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Biodiversity Enhancement Strategy

Site Name

Pilgrim's Rest, Rudgwick

Client

Mr David King-Fisher

Issue Date

10th March 2025

Author

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About the Reviewer

This report has been reviewed by Paul Whitby, a Principal Ecologist with 19 years' experience. As a Full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and as a Chartered Ecologist, he is bound by CIEEM's code of professional conduct.

REPORT SUMMARY

1. The Ecology Co-operation was commissioned by Mr David King-Fisher to produce a Biodiversity Enhancement Strategy with regards to the proposed demolition of the existing dwelling and erection of a self-build dwelling and garage, at Pilgrim's Rest, Rudgwick. This document outlines targeted enhancement measures, management objectives, responsibilities and maintenance schedules. It will be submitted to Horsham District Council in order to discharge condition no. 6 of the approved planning application (ref: DC/24/1715).

2. Section 3 sets out the proposed habitat creation and enhancement on site, including:

- **Compensatory tree planting**
- **Enhancement of retained hedgerows**

And the following species-specific enhancement measures:

- **installation of one bat box;**
- **incorporation of 2 bat tile access features on the south-east elevation of the new dwelling;**
- **installation of 3 traditional bird boxes;**
- **creation of amphibian & reptile log piles; and**
- **installation of one invertebrate boxes**

3. Post construction management for proposed biodiversity enhancement features is detailed in full in section 4 and a works schedule is provided in section 5, outlining management responsibilities.

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1. INTRODUCTION

1.1 Purpose of the Report

The Ecology Co-operation was commissioned by Mr David King-Fisher to produce a Biodiversity Enhancement Strategy with regards to the proposed demolition of the existing dwelling and erection of a self-build dwelling and garage, at Pilgrim's Rest, Rudgwick. This document outlines targeted enhancement measures, management objectives, responsibilities and maintenance schedules. It will be submitted to Horsham District Council in order to discharge condition no. 6 of the approved planning application (ref: DC/24/1715). Condition 6 states the following:

"*Pre-commencement (Slab Level) Condition: Prior to any works above slab level, a* ***Biodiversity Enhancement Strategy*** *for protected and Priority or threatened species, prepared by a suitably qualified ecologist, shall be submitted to and approved in writing by the local planning authority. The content of the Biodiversity Enhancement Strategy shall include the following:*

a) Purpose and conservation objectives for the proposed enhancement measures;
b) Detailed designs or product descriptions to achieve stated objectives;
c) locations of proposed enhancement measures by appropriate maps and plans (where relevant);
d) persons responsible for implementing the enhancement measures; and
e) details of initial aftercare and long-term maintenance (where relevant).

The works shall be implemented in accordance with the approved details shall be retained in that manner thereafter.

Reason*:* ***To enhance protected and Priority species & habitats*** *and allow the Local Planning Authority to discharge its duties under paragraph 187d of NPPF 2024 and s40 of the NERC Act 2006 (as amended)."*

Please note a Biodiversity Net Gain Assessment is not included within this report.

The prescribed enhancement measures described within this document will be issued to relevant works contractors to ensure that they are carried out in full.

1.2 Background to the Proposed Development

The site is located at Pilgrims Rest, Church Street, Cox Green, Rudgwick, West Sussex, RH12 3DE at central grid reference TQ093346. The location of the site is shown in Figure 1.

The site comprises a residential property set within a vegetated garden, with the south-eastern section of the garden including a number of trees.

The proposed project comprises demolition of the existing dwelling followed by the construction of a replacement dwelling together with alterations and associated hard and soft landscaping works (see Figure 2a & b).



Figure 1. An aerial image showing the location of the application site. The approximate boundary of the site is outlined in red. Images produced courtesy of Google maps (map data ©2025 Google).

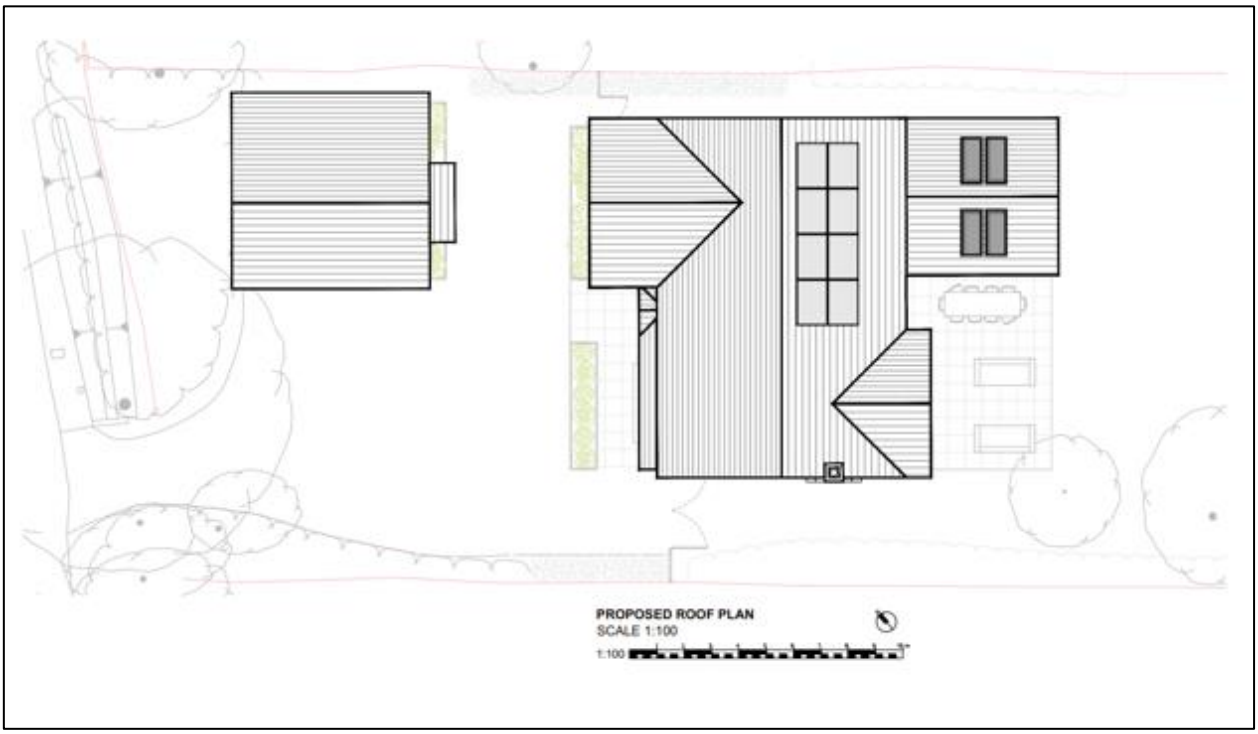


Figure 2a. Proposed plans for the development at Pilgrim's Rest. Provided courtesy of PWJ Architects, drawing no. 2072 2110 Rev B, produced October 2024.

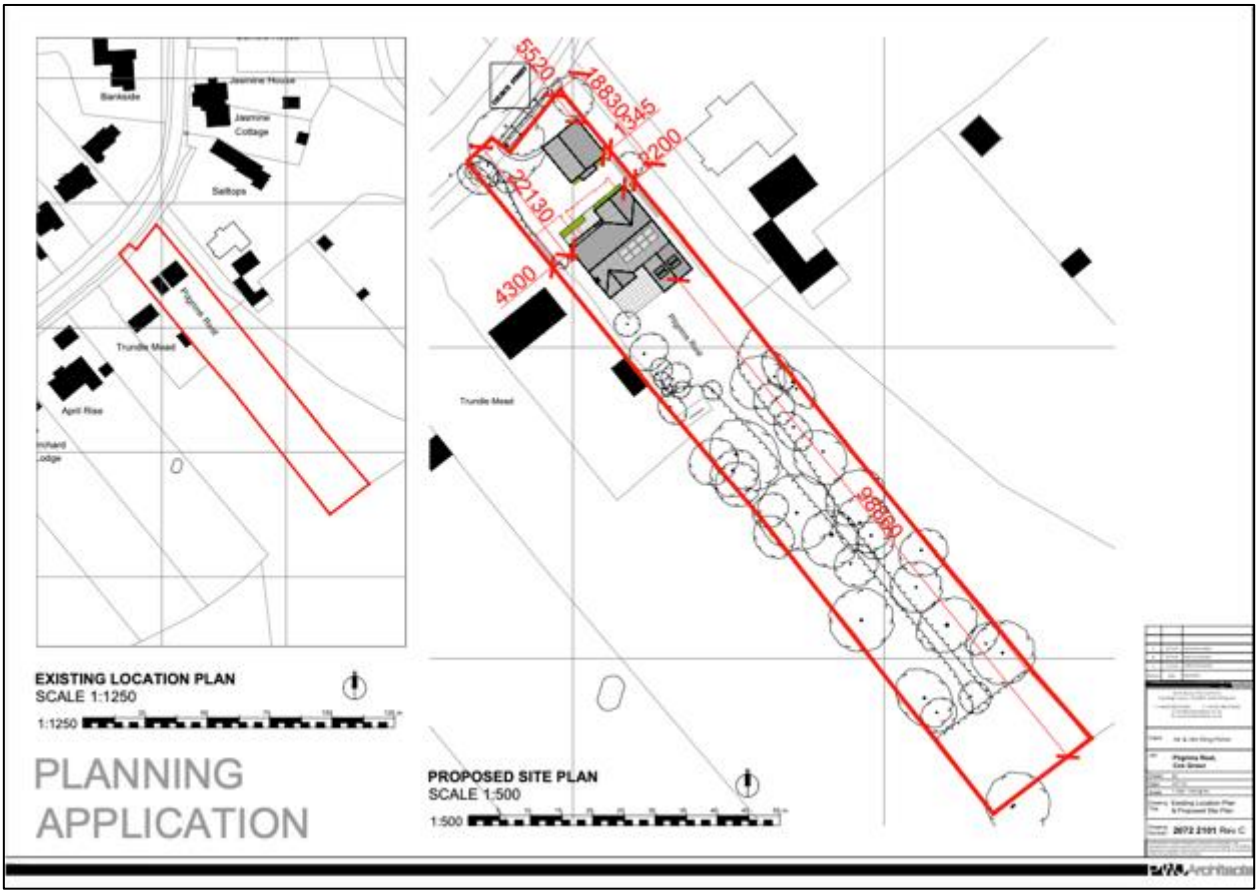


Figure 3b. Proposed Site Plan for the development at Pilgrim's Rest. Provided courtesy of PWJ Architects, drawing no. 2072 2101 Rev C, produced October 2024.

1.3 Management Plan Strategic Vision

The aims and objectives for the Protected and Priority Species & habitats elements of this development project are as detailed in the summary of mitigation package below:

- The implementation of an ecologically sensitive lighting scheme which specifies that lighting should comply with Bat Conservation Trust and the Institution of Lighting Professionals, including the measures recommended by GN:08/23 (ILP) (Bat Survey Report (AEWC, October 2024))[1];
- Two new tile access features to be incorporated in the new dwelling, to replace the known bat roost under the hanging tiles on the front of the house[1];
- One single bat box for the common pipistrelle *Pipistrellus pipistrellus,* to be installed on a suitable tree, for any bats found during the works to be translocated
- Compensatory tree planting (Arboricultural Report (RCG Arboriculture, October 2024))[2];
- Enhancement of the retained hedgerows 1, 2 and 3 (Arboricultural Report (RCG Arboriculture, October 2024))[2];
- Creation of two hibernacula for reptiles;
- Three bird boxes to be installed on suitable trees;
- Thinning of the garden south of site to increase basking opportunities for reptiles;
- Installation of one free-standing invertebrate hotel.

1.4 Persons responsible for implementing the works

The installation of the prescribed enhancement measures will be the responsibility of Mr David King-Fisher. A third party will be appointed by Mr David King-Fisher to undertake the aftercare/management of the site.

2. LEGAL PROTECTION

Relevant legislation and national planning policies are detailed in Appendix 1 of this report.

3. BIODIVERSITY ENHANCEMENT MEASURES

Several enhancements can be made to the final development to help reduce potential ecological impacts, as well as to try and achieve biological net gain. Local planning policy encourages developments to contribute towards a net gain in green infrastructure and biodiversity, therefore some recommended ecological enhancements to be considered are included below.

[1] AEWC October 2024. Bat Survey Report – Thomas Wright.
[2] RCG Arboriculture. Arboricultural Report, February 2025.

3.1 Habitat Compensation and Enhancement

3.1.1 Compensatory Planting of Trees

The development proposals will include the removal of 10 trees (Table 1), within the application site on the basis that they were assessed as having a poor condition and/or to facilitate the construction of the new dwelling. In order to compensate for the loss of those trees, one new hornbeam tree species *Carpinus betulus* shall be planted as a replacement, in the north-east corner of the property, as illustrated in Figure 3.

Table 1. List of tree species to be removed on site, in line with the Arboricultural Report[2].

Tree Code	Tree Species	Work Recommendation
T1	Common Hawthorn (*Crataegus monogyna*)	Remove to widen the access
T2	Crab apple (*Malus* sp.)	Remove, poor condition
T3	Hazel (*Corylus avellana*)	Remove, poor condition
T5	Goat willow (*Salix caprea*)	Remove, poor condition
T6	Flowering cherry (*Prunus* sp.)	Remove, poor condition
T8	Ash (*Fraxinus excelsior*)	Remove, poor condition
T9	Cherry Laurel (*Prunus laurocerasus*)	Remove to facilitate development
T11	Apple (*Malus* sp.)	Remove, planted over existing drainage
T12	Common oak (*Quercus robur*)	Remove, planted over existing drainage
T13	Apple (*Malus* sp.)	Remove, planted over existing drainage

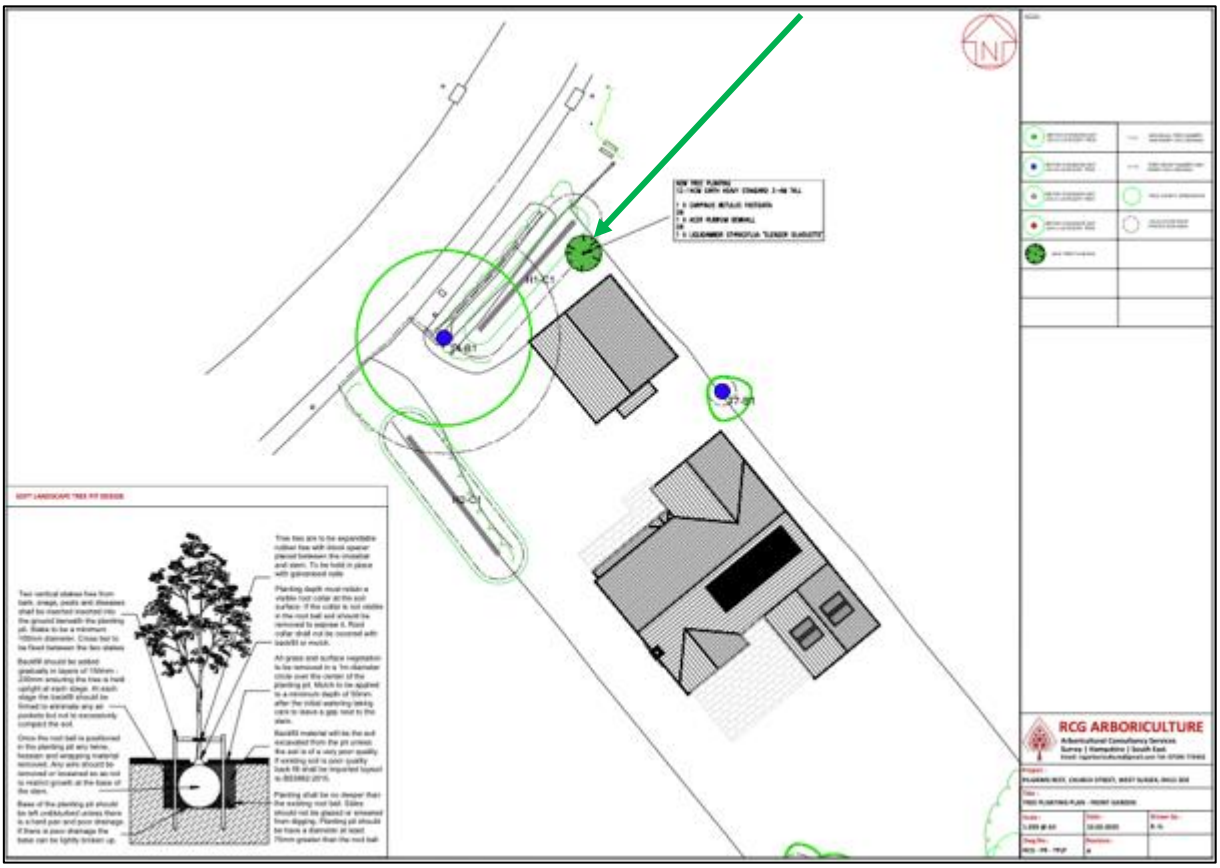


Figure 3. Tree Planting Plan – Front Garden, indicating the location of the new hornbeam tree with a green arrow. Plan produced courtesy of RCG Arboriculture. Drawing Number: RCG – PR – TPLP, Revision A, Drawn by R.G., dated 10/02/2025.

3.1.2 Retained Hedgerow Enhancement

The retained hedgerows (1, 2 and 3) and scrub along the boundary within the site shall be enhanced and supplementary planted; this would provide a layering of different habitats that can be utilised by different species. Species that may be planted include the following native species: blackthorn *Prunus spinosa*, hawthorn *Crataegus monogyna*, hazel *Corylus avellana*, holly *Ilex aquifolium*, elder *Sambucus nigra*, alder *Alnus glutinosa*, buckthorn *Rhamnus* sp., guelder rose *Viburnum opulus*, dog rose *Rosa canina*, and dogwood *Cornus sanguinea*.

3.2 Species Enhancements

3.2.1 Bats

The emergence surveys of the main house carried out between June and August by AEWC in 2024 identified the presence of a common pipistrelle bat day roost within the hanging tiles on the southeast elevation. The proposed work will have a detrimental effect on bats through destruction of the common pipistrelle roost. **Therefore, a separate Natural England development licence will be required for works to proceed to ensure that an offence will not be committed.** This will encompass a Mitigation Strategy to ensure that the development is designed to protect bats and to minimise long term impacts upon the local bat population. Mitigation and appropriate compensation measures will therefore be specified within that license, whilst enhancements for bats are detailed here.

As the building is proposed for demolition, new roost features will be created in the replacement building on site as an enhancement against roosts being lost. This will ensure that there is no loss of roost availability, and the favourable conservation status of the species is maintained.

Therefore, to provide a net positive benefit for bats within the development, two new tile access features are to be incorporated in the new dwelling, to replace the known bat roost under the hanging tiles on the front of the house, to create a like-for-like bat roost replacement, on the south-east elevation, as illustrated in Figure 4 below.

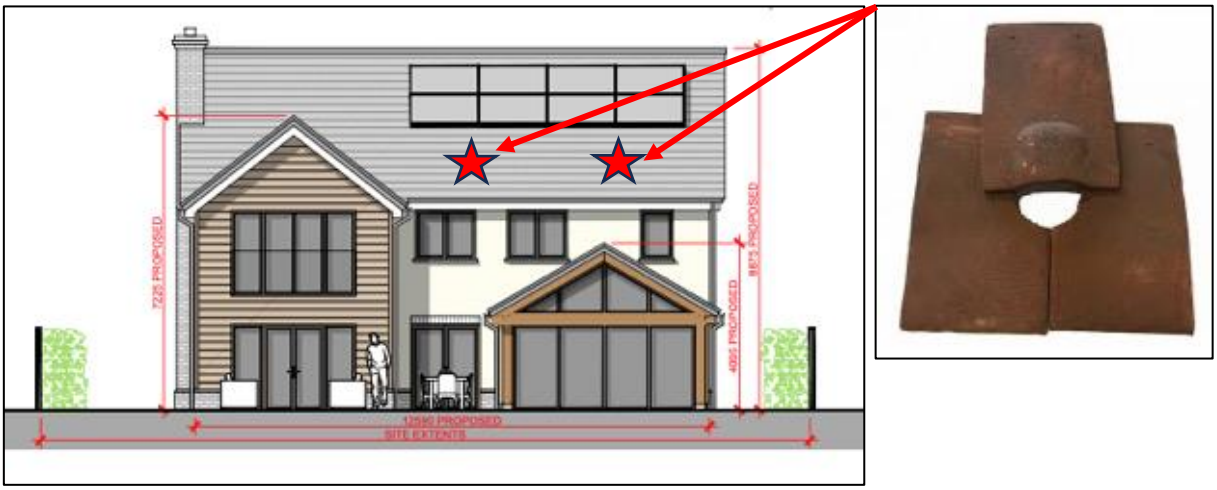


Figure 4. View of the south-east elevation of the new proposed dwelling showing the location where the two new tile access features will be incorporated, represented by a red star and indicated by a red arrow.

Importantly, artificial light sources must be positioned facing away from flight lines and the new bat tile access features (Appendix 2). The following measures shall be implemented:

- Do not provide excessive lighting. Light levels should be as low as possible as required to fulfil the lighting need.
- All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used.
- Warm White lights should be used at <2700k. This is necessary as lighting which emits an ultraviolet component or that has a blue spectral content has a high attraction effect

on insects. This may lead in a reduction in prey availability for some light sensitive bat species.

- Where appropriate, external security lighting must be set on motion-sensors and set to as short a possible a timer as the risk assessment will allow.
- Luminaires must always be mounted horizontally, with no light output above 90° and/or no upward tilt.
- Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely.

In compliance with EPS license requirements, one single bat box shall be installed on a suitable tree beyond the tree protection barrier, where any common pipistrelle bats found during the works will be translocated (Figure 5).

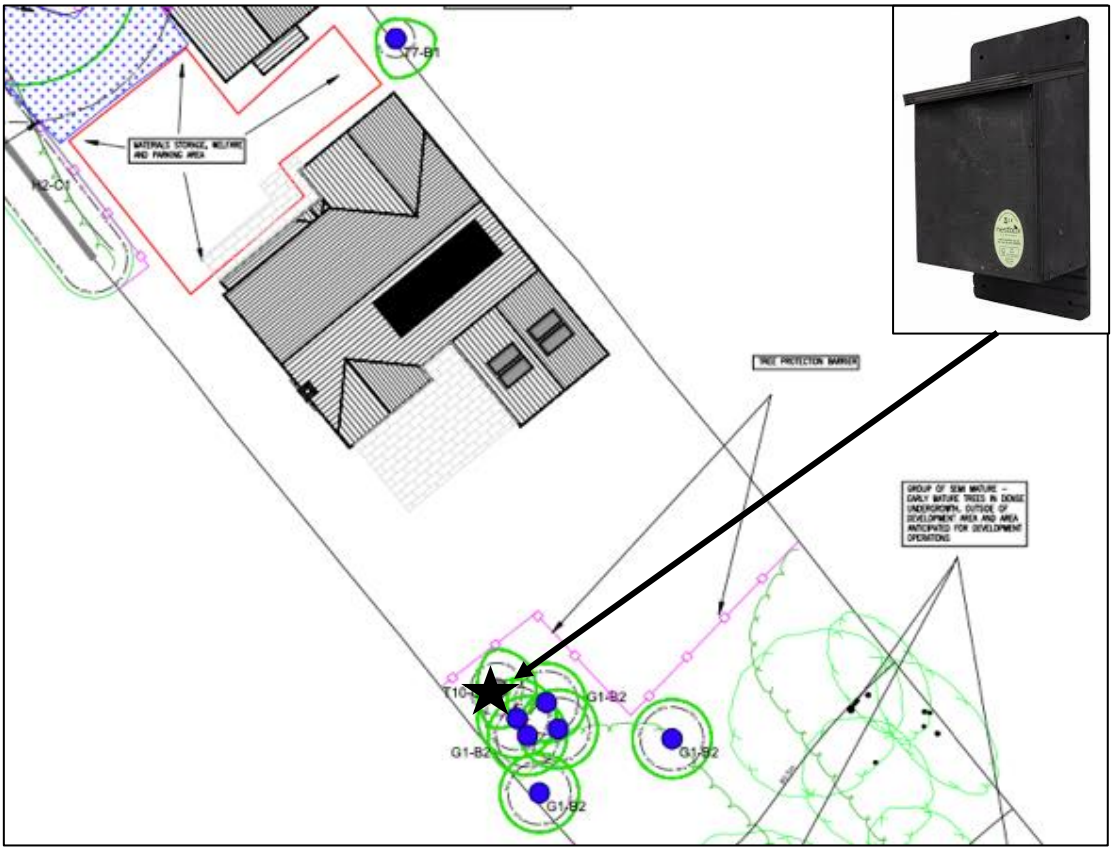


Figure 5. Proposed Plan showing the location where the new improved crevice bat box will be installed, represented by a black star and indicated by a black arrow.

3.2.2 Nesting Birds

Three traditional wooden bird boxes will be installed in the locations illustrated in Figure 6, in order to provide new nesting opportunities for birds. These will be hung on surrounding mature trees, which will be retained, beyond the tree protection barrier. The boxes will be installed on the northern aspect of the trunk at least 3m above ground level.

The wooden bird boxes will be emptied of nesting material in winter to prevent the build-up of parasites. These must not be disturbed during the nesting bird season (typically, 1st March to 31st August) or when occupied.

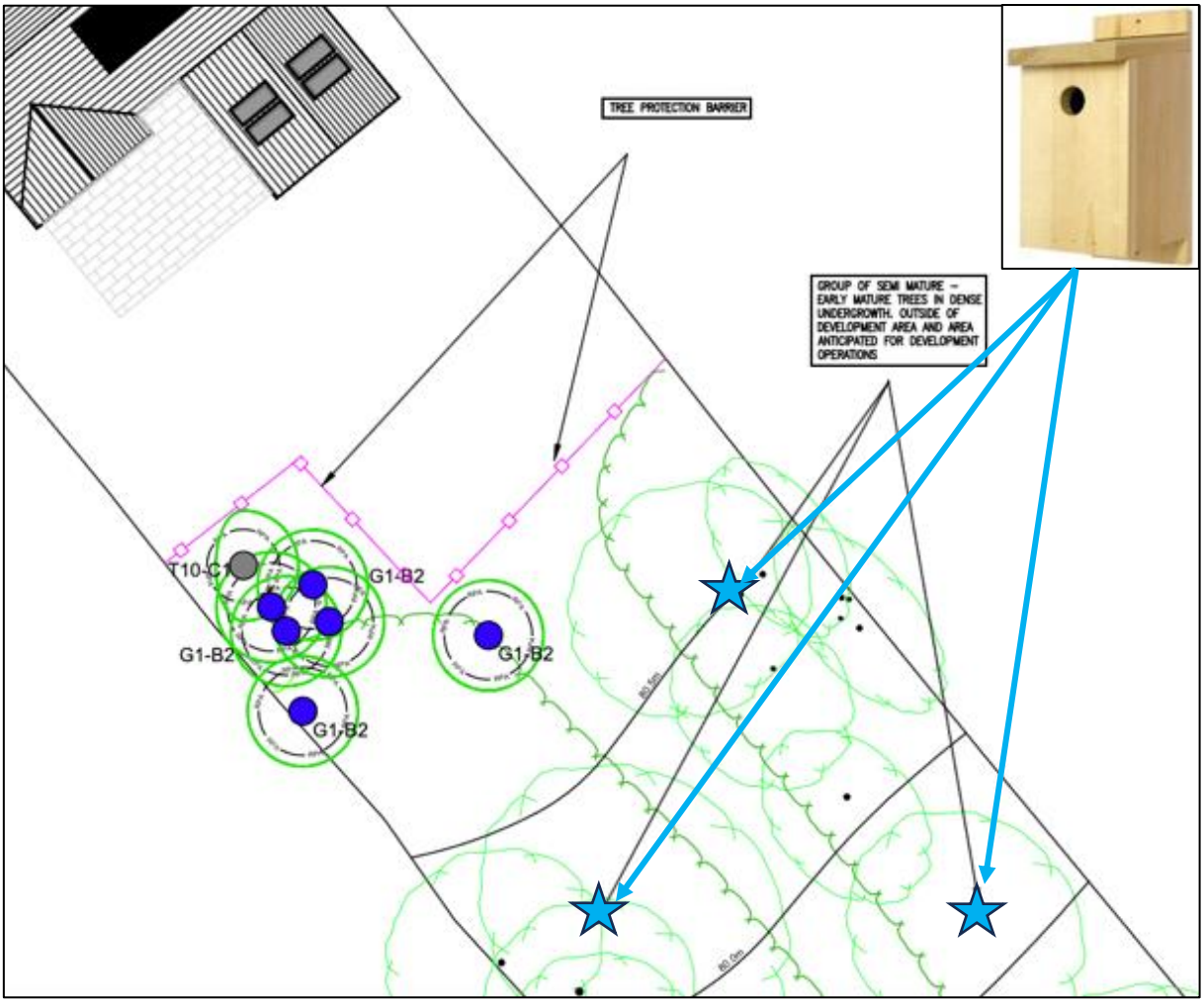


Figure 6. Plan showing the suggested locations where 3 bird boxes will be installed, indicated by a light blue star symbol and blue arrows, with an image in the right upper corner of a recommended traditional wooden bird box (Source: *https://www.nhbs.co.uk*.)

3.2.3 Amphibians & Reptiles

Two hibernacula (log piles) will be created as refugia for amphibians as well as reptiles, small mammals and invertebrates. These will be located in locations illustrated in Figure 7 to be situated in sunnier locations. They can be placed along the field boundaries of the site. These should be stacked and perhaps some leaf litter added. Planting around log piles with species such as honeysuckle *Lonicera periclymenum* or clematis *Clematis* sp. can also add value. The proposed plan indicates the removal of a number of trees which therefore could be recycled into a feature for the site, reducing overall costs.

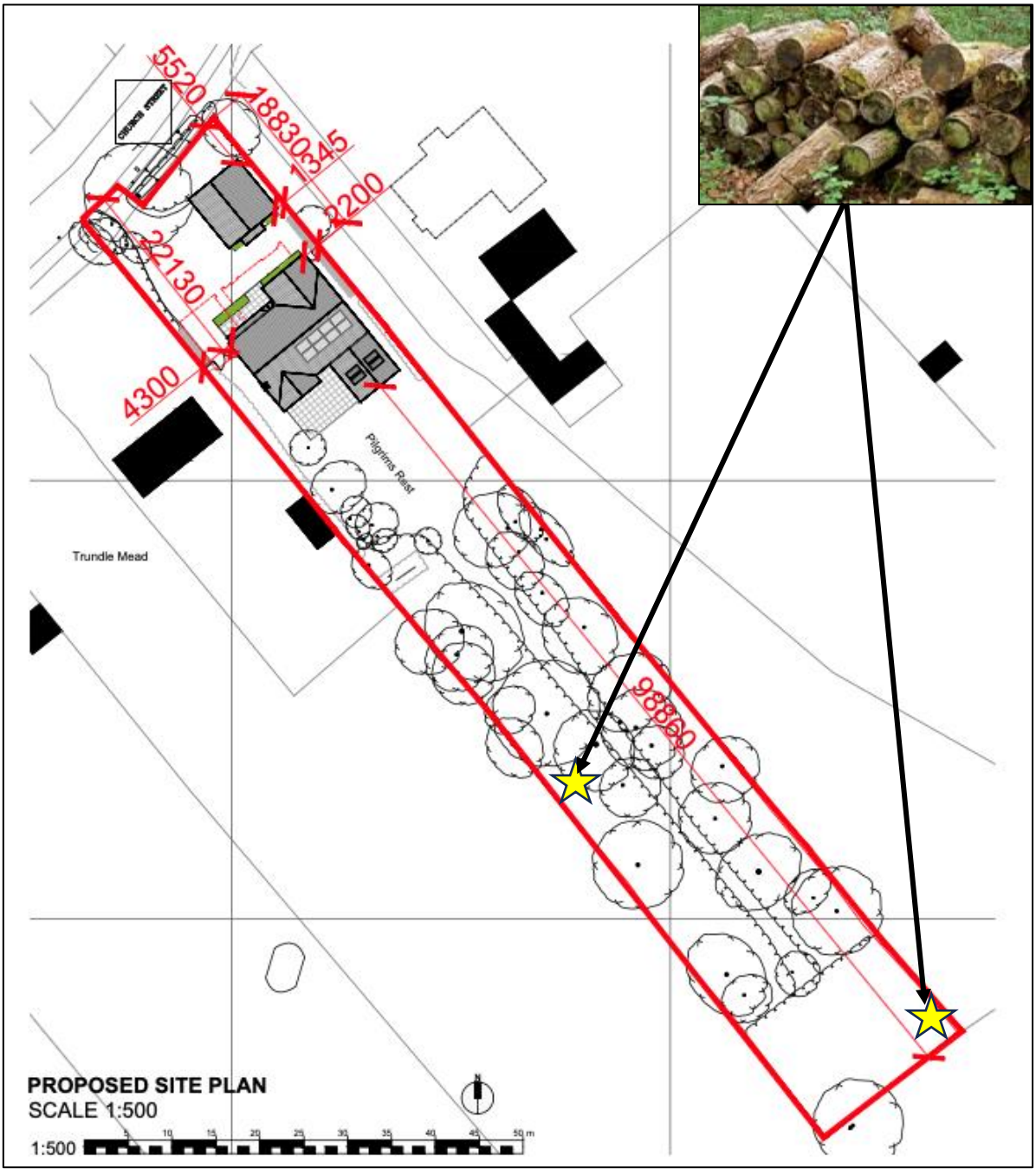


Figure 7. Proposed Site Plan showing the recommended locations where the two hibernacula will be created, indicated by a yellow star and black arrows.

3.2.4 Invertebrate boxes

One invertebrate box (insect hotels) will be installed, south-east of site as illustrated in Figure 8. One option is the Insect Tower, available via NHBS (www.nhbs.com) and illustrated below. The different sections of the Insect Tower have been designed to provide a habitat for a variety of insect species. The nesting tubes are ideal for solitary bees to build their nests in, the vertical slots are designed to encourage butterflies, other refuge holes are perfect for ladybirds and lacewings and the pinecones offer an excellent habitat for a range of other species. Similarly, to the bat features, insect hotels are best situated facing away from prevailing winds and positioned in sunlight or light shade therefore, south facing aspects are preferable. The insect hotel should be installed approximately 1.5m off the ground and made secure. Similarly, felled trees could be used in a similar fashion to the insect hotel to promote invertebrate habitat. Deadwood can be left in place with logs stacked to provide suitable refugia. The proposed plan indicates the removal of a number of trees which therefore could be recycled into a feature for the site, reducing overall costs.

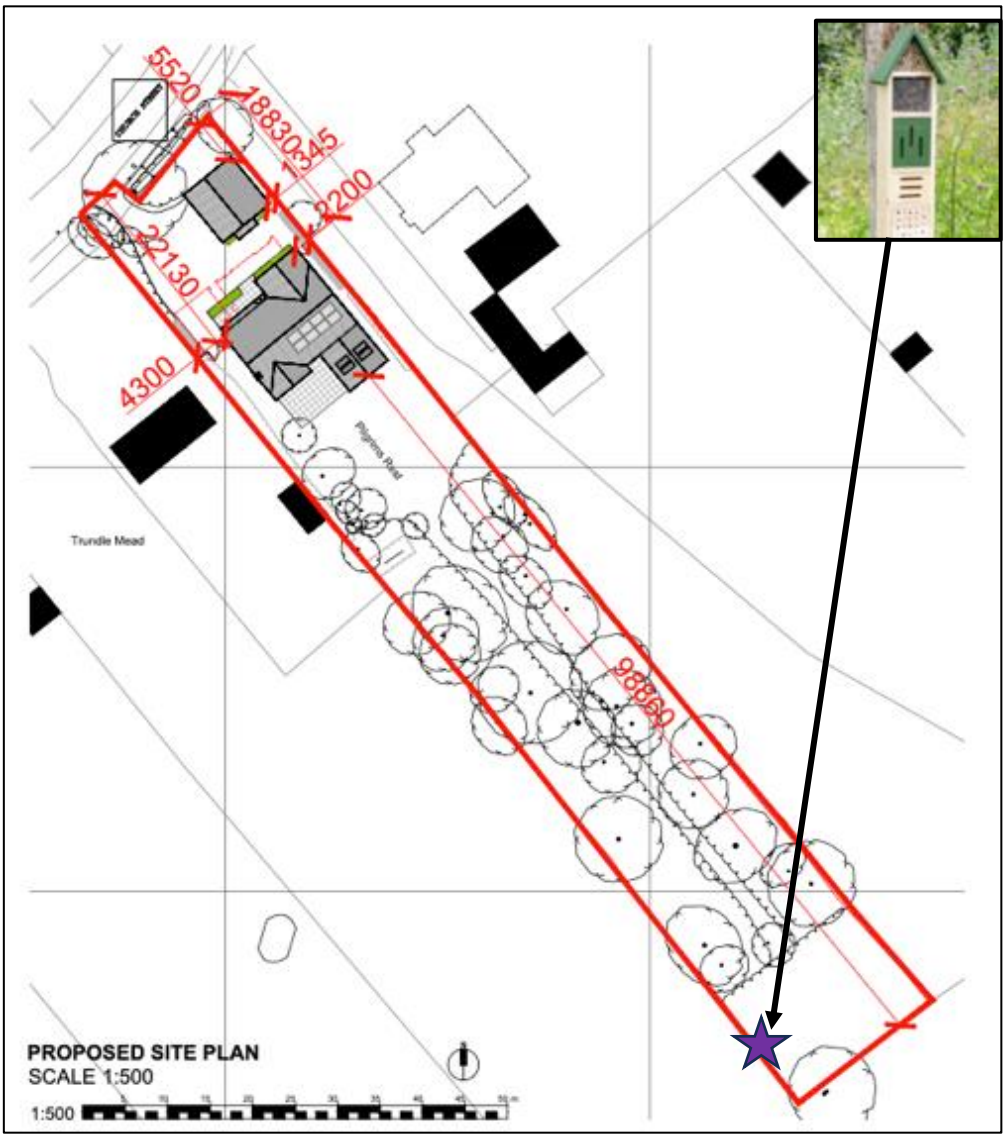


Figure 8. Proposed Site Plan showing the recommended location where the invertebrate tower will be installed, indicated by a purple star and black arrows.

4. POST CONSTRUCTION MANAGEMENT PLAN

4.1 BAT BOX MANAGEMENT

The integral bat box roosting feature in the tree, will be largely maintenance-free, and apart from an annual check it must be ensured that it remains in position. If damaged the box is to be replaced like for like. However, an important component to this habitat feature will be managing the expectations of residents and other users of the development site, including dealing with any concerns, questions, or unauthorized interference. It is recommended that the resident of the property is made aware of the legal protection afforded to bats and birds, and their obligations as owners.

4.2 BIRD BOX MANAGEMENT

Bird nesting boxes should be emptied of nesting material in winter to prevent the build-up of parasites.

5. WORK SCHEDULE

Table 2 below provides the timetable to aid correct timing of the annual management at the site.

Table 2. Annual Work schedule for the 5-year management period.

Action for green assets	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Inspection of bird boxes									X	X	X	
Clearance of old bird nests from bird boxes									X			
Pruning of the vegetation onsite	X	X										
Checking of tree stakes/guards of proposed planting						X						
Maintenance or replacement of the insect hotel									X	X		
Inspection for invasive species						X	X					

6. COMPETENCIES, STANDARD AND SPECIFICATIONS OF WORKS

The following competencies/standards/specifications should be adhered to:

- the installation of the bat boxes and incorporated tile access features are to be undertaken or overseen by a suitably qualified ecologist;
- the installation of the traditional bird boxes on retained trees is to be undertaken or overseen by a suitably qualified ecologist;
- the installation of the hedgehog highways can be carried out by the work contractors.
- All tree works are to be undertaken by a suitably qualified arboriculturalist or tree surgeon.

7. CONCLUSIONS

This report outlines targeted enhancement measures for protected and Priority species and habitats, notably; for bats, birds, amphibians & reptiles, invertebrates, trees and hedgerows which will contribute to Horsham District Council local plan policies[3].

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

[3] Horsham District Local Plan (2023-2040). https://horsham.moderngov.co.uk/documents/s25850/Appendix%201%20-%20Horsham%20District%20Local%20Plan%20Regulation%2019%20Dec%202023.pdf.

APPENDIX 1 – Relevant Legislation and Planning Policies

Introduction

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.

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.

National Planning Policy Framework

The National Planning Policy Framework (NPPF 2021)[4] 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) [5]. 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.

[4] HM Government (2021). National Planning Policy Framework. Department for Communities and Local Government. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

[5] HM Government (2005) ODPM Circular 06/05 Government Circular: *Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System*. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7692/147570.pdf.

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.

References

Natural Environment and Rural Communities (NERC) Act (2006). HMSO London. Available at: http://www.legislation.gov.uk/ukpga/2006/16/pdfs/ukpga_20060016_en.pdf

National Planning Policy Framework (NPPF) (2021) Ministry of Housing Communities & Local Government. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

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 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[6] should be referred to when designing the 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 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;
- 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 cats 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

[6] 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/

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.

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 (2021) Guidance Notes for the Reduction of Obtrusive Light GN01:2011. Available at: https://www.theilp.org.uk/resources/free-resources/

Voigt, C.C., Azam, C., Dekker, J., Ferguson, J., Fritze, M., Gazaryan, S., Hölker, F., Jones, G., Leader, N., Lewanzik, D. and Limpens, H., 2018. *Guidelines for consideration of bats in lighting projects*. Unep/Eurobats. Available at: https://cdn.bats.org.uk/uploads/pdf/Resources/EUROBATSguidelines8_lightpollution.pdf?v=1542109376