

DATE: 9 April 2025
DESIGNER: Alex Naper
PROJECT No: SES 19624 Rev B
PROJECT NAME: Ballycullen - Lagan



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.

MF derived from: $0.92 \times 0.95 \times 0.995$ (LMF (Low pollution environment & 72 month cleaning cycle) $\times$ LLMF $\times$ LSF)
LLMF & LSF values @ 100,000 hours & 25 degrees C Ta.

Rev A: Revised site layout.

Rev B: Updated to revised landscape layout.

Outdoor Lighting Report

PREPARED BY: Sabre Electrical Services Ltd.
Unit 11,
Bellview Industrial Estate,
Tolka Valley Road,
Dublin 11
D11 VN59
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	711660.08	725596.23	353.70	243.81	1.50	1.50
2	Grid 2	712013.13	725644.17	260.68	243.81	1.50	1.50
3	Grid 3	712273.75	725728.18	222.00	195.00	1.50	1.50
4	Grid 4	711816.53	725748.73	16.19	23.89	0.31	0.28
5	Grid 5	712353.76	725810.04	33.01	1.79	0.25	0.60
6	Grid 6	712400.68	725824.28	8.91	1.79	0.36	0.60
7	Grid 7	712235.64	725782.47	35.20	1.79	0.26	0.60
8	Grid 8	712157.04	725773.96	12.94	1.79	0.32	0.60
9	Grid 9	712118.72	725761.54	7.97	1.79	0.27	0.60

Luminaires

Luminaire A Data



Supplier	C U Phosco
Type	P852K-24-R2A-740-HE-0300-15W
Lamp(s)	740P
Lamp Flux (klm)	2.50
File Name	P852K-24-R2A-740-HE-0300-15W.ies
Maintenance Factor	0.87
Imax70,80,90(cd/klm)	667.1, 44.3, 0.7
No. in Project	94

Luminaire B Data



Supplier	C U Phosco
Type	P852K-24-R3A-740-HE-0200-10W
Lamp(s)	740P
Lamp Flux (klm)	1.69
File Name	P852K-24-R3A-740-HE-0200-10W.ies
Maintenance Factor	0.87
Imax70,80,90(cd/klm)	620.9, 56.0, 0.5
No. in Project	44

Luminaire C Data



Supplier	C U Phosco
Type	P852K-24-F2A-740-HE-0300-15W
Lamp(s)	740P
Lamp Flux (klm)	2.27
File Name	P852K-24-F2A-740-HE-0300-15W.ies
Maintenance Factor	0.87
Imax70,80,90(cd/klm)	487.6, 132.2, 2.4
No. in Project	4

Luminaire D Data



Supplier	C U Phosco
Type	P852K-24-R3A-740-HE-0500-24W
Lamp(s)	740P
Lamp Flux (klm)	4.15
File Name	P852K-24-R3A-740-HE-0500-24W.ies
Maintenance Factor	0.87
Imax70,80,90(cd/klm)	620.9, 56.0, 0.5
No. in Project	14

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	711795.20	725808.29	6.00	1.00	0.00	0.00	0.40			
2	A	711817.57	725792.59	6.00	71.00	0.00	0.00	0.40			
3	A	711844.15	725781.82	6.00	178.00	0.00	0.00	0.40			
4	A	712111.61	725756.79	6.00	269.00	0.00	0.00	0.40			
5	A	711826.10	725757.93	6.00	92.00	0.00	0.00	0.40			
6	A	711790.85	725767.50	6.00	75.00	0.00	0.00	0.40			
7	A	711761.23	725776.65	6.00	80.00	0.00	0.00	0.40			
8	A	711780.27	725761.06	6.00	162.00	0.00	0.00	0.40			
9	A	711760.55	725737.28	6.00	347.00	0.00	0.00	0.40			
10	A	711754.57	725718.07	6.00	339.00	0.00	0.00	0.40			
11	A	711786.02	725722.63	6.00	260.00	0.00	0.00	0.40			
12	A	711811.93	725716.44	6.00	259.00	0.00	0.00	0.40			
13	A	711853.98	725734.97	6.00	258.00	0.00	0.00	0.40			
14	A	711829.97	725727.09	6.00	153.00	0.00	0.00	0.40			
15	A	711889.28	725731.35	6.00	159.00	0.00	0.00	0.40			
16	A	711869.19	725711.88	6.00	164.00	0.00	0.00	0.40			
17	A	711870.07	725688.02	6.00	189.00	0.00	0.00	0.40			
18	A	711889.40	725760.76	6.00	354.00	0.00	0.00	0.40			
19	A	711920.71	725755.42	6.00	253.00	0.00	0.00	0.40			
20	B	711970.03	725763.58	6.00	257.00	0.00	0.00	0.40			
21	C	711949.65	725779.65	6.00	252.00	0.00	0.00	0.40			
22	B	711940.41	725686.28	6.00	200.00	0.00	0.00	0.40			
23	A	711991.02	725730.41	6.00	159.00	0.00	0.00	0.40			
24	A	712015.80	725712.22	6.00	109.00	0.00	0.00	0.40			
25	A	711958.12	725714.51	6.00	284.00	0.00	0.00	0.40			
26	B	711772.86	725786.81	6.00	261.00	0.00	0.00	0.40			
27	A	711730.20	725781.23	6.00	287.00	0.00	0.00	0.40			
28	A	711719.60	725760.65	6.00	130.00	0.00	0.00	0.40			
29	A	711698.15	725744.34	6.00	338.00	0.00	0.00	0.40			
30	A	711705.93	725720.41	6.00	185.00	0.00	0.00	0.40			
31	A	711707.80	725689.47	6.00	32.00	0.00	0.00	0.40			
32	A	711734.09	725679.53	6.00	232.00	0.00	0.00	0.40			
33	A	711736.92	725653.59	6.00	142.00	0.00	0.00	0.40			
34	A	711765.69	725664.23	6.00	238.00	0.00	0.00	0.40			
35	B	711828.64	725773.86	6.00	252.00	0.00	0.00	0.40			
36	A	711816.68	725664.45	6.00	281.00	0.00	0.00	0.40			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
37	A	711765.39	725645.80	6.00	68.00	0.00	0.00	0.40			
38	A	711795.67	725647.07	6.00	106.00	0.00	0.00	0.40			
39	A	711795.03	725639.66	6.00	205.00	0.00	0.00	0.40			
40	A	711864.43	725674.46	6.00	280.00	0.00	0.00	0.40			
41	A	711890.33	725668.53	6.00	200.00	0.00	0.00	0.40			
42	A	711843.32	725659.45	6.00	108.00	0.00	0.00	0.40			
43	A	711913.74	725682.58	6.00	103.00	0.00	0.00	0.40			
44	A	711978.58	725704.38	6.00	105.00	0.00	0.00	0.40			
45	A	711894.62	725689.97	6.00	281.00	0.00	0.00	0.40			
46	A	711974.88	725745.53	6.00	74.00	0.00	0.00	0.40			
47	A	711941.52	725694.82	6.00	105.00	0.00	0.00	0.40			
48	B	712078.35	725739.18	6.00	115.00	0.00	0.00	0.40			
49	C	711897.25	725784.37	6.00	259.00	0.00	0.00	0.40			
50	A	711952.07	725751.03	6.00	82.00	0.00	0.00	0.40			
51	C	711942.61	725665.46	6.00	105.00	0.00	0.00	0.40			
52	B	712092.52	725737.60	6.00	280.00	0.00	0.00	0.40			
53	A	711919.28	725743.17	6.00	157.00	0.00	0.00	0.40			
54	A	711906.05	725718.10	6.00	354.00	0.00	0.00	0.40			
55	B	711987.11	725765.28	6.00	170.00	0.00	0.00	0.40			
56	B	712297.70	725782.13	6.00	101.00	0.00	0.00	0.40			
57	A	711817.22	725695.16	6.00	169.00	0.00	0.00	0.40			
58	A	711812.30	725681.28	6.00	8.00	0.00	0.00	0.40			
59	A	711759.52	725697.86	6.00	258.00	0.00	0.00	0.40			
60	A	711993.88	725692.99	6.00	189.00	0.00	0.00	0.40			
61	A	711942.26	725761.61	6.00	331.00	0.00	0.00	0.40			
62	A	711811.87	725828.21	6.00	283.00	0.00	0.00	0.40			
63	A	712044.22	725718.74	6.00	285.00	0.00	0.00	0.40			
64	B	712050.93	725741.87	6.00	282.00	0.00	0.00	0.40			
65	A	712078.47	725745.15	6.00	92.00	0.00	0.00	0.40			
66	A	712078.61	725727.76	6.00	286.00	0.00	0.00	0.40			
67	A	712147.95	725751.09	6.00	211.00	0.00	0.00	0.40			
68	A	712148.22	725737.64	6.00	105.00	0.00	0.00	0.40			
69	B	712079.85	725764.18	6.00	277.00	0.00	0.00	0.40			
70	B	712048.10	725766.81	6.00	285.00	0.00	0.00	0.40			
71	A	712065.33	725779.01	6.00	185.00	0.00	0.00	0.40			
72	B	712091.71	725787.96	6.00	186.00	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	712077.11	725798.21	6.00	279.00	0.00	0.00	0.40			
74	A	712108.03	725802.10	6.00	270.00	0.00	0.00	0.40			
75	A	712137.92	725809.52	6.00	279.00	0.00	0.00	0.40			
76	A	712144.41	725796.71	6.00	193.00	0.00	0.00	0.40			
77	A	712113.30	725787.95	6.00	10.00	0.00	0.00	0.40			
78	B	712105.34	725771.80	6.00	279.00	0.00	0.00	0.40			
79	B	712131.83	725777.86	6.00	280.00	0.00	0.00	0.40			
80	B	712158.33	725781.57	6.00	281.00	0.00	0.00	0.40			
81	B	712183.86	725787.40	6.00	277.00	0.00	0.00	0.40			
82	B	712210.97	725791.54	6.00	282.00	0.00	0.00	0.40			
83	A	712115.44	725727.89	6.00	100.00	0.00	0.00	0.40			
84	A	712181.98	725745.56	6.00	104.00	0.00	0.00	0.40			
85	B	712432.79	725835.66	6.00	190.00	0.00	0.00	0.40			
86	A	712212.28	725760.32	6.00	104.00	0.00	0.00	0.40			
87	A	712229.52	725782.12	6.00	281.00	0.00	0.00	0.40			
88	C	712236.26	725753.63	6.00	13.00	0.00	0.00	0.40			
89	B	712248.88	725799.34	6.00	280.00	0.00	0.00	0.40			
90	B	712281.91	725805.88	6.00	279.00	0.00	0.00	0.40			
91	A	712223.89	725812.29	6.00	193.00	0.00	0.00	0.40			
92	A	712197.62	725806.18	6.00	193.00	0.00	0.00	0.40			
93	A	712164.96	725801.84	6.00	11.00	0.00	0.00	0.40			
94	A	712167.13	725814.87	6.00	280.00	0.00	0.00	0.40			
95	A	712205.79	725822.03	6.00	282.00	0.00	0.00	0.40			
96	A	712234.17	725827.06	6.00	278.00	0.00	0.00	0.40			
97	A	712256.45	725842.77	6.00	193.00	0.00	0.00	0.40			
98	A	712274.62	725834.69	6.00	278.00	0.00	0.00	0.40			
99	B	712250.31	725816.94	6.00	97.00	0.00	0.00	0.40			
100	A	712299.59	725770.40	6.00	192.00	0.00	0.00	0.40			
101	A	712269.03	725787.90	6.00	281.00	0.00	0.00	0.40			
102	A	712299.83	725790.78	6.00	101.00	0.00	0.00	0.40			
103	A	712333.91	725786.09	6.00	84.00	0.00	0.00	0.40			
104	A	712397.54	725810.04	6.00	280.00	0.00	0.00	0.40			
105	A	712431.25	725820.44	6.00	295.00	0.00	0.00	0.40			
106	A	712439.21	725839.14	6.00	9.00	0.00	0.00	0.40			
107	A	712373.80	725841.21	6.00	189.00	0.00	0.00	0.40			
108	A	712403.97	725859.10	6.00	9.00	0.00	0.00	0.40			

Layout Continued

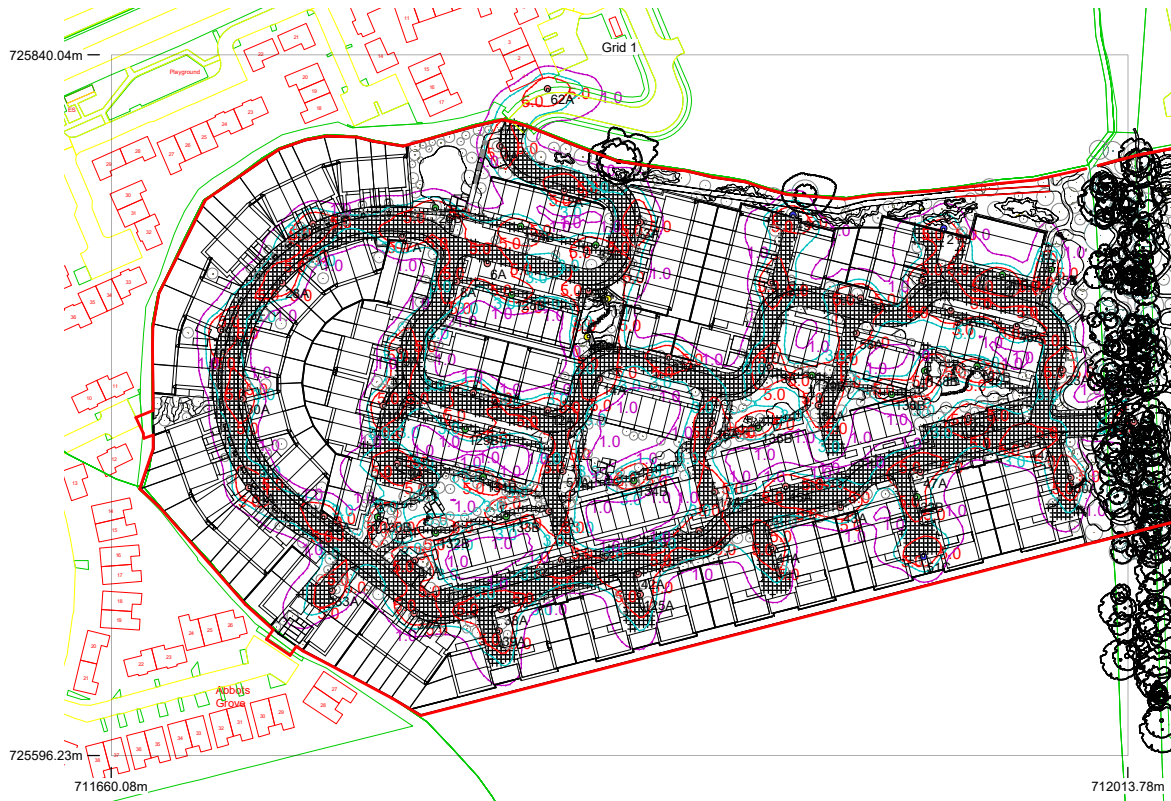
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
109	B	712383.97	725825.18	6.00	274.00	0.00	0.00	0.40			
110	B	712413.85	725829.76	6.00	284.00	0.00	0.00	0.40			
111	B	712357.90	725819.07	6.00	287.00	0.00	0.00	0.40			
112	B	712331.45	725813.89	6.00	274.00	0.00	0.00	0.40			
113	D	712401.62	725815.21	6.00	172.00	0.00	0.00	0.40			
114	B	712308.60	725809.42	6.00	282.00	0.00	0.00	0.40			
115	A	712400.30	725846.33	6.00	191.00	0.00	0.00	0.40			
116	A	712421.83	725849.86	6.00	95.00	0.00	0.00	0.40			
117	A	712376.29	725854.98	6.00	279.00	0.00	0.00	0.40			
118	A	712349.81	725849.11	6.00	280.00	0.00	0.00	0.40			
119	A	712347.34	725836.25	6.00	195.00	0.00	0.00	0.40			
120	A	712321.19	725830.54	6.00	193.00	0.00	0.00	0.40			
121	A	712302.36	725840.24	6.00	284.00	0.00	0.00	0.40			
122	A	712295.01	725825.96	6.00	186.00	0.00	0.00	0.40			
123	A	712364.90	725791.81	6.00	102.00	0.00	0.00	0.40			
124	B	711802.47	725780.41	6.00	252.00	0.00	0.00	0.40			
125	A	711844.06	725652.30	6.00	195.00	0.00	0.00	0.40			
126	D	711825.66	725741.97	6.00	8.00	0.00	0.00	0.40			
127	D	711832.81	725755.23	6.00	201.00	0.00	0.00	0.40			
128	B	711799.41	725756.55	6.00	75.00	0.00	0.00	0.40			
129	B	711783.16	725709.81	6.00	74.00	0.00	0.00	0.40			
130	B	711752.75	725679.27	6.00	330.00	0.00	0.00	0.40			
131	B	711789.49	725693.17	6.00	253.00	0.00	0.00	0.40			
132	B	711772.97	725673.68	6.00	88.00	0.00	0.00	0.40			
133	B	711797.50	725679.44	6.00	103.00	0.00	0.00	0.40			
134	B	711841.86	725691.86	6.00	117.00	0.00	0.00	0.40			
135	B	711885.22	725710.20	6.00	108.00	0.00	0.00	0.40			
136	B	711931.48	725721.88	6.00	85.00	0.00	0.00	0.40			
137	B	711961.23	725731.68	6.00	257.00	0.00	0.00	0.40			
138	B	711942.98	725730.20	6.00	337.00	0.00	0.00	0.40			
139	B	711903.80	725728.62	6.00	258.00	0.00	0.00	0.40			
140	B	712048.95	725789.16	6.00	59.00	0.00	0.00	0.40			
141	B	712191.14	725766.31	6.00	272.00	0.00	0.00	0.40			
142	B	712111.61	725757.15	6.00	91.00	0.00	0.00	0.40			
143	B	712154.68	725763.40	6.00	275.00	0.00	0.00	0.40			
144	B	712252.11	725770.51	6.00	103.00	0.00	0.00	0.40			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
145	A	712329.48	725843.66	6.00	278.00	0.00	0.00	0.40			
146	D	712358.81	725809.84	6.00	86.00	0.00	0.00	0.40			
147	D	712381.39	725808.89	6.00	82.00	0.00	0.00	0.40			
148	D	712370.38	725809.24	6.00	86.00	0.00	0.00	0.40			
149	D	712402.60	725823.53	6.00	172.00	0.00	0.00	0.40			
150	D	712241.56	725787.19	6.00	286.00	0.00	0.00	0.40			
151	D	712252.73	725792.47	6.00	297.00	0.00	0.00	0.40			
152	D	712261.40	725796.31	6.00	298.00	0.00	0.00	0.40			
153	D	712165.71	725769.34	6.00	59.00	0.00	0.00	0.40			
154	D	712160.07	725772.36	6.00	59.00	0.00	0.00	0.40			
155	D	712116.99	725762.44	6.00	323.00	0.00	0.00	0.40			
156	D	712120.37	725769.73	6.00	330.00	0.00	0.00	0.40			

Horizontal Illuminance (lux)

Grid 1



Results

Eav	5.75
Emin	1.12
Emax	37.57
Emin/Emax	0.03
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 2

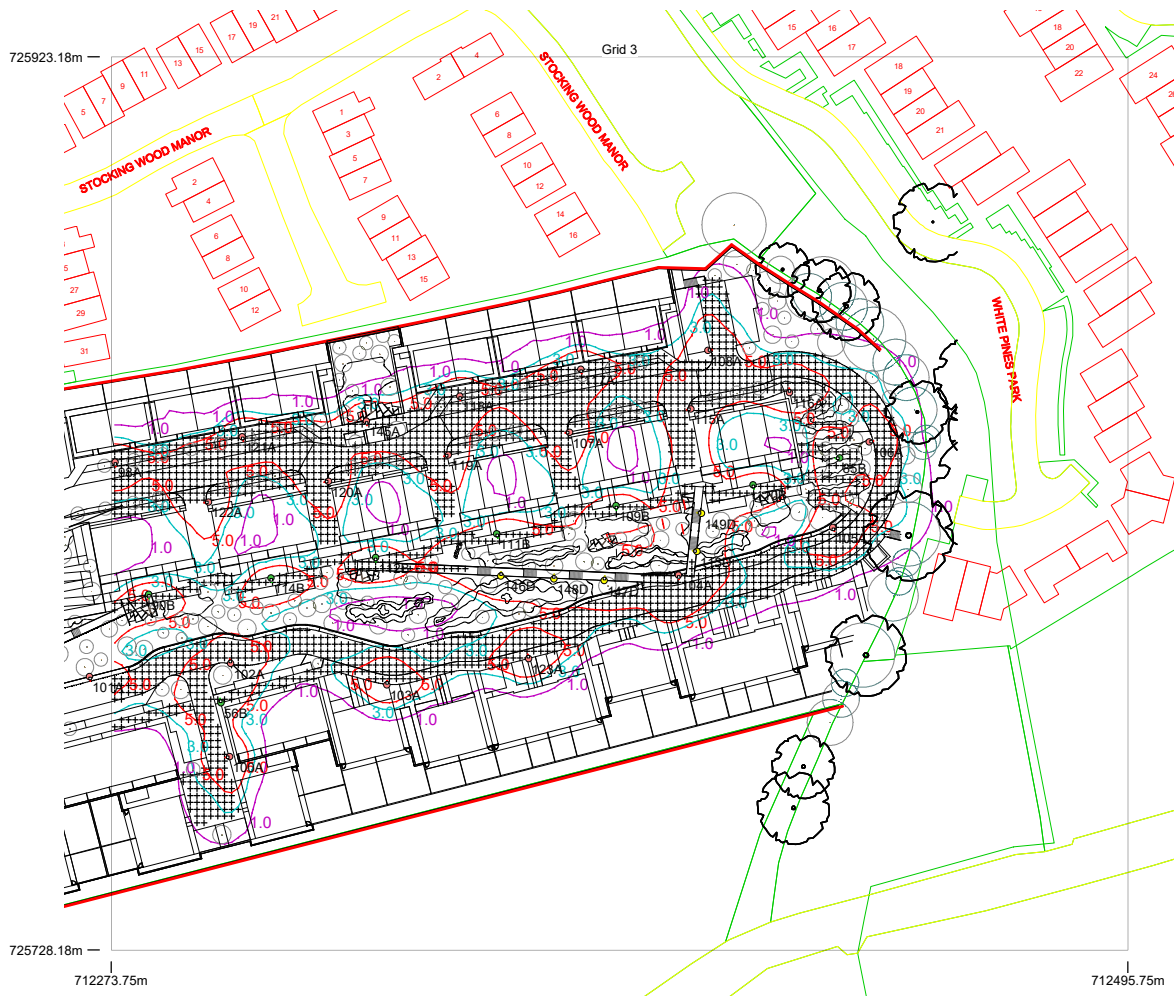


Results

Eav	5.67
Emin	1.11
Emax	42.70
Emin/Emax	0.03
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 3



Results

Eav	6.39
Emin	1.25
Emax	35.82
Emin/Emax	0.03
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 4

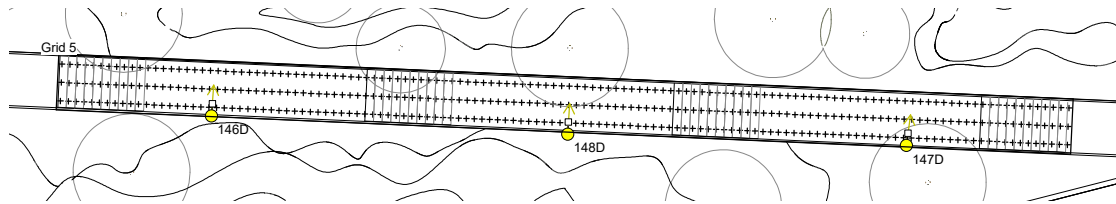


Results

Eav	32.07
Emin	26.49
Emax	38.02
Emin/Emax	0.70
Emin/Eav	0.83

Horizontal Illuminance (lux)

Grid 5

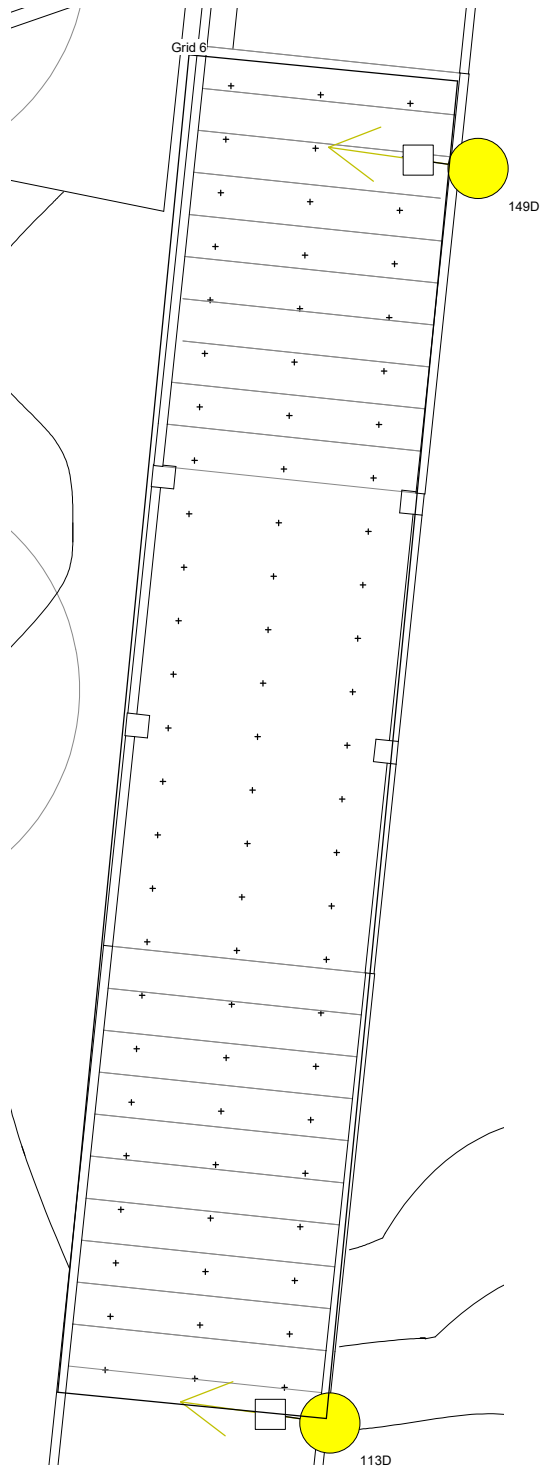


Results

Eav	30.14
Emin	16.56
Emax	40.80
Emin/Emax	0.41
Emin/Eav	0.55

Horizontal Illuminance (lux)

Grid 6

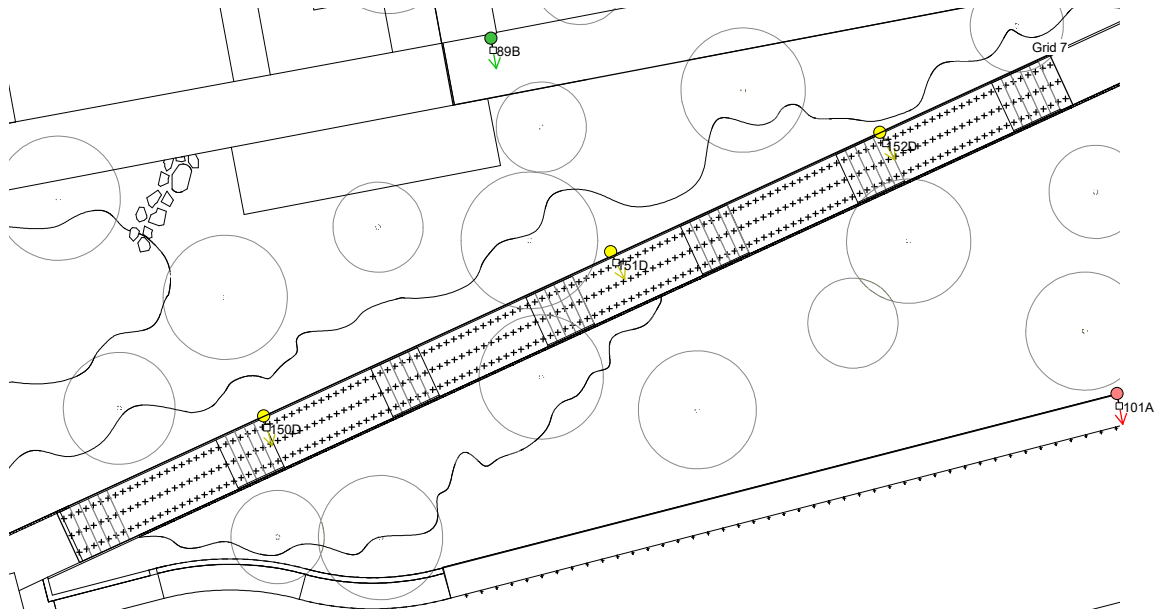


Results

Eav	38.88
Emin	34.23
Emax	43.23
Emin/Emax	0.79
Emin/Eav	0.88

Horizontal Illuminance (lux)

Grid 7

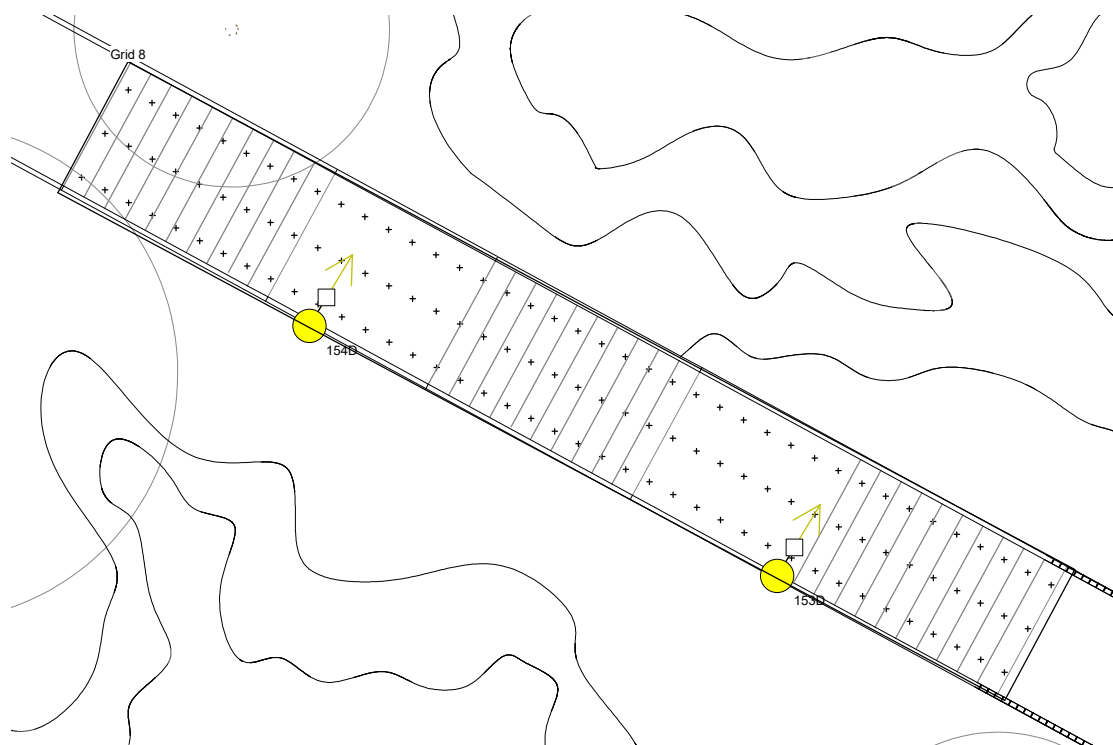


Results

Eav	30.18
Emin	16.09
Emax	41.65
Emin/Emax	0.39
Emin/Eav	0.53

Horizontal Illuminance (lux)

Grid 8

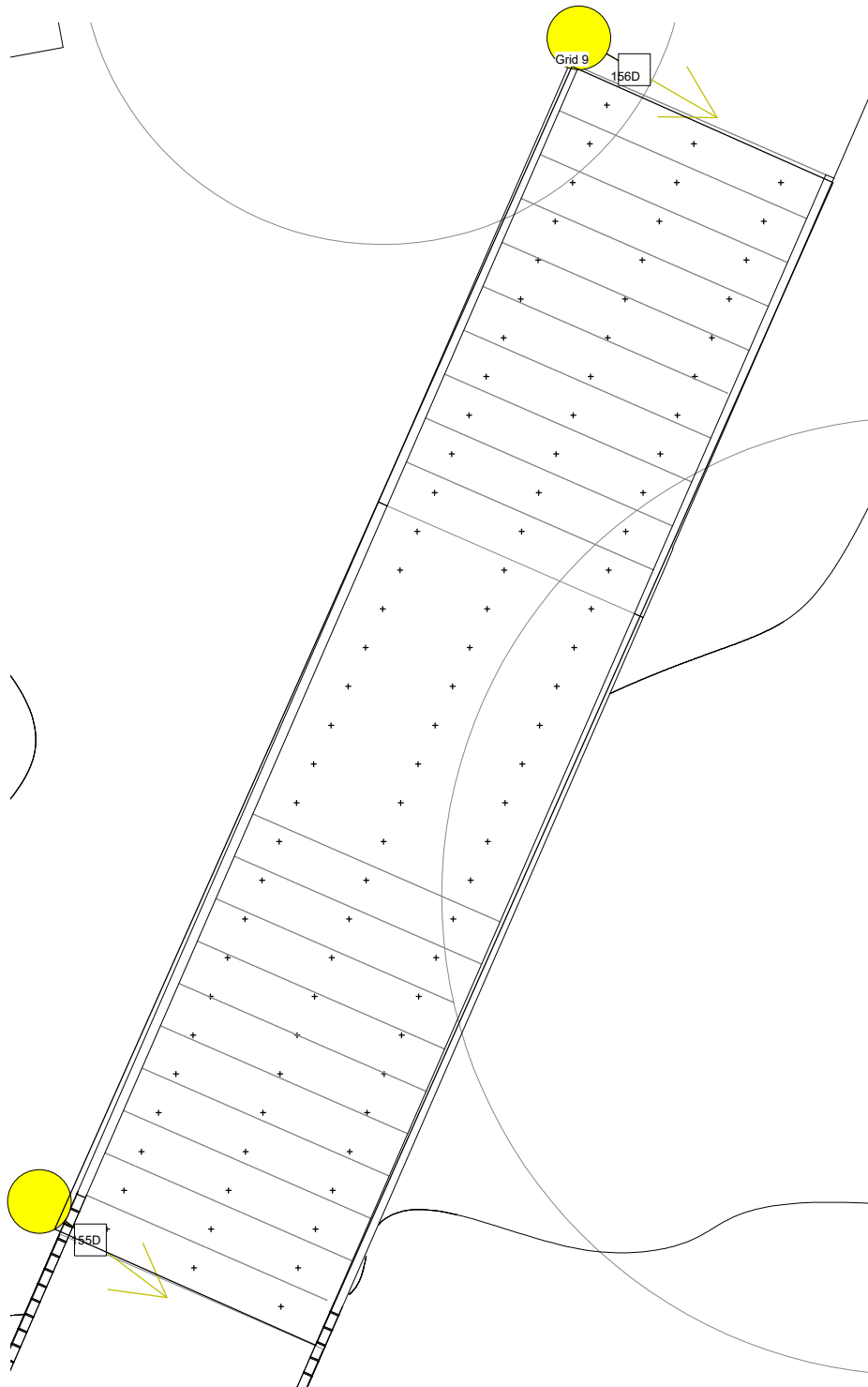


Results

Eav	38.54
Emin	25.27
Emax	45.52
Emin/Emax	0.56
Emin/Eav	0.66

Horizontal Illuminance (lux)

Grid 9



Results

Eav	38.88
Emin	34.16
Emax	45.73
Emin/Emax	0.75
Emin/Eav	0.88