



Clarendon Phase 3a

External Lighting Manufacturers Report

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Clarendon Road Phase 3A



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Clarendon Road Phase 3A

11756_1_bw.dlx

Hess GmbH
Licht + Form
Lantwattenstraße 22
78050 Villingen-Schwenningen

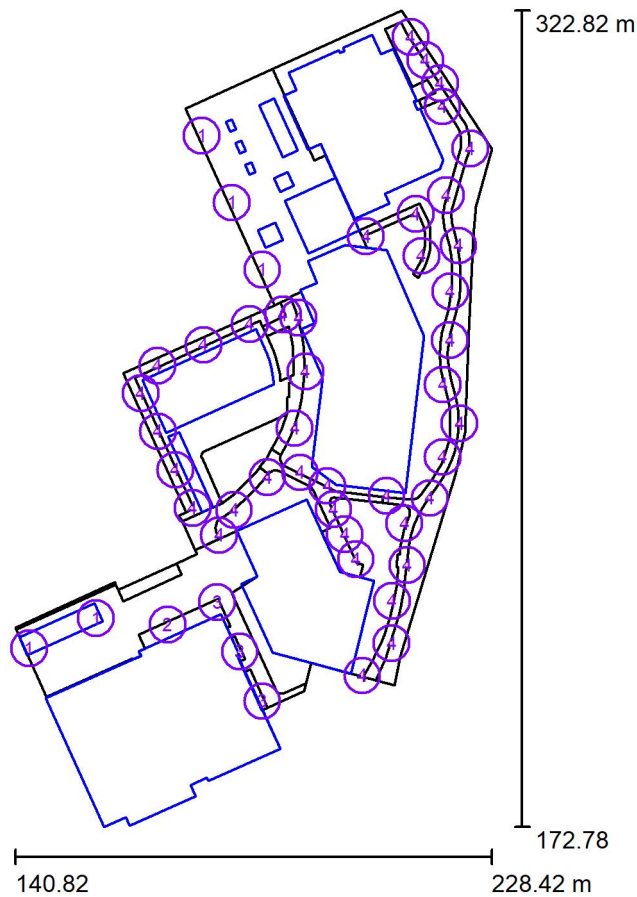


.hess

09.04.2020

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Exterior Scene 1 / Planning data



Maintenance factor: 0.80, ULR (Upward Light Ratio): 0.0%

Scale 1:1391

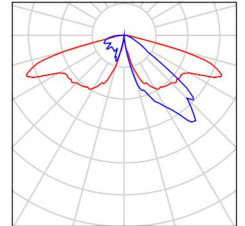
Luminaire Parts List

No.	Pieces	Designation (Correction Factor)	Φ (Luminaire) [lm]	Φ (Lamps) [lm]	P [W]
1	5	HESS 16.02101.1VXXX TOP ELEMENT 200-2 AR HP 3000K (Type 1)* (1.000)	4734	4734	50.0
2	1	HESS 16.02201.1VXXX TOP ELEMENT 200-2 AA HP 3000K (Type 1)* (1.000)	4269	4269	50.0
3	3	HESS 16.02201.1VXXX TOP ELEMENT 200-2 AA HP 3000K (1.000)	3161	3161	35.0
4	41	HESS 16.1036X.0VXXX LICHTPOLLER CITY ELEMENTS 180 P-AA 3000K (Type 1)* (1.000)	838	838	12.0
*Modified Technical Specifications			Total: 71790	Total: 71790	897.0

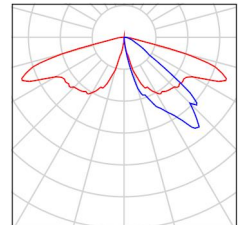


Exterior Scene 1 / Luminaire parts list

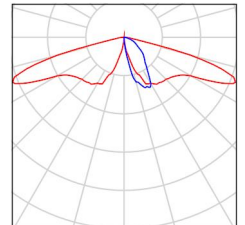
5 Pieces HESS 16.02101.1VXXX TOP ELEMENT 200-2
AR HP 3000K (Type 1)
Article No.: 16.02101.1VXXX
Luminous flux (Luminaire): 4734 lm
Luminous flux (Lamps): 4734 lm
Luminaire Wattage: 50.0 W
Luminaire classification according to CIE: 100
CIE flux code: 28 64 93 100 101
Fitting: 1 x CE 200-2 AR HP 500mA 50W 3000K
O3 (Correction Factor 1.000).



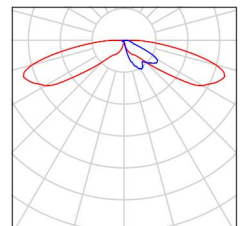
1 Pieces HESS 16.02201.1VXXX TOP ELEMENT 200-2
AA HP 3000K (Type 1)
Article No.: 16.02201.1VXXX
Luminous flux (Luminaire): 4269 lm
Luminous flux (Lamps): 4269 lm
Luminaire Wattage: 50.0 W
Luminaire classification according to CIE: 100
CIE flux code: 27 64 94 100 100
Fitting: 1 x CE 200-2 AA HP 500mA 50W 3000K
O3 (Correction Factor 1.000).



3 Pieces HESS 16.02201.1VXXX TOP ELEMENT 200-2
AA HP 3000K
Article No.: 16.02201.1VXXX
Luminous flux (Luminaire): 3161 lm
Luminous flux (Lamps): 3161 lm
Luminaire Wattage: 35.0 W
Luminaire classification according to CIE: 100
CIE flux code: 34 67 94 100 101
Fitting: 1 x CE 200-2 AA HP 350mA 35W 3000K
O1 (Correction Factor 1.000).

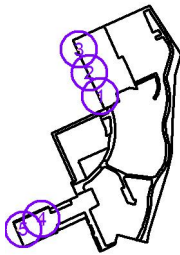


41 Pieces HESS 16.1036X.0VXXX LICHTPOLLER CITY
ELEMENTS 180 P-AA 3000K (Type 1)
Article No.: 16.1036X.0VXXX
Luminous flux (Luminaire): 838 lm
Luminous flux (Lamps): 838 lm
Luminaire Wattage: 12.0 W
Luminaire classification according to CIE: 100
CIE flux code: 12 40 82 100 100
Fitting: 1 x CE 180 AA LP 175mA 12W 3000K O4
(Correction Factor 1.000).



Exterior Scene 1 / Luminaires (coordinates list)**HESS 16.02101.1VXXX TOP ELEMENT 200-2 AR HP 3000K (Type 1)**

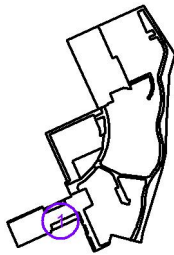
4734 lm, 50.0 W, 1 x 1 x CE 200-2 AR HP 500mA 50W 3000K O3 (Correction Factor 1.000).



No.	Position [m]			Rotation [°]		
	X	Y	Z	X	Y	Z
1	186.221	275.162	6.000	0.0	0.0	-67.4
2	180.656	287.479	6.000	0.0	0.0	-67.4
3	175.101	299.770	6.000	0.0	0.0	-67.4
4	155.675	211.092	6.000	0.0	0.0	-155.8
5	143.373	205.526	6.000	0.0	0.0	-155.8

**Exterior Scene 1 / Luminaires (coordinates list)****HESS 16.02201.1VXXX TOP ELEMENT 200-2 AA HP 3000K (Type 1)**

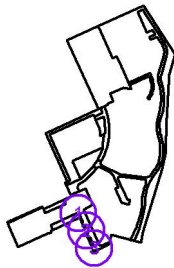
4269 lm, 50.0 W, 1 x 1 x CE 200-2 AA HP 500mA 50W 3000K O3 (Correction Factor 1.000).



No.	Position [m]			Rotation [°]		
	X	Y	Z	X	Y	Z
1	168.847	209.928	6.000	0.0	0.0	24.3

**Exterior Scene 1 / Luminaires (coordinates list)****HESS 16.02201.1VXXX TOP ELEMENT 200-2 AA HP 3000K**

3161 lm, 35.0 W, 1 x 1 x CE 200-2 AA HP 350mA 35W 3000K O1 (Correction Factor 1.000).

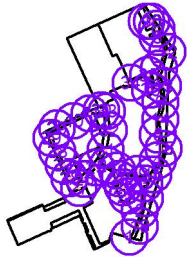


No.	Position [m]			Rotation [°]		
	X	Y	Z	X	Y	Z
1	177.957	214.053	6.000	0.0	0.0	-64.3
2	182.091	204.944	6.000	0.0	0.0	-64.3
3	186.225	195.834	6.000	0.0	0.0	-64.3

Exterior Scene 1 / Luminaires (coordinates list)

HESS 16.1036X.0VXXX LICHTPOLLER CITY ELEMENTS 180 P-AA 3000K (Type 1)

838 lm, 12.0 W, 1 x 1 x CE 180 AA LP 175mA 12W 3000K O4 (Correction Factor 1.000).

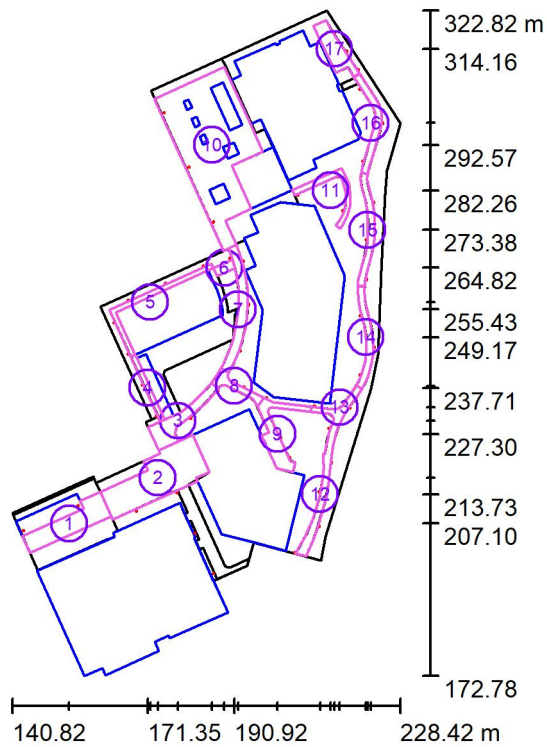


No.	Position [m]			Rotation [°]		
	X	Y	Z	X	Y	Z
1	204.626	200.557	0.000	0.0	0.0	-123.0
2	210.067	214.294	0.000	0.0	0.0	-105.3
3	212.345	228.559	0.000	0.0	0.0	-112.1
4	219.350	240.684	0.000	0.0	0.0	-114.7
5	219.409	254.021	0.000	0.0	0.0	-76.8
6	220.752	271.126	0.000	0.0	0.0	-99.3
7	219.977	288.822	0.000	0.0	0.0	-101.5
8	219.327	305.143	0.000	0.0	0.0	-59.6
9	213.478	317.872	0.000	0.0	0.0	120.4
10	216.194	313.674	0.000	0.0	0.0	122.2
11	218.899	309.463	0.000	0.0	0.0	122.2
12	224.424	297.397	0.000	0.0	0.0	85.6
13	222.280	279.563	0.000	0.0	0.0	102.7
14	220.700	262.177	0.000	0.0	0.0	76.9
15	222.485	246.866	0.000	0.0	0.0	91.7
16	216.998	233.197	0.000	0.0	0.0	51.7
17	212.869	220.905	0.000	0.0	0.0	83.1
18	209.968	206.501	0.000	0.0	0.0	69.6
19	209.073	233.582	0.000	0.0	0.0	173.6
20	198.179	235.410	0.000	0.0	0.0	152.4
21	193.157	237.906	0.000	0.0	0.0	152.0
22	199.301	231.103	0.000	0.0	0.0	114.5
23	201.368	226.527	0.000	0.0	0.0	114.5
24	203.435	221.951	0.000	0.0	0.0	114.5
25	187.168	236.960	0.000	0.0	0.0	47.9
26	181.068	230.954	0.000	0.0	0.0	41.6
27	178.294	226.323	0.000	0.0	0.0	110.4
28	173.413	231.334	0.000	0.0	0.0	-65.2

**Exterior Scene 1 / Luminaires (coordinates list)**

No.	Position [m]			Rotation [°]		
	X	Y	Z	X	Y	Z
29	166.954	257.466	0.000	0.0	0.0	-156.4
30	190.017	266.937	0.000	0.0	0.0	-156.4
31	192.201	246.005	0.000	0.0	0.0	70.0
32	194.151	256.440	0.000	0.0	0.0	87.5
33	192.917	266.338	0.000	0.0	0.0	105.9
34	205.268	281.277	0.000	0.0	0.0	24.5
35	214.400	285.371	0.000	0.0	0.0	24.5
36	215.469	277.689	0.000	0.0	0.0	-116.6
37	170.236	238.366	0.000	0.0	0.0	-65.2
38	167.059	245.398	0.000	0.0	0.0	-65.2
39	163.882	252.430	0.000	0.0	0.0	-65.2
40	175.430	261.300	0.000	0.0	0.0	-156.4
41	183.906	265.134	0.000	0.0	0.0	-156.4

Exterior Scene 1 / Calculation surfaces (results overview)



Scale 1 : 1708

Calculation Surface List

No.	Designation	Type	Grid	E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u_0	E_{min} / E_{max}
1	Calculation Surface 1	perpendicular	20 x 6	26	13	33	0.513	0.411
2	Calculation Surface 2	perpendicular	24 x 10	19	4.68	47	0.246	0.100
3	Calculation Surface 3	perpendicular	21 x 7	20	3.12	60	0.157	0.052
4	Calculation Surface 4	perpendicular	54 x 4	34	15	64	0.445	0.236
5	Calculation Surface 5	perpendicular	25 x 12	35	11	55	0.301	0.191
6	Calculation Surface 6	perpendicular	4 x 9	23	4.62	73	0.201	0.063
7	Calculation Surface 7	perpendicular	41 x 7	22	2.07	85	0.094	0.024
8	Calculation Surface 8	perpendicular	4 x 12	26	3.47	48	0.133	0.072
9	Calculation Surface 9	perpendicular	12 x 15	25	2.28	70	0.093	0.033

Exterior Scene 1 / Calculation surfaces (results overview)

Calculation Surface List

No.	Designation	Type	Grid	E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
10	Calculation Surface 10	perpendicular	38 x 17	14	0.43	30	0.031	0.014
11	Calculation Surface 11	perpendicular	12 x 12	22	3.90	52	0.174	0.075
12	Calculation Surface 12	perpendicular	61 x 7	27	4.01	65	0.150	0.061
13	Calculation Surface 13	perpendicular	11 x 7	28	8.41	65	0.297	0.129
14	Calculation Surface 14	perpendicular	38 x 6	27	7.23	64	0.271	0.113
15	Calculation Surface 15	perpendicular	37 x 5	24	6.84	64	0.286	0.108
16	Calculation Surface 16	perpendicular	23 x 6	24	4.11	64	0.173	0.064
17	Calculation Surface 17	perpendicular	18 x 6	21	1.21	69	0.059	0.018

Summary of Results

Type	Quantity	Average [lx]	Min [lx]	Max [lx]	u0	E_{min} / E_{max}
perpendicular	17	20	0.43	85	0.02	0.01

Clarendon Road Phase 3A

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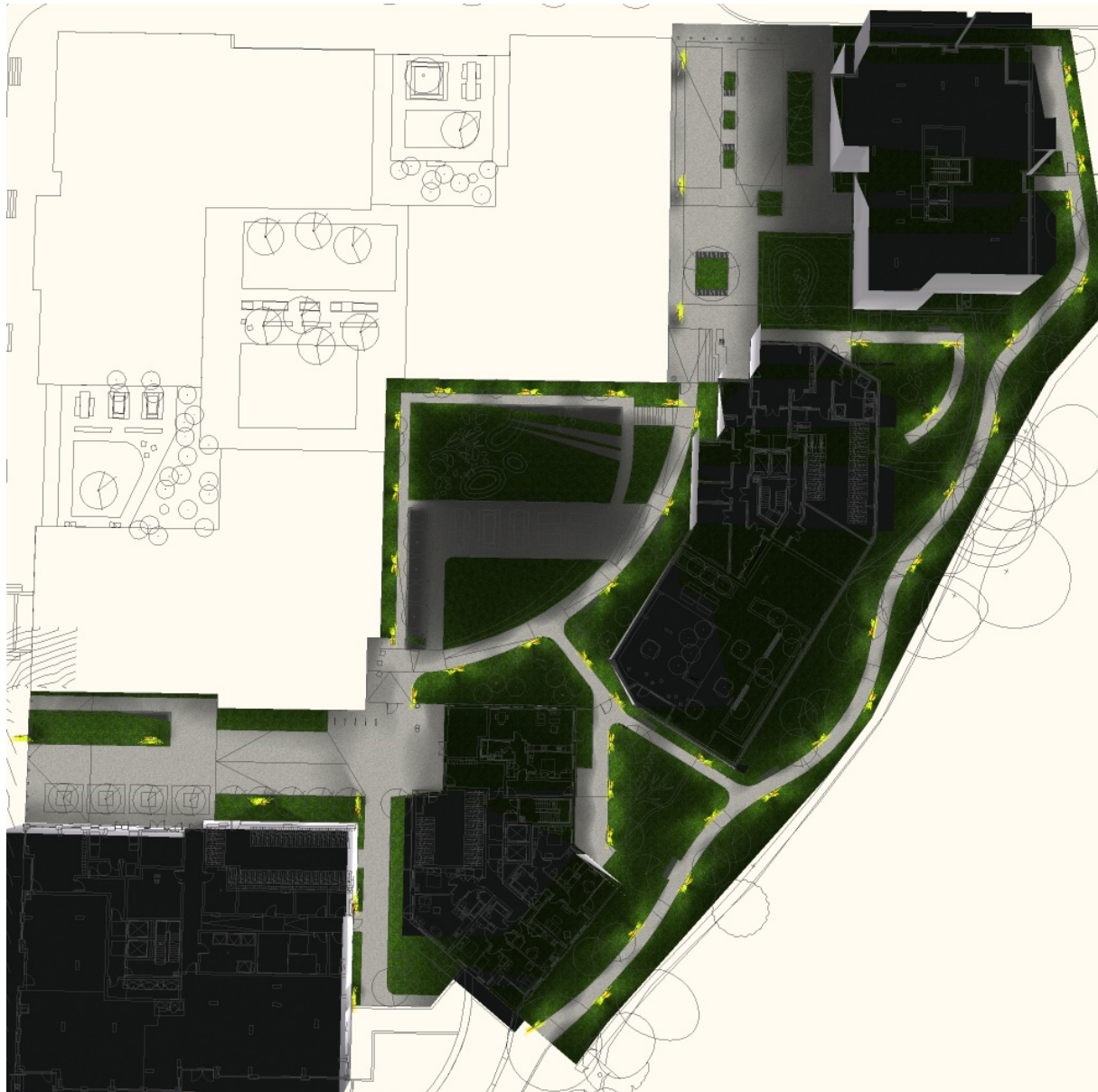
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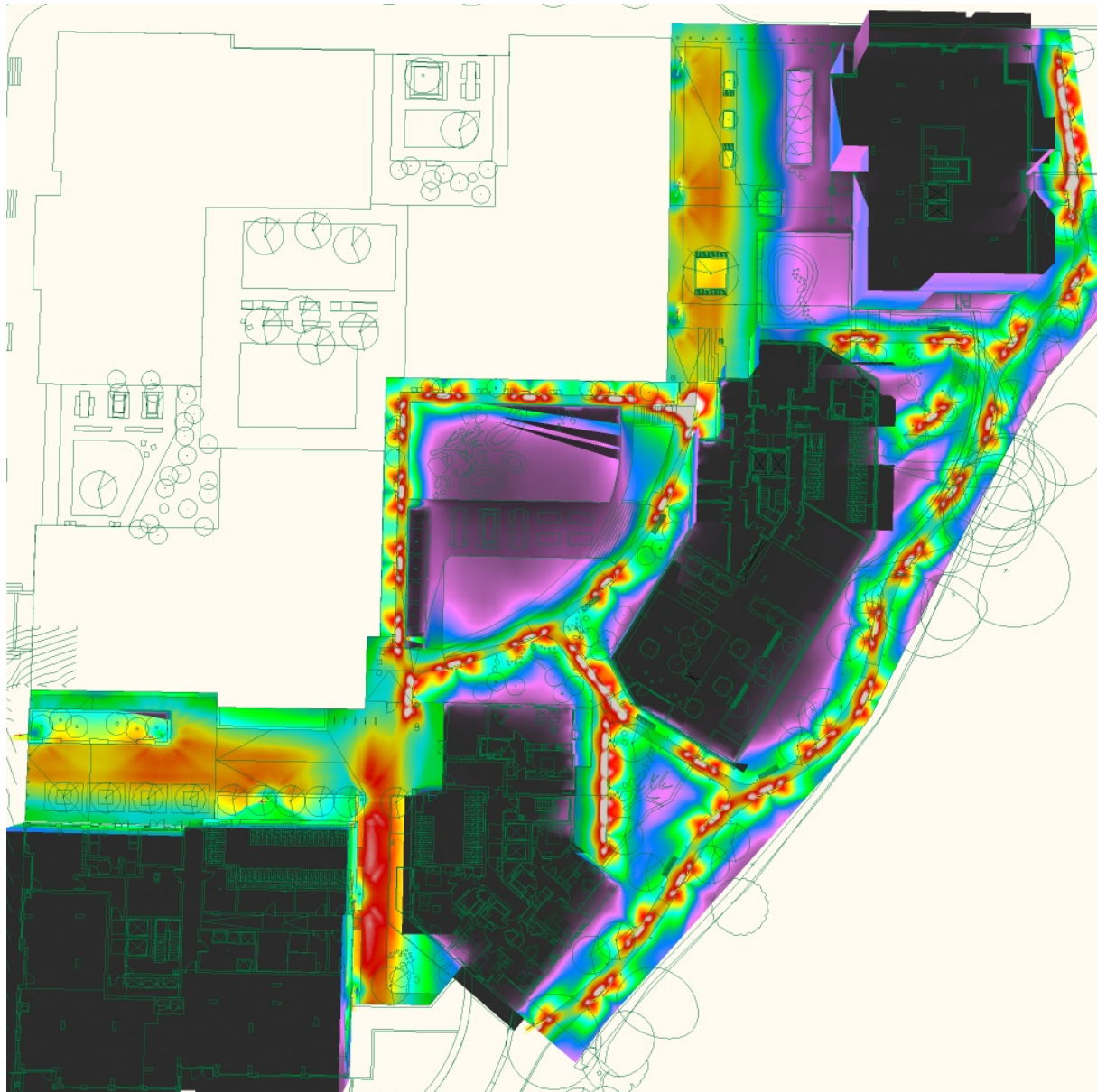
09.04.2020

Exterior Scene 1 / 3D Rendering



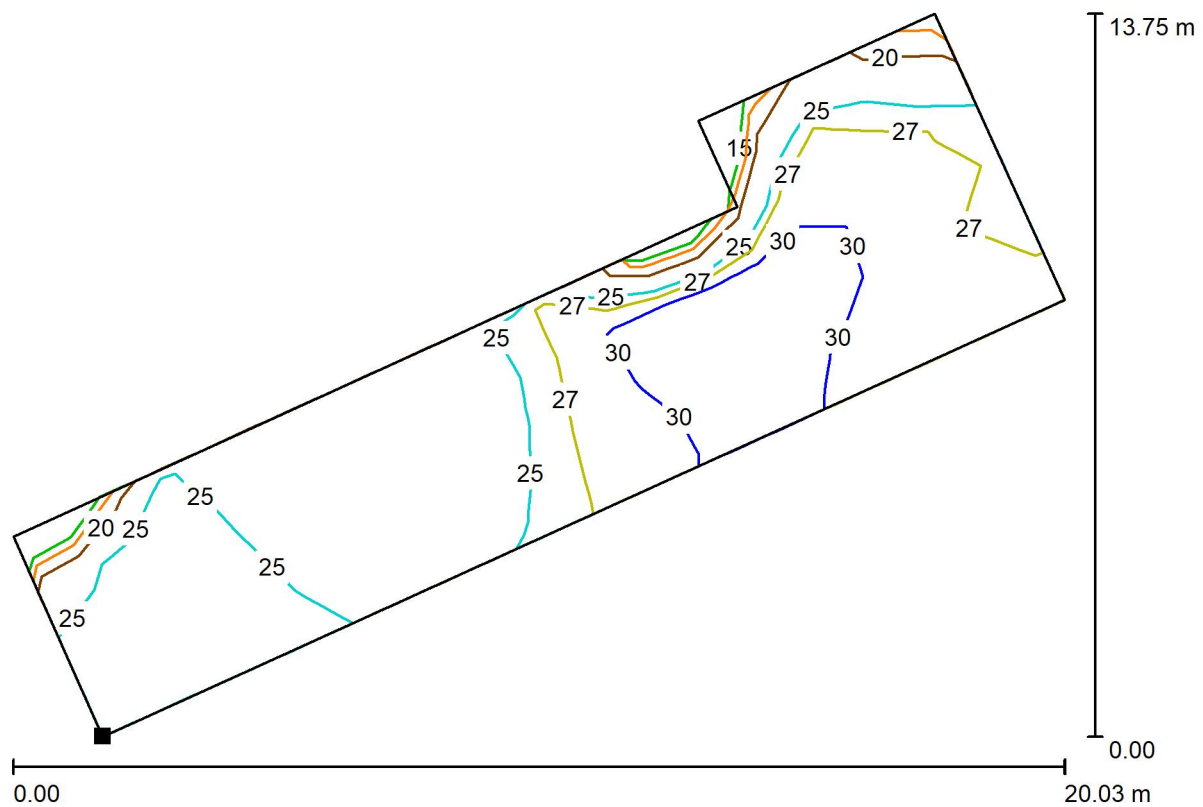


Exterior Scene 1 / False Colour Rendering



0 1 2 5 10 20 30 40 50 lx

Exterior Scene 1 / Calculation Surface 1 / Isolines (E, Perpendicular)

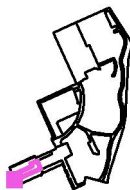


Values in Lux, Scale 1 : 144

Position of surface in external scene:

Marked point:

(144.811 m, 200.481 m, 0.000 m)



Grid: 20 x 6 Points

E_{av} [lx]
26

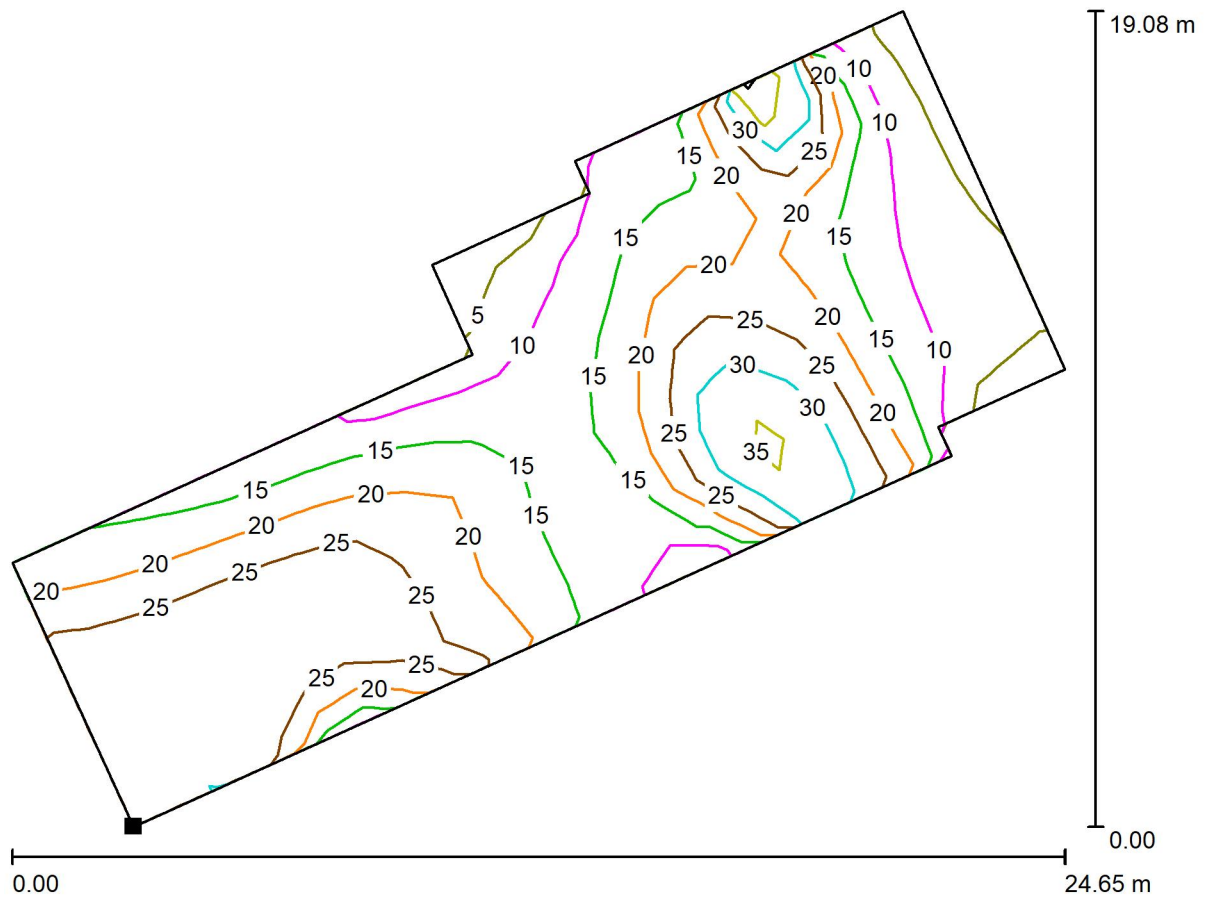
E_{min} [lx]
13

E_{max} [lx]
33

u_0
0.513

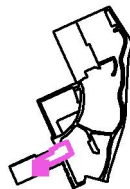
E_{min} / E_{max}
0.411

Exterior Scene 1 / Calculation Surface 2 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 177

Position of surface in external scene:
Marked point:
(163.497 m, 208.053 m, 0.000 m)



Grid: 24 x 10 Points

E_{av} [lx]
19

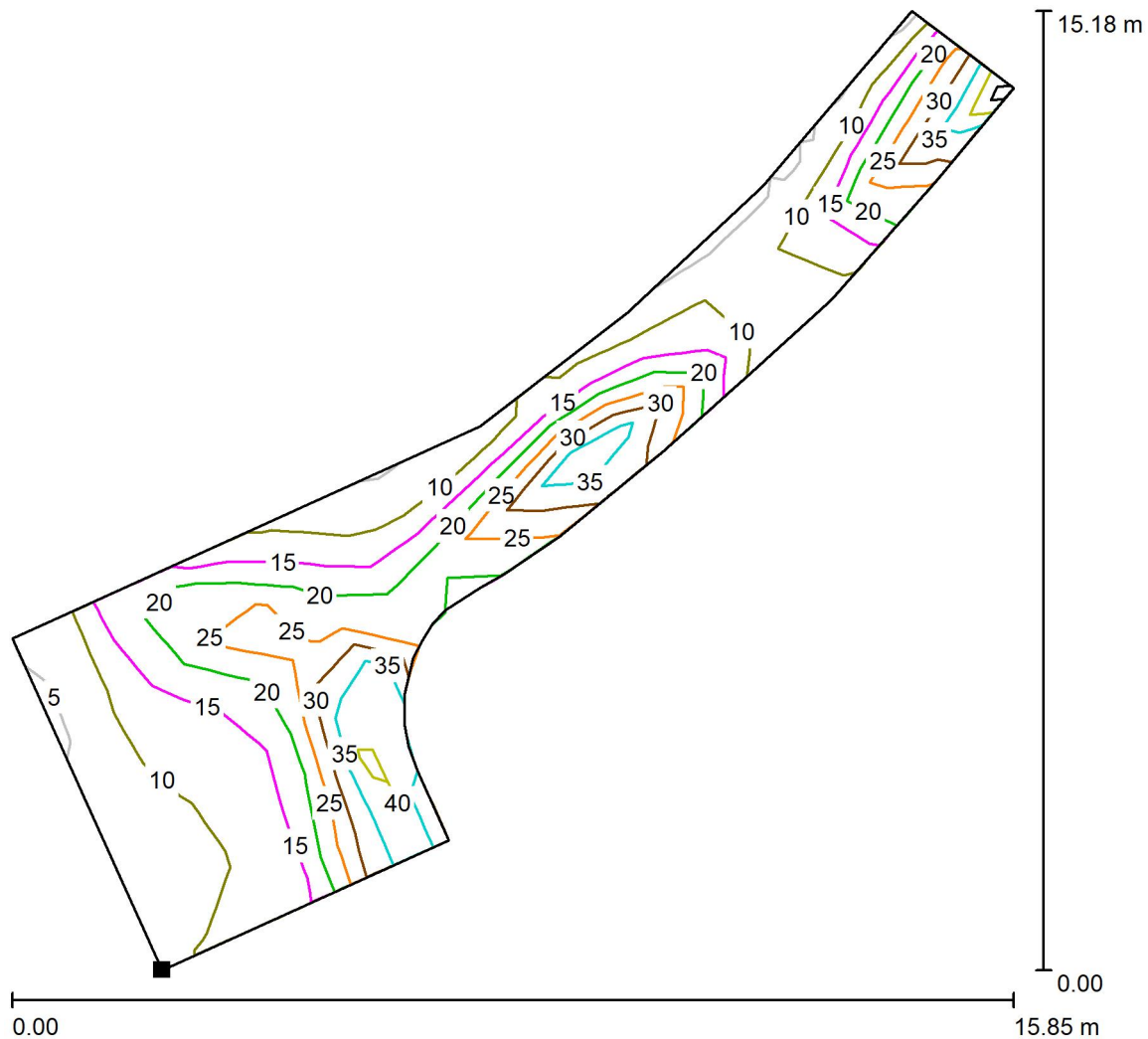
E_{min} [lx]
4.68

E_{max} [lx]
47

u_0
0.246

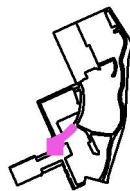
E_{min} / E_{max}
0.100

Exterior Scene 1 / Calculation Surface 3 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 119

Position of surface in external scene:
Marked point:
(173.825 m, 223.647 m, 0.000 m)



Grid: 21 x 7 Points

E_{av} [lx]
20

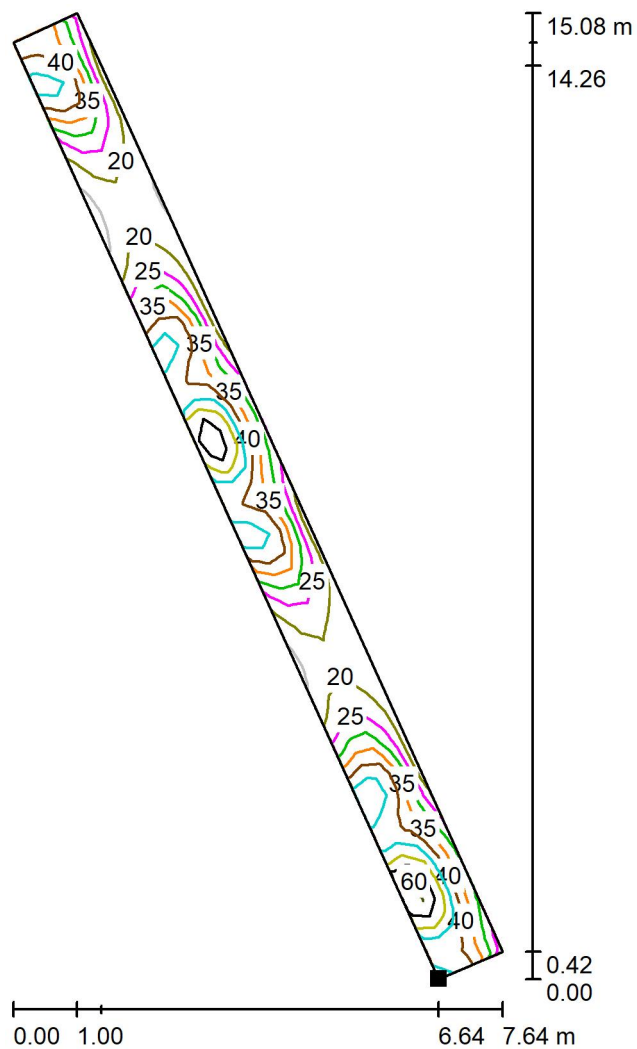
E_{min} [lx]
3.12

E_{max} [lx]
60

u_0
0.157

E_{min} / E_{max}
0.052

Exterior Scene 1 / Calculation Surface 4 / Isolines (E, Perpendicular)

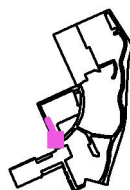


Values in Lux, Scale 1 : 118

Position of surface in external scene:

Marked point:

(174.179 m, 230.157 m, 0.000 m)



Grid: 54 x 4 Points

E_{av} [lx]
34

E_{min} [lx]
15

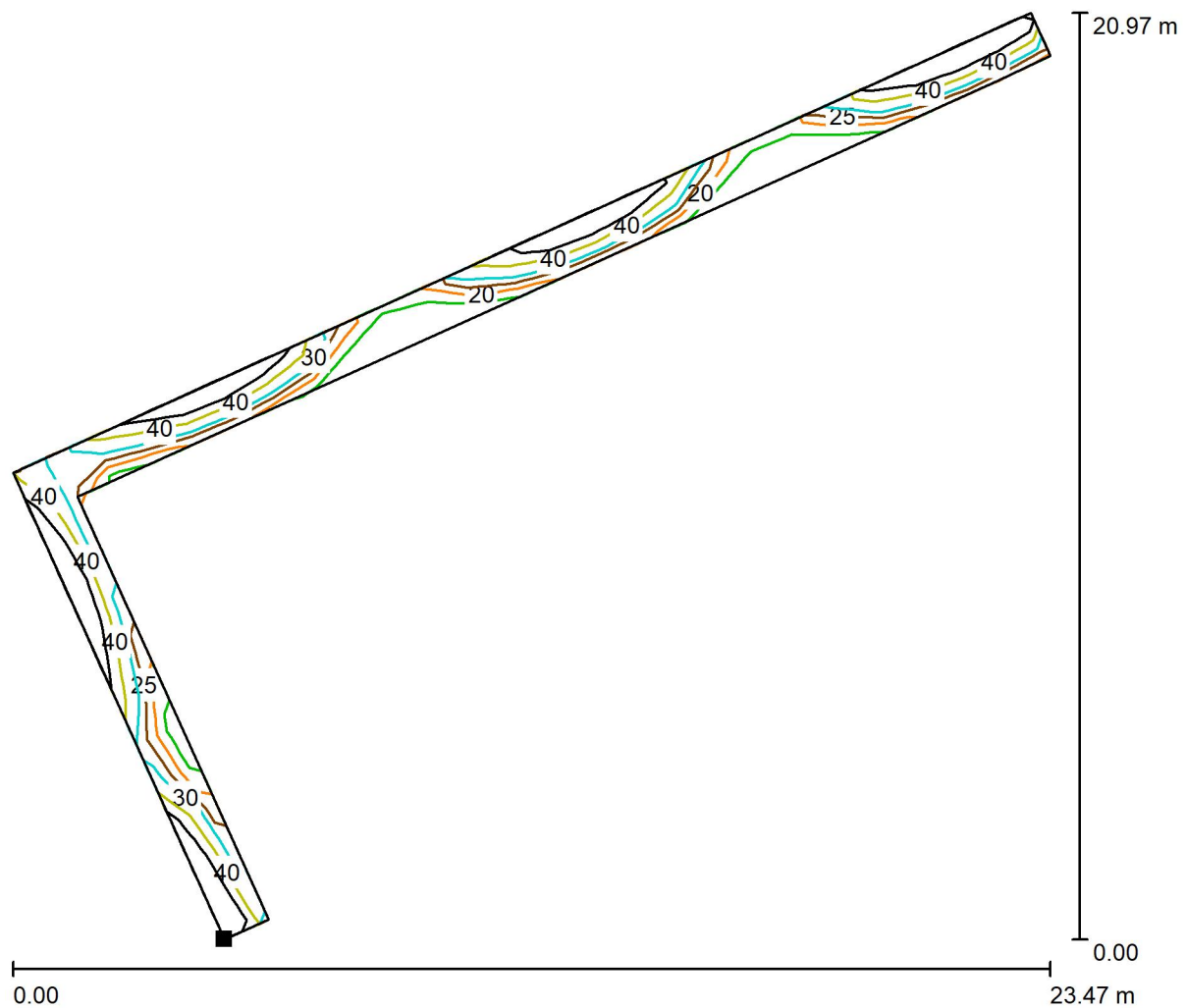
E_{max} [lx]
64

u_0
0.445

E_{min} / E_{max}
0.236

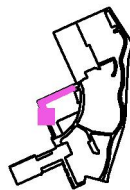


Exterior Scene 1 / Calculation Surface 5 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 168

Position of surface in external scene:
Marked point:
(167.537 m, 244.788 m, 0.000 m)



Grid: 25 x 12 Points

E_{av} [lx]
35

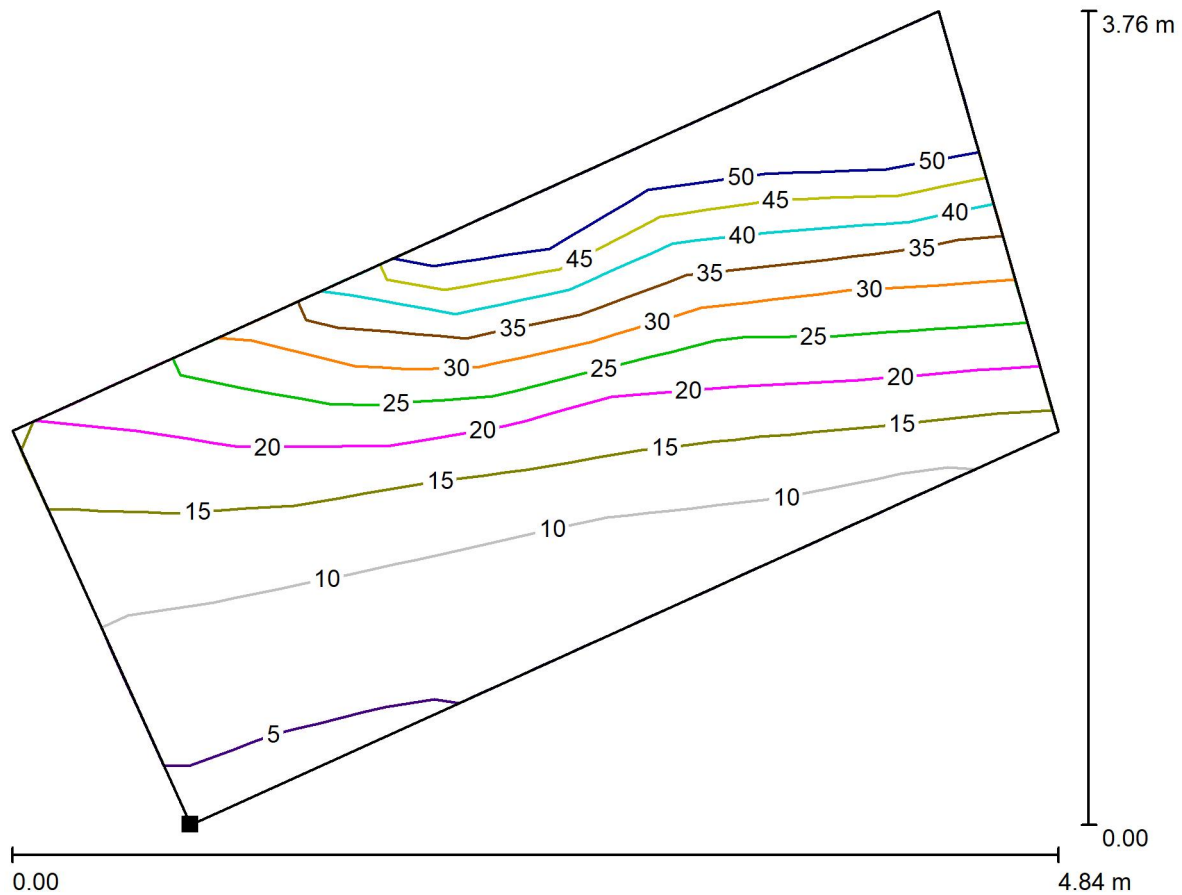
E_{min} [lx]
11

E_{max} [lx]
55

u_0
0.301

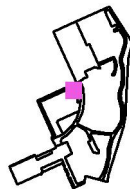
E_{min} / E_{max}
0.191

Exterior Scene 1 / Calculation Surface 6 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 35

Position of surface in external scene:
Marked point:
(187.047 m, 262.962 m, 0.000 m)



Grid: 4 x 9 Points

E_{av} [lx]
23

E_{min} [lx]
4.62

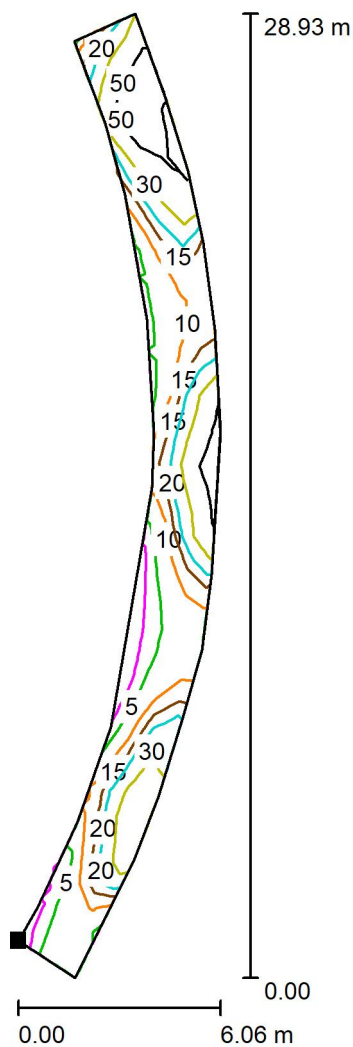
E_{max} [lx]
73

u_0
0.201

E_{min} / E_{max}
0.063



Exterior Scene 1 / Calculation Surface 7 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 227

Position of surface in external scene:

Marked point:

(187.912 m, 242.206 m, 0.000 m)



Grid: 41 x 7 Points

E_{av} [lx]
22

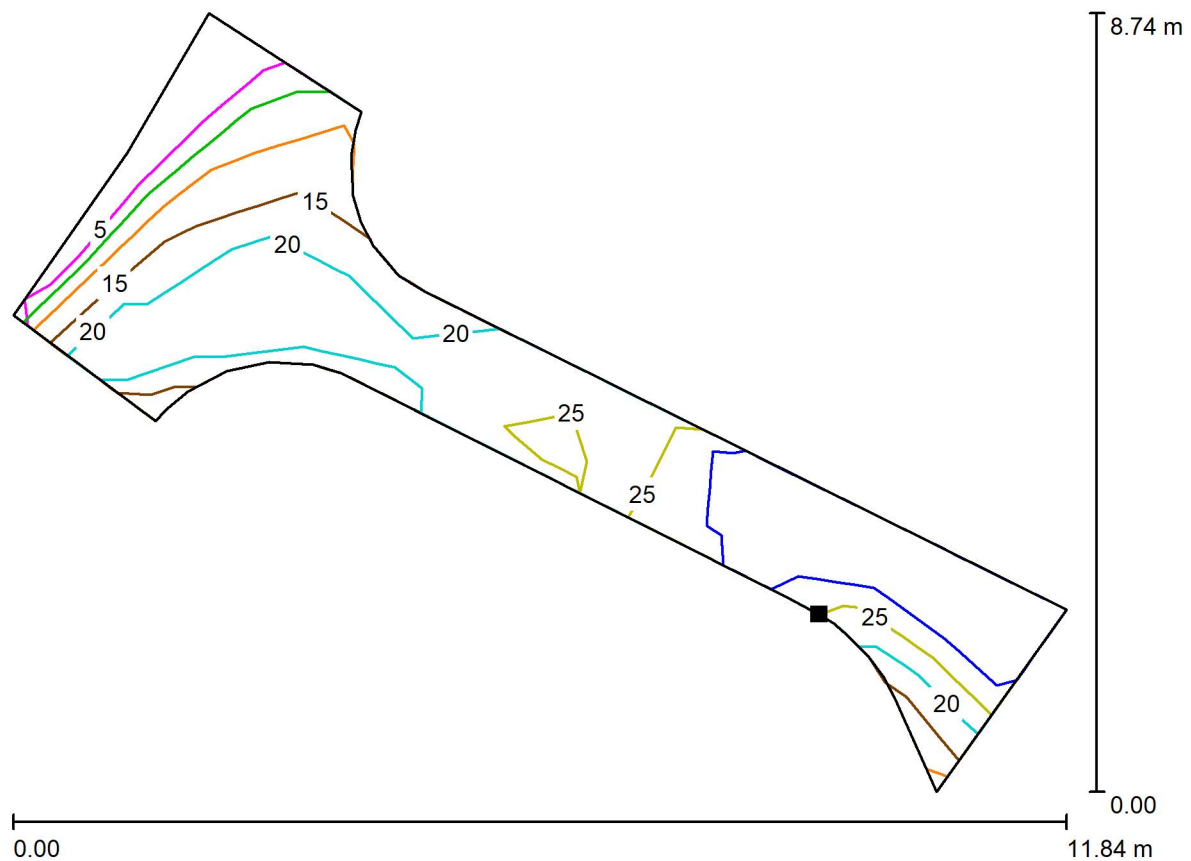
E_{min} [lx]
2.07

E_{max} [lx]
85

u_0
0.094

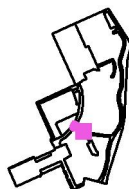
E_{min} / E_{max}
0.024

Exterior Scene 1 / Calculation Surface 8 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 85

Position of surface in external scene:
Marked point:
(194.768 m, 235.458 m, 0.000 m)



Grid: 4 x 12 Points

E_{av} [lx]
26

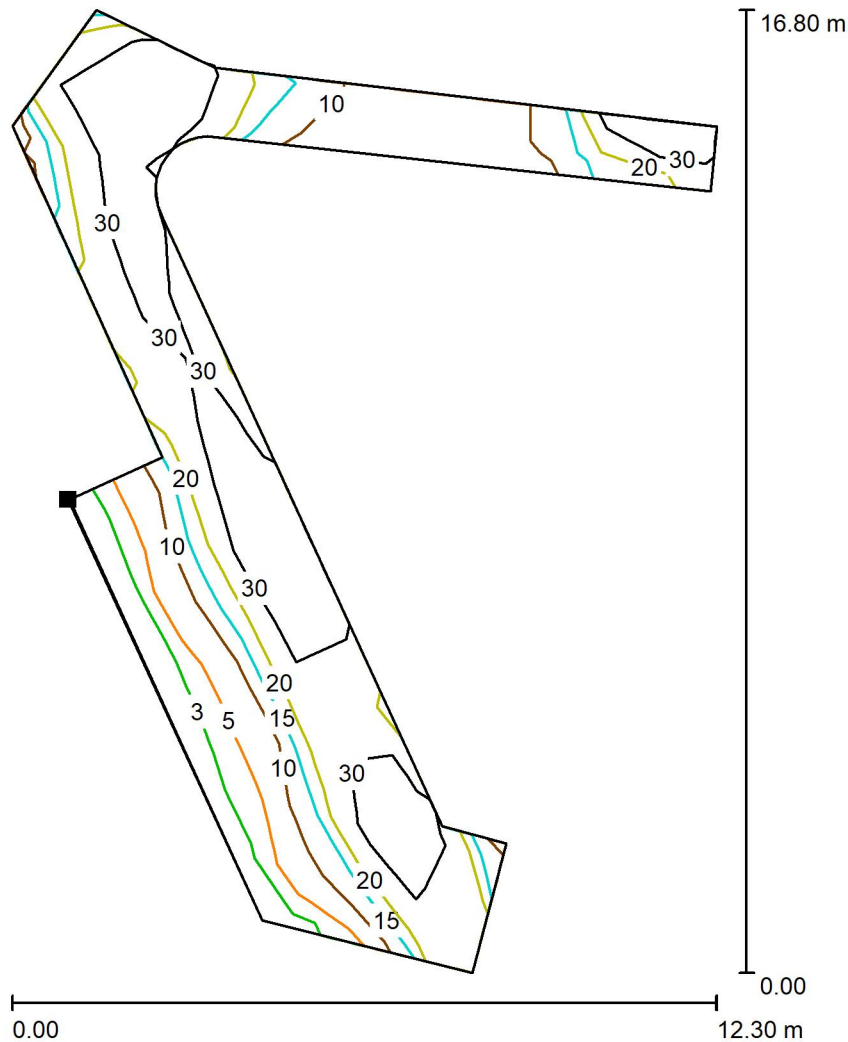
E_{min} [lx]
3.47

E_{max} [lx]
48

u_0
0.133

E_{min} / E_{max}
0.072

Exterior Scene 1 / Calculation Surface 9 / Isolines (E, Perpendicular)

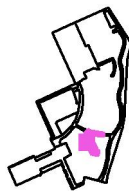


Values in Lux, Scale 1 : 132

Position of surface in external scene:

Marked point:

(197.068 m, 226.947 m, 0.000 m)



Grid: 12 x 15 Points

E_{av} [lx]
25

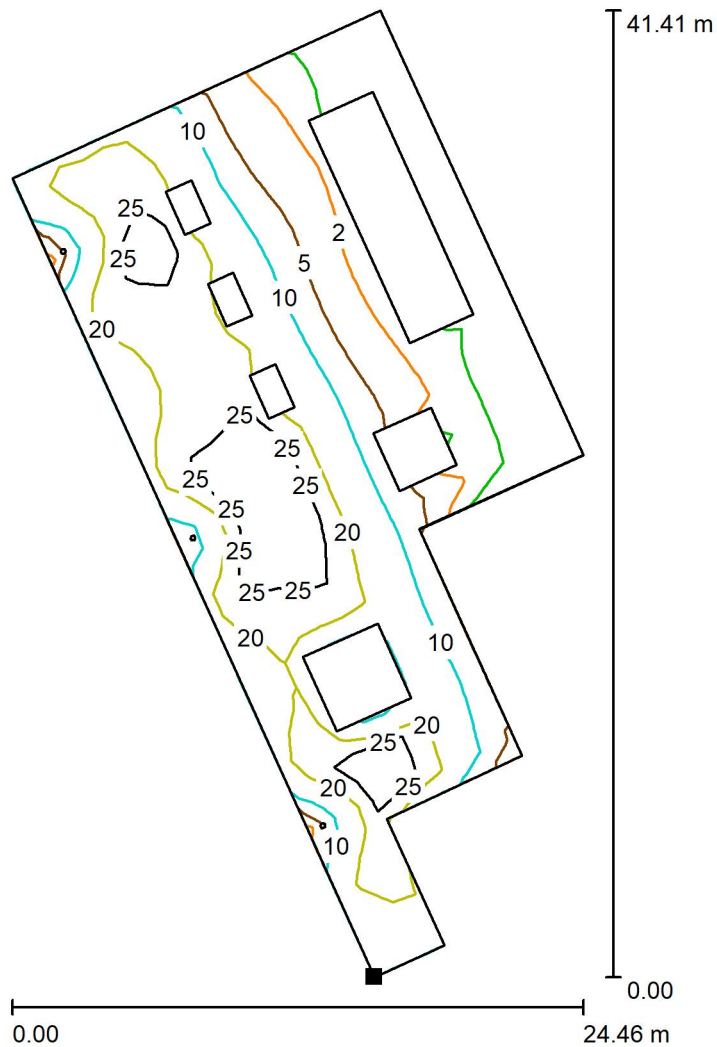
E_{min} [lx]
2.28

E_{max} [lx]
70

u_0
0.093

E_{min} / E_{max}
0.033

Exterior Scene 1 / Calculation Surface 10 / Isolines (E, Perpendicular)

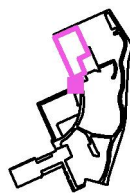


Values in Lux, Scale 1 : 324

Position of surface in external scene:

Marked point:

(188.427 m, 268.667 m, 0.000 m)



Grid: 38 x 17 Points

E_{av} [lx]
14

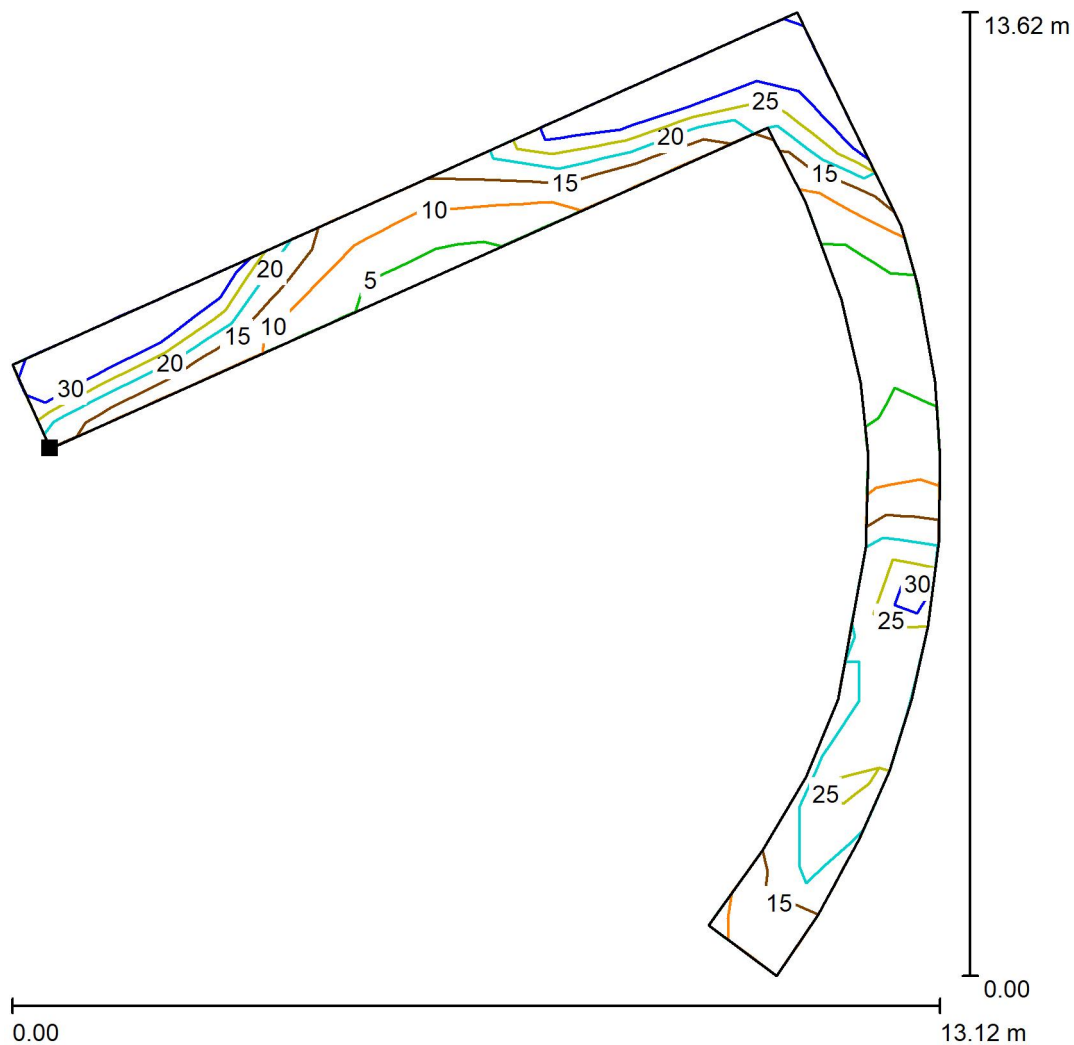
E_{min} [lx]
0.43

E_{max} [lx]
30

u_0
0.031

E_{min} / E_{max}
0.014

Exterior Scene 1 / Calculation Surface 11 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 107

Position of surface in external scene:

Marked point:

(204.555 m, 281.179 m, 0.000 m)



Grid: 12 x 12 Points

E_{av} [lx]
22

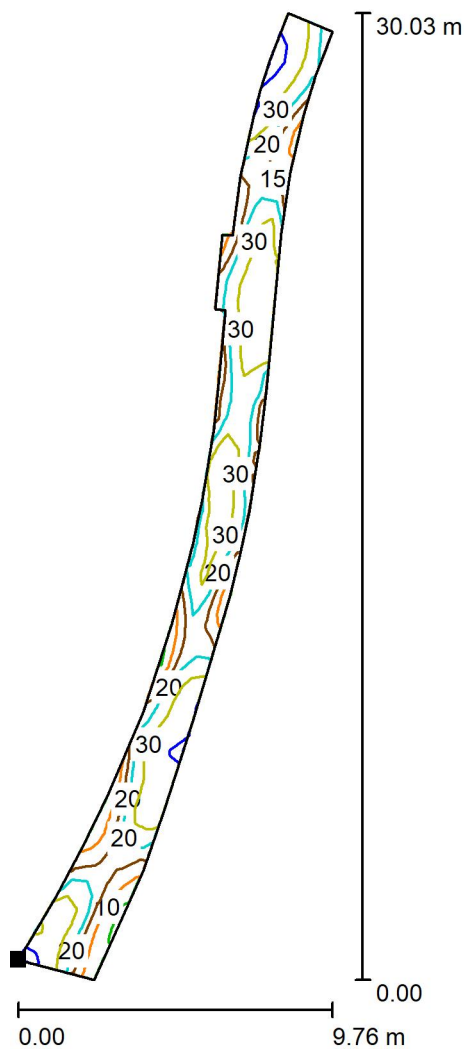
E_{min} [lx]
3.90

E_{max} [lx]
52

u_0
0.174

E_{min} / E_{max}
0.075

Exterior Scene 1 / Calculation Surface 12 / Isolines (E, Perpendicular)

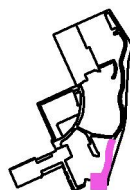


Values in Lux, Scale 1 : 235

Position of surface in external scene:

Marked point:

(204.727 m, 200.333 m, 0.000 m)



Grid: 61 x 7 Points

E_{av} [lx]
27

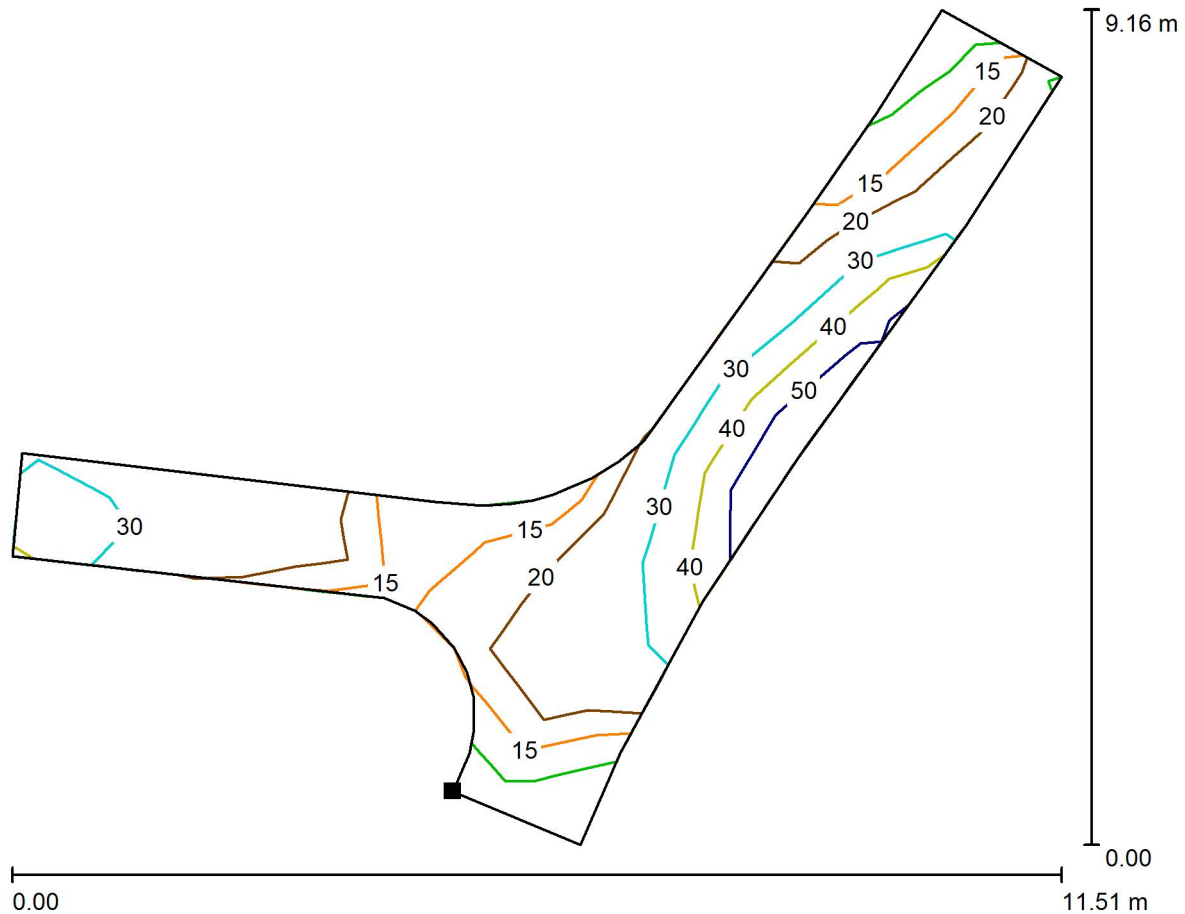
E_{min} [lx]
4.01

E_{max} [lx]
65

u_0
0.150

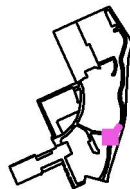
E_{min} / E_{max}
0.061

Exterior Scene 1 / Calculation Surface 13 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 83

Position of surface in external scene:
Marked point:
(213.110 m, 229.746 m, 0.000 m)



Grid: 11 x 7 Points

E_{av} [lx]
28

E_{min} [lx]
8.41

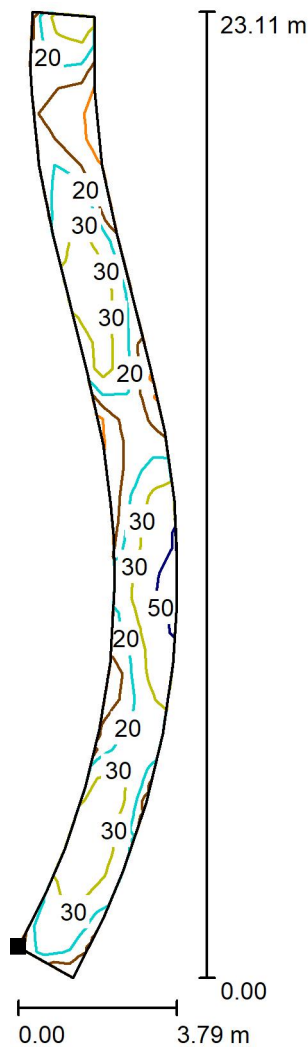
E_{max} [lx]
65

u_0
0.297

E_{min} / E_{max}
0.129



Exterior Scene 1 / Calculation Surface 14 / Isolines (E, Perpendicular)

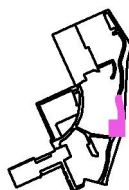


Values in Lux, Scale 1 : 181

Position of surface in external scene:

Marked point:

(218.474 m, 238.320 m, 0.000 m)



Grid: 38 x 6 Points

E_{av} [lx]
27

E_{min} [lx]
7.23

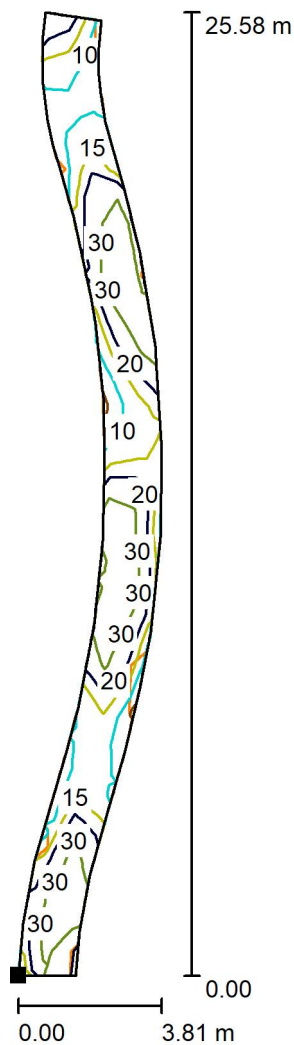
E_{max} [lx]
64

u_0
0.271

E_{min} / E_{max}
0.113



Exterior Scene 1 / Calculation Surface 15 / Isolines (E, Perpendicular)

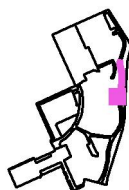


Values in Lux, Scale 1 : 201

Position of surface in external scene:

Marked point:

(218.810 m, 260.675 m, 0.000 m)



Grid: 37 x 5 Points

E_{av} [lx]
24

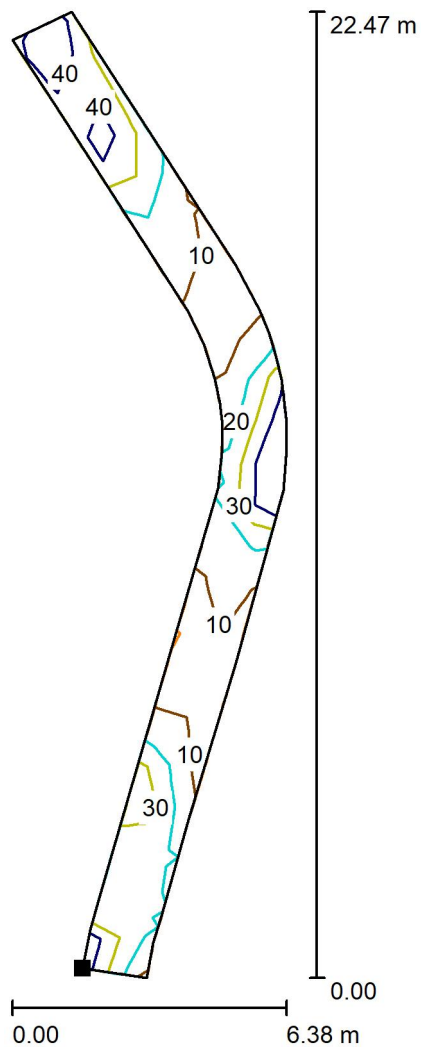
E_{min} [lx]
6.84

E_{max} [lx]
64

u_0
0.286

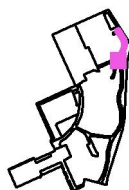
E_{min} / E_{max}
0.108

Exterior Scene 1 / Calculation Surface 16 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 176

Position of surface in external scene:
Marked point:
(219.534 m, 286.254 m, 0.000 m)



Grid: 23 x 6 Points

E_{av} [lx]
24

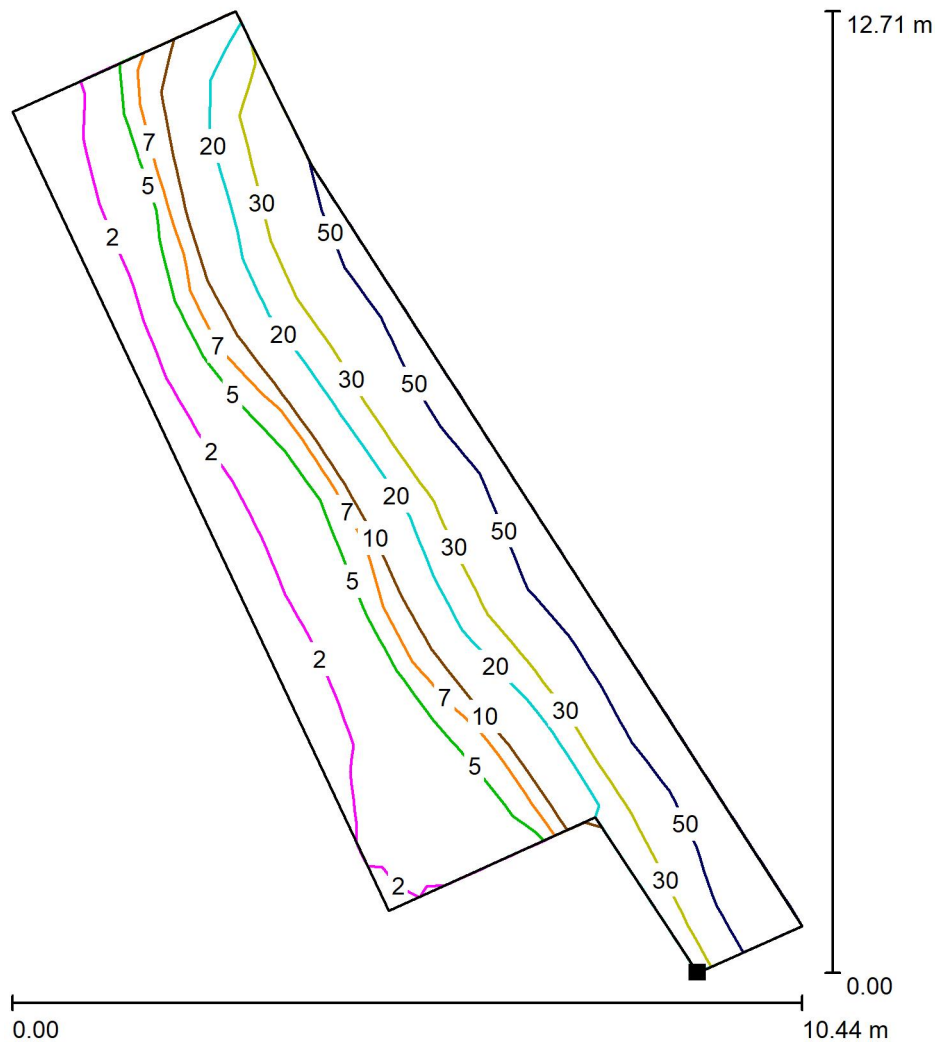
E_{min} [lx]
4.11

E_{max} [lx]
64

u_0
0.173

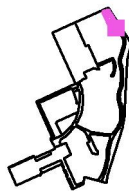
E_{min} / E_{max}
0.064

Exterior Scene 1 / Calculation Surface 17 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 100

Position of surface in external scene:
Marked point:
(217.814 m, 308.013 m, 0.000 m)



Grid: 18 x 6 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u_0	E_{min} / E_{max}
21	1.21	69	0.059	0.018