EXTERNAL LIGHTING REPORT & SPECIFICATION

For

BROWNS BRASSERIE & BAR

THE GEORGE, BURY St.

RUISLIP, HA4 7TJ

BMT Ref: B3847/EXL

ISSUE: A – 10.07.2023

1.0 INTRODUCTION

This report has been compiled specifically for Mitchells & Butlers Plc(and associates) and the local planning authority.

The site is located at the junction of Bury Street (A4180) and Sharps Lane in Ruislip.

The site neighbours a number of residential properties to the North & West, Bell View Manor residences to the South and High Street commercial properties to the East.

To the southern and western boundaries of the site and immediately surrounding the car park is a green buffer of trees and hedges. .

The purpose of the report is to highlight the design parameters of the external lighting to consider the local wildlife, and MAB's commitment to working with the local planning authority and maintaining the amenity of the site and locality. Lengths have been taken in the design and specification of the external lighting to reduce the amount of overspill light from the site onto the neighbouring areas.

2.0 PURPOSE

The external lighting installation generally provides for the following:

- Replacement of obsolete and inefficient external lighting
- Illuminate the car park and external areas of use by customers
- Safety and security of staff and customers
- Safe night time navigation of the external access routes and car park by vehicles and pedestrians
- To aid the operation of the CCTV surveillance system

3.0 LIGHTING DESIGN CALCULATIONS

See appended documents.

Car Park Summary:

Height reference plane		: 0.00 m
Average illuminance	$\bar{E}_m$	: 11.7 lx
Minimum illuminance	E_{min}	: 1.1 lx
Maximum illuminance	E_{max}	: 57.3 lx
Uniformity U_o	$E_{min}/\bar{E}_m$	: 1 : 10.42 (0.10)
Diversity U_d	E_{min}/E_{max}	: 1 : 50.92 (0.02)

For reference purposes:

Lighting condition	From (lux)	To (lux)	Mean value (lux)	Lighting step
Pitch Black	0	10	5	1
Very Dark	11	50	30	2
Dark Indoors	51	200	125	3
Dim Indoors	201	400	300	4
Normal Indoors	401	1000	700	5
Bright Indoors	1001	5000	3000	6
Dim Outdoors	5001	10,000	7500	7
Cloudy Outdoors	10,001	30,000	20,000	8
Direct Sunlight	30,001	100,000	65,000	9

4.0 REFERENCE STANDARDS

CIBSE Lighting Guide LG6. Surface car park accessible to the public, recommended average lighting level – 10-20Lux

ILP Guidance notes for the Reduction of Intrusive Light

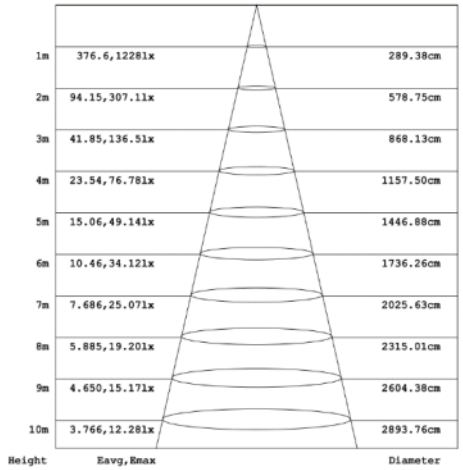
BS EN 12464-2: Lighting of Work Places - Outdoor Work Places, British Standards Institute, 2007

BS 5489-1: Code of Practice for the Design of Outdoor Lighting - Lighting of Roads and Public Amenity Areas, British Standards Institute, 2003

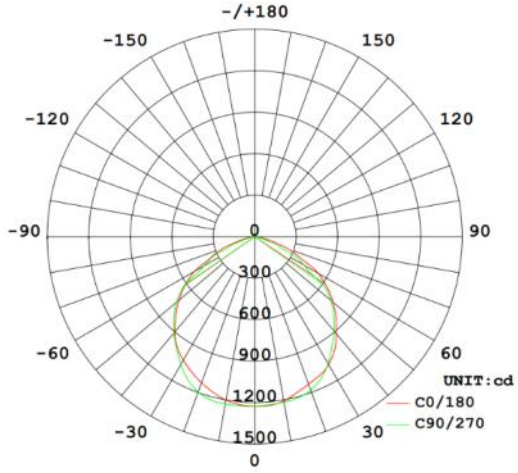
5.0 PROPOSED LIGHTING EQUIPMENT

Luminaires	ROBUS LED Group UK Cosmic LED Floodlight RCM50 46.4watt IP65 
Control Gear	Electronic driver
IP Rating	IP65
Light Source	LED Array, nominal 4000k, 5170 lumens
Distribution	Symmetrical
Tilt angle	5degree max. relative to ground
Control	Remote Photocell and time schedule
Mounting	5metre, galvanised finish tubular column with base compartment for cut-out unit & bracket.
Final connection Cabling	3core 1.5sq.mm Heat resisting flexible.
Standards	UKCA Marked

Cone Illuminance Diagram



Polar Intensity Diagram

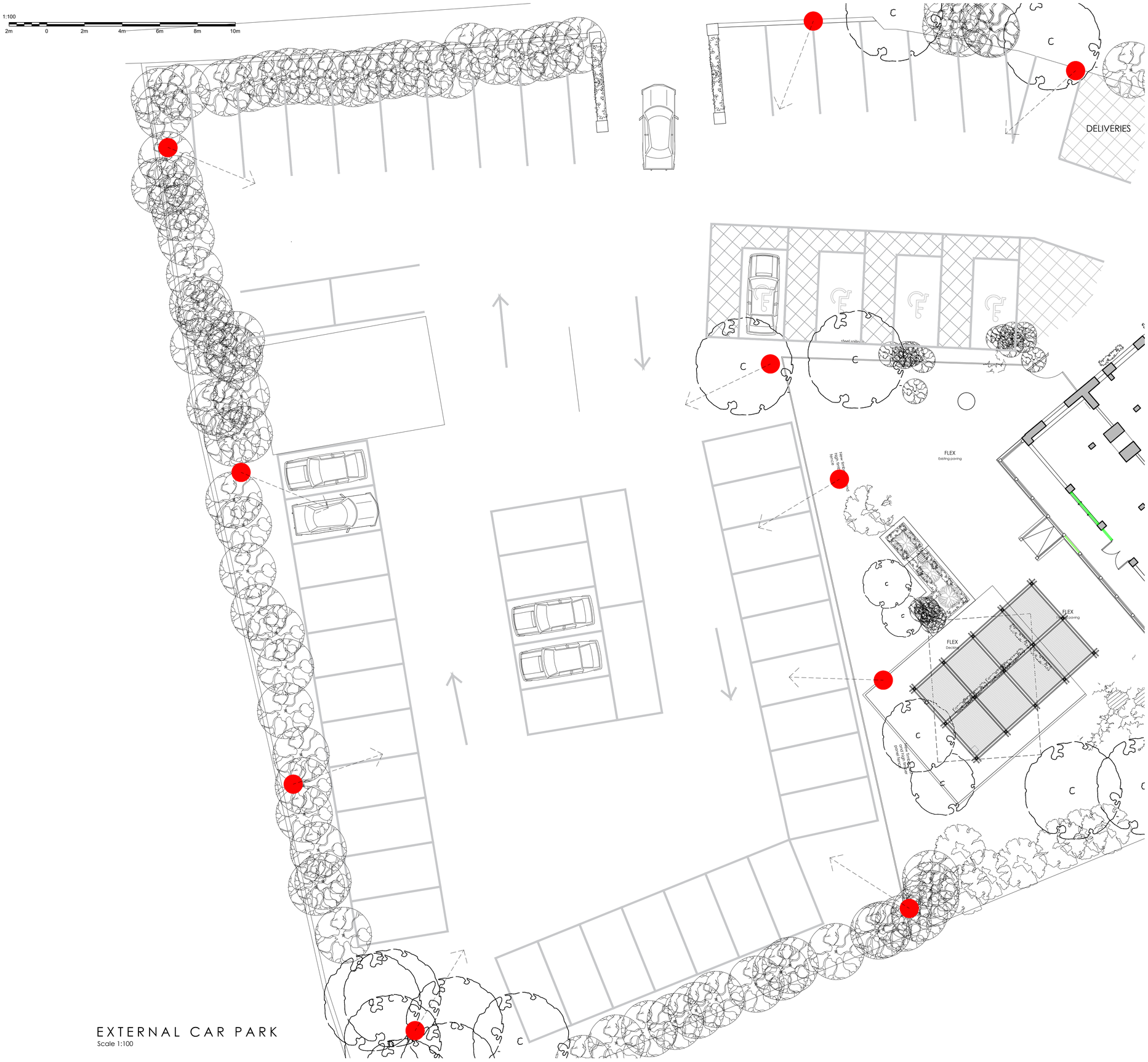


6.0 POWER SUPPLY & CONTROL DETAILS

- Private circuits from external lighting distribution boards.
- 24hour/7day programmable time switch
- Photo-electric cell
- Car park lighting disabled between 2300 – 0700.

7.0 CONCLUSIONS

- The lux-plot provided demonstrates MABs commitment to providing lighting to ensure the health & safety of staff and public using the site but also shows that the lighting should not unduly affect the surroundings.
- Luminaires chosen for the task have quality optics to accurately control the distribution of illuminance to the area that requires it and minimise spill light off the site.
- Lighting is designed to the recommendations of the Institute of Lighting Professionals (ILP) Guidance for the Reduction of Intrusive Light.
- Lighting levels are chosen from Lighting Guide 6 published by the Chartered Institute of Building Service Engineers
- All external (and internal) lighting will be LED, chosen not only for its obvious energy efficiency but also for their reduced spectrum of wavelengths and UV values vs the lighting that was replaced.
- Car park column lighting is illuminated only when ambient light levels fall and is extinguished when the establishment closes (2300).
- Column numbers to external boundaries have purposely kept to a minimum to reduce the potential light spill.
- ***Aiming and tilt angles currently in use at the site will be adjusted in accordance with the lux plot included in this report and reduces the potential for nuisance illumination to neighbours.***



EXTERNAL CAR PARK
Scale 1:100

Revisions:
A - 08/06/2023 - Car park light direction shown

EXTERNAL KEY

5TG post with custom galvanized metal bracket to affix 50W cosmic LED flood light.

APPROVAL

KIRK+NOLAN

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info@kirknolan.com
London | Cornwall | Galway

Client
MITCHELLS & BUTLERS

Project
Browns, Ruislip
Bury Street, Ruislip, HA4 7TJ

Drawing
Proposed Car Park Lighting

First Issue	Scale	Sheet Size	Drawn
MAR 2023	As Shown	A1	JT

Drawing No. 2206/824

Rev A

Browns, Ruislip External Car Park Calculation

Installation :

Project number	:	B3847 Browns, Ruislip
Customer	:	MAB Plc
Processed by	:	
Date	:	14.06.2023

1 Luminaire data

1.1 ROBUS, Cosmic (RCM5030-04)

1.1.1 Data sheet

Manufacturer: ROBUS

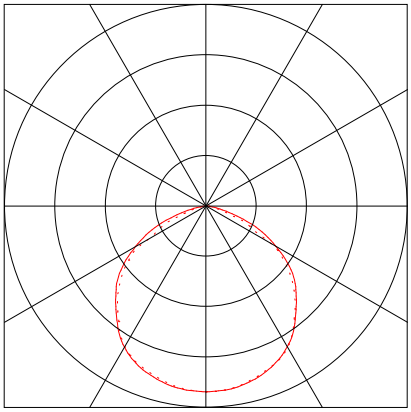
RCM5030-04 Downlight/spot/floodlight Cosmic
* Suitable for use in decking areas, drives, pathways, sign illumination, wall washing, atriums, patios, car parks, garages, industrial units * LED replacement for 80W Metal Halide/ 350W Halogen flood lights * Die cast aluminium housing providing optimal heat dissipation and high resistance to weather conditions * Self regulating valve on the fitting to prevent condensation * Tempered glass providing high impact rating of IK07 * Complete with stainless steel screws * Prewired with 1m of rubber flex * Pre-drilled mounting bracket with 180° adjustable angle * No warm up or cool down period required by LED * High efficacy of 111lm/W * Wide operating ambient temperature range of -20°C to 40°C * Suitable for switching by PIR, Microwave or Photocell

Luminaire data

Absolute Photometry		
Luminaire efficacy	:	111.47 lm/W
Classification	:	A40 ↓99.9% ↑0.1%
CIE Flux Codes	:	51 85 99 100 100
UGR 4H 8H	:	31.1 / 29.7
Control gear	:	Electronic ballast
Power	:	46.4 W
Luminous flux	:	5172 lm
Dimensions	:	251 mm x 262 mm x 42 mm

Equipped with

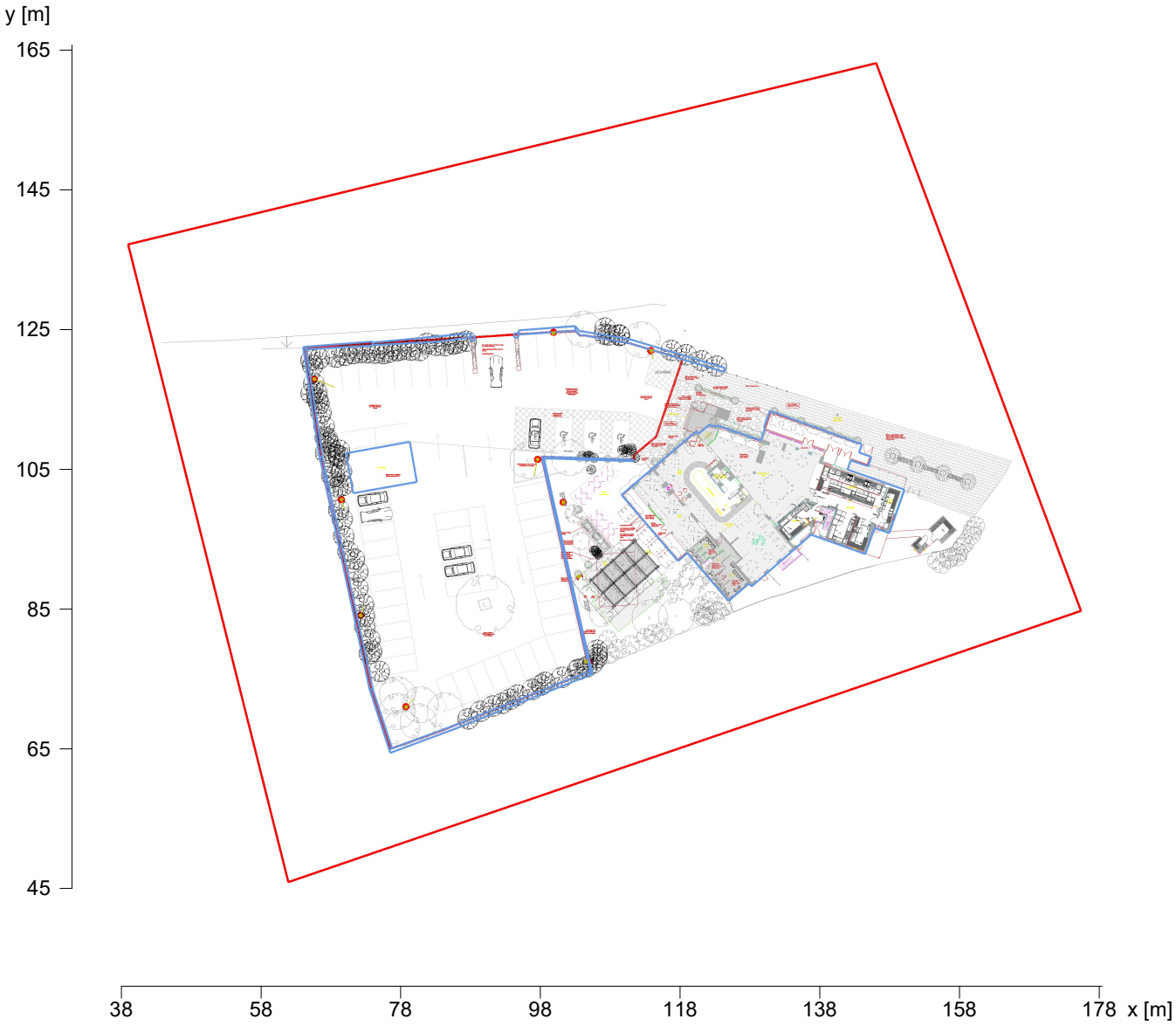
Quantity	:	1
Designation	:	LED
Colour	:	3000K
Colour reproduction	:	80



2 Exterior 1 -Tilt 5 Angle (Robus Cosmic)

2.1 Description, Exterior 1 -Tilt 5 Angle (Robus Cosmic)

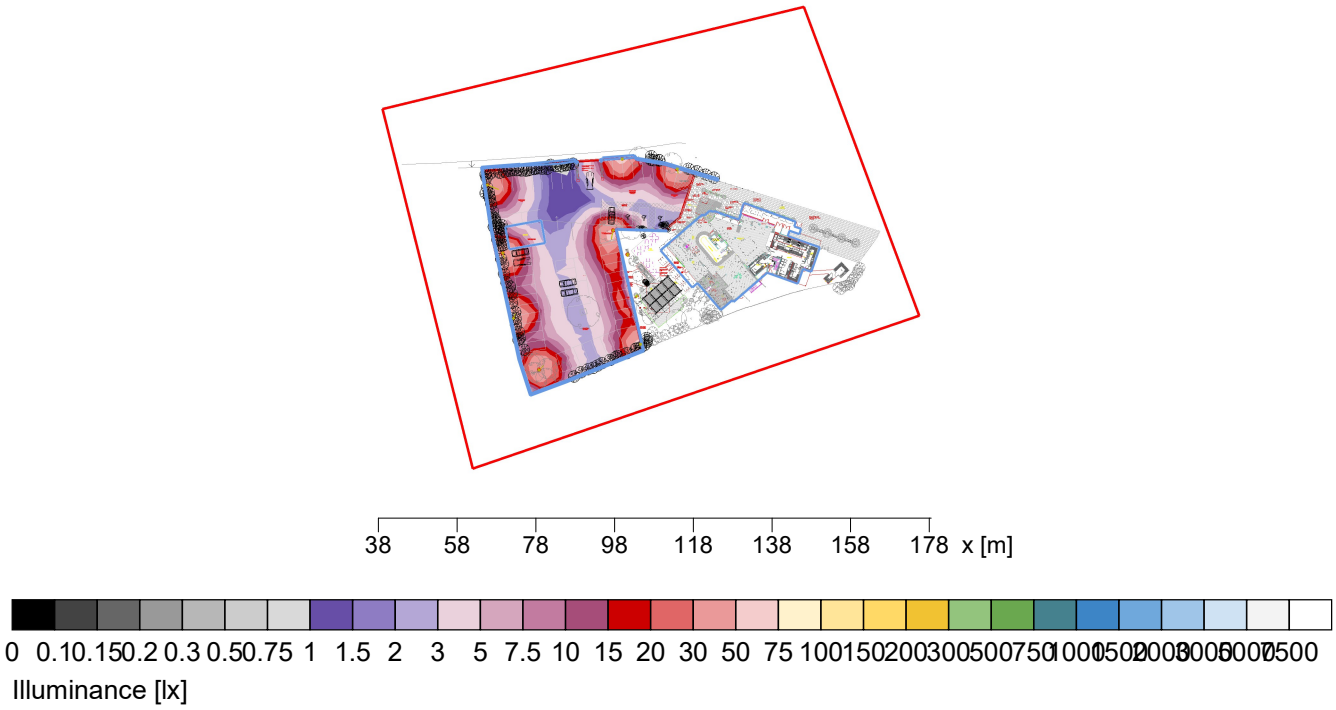
2.1.1 Floor plan



2 Exterior 1 -Tilt 5 Angle (Robus Cosmic)

2.2 Summary, Exterior 1 -Tilt 5 Angle (Robus Cosmic)

2.2.1 Result overview, Evaluation area 1



General

Calculation algorithm used	Average indirect fraction
Height (phot.centre)	4.98 m
Maintenance factor	0.80
Total luminous flux	41376.00 lm
Total power	371.2 W
Total power per area (2000.92 m²)	0.19 W/m² (1.58 W/m²/100lx)

Evaluation area 1	**Reference plane 1.1**
	Horizontal
$\bar{E}_m$	11.7 lx
E_{min}	1.1 lx
$E_{min}/\bar{E}_m$ (U_o)	0.10
E_{min}/E_{max} (U_d)	0.02
Position	0.00 m

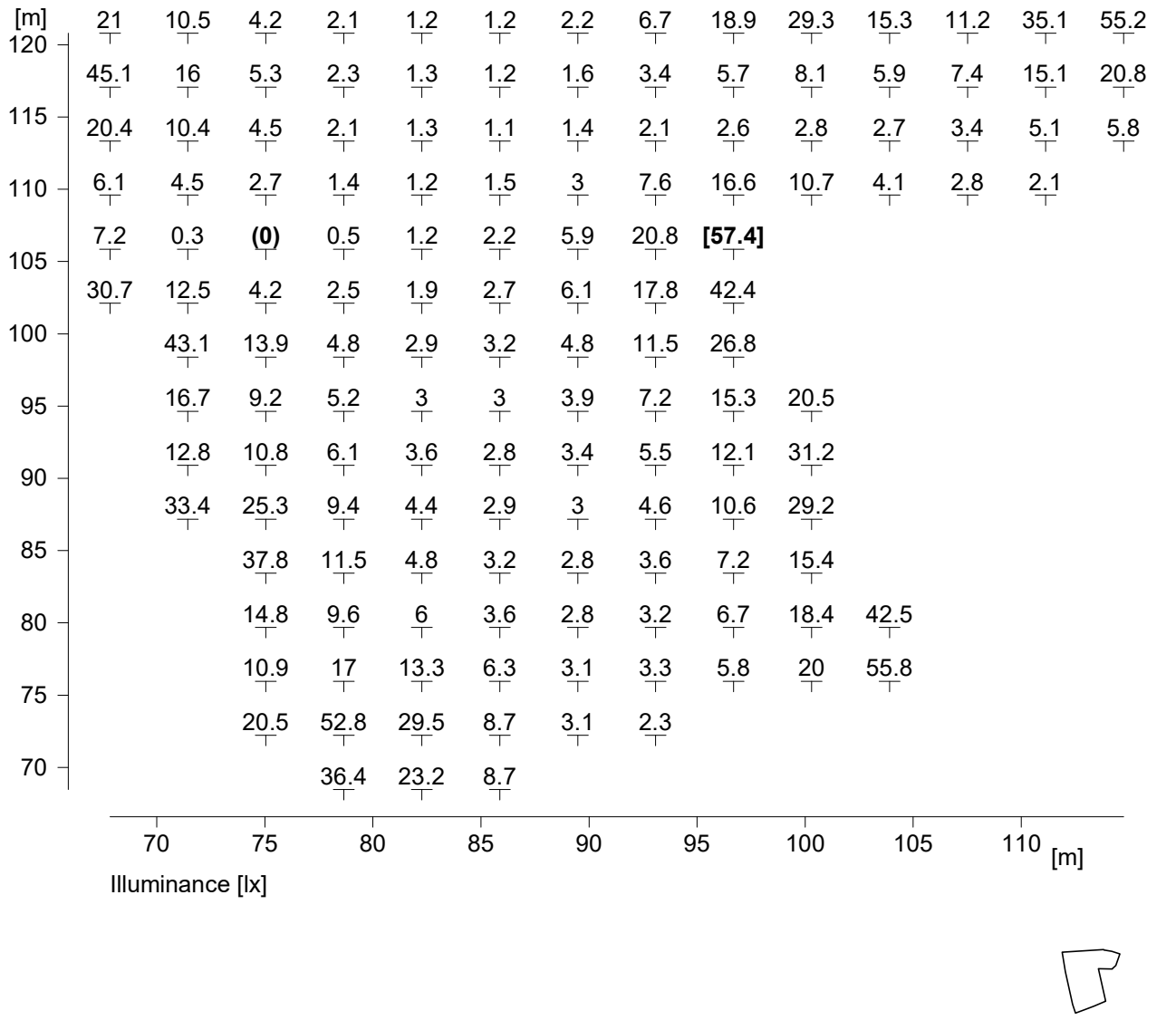
Type No.\Make

		ROBUS	
1	8 x	Order No.	: RCM5030-04
		Luminaire name	: Cosmic
		Equipment	: 1 x LED 46.4 W / 5172 lm

2 Exterior 1 -Tilt 5 Angle (Robus Cosmic)

2.3 Calculation results, Exterior 1 -Tilt 5 Angle (Robus Cosmic)

2.3.1 Table, Floor (E)



Average illuminance	$\bar{E}_m$	: 11.3 lx
Minimum illuminance	E_{min}	: 0 lx
Maximum illuminance	E_{max}	: 57.4 lx
Uniformity U_o	$E_{min}/\bar{E}_m$	: ---
Diversity U_d	E_{min}/E_{max}	: ---

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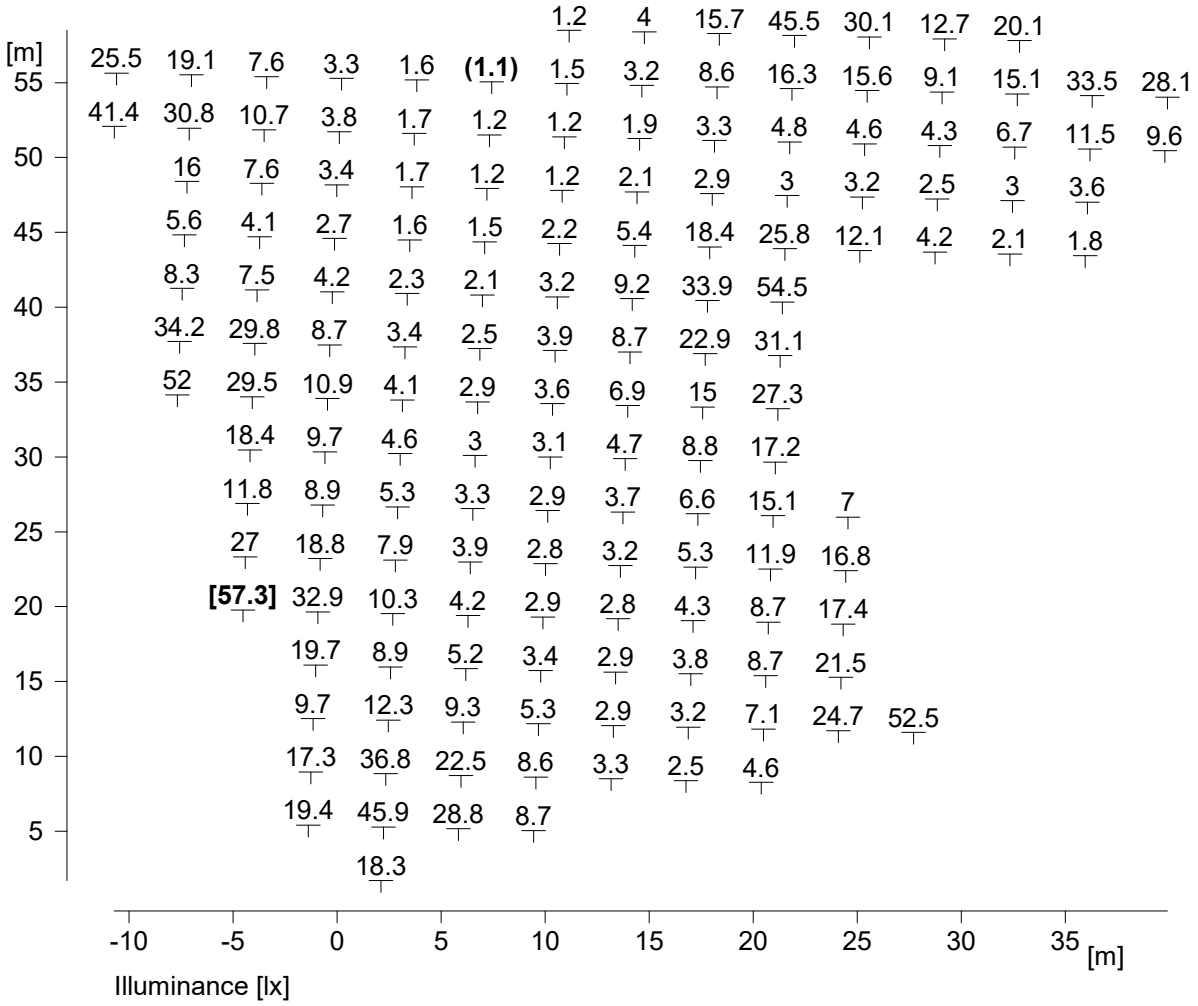
2.3 Calculation results, Exterior 1 -Tilt 5 Angle (Robus Cosmic)

2.3.2 Table, Reference plane 1.1 (E)



Height reference plane		: 0.00 m
Average illuminance	$\bar{E}_m$	: 11.7 lx
Minimum illuminance	E_{min}	: 1.1 lx
Maximum illuminance	E_{max}	: 57.3 lx
Uniformity U_o	$E_{min}/\bar{E}_m$	: 1 : 10.42 (0.10)
Diversity U_d	E_{min}/E_{max}	: 1 : 50.92 (0.02)

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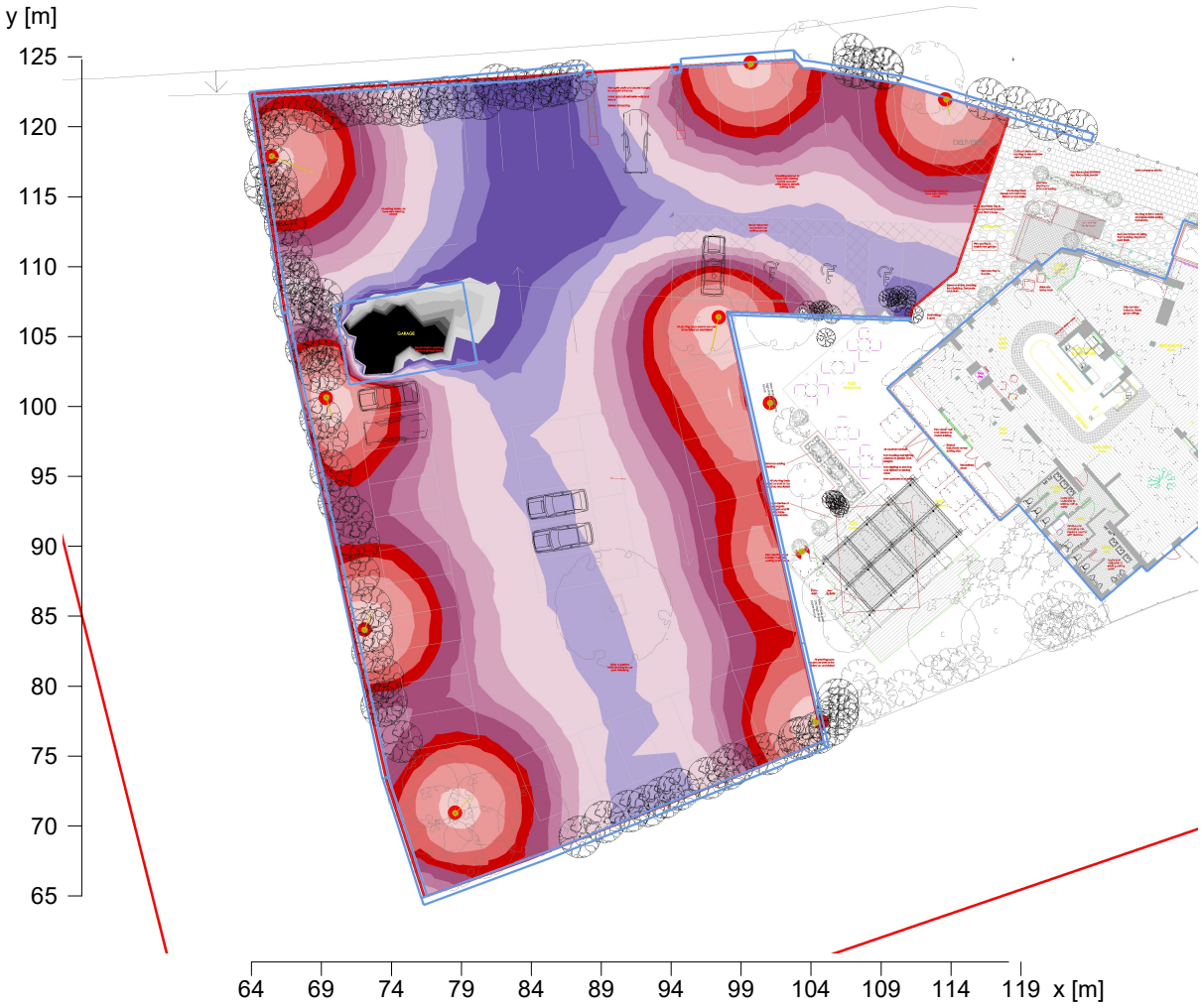
2.3 Calculation results, Exterior 1 -Tilt 5 Angle (Robus Cosmic)

2.3.3 Pseudo colours, Floor (E)



Illuminance [lx]

Average illuminance	$\bar{E}_m$	: 11.3 lx
Minimum illuminance	E_{min}	: 0 lx
Maximum illuminance	E_{max}	: 57.4 lx
Uniformity U_o	$E_{min}/\bar{E}_m$	: ---
Diversity U_d	E_{min}/E_{max}	: ---

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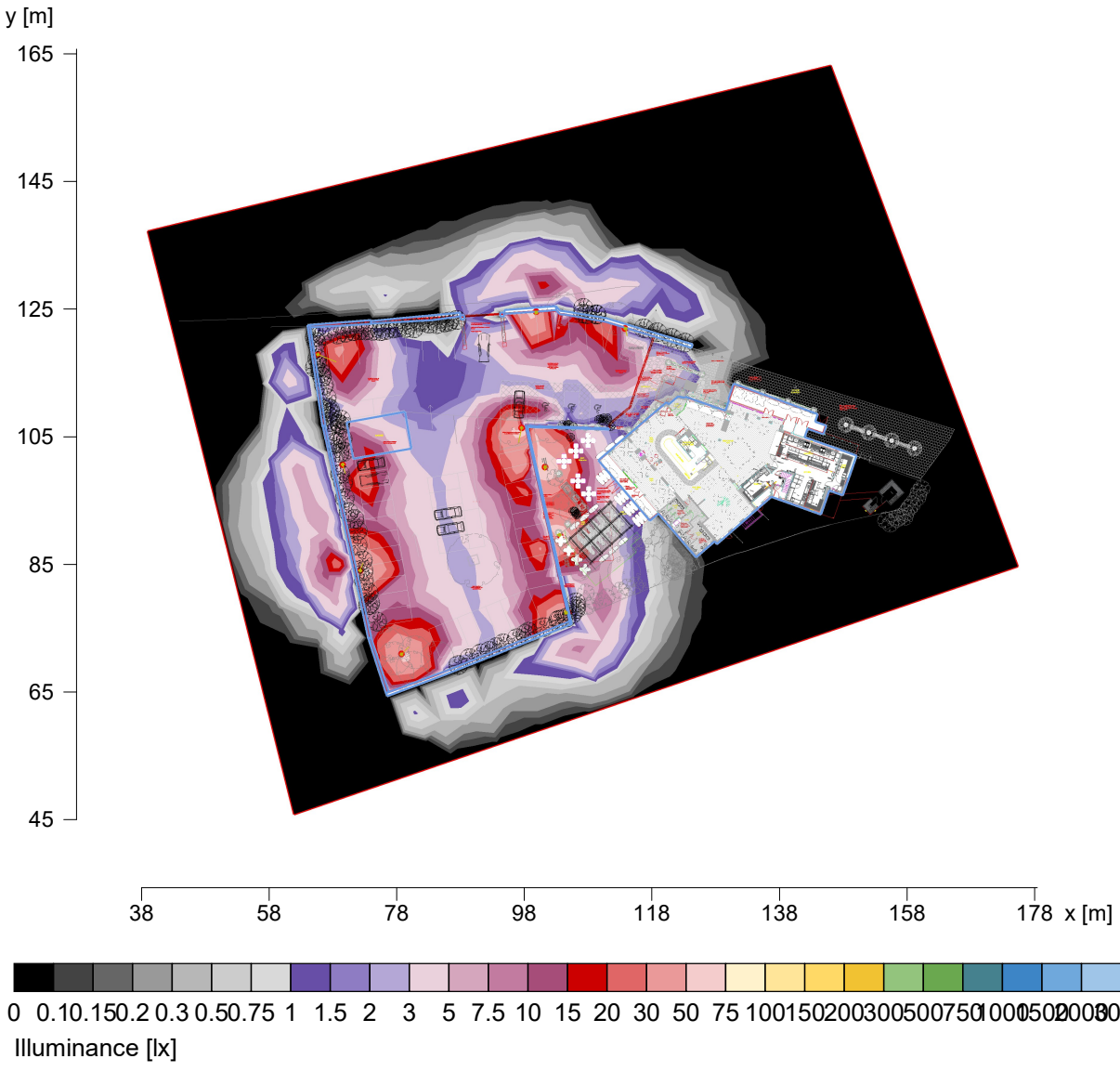
2.3 Calculation results, Exterior 1 -Tilt 5 Angle (Robus Cosmic)

2.3.4 Pseudo colours, Measuring area 1 (E)



Height reference plane		: 0.00 m
Average illuminance	$\bar{E}_m$	: 2.9 lx
Minimum illuminance	E_{min}	: 0 lx
Maximum illuminance	E_{max}	: 51.8 lx
Uniformity U_o	$E_{min}/\bar{E}_m$	: ---
Diversity U_d	E_{min}/E_{max}	: ---

2.3 Calculation results, Exterior 1 -Tilt 5 Angle (Robus Cosmic)

2.3.5 3D luminance, View 1