

OCSC
O'CONNOR · SUTTON · CRONIN
MULTIDISCIPLINARY CONSULTING ENGINEERS

BLACKGLEN ROAD
K455

Public lighting report – Planning Stage

11/12/2024

Status S4

Revision P05

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DOCUMENT CONTROL & HISTORY

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Rev.	Status	Authors	Checked	Authorised	Issue Date
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P02	S3	P.K.	E.O.	E.O.	21.05.2024
P01	S3	P.K.	E.O.	E.O.	10.05.2024

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1. INTRODUCTION

The report outlines the design criteria and considerations taken into account with regard to the public lighting scheme for the development at Blackglen Road, Sandyford, Dublin 18.

The development for a Large Scale Residential Development (LRD) on a site of approx. 3.7ha will consist of 192 no. residential units ranging from 2-5 storeys in height, associated resident amenity facilities, a childcare facility, all boundary treatment and landscaping works, site services connections and all site development works to include:

a) Construction of 192 no. residential units, in the form of 6 no. new apartment buildings (A1 – B4), 40 duplexes (C1, C2, C2A) and 14 houses (D1), to include 33 no. 1-beds, 84 no. 2 -beds, 61 no. 3-beds and 14 no. 4-beds as follows:
   - Block A1 (4 storeys) comprising 15 no. apartments (3 no. 1 bed units, 6 no. 2 bed units & 6 no. 3 bed); a crèche facility of approx. 381.9 sq. m with associated outdoor play space of approx. 170 sq. m; and resident amenity facilities of approx. 33.3 sq. m.
   - Block A2 (3-4 storeys) comprising 26 no. apartments (2 no. 1 bed units, 20 no. 2 bed units and 4 no. no. 3 bed units) and resident amenity facilities of approx. 353.6 sq.m.
   - Blocks B1 and B2 (2-5 storeys) comprising 51 no. apartments (15 no. 1 bed units, 29 no. 2 bed units, 7 no. 3 bed units).
   - Blocks B3 and B4 (2-5 storeys) comprising 46 no. apartments (13 no. 1 bed units, 23 no. 2 bed units and 10 no. 3 bed units).
   - Duplex Units C1 (4 storeys), C2 and C2A (3 storeys) comprising 40 duplexes (6 no. 2 bed units, 20 no. 3 bed units and 14 no. 4 bed units).
   - House Units D1 (2 storeys) comprising 14 houses (14 no. 3 bed units).

b) Total Open space (approx. 11,329 sqm) is proposed in the form of public open space (approx. 8,370 sqm), and residential communal open space (approx. 2,959 sqm). Each residential unit is afforded with associated private open space in the form of a garden/terrace / balcony.

c) The development will be served via a new vehicular access via Blackglen Road. This will be designed as a priority junction with pedestrian and cycle crossings where required to tie in with the Blackglen Road Improvement Scheme.

d) Emergency access only is proposed via Woodside Road.

e) A dedicated wildlife corridor is proposed to the east/south-east side of the site and a public open space (approx. 377.6 sqm) tree trail to the west/north-west side of the site.

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f) Basement/Podium car park areas are proposed below Blocks B1, B2, B3 and B4. A total of 261 no. car parking spaces (206 no. long-stay spaces, 45 no. visitor space & 10 no. car parking spaces for creche use). In addition, there are 42 no. EV charging spaces and 9 no. motorcycle spaces.

g) A total of 465 no. bicycle spaces are proposed in the form of 399 no. long stay bicycle spaces 66 short-term stay visitor parking.

h) 1 no. ESB substation at surface level.

i) Bin Storage areas for the apartment blocks are proposed at ground level adjacent to the apartment blocks.

j) All associated site and infrastructural works to include provision for water services; foul and surface water drainage and connections; internal roads, attenuation proposal; permeable paving; all landscaping works including green infrastructure zones; green roofs; roof plant room and general plant areas; photovoltaic panels; landscaped boundary treatment; footpaths; public lighting; and electrical services.

The report considers the lighting design as developed by O'Connor Sutton Cronin (OCSC), and should be read in conjunction with OCSC drawing number:

K455-OCSC-XX-XX-DR-E-0001 – Site lighting drawing.

K455-OCSC-XX-XX-DR-ME-0002 – Site services drawing.

K455-OCSC-XX-XX-DR-E-0003 – Sitewide Lux contour drawing.

The drawings are provided to demonstrate:

- Compliance with DLRCC public lighting standards for areas to be taken in charge,
- Sets out design criteria for areas remaining under control of the management company.
- Compliance with BS 8300 standard for lighting of access routes into the buildings.
- Minimum lux level requirement compliance with DLRCC requirement. Lux levels are agreed with Mary Hegarty.

This predicted performance of the external lighting installations has been assessed in detail using Lighting Simulation software Lighting Reality.

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Standards and guidelines in relation to the lighting design are:

- BS 5489-1-2013
- I.S. EN 13201-2-2015
- Dun Laoghaire Rathdown County Council Public Lighting General Specification.
- BS 8300 Design of buildings and their approaches to meet the needs of disabled people. Code of practice.

The electrical services for the external lighting installation will be designed in accordance with National Rules for Electrical Installations IS 10101: 2020.

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2. THE DESIGN

The lighting design has been developed with the following principal considerations:

- Provide adequate illumination to contribute towards the safe use of the main access/feeder road and adjoining footpaths by both vehicles, cycles and pedestrians.
- Provide adequate illumination to junctions with the development.
- Achieve compliance with BS8300 Code of Practice for Design of buildings and their approaches to meet the needs of disabled people.
- Provide the required illumination with minimum energy use.
- To control the lighting to prevent energy wastage.

2.1 Lighting Ecology

The lighting scheme has been designed to adhere to the following lighting characteristics:

- The minimum level of appropriate/required lighting level will be provided within the developed/residential areas;
- Light fittings will be fitted with low intensity, horizontal cut-off LED light fittings employing a narrow directional light or cowled light. This will avoid the effect of light spill arising within the residential area;
- No light spill into biodiversity areas. In particular there will be no light spill from the development area onto the woodland area to the north;
- The road lighting includes dimming by 30% post curfew hours;
- Light fittings and associated lighting will be directed away from areas of open space;
- No floodlighting will be used in the development;
- No bollard light fittings will be used in the development for TIC.

The lighting design adheres to the following standard guidance:

- Bats and Lighting – Guidance Notes for Planners, Engineers, Architects and Developers (Bat Conservation Ireland, 2010);
- Bats and Lighting in the UK – Bats and the Built Environment Series (Institute of Lighting Professionals, September 2018). Also;
- Guidance Notes for the Reduction of Obtrusive Light GN01 (Institute of Lighting Professionals, 2011);

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2.2 Areas taken in charge by DLRCC.

All lighting within the area to be taken in charge is to be powered from unmetered ESB supply on site, via a new lighting micro-pillar to meet DLRCC specification.

The lighting class to I.S. EN 13201-2-2015 selected for the design is Lighting Class P3.

The road lighting luminaires to be LED, 3000K CCT, design life LM80 >15 years using TM21-11 test results, driver current < 750mA, minimum IK08 impact resistance, at least IP65 ingress protection, as required by DLRCC specification.

The road lighting shall be by individual electronic solid-state photocell per luminaire, with test switch in column base, to DLRCC specification.

Lighting columns will be tubular type, galvanised steel, fully in accordance with DLRCC standard specification.

All wiring to be to DLRCC standard specification and IS 10101 National Rules for Electrical Installations.

Manufacturer's data sheets for the selected luminaires are attached to this document as Appendix.

2.3 Areas to remain under control of the management company.

All lighting within the area is to be powered from the metered landlord supply via sub-distribution boards as required and to comply IS 101001 National Rules for Electrical Installations.

Lighting class which is being achieved in areas under management is to P3 lighting class. This doesn't consider areas in the courtyard which have to comply with BS 8300 code of practice for design of buildings and their approaches to meet the needs of disabled people.

All access routes shall comply with BS 8300 Code of Practice Design of buildings and their approaches to meet the needs of disabled people, e.g. 5 lux for level and 30 lux for steps and ramps.

All wiring to be to DLRCC standard specification and to IS 101001:2019 National Rules for Electrical Installations.

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The desired lighting design may also be achieved by other luminaires and the final lighting installation may use other luminaires, with modified positioning and aiming to achieve the same result. Manufacturers' stated performance characteristics are subject to change. Any changes to be agreed with DLRCC Road Lighting Department.

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3. RESPONSE TO OPINION

DLRCC comments for PAC/LRD2/005/24, Blackglen Rd, Dublin 18.

No lighting design has been provided for this development and one is needed. For this design:

1. Low level bollard and wall mounted lighting is not recommended on health and safety grounds.

Response: Low level bollards and wall mounted lighting not used in this development.

2. The lighting for the road accesses and parking areas should be to a P4 lighting class for all areas except the first 50m into the development from the Blackthorn Rd which should be to a P3 level.

Response: P4 lighting class achieved in the development except first 50m from the Blackglen road which is at P3 lighting class.

3. There is no requirement to light the walkways through the open areas and for environmental reasons it is recommended that they not be lit at all.

Response: No dedicated lights are proposed in any of the walkways throughout the development.

4. The landscaping shows significant tree cover and trees should be at a minimum of 3m from a lighting column. Please also be aware that trees placed between a light and the area which is to be lit will result in that area being dark. Trees block light.

Response: Light fittings and trees positions been coordinated and trees are not located within 3m of the light column.

Please ask the developer to provide a full lighting design including a lux contour diagram down to the 1 lux line and to provide a lighting design with the masks hidden to allow for analysis of obtrusive light and tree conflicts for this development.

Response: Design drawings for the development as below including lux contour diagram indicating 1lux line.

1. ***K455-OCSC-XX-XX-DR-E-0001 – Public lighting layout***
2. ***K455-OCSC-XX-XX-DR-E-0003 – Lux contour layout***
3. ***K455-OCSC-XX-XX-RP-E-0001 – Public lighting report***

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4. APPENDIX. MAUNFACTURERS DATA SHEET.

X1, X2, X3, X4, X5, X6, X7 & X8 – 6m STREET LIGHT ON GALVANISED POLE C/W BUILT IN PHOTOCELL AND DIMMING AS SUPPLIED BY C U PHOSCO LIGHTING.

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HIGH QUALITY
LOW COST

PROUDLY
MADE IN THE UK
SINCE 1923

E951 is a high quality, low cost solution to replace existing sodium discharge and compact fluorescent luminaires on traffic routes and minor roads. Available in three versions.



FEATURES AND BENEFITS

- SR Driver ready
- Replace conventional LPS/HPS/CFL lanterns at low cost
- Max. luminaire efficacy - 165 m/W Glass | 146 lm/W IP Optic
- Wide range of optics and lumen packages
- Maximised savings on energy and maintenance costs
- Contractor-friendly installation
- Minimal total cost of ownership
- Flexible and intelligent lighting control options
- IP66 ingress protection
- 100% recyclable

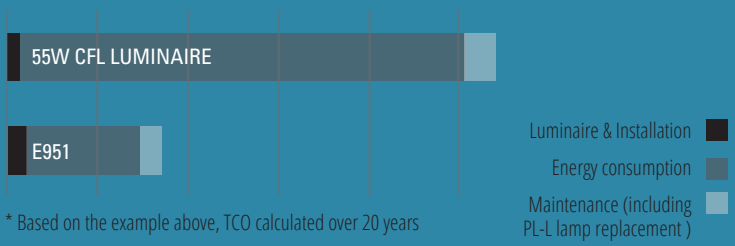
EXCELLENT OPTICAL PERFORMANCE

- CCT - 4000K, 3000K, 2700K*
- Colour Rendering Index > 70
- Improved mesopic vision
- High quality PMMA or Polycarbonate Lenses
- Exceptional Uniformity
- Adjustable tilt angle options**

TOTAL COST OF OWNERSHIP

While CFL technology has a low initial cost, it requires frequent maintenance, resulting in a high total cost of ownership.

E951 with dimming and CLO options delivers an attractive total cost of ownership package making it extremely competitive for invest-to-save replacement schemes.



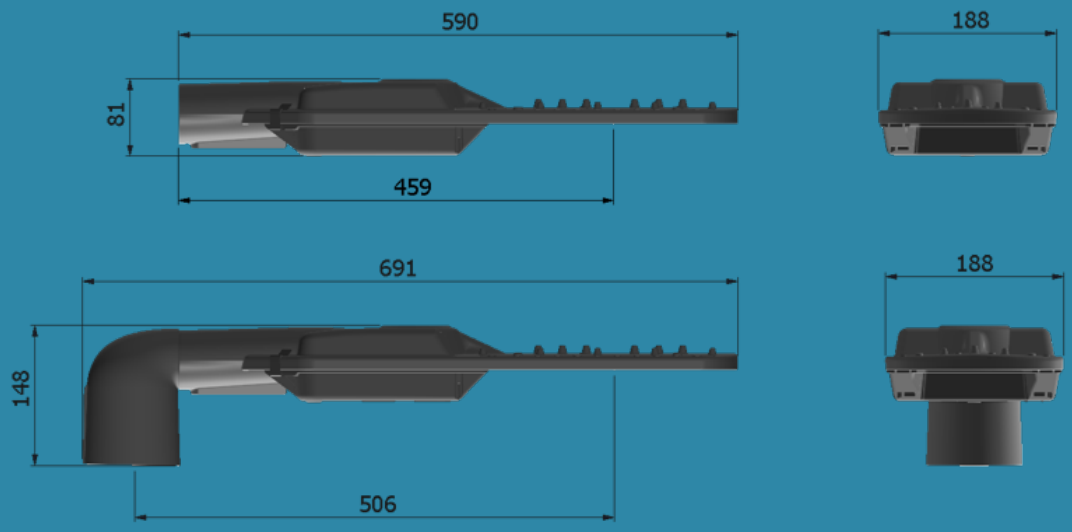
* Based on the example above, TCO calculated over 20 years

E951
SPECIFICATION

PROUDLY
MADE IN THE UK
SINCE 1923

	12 LED IP OPTIC	24 LED IP OPTIC	64 LED GLASS
Number of LEDs	12	24	64
Optical Cover	PMMA/PC Lenses	PMMA/PC Lenses	Glass
Power Consumption	9 - 60W	17 - 77W	21 - 103W
Correlated Colour Temperature	4000K, 3000K	4000K, 3000K	4000K, 3000K, 2700K
	* DarkSky Approved with 3000K CCT or warmer only		
Operating Temperature	-40°C to +40°C	-40°C to +40°C	-40°C to +40°C
Luminaire Luminous Flux	1000 ~ 6660 lm	2250 ~ 9800 lm	3000 ~ 14300 lm
Maximum Luminaire Efficacy	143 lm/W	146 lm/W	165 lm/W
Weight	4.5kg	4.6kg	4.8kg
Wind Area	0.0295M^2	0.0295M^2	0.0295M^2
Driver Current	200-1500mA	200-1050mA	200-1050mA
Glare Rating	Up to G6	Up to G6	Up to G6
Installation Height	5-8m	6-10m	6-12m
	** DarkSky Approved when installed at zero tilt angle.		
Colour Rendering Index	70		
Electrical Class	I or II		
Control System Input	DALI or Multi Step-dimmingw		
Lighting Regulation	Mini photocell NEMA socket Zhaga 4 PIN socket		
Surge Protection	10kV/3kA built in driver additional SPD needed above those figures		
Shielding	Front, rear, left and right shielding options		

DIMENSIONS



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5. LIGHTING REALITY REPORT

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DATE:	**31 October 2024**
DESIGNER:	**Bruno Zivkovic**
PROJECT No:	**K455**
PROJECT NAME:	**Blackglen Road**

OCSC
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MULTIDISCIPLINARY CONSULTING ENGINEERS

Outdoor Lighting Report

Layout Report

General Data

Dimensions in Metres Angles in Degrees

Calculation Grids

ID	Grid Name	X	Y	X' Length	Y' Length	X' Spacing	Y' Spacing
1	Grid 1	717452.97	725064.62	310.36	324.16	1.50	1.49
2	Grid 2	717644.30	725294.51	51.16	62.22	2.05	2.49

Luminaires

Luminaire A Data

Supplier	
Type	E951-12-F3-730-BB-CA0650-26W
Lamp(s)	730C
Lamp Flux (klm)	3.05
File Name	E951-12-F3-730-BB-CA0650-26W.ies
Maintenance Factor	0.76
Imax70,80,90(cd/klm)	617.8, 533.7, 0.0
No. in Project	8

Luminaire B Data

Supplier	
Type	E951-12-R3L-730-FB-CA0350-15W
Lamp(s)	730C
Lamp Flux (klm)	1.41
File Name	E951-12-R3L-730-FB-CA0350-15W.ies
Maintenance Factor	0.76
Imax70,80,90(cd/klm)	1244.5, 208.8, 0.0
No. in Project	4

Luminaire C Data

Supplier	
Type	E951-12-F3-730-LB-CA0750-30W
Lamp(s)	730C
Lamp Flux (klm)	2.63
File Name	E951-12-F3-730-LB-CA0750-30W.ies
Maintenance Factor	0.76
Imax70,80,90(cd/klm)	804.4, 694.9, 0.0
No. in Project	2

Luminaire D Data

Supplier	
Type	E951-12-F3-730-BB-CA0750-30W
Lamp(s)	730C
Lamp Flux (klm)	3.43
File Name	E951-12-F3-730-BB-CA0750-30W.ies
Maintenance Factor	0.76
Imax70,80,90(cd/klm)	617.8, 533.7, 0.0
No. in Project	4

Luminaire E Data

Supplier	
Type	E951-12-F3-730-RB-CA0750-30W
Lamp(s)	730C
Lamp Flux (klm)	2.64
File Name	E951-12-F3-730-RB-CA0750-30W.ies
Maintenance Factor	0.76
Imax70,80,90(cd/klm)	732.6, 629.1, 0.0
No. in Project	3

Luminaire F Data

Supplier	
Type	E951-12-R3L-730-BB-CA0750-30W
Lamp(s)	730C
Lamp Flux (klm)	3.50
File Name	E951-12-R3L-730-BB-CA0750-30W.ies
Maintenance Factor	0.76
Imax70,80,90(cd/klm)	1403.2, 306.5, 0.0
No. in Project	1

Luminaires

Luminaire G Data

Supplier	
Type	E951-12-F3-730-FB-CA0650-26W
Lamp(s)	730C
Lamp Flux (klm)	2.05
File Name	E951-12-F3-730-FB-CA0650-26W.ies
Maintenance Factor	0.76
Imax70,80,90(cd/klm)	465.2, 364.7, 0.0
No. in Project	10

Luminaire H Data

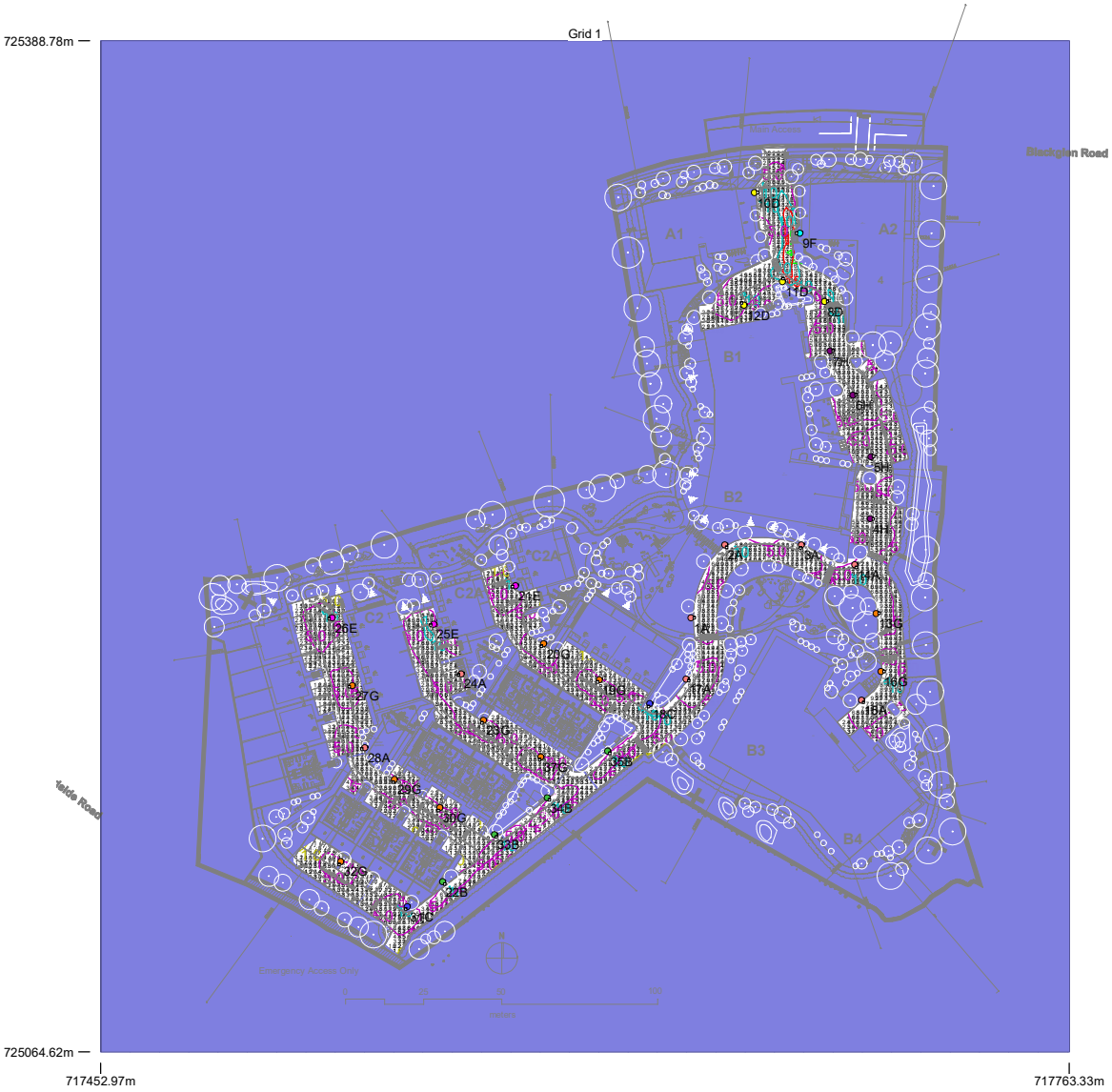
Supplier	
Type	E951-12-A2-730-CA0600-24W
Lamp(s)	730C
Lamp Flux (klm)	3.08
File Name	E951-12-A2-730-CA0600-24W.ies
Maintenance Factor	0.76
Imax70,80,90(cd/klm)	269.0, 29.3, 0.0
No. in Project	4

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	717642.06	725203.85	6.00	0.00	0.00	0.00	1.00			
2	A	717652.89	725227.23	6.00	305.00	0.00	0.00	1.00			
3	A	717677.40	725227.20	6.00	255.00	0.00	0.00	1.00			
4	H	717699.48	725235.65	6.00	352.00	0.00	0.00	1.00			
5	H	717699.66	725255.41	6.00	15.00	0.00	0.00	1.00			
6	H	717693.91	725275.19	6.00	13.00	0.00	0.00	1.00			
7	H	717686.62	725289.39	6.00	3.00	0.00	0.00	1.00			
8	D	717684.84	725305.16	6.00	8.00	0.00	0.00	1.00			
9	F	717676.89	725327.15	6.00	182.00	0.00	0.00	1.00			
10	D	717662.39	725340.09	6.00	0.00	0.00	0.00	1.00			
11	D	717671.39	725311.58	6.00	80.00	0.00	0.00	1.00			
12	D	717659.07	725304.06	6.00	141.00	0.00	0.00	1.00			
13	G	717701.32	725205.17	6.00	5.00	0.00	0.00	1.00			
14	A	717694.55	725220.83	6.00	299.00	0.00	0.00	1.00			
15	A	717696.72	725177.43	6.00	310.00	0.00	0.00	1.00			
16	G	717702.89	725186.62	6.00	1.00	0.00	0.00	1.00			
17	A	717640.49	725184.20	6.00	330.00	0.00	0.00	1.00			
18	C	717628.84	725176.27	6.00	246.00	0.00	0.00	1.00			
19	G	717612.71	725184.02	6.00	235.00	0.00	0.00	1.00			
20	G	717594.80	725195.48	6.00	230.00	0.00	0.00	1.00			
21	E	717585.84	725214.05	6.00	194.00	0.00	0.00	1.00			
22	B	717562.50	725119.19	6.00	313.00	0.00	0.00	1.00			
23	G	717575.59	725171.01	6.00	240.00	0.00	0.00	1.00			
24	A	717568.45	725185.86	6.00	198.00	0.00	0.00	1.00			
25	E	717559.59	725201.80	6.00	200.00	0.00	0.00	1.00			
26	E	717527.03	725203.85	6.00	196.00	0.00	0.00	1.00			
27	G	717533.55	725182.00	6.00	195.00	0.00	0.00	1.00			
28	A	717537.53	725162.16	6.00	199.00	0.00	0.00	1.00			
29	G	717547.10	725152.05	6.00	240.00	0.00	0.00	1.00			
30	G	717561.53	725142.92	6.00	240.00	0.00	0.00	1.00			
31	C	717551.25	725111.25	6.00	230.00	0.00	0.00	1.00			
32	G	717529.84	725125.63	6.00	241.00	0.00	0.00	1.00			
33	B	717579.03	725134.33	6.00	309.00	0.00	0.00	1.00			
34	B	717596.00	725146.17	6.00	313.00	0.00	0.00	1.00			
35	B	717615.29	725161.09	6.00	314.00	0.00	0.00	1.00			
37	G	717593.96	725159.25	6.00	242.00	0.00	0.00	1.00			

Horizontal Illuminance (lux)

Grid 1



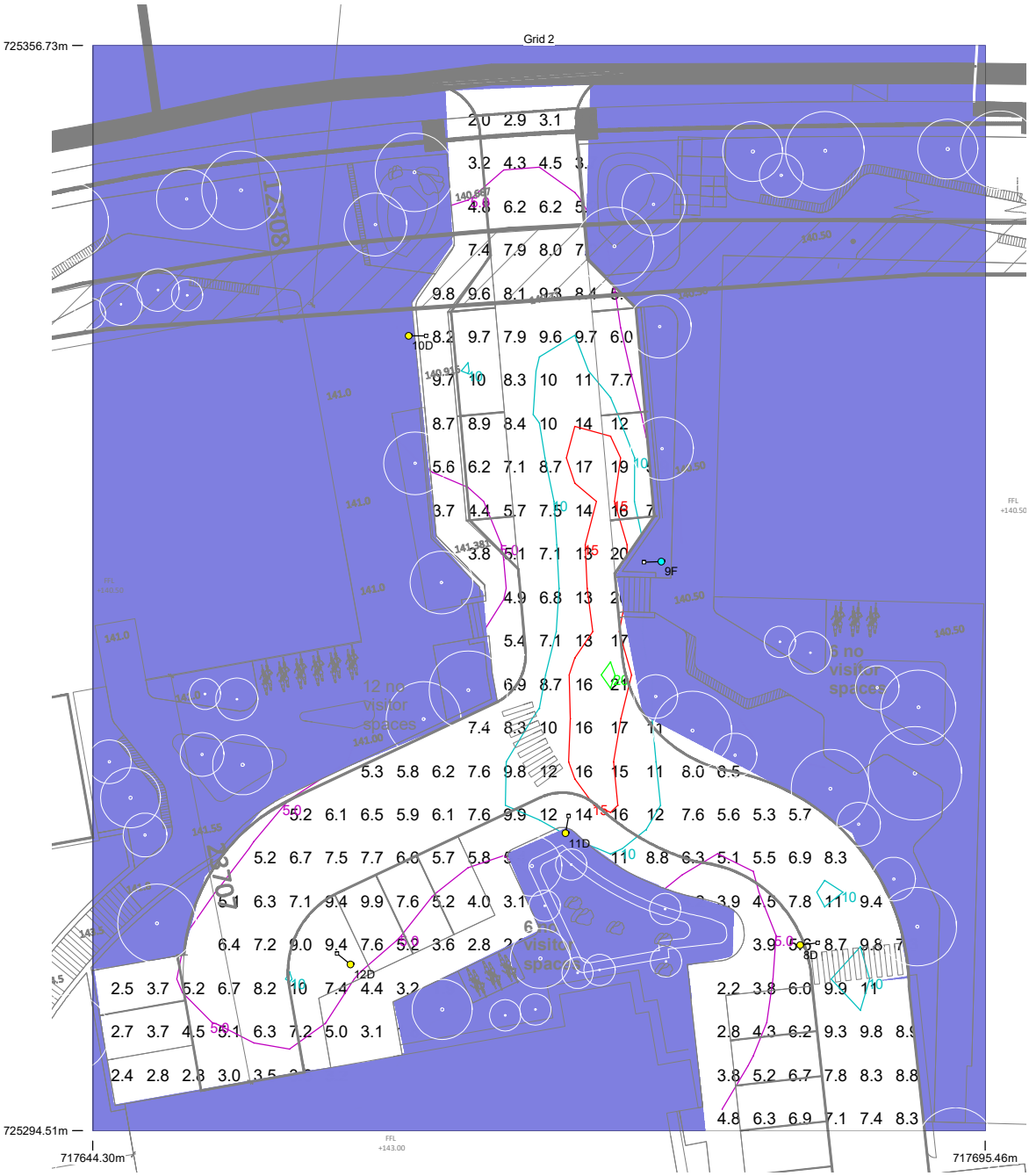
Results

Eav	5.46
Emin	1.05
Emax	21.40
Emin/Emax	0.05
Emin/Eav	0.19

815826161

Horizontal Illuminance (lux)

Grid 2



Results

Eav	7.50
Emin	1.78
Emax	21.34
Emin/Emax	0.08
Emin/Eav	0.24