

**DATE:** 20 February 2023  
**DESIGNER:** Declan Doyle  
**PROJECT No:** KE/RE/CBP/01  
**PROJECT NAME:** Calmount business park access roads



Lighting to BS5489:1-2020

Main road lighting to P2 class, roundabouts to C3 class

4000k colour temperature, Dimming to U14 protocol

A) Cree Energy Uno TRSA-03-200 8L 6.09klm, 36w CLO

B) Cree Energy Uno TRSA-03-200 8L 8.64klm, 54w CLO

8m columns main roads/roundabouts

## **Outdoor Lighting Report**

**PREPARED BY:** Declan Doyle  
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[www.astrotek.ie](http://www.astrotek.ie) | [www.kellihers.com](http://www.kellihers.com) | [www.rexel.ie](http://www.rexel.ie)

## 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	Calmount site	-243.40	-11.79	415.62	352.55	1.66	1.49
2	Business park road 1	10.76	9.43	21.84	202.17	1.46	1.50
3	Business park road 2	-77.85	191.12	24.37	33.02	1.43	1.44
4	Business park roundabout	-99.07	217.58	47.59	36.00	1.90	1.44
5	Business park roundabout m...	32.36	159.92	23.64	24.73	1.69	1.45
6	Business park road 3	-24.91	132.26	63.60	23.19	1.48	1.45
7	Business park road 4	51.34	174.97	78.11	18.29	1.47	1.41
8	Business park road future	-215.95	172.36	124.88	56.95	1.49	1.50

### Luminaires



#### Luminaire A Data

Supplier	Cree Lighting
Type	TRSA-02-200-8L40736W
Lamp(s)	16lu8L36W4K
Lamp Flux (klm)	6.09
File Name	TRSA-02-200-8L-407 36W-1408-QL20-S05 .IES
Maintenance Factor	0.84
Imax70,80,90(cd/klm)	462.5, 41.7, 0.0
No. in Project	39



#### Luminaire B Data

Supplier	Cree Lighting
Type	TRSA-02-200-8L40754W
Lamp(s)	16lu8L54W4K
Lamp Flux (klm)	8.64
File Name	TRSA-02-200-8L-407 54W-1408-QL20-S05 .IES
Maintenance Factor	0.84
Imax70,80,90(cd/klm)	462.5, 41.7, 0.0
No. in Project	4

### Layout

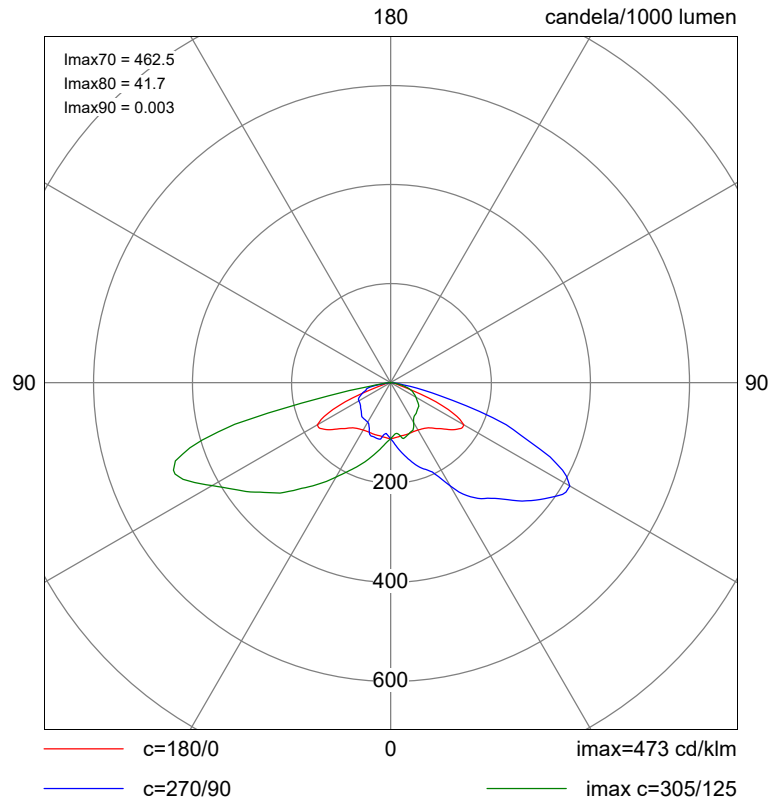
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	-69.14	213.68	8.00	200.00	0.00	0.00	0.00			
2	A	45.33	173.38	8.00	161.00	0.00	0.00	0.00			
3	A	31.47	166.89	8.00	70.00	0.00	0.00	0.00			
4	A	-85.54	217.91	8.00	18.00	0.00	0.00	0.00			
5	A	43.02	187.47	8.00	252.00	0.00	0.00	0.00			
6	A	-13.33	159.62	8.00	299.00	0.00	0.00	0.00			
7	A	14.31	173.33	8.00	299.00	0.00	0.00	0.00			
8	A	4.43	157.93	8.00	115.00	0.00	0.00	0.00			
9	A	62.33	196.44	8.00	299.00	0.00	0.00	0.00			
10	A	82.94	209.93	8.00	299.00	0.00	0.00	0.00			
11	A	106.53	221.28	8.00	299.00	0.00	0.00	0.00			
12	A	82.27	194.55	8.00	112.00	0.00	0.00	0.00			
13	A	104.18	204.39	8.00	116.00	0.00	0.00	0.00			

**Layout Continued**

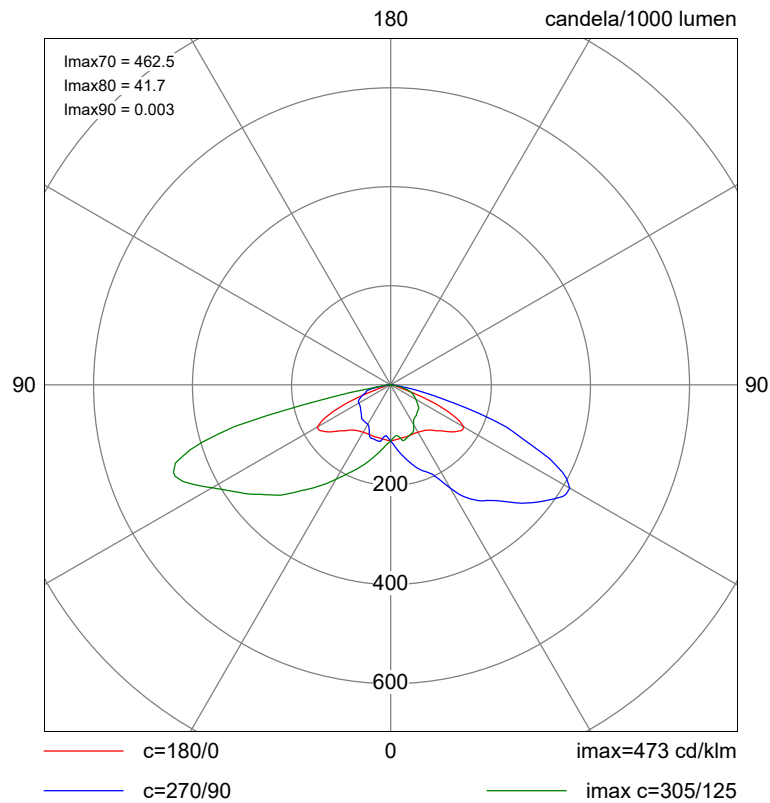
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
14	B	-106.12	247.96	8.00	340.00	0.00	0.00	0.00			
15	B	-82.14	257.91	8.00	258.00	0.00	0.00	0.00			
16	B	-69.90	238.31	8.00	172.00	0.00	0.00	0.00			
17	B	-98.11	223.92	8.00	65.00	0.00	0.00	0.00			
18	A	-60.43	250.94	8.00	138.00	0.00	0.00	0.00			
19	A	-120.01	224.08	8.00	112.00	0.00	0.00	0.00			
20	A	-149.37	213.19	8.00	112.00	0.00	0.00	0.00			
21	A	-175.67	202.02	8.00	112.00	0.00	0.00	0.00			
22	A	-205.49	198.98	8.00	78.00	0.00	0.00	0.00			
23	A	-232.16	208.85	8.00	63.00	0.00	0.00	0.00			
24	A	-214.16	217.16	8.00	250.00	0.00	0.00	0.00			
25	A	-190.54	214.67	8.00	276.00	0.00	0.00	0.00			
26	A	-168.38	221.96	8.00	293.00	0.00	0.00	0.00			
27	A	-141.15	234.05	8.00	297.00	0.00	0.00	0.00			
28	A	-20.73	145.67	8.00	115.00	0.00	0.00	0.00			
29	A	-74.54	195.19	8.00	25.97	0.00	0.00	0.00			
30	A	-62.14	169.72	8.00	25.97	0.00	0.00	0.00			
31	A	-49.74	144.26	8.00	25.97	0.00	0.00	0.00			
32	A	-37.33	118.80	8.00	25.97	0.00	0.00	0.00			
33	A	-24.93	93.33	8.00	25.97	0.00	0.00	0.00			
34	A	-12.53	67.87	8.00	25.97	0.00	0.00	0.00			
35	A	-0.13	42.40	8.00	25.97	0.00	0.00	0.00			
36	A	12.28	16.94	8.00	25.97	0.00	0.00	0.00			
37	A	-56.70	186.34	8.00	206.01	0.00	0.00	0.00			
38	A	-44.32	160.96	8.00	206.01	0.00	0.00	0.00			
39	A	-30.46	135.09	8.00	206.01	0.00	0.00	0.00			
40	A	-19.55	110.20	8.00	206.01	0.00	0.00	0.00			
41	A	-7.16	84.81	8.00	206.01	0.00	0.00	0.00			
42	A	5.23	59.43	8.00	206.01	0.00	0.00	0.00			
43	A	17.43	33.94	8.00	206.01	0.00	0.00	0.00			

## Polar Diagrams

### Luminaire A TRSA-02-200-8L40736W



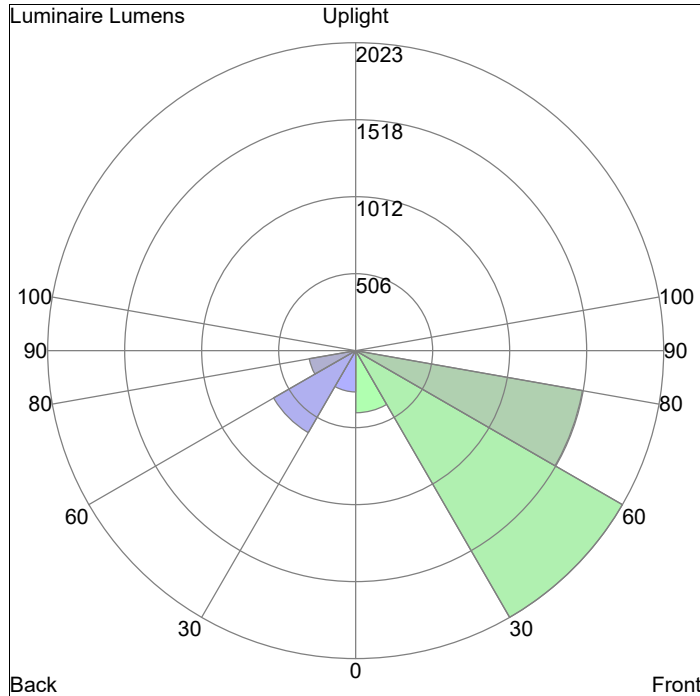
### Luminaire B TRSA-02-200-8L40754W





## Luminaire Classification System (LCS) Graphs

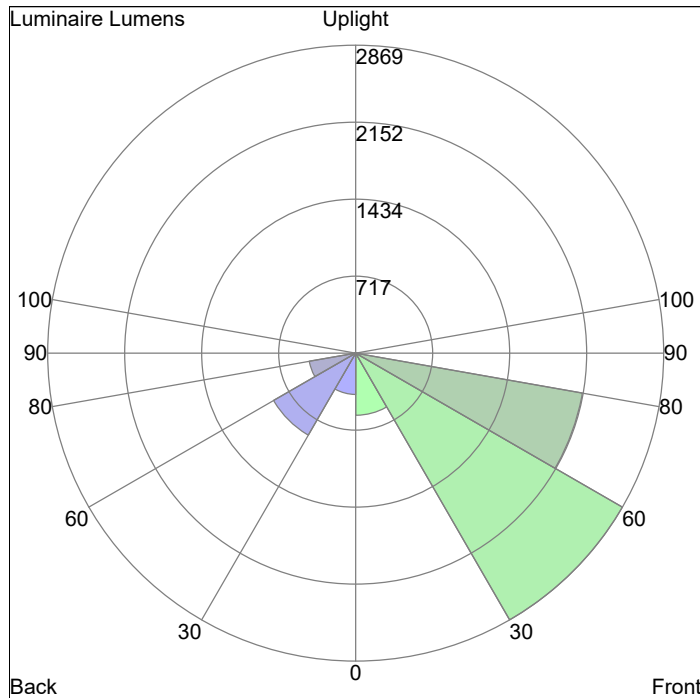
### Luminaire A TRSA-02-200-8L40736W



LCS	Lumens	%Lamp	%Lum
FL	408.7	6.7	7.9
FM	2023.4	33.2	39.1
FH	1512.7	24.8	29.2
FVH	20.5	0.3	0.4
BL	271.9	4.5	5.3
BM	621.9	10.2	12.0
BH	308.7	5.1	6.0
BVH	9.3	0.2	0.2
UL	0.0	0.0	0.0
UH	0.0	0.0	0.0
<b>Total</b>	<b>5177.5</b>	<b>85.0</b>	<b>100.0</b>

BUG rating=B2-U1-G1

### Luminaire B TRSA-02-200-8L40754W

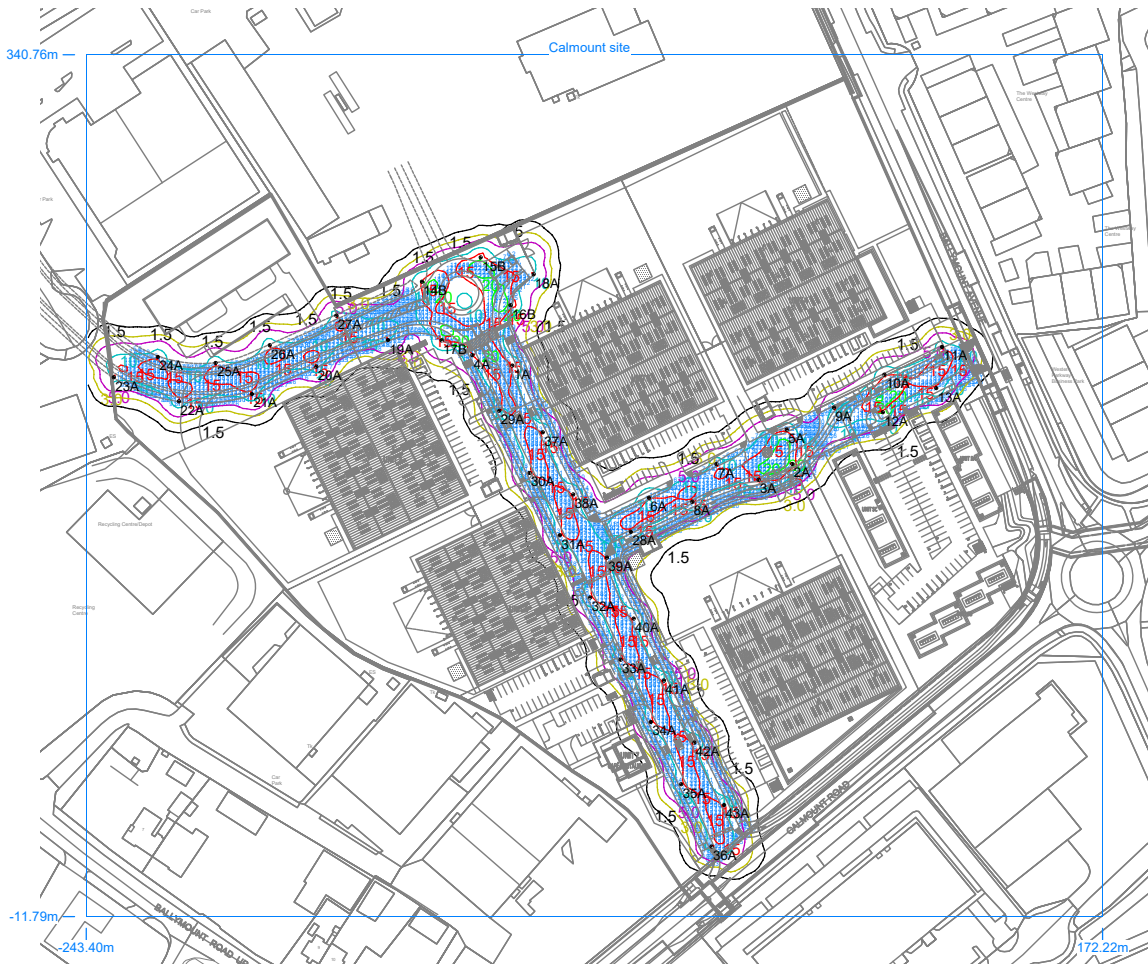


LCS	Lumens	%Lamp	%Lum
FL	579.5	6.7	7.9
FM	2868.8	33.2	39.1
FH	2144.6	24.8	29.2
FVH	29.1	0.3	0.4
BL	385.5	4.5	5.3
BM	881.8	10.2	12.0
BH	437.7	5.1	6.0
BVH	13.2	0.2	0.2
UL	0.0	0.0	0.0
UH	0.1	0.0	0.0
<b>Total</b>	<b>7340.6</b>	<b>85.0</b>	<b>100.0</b>

BUG rating=B2-U1-G2

## Horizontal Illuminance (lux)

Calmount site



### Results

Eav	12.02
Emin	2.62
Emax	23.45
Emin/Emax	0.11
Emin/Eav	0.22
Emax/Eav	1.95

# Horizontal Illuminance (lux)

Business park road 1

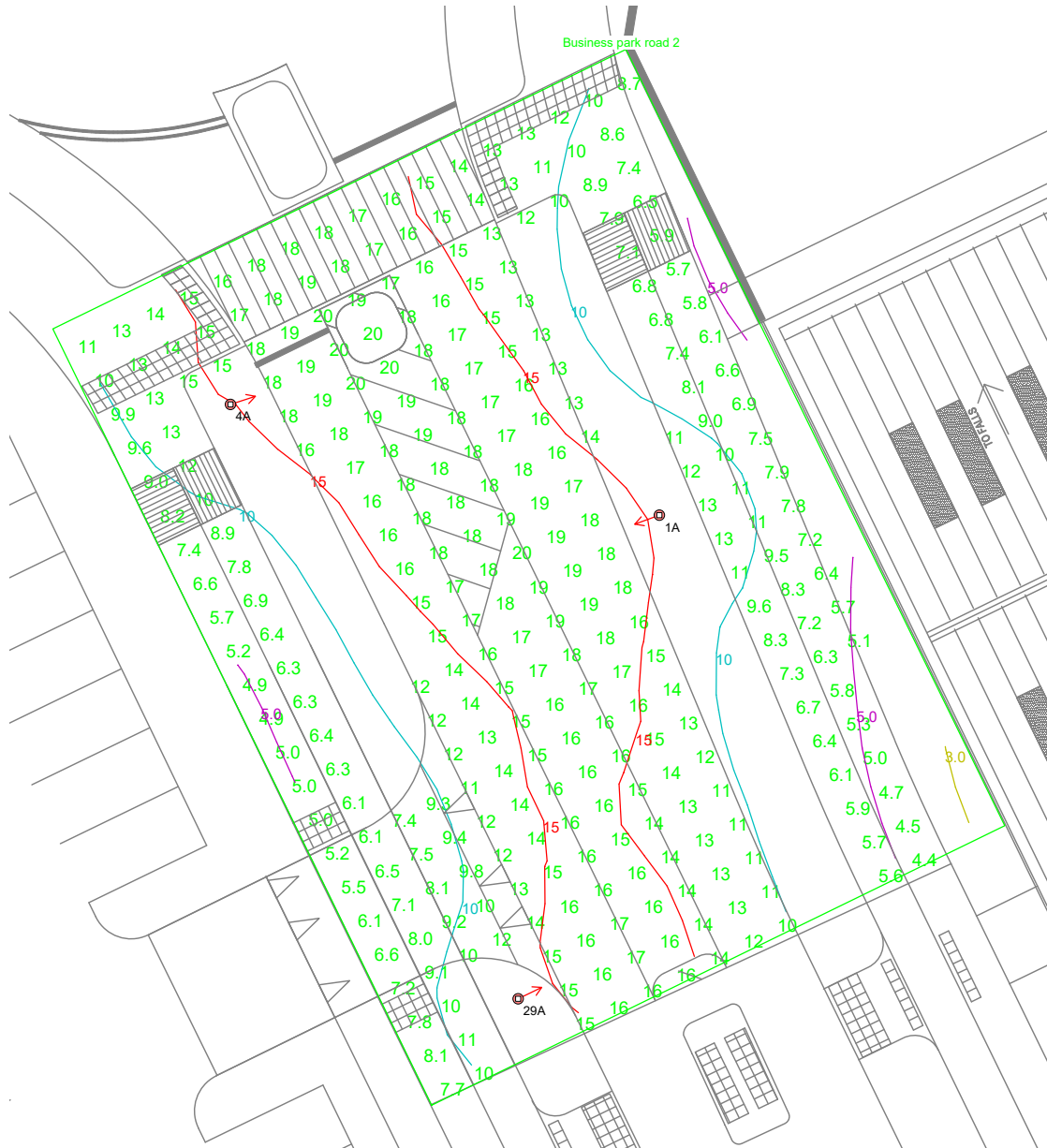


### Results

Eav	11.53
Emin	3.63
E <sub>max</sub>	18.32
E <sub>min</sub> /E <sub>max</sub>	0.20
E <sub>min</sub> /E <sub>av</sub>	0.32
E <sub>max</sub> /E <sub>av</sub>	1.59

## Horizontal Illuminance (lux)

Business park road 2



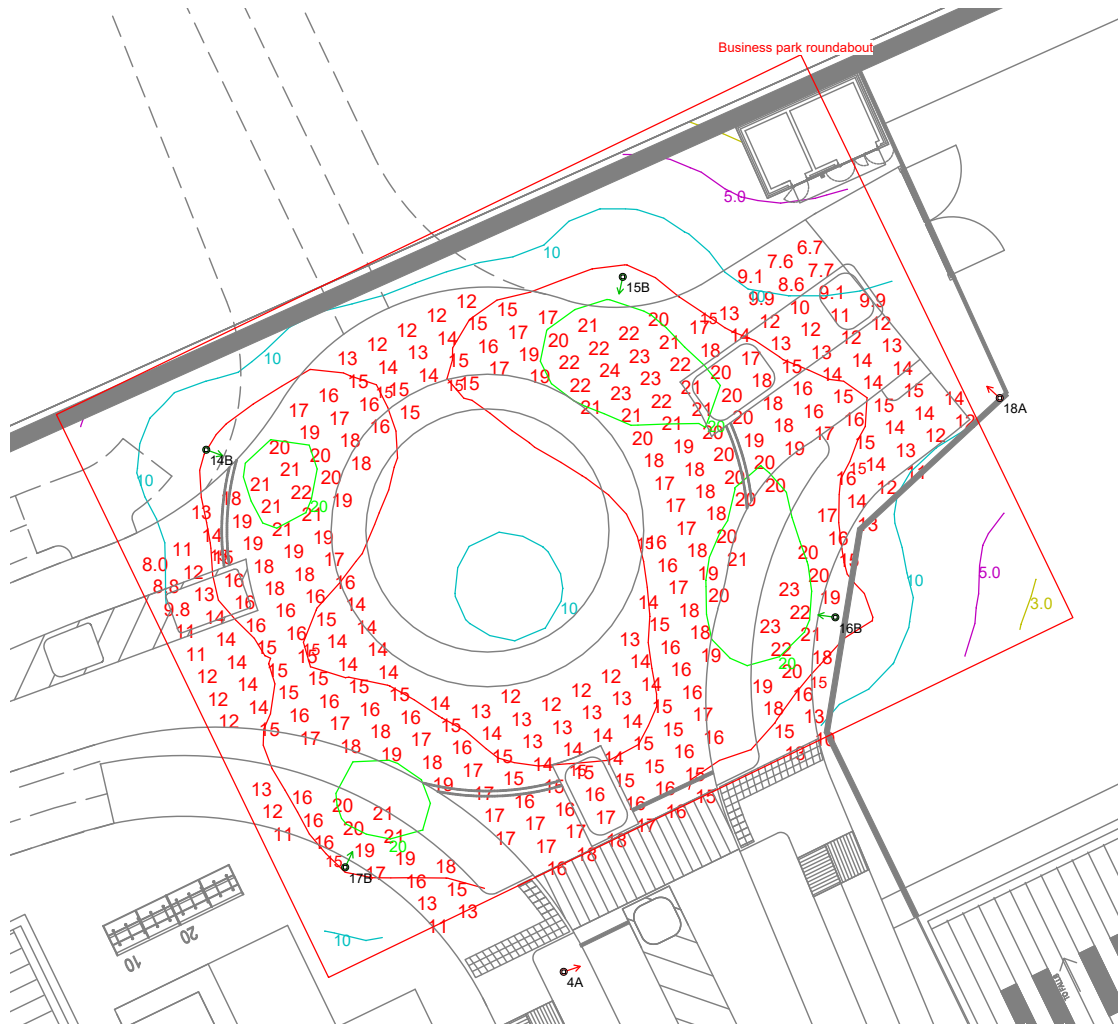
### Results

Eav	12.76
Emin	4.41
Emax	19.76
Emin/Emax	0.22
Emin/Eav	0.35
Emax/Eav	1.55



## Horizontal Illuminance (lux)

Business park roundabout

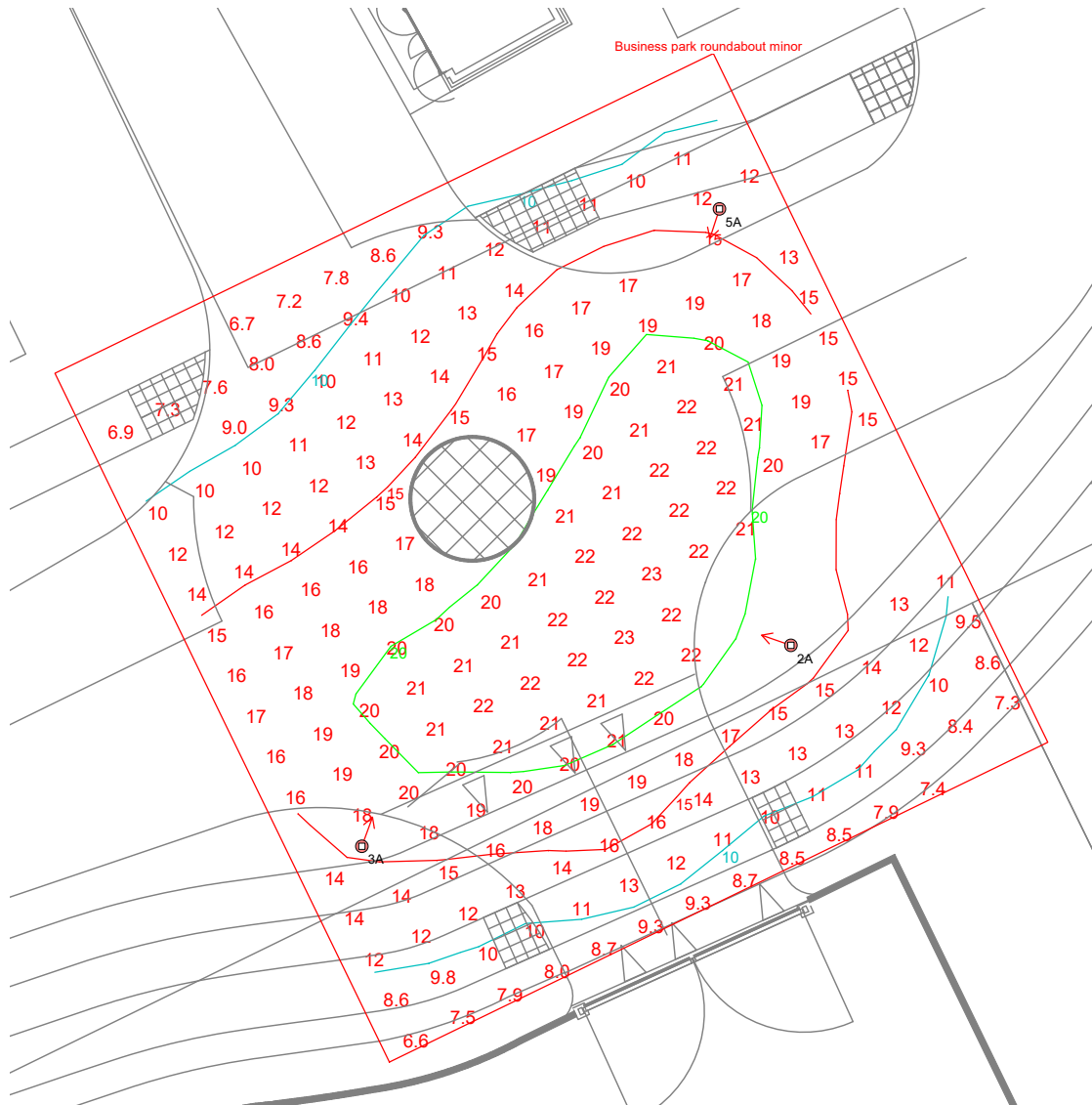


### Results

Eav	16.01
Emin	6.67
Emax	23.58
Emin/Emax	0.28
Emin/Eav	0.42
Emax/Eav	1.47

## Horizontal Illuminance (lux)

Business park roundabout minor



### Results

Eav	15.10
Emin	6.56
Emax	23.19
Emin/Emax	0.28
Emin/Eav	0.43
Emax/Eav	1.54

## Horizontal Illuminance (lux)

Business park road 3



### Results

Eav	11.17
Emin	4.27
Emax	17.80
Emin/Emax	0.24
Emin/Eav	0.38
Emax/Eav	1.59

## Horizontal Illuminance (lux)

Business park road 4

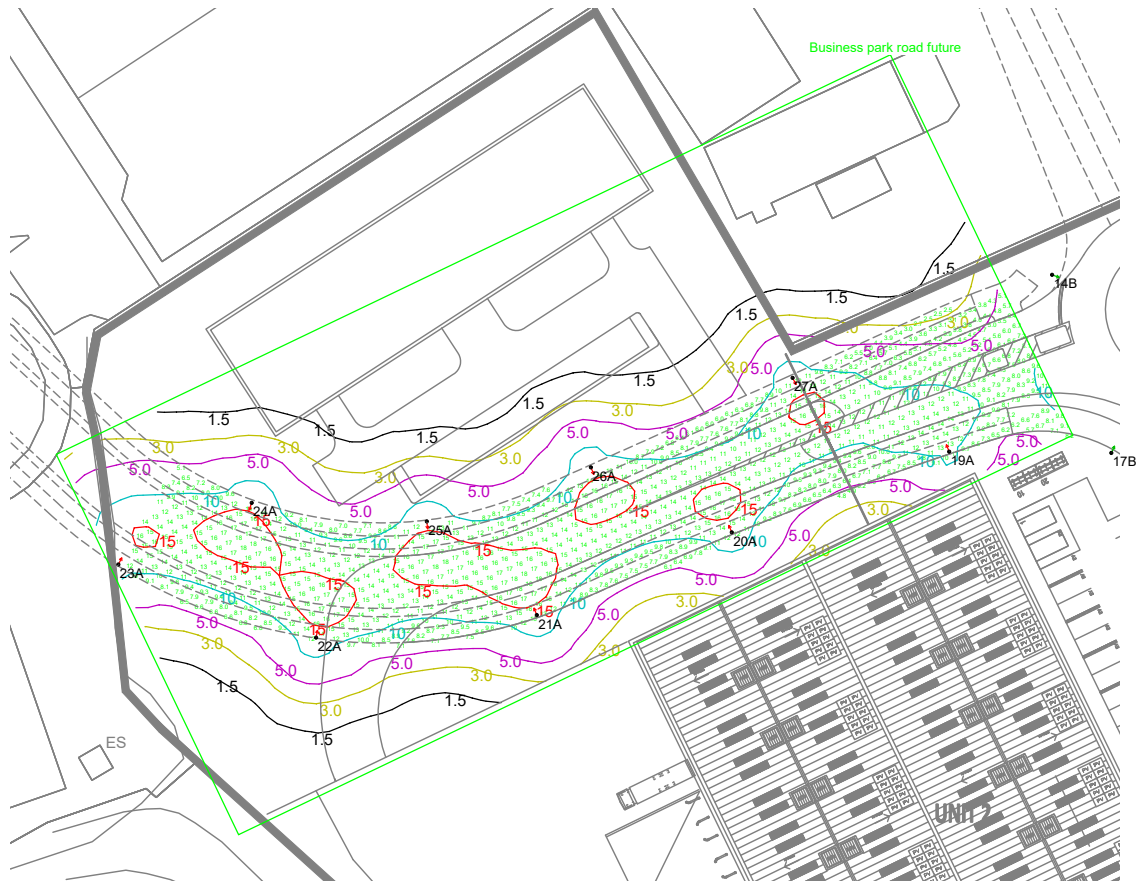


### Results

Eav	11.28
Emin	2.59
E <sub>max</sub>	20.54
E <sub>min</sub> /E <sub>max</sub>	0.13
E <sub>min</sub> /E <sub>av</sub>	0.23
E <sub>max</sub> /E <sub>av</sub>	1.82

## Horizontal Illuminance (lux)

Business park road future



### Results

Eav	11.51
Emin	2.46
Emax	18.19
Emin/Emax	0.14
Emin/Eav	0.21
Emax/Eav	1.58