooden insert removed

All are manufactured from long-lasting Woodcrete, which is a blend of wood, concrete and clay which will not rot, leak, crack or warp, and will last for at least 20 - 25 years, making it suitable for long-term mitigation projects. Woodcrete is breathable and maintains a stable temperature inside the box. They are painted black to absorb warmth and further details on specific locations can be provided in the BEMP.

Ecosupport Ltd K4 Keppel, Daedalus Park, Daedalus Drive, Lee-on-the-Solent, Hampshire, PO13 9FX

T: 01329 832841 info@ecosupport.co.uk www.ecosupport.co.uk

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Ecosupport Ltd K4 Keppel, Daedalus Park, Daedalus Drive, Lee-on-the-Solent, Hampshire, PO13 9FX

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