

Our Ref: EVO20010723-SL-001-C

Your Ref: 5015560

Peter Drury
Horton Heath
Technical Manager
Strategy One Horton Heath
Eastleigh Borough Council
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Upper Market Street
Eastleigh
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20/11/2023

Dear Peter Drury,

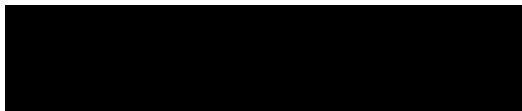
Lower Acre – Parcel 1.1 (Adoptable) – One Horton Heath

Thank you for your scheme enquiry for the Lower Acre, Parcel 1.1 adoptable roads at One Horton Heath.

We have undertaken a lighting design for the area using Urbis Axia 3.1 lanterns on 6 metre post top columns. Lighting has been designed in accordance with BS5489-01:2020, and lighting classes of P4 and P5 were applied.

Following the completed design work if there are changes to the road layouts which require design revisions these may incur further charges.

Yours sincerely,



James Duffin BA (Hons) IEng MILP
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Enerveo

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Design Commentary

Lower Acre – Parcel 1.1 (Adoptable) – One Horton Heath

1. Introduction

- 1.1. Enerveo has been commissioned by Eastleigh Borough Council to develop a detailed lighting design for the adoptable roads as part of Lower Acre Parcel 1.1, at One Horton Heath.
- 1.2. The purpose of this document is to provide commentary on the lighting design methodology adopted for the proposed works including decisions for design constraints and deviations from design standards.

2. Drawings

- 2.1. Drawing at 1:500 scale.

3. Standards

- 3.1. The proposed lighting design has been carried out using the following non-exhaustive list of standards and documents:
 - BS 5489-1:2020, *Code of practice for the design of road lighting - Part 1: Lighting of roads and public amenity areas*.
 - BS EN 13201-2:2015, *Road lighting — Part 2: Performance requirements*
 - ILP Professional Lighting Guide 02, PLG02, *The Application of Conflict Areas on the Highway*.
 - ILP Guidance Note, GN01:2021, *Guidance Notes for the Reduction of Obtrusive Light*.

4. General Layout

- 4.1. The location of the proposed works is Horton Heath northwest of Burnetts Lane.
- 4.2. The works consist of a section 38 residential road and footpaths, linking to segment 3 at its southern end, and the Lower Acre Spine Road on the northwest edge.

5. Street Lighting Class

- 5.1. The lighting design has been carried out in accordance with the requirements of BS5489-01:2020, Table A.5

	Road 1 & Road 2	Footpaths
Reference Table	A.5	A.5
Environmental Zone	E3, moderate ambient brightness	E3, moderate ambient brightness
Traffic flow	Normal	Quiet
Traffic composition	Mixed	Pedestrians
Road Speed	30 mph	N/A
Other Considerations	Unrestricted parking road geometry dictates slow speeds	Lighting level reduced one class due to low complexity of task due to no motor vehicles and passing into a lower ambient brightness area as not surrounded by housing
Lighting Class	P4	P5

Lighting Class	Average Illuminance, Eave (Lux)	Average Illuminance Maximum, Eave (Lux)	Minimum Illuminance, Eave (Lux)
P4	5.00	7.50	1.00
P5	3.00	4.50	0.60

6. Lighting Design Notes

- 6.1. Whilst 20% overall uniformity is desirable for subsidiary roads this has not been possible to achieve in all locations due to several factors:
 - Use of rear louvres to minimise light intrusion
 - Positioning columns to minimise light intrusion
 - Irregular road geometry.
- 6.2. Columns are mostly to be installed in adoptable footways or verges.
- 6.3. Columns 5 and 11 Road 1 are to be installed with 0.8 metre setback from kerb edge in 1mx1m easements that are to be finished in concrete, as these columns are illuminating sections of road that have neither an adoptable verge nor footway.
- 6.4. Light intrusion has been kept below HCCs desired levels for most plots. This has been achieved using rear louvres on most columns and careful positioning of columns.
- 6.5. For Block A (Plots 104-118) it has not been possible to achieve less than 2 lux on the northeastern elevation of the building due to the narrow road and limited column locations available. There are to be balconies on the northeastern elevation and the column has been positioned opposite to avoid this be column being a security risk. Light levels exceed 2 lux at one grid point only at ground floor.

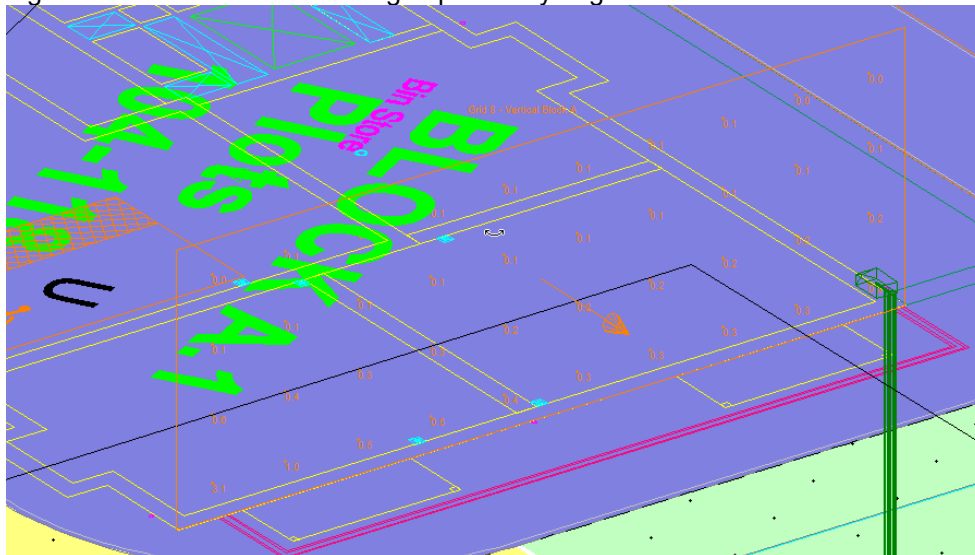


Figure 1: Block A Vertical grid showing noncompliance with TG13 vertical light intrusion requirement in bottom left corner of grid.

- 6.6. For Plots 261 and 262 it has not been possible to achieve less than 2 lux on the front elevation of the properties due to the wide verge and footway behind it requiring a lantern without rear louvres. Light spill onto the frontage is calculated as exceeding 2 lux at ground floor levels only, so less likely to result in a complaint that at 1st floor levels Rear louvres would reduce light intrusion however these compromises light levels on the footway between columns 2 and 3 (Road 2). Alternatively, columns 2 and 3 could be fitted with lantern spec B and an additional column installed between plots 259 and 260 whilst this reduces light intrusion to below slightly 2 lux it increases

column count, reduces spacing to 15metres and places columns very close to properties. The 3 factors above were considered to have a greater negative effect than slightly exceeding 2 lux at ground floor levels only

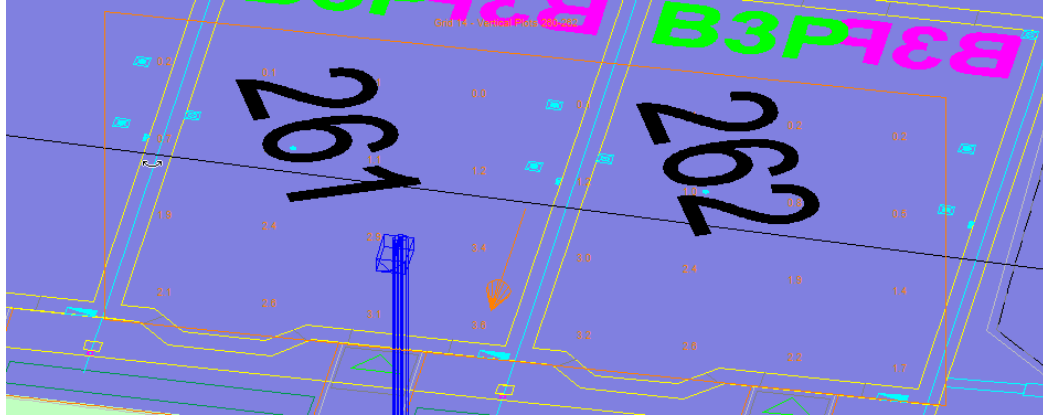


Figure 2: Plots 261 and 262 light spill exceeding 2 lux at ground floor level only.

7. Environmental

- 7.1. The designer has been notified by the client about site-specific Environmental Impact Assessments, mitigations, or other designations of nature conservation (including but not limited to SSSI, SAC, SPA).
- 7.2. Bats are present on the site, therefore 3000K Warm White LEDs have been used in line with HCC TG13 v3.0 3.29.1.

8. Maintenance factor

- 8.1. Environmental maintenance factor assuming a 48-month clean is 0.94.
- 8.2. Luminaire maintenance is 0.9 (this considers lumen depreciation and LED failures, L90B10).
- 8.3. Giving overall maintenance factors of 0.85 (as per HCC TG13).

9. Column Locations

- 9.1. Columns are to be installed rear of footway/footpath.
- 9.2. Where verges are at least 1-metre-wide columns are to be installed with 1 metre setback in the verge, unless stated on the drawing.

10. Column Type

- 10.1. Columns to be 6 metre galvanized tubular steel straight shaft (no outreach bracket), painted (factory finished), colour BS4800 00E53 black.
- 10.2. Raise and lower columns are to be installed on footpaths and are to be of the mid hinge type.

11. Lantern Type

- 11.1. Urbis Axia 3.1 with DALI dimming ballast fitted with Mayflower six pin NEMA socket, post-top mounted, tilt 0 degree.
- 11.2. Lanterns to be finished in BS4800 00E53 black.
- 11.3. Every lighting scheme is required to install one Mayflower Complete Lighting Control DALI Sub-master unit to control Nodes and link to Central Management System

12. Rev B Changes

- 12.1. Column & lantern colour changed to BS4800 00E53 black.

13. Rev C Changes

- 13.1. Updated layout added to drawing.
- 13.2. Updated layout added to area calculation, minor changes to road 2 masking.