

**DATE:** 8 December 2022  
**DESIGNER:** Alex Naper  
**PROJECT No:** SES 13122 Rev D  
**PROJECT NAME:** Clonburris T2 - Cairn



Residential area designed in accordance with EN13201-2:2015 Category P4.

Step sections designed in accordance with I.S.EN17210-2021 with illuminance levels as per the recommendations of BS8300-1:2018 Table 5 Stairways and ramps (open) in the external environment.

Rev A: Updated site layout.

Rev B: Creche area added.

Rev C: Updated as per comments

Rev D: LEDs in specified bat corridor to 3000K.

## **Outdoor Lighting Report**

**PREPARED BY:** Sabre Electrical Services Ltd.  
Unit 11,  
Bellview Industrial Estate,  
Tolka Valley Road,  
Dublin 11  
Phone Number: 01 8110875  
Contact: Graham Sheehan  
eMail: graham@sabrelighting.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	Grid 1	2968.43	355.55	144.00	220.58	1.50	1.47
2	Grid 2	2929.33	374.00	259.00	224.66	1.50	1.50
3	Grid 3	3176.78	497.39	11.29	5.11	0.25	1.28
4	Grid 4	3166.49	554.43	16.53	3.21	0.36	0.80
5	Grid 5	2967.98	577.23	52.14	10.21	0.64	1.02
6	Grid 6	2869.27	435.52	99.00	157.00	1.50	1.50

### Luminaires

#### Luminaire A Data

Supplier	C U Phosco
Type	E950-28-P6A-740-C0600-16W
Lamp(s)	740N
Lamp Flux (klm)	2.27
File Name	E950-28-P6A-740-C0600-16W.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	961.6, 241.7, 0.0
No. in Project	37

#### Luminaire C Data

Supplier	C U Phosco
Type	E950-28-R3A-740-C450-12W
Lamp(s)	740N
Lamp Flux (klm)	1.71
File Name	E950-28-R3A-740-C0450-12W.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	716.7, 30.5, 0.3
No. in Project	7



#### Luminaire D Data

Supplier	Urbis Schreder
Type	FLEXIA MIDI 5304 Flat glass 10 LH351C @200mA NW 740 230V 44
Lamp(s)	10 LH351C@200mA NW 740 230V
LampFlux(klm)/Colour	0.99 NW 4000K/70
File Name	FLEXIA MIDI 5304 10 LH351C 200mA NW 740 7.4W 446672 Flat glass 230V TF.Idt
Maintenance Factor	0.86
Imax70,80,90(cd/klm)	276.2, 49.8, 0.0
No. in Project	26

#### Luminaire E Data

Supplier	Urbis Schreder
Type	FLEXIA MIDI 5305 Flat glass 10 LH351C @200mA NW 740 230V 44
Lamp(s)	10 LH351C@200mA NW 740 230V
LampFlux(klm)/Colour	0.99 NW 4000K/70
File Name	FLEXIA MIDI 5305 10 LH351C 200mA NW 740 7.4W 446682 Flat glass 230V TF.Idt
Maintenance Factor	0.86
Imax70,80,90(cd/klm)	673.2, 109.3, 0.0
No. in Project	19

#### Luminaire F Data

Supplier	C U Phosco
Type	E950-28-R3A-740-SE0625-27W
Lamp(s)	740SA
Lamp Flux (klm)	4.17
File Name	E950-28-R3A-740-SE0625-27W.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	392.2, 27.9, 4.3
No. in Project	6

#### Luminaire G Data

Supplier	C U Phosco
Type	E950-28-P4A-740-C600-16W
Lamp(s)	740N
Lamp Flux (klm)	2.17
File Name	E950-28-P4A-740-C0600-16W.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	659.3, 183.1, 0.3
No. in Project	4

## Luminaires



### Luminaire I Data

Supplier	Urbis Schreder
Type	FLEXIA MIDI 5304 Flat glass 20 LH351C @300mA NW 740 230V 44
Lamp(s)	20 LH351C@300mA NW 740 230V
LampFlux(klm)/Colour	2.88 NW 4000K/70
File Name	FLEXIA MIDI 5304 20 LH351C 300mA NW 740 19.6W 446672 Flat glass 230V TF.Idt
Maintenance Factor	0.86
Imax70,80,90(cd/klm)	276.2, 49.8, 0.0
No. in Project	1



### Luminaire J Data

Supplier	C U Phosco
Type	E950-28-R3A-730-C400-11W
Lamp(s)	730N
Lamp Flux (klm)	1.59
File Name	E950-28-R3A-730-C0400-11W.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	716.7, 30.5, 0.3
No. in Project	15



### Luminaire K Data

Supplier	C U Phosco
Type	E950-28-R3A-730-SD0600-26W
Lamp(s)	730SA
Lamp Flux (klm)	3.65
File Name	E950-28-R3A-730-SD0600-26W.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	380.1, 27.7, 4.3
No. in Project	4

**Layout**

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	3059.45	382.13	6.00	356.00	0.00	0.00	0.40			
2	A	3060.42	416.12	6.00	359.00	0.00	0.00	0.40			
3	A	3062.73	451.81	6.00	358.00	0.00	0.00	0.40			
4	A	3054.50	473.45	6.00	279.00	0.00	0.00	0.40			
5	A	3023.23	473.71	6.00	267.00	0.00	0.00	0.40			
6	A	3009.14	478.35	6.00	168.00	0.00	0.00	0.40			
7	A	2989.13	500.07	6.00	356.00	0.00	0.00	0.40			
8	A	2981.08	476.66	6.00	264.00	0.00	0.00	0.40			
9	A	3010.11	510.55	6.00	172.00	0.00	0.00	0.40			
10	A	2990.04	526.97	6.00	356.00	0.00	0.00	0.40			
11	A	3011.80	551.71	6.00	181.00	0.00	0.00	0.40			
12	A	2983.23	561.42	6.00	86.00	0.00	0.00	0.40			
13	A	3021.86	562.59	6.00	90.00	0.00	0.00	0.40			
14	A	3050.67	561.41	6.00	84.00	0.00	0.00	0.40			
15	A	3059.22	552.78	6.00	358.00	0.00	0.00	0.40			
16	A	3075.26	541.01	6.00	180.00	0.00	0.00	0.40			
17	A	3058.12	524.40	6.00	352.00	0.00	0.00	0.40			
18	A	3073.97	511.18	6.00	182.00	0.00	0.00	0.40			
19	A	3056.96	492.82	6.00	2.00	0.00	0.00	0.40			
20	A	3074.11	565.72	6.00	179.00	0.00	0.00	0.40			
21	A	3072.77	475.41	6.00	167.00	0.00	0.00	0.40			
22	D	3013.90	448.52	8.00	279.00	0.00	0.00	1.00			
23	D	3035.11	456.04	8.00	279.00	0.00	0.00	1.00			
24	D	3014.05	448.51	7.00	331.00	0.00	0.00	1.00			
25	D	3014.04	448.47	6.00	245.00	0.00	0.00	1.00			
26	D	3035.26	456.03	7.00	331.00	0.00	0.00	1.00			
27	D	3035.25	455.99	6.00	245.00	0.00	0.00	1.00			
28	D	3054.42	462.99	8.00	279.00	0.00	0.00	1.00			
29	D	3054.55	462.95	7.00	331.00	0.00	0.00	1.00			
30	D	3054.34	463.03	6.00	245.00	0.00	0.00	1.00			
31	D	3078.76	471.13	8.00	314.00	0.00	0.00	1.00			
32	D	3078.89	471.19	7.00	357.00	0.00	0.00	1.00			
33	D	3078.90	471.16	6.00	266.00	0.00	0.00	1.00			
34	D	3101.59	478.67	8.00	314.00	0.00	0.00	1.00			
35	D	3101.57	478.71	7.00	7.00	0.00	0.00	1.00			
36	D	3101.38	478.58	6.00	277.00	0.00	0.00	1.00			

**Layout Continued**

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
37	D	3123.39	485.74	8.00	319.00	0.00	0.00	1.00			
38	D	3123.33	485.88	7.00	11.00	0.00	0.00	1.00			
39	D	3123.24	485.77	6.00	285.00	0.00	0.00	1.00			
40	D	3146.26	493.76	8.00	309.00	0.00	0.00	1.00			
41	D	3146.40	493.83	7.00	1.00	0.00	0.00	1.00			
42	D	3146.41	493.79	6.00	275.00	0.00	0.00	1.00			
43	E	3106.95	442.02	6.00	267.00	0.00	0.00	1.00			
44	E	3123.11	448.58	6.00	291.00	0.00	0.00	1.00			
45	E	3118.22	431.06	6.00	183.00	0.00	0.00	1.00			
46	E	3128.90	419.98	6.00	207.00	0.00	0.00	1.00			
47	E	3103.27	421.88	6.00	345.00	0.00	0.00	1.00			
48	E	3111.30	413.00	6.00	149.00	0.00	0.00	1.00			
49	C	3075.26	443.51	6.00	185.00	0.00	0.00	0.40			
50	C	3073.91	408.67	6.00	173.00	0.00	0.00	0.40			
51	C	3073.14	386.28	6.00	178.00	0.00	0.00	0.40			
53	K	3179.89	498.56	6.00	103.00	0.00	0.00	0.40			
53	K	3167.99	554.81	6.00	105.00	0.00	0.00	0.40			
54	K	3182.28	557.97	6.00	104.00	0.00	0.00	0.40			
55	J	3154.65	465.40	6.00	3.00	0.00	0.00	0.40			
56	J	3171.34	441.89	6.00	79.00	0.00	0.00	0.40			
57	J	3176.73	427.96	6.00	3.00	0.00	0.00	0.40			
58	J	3181.90	404.96	6.00	11.00	0.00	0.00	0.40			
59	J	3179.43	461.00	6.00	184.00	0.00	0.00	0.40			
60	J	3186.61	477.59	6.00	170.00	0.00	0.00	0.40			
61	C	3178.89	485.85	6.00	18.00	0.00	0.00	0.40			
62	J	3177.41	517.71	6.00	3.00	0.00	0.00	0.40			
63	J	3185.73	516.32	6.00	197.00	0.00	0.00	0.40			
64	J	3164.65	517.05	6.00	5.00	0.00	0.00	0.40			
65	J	3162.68	543.59	6.00	20.00	0.00	0.00	0.40			
66	J	3148.32	564.89	6.00	48.00	0.00	0.00	0.40			
67	E	3105.66	518.48	6.00	297.00	0.00	0.00	0.40			
68	E	3111.06	509.36	6.00	119.00	0.00	0.00	0.40			
69	E	3104.22	535.69	6.00	42.00	0.00	0.00	0.40			
70	E	3126.28	548.94	6.00	259.00	0.00	0.00	0.40			
71	E	3119.71	530.99	6.00	196.00	0.00	0.00	0.40			
72	A	3128.23	579.17	6.00	265.00	0.00	0.00	0.40			

**Layout Continued**

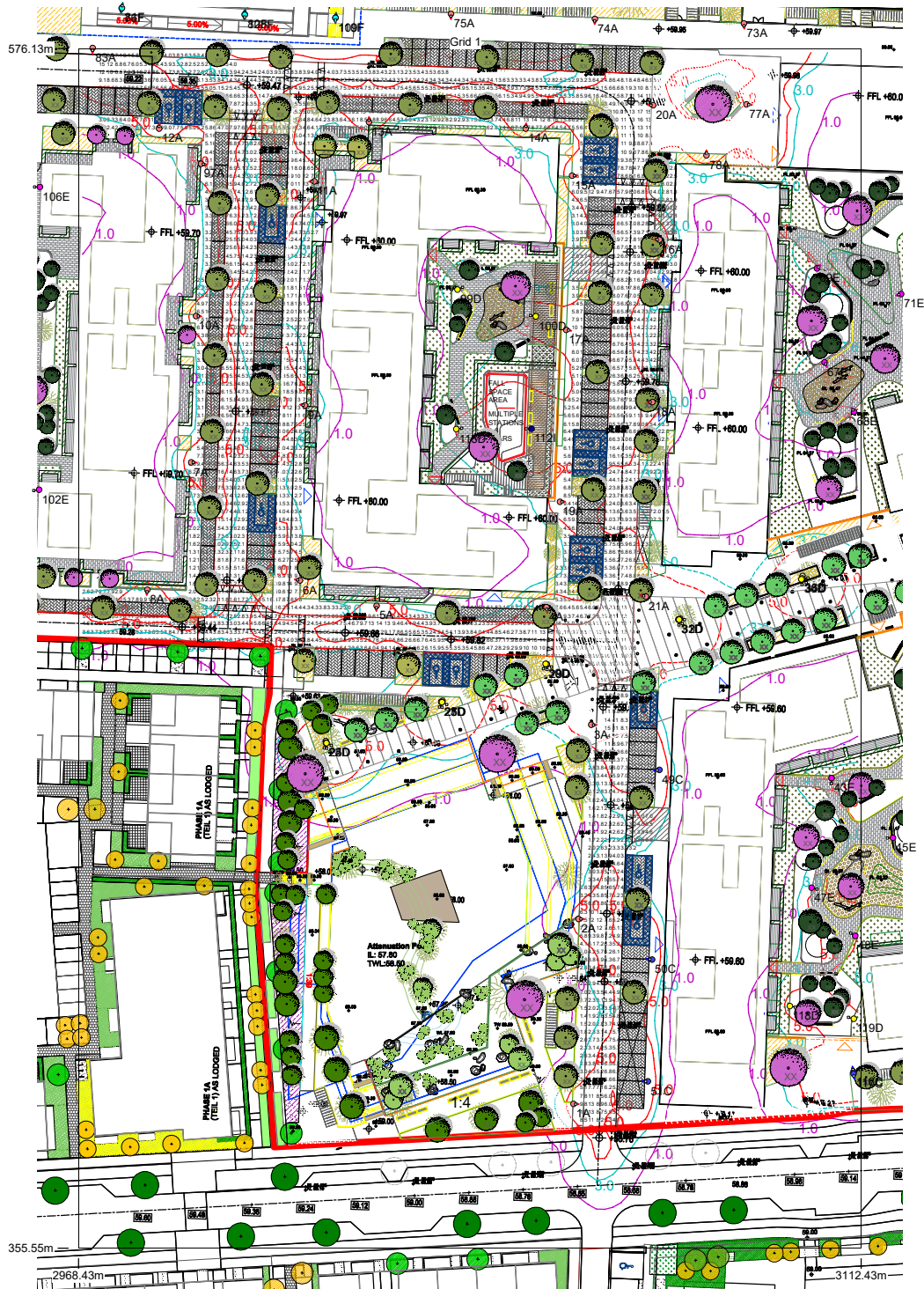
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
73	A	3090.82	580.75	6.00	272.00	0.00	0.00	0.40			
74	A	3063.39	581.59	6.00	269.00	0.00	0.00	0.40			
75	A	3036.94	582.51	6.00	269.00	0.00	0.00	0.40			
76	F	2976.36	583.53	6.00	265.00	0.00	0.00	0.40			
77	A	3091.30	565.85	6.00	355.00	0.00	0.00	0.40			
78	A	3083.91	556.49	6.00	90.00	0.00	0.00	0.40			
79	J	3149.14	517.85	6.00	7.00	0.00	0.00	0.40			
80	J	3143.81	551.77	6.00	7.00	0.00	0.00	0.40			
81	F	2976.43	583.60	6.00	83.00	0.00	0.00	0.40			
82	F	2998.98	582.40	6.00	84.00	0.00	0.00	0.40			
83	A	2971.00	576.22	6.00	271.00	0.00	0.00	0.40			
84	A	2942.70	562.70	6.00	89.00	0.00	0.00	0.40			
85	A	2935.79	577.13	6.00	266.00	0.00	0.00	0.40			
86	A	2919.39	563.77	6.00	79.00	0.00	0.00	0.40			
87	G	2894.96	567.32	6.00	351.00	0.00	0.00	0.40			
88	E	2876.02	580.83	6.00	270.00	0.00	0.00	0.40			
89	G	2894.22	544.67	6.00	356.00	0.00	0.00	0.40			
90	G	2892.66	515.03	6.00	355.00	0.00	0.00	0.40			
91	G	2891.67	489.75	6.00	358.00	0.00	0.00	0.40			
92	A	2913.28	480.04	6.00	270.00	0.00	0.00	0.40			
93	A	2912.22	555.94	6.00	178.00	0.00	0.00	0.40			
94	A	2911.15	522.72	6.00	180.00	0.00	0.00	0.40			
95	A	2909.91	489.74	6.00	180.00	0.00	0.00	0.40			
96	A	2950.68	477.95	6.00	268.00	0.00	0.00	0.40			
97	A	2990.98	554.92	6.00	356.00	0.00	0.00	0.40			
98	J	3157.08	429.69	6.00	351.00	0.00	0.00	0.40			
99	D	3038.13	531.82	6.00	25.00	0.00	0.00	1.00			
100	D	3052.53	526.90	6.00	170.00	0.00	0.00	1.00			
101	E	2938.30	509.11	6.00	340.00	0.00	0.00	1.00			
102	E	2961.18	495.02	6.00	187.00	0.00	0.00	1.00			
103	E	2953.49	513.36	6.00	328.00	0.00	0.00	1.00			
104	E	2951.45	529.10	6.00	56.00	0.00	0.00	1.00			
105	E	2937.79	530.45	6.00	36.00	0.00	0.00	1.00			
106	E	2961.35	550.70	6.00	182.00	0.00	0.00	1.00			
107	E	2959.94	539.01	6.00	99.00	0.00	0.00	1.00			
108	F	2998.98	582.35	6.00	268.00	0.00	0.00	0.40			

**Layout Continued**

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
109	F	3015.70	581.76	6.00	84.00	0.00	0.00	0.40			
110	F	3015.68	581.76	6.00	269.00	0.00	0.00	0.40			
111	K	3185.37	500.47	6.00	108.00	0.00	0.00	0.40			
112	I	3051.75	506.25	6.00	180.00	0.00	0.00	1.00			
113	D	3037.91	506.17	6.00	9.00	0.00	0.00	1.00			
114	J	3160.21	395.36	6.00	6.00	0.00	0.00	0.40			
115	C	3143.05	391.34	6.00	99.00	0.00	0.00	0.40			
116	C	3110.96	388.05	6.00	102.00	0.00	0.00	0.40			
117	C	3110.96	387.67	6.00	281.00	0.00	0.00	0.40			
118	D	3099.29	400.12	6.00	349.00	0.00	0.00	1.00			
119	D	3111.01	397.79	6.00	165.00	0.00	0.00	1.00			

# Horizontal Illuminance (lux)

Grid 1



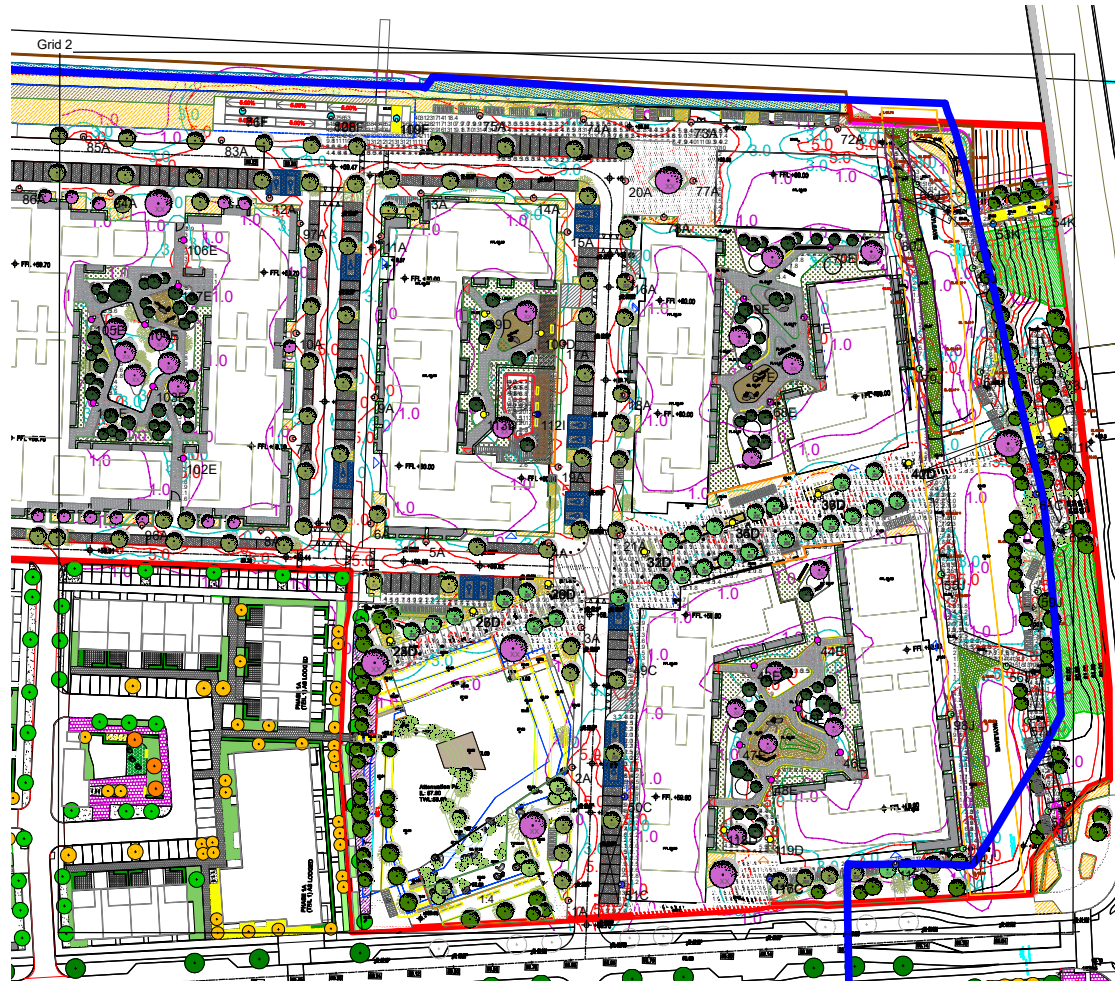
## Results

Eav	5.50
Emin	1.12
Emax	16.89
Emin/Emax	0.07
Emin/Eav	0.20



# Horizontal Illuminance (lux)

Grid 2

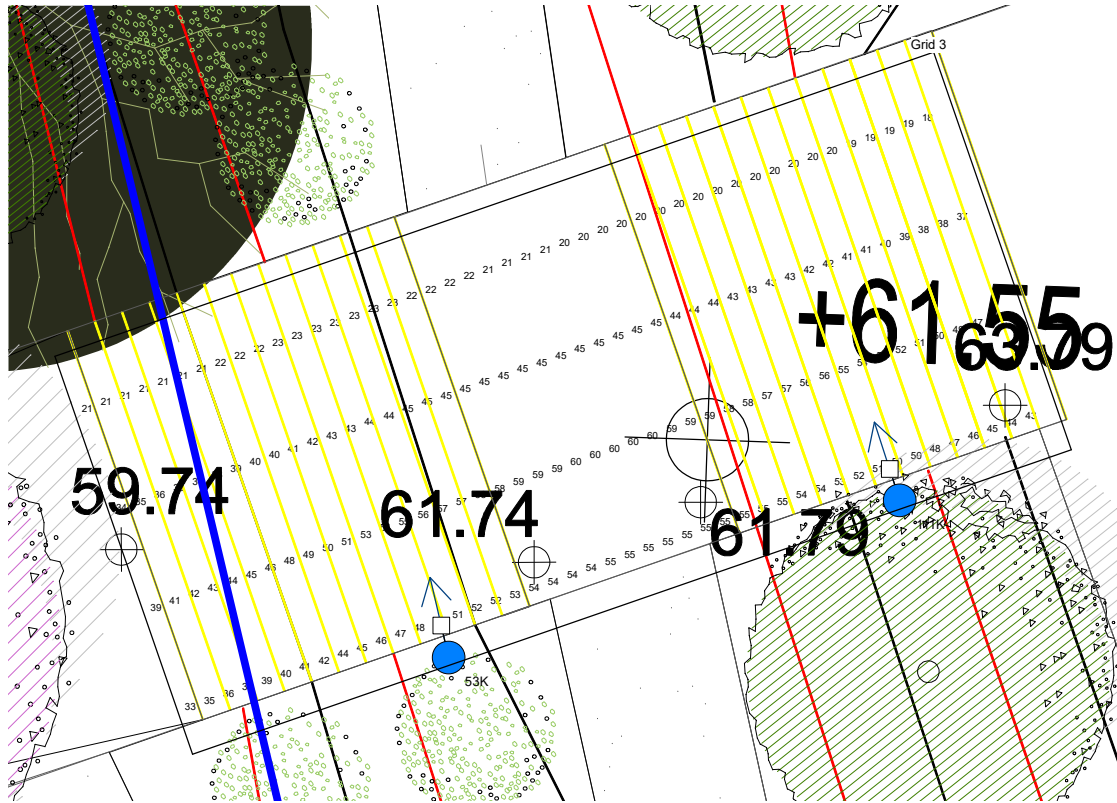


## Results

Eav	6.57
Emin	1.28
E <sub>max</sub>	57.29
E <sub>min</sub> /E <sub>max</sub>	0.02
E <sub>min</sub> /E <sub>av</sub>	0.20

## Horizontal Illuminance (lux)

Grid 3

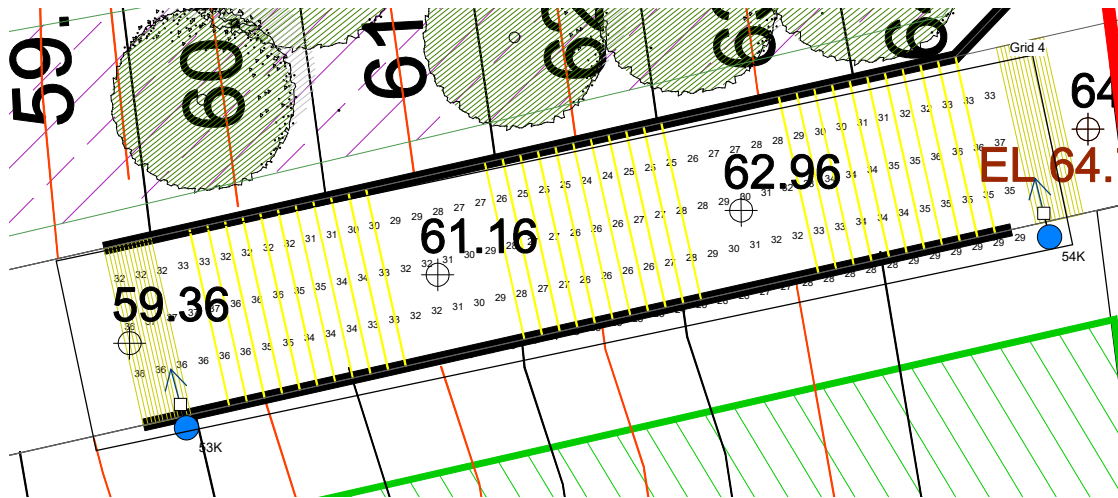


### Results

Eav	41.20
Emin	18.37
E <sub>max</sub>	59.88
E <sub>min</sub> /E <sub>max</sub>	0.31
E <sub>min</sub> /E <sub>av</sub>	0.45

## Horizontal Illuminance (lux)

Grid 4

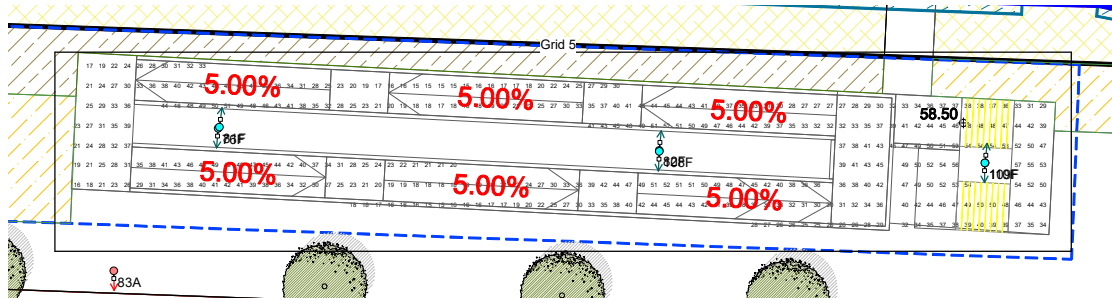


### Results

Eav	30.20
Emin	22.80
Emax	36.89
Emin/Emax	0.62
Emin/Eav	0.76

## Horizontal Illuminance (lux)

Grid 5



### Results

Eav	34.53
Emin	15.09
Emax	56.55
Emin/Emax	0.27
Emin/Eav	0.44

## Horizontal Illuminance (lux)

Grid 6



### Results

Eav	5.29
Emin	1.04
Emax	14.68
Emin/Emax	0.07
Emin/Eav	0.20