



Unit 4, Langham Stables, Langham Lane, Lodsworth, Petworth, West Sussex GU28 9BU

Tel: 01798 861 800 - E-Mail: info@ecologyco-op.co.uk - Web: www.ecologyco-op.co.uk

Bat Scoping Report and Preliminary Ecological Appraisal

**2 - 4 Send Road
Caversham, Reading RG4 8EH**

Author: Xenia Snowman BSc (Hons)
Reviewed by: Dr Ryan Walker, MCIEEM, CEnv

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The Ecology Co-operation Ltd
Registered Office: Greens Court, West Street, Midhurst, West Sussex, GU29 9NQ
Company number: 8905527

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Report Summary

1. The Ecology Co-op were commissioned by Raywood Developments Limited to undertake a Preliminary Ecological Appraisal and Bat Scoping Assessment of 2-4 Send Road, Caversham, Reading. The purpose of this report is to present the findings of the appraisal and identify potential ecological constraints and opportunities in relation to a proposal to demolish the existing bungalow and adjacent commercial units and replace with nine dwellings and associated car parking and landscaping.

2. An assessment of the site was carried out by Xenia Snowman BSc (Hons), a Natural England Level 2 bat survey class licence holder on the 11th of August 2021. This included a ground-based external inspection of the bungalow and an internal inspection of enclosed loft spaces. As access was not agreed to enter the adjacent commercial garage, a limited external inspection was undertaken from accessible areas. An appraisal of the surrounding habitats was also undertaken, to evaluate the site for its potential to support roosting bats and other protected or notable species. All bat species are European Protected Species (Annex IV, 'Habitats Directive').

3. This site is situated in the town of Reading, Berkshire. The site is within a predominantly residential area to the north, east and west, with several industrial buildings to the south along Send Road. The River Thames is located approximately 200m south of the site which is bordered by tree lines and small woodland strips.

4. 2 Send Road comprises of a detached bungalow with a driveway and front garden mainly comprising of hard-standing, bordered by Leylandii hedging to the west. The rear garden comprises mainly lawn, flower beds, shrubs and semi-mature trees, a patio area, and three outbuildings/sheds. 4 Send Road is currently in use as a commercial garage and access was not permitted during the survey. However, using aerial imagery and views from publicly accessible areas, the site appears to mainly be comprised of hardstanding/gravelled areas. The buildings are constructed of breezeblock or wooden panel construction, with tin roofs. A row of trees fringes the southern boundary and could not be accessed during the survey.

Both 2 and 4 Send Road were assessed as having negligible bat roosting potential with all the building's roofs either in good condition and sealed with mostly close-fitting tiles, of tin construction, or felted with no potential bat access points. There was a single exception to this, with the bungalow supporting a very small area of raised tiles on the southeast corner. All trees on 2 Send Road were assessed as having negligible bat roosting potential. While the trees on 4 Send Road could not be inspected closely, the tree survey submitted with the associated planning application for 2-4 Send Road states that these trees are young self-seeded sycamores, with stem diameters below 150mm, and categorised as U and of no potential. This, coupled with a ground level inspection using high powered binoculars during the survey this group of trees are considered to hold negligible bat roosting potential.



5. All areas of hedgerows, trees and shrubs on the site have the potential to support nesting birds. Therefore, any vegetation removal should be timed outside of the nesting bird season (generally 1st March – 31st August) or checked by a suitably qualified ecologist prior to works.

6. No further bat surveys of the buildings at 2 or 4 Send Road are recommended. However, construction work may only commence following a soft strip of the small section of lifted tiles on the bungalow roof. The soft strip must be undertaken between mid-March to the end of October to avoid hibernation season and will be overseen by a suitably qualified and licensed ecologist. Should any bats or signs of bats be identified, the work will cease until appropriate surveys have been undertaken and a European Protected Species (EPS) license is obtained to legally proceed with the development.

7. Ecological enhancement opportunities include integrating bird and bat boxes into the new buildings, and amenity space planted with native tree species. Green roofs will be included on the Send Road fronting houses, and the houses on Forge Close will have planting areas and new trees along the street. Deep reveal window boxes will be incorporated into the large ground floor windows of all houses, as well as planters on the top of the bike/bin storage areas.



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1 INTRODUCTION

1.1 Purpose of the Report

The Ecology Co-op has been commissioned to undertake a bat scoping assessment and preliminary ecological appraisal of 2 and 4 Send Road, Caversham, Reading by Raywood Developments Limited. This report presents the findings of a walkover survey and building inspection undertaken by Xenia SnowmanBSc (Hons), a Natural England Level 2 bat survey class licence holder, on 11th of August 2021. It provides details of the potential for any protected species and/or habitats to be present at the site and an assessment of the potential ecological constraints to the proposed redevelopment of the site. Recommendations for further surveys that are likely to be required to inform a planning application are provided, if necessary. Where appropriate, measures to avoid, mitigate and/or compensate for impacts are outlined.

1.2 Background

The site is located at 2 - 4 Send Road, Caversham, Reading, Berkshire RG4 8EH. The central grid reference for the site is SU 72392 74503.

The site itself comprises of two adjacent plots. 2 Send Road supports a detached bungalow a number of outbuildings, driveway and domestic gardens. 4 Send Road is currently in use as a commercial garage and access was not permitted during the survey. However, using aerial imagery and views from publicly accessible areas, the site appears to mainly be comprised of hardstanding/gravelled areas with a number of industrial buildings and a row of self-seeded young sycamore trees fringing the southern boundary.

The location of the study site is shown in Figure 1. The proposed project includes the demolition of the existing bungalow and adjacent commercial buildings, to be replaced with nine dwellings and associated car parking and landscaping (Figure 2).



Figure 1. Aerial image showing the location of the site at 2 and 4 Send Road, Reading (red hashed outline). Image produced courtesy of the Pre-application Design Study provided by Raywood Developments Limited.



Figure 2. The proposed roof plan for the redevelopment of 2 and 4 Send Road into nine new dwellings. Drawing no. SR_P_130 Rev P07 produced by Gouldstone and Co.

1.3 Policy and Legislation

Legal protection applying to all bat species in the UK and any other species relevant to this appraisal, is outlined in Appendix 1 of this report. The results of this survey will be used to determine the need for further surveys, impact avoidance measures and/or an appropriate mitigation/compensation strategy to ensure compliance with UK wildlife legislation, policy and best practice.



2 METHODOLOGY

The methodologies used for this survey are in accordance with the bat survey guidelines produced by the Bat Conservation Trust¹. Where there has been any deviation from the guidelines due to any site-specific constraints or other circumstances, reasoning and justification has been provided.

2.1 Desk Study

A search of on-line mapping resources has been undertaken to characterise the local context of the site with respect to semi-natural habitats and linear features of value to foraging and commuting bats.

The MAGIC website resource (www.magic.gov.uk) has been used to identify the location of designated sites for nature conservation within 2km and European Protected Species (EPS) licences granted within a 1km radius of the survey site. Priority habitats and ancient woodland, upon the site and within the proposal's zone of influence, have also been identified due to their ecological value and potential to act as important foraging resources for bats.

Priority habitats and ancient woodland are classified as habitats of principal importance. Habitats of principal importance are listed in Section 41 of the Natural Environment and Rural Communities (NERC) Act, 2006², which places a duty on Local Planning Authorities to have due regard to biodiversity.

2.2 Field Survey

2.2.1 Roosting Potential

Bats can use a wide range of features for roosting purposes including loft spaces, cavity walls, loose tiles, mortice joints and cracks/gaps in a variety of built structures. They can also be found in trees with holes, splits, cracks, cavities, ivy and loose bark. A detailed building inspection was carried out, looking for potential access points and Potential Roosting Features (PRFs) that bats could use and any evidence indicating the presence of bats using the building, such as rub marks, feeding remains, staining or droppings. This included a ground-based external inspection around the building and internal inspection of any enclosed loft spaces or roof voids, where accessible. A high-powered torch and binoculars were used for the external assessment.

The suitability of each feature, or group of features, to support roosting bats has been assessed as either negligible, low, moderate, or high, in accordance with best practice guidance¹ (see Table 1) Any evidence confirming the presence of bats was clearly recorded including photos and samples taken (e.g. droppings), where appropriate. Further surveys have been recommended in accordance with best practice guidance and the surveyor's professional judgement where evidence of a bat roost or PRFs have been identified that would be adversely impacted by the proposal, and/or where precautionary mitigation alone cannot ensure that bats would not be potentially disturbed or harmed.

¹ Collins, J.(ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn). The Bat Conservation Trust, London.

² HM Government (2006). Natural Environment and Rural Communities Act 2006. Available online at: <https://www.legislation.gov.uk/ukpga/2006/16/section/41>.

**Table 1.** Guidelines for assessing suitability of structures (buildings and trees etc.) to support bat roosts

Suitability	Description of roosting habitats
Negligible	A structure that does not support any features that could be used by roosting bats.
Low	A structure that has one or more potential roosting features that could support individual roosting bats opportunistically. These features however lack the space, shelter or appropriate conditions, to support larger numbers of bats (such as a maternity roost).
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter and suitable conditions for roosting, but are unlikely to support a roost of high conservation significance.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potential for longer periods of time due to their size, shelter, protection and conditions.

2.2.2 Hibernation Potential

The structure and its associated features were assessed for their suitability to be used by hibernating bats. The assessment was carried out in accordance with guidelines produced by BatAbility³ and the bat survey guidelines produced by the Bat Conservation Trust¹. To determine the potential for features to support hibernating bats the following aspects were considered:

- The suitability of features to support roosting bats or to allow access for roosting bats;
- The temperature and humidity conditions likely to be present within the feature during the winter period and the suitability in this respect for it to be used by bats for hibernation;
- The surrounding habitat, in terms of its potential for use by bats outside of the hibernation period for commuting and/or foraging purposes; and
- The presence of known roosts within the structure, or adjacent structures, or surrounding area during the active season.

The potential for use by hibernating bats for each feature, or group of features was assessed as either negligible, low, moderate, or high, in accordance with best practice. Further surveys are recommended where appropriate, considering the feasibility of a hibernation survey for certain PRFs.

2.2.3 Foraging and Commuting Potential

The habitats surrounding the site and wider landscape were broadly assessed for their potential to support foraging and commuting bats, and were categorised as negligible, low, moderate or high potential suitability in line with published guidance¹.

2.3 Other Protected and/or Notable Species

Any birds identified, or evidence of nesting birds discovered during the site visit, were recorded. Special attention was paid to notable species such as red-listed Birds of Conservation Concern⁴ and those

³ Middleton. N. (2019). *Assessing Sites for Hibernation Potential. A Practical Approach, including a Proposed Method & Supporting Notes. Version' Draft/V2.2019.* BatAbility.

⁴ Eaton et al. (2015). *Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man.*



species afforded special protection on Schedule 1 of the Wildlife and Countryside Act (1981), such as barn owl *Tyto alba* and swallow *Hirundo rustica*.

Whilst this survey has focussed on bats, and no specific searches were made with respect to other protected/notable species, any evidence of such species that was encountered during the site visit was also recorded including reptiles and nesting birds.

3 RESULTS/OBSERVATIONS

3.1 Desk Study

There are no designated sites within 2km of the site boundary (Figure 3). However, a number of priority habitats, including a number of small blocks of deciduous woodland, within 0.5km of the site which are likely to be of value to foraging and commuting bats (Figure 4).

There are four EPS licences granted for mitigation projects concerning bats within 1km of the site shown on the Magic Maps website (Figure 5). The closest of these is approximately 745m to the northwest and is in relation to a roost of common pipistrelle bats *Pipistrellus pipistrellus* (Licence ref no. EPSM2011-3175). The other three were concerning roosts of Daubenton's bats *Myotis daubentonii* (Licence ref no. 2017-28045-EPS-MIT), common pipistrelle bats (Licence ref no. EPSM2013-6155) and soprano pipistrelle bats *Pipistrellus pygmaeus* (Licence ref no. 2014-1343-EPS-BDX).

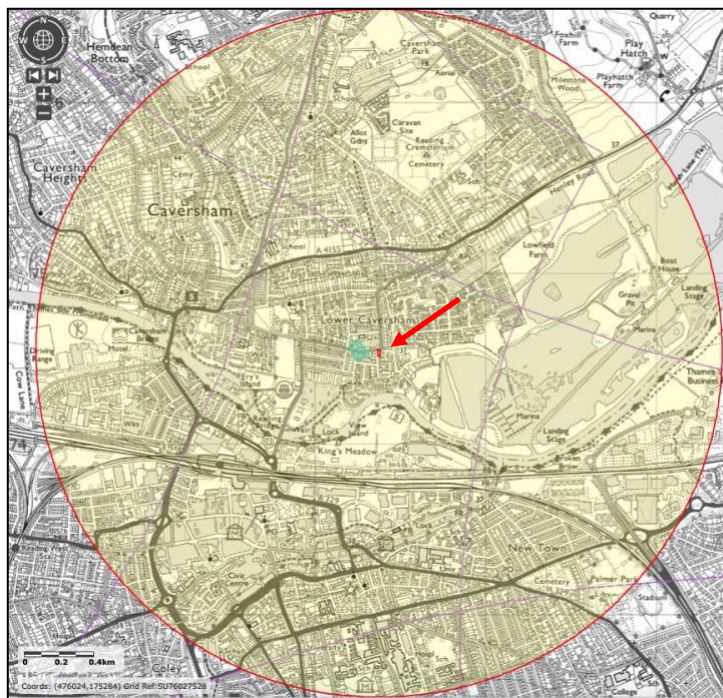


Figure 3. Designated sites within a radius of 2km of 2 and 4 Send Road, Reading (indicated by the red arrow). Image produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

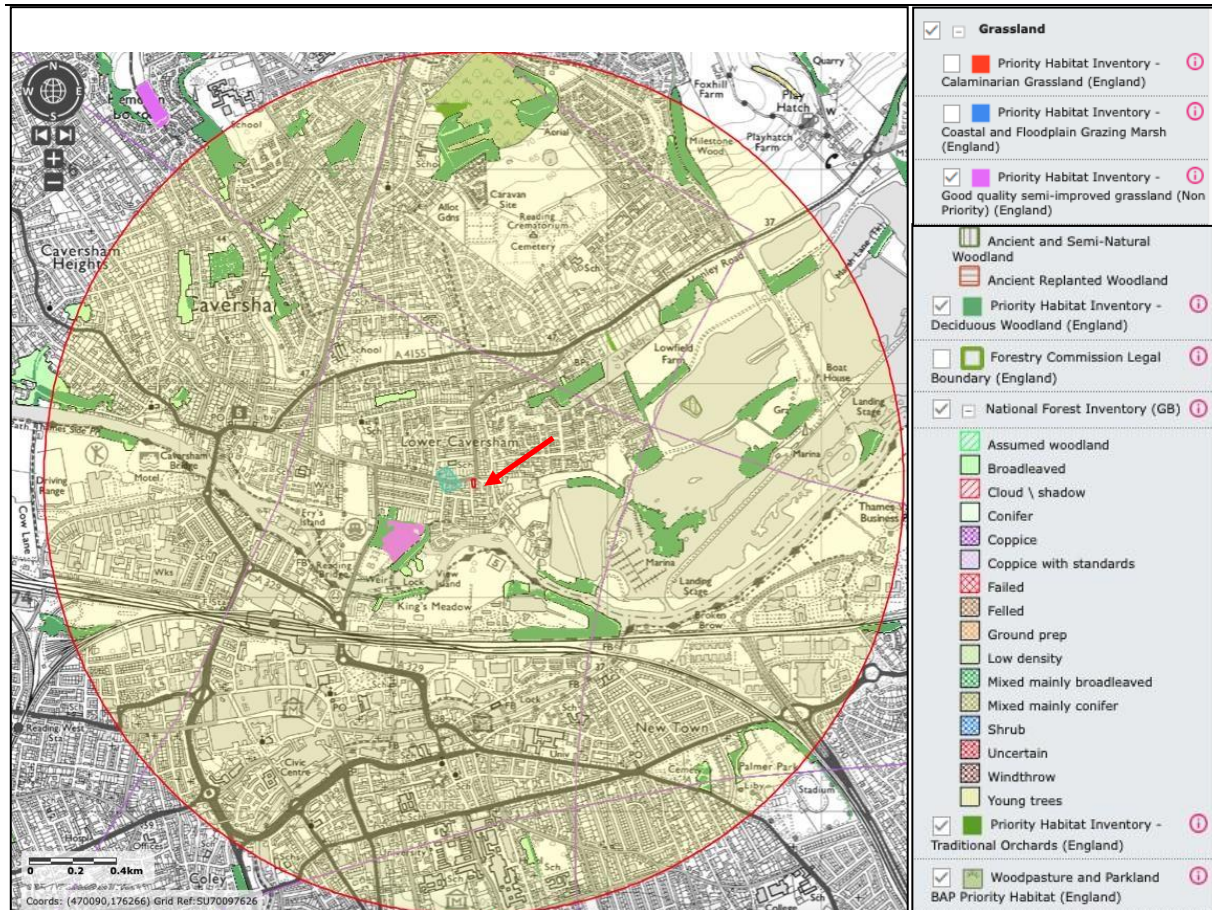


Figure 4. Priority habitats within a radius of the application site (indicated by a red arrow). Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).



Figure 5: Granted EPS licences within 1km of the application site. Image produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

3.2 Site Context and Surrounding Habitats

The two plots at 2 & 4 Send Road are located in an urban setting in Lower Caversham, to the north of Reading Town Centre and south of the junction between Gosbrook Road and Send Road. The 2 Send Road plot supports a detached bungalow with a driveway and front garden mainly comprising of hard standing, bordered by *Leylandii* hedging to the west. The rear garden is mainly comprised of lawn, flower beds, shrubs and semi-mature trees, a patio area, and three outbuildings/sheds. 4 Send Road is currently in use as a commercial garage and access was not permitted during the survey. However, using aerial imagery and views from publicly accessible areas, the site appears to mainly comprise of hardstanding/gravelled areas and breezeblock or wooden panel construction industrial buildings, with tin roofs. A row of self-seeded young sycamore trees fringes the southern boundary of 4 Send Road.

The site is within a predominantly residential area to the north, east and west, with several industrial buildings to the south. The River Thames is located approximately 200m south of the site, bordered by tree lines and small woodland strips. The River Thames and woodland areas provide good quality habitat likely to support bat populations, as well as be utilised by foraging and commuting bats. The habitats in the vicinity of the site are considered to be of low value to bats and likely only utilised by common, more light-tolerant species.



3.3 Building Inspection and Tree Assessment for Bats

3.3.1 Roost Potential

All site photographs can be viewed in Section 3.6.

The detached bungalow is constructed of brick with a pitched, hipped roof and a single-pitch extension to the south forming a conservatory and access to the rear garden. The roof is covered in factory-formed clay roof tiles and there are two sealed brick chimneys with tight-fitting lead-flashing. The building is well-maintained and in good condition with mostly close-fitting tiles and well-maintained leading edges, ridge tiles and sealed soffits. No potential bat access points were identified, with the exception of a small area of approximately six lifted tiles on the south-eastern corner of the bungalow roof.

However, the fact that this area is at single-storey level, are the only features available on this property, and due to the presence of high potential bat roosting features present in neighbouring properties means this small area of tiling has negligible potential to support bats.

Internally, the dwelling supports a loft void measuring approximately 12m (l) x 9m (w) x 2.5m (h). The roof is lined with bitumen roofing felt, the void has been partially boarded, with rockwool insulation. The void contains heavy cobwebbing indicating that bats are not regularly flying or roosting within the void. There were no potential access points identified into the loft during the inspection due to the tightly-fitted roof tiles and minimal gaps in the roofing felt lining. No bats or evidence of bat activity was recorded.

A storage building, small shed and summer house are located in the rear garden. The storage building is constructed of breezeblock with a tiled roof. The shed and summer house are of wooden shiplap construction with felted roofs. All buildings were tightly sealed with no gaps or other potential access points for bats.

The commercial buildings located at 4 Send Road are of an industrial-style and are of breezeblock or wooden panel wall construction, with pitched, single pitched or flat-roofs with tin roofs or are of the self-contained porta-cabin style.

Overall, the bat roost potential of the buildings on both 2 and 4 Send Road are assessed as 'negligible', considering their construction types, condition and context within low value foraging habitat for bats.

All trees contained within the boundary of 2 Send Road have 'negligible' potential to support roosting bats. While the trees on 4 Send Road could not be inspected closely, the tree survey submitted with the associated planning application for 2-4 Send Road states that these trees are young self-seeded sycamores, with stem diameters below 150mm, and categorised as U and of no potential. This, coupled with a ground-level tree inspection using high powered binoculars undertaken by a Natural England Class 2 Bat Licence holder and certified tree climber during the survey has concluded that this group of trees are considered to hold negligible bat roosting potential. Therefore tree roosting bats would not be a constraint to development on site.

3.3.2 Hibernation Potential

All buildings on site are considered to have 'negligible' hibernation potential due to their lack of suitable bat roosting features and/or fluctuating temperatures in the loft space.



3.4 Other Protected and/or Notable Species

Hedgerows, trees, and shrubs on the site have the potential to support nests of common garden bird species such as blackbird *Turdus merula* or chaffinch *Fringilla coelebs*. Therefore, any vegetation removal should be timed outside of the nesting bird season (generally 1st March – 31st August) or checked by a suitably qualified ecologist prior to works.

The proposed zone of impact is comprised of buildings, hard-standing, a small number of semi-mature trees, tightly mown amenity grassland, introduced shrubs and flowering borders which have negligible value for reptiles, amphibians, badgers or any other protected species. There are no waterbodies upon or within a 500m radius of the site with suitability for amphibians and no suitable terrestrial habitat on site. Therefore, this site is not suitable for amphibians and riparian wildlife.

3.5 Survey Limitations

An initial site assessment such as this is only able to act like a ‘snapshot’ to record any flora or fauna that is present at the time of the survey. It is therefore possible that some species may not have been present during the survey, but may be evident at other times of the year. For this reason, habitats are assessed for their potential to support bats and other protected or notable species, even where no direct evidence (such as droppings) has been found.

While the trees on 4 Send Road could not be inspected closely, as these trees are young, self-seeded sycamores, with stem diameters below 150mm, and categorised as U and of no potential, coupled with the results from a ground level inspection using high powered binoculars has concluded that this group of trees are considered to hold negligible bat roosting potential and the access issue is not considered to be a significant limitation to the survey outcome.

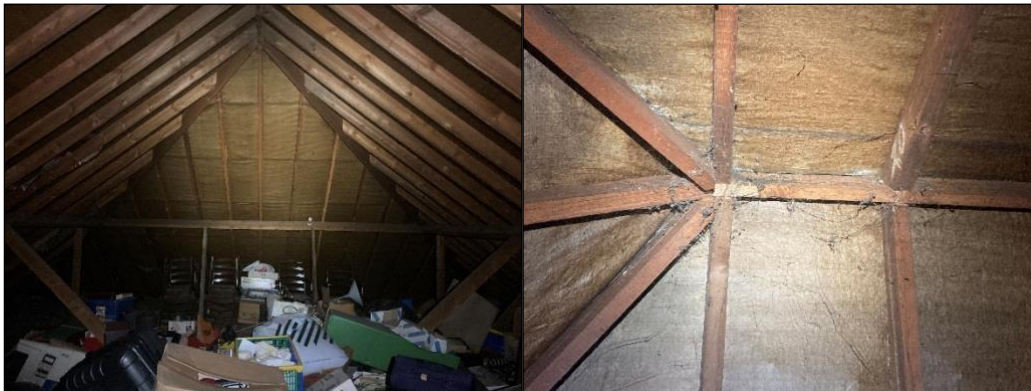
It was not possible to survey the plot at 4 Send Road during the survey. However, this is not considered to be a significant limitation as detailed aerial imagery and the visible areas from public land has allowed the ecologist to be confident with their overall assessment of the site being of negligible value to protected and notable species.



3.6 Photographs



Photograph 1a (left) & 1b (right). Left – Front (western) elevation of 2 Send Road, a detached bungalow, hard-standing driveway, hedging and ornamental shrubs. Right – Front (eastern) elevation of bungalow showing the rear garden, semi-mature trees, flower beds, shrubs, patio and outbuildings.



Photograph 2a (left) & 2b (right). Left – The internal areas of the roof void at 2 Send Road. Right – Heavily cobwebbed areas identified throughout the roof void of 2 Send Road.



Photograph 3a (left) & 3b (right). Left – The outbuildings with negligible bat roosting potential in the rear garden of 2 Send Road. Right – The small area of six lifted tiles on the south-eastern corner of the bungalow roof which require licensed ecological supervision of the tile removal prior to any mechanical demolition.



Photograph 4a (left) & 4b (right). Left – The western elevation of 4 Send Road. Right – The eastern end of 4 Send Road taken from Forge Close. The trees which were not inspected during the survey are shown in both images.

4 ECOLOGICAL CONSTRAINTS AND OPPORTUNITIES

4.1 Bats

In accordance with the Bat Conservation Trust guidelines, the overall potential for the buildings present on-site to support bats is rated as 'negligible'. Therefore, in this instance no further emergence surveys are recommended for the buildings on site. However, as a precautionary measure, a licensed bat ecologist will be present to inspect and oversee the soft stripping of the small section of lifted tiles on the south-eastern corner of the bungalow prior to demolition. The stripping of these features should be undertaken carefully by hand. This is so that, in the unlikely event a bat or evidence of a bat roost is present, the risk of injury/killing or destruction of a roost is avoided. In the event that a bat or evidence of a roost was discovered, the feature should be made good where possible and works would need to cease immediately. Work would likely not be able to continue until a European Protected Species (EPS) mitigation licence is to be obtained. It is likely that any license application would need to be supported by further surveys to classify the nature of the roost (day/maternity/transitional). This soft-stripping work must also be timed between the period of mid-March to the end of October.

All trees contained within the site hold 'negligible' potential to support roosting bats, therefore tree roosting bats would not be a constraint to development on this site.

As the site may be used by foraging and commuting bats, it is important that the potential for disturbance from artificial lights is considered. The proposed development should include an 'ecologically sensitive lighting scheme' in accordance with guidance produced by the Bat Conservation Trust (summarised in Appendix 2).



4.2 *Other Protected and/or Notable Species*

All hedgerows, trees and shrubs on site have potential to support nesting birds. Therefore, any vegetation removal should be timed outside of the nesting bird season (1st March – 31st August). If this is not possible, all vegetation should be subject to nesting bird checks by a suitably qualified ecologist as appropriate to the works. If an active nest is identified, a minimum exclusion zone for all works within 5 meters radius of the nest must be established to protect it from disturbance until the young have fledged.

No other habitats are deemed suitable for any other protected species and therefore no other surveys or mitigation measures are deemed necessary.

4.3 *Biodiversity Enhancement Opportunities*

The proposed development represents an opportunity for habitat enhancement to benefit insects, birds, and bats. Any planting scheme should include native shrub and tree species and flowering species known to encourage insect diversity. Such enhancement measures are in line with the recommendations of the National Planning Policy Framework (NPPF) and as such would be considered favourably when determining the planning application.

The Planning Pre-Application Design Statement shows planting on the roof tops and integrated bird and bat boxes into the new buildings. These will be signed off by a bat licensed ecologist prior to approval. One of the main driving factors of the scheme is the intention to increase the biodiversity of the site through a range of measures.

Each house has its own rear garden of up to 40m² of private amenity space. These gardens will be planted with a range of native plant and tree species, including silver birch. Each house fronting Send Road will have a greenroof, consisting of a sedum blanket or similar. The frontages of the houses on Forge Close will also have planted areas and new trees along the street. Small areas of planting will also be incorporated including deep reveal window boxes to the large ground floor windows of all houses, as well as planters on the top of the bike/bin storage areas. These areas are designed to be low maintenance and easily maintained by the owners. A green corridor is proposed for the centre of the development, providing additional enhancement for biodiversity.

The green roofs enhance the ecological value of an urban site, where space is often limited, creating habitat for invertebrates and providing foraging habitat for bats and birds. Living walls also provide a similar function, as shown in Figure 6. Installation of green roofs require a specialist to develop a workable design and practical implementation.



Figure 6a (left), 6b (top right) & 6c (bottom right). Left – Example of a habitat wall built to encourage birds, bats and invertebrates. Top right – Example of a living wall. Bottom Right – Example of green roof planting.

If any bats or other protected species are found during the development, work should be stopped immediately, and an ecologist must be contacted for advice.

Should you need any further advice on the information provided above, please do not hesitate to contact The Ecology Co-op.



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 bats.

All bat species in the UK are included in Schedule II of the Habitats Regulations 2017, which transpose Annex II of the Council Directive 92/43/EEC 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora ("The EC Habitats Directive"). As such, all bat species in the UK are defined as 'European Protected Species (EPS).

Four species of bat (Bechstein's bat *Myotis bechsteinii*, Barbastelle bat *Barbastella barbastellus*, greater and lesser horseshoe bats, *Rhinolophus ferrumequinum* and *R. hipposideros*) are also listed on Annex IV of the EC Habitats Directive. This requires the designation of a series of sites which contain important populations of these species as Special Areas of Conservation (SACs).

All species of British bat are also fully protected under the Wildlife and Countryside Act (1981), as amended, through inclusion in Schedule V.

All species of bat are listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006). Section 41 of the NERC Act lists the habitats and species of principle importance. This 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.

Under the above legislation it is an offence to:

- kill, injure or take any individual bat of any species;
- possess any part of an individual bat, either alive or dead;
- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by bats for shelter, rest, protection, or breeding;
- intentionally or recklessly disturb these species whilst using any place of shelter or protection; or
- deliberately disturb bats in such a way as to be likely to impair their ability to:
 - survive, to breed or reproduce, to rear or nurture their young; to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong;
- keep (possess), transport, sell or exchange, or offer for sale or exchange, any live or dead bat, or any part of, or anything derived from a bat.

It is also an offence to set and use articles capable of catching, injuring, or killing bats (for example a trap or poison), or knowingly cause or permit such an action. There is also protection under Schedule 6 of The Wildlife and Countryside Act 1981 (as amended) relating specifically to trapping and direct pursuit of bats.

A European Protected Species Licence (EPSL) in relation to bats is required from Natural England for



any work that would result in an otherwise unlawful activity (e.g. damage to a bat roost). A license can only be issued to permit otherwise prohibited acts if Natural England are satisfied that all the following three tests are met:

- The proposal is for 'preserving public health or public safety, or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment';
- There is no satisfactory alternative; and
- The action authorised by the license will not be detrimental to the maintenance of bat populations at a favourable conservation status in their natural range.

A bat roost is defined by the Bat Conservation Trust's Bat Surveys—Good Practice Guidelines 3rd Edition as "the resting place of a bat". In general, the word roost is interpreted as "any structure or place, which any wild bat uses for shelter or protection."

Bats tend to re-use the same roosts; therefore, legal opinion is guided by recent case law precedents, that a roost is protected, whether or not the bats are present at the time. This includes summer roosts used for resting during the day and/or breeding; or winter roosts, used for hibernating.



APPENDIX 2 – Reducing Impacts of Artificial Light

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 on 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 Trust⁵ should be considered while designing the lighting scheme. A simple process which should be followed where the impact on bats is being considered as part of a proposed lighting scheme. It contains techniques which 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 on 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 considered to be 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
- Consider 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. Consider 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

⁵ Bat Conservation Trust and Institute for Lighting Professionals (2018) Guidance note 8. Bats and Artificial Lighting. <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>



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.

Further reading:

Buglife (2011) *A review of the impact of artificial light on invertebrates*.

Royal Commission on Environmental Pollution (2009) *Artificial light in the environment*. HMSO, London.
Available at: <https://www.gov.uk/government/publications/artificial-light-in-the-environment>

Rich, C., Longcore, T., Eds. (2005) *Ecological Consequences of Artificial Night Lighting*. Island Press.
ISBN 9781559631297.

CPRE (2014) *Shedding Light: A survey of local authority approaches to lighting in England*. Available at: <http://www.cpre.org.uk/resources/countryside/dark-skies/item/3608-shedding-light>

Planning Practice Guidance guidance (2014) *When is light pollution relevant to planning?* Available at: <https://www.gov.uk/guidance/light-pollution>

Institution of Lighting Professionals (2011) *Guidance Notes for the Reduction of Obtrusive Light* GN01:2011. Available at: <https://www.theilp.org.uk/resources/free-resources/>