

Lighting Design Strategy for Biodiversity

Planning Condition Requirement

Project Name

NHM: Unlocked

Project No.

1620012379

Recipient

MACE

Date

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This summary outlines the intent for the external lighting design, demonstrating compliance with Institution of Lighting Professionals (ILP) Guidance Note 08/18 – "Bats and Artificial Lighting in the UK"; and the Environmental Permitting Regulations (EPR).

Lighting Design Parameters

Parameter	Design Details	Compliance Reference
Correlated Colour Temperature (CCT)	Bollards: ≤3000 K (warm-white) Façade Lighting & Lamp-posts: 4000 K [1]	ILP GN 08/18, Section 3.3
Optics	All luminaires full cut-off, zero upward light Bollards: 2% upward light [2]	ILP GN 08/18, Section 3.2 and ILP GN 01/21
Mounting	Luminaire head tilt ≤70°	ILP GN 08/18, Section 3.4
Controls	Photocell-controlled activation, with automatic time-clock curfew at 23:00	ILP GN 08/18, Section 4

[1] Although 4000 K fittings are used for façade lighting and lamp-posts, luminaires are specifically designed with 0% upward light output ratio (ULOR), full cut-off optics, minimal spill, and strict curfew controls. This balances essential site security with ecological sensitivity.

[2] Bollards emit <2% upward light, maintaining warm-white CCT (≤3000 K) with tight beam control. These fittings are strategically located away from ecological features, supported by curfew timings to minimize disturbance. They adhere to ILP GN 01/21 recommendations for Environmental Zone E2, ensuring site spill remains ≤0.5 lux in biodiversity-sensitive areas.

Precautionary Approach:

A precautionary approach has been employed, and all hedgerows, trees, and vegetated boundaries were considered potential bat commuting or foraging habitats. Design measures have been proactively applied to ensure minimal light intrusion into these potentially sensitive areas.

Calculated Light Spill Compliance

Lighting calculations demonstrate that luminaire selection and positioning have carefully been considered to ensure lux levels <0.2 past the site boundary areas and by trees/ hedgerows assumed to be key habitat areas. The Isolux plot included with this note indicates the horizontal ground level lux levels without any of the existing vegetation or proposed boundary and site planting and so is a worst case. The presence of such vegetation will result in reduced horizontal and vertical light spill beyond the boundary in practice.

EPR Compliance Statement

The lighting scheme has been developed in accordance with the principals of the Environmental Permitting Regulations (EPR) for external lighting. The design incorporates Best Available Technologies (BAT); including, full cut-off optics, low colour temperature light sources, curfew controls, and photometric modelling to prevent light pollution / light spill beyond the site boundary and protect sensitive environmental receptors.

Evidence & Supporting Documentation (attached):

- **Site Lighting Layout (RD001-RAM-XX-00-DR-E-6101/ RD001-RAM-XX-00-DR-E-6102):** Clearly illustrates luminaire positions, orientations, and adherence to ecological buffer zones.
- **Iso-lux Contour Plot (NHM Unlocked External Lighting Plot):** Colour-mapped iso-lux analysis confirming minimal spill beyond site boundaries and into vegetation.
- **Luminaire Schedule (RD001-RAM-ZZ-ZZ-SH-E-6303):** Provides comprehensive photometric data, colour temperature, optical characteristics, and control specifications.

Compliance Statement:

This lighting strategy demonstrates the design intent based off with ILP GN 08/18, and the Environmental Permitting Regulations (EPR), ensuring biodiversity protection and the minimisation of artificial light impacts.