High Lane, Chorlton-cum-Hardy

External Lighting Assessment for Planning

September 2026

Revision P02

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External Lighting Assessment for Planning

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Revisions

Date	Rev	Reason	Name
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1. External Lighting Assessment

1.1. Introduction

This report presents the proposed external lighting strategy for the new development of residential buildings in Chorlton-cum-Hardy, Manchester. The proposed design consists of several houses and flats and is situated between Stockton Road and Acres Road.

The external lighting layout of the development is included within Figure 1.



Figure 1 – External Lighting Layout

The layout of the external areas is shown in Figure 2 below.



Figure 2 – High Lane Site Layout in Wider Area

The lighting strategy follows the principles outlined below:

- The same fitting types are to be used across the site, to simplify maintenance.
- Light fittings are to be procured from reputable manufacturers to ensure spares are easily obtainable when required in future. They are to be modern, low-energy LED fittings that avoid uplight elements to reduce upwards light spill.
- Luminaires are to have a high ingress protection and impact rating, suitable for use in this environment.

Both light pollution and the impact on the surrounding areas will be minimised by the selection and placement of fittings. Reference photos are shown below, of the different existing areas of the site.



Figure 3 - Satellite View of Existing Site (Google Maps)

1.2. Proposals to Mitigate Light Pollution and Protect the Local Ecology

The proposals are to provide safe and legible lighting of the external area. In order to provide this amenity without damage to the local environment, ecology and night sky we have followed the latest guidance and best practice. There are several aspects to light pollution and a number of ways to mitigate its impact. These are set out in the guidance documents and summarised here.

The scheme seeks to ensure all relevant guidance is taken into account. The National Planning Policy Framework paragraph 180c states that proposals should; *limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.*

Lighting will therefore be provided to satisfy the requirements of the following guides:

- Guidance Note 1 (GN01) for the Reduction of Obtrusive Light:2021 *Institute of Lighting Professionals (ILP)*
- Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations CIE 150:2017 *International Commission in Illuminations (CIE)*

The key elements of this guidance are:

- To provide adequate levels of light to external areas, allowing spaces to be used effectively and safely, while avoiding “over-lighting” by turning off or dimming lights at times when they are not required.
- Generally to limit the visible source intensity to minimise glare by reducing the main beam angle of light from external light fittings to an angle no greater than 70° from the downward vertical. Where fittings that do not intrinsically comply with this requirement are necessary, using the building or other fixed structures to obstruct spill light can also aid glare reduction.
- To limit light spill incident above the horizontal plane, that causes “Sky Glow”.
- To limit any building luminance resulting from deliberate feature lighting to an acceptable level.
- To reduce the levels of light trespass after a curfew, if appropriate.

The diagram below shows an illustration of the terms used in the guidance, as well as highlighting particular issues and risks of light pollution from outdoor lighting installations.

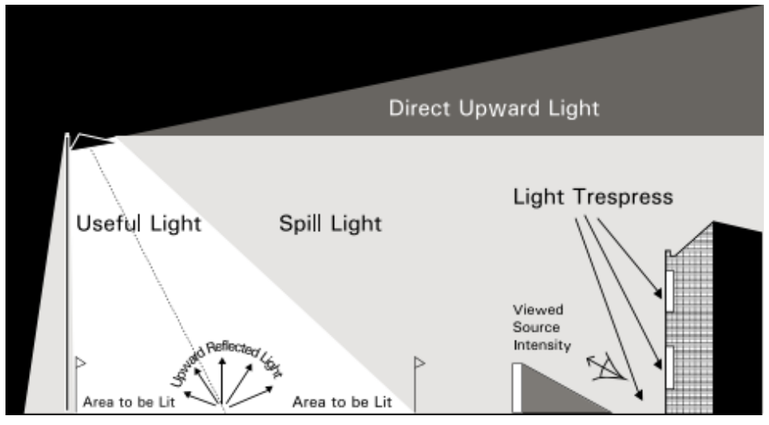


Figure 4 - ILP GN01 Image Showing Terminology

The following tables are taken from the ILP document and offer guidance on the reasonable constraints for external lighting installations in a range of different environmental zones. The site is located in Chorlton-cum-Hardy, Greater Manchester and is therefore categorised as an E3 environmental zone.

Table 1 - Environmental Zone According to GN01

Zone	Surrounding	Lighting Environment	Examples
E0	Protected	Dark	UNESCO Starlight Reserves, IDA Dark Sky Parks
E1	Natural	Intrinsically dark	National Parks, Areas of Outstanding Natural 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 2 - Obtrusive Light Limitations for Exterior Lighting Installations - General Observers

Environmental Zone	Sky Glow ULR [Max %](1)	Light Intrusion (into Windows) E_v [lux] (2)		Luminaire Intensity I [candelas] (3)		Building Luminance Pre-curfew (4)
		Pre-curfew	Post-curfew	Pre-curfew	Post-curfew	Average, L [cd/m²]
E0	0	0	0	0	0	0
E1	0	2	0 (1*)	2,500	0	0
E2	2.5	5	1	7,500	500	5
E3	5.0	10	2	10,000	1,000	10
E4	15	25	5	25,000	2,500	25

ULR = **Upward Light Ratio of the Installation** is the maximum permitted percentage of luminaire flux that goes directly into the sky.

E_v = **Vertical Illuminance in Lux** - measured flat on the glazing at the centre of the window.

I = **Light Intensity in Candelas (cd)**

L = **Luminance in Candelas per Square Metre (cd/m²)**

Curfew = **the time after which stricter requirements (for the control of obtrusive light) will apply**; often a condition of use of lighting applied by the local planning authority. If not otherwise stated - 23.00hrs is suggested.

***** = **Permitted only from** Public road lighting installations

We have not yet received an ecology report for the site, but it is not anticipated that any bat roosts or migration roosts exist within the site area. Any specific modelling can be carried out if ecology risks are identified when the report is received.

Irrespective of the above, the proposed scheme generally aims to protect existing ecology, therefore the lighting will be designed to minimise spill into the sky. The following considerations have been made to protect local ecology.

- Using LED light sources with no UV as insects are attracted to light sources which emit UV radiation.
- Reducing light spill so light reaches only areas needing illumination with the use of careful position and light distributions.
- Using downward directional luminaires with minimal upwards light component.

1.3. Proposed External Lighting Strategy and Modelling Methodology

The external lighting proposals have been developed in line with the general principles outlined in Section 1.2. Wall mounted fittings at 2.5 metre height have been selected and modelled for the parking areas and vehicular routes. The proposed external lighting layouts are included within Section 1.1. The fittings used are of the specifications noted below.

Proposed Light Fitting

Manufacturer/Fitting Type: Ansell/ Reef S/ AREFSS/D/B/1
Luminous Flux: 337lm
Input Power: 9.4W
Colour Temperature: 3000K
Finish: Black
Ingress Protection: IP65
Impact Rating: IK10



1.4. Obtrusive Light Spill Assessment Methodology

There are residential properties close to the site on the south and north side. The side of the properties along Stockton Road are the most affected. The closest window positions on the properties mentioned above are shown by the red lines in Figure 5 below.

The back of the proposed residential buildings (Block A) have also been modelled.

All properties are semi-detached houses consisting of at least two stories. Therefore, at least 6 metre height vertical calculation planes have been drawn in the Dialux model, at the positions indicated with the red lines in Figure 5. These calculation surfaces were used to assess the proposed external lighting scheme against the light intrusion criteria.

The sky glow has been calculated from the sum of the percentage upwards light component from each of the proposed light fittings, multiplied by the quantity of proposed fittings and divided by the total quantity of fittings in the scheme (to get an average sky glow percentage across the scheme).



Figure 5 - Residential Properties Adjacent to the site

1.5. Dialux Evo 3D Modelling Results Summary

1.5.1. Sky Glow Calculation

As can be seen from the image of the fitting in Section 1.3, there is no upwards light component from the proposed fitting across the site. These are the only fittings proposed within the new scheme, therefore the upwards light component and resulting sky glow is 0%.

1.5.2. Obtrusive Light Spill Assessment Results

The results for the illuminance and uniformity of the general external lighting scheme are included in Table 4. All results are the maximum vertical illuminance values from Dialux across the entire calculation plane for each row of residential dwellings.

There is no proposed dimming of the lighting installation post-curfew (after 11pm), therefore the scheme has been assessed against the more stringent post curfew light intrusion requirement when on at 100% output.

Table 4 – Obtrusive Light Spill Assessment - Dialux 3D Modelling Results Summary

	Light Intrusion (into Windows) Ev (lux)	
	Pre-Curfew	**Post Curfew**
Vertical Calculation Plane 1	0.95	0.95
Vertical Calculation Plane 2	0.25	0.25
Vertical Calculation Plane 3	0.12	0.12
Vertical Calculation Plane 4	0.23	0.23
Vertical Calculation Plane 5	0.30	0.30
Vertical Calculation Plane 6	0.30	0.30
Vertical Calculation Plane 7	0.015	0.015
Vertical Calculation Plane 8	0.18	0.18
Vertical Calculation Plane 9	0.035	0.035
Vertical Calculation Plane 10	0.11	0.11
Vertical Calculation Plane 11	0.18	0.18

1.5.3. Summary of Results

The scheme meets the sky glow and light intrusion requirements to limit obtrusive light spill.

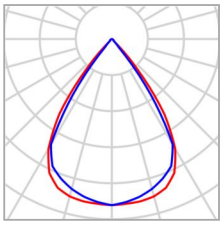
Please see Appendix for detailed light calculations.

2. Appendix

Site 1

Luminaire layout plan





Manufacturer	Ansell Lighting	P	9.4 W
Article No.	AREFS/D/B/1	$\Phi_{Luminaire}$	337 lm
Article name	Reef S 3000K		
Fitting	1x		

Individual luminaires

X	Y	Mounting height	Luminaire
26.041 m	22.449 m	2.500 m	1
31.277 m	19.592 m	2.500 m	2
1.200 m	18.624 m	2.500 m	3
8.474 m	18.624 m	2.500 m	4
15.742 m	18.624 m	2.500 m	5
16.926 m	17.600 m	2.500 m	6
16.926 m	11.872 m	2.500 m	7
16.926 m	1.682 m	2.500 m	8

DIALux

Site 1

Luminaire list

Φ_{total}	P_{total}	Luminous efficacy
2696 lm	75.2 W	35.9 lm/W

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
8	Ansell Lighting	AREFS/D/B/1	Reef S 3000K	9.4 W	337 lm	36.0 lm/W

DIALux

Site 1 (Light scene 1)

Calculation objects



SITE PLAN

Site 1 (Light scene 1)

Calculation objects

Calculation surfaces

Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Vertical Calculation Plane 1 Perpendicular illuminance (adaptive) Height: 3.000 m	0.58 lx	0.31 lx	0.95 lx	0.53	0.33	CG1
Vertical Calculation Plane 10 Perpendicular illuminance (adaptive) Height: 4.000 m	0.035 lx	0.001 lx	0.11 lx	0.029	0.009	CG10
Vertical Calculation Plane 11 Perpendicular illuminance (adaptive) Height: 4.000 m	0.14 lx	0.092 lx	0.18 lx	0.66	0.51	CG11
Vertical Calculation Plane 2 Perpendicular illuminance Height: 5.000 m	0.060 lx	0.010 lx	0.25 lx	0.17	0.040	CG2
Vertical Calculation Plane 3 Perpendicular illuminance (adaptive) Height: 5.000 m	0.10 lx	0.085 lx	0.12 lx	0.85	0.71	CG3
Vertical Calculation Plane 4 Perpendicular illuminance Height: 5.000 m	0.064 lx	0.008 lx	0.23 lx	0.13	0.035	CG4
Vertical Calculation Plane 5 Perpendicular illuminance Height: 5.000 m	0.043 lx	0.005 lx	0.30 lx	0.12	0.017	CG5
Vertical Calculation Plane 6 Perpendicular illuminance Height: 3.000 m	0.085 lx	0.007 lx	0.30 lx	0.082	0.023	CG6
Vertical Calculation Plane 7 Perpendicular illuminance Height: 3.500 m	0.003 lx	0.000 lx	0.015 lx	-	0.00	CG7
Vertical Calculation Plane 8 Perpendicular illuminance (adaptive) Height: 3.500 m	0.11 lx	0.036 lx	0.18 lx	0.33	0.20	CG8
Vertical Calculation Plane 9 Perpendicular illuminance Height: 1.500 m	0.008 lx	0.001 lx	0.035 lx	-	0.029	CG9

Site 1 (Light scene 1)

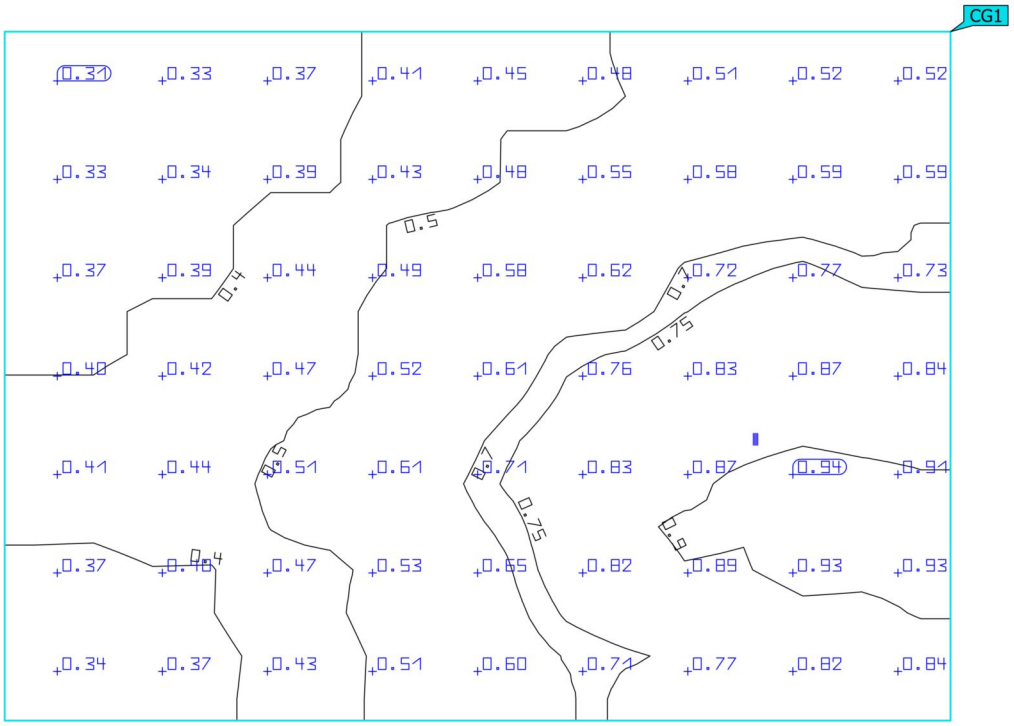
Calculation objects

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

DIALux

Site 1 (Light scene 1)

Vertical Calculation Plane 1



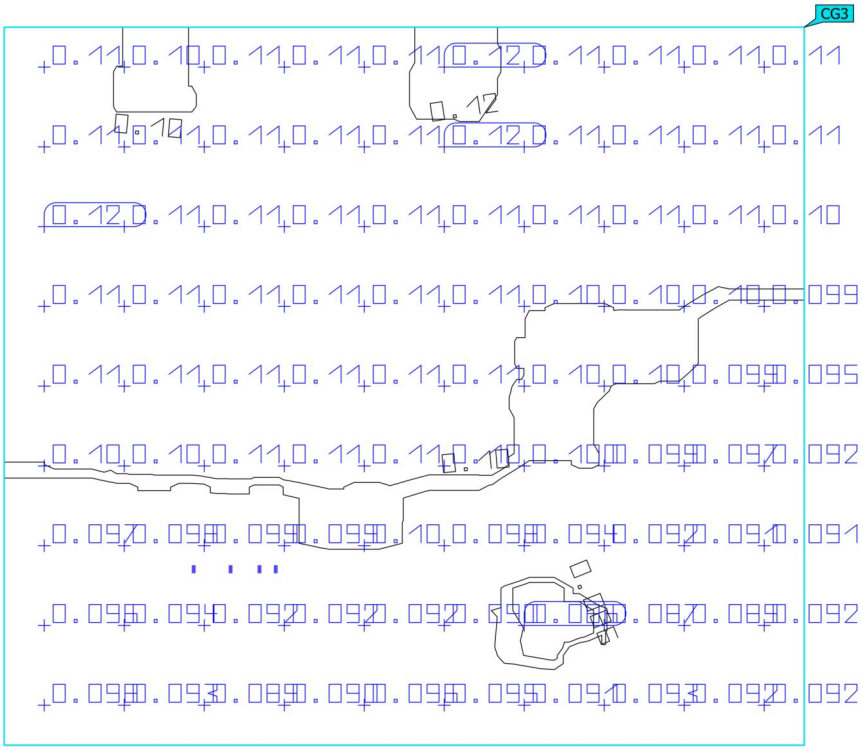
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Vertical Calculation Plane 1 Perpendicular illuminance (adaptive) Height: 3.000 m	0.58 lx	0.31 lx	0.95 lx	0.53	0.33	CG1

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

DIALux

Site 1 (Light scene 1)

Vertical Calculation Plane 3



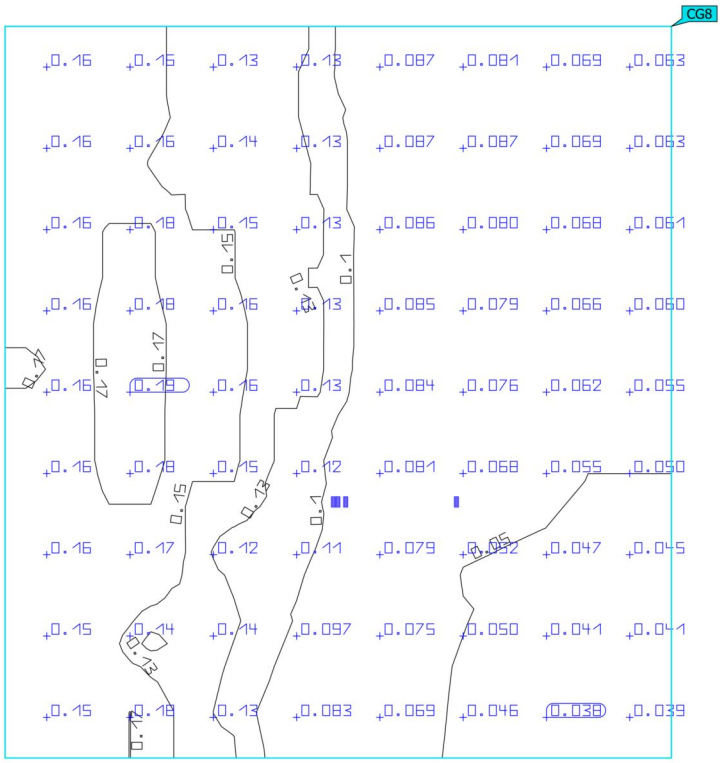
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Vertical Calculation Plane 3 Perpendicular illuminance (adaptive) Height: 5.000 m	0.10 lx	0.085 lx	0.12 lx	0.85	0.71	CG3

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

DIALux

Site 1 (Light scene 1)

Vertical Calculation Plane 8



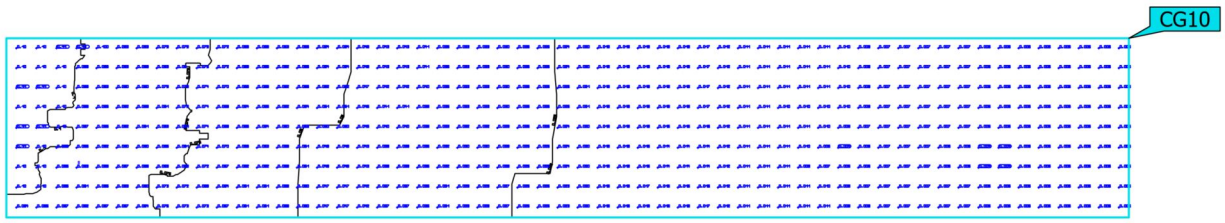
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Vertical Calculation Plane 8 Perpendicular illuminance (adaptive) Height: 3.500 m	0.11 lx	0.036 lx	0.18 lx	0.33	0.20	CG8

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

DIALux

Site 1 (Light scene 1)

Vertical Calculation Plane 10



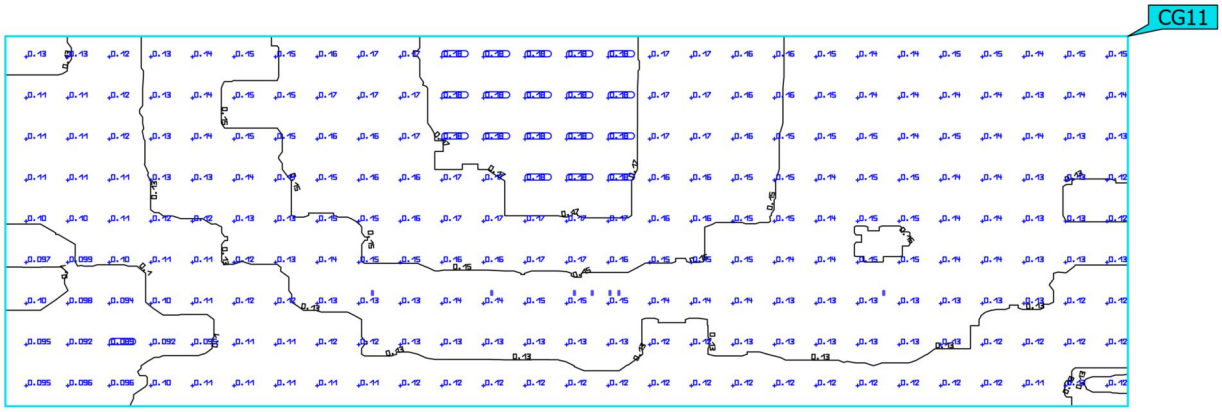
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Vertical Calculation Plane 10 Perpendicular illuminance (adaptive) Height: 4.000 m	0.035 lx	0.001 lx	0.11 lx	0.029	0.009	CG10

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

DIALux

Site 1 (Light scene 1)

Vertical Calculation Plane 11



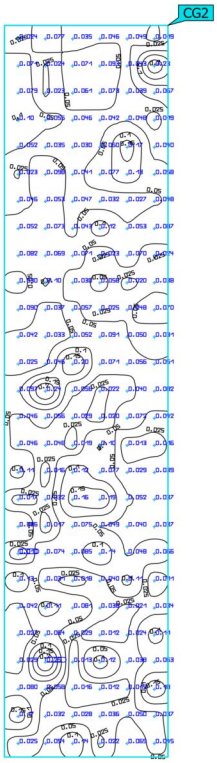
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Vertical Calculation Plane 11 Perpendicular illuminance (adaptive) Height: 4.000 m	0.14 lx	0.092 lx	0.18 lx	0.66	0.51	CG11

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

DIALux

Site 1 (Light scene 1)

Vertical Calculation Plane 2



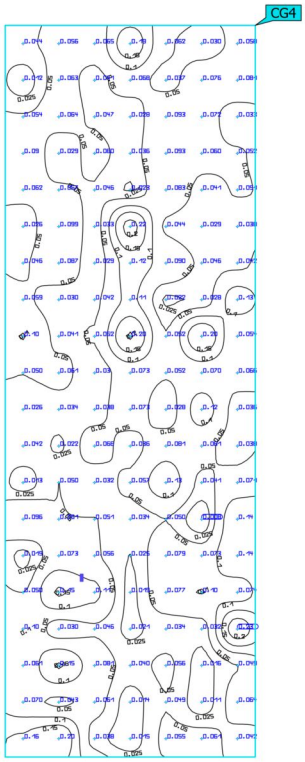
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Vertical Calculation Plane 2 Perpendicular illuminance Height: 5.000 m	0.060 lx	0.010 lx	0.25 lx	0.17	0.040	CG2

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

DIALux

Site 1 (Light scene 1)

Vertical Calculation Plane 4



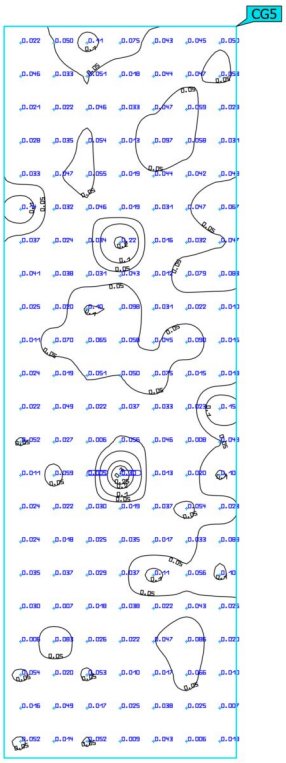
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Vertical Calculation Plane 4 Perpendicular illuminance Height: 5.000 m	0.064 lx	0.008 lx	0.23 lx	0.13	0.035	CG4

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

DIALux

Site 1 (Light scene 1)

Vertical Calculation Plane 5



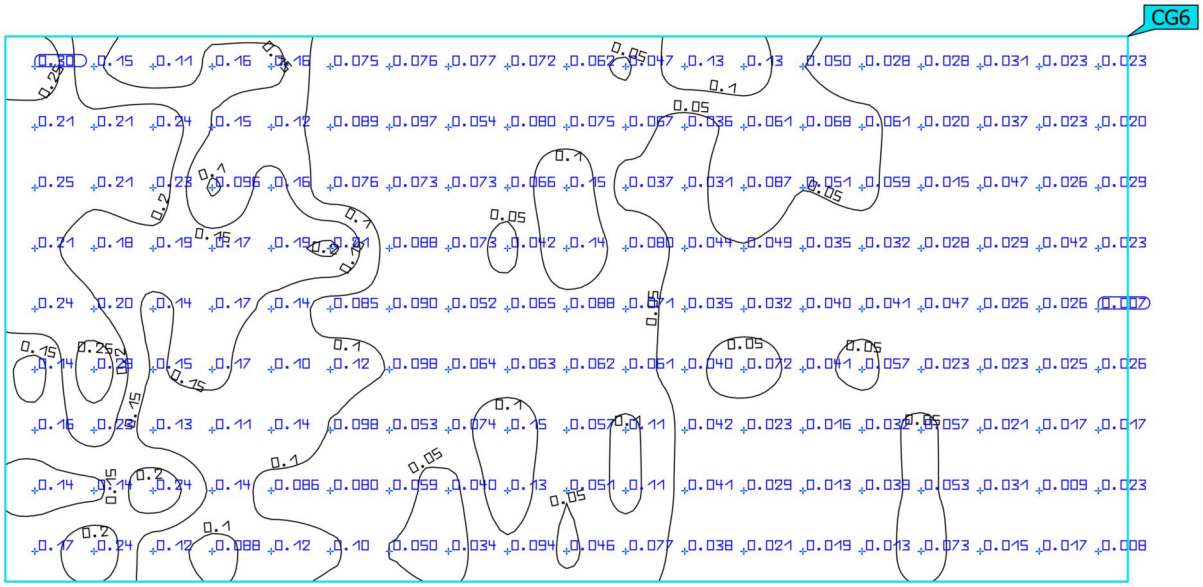
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Vertical Calculation Plane 5 Perpendicular illuminance Height: 5.000 m	0.043 lx	0.005 lx	0.30 lx	0.12	0.017	CG5

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

DIALux

Site 1 (Light scene 1)

Vertical Calculation Plane 6



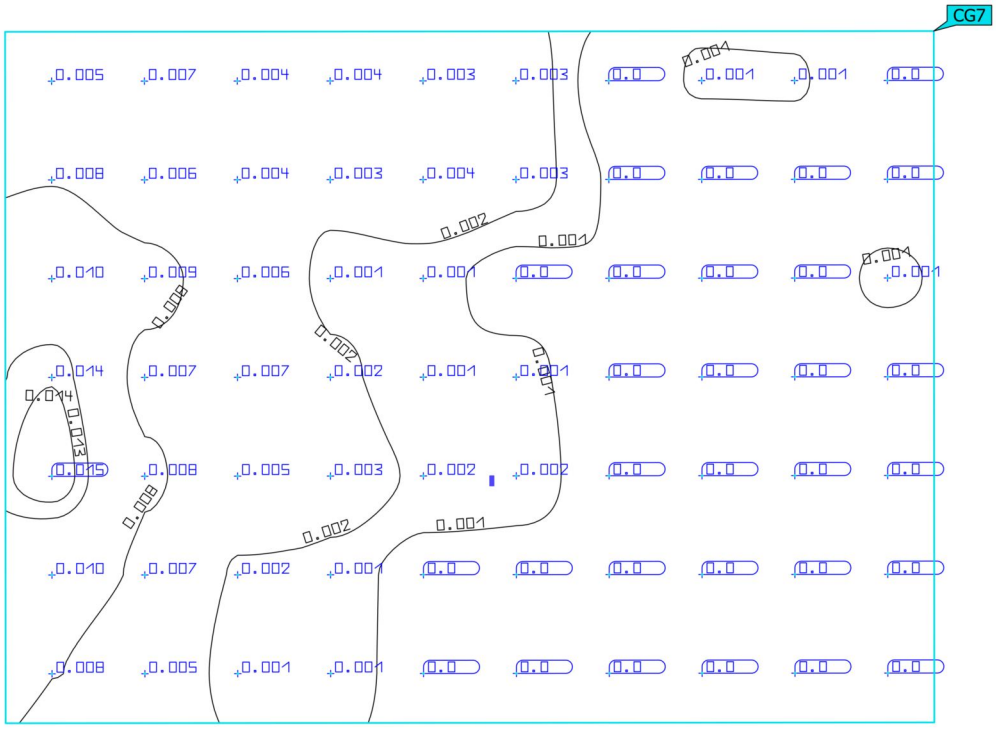
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Vertical Calculation Plane 6 Perpendicular illuminance Height: 3.000 m	0.085 lx	0.007 lx	0.30 lx	0.082	0.023	CG6

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

DIALux

Site 1 (Light scene 1)

Vertical Calculation Plane 7



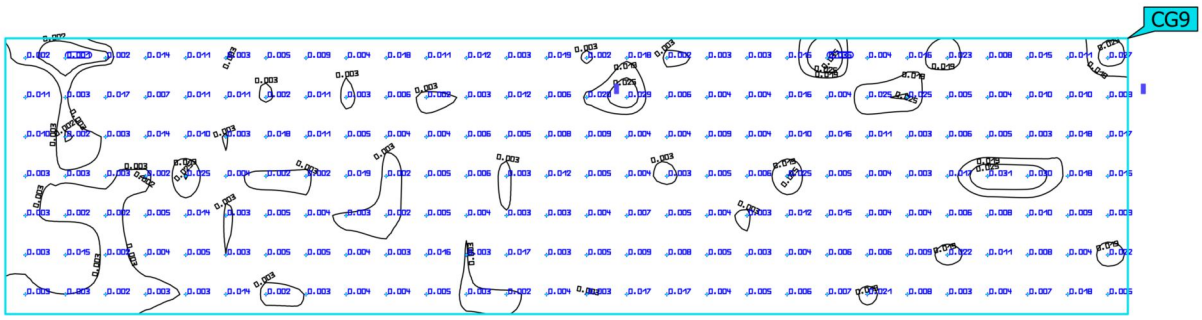
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Vertical Calculation Plane 7 Perpendicular illuminance Height: 3.500 m	0.003 lx	0.000 lx	0.015 lx	-	0.00	CG7

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

DIALux

Site 1 (Light scene 1)

Vertical Calculation Plane 9



Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Vertical Calculation Plane 9 Perpendicular illuminance Height: 1.500 m	0.008 lx	0.001 lx	0.035 lx	-	0.029	CG9

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

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