

Lighting Design

Installation : Proposed Site Development, 33 Church Street, Pinchbeck

Project number : LP250033

Customer : Guy Dixon Dawson

Processed by : RHB

Date : 19.05.2025

Project description:

All calculations have been based on the information provided, plus the accompanying drawings and verbal information received.

BT Associates t/a Lumineux take no responsibility for the maintenance regime and can only guarantee light levels at start of life.

Our lighting designs are based on relevant lighting guides in conjunction with best practice. The Lumineux LDT files used to produce this design are specific to the Lumineux fittings included herein. A new lighting design must be produced should an alternative fitting be required. The optics of different fittings are rarely the same even if the lumen output is identical. Using an alternate fitting without a design could make the scheme non-compliant with relevant lighting guides.

Racking installed into an open plan warehouse will drastically alter the lighting requirements both with regard to normal and emergency lighting. A new lighting design is recommended prior to the racking being installed. Emergency scheme is to be checked and confirmed with local building or fire control officer and ultimately approved by the owner of the building. Any emergency calculations that have been completed have been based on 0.5 lux for open areas and 1 lux for escape routes. In general information with regard to positioning of fire fighting and call points is unknown and hence the design does not consider this requirement. Emergency lighting for High Risk areas should be considered additional to this design.

The absence of an emergency scheme within the design does not indicate one is not required, rather that the brief has suggested that this is either already in existence or will be supplied by another source.

Please ensure that this lighting scheme complies with all your requirements before placing order with our sales team.

A Design based on a 1-4-1 replacement should not be considered to be compliant with current codes of Practice.

The following values are based on exact calculations on calibrated lamps, luminaires and their arrangement. In practice, gradual divergences can occur.

Guarantee claims for luminaire data are excluded.

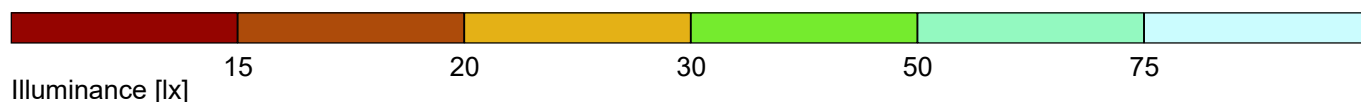
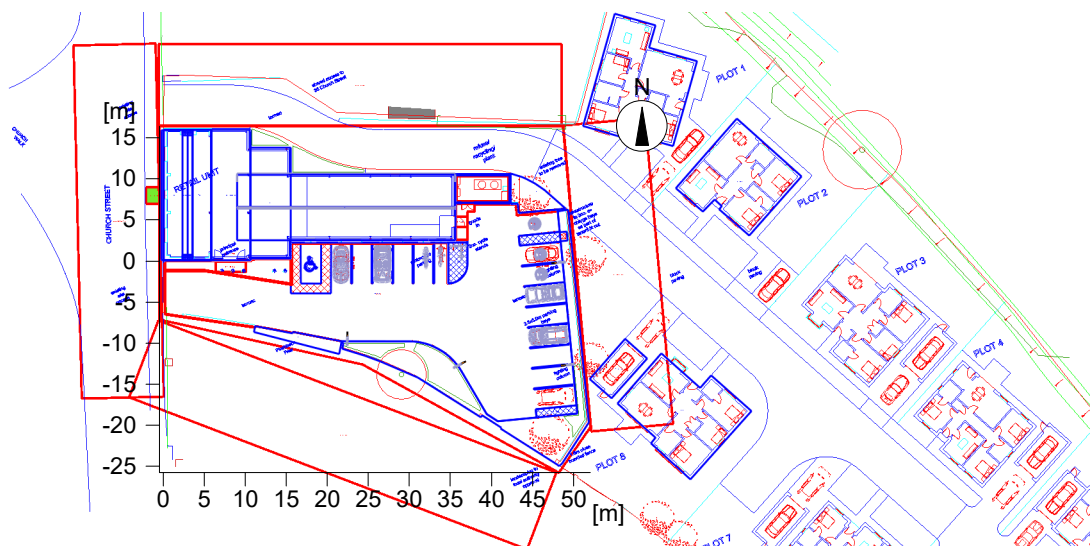
Relux and the luminaire manufacturers accept no liability for consequential damage and damage which is occasioned to the user or to third parties.

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1 External Lighting

1.1 Summary, External Lighting

1.1.1 Result overview, Church Road Entrance



General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.85
Total luminous flux of all lamps	43470 lm
Total power	277.7 W
Total power per area (1594.23 m²)	0.17 W/m²

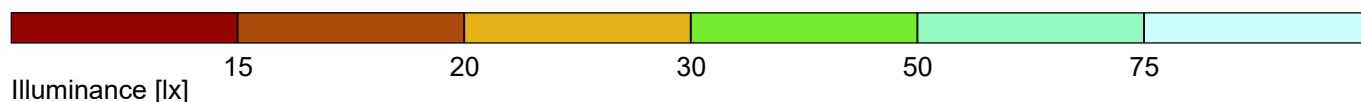
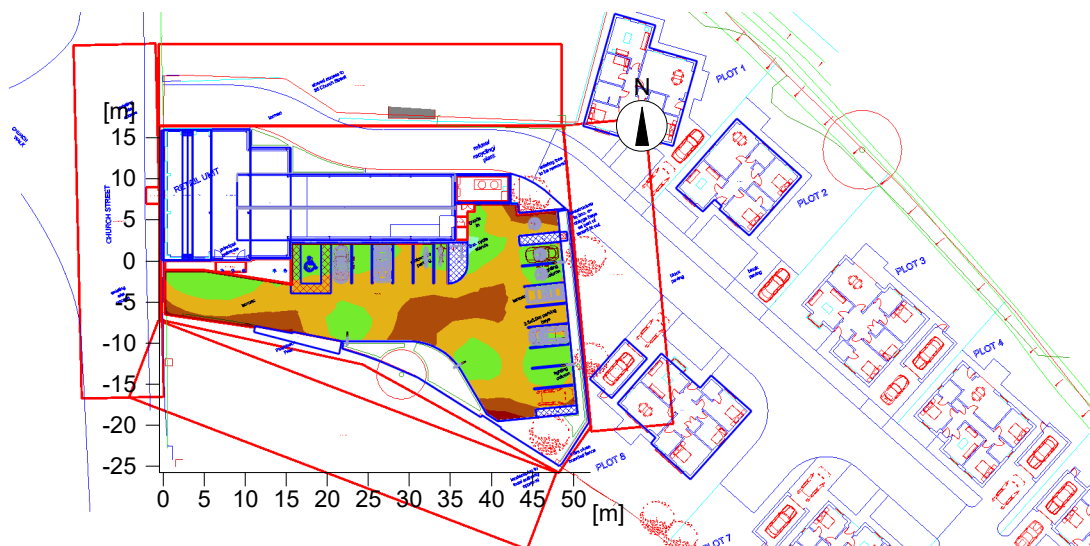
Illuminance

Average illuminance	Eav	31 lx
Minimum illuminance	Emin	29 lx
Maximum illuminance	Emax	31.9 lx
Uniformity Uo	Emin/Em	1:1.07 (0.93)
Diversity Ud	Emin/Emax	1:1.1 (0.91)

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1.1 Summary, External Lighting

1.1.2 Result overview, Carparking area



General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.02 m
Maintenance factor	0.85
Total luminous flux of all lamps	43470 lm
Total power	277.7 W
Total power per area (1594.23 m ²)	0.17 W/m ²

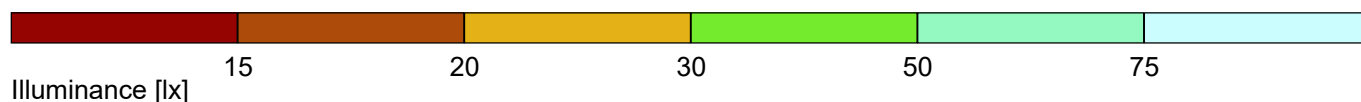
Illuminance

Average illuminance	Eav	26.1 lx
Minimum illuminance	Emin	15.6 lx
Maximum illuminance	Emax	46.2 lx
Uniformity Uo	Emin/Em	1:1.67 (0.6)
Diversity Ud	Emin/Emax	1:2.96 (0.34)

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1.1 Summary, External Lighting

1.1.3 Result overview, Entrance Pavement



General

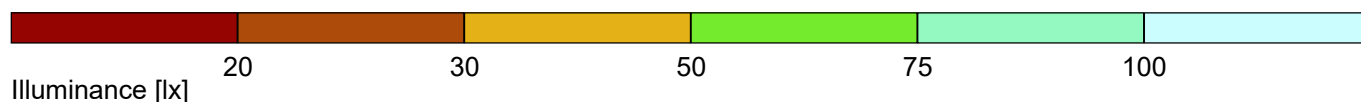
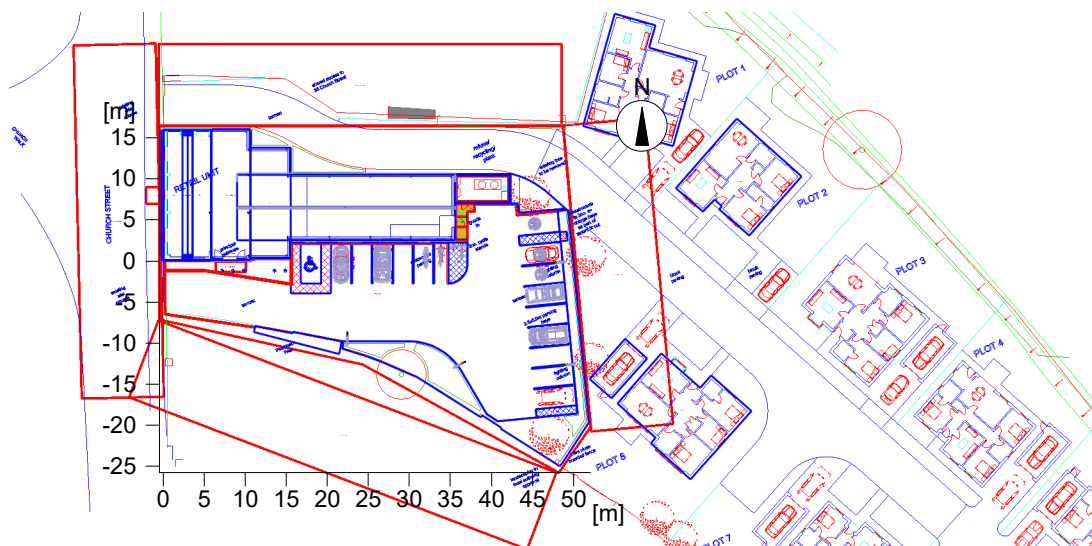
Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.12 m
Maintenance factor	0.85
Total luminous flux of all lamps	43470 lm
Total power	277.7 W
Total power per area (1594.23 m²)	0.17 W/m²

Illuminance

Average illuminance	Eav	37.7 lx
Minimum illuminance	Emin	20.9 lx
Maximum illuminance	Emax	49.1 lx
Uniformity Uo	Emin/Em	1:1.8 (0.55)
Diversity Ud	Emin/Emax	1:2.35 (0.43)

1.1 Summary, External Lighting

1.1.4 Result overview, Pavement Goods in to Refuse



General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.12 m
Maintenance factor	0.85
Total luminous flux of all lamps	43470 lm
Total power	277.7 W
Total power per area (1594.23 m ²)	0.17 W/m ²

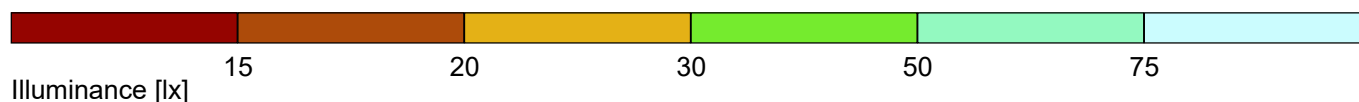
Illuminance

Average illuminance	Eav	46 lx
Minimum illuminance	Emin	31.4 lx
Maximum illuminance	Emax	64.3 lx
Uniformity Uo	Emin/Em	1:1.47 (0.68)
Diversity Ud	Emin/Emax	1:2.05 (0.49)

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1.1 Summary, External Lighting

1.1.5 Result overview, Refuse area



General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.12 m
Maintenance factor	0.85
Total luminous flux of all lamps	43470 lm
Total power	277.7 W
Total power per area (1594.23 m²)	0.17 W/m²

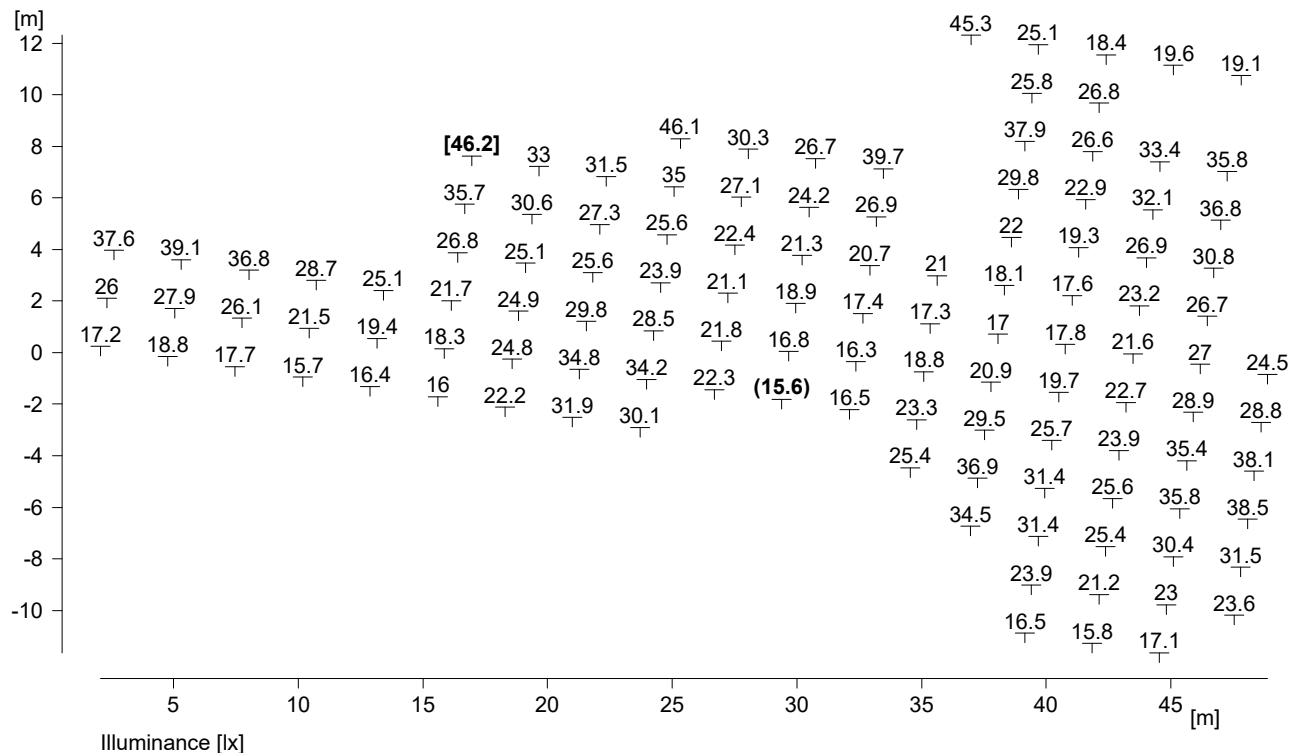
Illuminance

Average illuminance	Eav	31.6 lx
Minimum illuminance	Emin	10.9 lx
Maximum illuminance	Emax	54.9 lx
Uniformity Uo	Emin/Em	1:2.89 (0.35)
Diversity Ud	Emin/Emax	1:5.03 (0.2)

1 External Lighting

1.2 Calculation results, External Lighting

1.2.1 Table, Carparking area (E)



Height of the reference plane	: 0.02 m
Average illuminance	Eav : 26.1 lx
Minimum illuminance	Emin : 15.6 lx
Maximum illuminance	Emax : 46.2 lx
Uniformity Uo	Emin/Eav : 1 : 1.67 (0.60)
Diversity Ud	Emin/Emax : 1 : 2.96 (0.34)

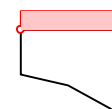
Object : Lighting Design
 Installation : Proposed Site Development, 33 Church Street, Pinct
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1.2 Calculation results, External Lighting

1.2.2 Table, Horizontal spill to North (E)

[m]	0	5	10	15	20	25	30	35	40	45	[m]									
10	0.5	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0.1	0.1	0.1	0.1	0.1	0.1
9	0.8	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0.1	0.1	0.1	0.1	0.1	0.1
8	1.3	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0.1	0.1	0.2	0.2	0.2	0.1
7	1.9	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0.1	0.2	0.2	0.2	0.2	0.2
6	2.7	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0.1	0.1	0.2	0.3	0.3	0.3	0.3
5	3.8	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0.1	0.1	0.4	0.3	0.5	0.5	0.4
4	5.1	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0.1	0.1	0.1	0.6	0.5	0.6	0.7	0.5
3	6.8	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0.1	0.1	0.2	1	0.7	0.9	1.1	0.7
2	8.9	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	1.5	0.7	1.5	1.6	1
1	11.6	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	2.9	1.8	2.7	2.3	1.3
0																				

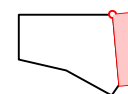
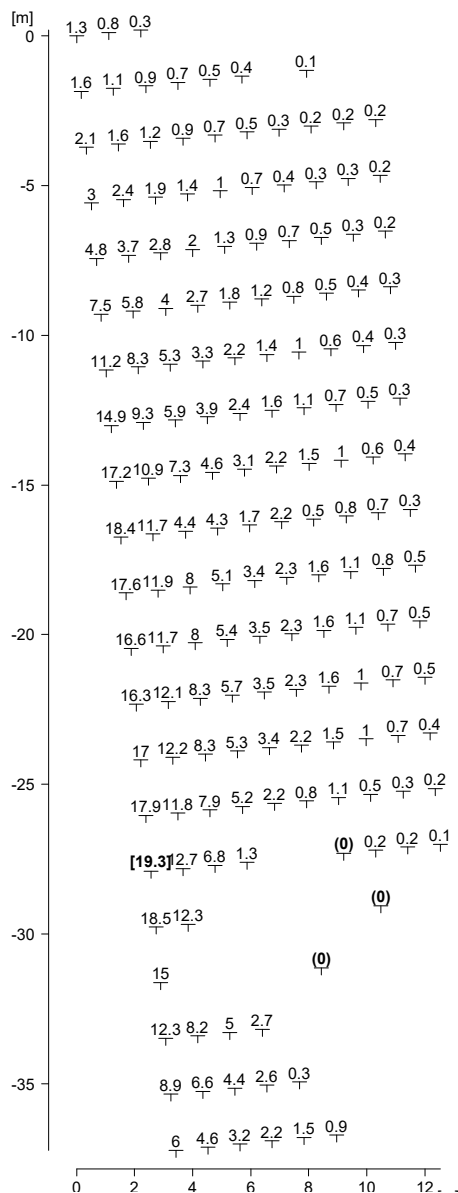


Height of the reference plane : 0.00 m
 Average illuminance Eav : 0.4 lx
 Minimum illuminance Emin : 0 lx
 Maximum illuminance Emax : 11.6 lx
 Uniformity Uo : ---
 Diversity Ud : ---

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1.2 Calculation results, External Lighting

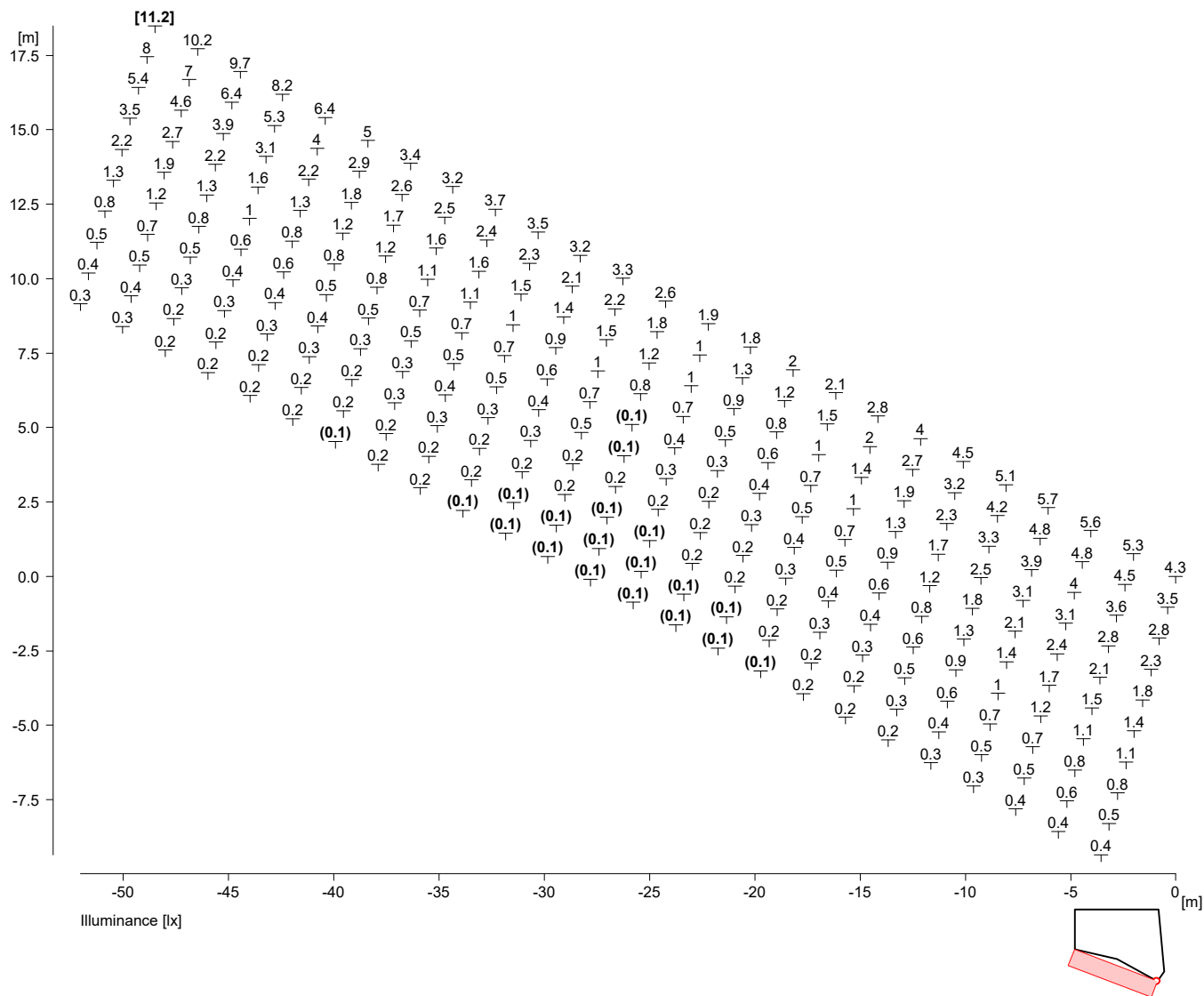
1.2.3 Table, Horizontal spill to East (E)



Height of the reference plane	: 0.00 m
Average illuminance	Eav : 3.9 lx
Minimum illuminance	Emin : 0 lx
Maximum illuminance	Emax : 19.3 lx
Uniformity Uo	Emin/Eav : 1 : 375.35 (0.00)
Diversity Ud	Emin/Emax : 1 : 1869.10 (0.00)

1.2 Calculation results, External Lighting

1.2.4 Table, Horizontal spill to South (E)



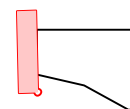
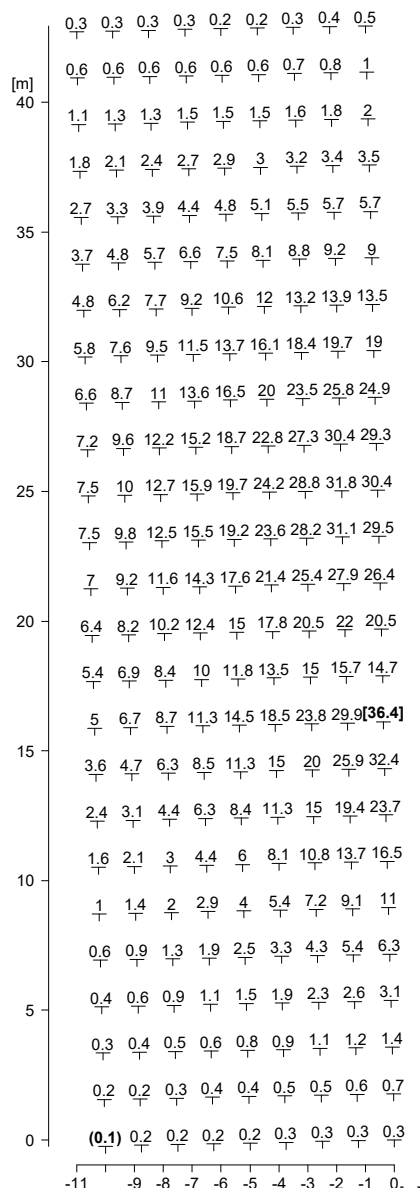
Height of the reference plane	: 0.00 m
Average illuminance	Eav : 1.5 lx
Minimum illuminance	Emin : 0.1 lx
Maximum illuminance	Emax : 11.2 lx
Uniformity Uo	Emin/Eav : 1 : 20.92 (0.05)
Diversity Ud	Emin/Emax : 1 : 154.11 (0.01)

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1.2 Calculation results, External Lighting

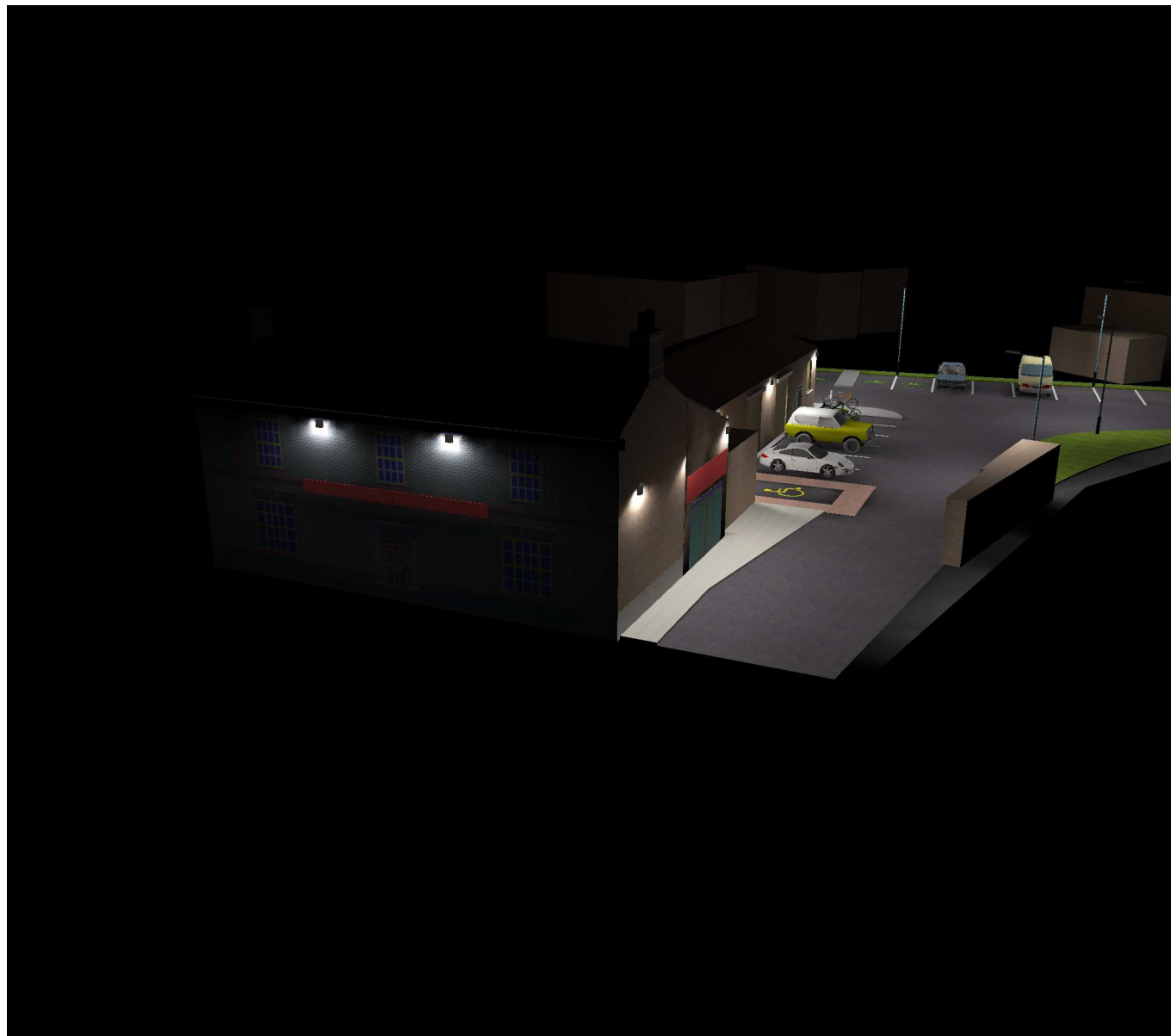
1.2.5 Table, Horizontal spill to Church Street (E)



Height of the reference plane	: 0.00 m
Average illuminance	Eav : 8.8 lx
Minimum illuminance	Emin : 0.1 lx
Maximum illuminance	Emax : 36.4 lx
Uniformity Uo	Emin/Eav : 1 : 65.64 (0.02)
Diversity Ud	Emin/Emax : 1 : 271.59 (0.00)

1.2 Calculation results, External Lighting

1.2.6 3D luminance, View 1



Luminance in the scene

Minimum: : 0 cd/m²

Maximum: : 529 cd/m²

Without consideration of the luminaire geometry

1.2 Calculation results, External Lighting

1.2.7 3D luminance, View 2



Luminance in the scene

Minimum: : 0 cd/m²

Maximum: : 529 cd/m²

Without consideration of the luminaire geometry

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1.2 Calculation results, External Lighting

1.2.8 3D luminance, View 3



Luminance in the scene

Minimum: : 0 cd/m²

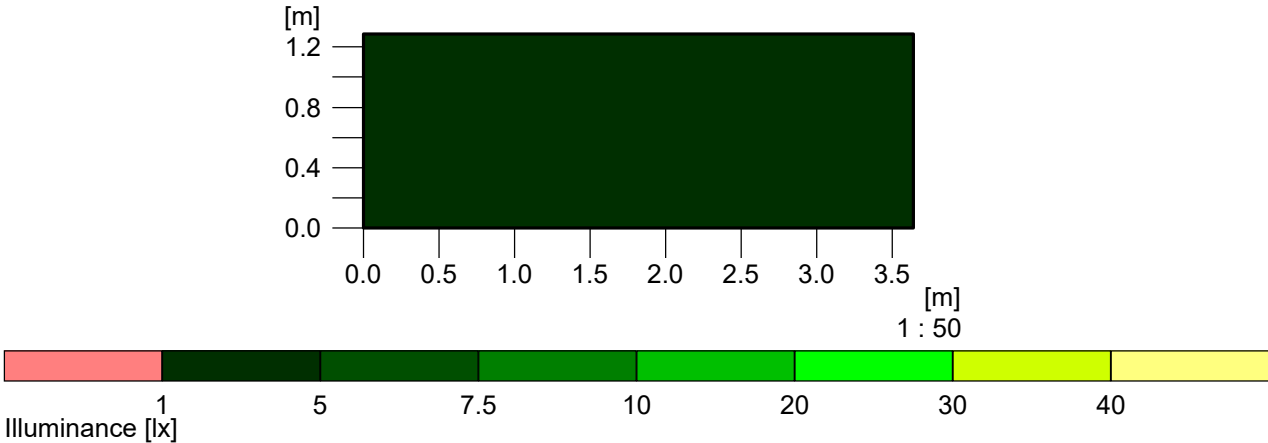
Maximum: : 529 cd/m²

Without consideration of the luminaire geometry

1 External Lighting

1.3 Calculation results, External Lighting

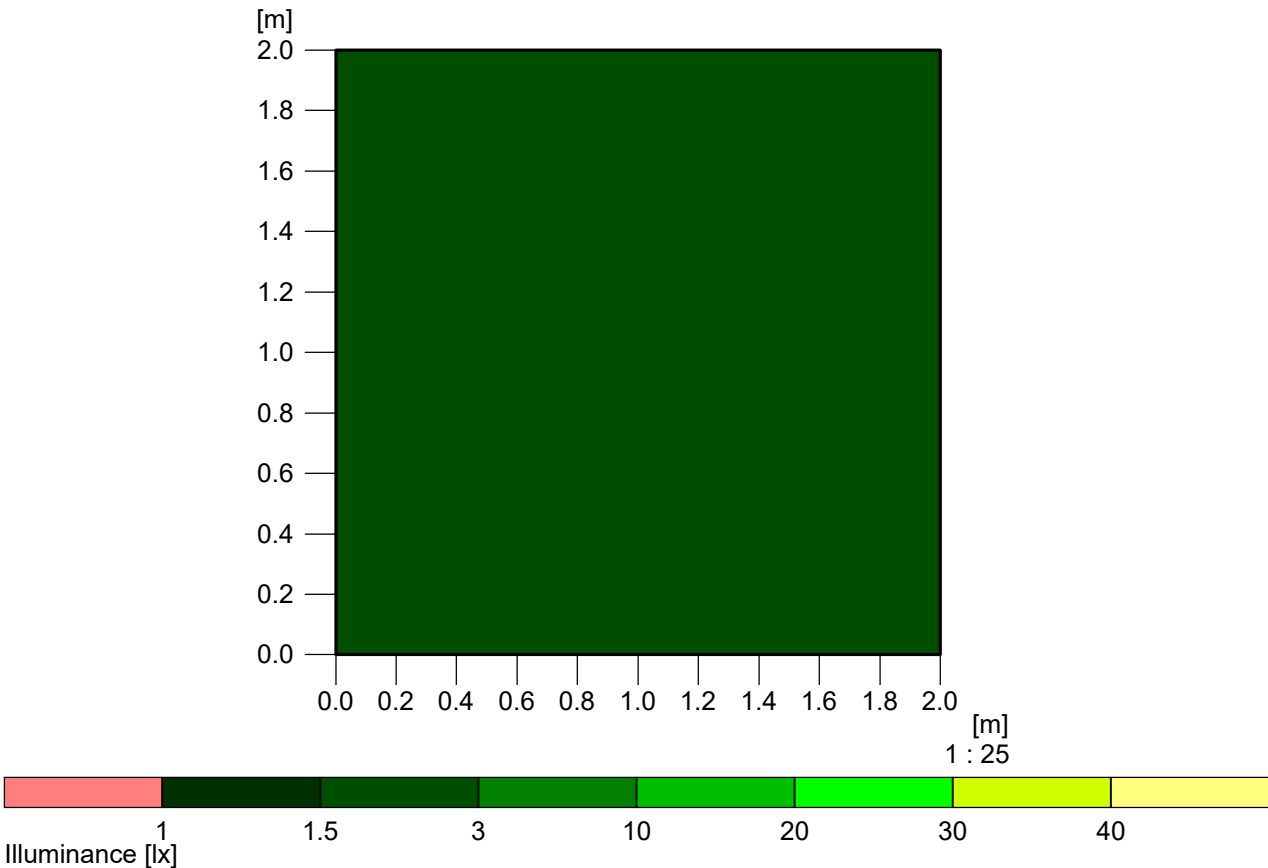
1.3.1 Boundary line, EXIT from Main Entrance (E)



Required minimum illuminance		: 1 lx
Minimum illuminance	Emin	: 4.1 lx
Maximum illuminance	Emax	: 4.6 lx
Diversity	Emin/Emax	: 1 : 1.14 (0.88) (Threshold value 1:40)
Height		: 0 m
Calculation algorithm used		: Direct component
Maintenance factor		: 0.8

1.3 Calculation results, External Lighting

1.3.2 Boundary line, Church Road Entrance (E)

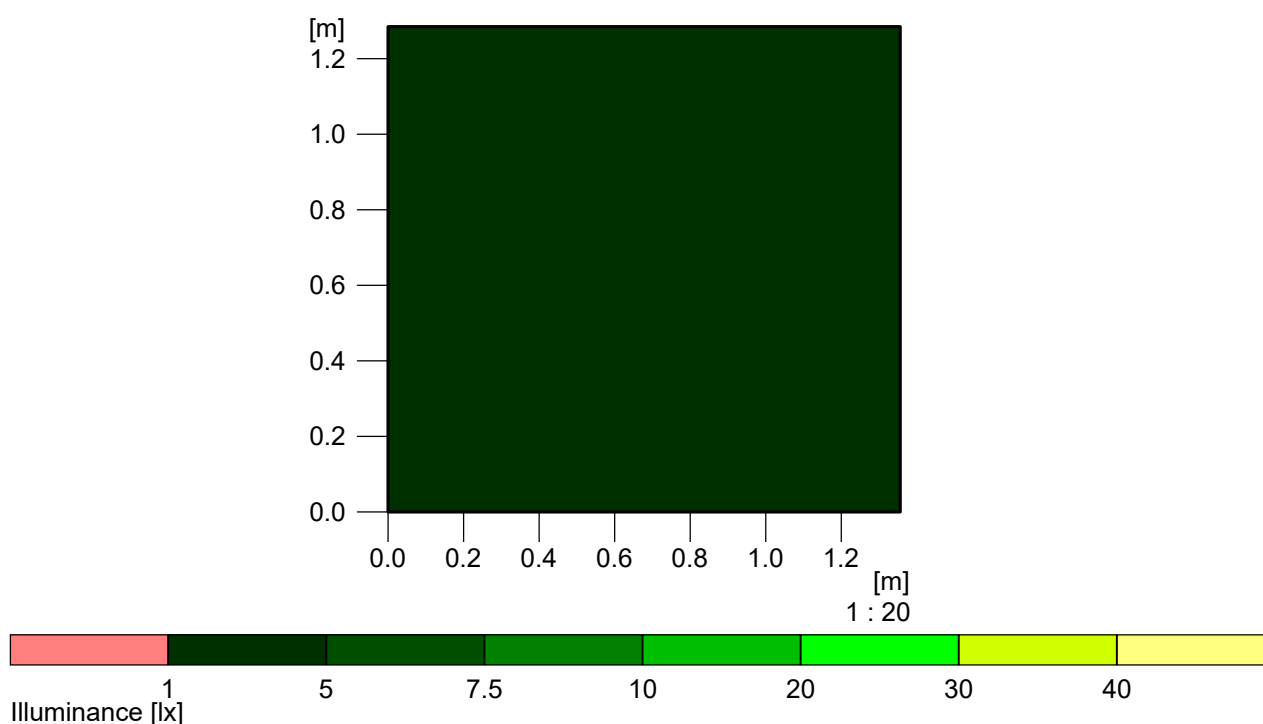


Required minimum illuminance		: 1 lx
Minimum illuminance	Emin	: 2.5 lx
Maximum illuminance	Emax	: 2.8 lx
Diversity	Emin/Emax	: 1 : 1.11 (0.90) (Threshold value 1:40)
Height		: 0 m
Calculation algorithm used		: Direct component
Maintenance factor		: 0.8

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1.3 Calculation results, External Lighting

1.3.3 Boundary line, EXIT from Goods In (E)

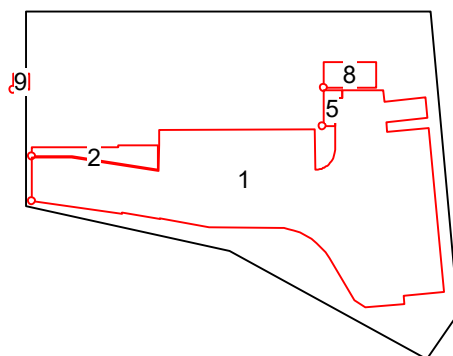


Required minimum illuminance	:	1 lx
Minimum illuminance	Emin	: 4.1 lx
Maximum illuminance	Emax	: 4.8 lx
Diversity	Emin/Emax	: 1 : 1.15 (0.87) (Threshold value 1:40)
Height		: 0 m
Calculation algorithm used		: Direct component
Maintenance factor		: 0.8

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Summary, External Lighting

.1 Result overview, Areas (5)



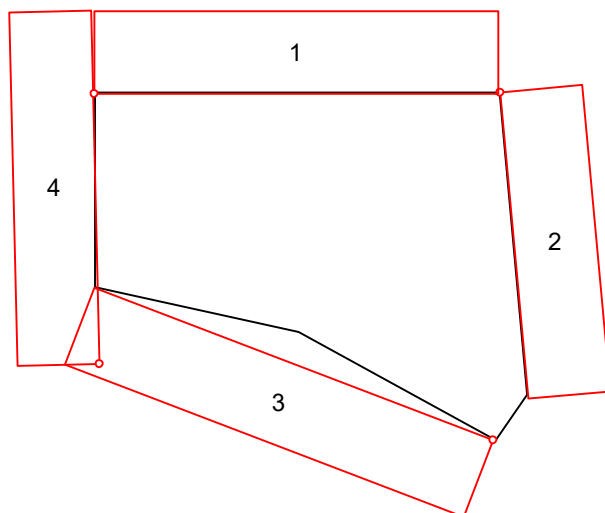
Horizontal illuminance

No.	Measuring surface	Grid	Em	Emin	Emax	Uo	Ud
5.9	Church Road Entrance	6 x 6	31 lx	29 lx	31.9 lx	0.93	0.91
5.1	Carparking area	20 x 15	26.1 lx	15.6 lx	46.2 lx	0.60	0.34
5.2	Entrance Pavement	11 x 8	37.7 lx	20.9 lx	49.1 lx	0.55	0.43
5.5	Pavement Goods in to Refuse	4 x 8	46 lx	31.4 lx	64.3 lx	0.68	0.49
5.8	Refuse area	16 x 8	31.6 lx	10.9 lx	54.9 lx	0.35	0.20
Summary			26.9 lx	10.9 lx	64.3 lx	0.41	0.17

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Summary, External Lighting

.2 Result overview, Horizontal Spill (16)



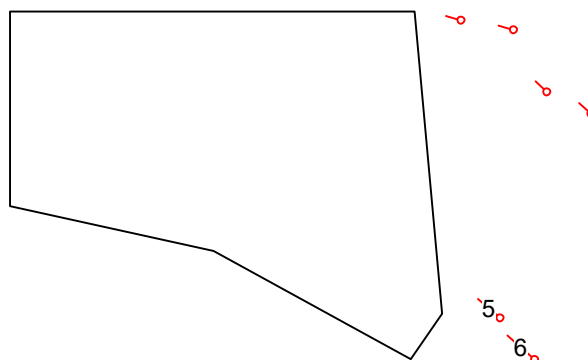
Horizontal illuminance

No.	Measuring surface	Grid	Em	Emin	Emax	Uo	Ud
16.1	Horizontal spill to North	21 x 10	0.4 lx	0 lx	11.6 lx	---	---
16.2	Horizontal spill to East	21 x 10	3.9 lx	0 lx	19.3 lx	0.00	0.00
16.3	Horizontal spill to South	25 x 10	1.5 lx	0.1 lx	11.2 lx	0.05	0.01
16.4	Horizontal spill to Church Street	25 x 9	8.8 lx	0.1 lx	36.4 lx	0.02	0.00
Summary			3.4 lx	0 lx	36.4 lx	0.00	0.00

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Summary, External Lighting

.3 Result overview, Spill onto Windows (17)



Horizontal illuminance

No.	Measuring surface	Grid	Em	Emin	Emax	Uo	Ud
17.1	Window Plot 1	12 x 6	0.59 lx	0.46 lx	0.89 lx	0.79	0.52
17.2	Window Plot 1	13 x 6	0.32 lx	0.25 lx	0.4 lx	0.79	0.62
17.3	Window Plot 2	13 x 6	0.34 lx	0.26 lx	0.45 lx	0.75	0.57
17.4	Window Plot 2	13 x 6	0.21 lx	0.18 lx	0.26 lx	0.85	0.69
17.5	Window Plot 8	8 x 7	0.14 lx	0.06 lx	0.44 lx	0.44	0.14
17.6	Window Plot 8	7 x 8	0.04 lx	0.03 lx	0.08 lx	0.65	0.35
Summary			0.22 lx	0.03 lx	0.89 lx	0.12	0.03