

First Street, Manchester

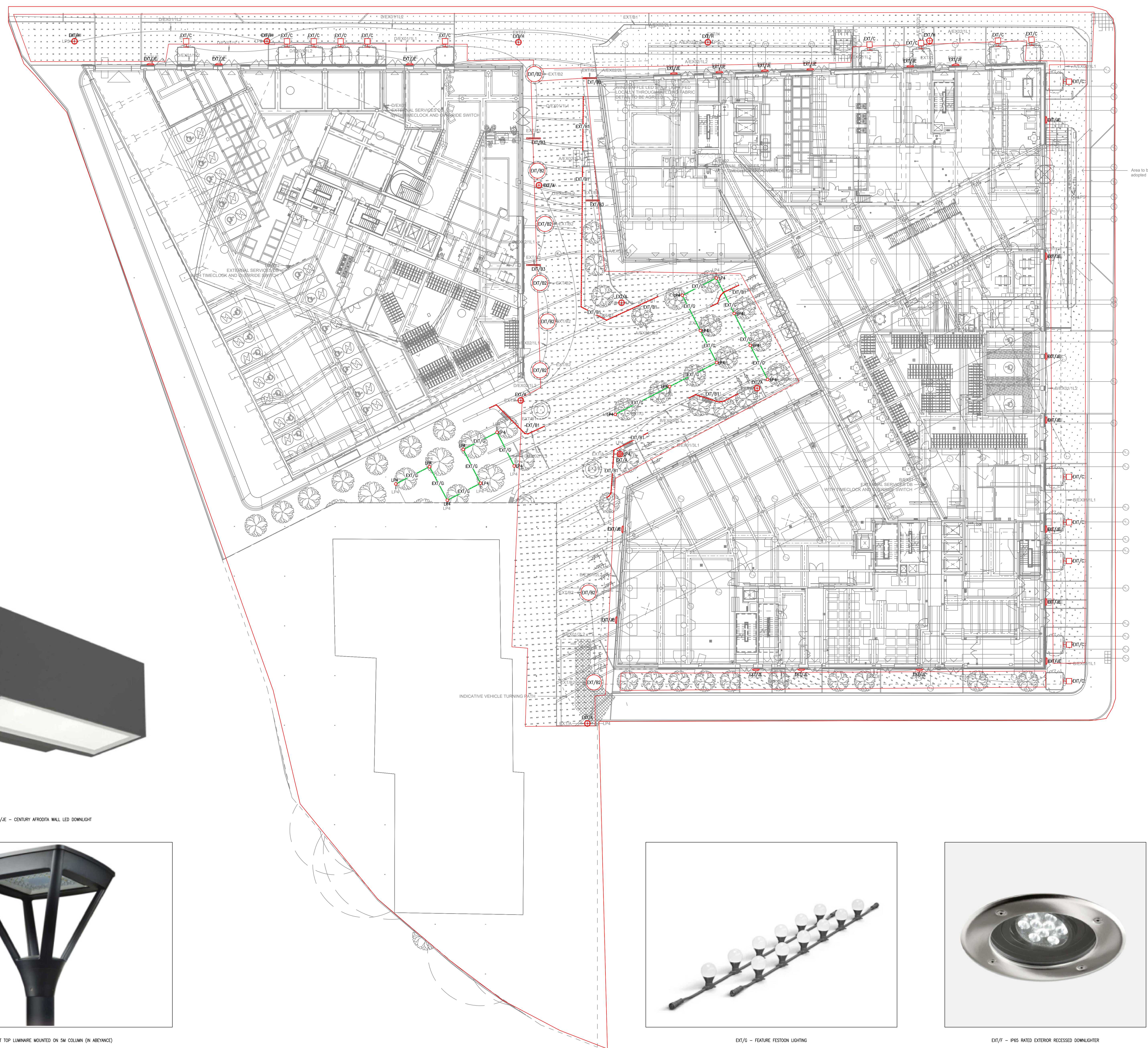
Sitewide External Lighting Calculations

Document Ref: 0253-HES-ZZ-00-CA-63001
Project Name: First Street, Manchester
Engineer: C. Taylor
Revision: C01
Date: 04/03/2024
Status: A5

Project: First Street, Manchester

Subject: Sitewide External Lighting Calculations

Revision	Issue/Revision Description	Prepared By	Approved By	Issue Date
C01	For Comment/Approval	C. Taylor	S. Boswarva	04/03/2024



EXT/A - 4M HIGH FEATURE LED COLUMN FITTING



EXT/81 - LED STRIP LIGHTING INSTALLED BELOW FIXED BENCHING



EXT/B2 - LED STRIP LIGHTING INSTALLED AROUND CONICAL PLANTERS. FINAL CONNECTION BY CONCEALED PLUG AND SOCKET TO ALLOW PLANTERS TO BE REMOVED IF REQUIRED



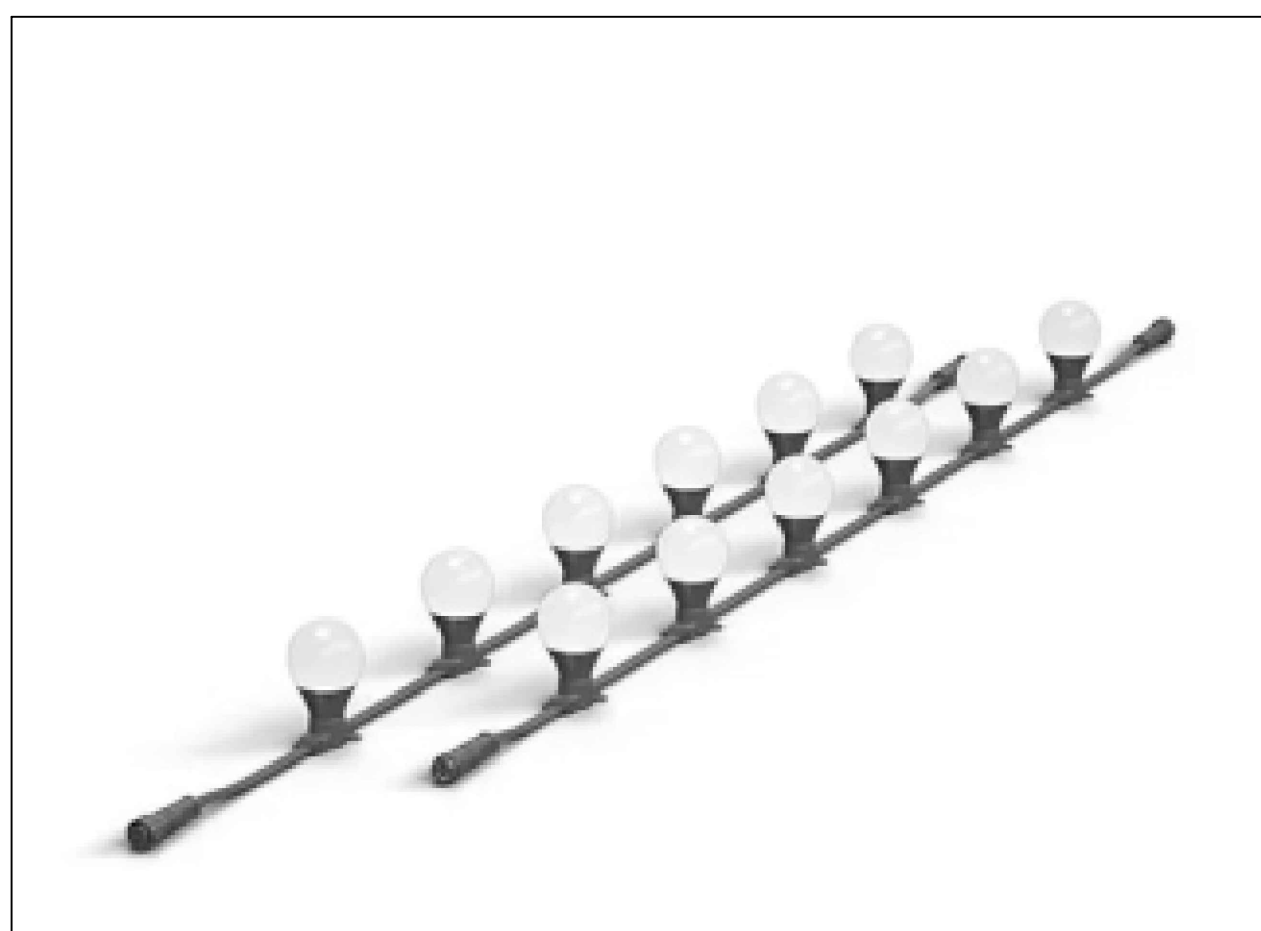
EXT/B3 - LED STRIP LIGHTING INSTALLED WITHIN WIND BAFFLES



EXT/JE - CENTURY AFRODITA WALL LED DOWNLIGHT



EXT/H - POST TOP LUMINAIRE MOUNTED ON 5M COLUMN (IN ABEYANCE)



EXT/G - FEATURE FESTOON LIGHTING



EXT/F - IP65 RATED EXTERIOR RECESSED DOWNLIGHTER



EXT/C - RECESSED LOW LEVEL LED FITTING WITHIN STREET PLANTER

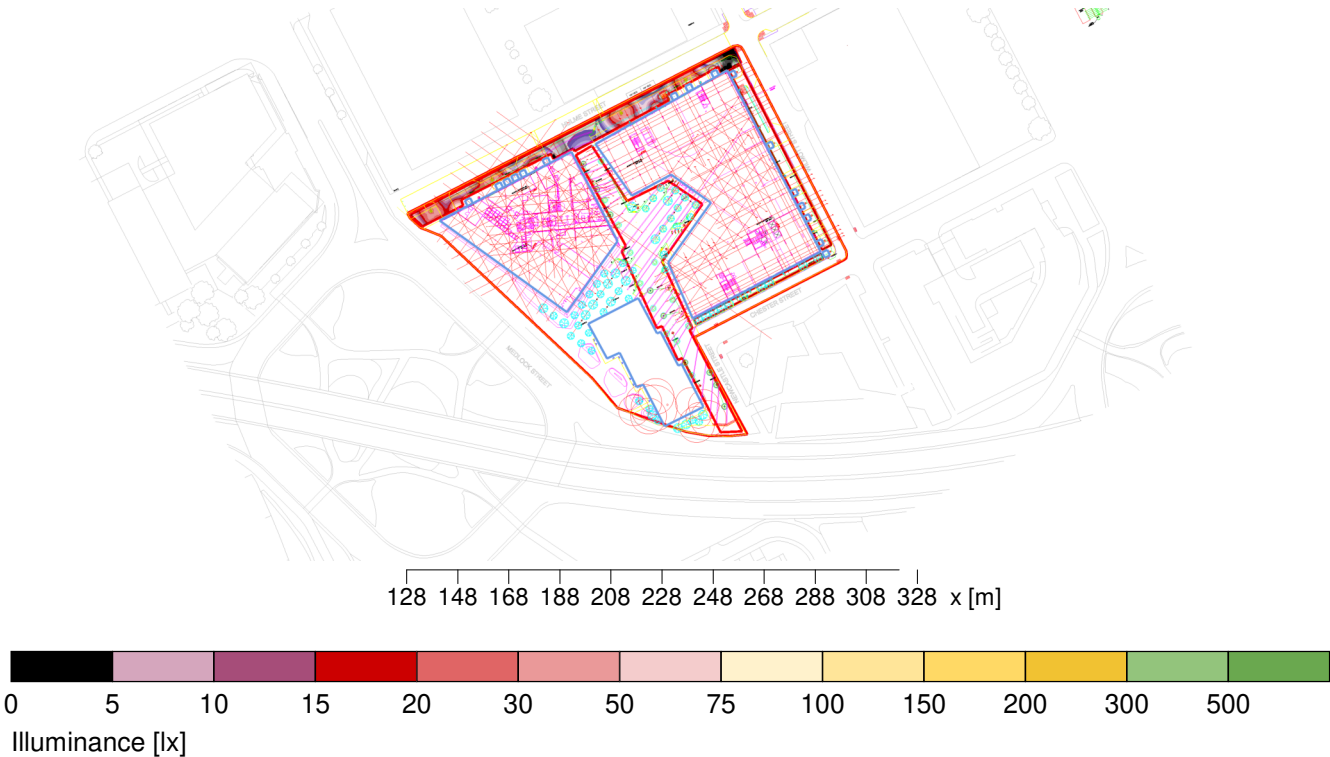
P01-ET	ISSUED FOR COMMENT/APPROVAL.						C.T.	S.B	
							09/07/2020	08/07/2020	
Date:	Amended						Dated	Revised	
							8 June	8 Date	
									
<h1>HE Simm</h1>									
<h2>ENGINEERING EXCELLENCE</h2>									
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Tel: 0151 707 3222 Email: info@hesimm.co.uk www.hesimm.co.uk									
Project Name: First Street Manchester Block A & B									
Sheet Title: LEVEL 00 SUBJECT – EXTERNAL LIGHTING LUX PLOT LAAYOUT									
Scale: (Ø AD) 1 : 200	Drawn: CT	RIBA Stage: 5 - Construction	Status: Zero						
BSI 192 Document Number: G250-HFES-ZN-00-DR-E-G3002								Revision: P01.01	

Object : FIRST STREET EXTERNAL LIGHTING CALC
Installation : FIRST STREET
Project number : 0250
Date : 04.03.2024

2 Exterior 1

2.1 Summary, Exterior 1

2.1.1 Result overview, Measuring area 1



General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80
Total luminous flux	94000.2 lm
Total power	908.4 W
Total power per area (13162.66 m ²)	0.07 W/m ²

Illuminance

Average illuminance	$\bar{E}_m$	14 lx
Minimum illuminance	E_{min}	0 lx
Maximum illuminance	E_{max}	205 lx
Uniformity U_o	$E_{min}/\bar{E}_m$	1:765 (0)
Diversity U_d	E_{min}/E_{max}	1:11000 (0)

Type No.\Make

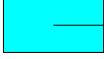
CENTURY LIGHTING		
1	4 x	Order No. : KTSL4014LED4032
		Luminaire name : LED40-32 XTES2 HLG4054 T1
		Equipment : 1 x 40 39.7 W / 3562 lm
2	3 x	Order No. : FINCCT4K-28W-725mA
		Luminaire name : FINCCT4K-28W-725mA
		Equipment : 1 x 26.4 W / 3487.45 lm

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2 Exterior 1

2.1 Summary, Exterior 1

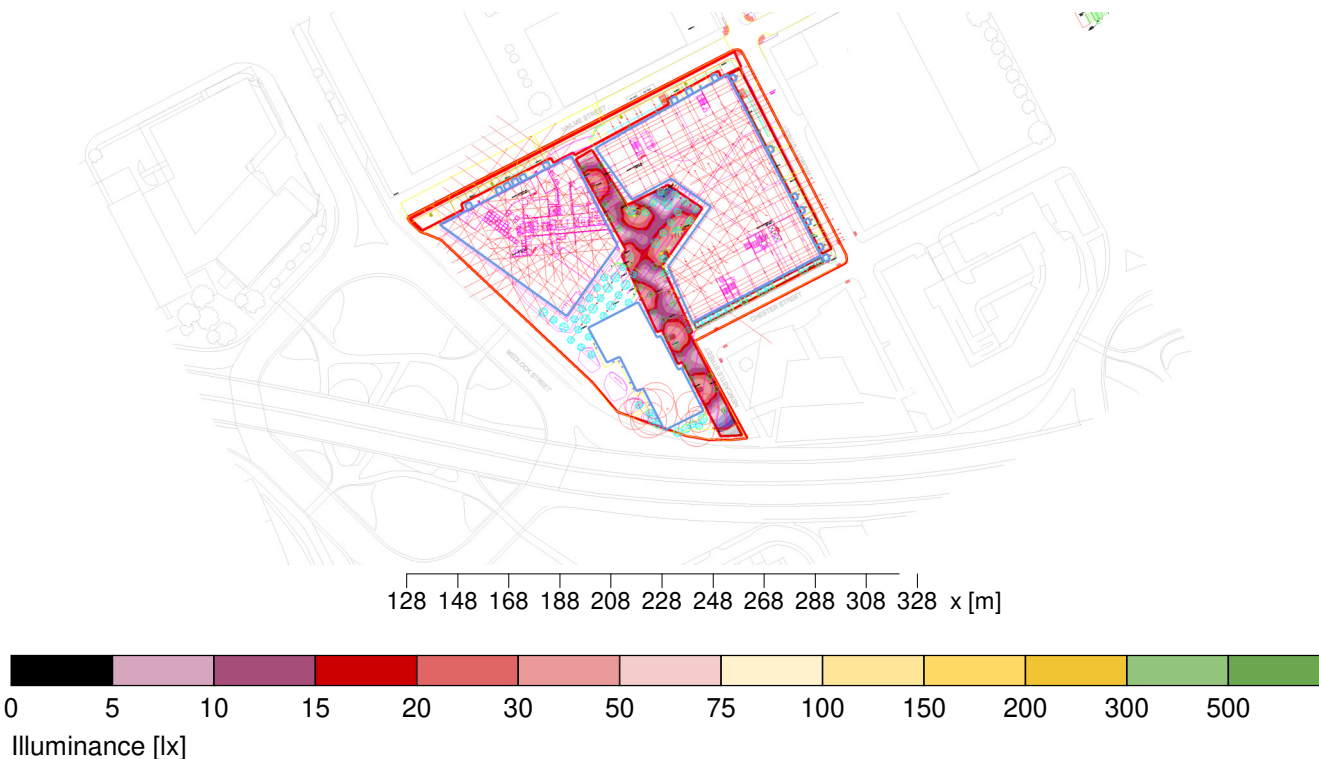
2.1.1 Result overview, Measuring area 1

3	18 x	Order No.	: 05-E129-34-EH4000
		Luminaire name	: MICENAS RECTANGULAR
		Equipment	: 1 x LED 6.2 W / 507 lm
5	8 x	Order No.	: LED6308(24)-55W
		Luminaire name	: LED6308(24)-55W
		Equipment	: 1 x INDIVIDUAL SMD SAMSUNG 53.6 W / 6265.68 lm
LEDS C4			
6	10 x	Order No.	: 05-9912-Z5-CMV1
		Luminaire name	: AFRODITA
		Equipment	: 1 x 05-9912-Z5-CMV1 13 W / 1003.84 lm

Object : FIRST STREET EXTERNAL LIGHTING CALC
Installation : FIRST STREET
Project number : 0250
Date : 04.03.2024

2.1 Summary, Exterior 1

2.1.2 Result overview, Measuring area 2



General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80
Total luminous flux	94000.2 lm
Total power	908.4 W
Total power per area (13162.66 m ²)	0.07 W/m ²

Illuminance

Average illuminance	$\bar{E}_m$	16.6 lx
Minimum illuminance	E_{min}	0.4 lx
Maximum illuminance	E_{max}	55.2 lx
Uniformity U_o	$E_{min}/\bar{E}_m$	1:37.5 (0.03)
Diversity U_d	E_{min}/E_{max}	1:124 (0.01)

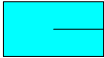
Type No.\Make

CENTURY LIGHTING		
1	4 x	Order No. : KTSL4014LED4032
		Luminaire name : LED40-32 XTES2 HLG4054 T1
		Equipment : 1 x 40 39.7 W / 3562 lm
2	3 x	Order No. : FINCCT4K-28W-725mA
		Luminaire name : FINCCT4K-28W-725mA
		Equipment : 1 x 26.4 W / 3487.45 lm

Object : FIRST STREET EXTERNAL LIGHTING CALC
Installation : FIRST STREET
Project number : 0250
Date : 04.03.2024

2.1 Summary, Exterior 1

2.1.2 Result overview, Measuring area 2

3	18 x	Order No.	: 05-E129-34-EH4000
		Luminaire name	: MICENAS RECTANGULAR
		Equipment	: 1 x LED 6.2 W / 507 lm
5	8 x	Order No.	: LED6308(24)-55W
		Luminaire name	: LED6308(24)-55W
		Equipment	: 1 x INDIVIDUAL SMD SAMSUNG 53.6 W / 6265.68 lm
LEDS C4			
6	10 x	Order No.	: 05-9912-Z5-CMV1
		Luminaire name	: AFRODITA
		Equipment	: 1 x 05-9912-Z5-CMV1 13 W / 1003.84 lm

Object : FIRST STREET EXTERNAL LIGHTING CALC
Installation : FIRST STREET
Project number : 0250
Date : 04.03.2024

2.1 Summary, Exterior 1

2.1.3 Result overview, Measuring area 3



General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80
Total luminous flux	94000.2 lm
Total power	908.4 W
Total power per area (13162.66 m ²)	0.07 W/m ²

Illuminance

Average illuminance	$\bar{E}_m$	8.4 lx
Minimum illuminance	E_{min}	0 lx
Maximum illuminance	E_{max}	46.6 lx
Uniformity U_o	$E_{min}/\bar{E}_m$	1:448 (0)
Diversity U_d	E_{min}/E_{max}	1:2500 (0)

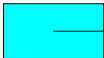
Type No.\Make

CENTURY LIGHTING		
1	4 x	Order No. : KTSL4014LED4032
		Luminaire name : LED40-32 XTES2 HLG4054 T1
		Equipment : 1 x 40 39.7 W / 3562 lm
2	3 x	Order No. : FINCCT4K-28W-725mA
		Luminaire name : FINCCT4K-28W-725mA
		Equipment : 1 x 26.4 W / 3487.45 lm

Object : FIRST STREET EXTERNAL LIGHTING CALC
Installation : FIRST STREET
Project number : 0250
Date : 04.03.2024

2.1 Summary, Exterior 1

2.1.3 Result overview, Measuring area 3

3	18 x	Order No.	: 05-E129-34-EH4000
		Luminaire name	: MICENAS RECTANGULAR
		Equipment	: 1 x LED 6.2 W / 507 lm
5	8 x	Order No.	: LED6308(24)-55W
		Luminaire name	: LED6308(24)-55W
		Equipment	: 1 x INDIVIDUAL SMD SAMSUNG 53.6 W / 6265.68 lm
LEDS C4			
6	10 x	Order No.	: 05-9912-Z5-CMV1
		Luminaire name	: AFRODITA
		Equipment	: 1 x 05-9912-Z5-CMV1 13 W / 1003.84 lm

Object : FIRST STREET EXTERNAL LIGHTING CALC
Installation : FIRST STREET
Project number : 0250
Date : 04.03.2024

2.1 Summary, Exterior 1

2.1.4 Result overview, Measuring area 4



General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80
Total luminous flux	94000.2 lm
Total power	908.4 W
Total power per area (13162.66 m ²)	0.07 W/m ²

Illuminance

Average illuminance	$\bar{E}_m$	11 lx
Minimum illuminance	E_{min}	0 lx
Maximum illuminance	E_{max}	193 lx
Uniformity U_o	$E_{min}/\bar{E}_m$	1:--- (---)
Diversity U_d	E_{min}/E_{max}	1:--- (---)

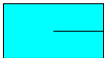
Type No.\Make

CENTURY LIGHTING		
1	4 x	Order No. : KTSL4014LED4032
		Luminaire name : LED40-32 XTES2 HLG4054 T1
		Equipment : 1 x 40 39.7 W / 3562 lm
2	3 x	Order No. : FINCCT4K-28W-725mA
		Luminaire name : FINCCT4K-28W-725mA
		Equipment : 1 x 26.4 W / 3487.45 lm

Object : FIRST STREET EXTERNAL LIGHTING CALC
Installation : FIRST STREET
Project number : 0250
Date : 04.03.2024

2.1 Summary, Exterior 1

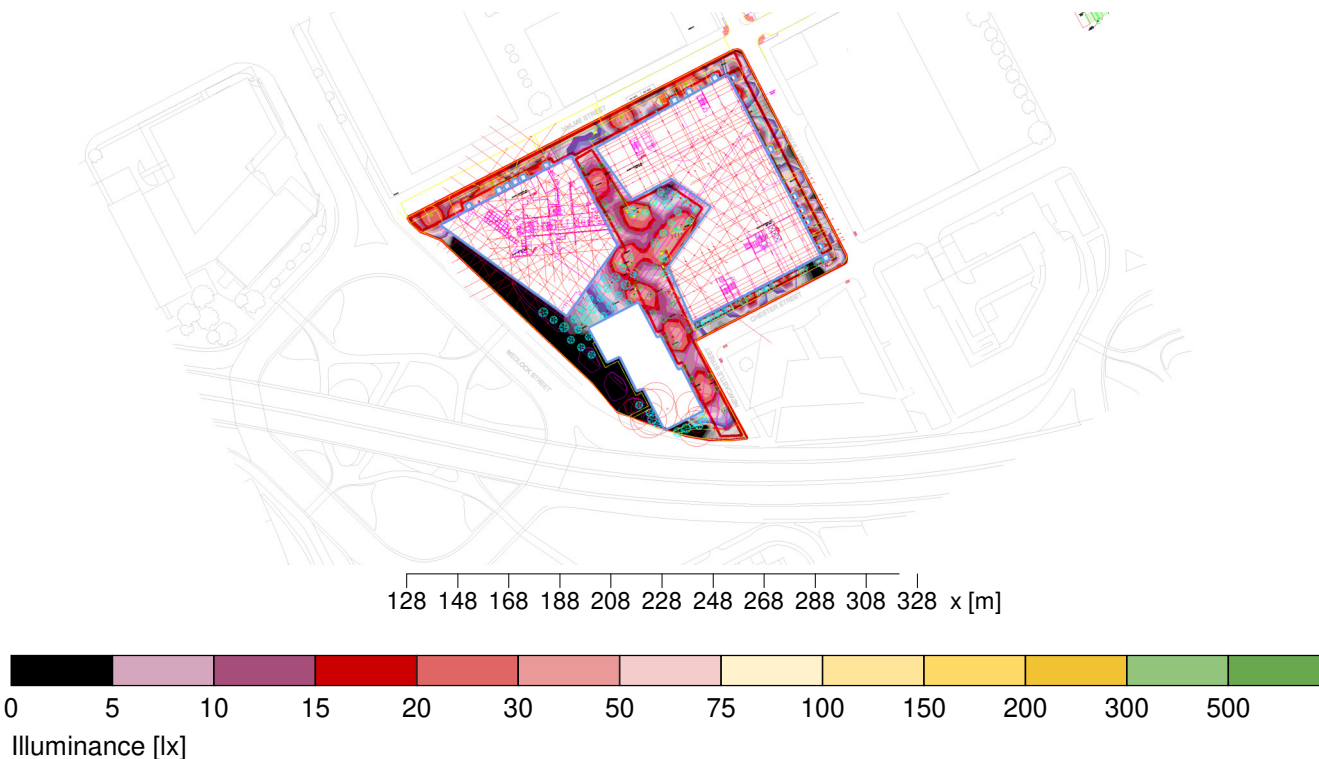
2.1.4 Result overview, Measuring area 4

3	18 x	Order No.	: 05-E129-34-EH4000
		Luminaire name	: MICENAS RECTANGULAR
		Equipment	: 1 x LED 6.2 W / 507 lm
5	8 x	Order No.	: LED6308(24)-55W
		Luminaire name	: LED6308(24)-55W
		Equipment	: 1 x INDIVIDUAL SMD SAMSUNG 53.6 W / 6265.68 lm
LEDS C4			
6	10 x	Order No.	: 05-9912-Z5-CMV1
		Luminaire name	: AFRODITA
		Equipment	: 1 x 05-9912-Z5-CMV1 13 W / 1003.84 lm

Object : FIRST STREET EXTERNAL LIGHTING CALC
Installation : FIRST STREET
Project number : 0250
Date : 04.03.2024

2.1 Summary, Exterior 1

2.1.5 Result overview, Evaluation area 1



General

Calculation algorithm used
Maintenance factor

Average indirect fraction
0.80

Total luminous flux

94000.19 lm

Total power

908.4 W

Total power per area (13162.66 m²)

0.07 W/m² (0.75 W/m²/100lx)

Evaluation area 1

Reference plane 1.1

Horizontal
 $\bar{E}_m$ 9.24 lx
 E_{min} 0 lx
 $E_{min}/\bar{E}_m (U_0)$ ---
 $E_{min}/E_{max} (U_d)$ ---
Position 0.00 m

Type No. Make

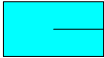
CENTURY LIGHTING

- | | | | |
|---|-----|----------------|-----------------------------|
| 1 | 4 x | Order No. | : KTSL4014LED4032 |
|  | | Luminaire name | : LED40-32 XTES2 HLG4054 T1 |
| | | Equipment | : 1 x 40 39.7 W / 3562 lm |
| 2 | 3 x | Order No. | : FINCCT4K-28W-725mA |
|  | | Luminaire name | : FINCCT4K-28W-725mA |
| | | Equipment | : 1 x 26.4 W / 3487.45 lm |

Object : FIRST STREET EXTERNAL LIGHTING CALC
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2.1 Summary, Exterior 1

2.1.5 Result overview, Evaluation area 1

3	18 x	Order No.	: 05-E129-34-EH4000
		Luminaire name	: MICENAS RECTANGULAR
		Equipment	: 1 x LED 6.2 W / 507 lm
5	8 x	Order No.	: LED6308(24)-55W
		Luminaire name	: LED6308(24)-55W
		Equipment	: 1 x INDIVIDUAL SMD SAMSUNG 53.6 W / 6265.68 lm
6	10 x	LEDS C4	
		Order No.	: 05-9912-Z5-CMV1
		Luminaire name	: AFRODITA
		Equipment	: 1 x 05-9912-Z5-CMV1 13 W / 1003.84 lm