



**Biodiversity Enhancement
Statement for 233 London Road,
Reading, RG1 3NY**

19 February 2025

Biodiversity Enhancement Statement of 233 London Road, Reading, RG1 3NY

REPORT DETAILS

Site Name: 233 London Road
Site Location: 233 London Road, Reading, RG1 3NY
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CLIENT DETAILS

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DISCLAIMER

The contents of this report are confidential and may contain information regarding protected species of a sensitive nature.

This report has been prepared by NatureBureau Ltd for the sole use of the client and in connection with the development project described. The findings of this report are valid for a maximum of 18 months from the final review date.

This is a technical report and does not represent legal advice/opinion.



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communication materials, design and wildlife book publisher.



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EXECUTIVE SUMMARY

NatureBureau Ltd was commissioned by Mr. Sunjive Corpaul to prepare a Biodiversity Enhancement Statement for a planning application concerning the development of additional floors, rear extensions, and a new separate building at the rear of 233 London Road, Reading. This document outlines specific mitigation and enhancement measures for protected species, particularly bats and swifts, which are integral to the planning conditions and biodiversity requirements under the approved planning application (PL/22/0678).

The report identifies key biodiversity considerations associated with the site, including the presence of bat and swift populations in the area. It emphasises the need to incorporate biodiversity enhancement features, such as bat and swift bricks, into the new construction to ensure that the development provides a net positive benefit to local wildlife. In line with this, it provides detailed guidance on these mitigation measures during both the construction and operational phases, including measures to minimise the impact of lighting on bat foraging paths. Additional recommendations have been made to protect nesting birds and ground-dwelling mammals, such as hedgehogs.

The report recommends that all biodiversity enhancements be overseen by a qualified ecologist to ensure proper installation of the required features, although this may not be necessary if the contractor is confident in the recommendations made herein. A mandatory post-development compliance check by an ecologist is required within two weeks of project completion, to verify that the installed features comply with the planning conditions.

Figure 1: 233 London Road, Reading, RG1 3NY



1 INTRODUCTION

NatureBureau Ltd was instructed by Mr Sunjive Corpaul to produce a Biodiversity Enhancement Statement for a planning application related to the erection of additional floor, rear extensions and new separate building at rear of 233 London Road. Plans also include the remodelling of shop unit, provision of refuse and cycle spaces, landscaping and other associated structures following removal of storage buildings. This document outlines mitigation for bats and swifts, as well as targeted enhancement measures for these protected species. It also includes the correct management and remedial responsibilities, should they be necessary. It will be submitted to Reading Borough Council with regards to condition 14 of the approved planning application PL/22/0678 which is as follows:

“No development shall commence above foundation level on site until details of biodiversity enhancements, to include four swift bricks and two bat tiles or bricks built into the walls of the new development have been submitted to and approved in writing by the Local Planning Authority. The bricks shall thereafter be installed in accordance with the approved details prior to first occupation of any part of the development.”

Reason: To incorporate biodiversity in and around developments in accordance with paragraph 179 and 180 of the NPPF, and Policy EN12 of the Reading Borough Local Plan 2019 (Swifts although common in Reading and other areas are declining and a bird of conservation concern due in part to a lack of nesting sites which are usually in buildings).

The prescribed mitigation measures described within this document will be issued to relevant works contractors to ensure that they are carried out in full. It is strongly recommended that implementation of this will be overseen by a suitable ecological consultancy, to avoid costly alterations later (following mandatory compliance checks). At minimum, the works contractor must be given contact details for an ecologist so that any uncertainties or issues can be resolved promptly.

1.1 The Proposed Development

The site is located at 233 London Road, Reading, RG1 3NY. The central grid reference for the site is SU73223 73258. The location of the site is shown in Figure 6.

The site (approximately 0.025 hectares) comprises a twostorey end of terrace building located on the corner of London Road and Amity Road. It contains a vacant commercial unit at ground floor and a separate two bed flat above accessed via steps at the rear. The rear of the site is currently vacant and secured (by locked gates and a wooden barrier). The proposed development includes the conversion of the ground floor commercial unit, with extensions and alterations to 233 London Road to create three flats; and the provision of a new detached two storey building to the rear containing three flats. The new detached building (containing three flats) will be 2.5 storeys with accommodation set within the pitched roof of the top floor.

Figure 2: Existing Site Elevations (233 London Road)

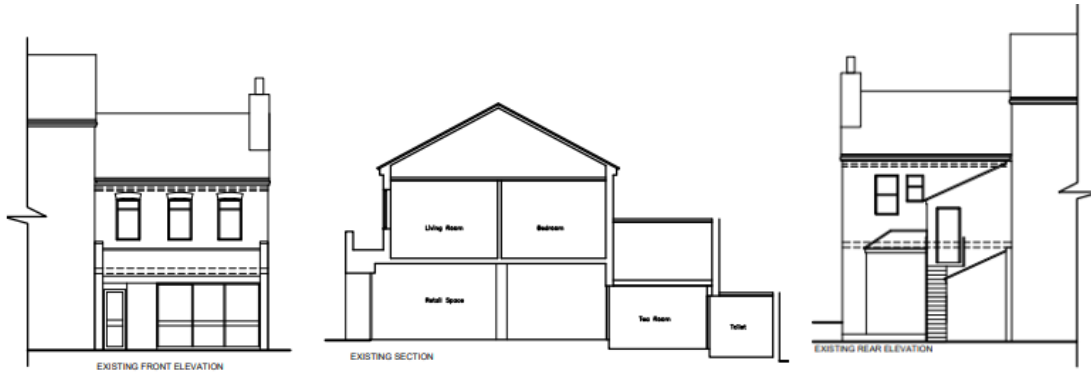


Figure 3: Proposed Site Elevations (233 London Road)

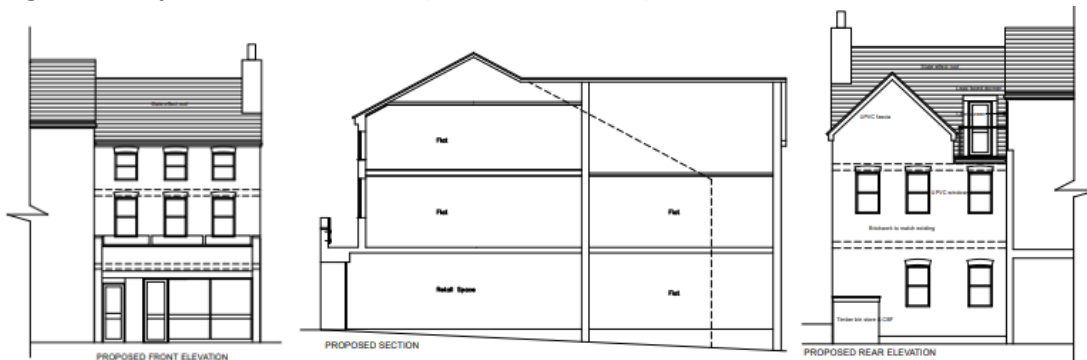


Figure 4: Proposed new building (to rear of site)

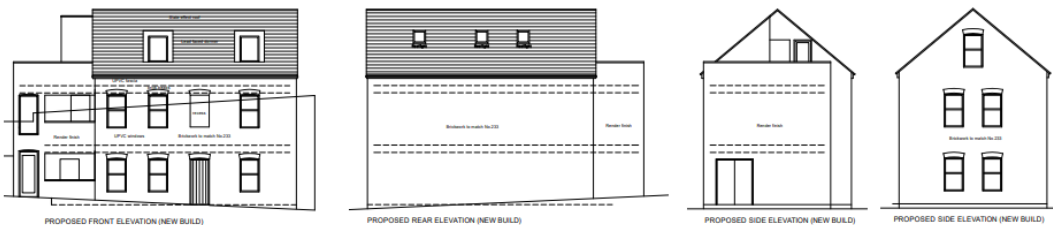
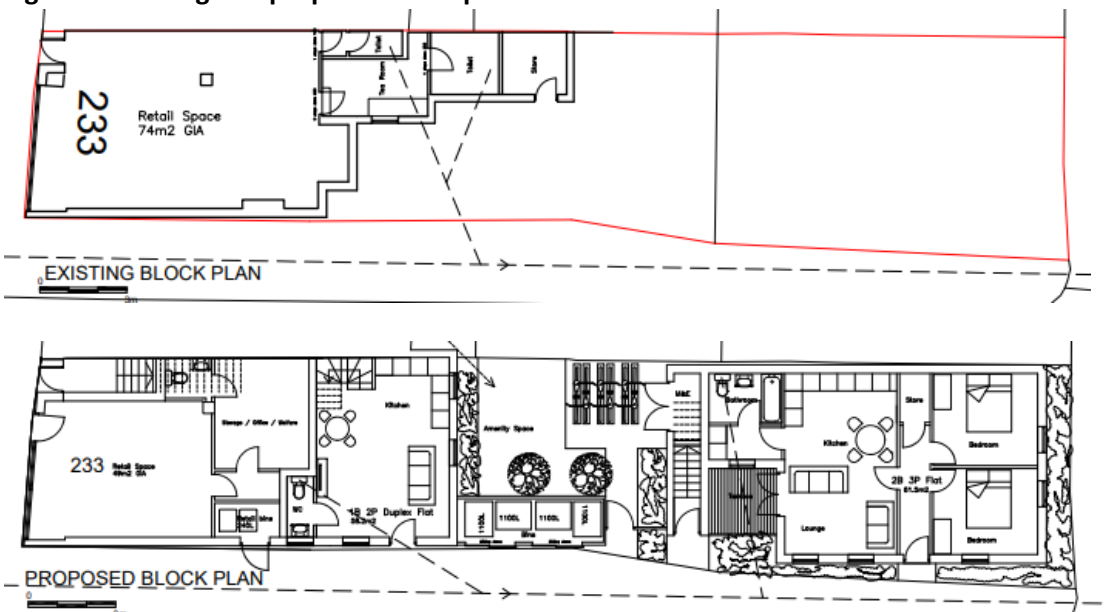


Figure 5: Existing and proposed block plans



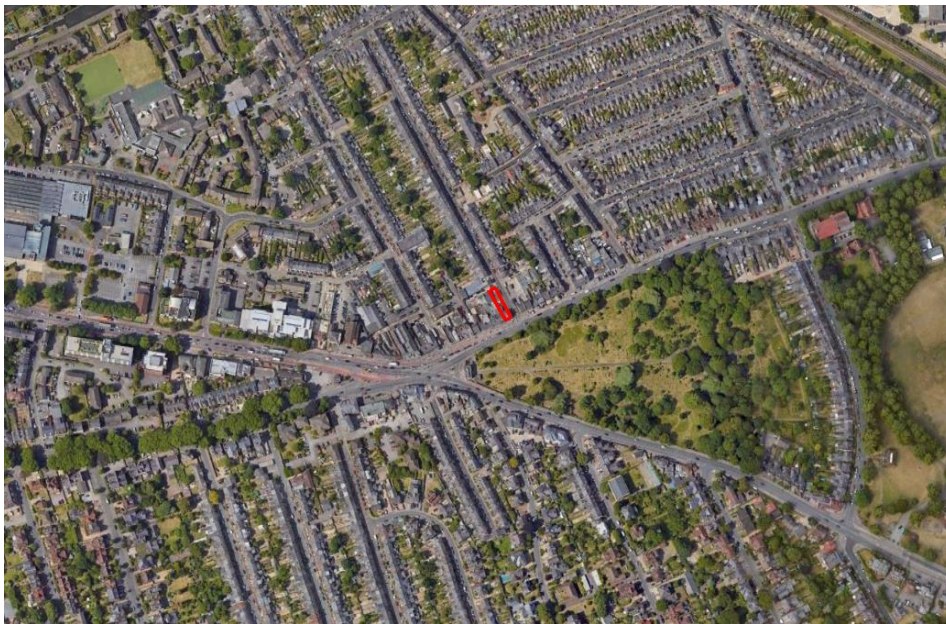
1.1.1 Local Landscape and Biodiversity Considerations

The properties are neither statutory listed nor locally listed, and they are not situated within a Conservation Area. However, directly opposite the site is Reading Cemetery, a Grade II listed Registered Historic Garden (list entry 1001641). The cemetery gardens are also designated as an Area of Identified Biodiversity Interest.

Swifts are known to inhabit the Reading area and are classified as a species of conservation concern. Bats, which are highly protected due to their vulnerability, are experiencing population declines primarily due to habitat loss, including both natural environments and buildings they have adapted to for roosting. According to DEFRA's Multi-Agency Geographic Information for the Countryside (MAGIC) database, bat species recorded in the local area include the brown long-eared bat (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's bat (*Myotis daubentonii*), and soprano pipistrelle (*Pipistrellus pygmaeus*). Analysis of satellite imagery indicates some ecological connectivity between the site and the wider habitat which is suitable for both bats and birds, via the presence of hedgerows and treelines.

Figure 6: An aerial image showing the location of the site (red) in relation to the wider landscape

(Source: Google Earth, 2022)



1.2 Previous Ecological Surveys

There are no known ecological surveys associated with this site.

Legal protection applying to birds and bats is detailed in Appendix 1 of this report.

2 CONSTRUCTION PHASE MITIGATION MEASURES

2.1 Bats

Bright external lighting can negatively impact bat foraging and commuting flight paths and, more critically, may cause bats to remain in their roosts for longer periods. It is essential that the lighting scheme complies with guidelines issued by the Bat Conservation Trust (see Appendix 2). Given the presence of bat-suitable

habitat near the site, any new lighting installations during both the construction and operational phases should be designed with consideration for local bat populations.

To minimise the disturbance to bats during the construction phase, temporary night-time lighting should be avoided from sunset to sunrise, and all work should be conducted during daylight hours. If emergency lighting is necessary, the following specifications must be adhered to:

- Lighting should be directional, facing away from neighbouring treelines, with a steep downward angle. Lights should be mounted on short columns (no higher than 3 meters).
- Light sources should not exceed 2000 lumens (150 watts) and should emit wavelengths above 550 nanometres, avoiding UV, white, and blue light.
- Warm white spectrum LEDs (<2500 Kelvin) should be used, rather than cool white spectrum lighting.
- Cowls, hoods, baffles, or louvres should be employed to prevent light spill beyond the site.
- Reflective surfaces under the lighting should be avoided.

During the dismantling of the existing roof tiles and associated features (such as soffits, lead flashing, and timber beams) at 233 London Road, contractors should be aware of the (low) potential presence of bats. It is critical that both the landowner and building contractors remain vigilant and aware of their legal obligations should bats - or evidence of their presence - be discovered during the works. Bats and their roosts are strictly protected by law (see Appendix 1). If bats or signs of their presence are found during construction, all works must cease immediately, and the advice of a qualified ecologist should be sought. Additional surveys may be required to assess the nature of any roosts present, and a derogation licence may be needed to proceed with works that impact the roosts. This licence, or a European Protected Species Mitigation (EPSM) Licence, must be approved and issued by Natural England.

2.2 Breeding Birds

If work must be carried out during bird nesting season (typically 1st March to 31st August), a careful check should be made for any nesting birds before any works take place. If an active bird nest is discovered, an exclusion zone must be put in place (minimum 5m), and works must be halted in that area. Breeding birds and their nests are protected by law and all active nests must be retained until the young have fledged. Precautions should be taken with machinery and noise levels when working close to any retained nests so as not to disturb any nearby nesting birds during construction works.

2.3 Other Species

Additional species of concern regarding the proposed development are ground-dwelling mammals, specifically hedgehogs. Prior to the commencement of works, a thorough check for hedgehogs should be conducted. During the construction phase, the following recommendations must be followed:

- Any refuse resulting from the works should be placed into a skip within the designated area on the same day or removed from the construction zone immediately. It should not be left in piles where animals could seek refuge.
- Any rubble should be dismantled manually, and debris and brash should be stored on pallets or removed from the site to prevent hedgehogs from using these areas. It is advisable that only building materials intended for immediate use be brought to the site. If materials must be stored

onsite (e.g., overnight or for more than one day), they should be stored on pallets or in bags on pallets to prevent the creation of refuges that may attract wildlife.

- All green waste should be removed from the site on the same day or stored in a manner that prevents wildlife access.
- Any excavations created during the construction process (e.g., for laying a concrete pad) should be filled in and completed on the same day to avoid creating pitfall traps. If this is not possible, the excavations must be covered overnight or left with a sloping edge or ramp to allow trapped wildlife to escape.
- All chemicals or pollutants used or generated by the development must be stored and disposed of properly in accordance with COSHH regulations.

3 OPERATIONAL PHASE MITIGATION MEASURES

3.1 Bats

In addition to the above measures, the following recommendations should be employed to avoid excessive light-spillage post-development:

- Any external lighting on the site should use sensor activated lamps;
- Variable lighting regimes must be utilised to lower lighting levels during periods of reduced human activity (e.g. 22:00-05:30)

4 BIODIVERSITY ENHANCEMENT MEASURES

4.1 Bats

To achieve a net positive benefit for bats within the development, it is recommended that new roosting features be integrated into the structure of the new building. Specifically, two Schwegler 2FR bat tubes should be installed side by side on the north elevation, at the corner nearest Amity Road, and an additional pair of tubes should be positioned similarly on the south elevation. These locations align with the proposed planting scheme, which can serve as ecological corridors. The positions also minimise exposure to artificial light spill from the building's interior.

Figure 8 illustrates the recommended placement of these bat tubes, which should be installed at a minimum height of 4 metres above ground and positioned as far as possible from windows and external lighting. To maximise their effectiveness, it is strongly advised that an ecologist oversee the installation to ensure optimal placement for roosting bats. If the bat tubes are installed incorrectly or in a location deemed unsuitable for bat roosting, they must be removed and replaced following compliance checks.

Figure 7: Schwegler 2FR bat tubes (suitable to be installed beneath a rendered surface)

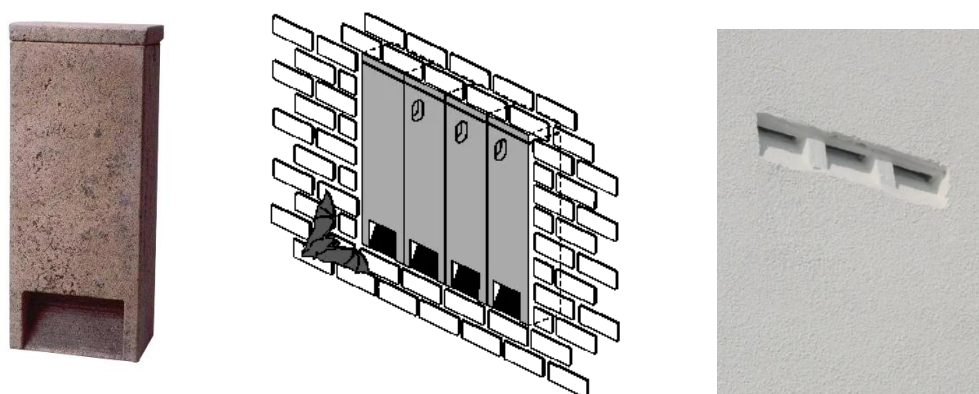
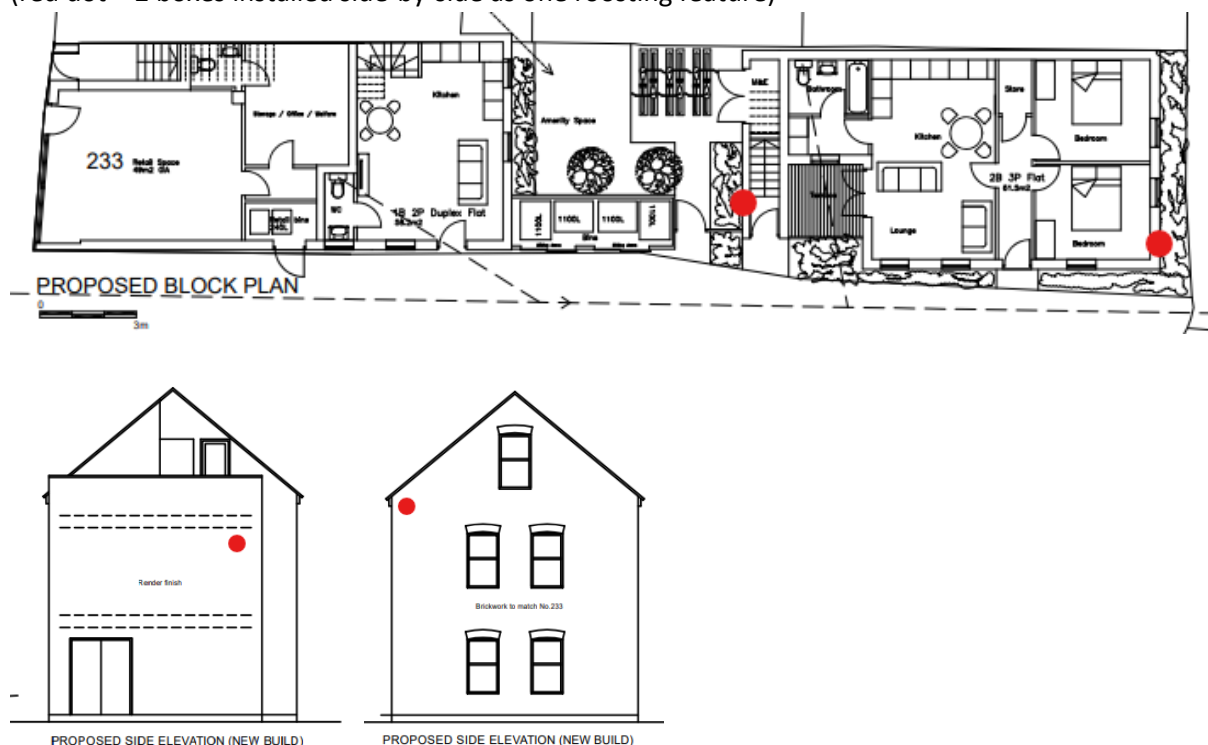


Figure 8: The recommended Schwegler 2FR bat tube locations, shown in red on the proposed site plans (red dot = 2 boxes installed side-by-side as one roosting feature)



4.2 Swifts

To achieve a net positive benefit for nesting birds within the development, it is recommended that four swift bricks be incorporated into the design. This should include two Manthorpe GSWB Swift Nesting Bricks installed on the rear (north) gable extension of 233 London Road, one on the east elevation of 233 London Road, and one on the north elevation of the new building. Figure 10 illustrates the recommended placement of these swift bricks, which should be positioned as close to the eaves as possible (at least 6 metres high) and avoiding locations which receive long periods of direct sunlight throughout the day.

To ensure optimal placement, it is strongly recommended that an ecologist oversee the installation. If the swift bricks are installed incorrectly or in a location deemed unsuitable for nesting birds, they must be removed and repositioned in accordance with compliance checks.

Figure 9: Manthorpe GSWB Swift Nesting Bricks

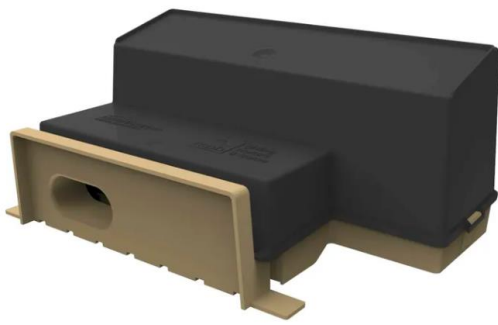
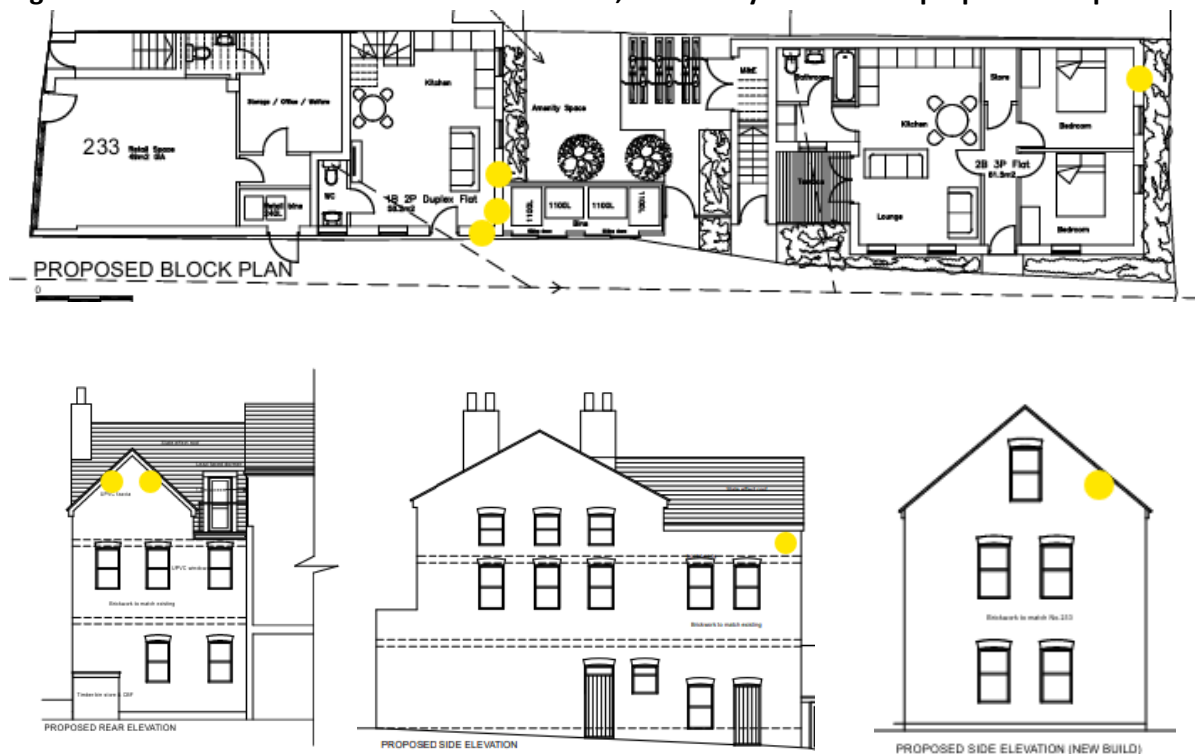


Figure 10: The recommended swift brick locations, shown in yellow on the proposed site plans



4.3 Compliance Checks

Upon completion of the development, a suitably qualified ecologist should conduct a compliance check to verify the proper installation of the bat bricks and swift bricks. This assessment should take place at the earliest opportunity and no later than two weeks after project completion. Any incorrectly installed or missing features must be reported to Reading Borough Council as a breach of planning consent and rectified as soon as possible.

4.4 Management Measures

The integral bat roosting features within the buildings will require minimal maintenance, aside from an annual inspection to ensure they remain securely in place. Any damaged bat bricks must be replaced with identical units, however, as these features may support roosting bats, this should only be conducted by a suitably qualified ecologist. Additionally, swift bricks should ideally be cleared of nesting material during the winter months to prevent the accumulation of parasites.

5 APPENDICES

5.1 Appendix 1: Wildlife Legislation and National Planning Policy

The following text is intended for general guidance only and does not constitute comprehensive professional legal advice. It provides a summary of the current legal protection afforded to wildlife in general and certain species. It includes current national planning policy relevant to nature conservation.

The ‘Birds Directive’, ‘Habitats Directive’ and ‘Natura 2000 Sites’

The Council Directive 79/409/EEC on the Conservation of Wild Birds (“the Birds Directive”) sets a framework for the protection of wild birds. Under the Directive, several provisions are made including the designation and protection of ‘Special Protection Areas’ (SPAs) – areas which support important bird populations, and the legal protection of rare or vulnerable species.

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the “Habitats Directive”) directs member states of the EU to take measures to maintain the favourable conservation status of important habitats and species. This requires the designation of a series of sites which contain important populations of species listed on Annex II of the Directive (for example Bechstein’s bat *Myotis bechsteinii*, Barbastelle bat *Barbastella barbastellus* and white-clawed crayfish *Austropotamobius pallipes*). Together with ‘Special Areas of Conservation’ (SACs), SPAs form a network across Europe of protected areas known as the ‘Natura 2000 sites’.

Annex IV lists species in need of more strict protection, these are known as “European Protected Species (EPS)”. All bat species, common dormice *Muscardinus avellana*, otter *Lutra lutra* and great crested newts *Triturus cristatus* are examples of EPS that are regularly encountered during development projects.

The ‘Habitats Regulations’

The Conservation of Habitats and Species Regulations 2017, as amended (the “Habitats Regulations”) is the principal means of transposing the Habitats Directive and the Birds Directive, and updates the Conservation (Natural Habitats, &c.) Regulations 1994 (“the 1994 regulations”) in England and Wales. ‘Natura 2000’ sites, now known as National Site Network sites under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, receive the highest level of protection under this regulation which requires that any activity within the zone of influence of these sites would be subject to a Habitats Regulations Assessment (HRA) by the competent authority (e.g. planning authority), leading to an Appropriate Assessment (AA) in cases where ‘likely significant effects’ to the conservation objectives are identified.

For European Protected Species, Regulation 41 makes it a criminal offence to:

- deliberately capture, injure or kill any such animal;
- deliberately disturb wild animals of such species;
- deliberately take or destroy their eggs (where relevant);
- damage or destroy a breeding or resting place of such an animal;
- possess, control, sell or exchange any live or dead animal or plant, of such species;
- deliberately pick, collect, cut, uproot or destroy a wild plant of such species.

The Habitats Directive and Habitats Regulations provide for the derogation from these prohibitions for

specific reasons provided certain conditions are met. An EPS licensing regime allows operations that would otherwise be unlawful acts to be carried out lawfully. Natural England is the licensing Authority and, in order to grant a license, ensures that three statutory conditions (sometimes referred to as the ‘three derogation tests’) are met:

- a licence can be granted for the purposes of “preserving public health or safety or for other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment” (Regulation 53 (2) (e));
- a licence can be granted if “there are no satisfactory alternatives” to the proposed action;
- a licence shall not be granted unless the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Wildlife and Countryside Act (1981) as amended

This remains one of the most important pieces of wildlife legislation in the UK. There are various schedules to the Act protecting birds (Schedule 1), other animals including insects (Schedule 5), plants (Schedule 8), and control of invasive non-native species (Schedule 9).

Under the Wildlife and Countryside Act (WCA) 1981, all wild birds (except for those listed on Schedule 2), their eggs and nests are protected by law, and it is an offence to:

- take, damage or destroy the nest of any wild bird while it is in use or being built
- take or destroy the egg of any wild bird
- disturb any bird listed on Schedule 1, while it is nest building, or at a nest with eggs or young, or disturb the dependant young of any such bird.

Schedule 5 lists all non-avian animals receiving protection to a varied degree. At its strongest, the Act makes it an offence to intentionally kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturb animals while occupying such places. Examples of species with full protection include all EPS, common reptile species, water vole *Arvicola amphibius*, white-clawed crayfish *Austropotamobius pallipes* and Roman snail *Helix pomatia*. Other species are protected from sale, barter or exchange only, such as white letter hairstreak *Satyrus w-album*.

The Act makes it an offence to intentionally pick, uproot or destroy any plant or seed, and sell or possess any plant listed on Schedule 8. It is also an offence to intentionally uproot any wild plant not listed on Schedule 8 unless authorised [by the landowner]. Species on Schedules 5 and 8 are reviewed every 5 years when species can be added or removed.

Measures for the prevention of spreading non-native species which may be detrimental to native wildlife is included in the Act, which prohibits the release of animals or planting of plants into the wild of species listed on Schedule 9 (for example Japanese knotweed *Fallopia japonica*, Himalayan balsam *Impatiens glandifera*, New Zealand Pygmyweed *Crassula helmsii*).

The Wildlife and Countryside Act 1981 (as amended) also prohibits certain inhumane methods of traps and devices for the capture or killing of wild animals and certain additional methods such as fixed trap,

poisoning with gas or smoke, or spot-lighting with vehicles for killing species listed on Schedule 6 of the Act (this includes all bat species, badger, otter, polecat, dormice, hedgehog and red squirrel).

Natural Environment and Rural Communities (NERC) Act (2006)

The NERC Act (2006) created the statutory nature conservation body Natural England, and places a statutory duty on all public bodies, including planning authorities, under Section 40, to take, or promote the taking by others, steps to further the conservation of habitats and species of principal importance for the conservation of biodiversity in England (commonly referred to as the 'Biodiversity Duty'). This duty extends to all public bodies the biodiversity duty of Section 74 of the Countryside and Rights of Way (CROW) Act 2000, which placed a duty only on Government and Ministers. Section 41 of the NERC Act lists the habitats and species of principle importance. This includes a wide range of species from mosses, vascular plants, invertebrates through to mammals and birds. It originates from the priority species listed under the UK Biodiversity Action Plan (UK BAP) with some omissions and additions.

Environment Act (2021)

The Environment Act sets a target of halting the decline in species through the inclusion of a legally binding 2030 species abundance target. Aiming to restore natural habitats and enhance biodiversity, the Act requires new developments to improve or create habitats for nature (through mechanisms such as mandatory Biodiversity Net Gain), and tackle deforestation. Going forwards, UK businesses will need to look closely at their supply chains as amongst other measures they will be prohibited from using commodities associated with wide-scale deforestation. Woodland protection measures are also strengthened through the Act.

The Act enables the reform of the Habitats Regulations and further improves protection for nature through the establishment of Local Nature Recovery Strategies that support national Nature Recovery Networks. In addition, the Act provides for the production of Protected Site Strategies and Species Conservation Strategies, aimed at supporting the design and delivery of strategic approaches to deliver better outcomes for nature.

National Planning Policy Framework

The National Planning Policy Framework (NPPF 2021)¹ sets out the Government's view on how planners should balance nature conservation with development and helps ensure that Government meets its biodiversity commitments with regard to the operation of the planning system.

Paragraph 179b, which states that council policies should "promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity." The Office of the Deputy Prime Minister (ODPM) Circular 06/2005, 2005) 2. In accordance with the NPPF, it is important that developments should contribute to and enhance the natural and local environment by:

- minimising impacts on existing biodiversity and habitats;
- providing net gains in biodiversity and habitats, wherever possible;
- establishing coherent ecological networks that are more resilient to current and future pressures.

UK Post-2010 Biodiversity Framework

The UK Biodiversity Action Plan (UK BAP), first published in 1994, was the UK's response to the commitments of the Rio Convention on Biological Diversity (1992) until 2010, when the UK BAP was

replaced by the UK Post-2010 Biodiversity Framework. This framework covers the period 2011 to 2020 and forms the UK government's response to the new strategic plan of the United Nations Convention on Biodiversity (CBD) published in 2010. This promotes a focus on individual countries delivering target for protection for biodiversity through their own strategies.

The most recent biodiversity strategy for England, 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services' was published by Defra (2011), and a progress update was provided in July 2013 (Defra 2013).

'Biodiversity 2020' builds on the Natural Environment White Paper for England – 'The Natural Choice', published on 7 June 2011 and sets out the strategic direction for biodiversity policy for the next decade. Biodiversity 2020 deliberately avoids setting specific targets and actions for local areas and species because the Government believes that local people and organisations are best placed to decide how to implement the strategy in the most appropriate way for their local area or situation.

Birds of Conservation Concern (BoCC)

In 1996, the UK's leading non-governmental bird conservation organisations listed the conservation status of all bird species in the UK against a series of criteria relating to their population size, trends and relative importance to global conservation. The lists, known as the 'Red', 'Amber' and 'Green' lists (in order of decreasing concern) are used to inform key conservation policy and decisions. The lists are reviewed every five years and are a useful reference for determining the current importance of a particular site for birds. The most recent review was undertaken in 2021 (Stanbury et al, 2021), which provides an up to date assessment of the conservation status of birds in the UK.

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5.2 Appendix 2: Bats and Artificial Lighting

Bright external lighting can have a detrimental impact upon foraging and commuting bat flight paths, but more importantly can also cause bats to remain in their roosts for longer. Artificial lighting can also cause significant impacts to other nocturnal species, most notably moths and other nocturnal insects. It can also result in disruption of the circadian rhythms of birds, reducing their fitness.

Guidelines issued by the Bat Conservation Trust should be referred to when designing a lighting scheme. Note that lighting designs in very sensitive areas should be created with consultation from an ecologist and using up-to-date bat activity data where possible. The guidance contains techniques that can be used on all sites, whether a small domestic project or larger mixed-use, commercial or infrastructure development. This includes the following measures:

Avoid lighting key habitats and features altogether

There is no legal duty requiring any place to be lit. British Standards and other policy documents allow for deviation from their own guidance where there are significant ecological/environmental reasons for doing so. It is acknowledged that in certain situations lighting is critical in maintaining safety, such as some industrial sites with 24-hour operation; however, in the public realm, while lighting can increase the perception of safety and security, measurable benefits can be subjective. Consequently, lighting design should be flexible and be able to fully consider the presence of protected species.

Apply mitigation methods to reduce lighting to agreed limits in other sensitive locations – lighting design considerations

Where bat habitats and features are of lower importance or sensitivity to illumination, the need to provide lighting may outweigh the needs of bats. Consequently, a balance between a reduced lighting level appropriate to the ecological importance of each feature and species, and the lighting objectives for that

area will need to be achieved. The following are techniques which have been successfully used on projects and are often used in combination for best results:

- dark buffers, illuminance limits and zonation;
- sensitive site configuration, whereby the location, orientation and height of newly built structures and hard standing can have a considerable impact on light spill;
- consideration of the design of the light and fittings, whereby the spread of light is minimised ensuring that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Consideration should be given to the height of lighting columns. It should be noted that a lower mounting height is not always better. A lower mounting height can create more light-spill or require more columns. Column height should be carefully considered to balance task and mitigation measures. Consider no lighting solutions where possible such as white lining, good signage, and LED cat's eyes. For example, light only high risk stretches of roads, such as crossings and junctions, allowing headlights to provide any necessary illumination at other times;
- screening, whereby light spill can be successfully screened through soft landscaping and the installation of walls, fences and bunding;
- glazing treatments, whereby glazing should be restricted or redesigned wherever the ecologist and lighting professional determine there is a likely significant effect upon key bat habitat and features;
- creation of alternative valuable bat habitat on site, whereby additional or alternative bat flightpaths, commuting habitat or foraging habitat could result in appropriate compensation for any such habitat being lost to the development;
- dimming and part-night lighting. Depending on the pattern of bat activity across the key features identified on site it may be appropriate for an element of on-site lighting to be controlled either diurnally, seasonally or according to human activity. A control management system can be used to dim (typically to 25% or less) or turn off groups of lights when not in use.

Demonstrate compliance with illuminance limits and buffers

- Design and pre-planning phase; it may be necessary to demonstrate that the proposed lighting will comply with any agreed light-limitation or screening measures set as a result of your ecologist's recommendations and evaluation. This is especially likely to be requested if planning permission is required.
- Baseline and post-completion light monitoring surveys; baseline, pre-development lighting surveys may be useful where existing on or off-site lighting is suspected to be acting on key habitats and features and so may prevent the agreed or modelled illuminance limits being achieved.
- Post-construction/operational phase compliance-checking; as a condition of planning, post completion lighting surveys by a suitably qualified person should be undertaken and a report produced for the local planning authority to confirm compliance. Any form of non-compliance must be clearly reported, and remedial measures outlined. Ongoing monitoring may be necessary, especially for systems with automated lighting/dimming or physical screening solutions.

Lighting Fixture Specifications

The Bat Conservation Trust recommends the following specifications for lighting on developments to prevent disturbance:

- Lighting spectra: peak wavelength >550nm
- Colour temperature: <2700K (warm)
- Reduction in light intensity
- Minimal UV emitted
- Upward light ratio of 0% and good optical control

5.3 Appendix 3: Industry Guidance and Standards

This report has been written with consideration to:

- Bat Conservation Trust (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines. 4th edition.
- Bat Conservation Trust (2019). National Bat Monitoring Program Annual Report 2019.
- British Standard 42020 (2013). Biodiversity – Code of Practice for Planning and Development.
- British Standard 8683:2021 (2021). Process for Designing and Implementing Biodiversity Net Gain.
- Chartered Institute of Ecology and Environmental Management (2017). Guidelines for Preliminary Ecological Appraisal. 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2017). Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2020). Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK. 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- Garland, L. & Markham, S. (2008) Is Important Bat Foraging and Commuting Habitat Legally Protected? <http://biodiversitybydesign.co.uk/cmsAdmin/uploads/protection-for-bat-habitat-sep-2007.pdf>
- Harris, S. & Yalden, D. (2008). Mammals of the British Isles: Handbook, 4th Edition. The Mammal Society, Southampton.
- Institution of Lighting Professionals (2018). Guidance Note 08/18 Bats and Artificial Lighting in the UK. Bats and the Built Environment Series Publication: http://www.bats.org.uk/news.php/406/new_guidance_on_bats_and_lighting
- Mathews F, and Harrower C. (2020). IUCN – compliant Red List for Britain’s Terrestrial Mammals. Assessment by the Mammal Society under contract to Natural England, Natural Resources Wales and Scottish Natural Heritage. Natural England, Peterborough ISBN 978-1-78354-485-1