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Wildlife Sensitive Lighting Strategy

Survey site:

Site Office Building, Crabbet Park Equestrian Centre, Tuner Hill Rd, Worth, Crawley, RH10 4ST

Client:

Peacock 5 LTD

Project:

This report is prepared to inform a planning application with the Mid Sussex District Council.

The proposal is described as:

The demolition of the existing site office and construction of a new dwelling.

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Guidelines

This assessment has been designed to take into account:

- British Standard 42020 (2013) 'Biodiversity – Code of Practice for Planning and Development'.

Proportionality

The work involved in preparing and implementing all ecological surveys, impact assessments and measures for avoidance, mitigation, compensation and enhancement should be proportionate to the predicted degree of risk to biodiversity and to the nature and scale of the proposed development. Consequently, the decision-maker should only request supporting information and conservation measures that are relevant, necessary and material to the application in question. Similarly, the decision-maker and their consultees should ensure that any comments and advice made over an application are also proportionate.

This approach is enshrined in Government planning guidance, for example, paragraph 193 of the National Planning Policy Framework for England.

(BS 42020, 2013)

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1.0 Introduction and Context

1.1 Background

Arbtech Consulting Ltd. were commissioned by Peacock 5 Ltd (the client) to produce a Wildlife Sensitive Lighting Strategy for the site of Site Office Building, Crabbet Park Equestrian Centre, Tuner Hill Rd, Worth, Crawley, RH10 4ST (hereafter referred to as the site).

1.2 Proposed development

The site has been granted planning permission with Mid Sussex District Council:

The demolition of the existing site office and construction of a single dwelling and associated works.

[DM/25/1023]

1.3 Site location

The site location is described in the Preliminary Ecological Appraisal (PEA) (Arbtech, 2025):

The survey site is centred on National Grid Reference TQ 30548 37255 and has an area of approximately 0.074ha.

The site comprises one building (B1), an area of grassland, scattered trees and an unsealed surface track that connects the site to Turner Hill Road. It is situated within Crabbet Park Equestrian Centre, within the rural outskirts of east Crawley. There are scattered trees within the site that extend into the local landscape, particularly as there are areas of a scattered trees within the immediate local landscape that connect to a substantial parcel of woodland to the east.

Aerial imagery shows the local landscape to have a mixed character. To the west of the site, the landscape is highly urban, consisting of residential development, small parcels of grassland and woodland. Whereas the remaining landscape to the north, east and south comprises of parcels of woodland, areas of grassland and scattered residential and commercial properties.

The current and proposed site plans and location plan are included below as figures 1 - 2.

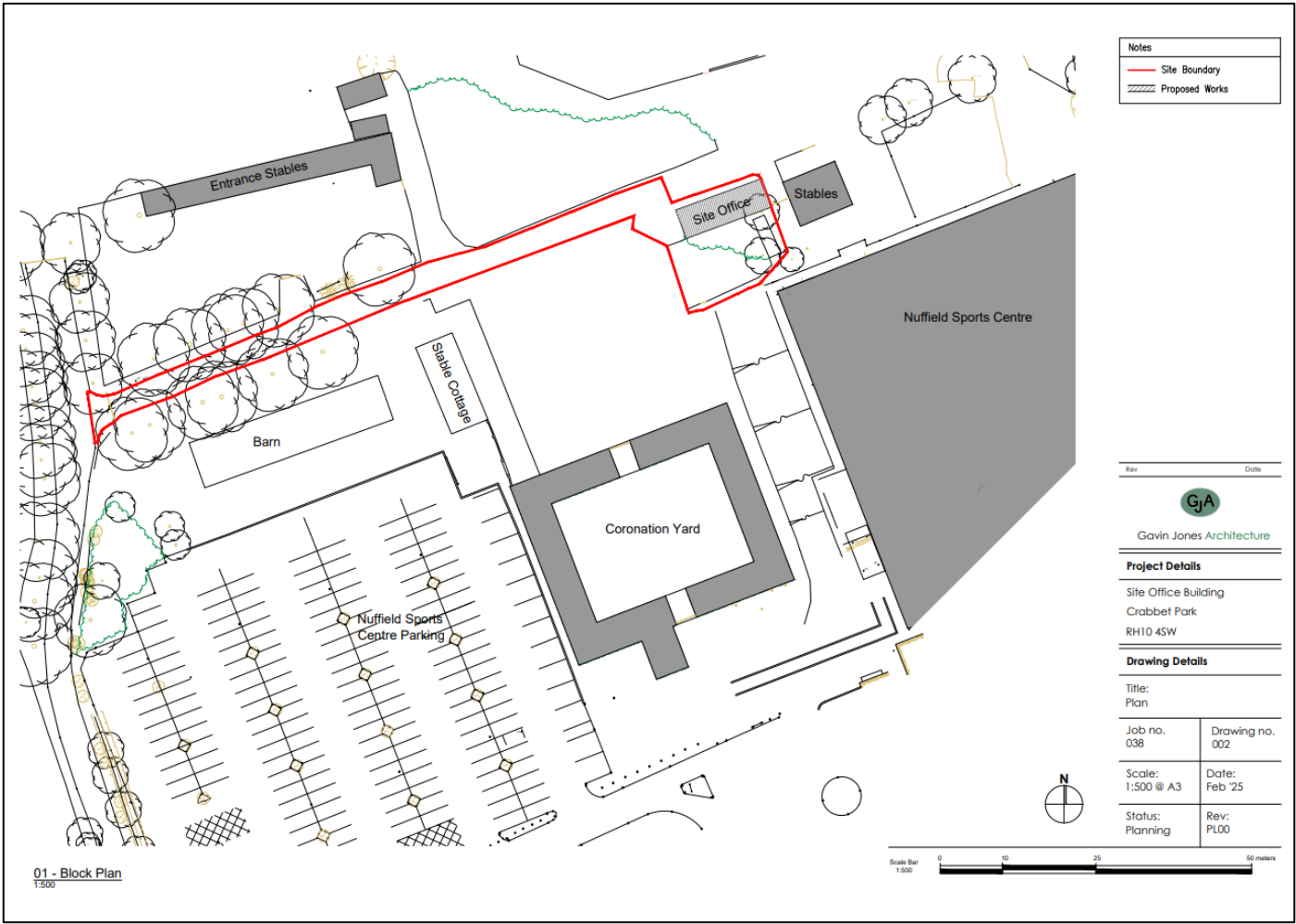


Figure 1: Existing site plan



Figure 2: Proposed site plan

1.4 Scope of this report

The scope of this report is to provide guidance on a wildlife sensitive lighting strategy to help discharge a condition of the approved planning application [DM/25/1023], and to outline the measures that would be used to comply with legislation. It aims to improve the site's intrinsic biodiversity value within the framework of the proposed development, or to propose changes to the plan where appropriate. The planning condition is outlined below:

[Condition 10]

Prior to occupation, a "lighting design strategy for biodiversity" in accordance with Guidance Note 08/23 (Institute of Lighting Professionals) shall be submitted to and approved in writing by the local planning authority. The strategy shall:

a) identify those areas/features on site that are particularly sensitive for bats and that are likely to cause disturbance in or around their breeding sites and resting places or along important routes used to access key areas of their territory, for example, for foraging; and

b) show how and where external lighting will be installed so that it can be clearly demonstrated that areas to be lit will not disturb or prevent the above species using their territory or having access to their breeding sites and resting places.

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. Under no circumstances should any other external lighting be installed without prior consent from the local planning authority.

Reason: To allow the LPA to discharge its duties under the Conservation of Habitats and Species Regulations 2017 (as amended), the Wildlife & Countryside Act 1981 (as amended) and s40 of the NERC Act 2006 (as amended).

1.5 Previous ecological survey results

The site was provisionally assessed by means of a Preliminary Ecological Appraisal and Roost Assessment (PEARPA) undertaken by Arbtech Consulting Ltd on 4th March 2025. Further assessed provided are listed below:

- Biodiversity Net Gain (BNG) assessment including parts 1 & 2, and the metric (Arbtech, 2025)
- Bat Emergence and Re-Entry surveys (BERS) (Arbtech, 2025)
- Material Changes Check (MCC) to support EPSL application (Arbtech, 2025)
- Ecological Enhancement Plan (EEP) (Arbtech, 2025)

1.6 Habitats recorded on site

The site contains no listed habitats of principal importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006). However, the site contains two scattered trees which are of good quality and could be of value to local wildlife populations. Other habitats within the site are common and widespread and have low ecological value. Further notable habitats are present within 2km.

u1b5 – Buildings

A single storey building (B1) is located along the eastern boundary of the site. A smaller, second building (B2) is located on the southern side of B1.

u1c - Artificial unvegetated, unsealed surface

An unsealed track connects B1 to Turners Hill Road. A review of MAGIC shows the western portion of the site to contain priority deciduous woodland, however upon undertaking the ecological appraisal the trees within this area, that are all offsite, more accurately resemble a line of trees as opposed to deciduous woodland. These

treelines are composed entirely of horse chestnut and have been heavily managed in the past. After reviewing the findings and aerial imagery, it is considered to be more accurate to classify this area as artificial, unsealed surface.

g4 – Modified grassland with scattered trees [32]

Species-poor grassland is surrounding the north, west and southern aspects of B1. To the north there is a small managed strip that contains (D) perennial rye-grass, (O) red fescue, common nettle, bramble and (R) broadleaf dock. To the south, the area contains (D) Yorkshire fog, (F) cock's-foot, yarrow, ribwort plantain, (O) bramble, creeping buttercup, broadleaf dock and creeping cinquefoil. There is an area that appears to be previously dominated by nettles, but due to the survey being undertaken in the suboptimal season, this area is currently lacking in dense vegetation. Please see appendix 2 for specific location.

Some works have already taken place onsite, in the form of a roof strip and vegetation removal, therefore large piles of clay tiles and brash are currently located within the southern grassed area.

There are <6 vascular plant species present per metre squared across the whole area and whilst the sward height is homogeneously short in the northern portion of the grass, the southern area (not obscured by rubble and brash piles) remains unmanaged and has developed a heterogenous sward height. Low levels (<20% coverage) of bramble are found in this area and no remnants of bracken and no invasives were found. As stated above, some site clearance has taken place, and >5% of the grassland has been damaged.

The previous Preliminary Ecological Appraisal map is shown below in figure 3.1, with a local landscape map as figure 3.2

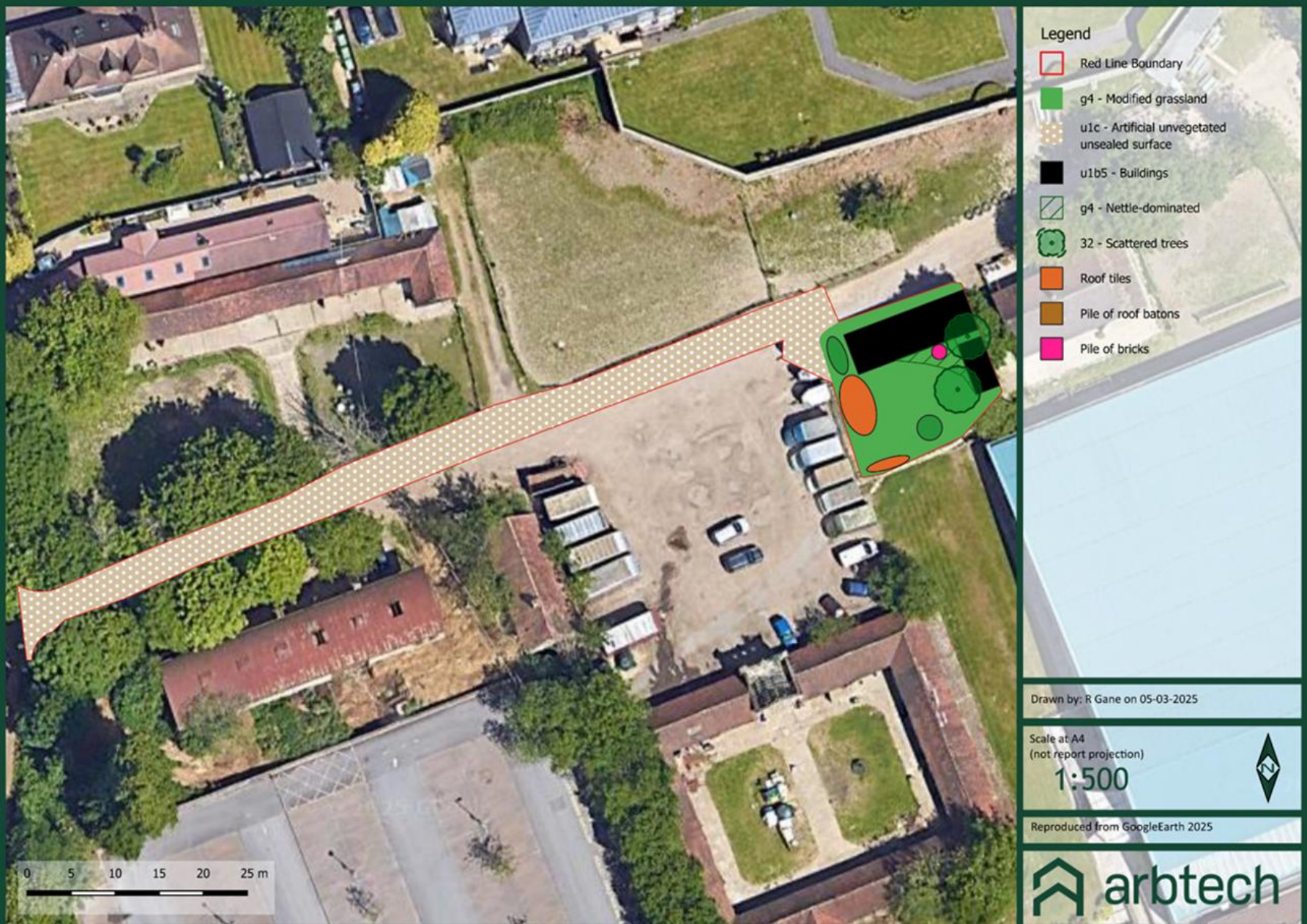


Figure 3.1: Preliminary Ecological Appraisal (PEA) habitat plan

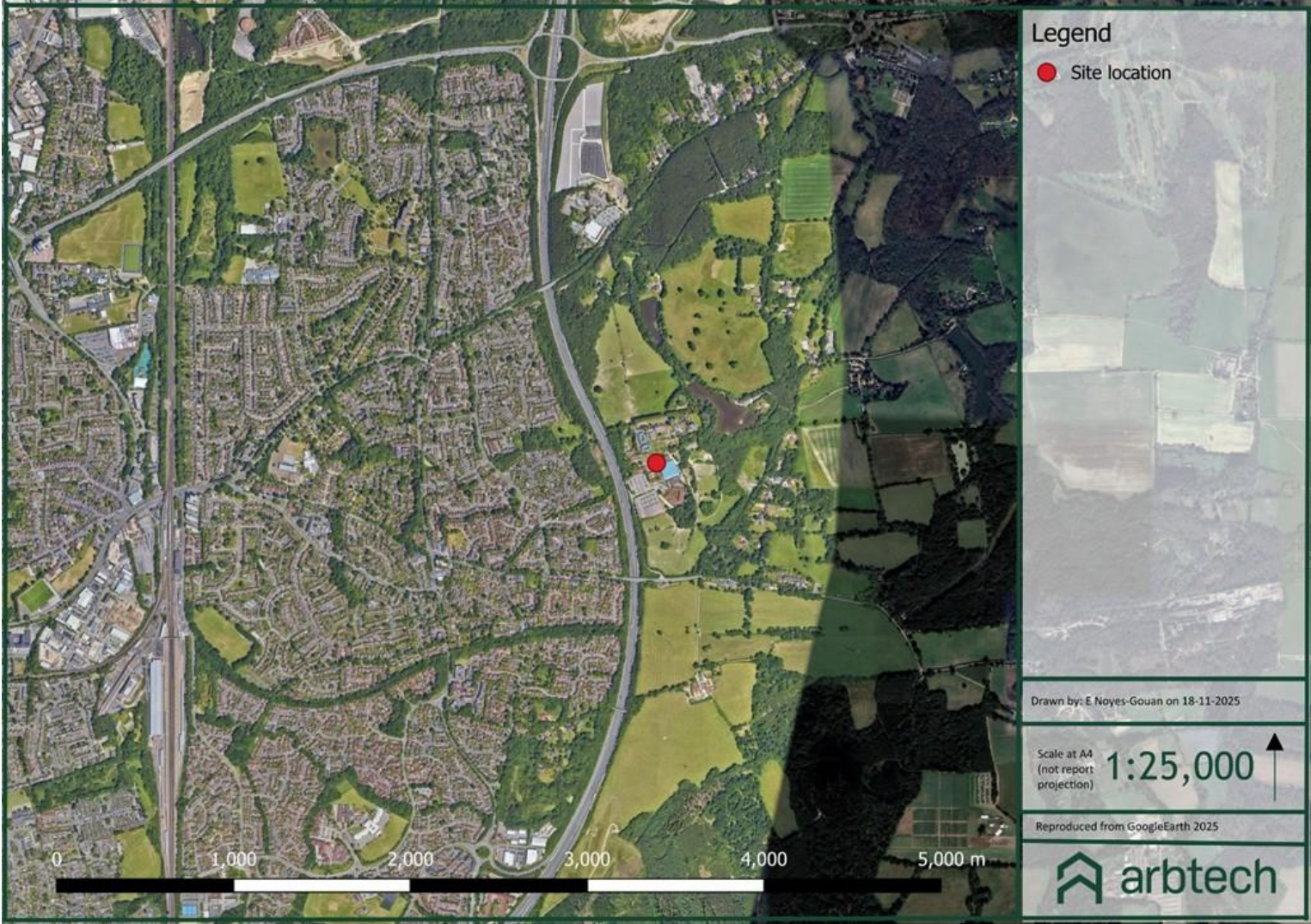


Figure 3.2: Local landscape map

2.0 Lighting plan parameters

2.1 introduction

The Wildlife Sensitive Lighting Strategy to be implemented at the site is detailed within Table 1 below. The Lighting Strategy aims to mitigate potential impacts of artificial light spill on wildlife as a result the proposed development.

2.2 The location and timing of any sensitive works to avoid harm to biodiversity features.

Prescription	Specification
Proposed dark corridors on site	Dark corridors around the site are planned to experience no more than +0.5lux of additional lighting as a result of the development illuminations. This is especially important for the lowland mixed deciduous woodland (10m west) and the trees extending from this western woodland, lining the road at the site's entrance. It is additionally important for the bat boxes proposed along the western and southern elevation, and the southern elevations of the buildings where one of the trees will remain. These are outlined in figure 4 below:

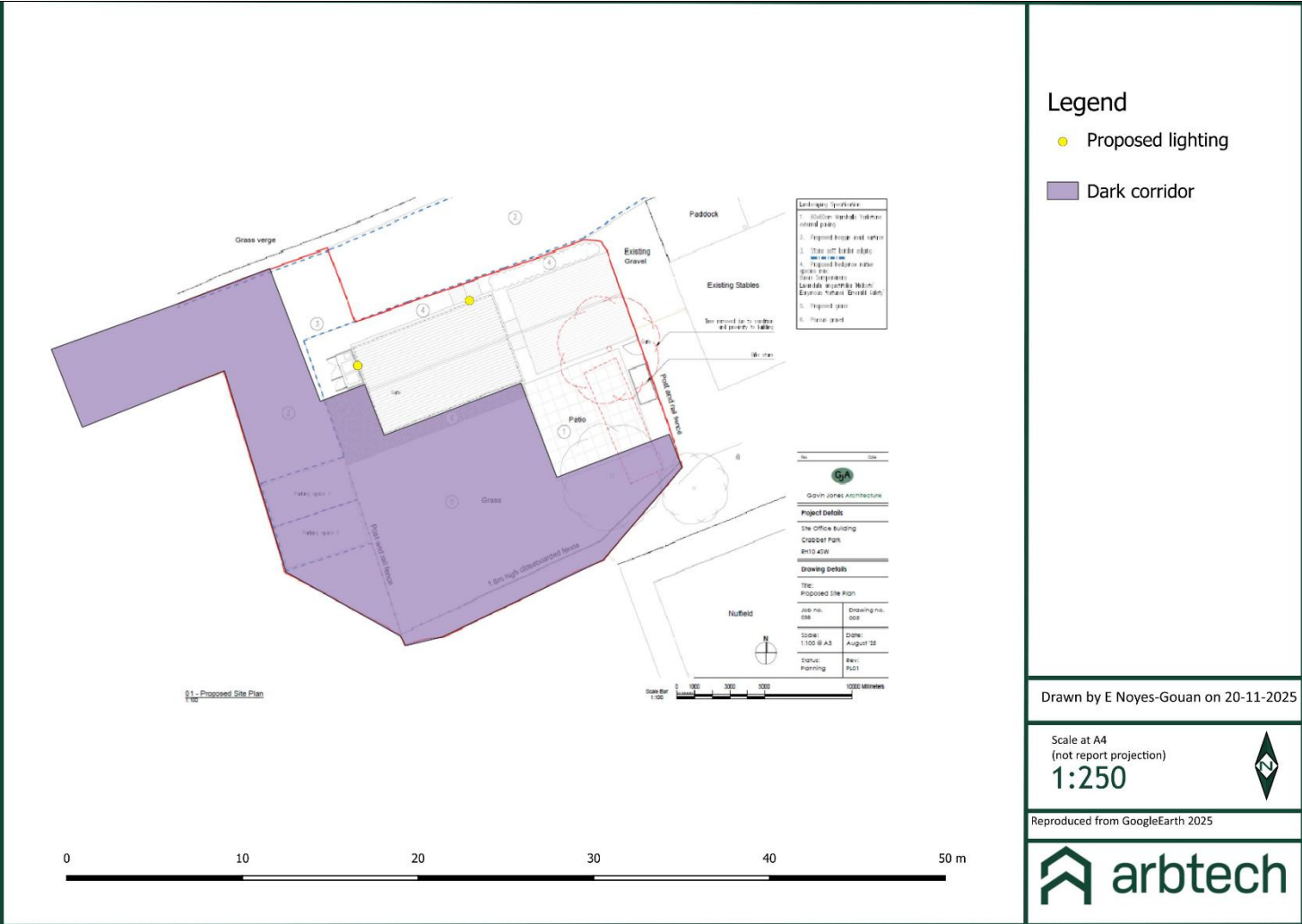


Figure 4: proposed dark corridors on site to design lighting to (no more than 0.5 additional lux in grey areas).

Mitigating impacts of internal Lighting	Impacts of artificial light spill through windows will be mitigated by fitting internal lighting fixtures in line with recommendations within Guidance Note 08/23 (BCT & ILP 2023). See figure 5 below.
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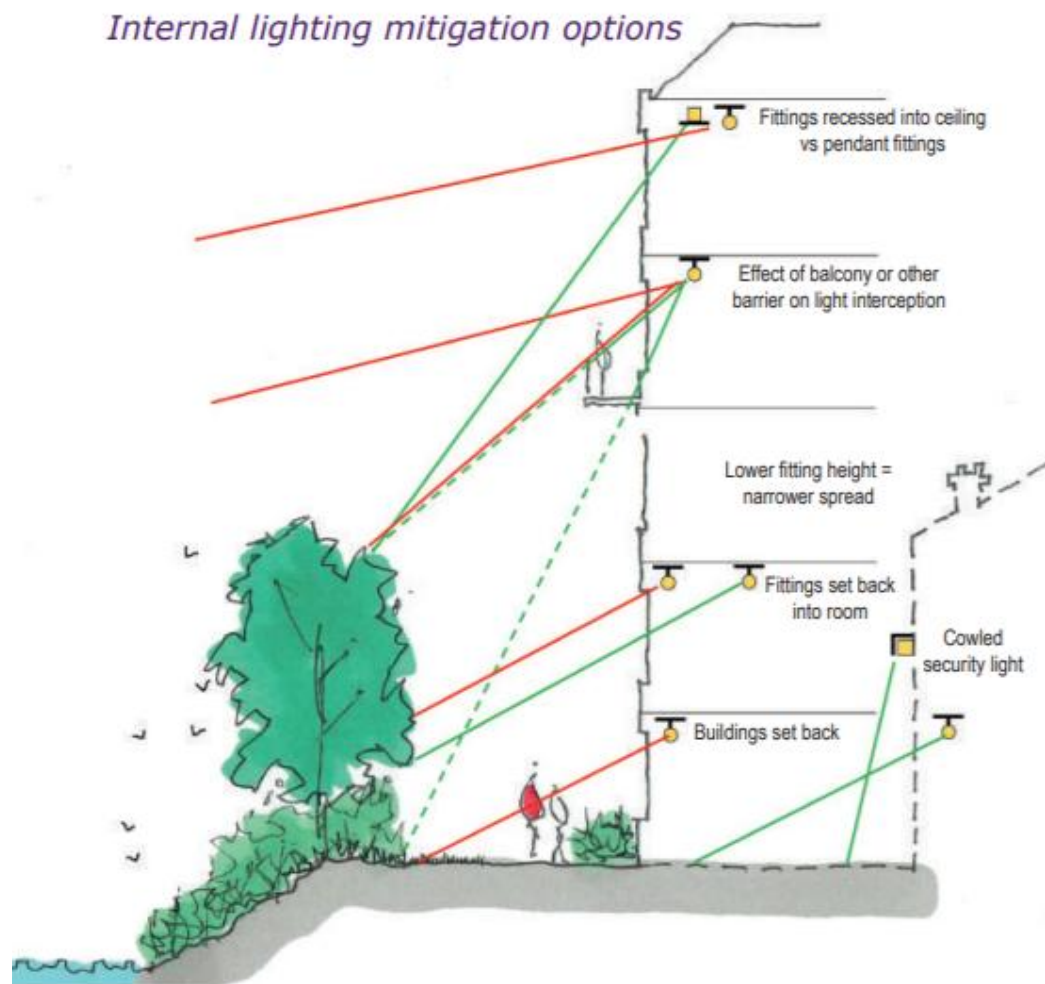


Figure 5: Internal Lighting mitigation options. Image taken from Guidance Note 08/23: Bats and Artificial lighting in the UK (BCT & ILP 2023).

Although the proposed new development lies relatively low to the ground, it comprises glazing, and internal lighting mitigation should be applied. Light spill onto the southern garden and tree-line habitats are considered reduced to acceptable levels. Given the typology of the land there is not anticipated to be any direct light spill onto other surrounding gardens or fields.

	The following advice must be adopted for internal lighting mitigation. • All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used. • LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition. • A warm white light source (2700Kelvin or lower) should be adopted to reduce blue light. • Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012). • Internal luminaires can be recessed (as opposed to using a pendant fitting - See Figure 9) where installed in proximity to windows to reduce glare and light spill. These should be fitted a minimum of 1m from windows. Lighting should be controlled by dimmers. In addition, black-out blinds or curtains are recommended to be used on all elevations to physically reduce to level of light spill from windows on this elevation. The use of window films, tints and low transmission glazing are now considered ineffective ways to fully mitigate against light spill from windows. As such, they are not recommended for use.
Mitigating impacts of external lighting	External lighting will be limited to low level lighting fixtures only, installed onto the south elevation entrance porch of the proposed new dwelling to provide low level illumination for safety. High powered security lights will not be installed on site. The external lighting will be installed in accordance with current guidance issued by the Bat Conservation Trust and Institute of Lighting Professionals: <i>Guidance Note 08/23: Bats and Artificial lighting in the UK</i> (BCT & ILP 2023). The below strategy utilises light prescriptions detailed within this guidance to limit impacts of artificial lighting on bats likely to be utilising adjacent habitats. The following lighting design prescriptions are considered suitable for the type and scale of the proposed development to minimise the impacts of artificial lighting on site on bats. Lighting design prescriptions recommended for the Site comprise:

- 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. For most general residential purposes, a 1- or 2-minute timer is likely to be appropriate.
- Lighting will be set to “off” by default, to turn up to a predetermined low intensity output in response to a trigger and be combined with a timeclock or photocell to further add an element of seasonal or diurnal control. For example, Passive Infrared (PIR), Artificial Intelligence enabled cameras, on demand controls, or pressure sensors may be used to trigger lights to come on or dim in response to movements.
- Lighting will be controlled so not to be triggered by the movement of small animals such as bats or birds.
- Lighting will be downward pointing

The below lighting type is suitable for installation on site:

- Lucide Arne LED Outside Wall Light: <https://www.lighting-direct.co.uk/lucide-arne-led-outdoor-wall-light-with-pir-sensor-black.html>



Figure 6: Recommended low level lighting suitable for the site. Image taken from: <https://www.lighting-direct.co.uk/lucide-arne-led-outdoor-wall-light-with-pir-sensor-black.html>

3.1 Ongoing monitoring and remedial measures.

Post-Development inspection	After all the development is completed and ecological measures are installed, within 3 months an inspection of the site will be undertaken by an ecologist to ensure all lighting mitigation is fit for purpose and all measures are in accordance with this plan. A record note will be produced to confirm the inspection results and make any recommendations/iterations to this plan.
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3.0 Bibliography

- BS 42020, Biodiversity – Code of practice for planning and development (2013) <http://www.eoebiodiversity.org/pdfs/BS42020.pdf>
- BS 42020, Biodiversity – Code of practice for planning and development (2013) <http://www.bsigroup.com/LocalFiles/en-GB/biodiversity/BS-42020-Smart-Guide.pdf>
- CIEEM (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester. http://www.cieem.net/data/files/Publications/EcIA_Guidelines_Terrestrial_Freshwater_and_Coastal_Jan_2016.pdf
- CIEEM (2013) Guidelines for Preliminary Ecological Appraisal Institute of Ecology and Environmental Management http://www.cieem.net/data/files/Resource_Library/Technical_Guidance_Series/GPEA/GPEA_April_2013.pdf
- Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists — Good Practice Guidelines, 3rd edition, Bat Conservation Trust, London. <http://www.bats.org.uk/pages/batsurveyguide.html>
- Garland & Markham (2008) Is important bat foraging and commuting habitat legally protected?
- Google Earth (2024).
- HMSO: Wildlife and Countryside Act 1981 (as amended) <http://jncc.defra.gov.uk/page-1377>
- HMSO: Countryside & Rights of Way Act (2000) <http://jncc.defra.gov.uk/page-1378>
- HMSO: Natural Environmental and Rural Communities Act (2006) <http://www.legislation.gov.uk/ukpga/2006/16/contents>
- HMSO: The Conservation of Habitats and Species Regulations (2010) <http://www.legislation.gov.uk/uksi/2010/490/contents/made>
- JNCC (2004) Bat Workers Manual, 3rd Edition. <http://jncc.defra.gov.uk/page-2861>
- Magic database (2024) <http://www.magic.gov.uk/MagicMap.aspx>
- Mitchell-Jones, A.J. (2004). Bat Mitigation Guidelines. English Nature, Peterborough. http://roost.bats.org.uk/sites/default/files/publications/EnglishNature_BatMitigationGuidelines_2004.pdf
- National Planning Policy Framework, 2012 <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

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- Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000) Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10(4), 143-155. https://www.waterways.org.uk/wrg/wrg_documents/gcn_hsi
- Paul Edgar, Jim Foster and John Baker (2010). *Reptile Habitat Management Handbook*. Amphibian and Reptile Conservation, Bournemouth <http://downloads.gigl.org.uk/website/Reptile%20Habitat%20Management%20Handbook.pdf>
- Institution of Lighting Professionals (2023). *Guidance Note Bats and Artificial Lighting in the UK*. Bats and the Built Environment Series Publication: Bats and Artificial lighting in the UK (BCT & ILP 2023).