

Lighting Design Rev 2

Installation : Proposed Site Development, 33 Church Street, Pinchbeck

Project number : LP250033

Customer : Guy Dixon Dawson

Processed by : PS

Date : 27.05.2026

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.

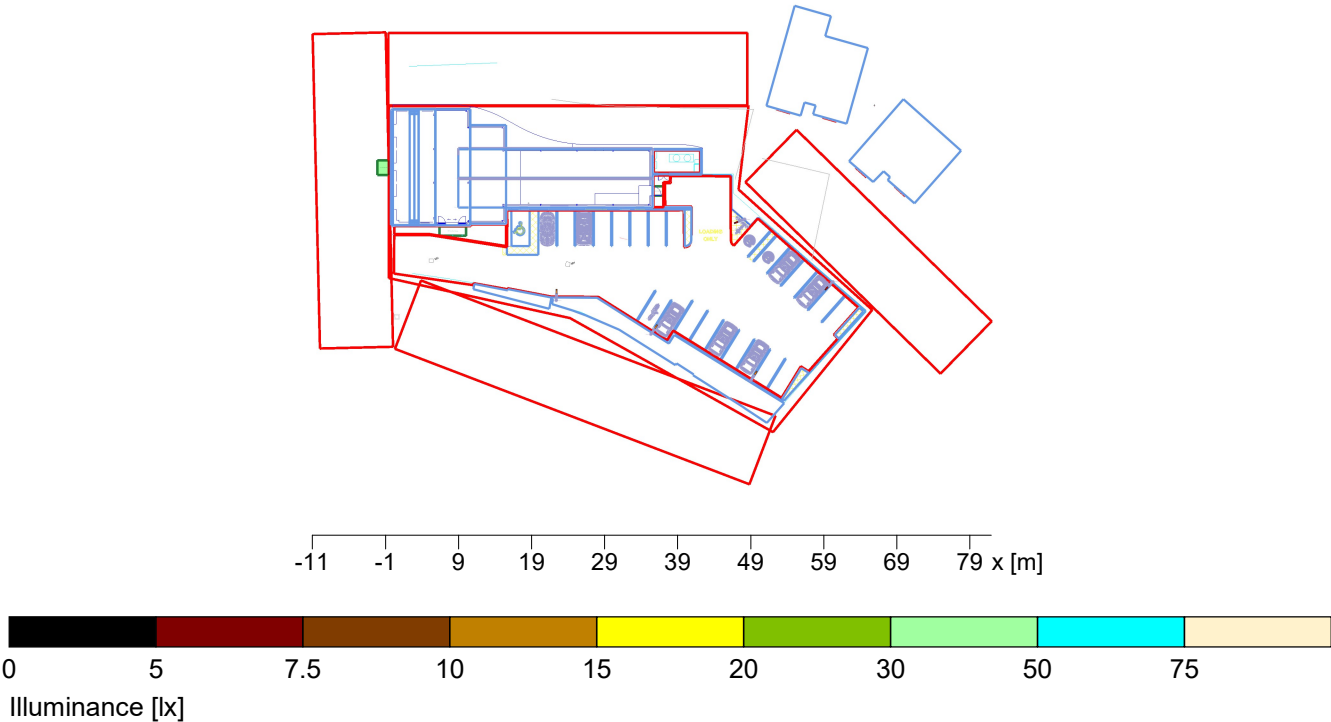
The following values are based on precise calculations performed on calibrated lamps and luminaires, and their configurations, whereby gradual, unavoidable deviations can occur in practice. All guarantee claims are excluded for the specified data.

This exclusion of liability applies irrespective of the legal grounds for both damages and consequential damages suffered by users and third parties.

1 External Lighting

1.1 Summary, External Lighting

1.1.1 Result overview, Church Road Entrance



General

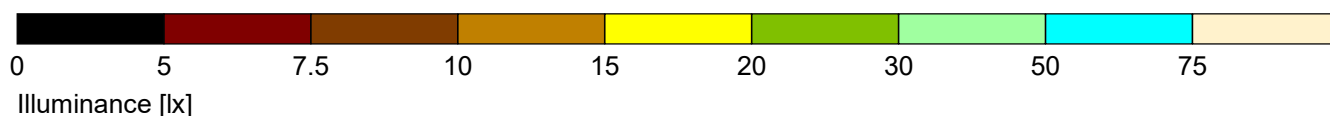
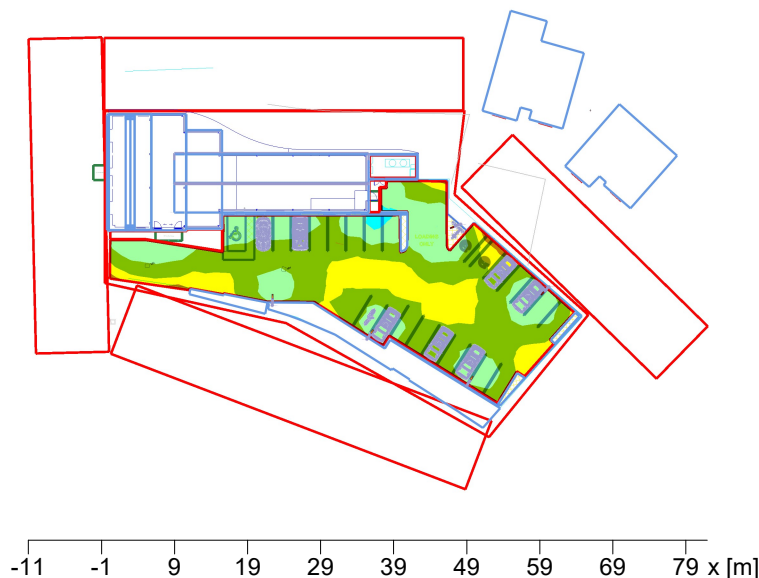
Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.85
Total luminous flux	53544 lm
Total power	347.5 W
Total power per area (1814.72 m²)	0.19 W/m²

Illuminance

Average illuminance	$\bar{E}_m$	31.2 lx
Minimum illuminance	E_{min}	28.9 lx
Maximum illuminance	E_{max}	32.3 lx
Uniformity U_o	$E_{min}/\bar{E}_m$	1:1.08 (0.93)
Diversity U_d	E_{min}/E_{max}	1:1.12 (0.9)

1.1 Summary, External Lighting

1.1.2 Result overview, Carparking area



General

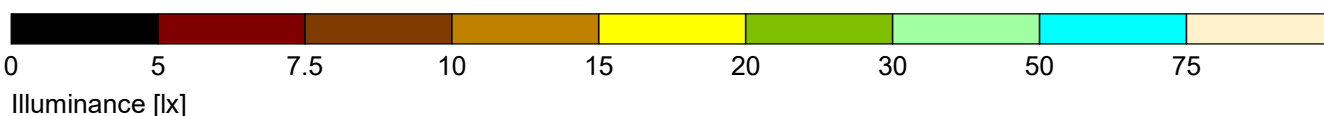
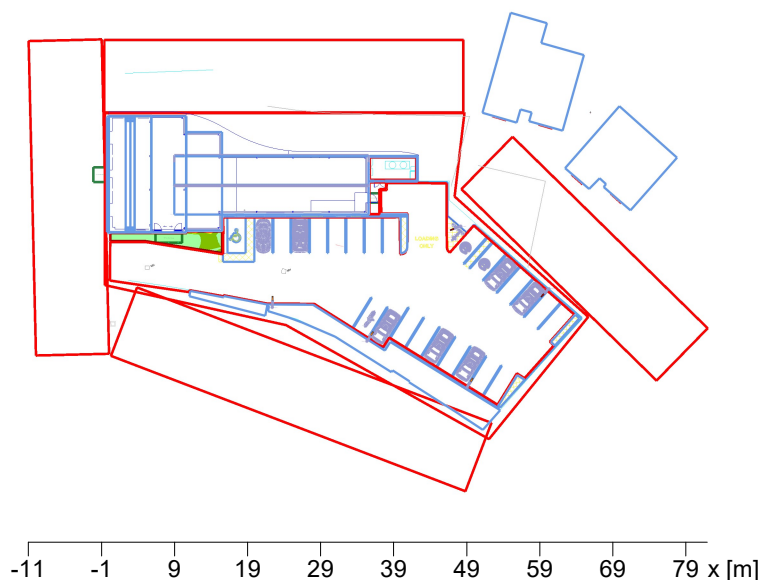
Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.02 m
Maintenance factor	0.85
Total luminous flux	53544 lm
Total power	347.5 W
Total power per area (1814.72 m ²)	0.19 W/m ²

Illuminance

Average illuminance	$\bar{E}_m$	27.6 lx
Minimum illuminance	E_{min}	16.6 lx
Maximum illuminance	E_{max}	51.7 lx
Uniformity U_o	$E_{min}/\bar{E}_m$	1:1.66 (0.6)
Diversity U_d	E_{min}/E_{max}	1:3.11 (0.32)

1.1 Summary, External Lighting

1.1.3 Result overview, Entrance Pavement



General

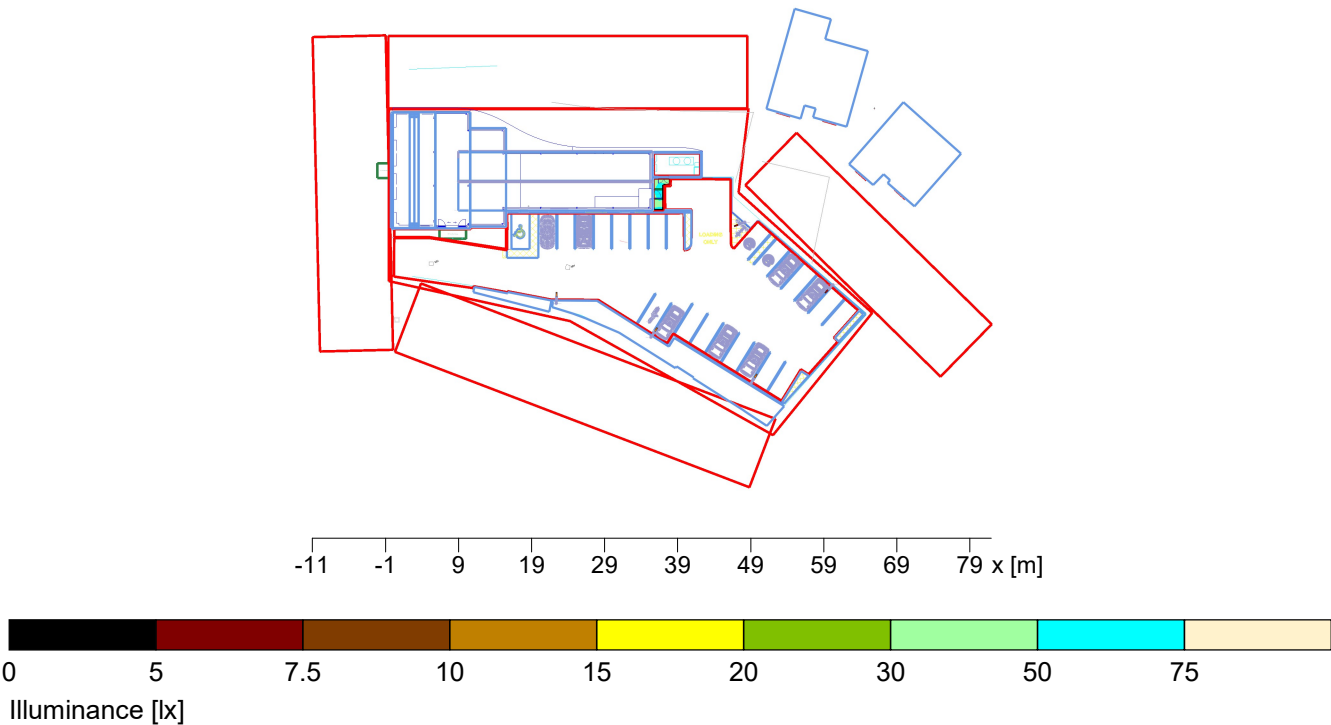
Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.12 m
Maintenance factor	0.85
Total luminous flux	53544 lm
Total power	347.5 W
Total power per area (1814.72 m ²)	0.19 W/m ²

Illuminance

Average illuminance	$\bar{E}_m$	37.9 lx
Minimum illuminance	E_{min}	21 lx
Maximum illuminance	E_{max}	49.2 lx
Uniformity U_o	$E_{min}/\bar{E}_m$	1:1.81 (0.55)
Diversity U_d	E_{min}/E_{max}	1:2.35 (0.43)

1.1 Summary, External Lighting

1.1.4 Result overview, Pavement Goods in to Refuse



General

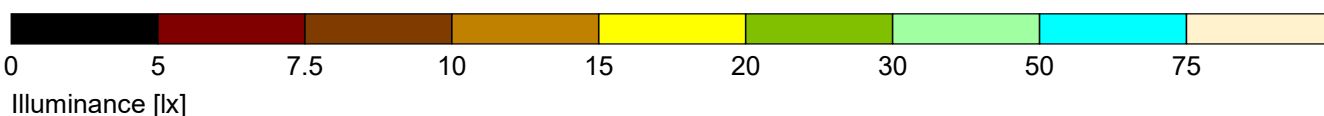
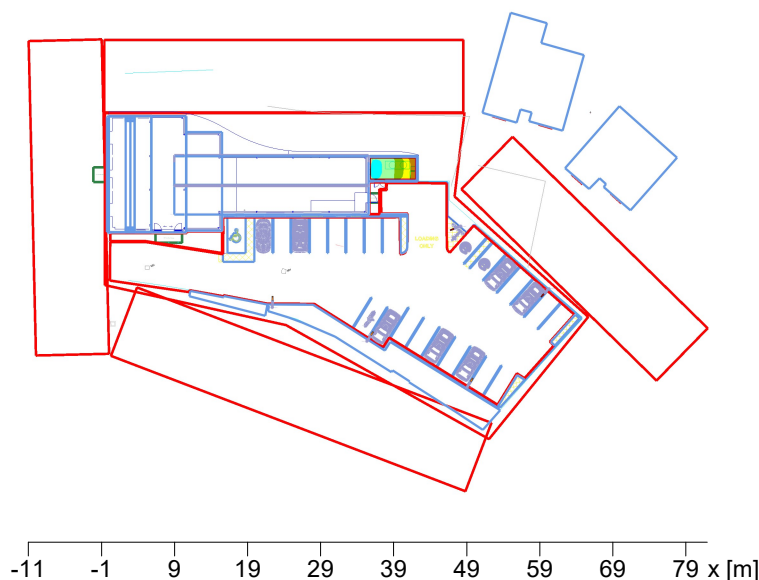
Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.12 m
Maintenance factor	0.85
Total luminous flux	53544 lm
Total power	347.5 W
Total power per area (1814.72 m²)	0.19 W/m²

Illuminance

Average illuminance	$\bar{E}_m$	50.6 lx
Minimum illuminance	E_{min}	36.1 lx
Maximum illuminance	E_{max}	67.2 lx
Uniformity U_o	$E_{min}/\bar{E}_m$	1:1.4 (0.71)
Diversity U_d	E_{min}/E_{max}	1:1.86 (0.54)

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	53544 lm
Total power	347.5 W
Total power per area (1814.72 m ²)	0.19 W/m ²

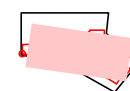
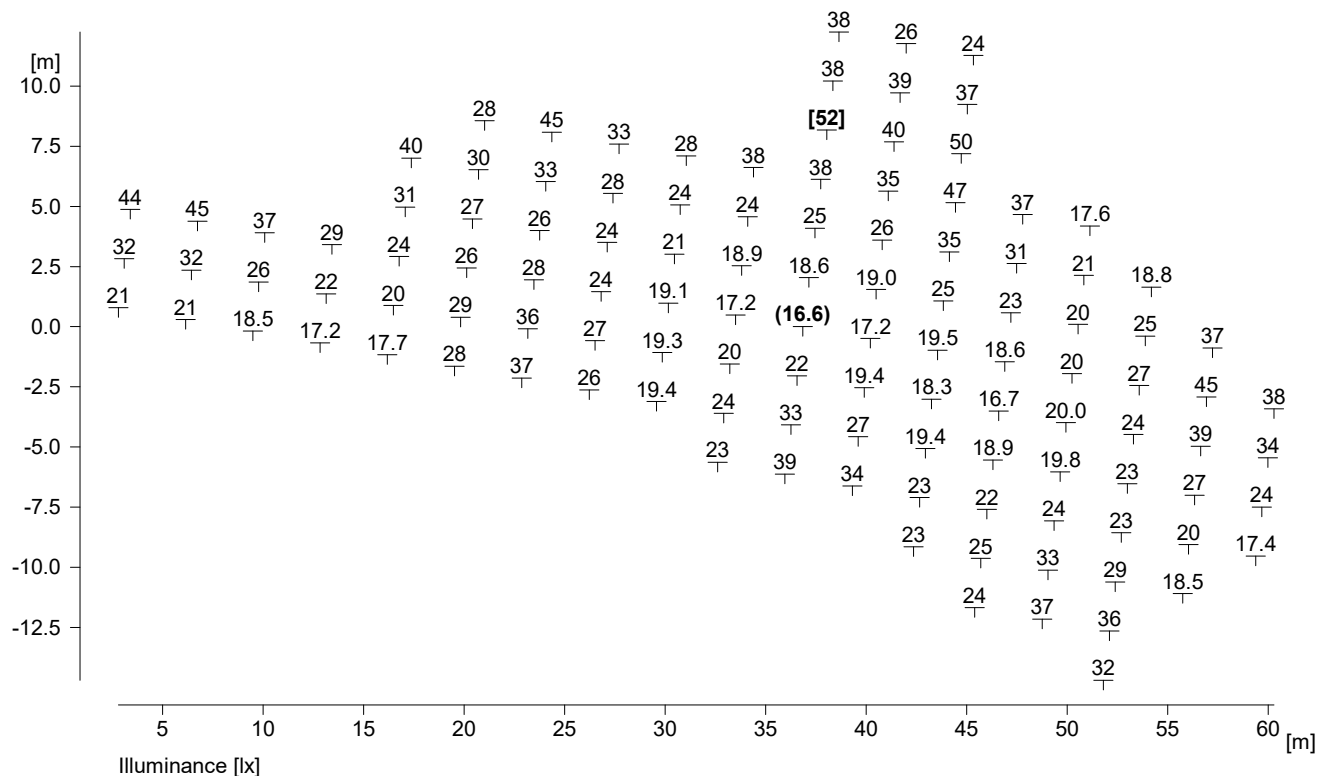
Illuminance

Average illuminance	$\bar{E}_m$	32.8 lx
Minimum illuminance	E_{min}	12.3 lx
Maximum illuminance	E_{max}	56.3 lx
Uniformity U_o	$E_{min}/\bar{E}_m$	1:2.66 (0.38)
Diversity U_d	E_{min}/E_{max}	1:4.57 (0.22)

1 External Lighting

1.2 Calculation results, External Lighting

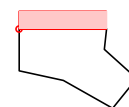
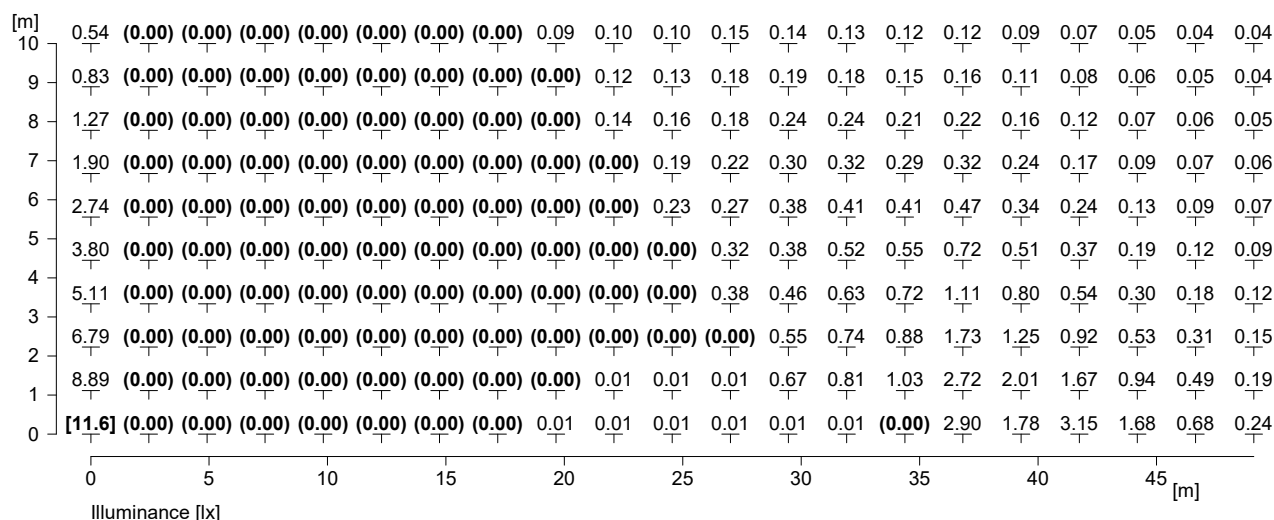
1.2.1 Table, Carparking area (E)



Height reference plane		: 0.02 m
Average illuminance	$\bar{E}_m$	: 28 lx
Minimum illuminance	E_{min}	: 16.6 lx
Maximum illuminance	E_{max}	: 52 lx
Uniformity U_o	$E_{min}/\bar{E}_m$	: 1 : 1.66 (0.60)
Diversity U_d	E_{min}/E_{max}	: 1 : 3.11 (0.32)

1.2 Calculation results, External Lighting

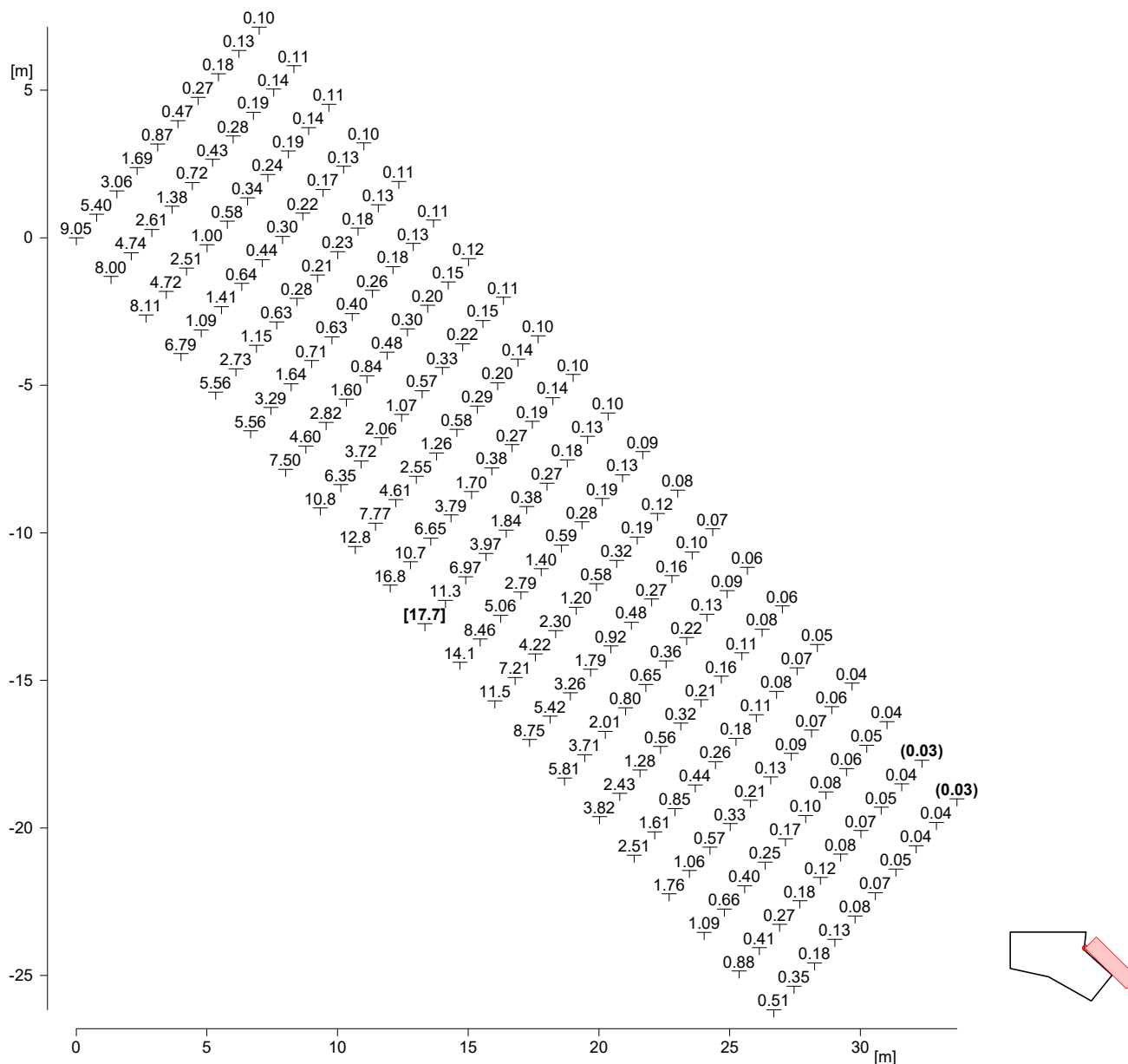
1.2.2 Table, Horizontal spill to North (E)



Height reference plane	: 0.00 m
Average illuminance	$\bar{E}_m$: 0.43 lx
Minimum illuminance	E_{min} : 0.00 lx
Maximum illuminance	E_{max} : 11.6 lx
Uniformity U_o	$E_{min}/\bar{E}_m$: ---
Diversity U_d	E_{min}/E_{max} : ---

1.2 Calculation results, External Lighting

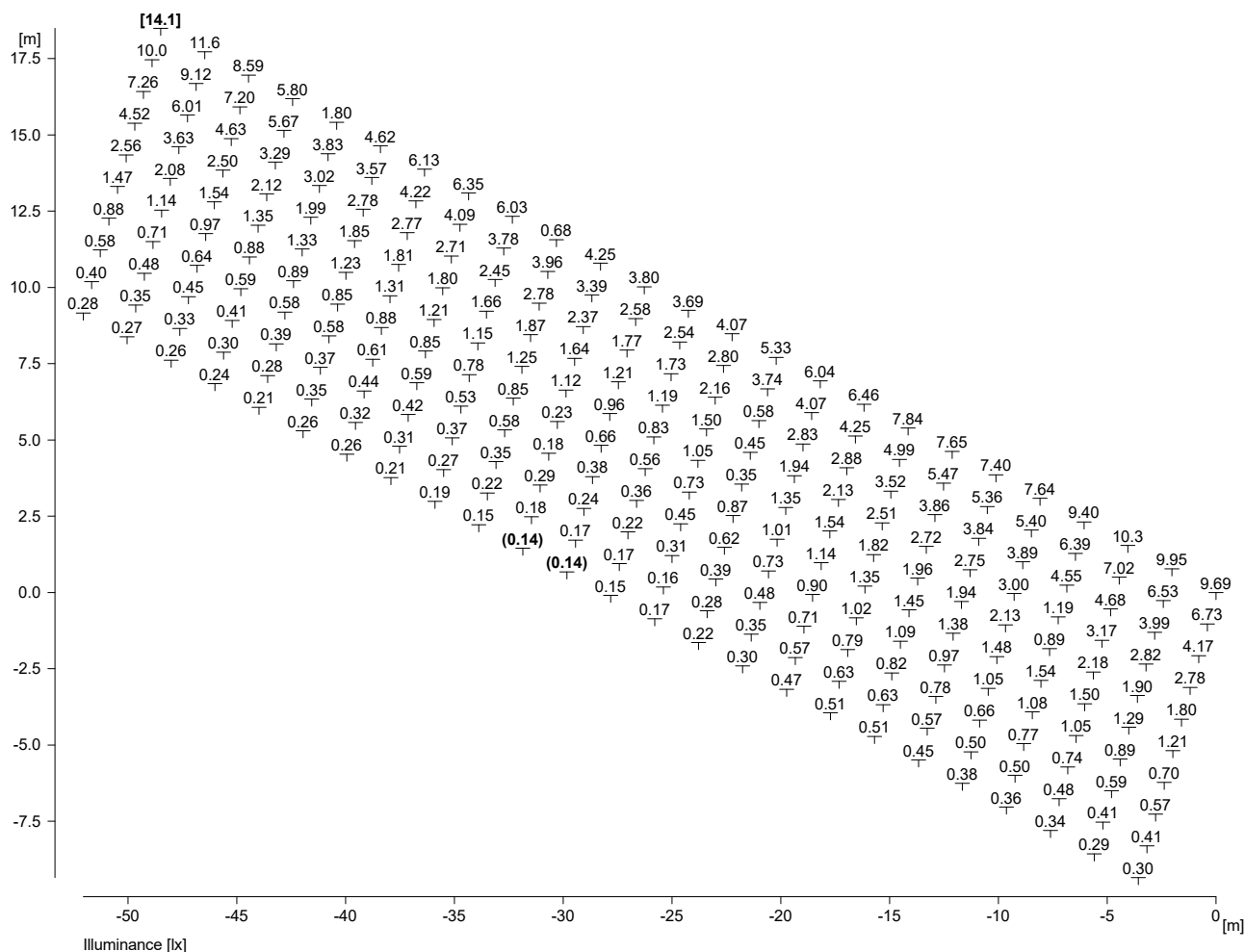
1.2.3 Table, Horizontal spill to East (E)



Height reference plane		: 0.00 m
Average illuminance	$\bar{E}_m$	: 1.78 lx
Minimum illuminance	E_{min}	: 0.03 lx
Maximum illuminance	E_{max}	: 17.7 lx
Uniformity U_o	$E_{min}/\bar{E}_m$	: 1 : 57.78 (0.02)
Diversity U_d	E_{min}/E_{max}	: 1 : 576.88 (0.00)

1.2 Calculation results, External Lighting

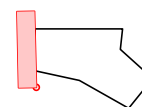
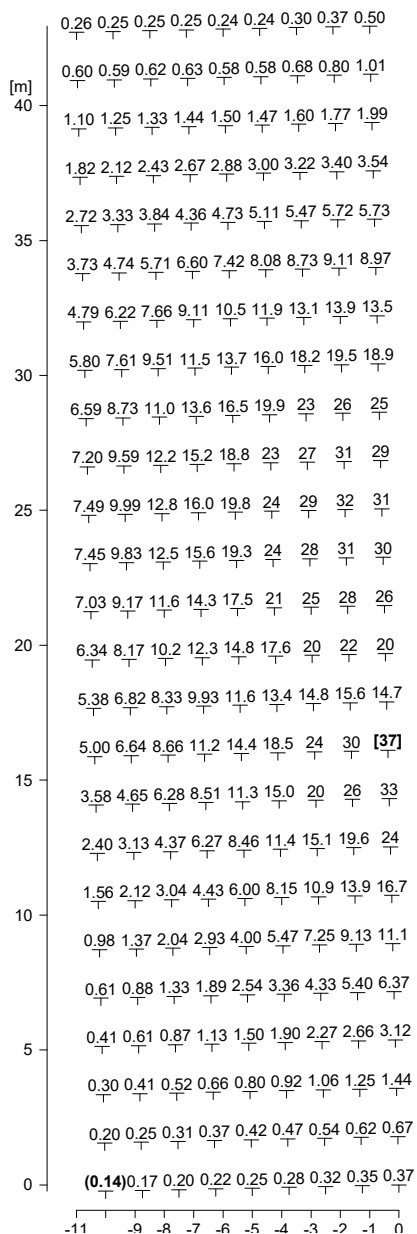
1.2.4 Table, Horizontal spill to South (E)



Height reference plane		: 0.00 m
Average illuminance	$\bar{E}_m$	: 2.18 lx
Minimum illuminance	E_{min}	: 0.14 lx
Maximum illuminance	E_{max}	: 14.1 lx
Uniformity U_o	$E_{min}/\bar{E}_m$	: 1 : 16.07 (0.06)
Diversity U_d	E_{min}/E_{max}	: 1 : 103.80 (0.01)

1.2 Calculation results, External Lighting

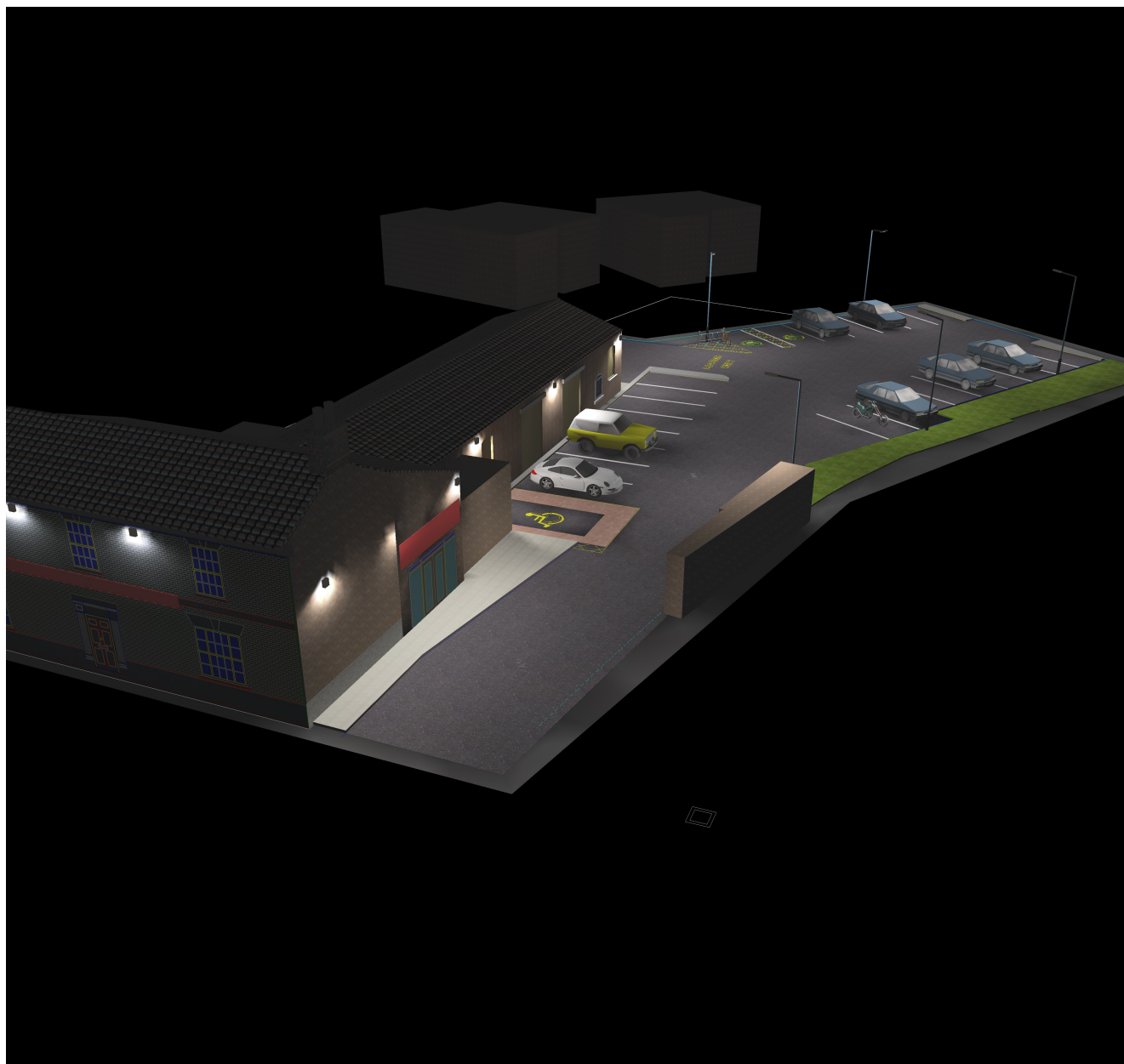
1.2.5 Table, Horizontal spill to Church Street (E)



Height reference plane	: 0.00 m
Average illuminance	$\bar{E}_m$: 8.81 lx
Minimum illuminance	E_{min} : 0.14 lx
Maximum illuminance	E_{max} : 37 lx
Uniformity U_o	$E_{min}/\bar{E}_m$: 1 : 61.37 (0.02)
Diversity U_d	E_{min}/E_{max} : 1 : 255.55 (0.00)

1.2 Calculation results, External Lighting

1.2.6 3D luminance, View 1



Luminance in the scene

Minimum: : 0 cd/m²

Maximum: : 415 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: : 415 cd/m²

Without consideration of the luminaire geometry

1.2 Calculation results, External Lighting

1.2.8 3D luminance, View 3



Luminance in the scene

Minimum: : 0 cd/m²

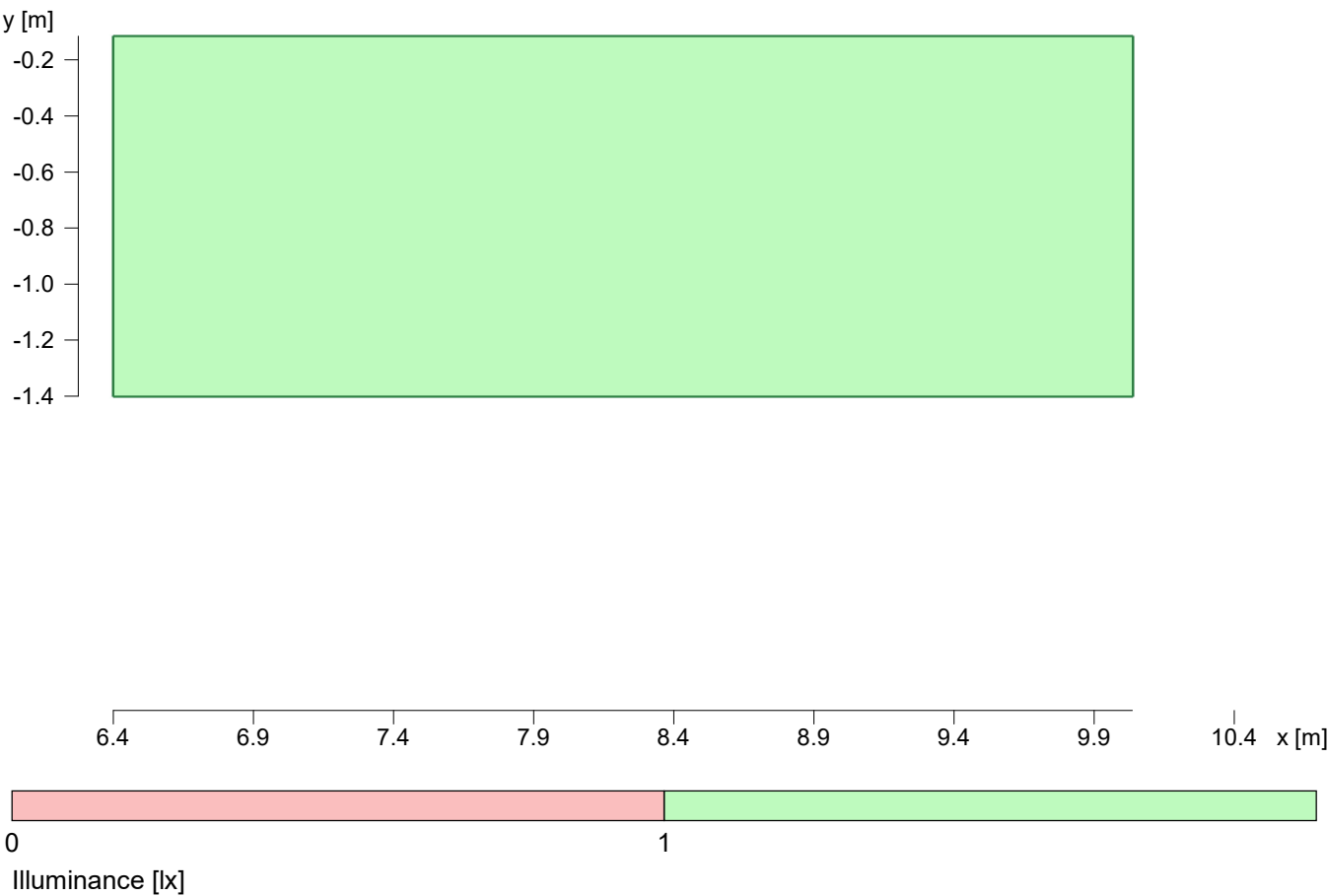
Maximum: : 415 cd/m²

Without consideration of the luminaire geometry

1 External Lighting

1.3 Calculation results, External Lighting

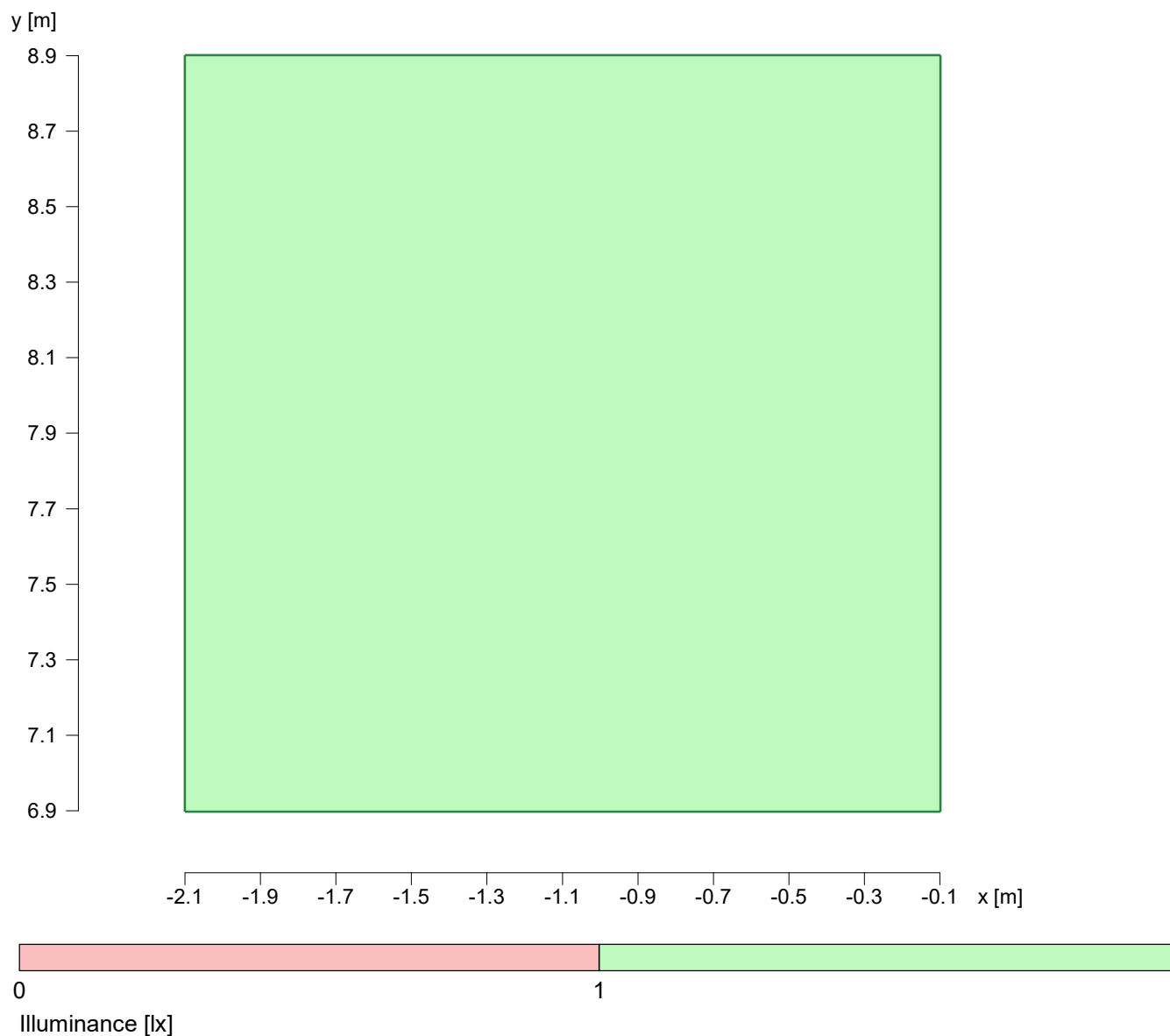
1.3.1 Boundary line, EXIT from Main Entrance (E)



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

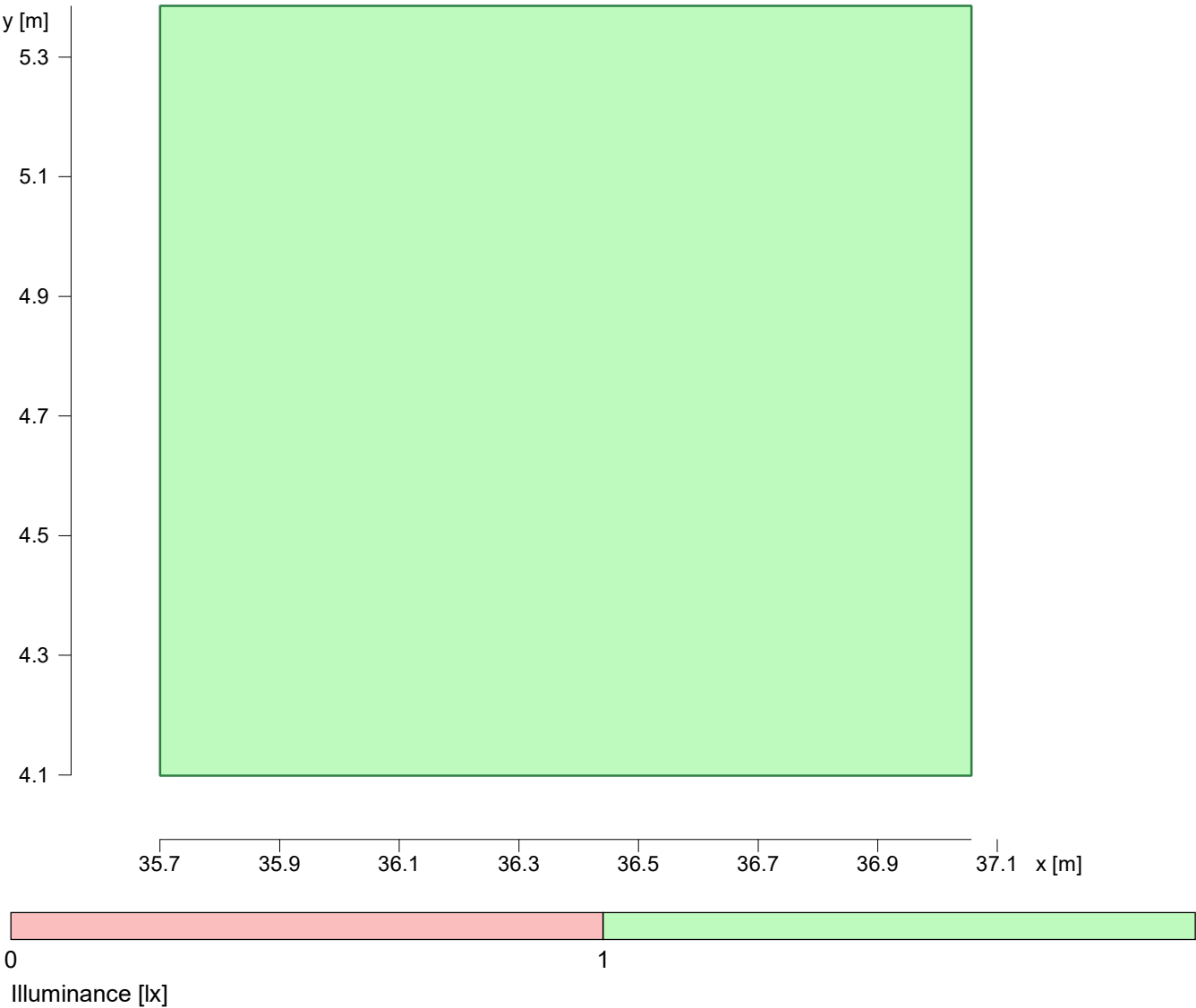
1.3.2 Boundary line, Church Road Entrance (E)



Required minimum illuminance		: 1 lx
Minimum illuminance	E _{min}	: 2.5 lx
Maximum illuminance	E _{max}	: 2.8 lx
Diversity	E _{min} /E _{max}	: 1 : 1.11 (0.90) (Threshold value 1:40)
Height		: 0 m
Calculation algorithm used		: Direct component
Maintenance factor		: 0.8

1.3 Calculation results, External Lighting

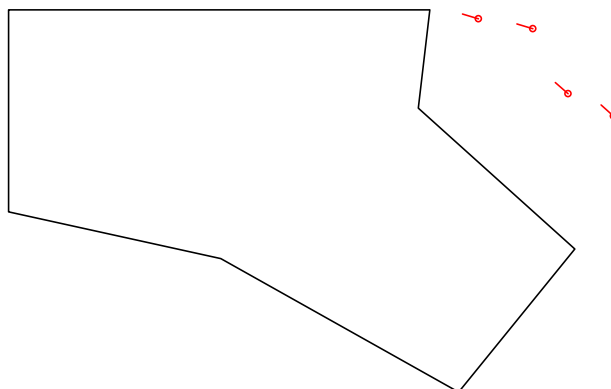
1.3.3 Boundary line, EXIT from Goods In (E)



Required minimum illuminance		: 1 lx
Minimum illuminance	Emin	: 4.2 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

Summary, External Lighting

.1 Result overview, Spill onto Windows (17)

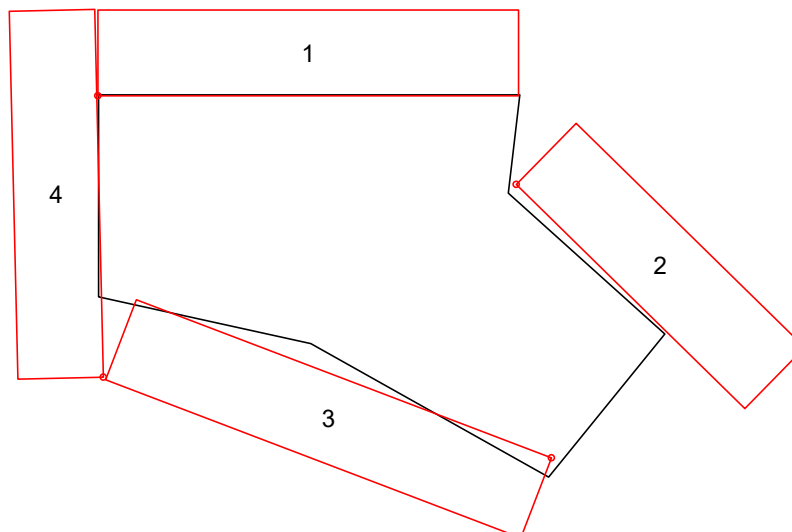


Illuminance

No.	Measuring surface	Grid	$\bar{E}_m$	E_{min}	E_{max}	U_o	U_d
17.1	Window Plot 1	12 x 6	0.43 lx	0.31 lx	0.53 lx	0.73	0.59
17.2	Window Plot 1	13 x 6	0.25 lx	0.18 lx	0.29 lx	0.70	0.61
17.3	Window Plot 2	13 x 6	0.31 lx	0.29 lx	0.34 lx	0.92	0.85
17.4	Window Plot 2	13 x 6	0.24 lx	0.21 lx	0.25 lx	0.89	0.84
Summary			0.31 lx	0.18 lx	0.53 lx	0.57	0.33

Summary, External Lighting

.2 Result overview, Horizontal Spill (16)

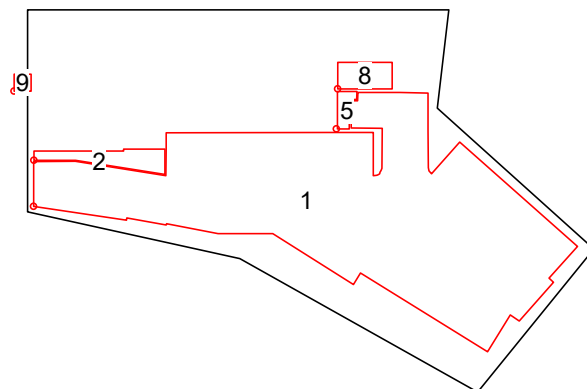


Horizontal illuminance

No.	Measuring surface	Grid	$\bar{E}_m$	E_{min}	E_{max}	U_o	U_d
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	1.8 lx	0 lx	17.7 lx	0.02	0.00
16.3	Horizontal spill to South	25 x 10	2.2 lx	0.1 lx	14.1 lx	0.06	0.01
16.4	Horizontal spill to Church Street	25 x 9	8.8 lx	0.1 lx	36.7 lx	0.02	0.00
Summary			3.2 lx	0 lx	36.7 lx	0.00	0.00

Summary, External Lighting

.3 Result overview, Areas (5)



Horizontal illuminance

No.	Measuring surface	Grid	$\bar{E}_m$	E_{min}	E_{max}	U_o	U_d
5.9	Church Road Entrance	7 x 7	31.2 lx	28.9 lx	32.3 lx	0.93	0.90
5.1	Carparking area	20 x 15	27.6 lx	16.6 lx	51.7 lx	0.60	0.32
5.2	Entrance Pavement	11 x 8	37.9 lx	21 lx	49.2 lx	0.55	0.43
5.5	Pavement Goods in to Refuse	4 x 8	50.6 lx	36.1 lx	67.2 lx	0.71	0.54
5.8	Refuse area	16 x 8	32.8 lx	12.3 lx	56.3 lx	0.38	0.22
Summary			28.2 lx	12.3 lx	67.2 lx	0.44	0.18