

DC/25/1321

RICKFIELD FARM, BRIGHTON ROAD, RH13 6HY

DISCHARGE OF CONDITION

6

Pre-Commencement (External Lighting) Condition:

No external lighting shall be installed until a lighting design scheme for biodiversity has been submitted to and approved in writing by the Local Planning Authority. The scheme shall identify those features on site that are particularly sensitive for bats and that are likely to cause disturbance along important routes used for foraging; and show how and where external lighting will be installed (through the provision of appropriate lighting contour plans, drawings and technical specifications) so that it can be clearly demonstrated that areas to be lit will not disturb or prevent bats using their territory.

All external lighting shall be installed in accordance with the specifications and locations set out in the scheme and maintained thereafter in accordance with the scheme.

No further external lighting shall be installed without prior consent from the Local Planning Authority.

Reason: As these matters are fundamental to safeguard the ecology and biodiversity of the area in accordance with Policy 31 of the Horsham District Planning Framework (2015), and to enhance Protected and Priority Species/habitats and allow the LPA to discharge its duties under the s40 of the NERC Act 2006 (Priority habitats & species).

PROPOSAL

The owners have commissioned a report and lighting scheme from Abrehart Ecology, The Barn, Bridge Farm, Brandeston, Woodbridge IP13 7BP. They have been asked to produce a lighting strategy for biodiversity to satisfy the LPA response and condition.

Lighting Design Strategy for Biodiversity

For

Rickfield Farm, Manning Heath, Sussex
RH13 6HY

Prepared for:

Charlie Scrase Dickins

Prepared by:

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Executive Summary

Abrehart Ecology was instructed by Charlie Scrase Dickins to produce a lighting strategy for biodiversity to support existing planning reference DC/25/1321 to demolish of existing dwelling, 2no. barns and an outbuilding. Erection of a replacement dwelling with attached garage.

The document was required to satisfy the council response to the planning application 'DC/25/1321'. The relevant Condition states:

We support the recommendation that a Wildlife Friendly Lighting Strategy is implemented for this application (Bat Survey Report (Sylvatica Ecology Ltd., August 2025)) to avoid impacts from light disturbance. This should be secured by a condition of any consent and implemented in full. Therefore, technical specification should be submitted prior to occupation, which demonstrates measures to avoid lighting impacts to foraging / commuting bats, which are likely to be present within the local area. This should summarise the following measures recommended by Guidance Note:08/23 (Institute of Lighting Professionals) will 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 should be set on motion-sensors and set to as short a possible a timer as the risk assessment will allow.

Luminaires should 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.'

1 Introduction

- 1.1 Abrehart Ecology was instructed by Charlie Scrase Dickins to produce a lighting strategy for biodiversity to support existing planning reference DC/25/1321 to demolish an existing dwelling, 2no. barns and an outbuilding and an erection of a replacement dwelling with attached garage. To be considered at Rickfield Farm, Manning Heath, Sussex. (central grid reference; TQ 19643 20594 Fig. 1).
- 1.2 This document should be read in conjunction with the following documents for the site:
- Preliminary Ecological Appraisal for Rickfields Farm, RH13 6HY at Manning Heath, Sussex. (Ecology and Habitat Management Ltd, 2025)
 - Bat Survey Report – Rickfield Farm, Horsham, West Sussex RH13 6HY (Sylvatica Ecology Ltd., 2025)

Aims and Objectives

- 1.3 In accordance with the above, this strategy aims to review existing ecological survey reports and use this information to advise on lighting within the site boundary. This is in effort to protect foraging and commuting habitats that are suitable for use by protected species.

Site description

- 1.4 A Preliminary Ecological Appraisal (PEA) was carried out, staff at Ecology and Habitat Management Ltd (EHM Ltd.), by Lauren Scudder, BSc (Hons), Cert Ecol on 6th June 2025. The survey highlighted the potential for the site to support several protected species:
- Bats
 - Nesting birds
- 1.5 The below description was taken from the PEA: *“The site is roughly rectangular in shape, covering an area of approximately 0.43ha. It comprises of grassland, hedgerows, buildings and mature trees. The site is currently accessed through a driveway off Brighton Road. The site is located in a small community which contains similar sized properties (to the proposed). The local landscape is best described as semi-rural in nature, with large pockets of woodland and agricultural fields dominating the immediate area surrounding the site and residential areas within the local and wider surroundings. Good wildlife connectivity between habitats is present in the local area in the form of hedgerows, woodland edges and grassland. Although, main roads do separate habitats, some hedgerows appear gappy from aerial images and large areas of grassland is either managed to maintain a short sward length or managed for agricultural purposes. The centre of Horsham, the closest town, is approximately 3.2km northwest of the site.”*

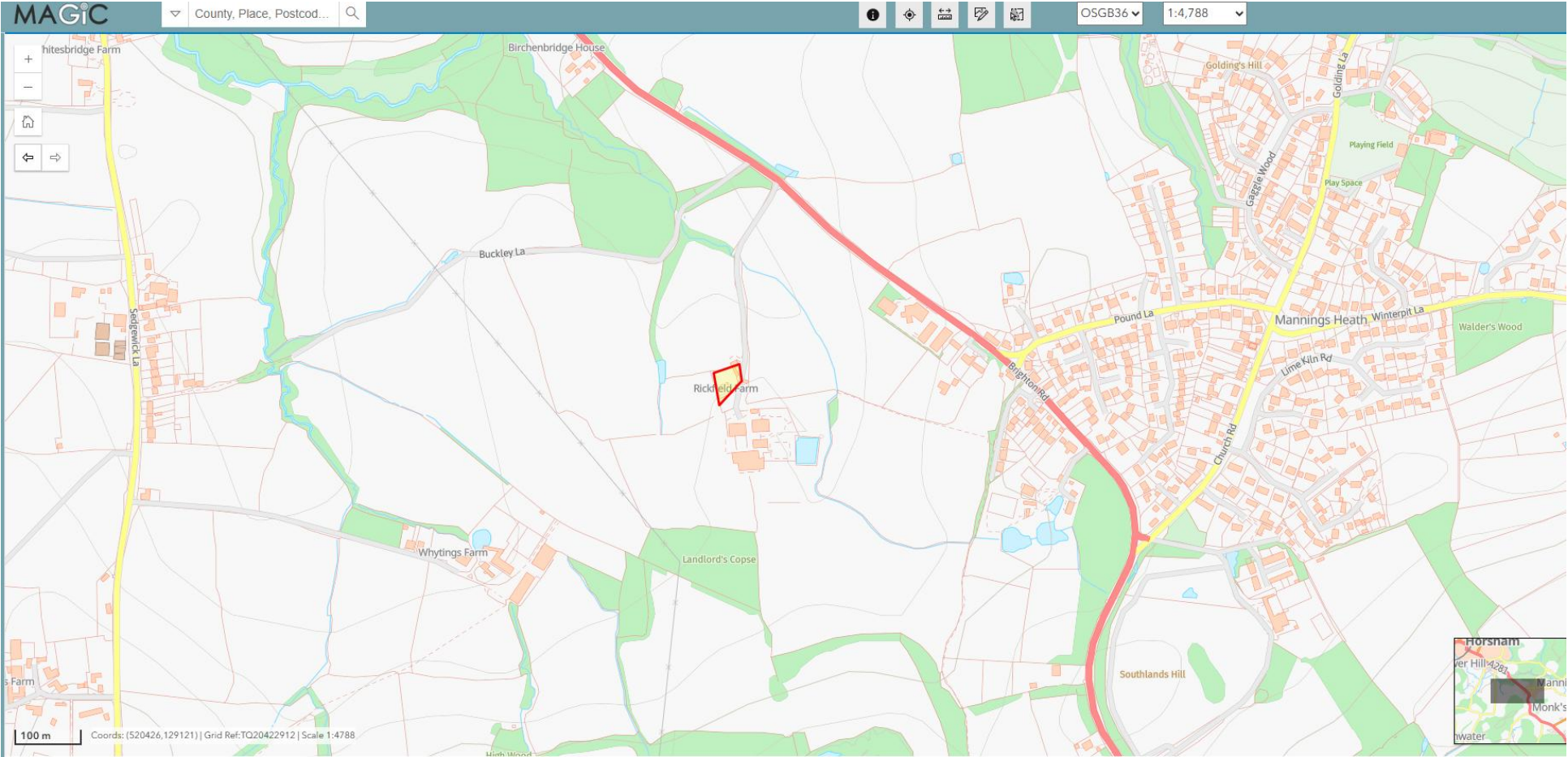


Figure 1: Site location in wider landscape

2 Legislative Context

- 2.1 All bat species and their roosts are protected under the Wildlife and Countryside Act 1981 (as amended) (WCA) and the Conservation of Habitats and Species Regulations 2017. Under this legislation it is an offence to intentionally or recklessly:
- Capture, injure or kill a bat;
 - Disturb a bat; and
 - Destroy or obstruct access to a bat roost.
- 2.2 The National Planning Policy Framework (NPPF) 2024 places responsibility on Local Planning Authorities (LPAs) to aim to conserve and enhance biodiversity in and around developments. Section 40 of the NERC Act requires every public body to “have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity”. Biodiversity, as covered by the Section 40 duty, is not confined to habitats and species of principal importance but refers to all species and habitats. However, the expectation is that public bodies would refer to the Section 41 list (of species and habitats) through compliance with the Section 40 duty.

3 Bat Ecology

- 3.1 There are eighteen species of bat found in the UK, of which seventeen are known to be breeding. All seventeen species have been recorded in Sussex, eight of these are subject to UK Biodiversity Action Plans:
- Greater horseshoe bat (*Rhinolophus ferrumequinum*)
 - Lesser horseshoe bat (*Rhinolopus hipposideros*)
 - Barbastelle (*Barbastella barbastellus*)
 - Bechstein’s (*Myotis bechsteinii*)
 - Common pipistrelle (*Pipistrellus pipistrellus*)
 - Soprano pipistrelle (*Pipistrellus pygmaeus*)
 - Noctule (*Nyctalus noctula*)
 - Brown long-eared (*Plecotus auritus*)
- 3.2 Bats are the only flying mammal, their wings have a similar structure to the hand and arm of a human, with skin stretched between long fingers and the body. In Britain, bats range in size from 4-7g (pipistrelles) to 40g (noctules).
- 3.3 Bats are found around the world and many species eat fruit and nectar; however, all British bats are insectivorous. Bats utilise different methods to hunt (such as catching insects on the wing and gleaning), hunt a variety of prey species (including midges, beetles, and spiders), and use echolocation, passive hearing, and vision to find their prey at night (passive hearing is used by gleaning bats that capture non-flying insects on the ground or trees). Echolocation is a very sophisticated sonar system, whereby bats emit short, high frequency sounds and use the information/echoes returning to them to construct an image of their environment and locate their prey.
- 3.4 Roosts provide bats with shelter from predators and variable weather conditions. Bats use different roost sites throughout the year, selected based on current physiological requirements. These can be used for hibernation, reproduction, and as transient day roosts. Bats utilize natural roost sites (including tree-holes, caves, and cavities in exposed rocks) and those provided by human construction (such as houses), which mimic natural roost sites. Opportunities are abundant within residential housing; bats use roof spaces, cavity walls, window frames, weather-boarding, tiles, and many other crevices and cavities. Roost sites are often near to foraging habitat or commuting routes,

- most likely this is near woodland or water, however roost sites can, and have, been found in apparently isolated locations.
- 3.5 Foraging habitat generally consists of any habitat which attracts invertebrate prey, such as trees, hedgerows, woodland, scrub, rivers, and waterbodies and open areas such as grassland (particularly where this is grazed, as livestock attract some invertebrates). Linear features such as hedgerows, woodland edges and rides, tree lines and rivers are typically used for commuting between roosting locations and foraging habitat, particularly by smaller bat species which seek cover from predators and shelter from weather. Such corridors are also used by migratory bat species, such as Nathusius’ pipistrelle (*Pipistrellus nathusii*) and noctule when moving longer distances between maternity and hibernation areas.
- 3.6 Some species will not use foraging routes if these become lit, and a lit-up section of the foraging route can be a barrier that bats will not cross. *Myotis* species (e.g. Daubenton’s, Whiskered, Natterer’s) and long-eared bats are known to be particularly sensitive. (ref: Table 5.2 of Stone (2013).

4 Lighting

- 4.1 The document was required to satisfy the council responses for the planning permission ‘DC/25/1321’. This states:

‘We support the recommendation that a Wildlife Friendly Lighting Strategy is implemented for this application (Bat Survey Report (Sylvatica Ecology Ltd., August 2025)) to avoid impacts from light disturbance. This should be secured by a condition of any consent and implemented in full. Therefore, technical specification should be submitted prior to occupation, which demonstrates measures to avoid lighting impacts to foraging / commuting bats, which are likely to be present within the local area. This should summarise the following measures recommended by Guidance Note:08/23 (Institute of Lighting Professionals) will 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 should be set on motion-sensors and set to as short a possible a timer as the risk assessment will allow.*
- Luminaires should 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.’*

Environmental Zone	Surrounding	Lighting Environment	Examples
E0	Protected	Dark	UNESCO Starlight Reserves, IDA Dark Sky Parks
E1	Natural	Intrinsically Dark	National Parks Areas of Outstanding National Beauty etc...
E2	Rural	Low District Brightness	Village or relatively dark outer suburban locations
E3	Suburban	Medium District Brightness	Small town centres or suburban locations
E4	Urban	High District Brightness	Town/city centres with high levels of night-time activity

Table 1: Types of environmental lighting zones.

- 4.2 The aim of the plan to ascertain the correct lighting prior to fitment of new lamps on site, to make sure no unnecessary light barriers will be created. The Institute of Lighting Engineer's (I.L.E) guidance were used. Luminaires associated with the proposed new lighting have the potential to create barriers of light for bats. The Institute of Lighting Engineers has developed a classification system for the categorisation of assessment locations. The table above provides an overview of lighting in environmental zones, the site fits into E3.

Ecologically sensitive features

- 4.3 The bat survey identified: a confirmed brown long-eared bat roost, regular foraging and commuting by pipistrelle species along hedgerows and hedgerows and tree lines forming key dark corridors through and adjacent to the site.
- 4.4 The areas of retained and created hedgerow wildlife corridors along with the boundaries are key features. All these features will be retained and will not be illuminated during construction or post development under any circumstances. The site provides moderate suitability for foraging bats, with the mature hedgerows and areas of Tussock forming grassland.
- 4.5 Lighting will not illuminate any of the proposed new enhancement features such as bat boxes or any habitat which may provide suitable foraging and commuting habitat for bats.

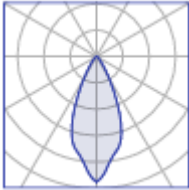
Factors which minimise the effect to bats

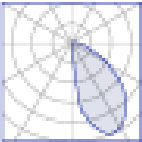
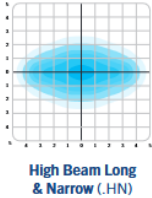
- 4.6 Only illuminate what needs to be illuminated - minimise or prevent light spill to any other area forming part of the bat's commute. If lighting a pathway for example, the light ideally would be directed at the path only, with no up light or illumination of nearby trees, bushes, river, waters, buildings, etc.
- 4.7 Reducing the light levels - there is no definite light level below which bats will not be disturbed. Different species of bat appear to show more sensitivity than others.
- 4.8 Height of Luminaires - if the bats are commuting at a known height, it may be an option to drop the maximum height of the Luminaires (with good cut-off, no up light, narrow beams etc.) so the bats may fly over this in a zone of relative darkness.
- 4.9 Lighting Controls - The peak time for feeding for bats is dusk. This is when they exit the roost to go foraging. If the lighting was switched off for this period, or at lower light output, this would benefit the bats. In addition, the lighting could be controlled by occupancy/motion sensors so that it would remain off/low if there was no pedestrian traffic nearby.
- 4.10 In general, light sources should not emit ultraviolet light to avoid attracting insects and thus potentially reducing numbers in adjacent areas, which bats may use for foraging. Metal halide and fluorescent sources should not be used.
- 4.11 LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- 4.12 Internal luminaires can be recessed (as opposed to using a pendant fitting) where installed in proximity to windows to reduce glare and light spill.
- 4.13 Waymarking inground markers (low output with cowls of similar to minimise upward light spill) to delineate path edges.
- 4.14 Column heights should be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance.

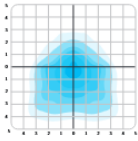
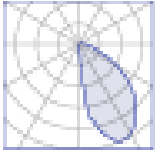
- 4.15 Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered.
- 4.16 Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt.
- 4.17 Where appropriate, external security lighting should be set on motion-sensors and set to as short as possible a timer as the risk assessment will allow. For most general residential purposes, a 1- or 2-minute timer is likely to be appropriate and using hoods, cowls, or shields, to prevent light spillage.

5 Proposed lighting

- 5.1 The lights below have been proposed for the new house and associated buildings and entrance to the new access track for safety. All are indicative lights and do not to be exactly followed, What is most important is the use of lights that have a Upward Light Output Ratio (ULOR) of 0.0%.
- 5.2 All lights suggested below are from Holophane Europe and are wildlife friendly. Other companies selling Zero ULOR lights are Astro Lighting and Dar Lighting.

The lighting scope is summarised below	
CCT = Correlated colour temperature	
ULOR – Upper light output ratio	
Suitable downlights for the track entrance.	
 MONACO 200 (Downlight) Product code: MON2 This would be suitable on the outside of the house and can be angled to avoid illumination to adjacent linear features.	LED lights Wall mounted at variable height up to 4m. Lumens per lamp - 1400 Wattage – 10 CCT - 2700K ULOR - 0.0% Single Emission – 1 opening – diffuse. 

 TEAM Bollard Product code: TEAMB These would be suitable for placement at the access track - positioned to illuminate the track, angled away from the adjacent hedgerows.	LED lights Bollards available at 600mm or 900mm Lumens per lamp - 890 Wattage – 17.5 CCT - 2700K ULOR - 0.0% Height 900mm – Single emission.  
Wall Mounted Suitable lighting for mounting on the stable block and barn.	
 DWL.1.LA022.HN.W011 This would be suitable for door entrances to the garage.	LED lights Wall Mounted up to 3m Lumens per lamp - 1331 Wattage – 10.3 CCT - 2700K ULOR - 0.0% High Beam Long and Narrow 
 DWL.1.LA022.FW.W011	LED lights Wall Mounted up to 3m Lumens per lamp - 1350 Wattage – 10.3 CCT - 2700K ULOR - 0.0%

This would be suitable for door entrances to the garage and house.	Forward Throw  Forward Throw (FW)
 TEAM Wall Product code: TEAMW This would be suitable for door entrances to the boot room.	LED lights Wall Mounted at any suitable height Lumens per lamp - 395 Wattage – 8 CCT - 2700K ULOR - 0.0% White LED - square - asymmetrical  

6 Conclusions and Recommendations

- 6.1 No lighting will illuminate any of the boundary habitats. In particular the retained mature hedgerow and newly created hedgerow along the eastern and western boundary, thus ensuring undisturbed foraging and commuting habitat for bats and other nocturnal species – see lighting design strategy map below.
- 6.2 The wall mounted lights and bollards with differing light spills will ensure only the access track and necessary buildings are illuminated.
- 6.3 The downward facing external lights will ensure that no light is directed upwards or towards features of interest to wildlife, this will ensure that commuting habitats are not impacted.
- 6.4 New lighting will have timers and be downward facing and will not cause a barrier or deterrent to bats and will provide safe lighting with low light pollution. The light spillage will be minimal if this is adhered to.

7 References

Literature

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Websites

https://www.holophane.co.uk/ProductData/Downloads/DSX0/Downloads/DSX0_Product_Brochure.pdf

https://www.holophane.co.uk/ProductData/Downloads/DWL/Downloads/DWL_Product_Brochure.pdf

[www. magic.defra.gov.uk](http://www.magic.defra.gov.uk)

Appendix – Site plan – Indicative Locations of Features for post development plan with proposed lighting locations – Rickfield Farm, Sussex

