

SMP, Huyton (Public Realm External Lighting)

CDM 2015 Design Statement

This design drawing/information is for a lighting scheme which has been prepared for the client in collaboration with the client and other stakeholders, and is based upon the pre-construction information provided. The lighting scheme should only be installed and maintained by competent persons and in accordance with the design drawing/information, applicable installation instructions and all applicable laws. No changes should be made to the design of the lighting scheme without formal written approval in advance from ZG Lighting (UK) limited, to ensure that any risks to health, safety and welfare from any proposed changes can be identified and properly assessed.

Preface

This lighting calculation is based on our understanding of the information provided and is for comment/review with the client and design team.

It represents an initial lighting concept and so is not exhaustive or definitive and should not be used for construction.

Please refer to the CAD drawing: "ZG-DWG-0002420007-EXT-R03-040826" for further details.

INFORMATION PROVIDED & USED

260715_SMP-LUD-P1-ZZ-DR-L-91-00-01_03_Ph1_GA_Plans.dwg

And all information contained with project E-Mails, conversations and comments up to and including the date of the calculations shown.

ACCURACY

Please note the current 3D model created within these lighting calculations is based on the original information provided in only PDF format (such as building elevations) therefore the tolerance in accuracy of the illuminance results and lit effect shown and that achieved on-site would be expected to be significantly higher than normal.

ASSUMPTIONS

Surface Reflectance's = Building (23%), Ground (soft landscaping 15%, hard landscaping 45%)

Maintenance Factor (Light Loss Factor) = 0.8

Illuminance = See summary page for results.

LIGHTING CALCULATIONS

The area has been calculated using a basic 3D model to represent the main buildings, soft & hard landscaping and other main furniture to more accurately consider the main obstructions.

It should be noted that, the contribution of daylight and any other luminaires (existing or to be supplied by others have not been included or considered in these lighting renders and that some luminaires have been dimmed on the lighting calculation therefore the use of some form of lighting control, presence detection and dimming is required to achieve the calculated results shown, maximise energy efficiency and reduce W/m².

All areas have been calculated as empty and flat spaces (so with no obstruction effect from hard or soft landscaping features) except the main external architectural walls.

Therefore, regular pruning and upkeep of all soft landscaping must be carried out to prevent the foliage from blocking the useful light.

OBTRUSIVE / UPWARD LIGHT

Considering all luminaires used within the current lighting calculation (not the final design) the total upward light, R(UL) = 1.2% (worst case scenario)

However, any post curfew planning permission requirements will also need to be confirmed and considered within the final design.

INITIAL LIGHTING CONCEPT

The 3D renders and calculated results contained within this document represent an initial lighting concept and what is possible to achieve, and not a final design.

It should be considered solely a guide as to what can be achieved.

Once the design and construction for the entire site has been finalised, the lighting solution will need to be reviewed and updated to establish whether all client expectations, lighting targets and planning requirements are all fulfilled. Any quote will also need to be revised accordingly.

3D IMAGE CAVEAT

It is also important to note that there are limitations with all computer-generated images from any 3D software.

Some 3D software may have less limitations than others, but no 3D software can accurately represent what the human eye sees and so any 3D computer generated images should be used for guidance only. It is also a case that all humans see slightly differently to one another.

Furthermore, every screen will have different brightness/contrast/saturation/colour temperature settings meaning that the same 3D render will look different on each digital device.

Preface

LUMINAIRE SAMPLES

In order to show the design team and client exactly what lit effect can be achieved it is essential for some sample luminaires to be shown and tried on-site or as part of a mock-up.

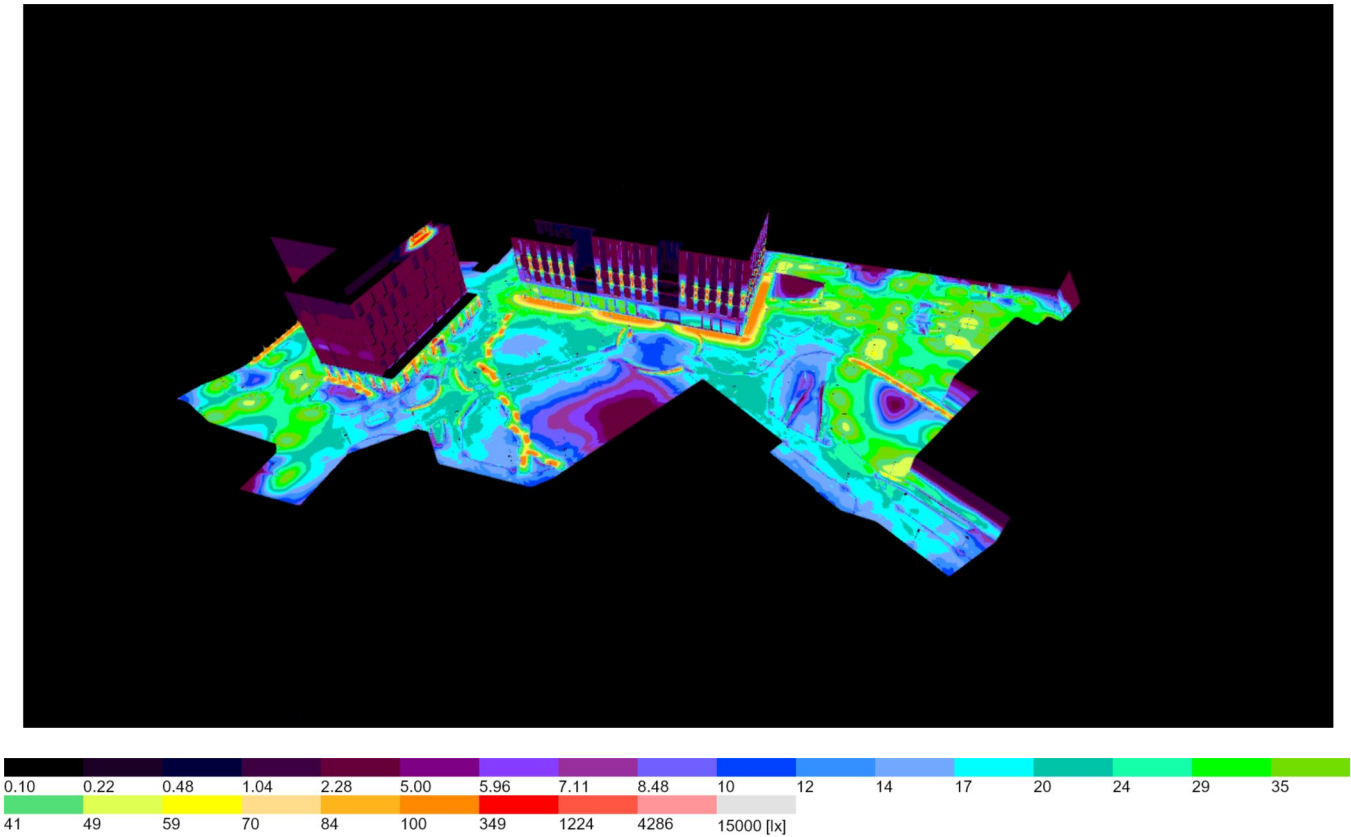
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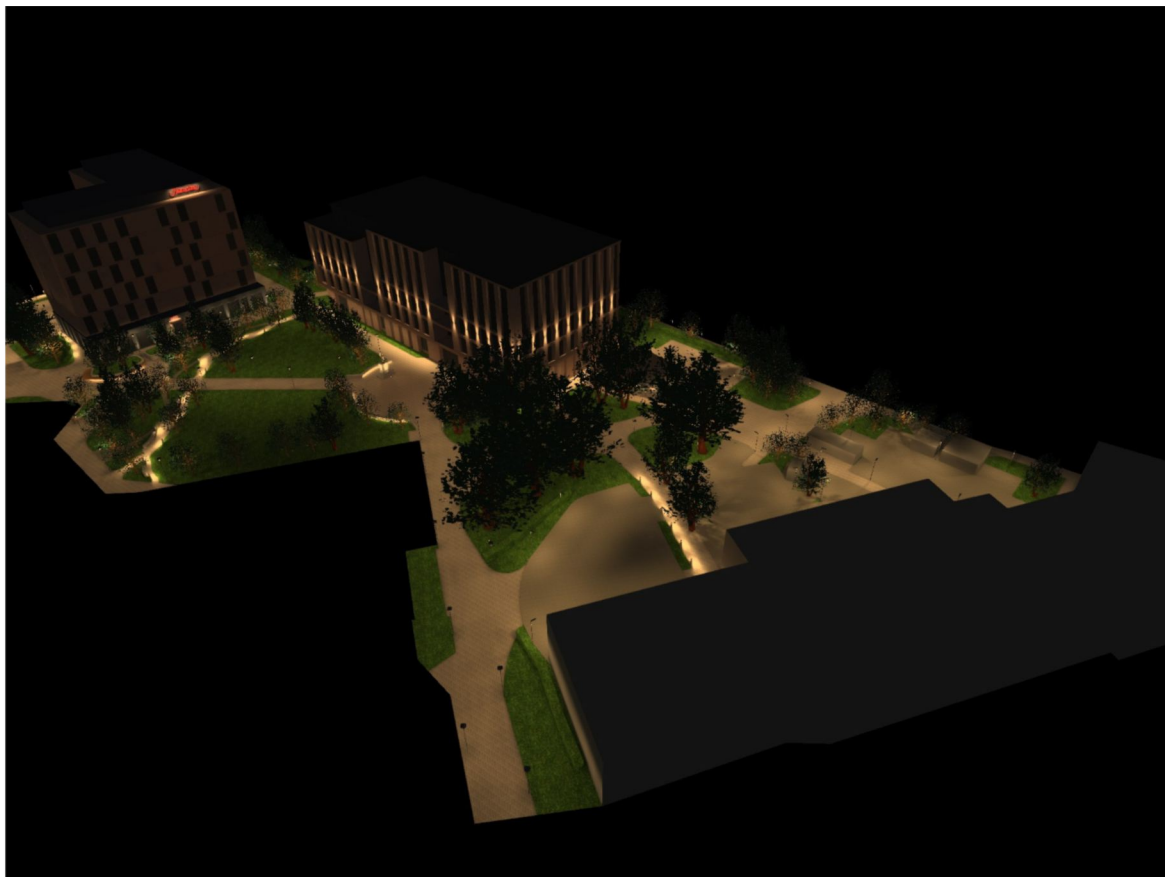
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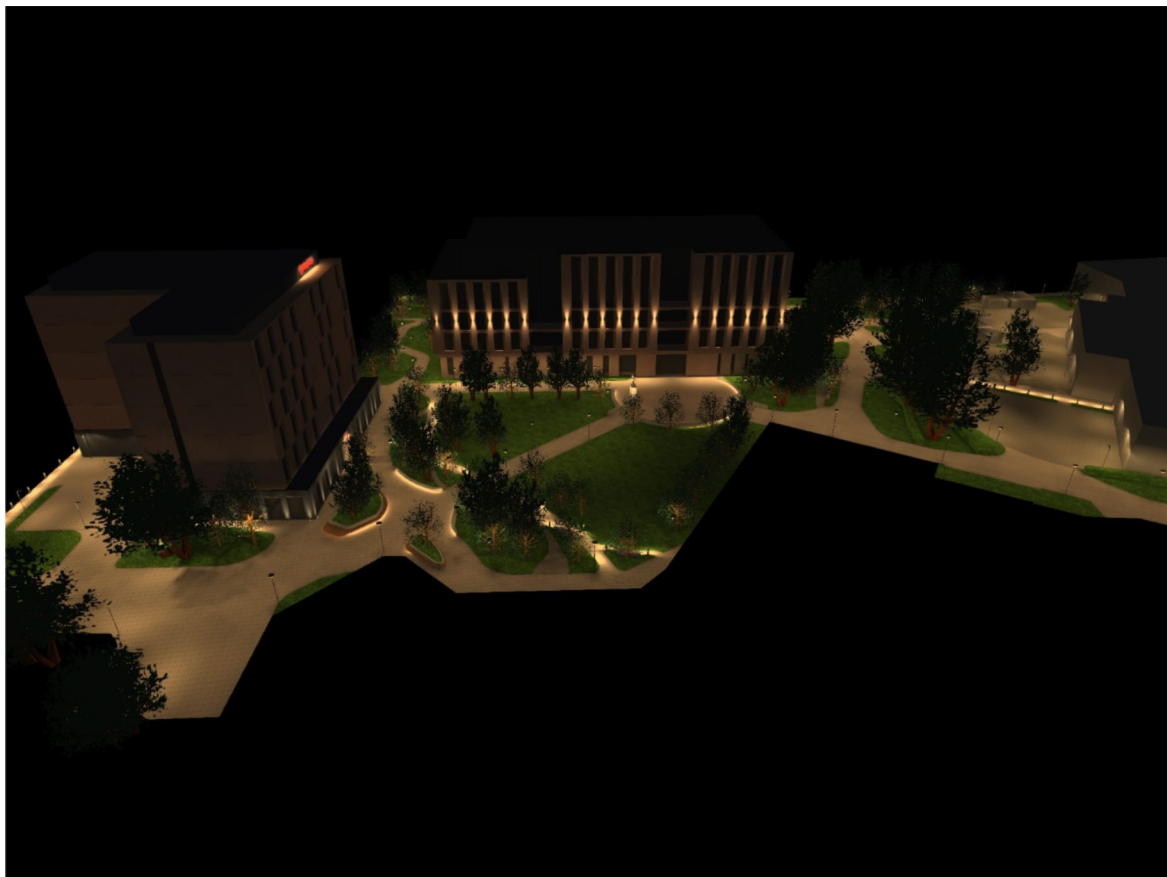
SMP, Huyton (Public Realm External Lighting)

Images



ZG-3D1-0002420007-X01-R03-040826

Images



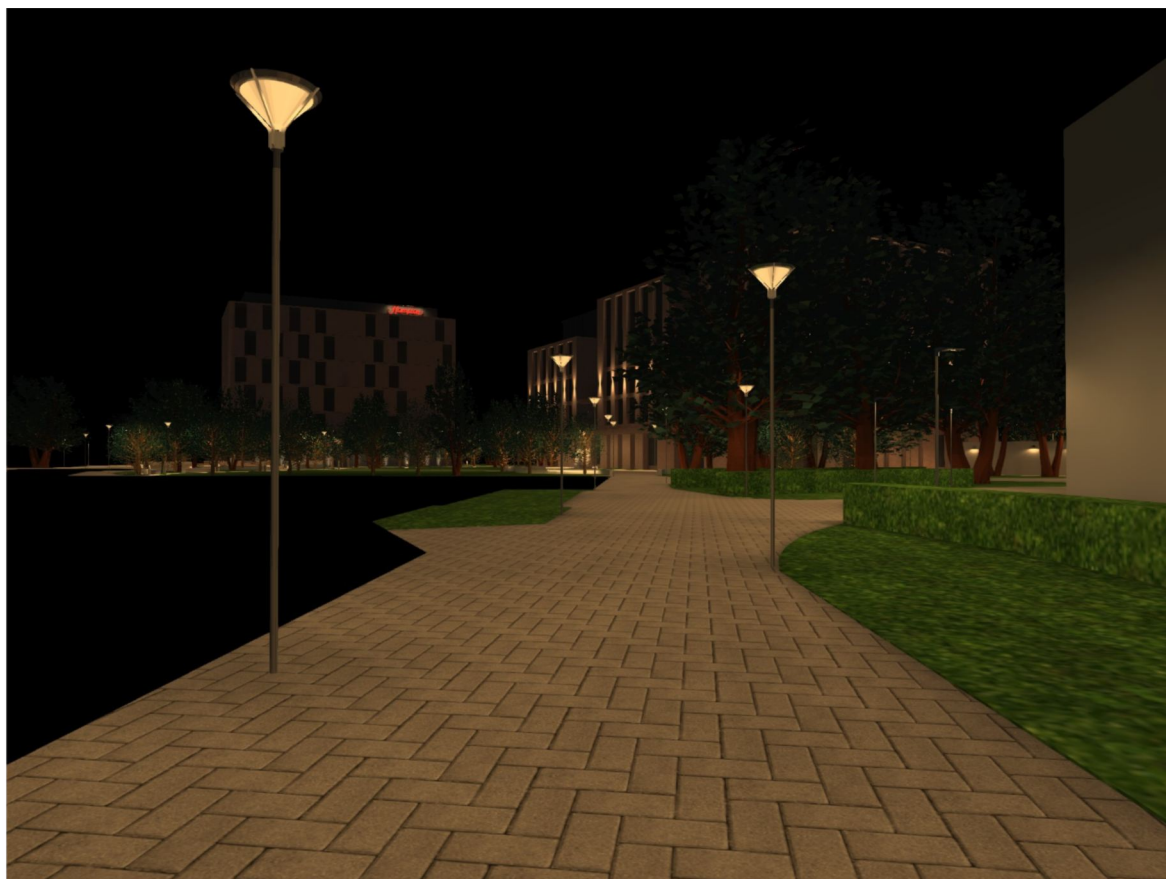
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Images



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Images



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ZG-3D1-0002420007-X05-R03-040826

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ZG-3D1-0002420007-X06-R03-040826

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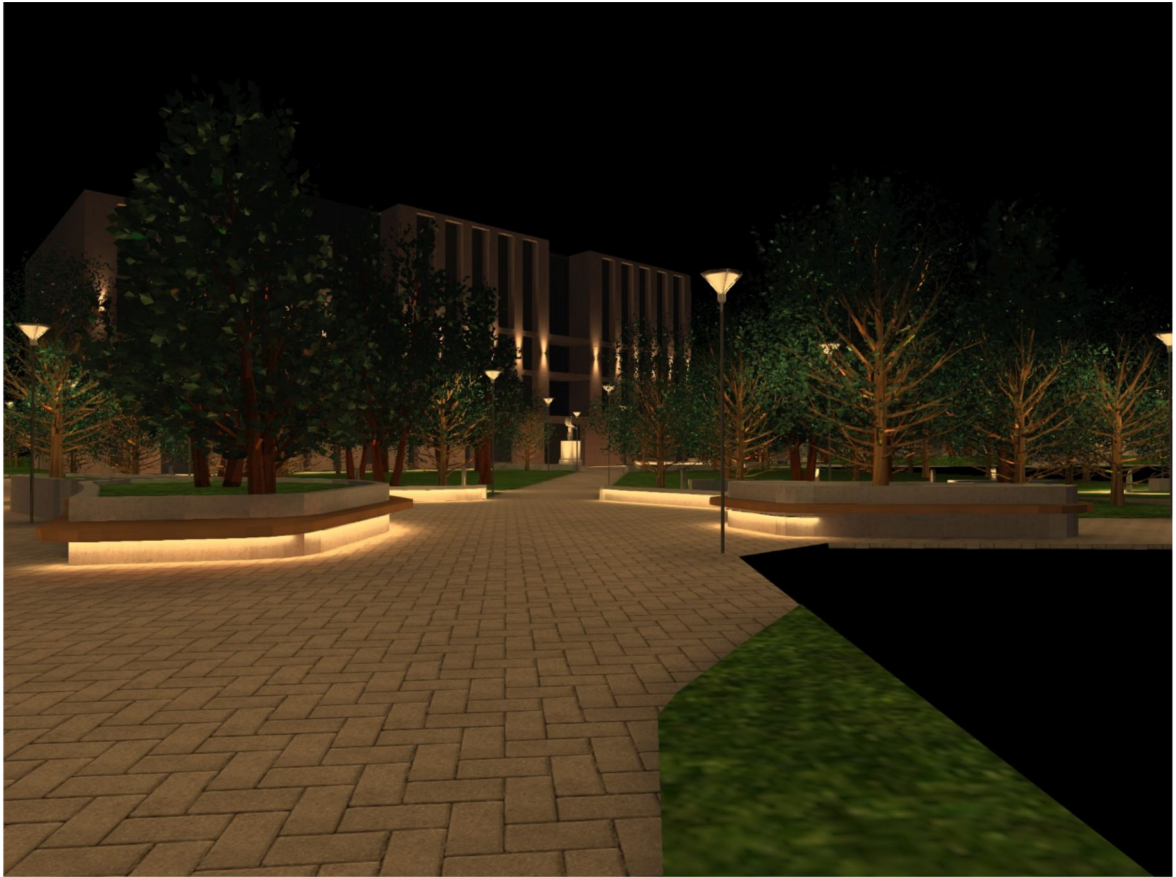
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Images



ZG-3D1-0002420007-X11-R03-040826

Images



ZG-3D1-0002420007-X12-R03-040826

Images



ZG-3D1-0002420007-X13-R03-040826

Summary



Summary

General information on the obtrusive light calculation

Standard	EN 12464-2:2014
Zone	Environmental Zone E4
Period under review	Pre-curfew
Apply limits for	General lighting

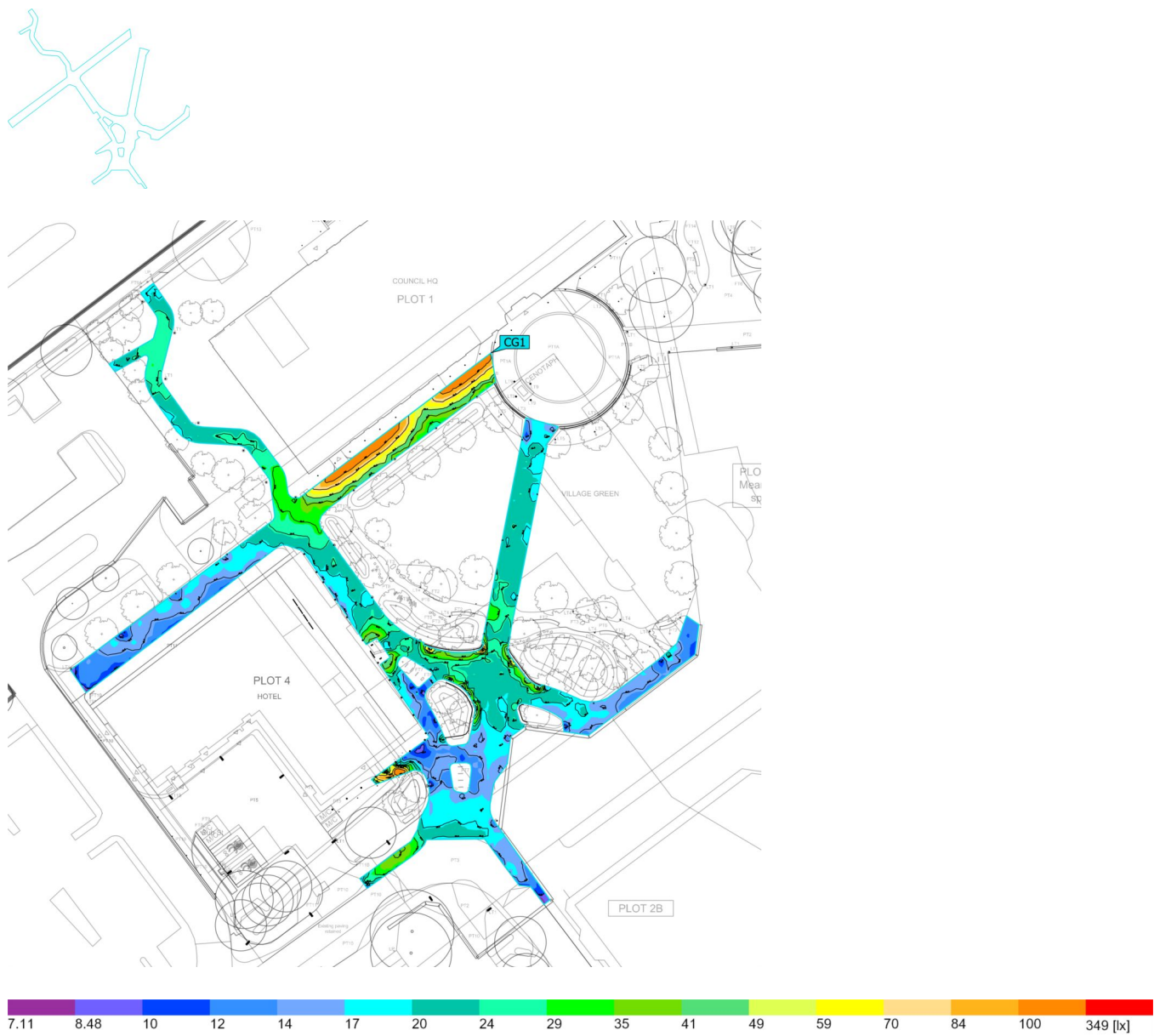
General obtrusive light scene results

Symbol	Calculated	
R _{UL}	1.2 %	
R _{DLO}	98.7 %	–
R _{ULO}	1.2 %	–

Flux ratios are also calculated using only luminaires in the obtrusive lighting scene.

SMP, Huyton (Public Realm External Lighting) (External Lighting)

Most Pedestrian Area

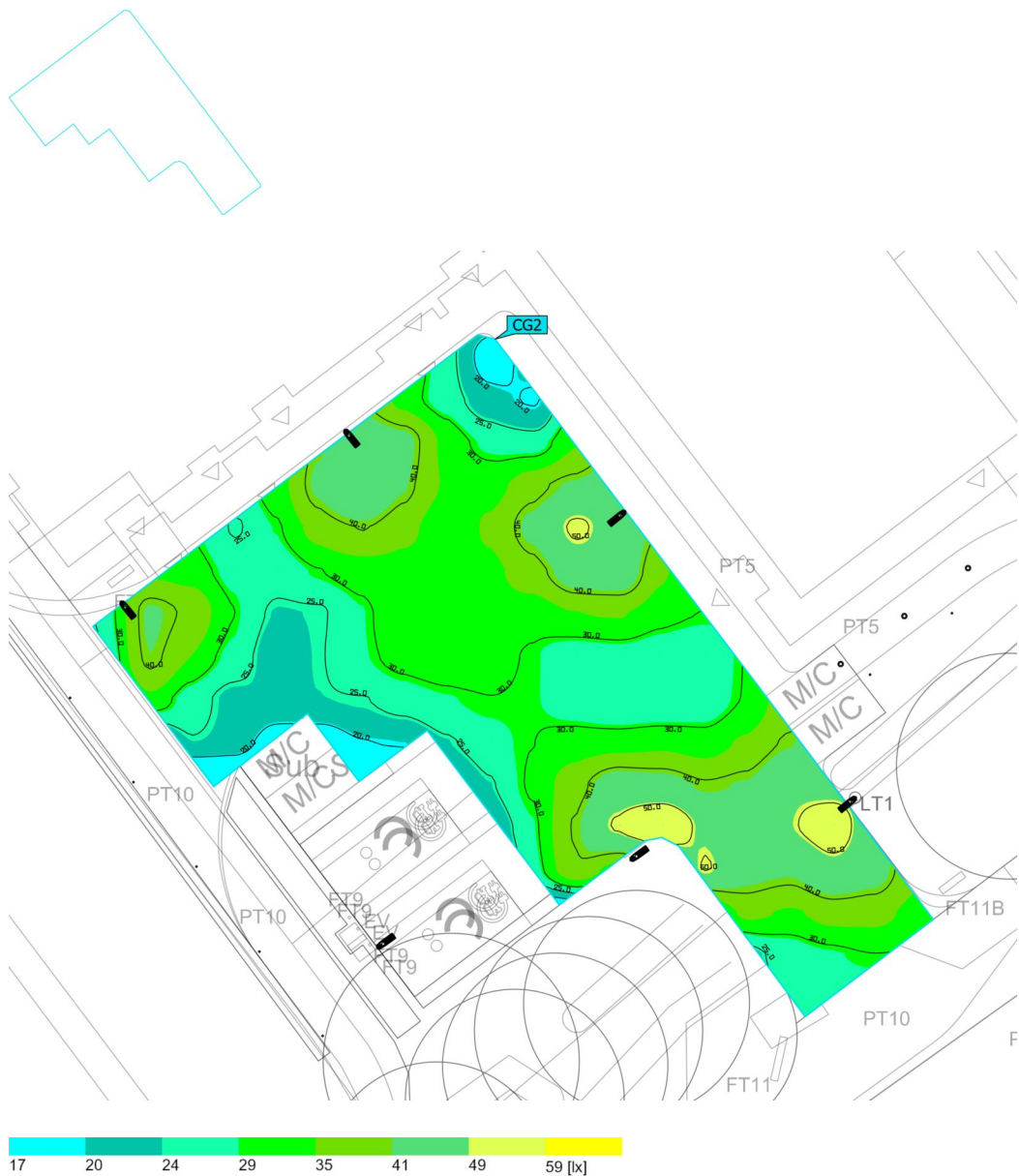


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Most Pedestrian Area Perpendicular illuminance Height: 0.050 m	27.0 lx	8.21 lx	146 lx	0.30	0.056	CG1

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

SMP, Huyton (Public Realm External Lighting) (External Lighting)

Car Park Roadway Area (Hotel)

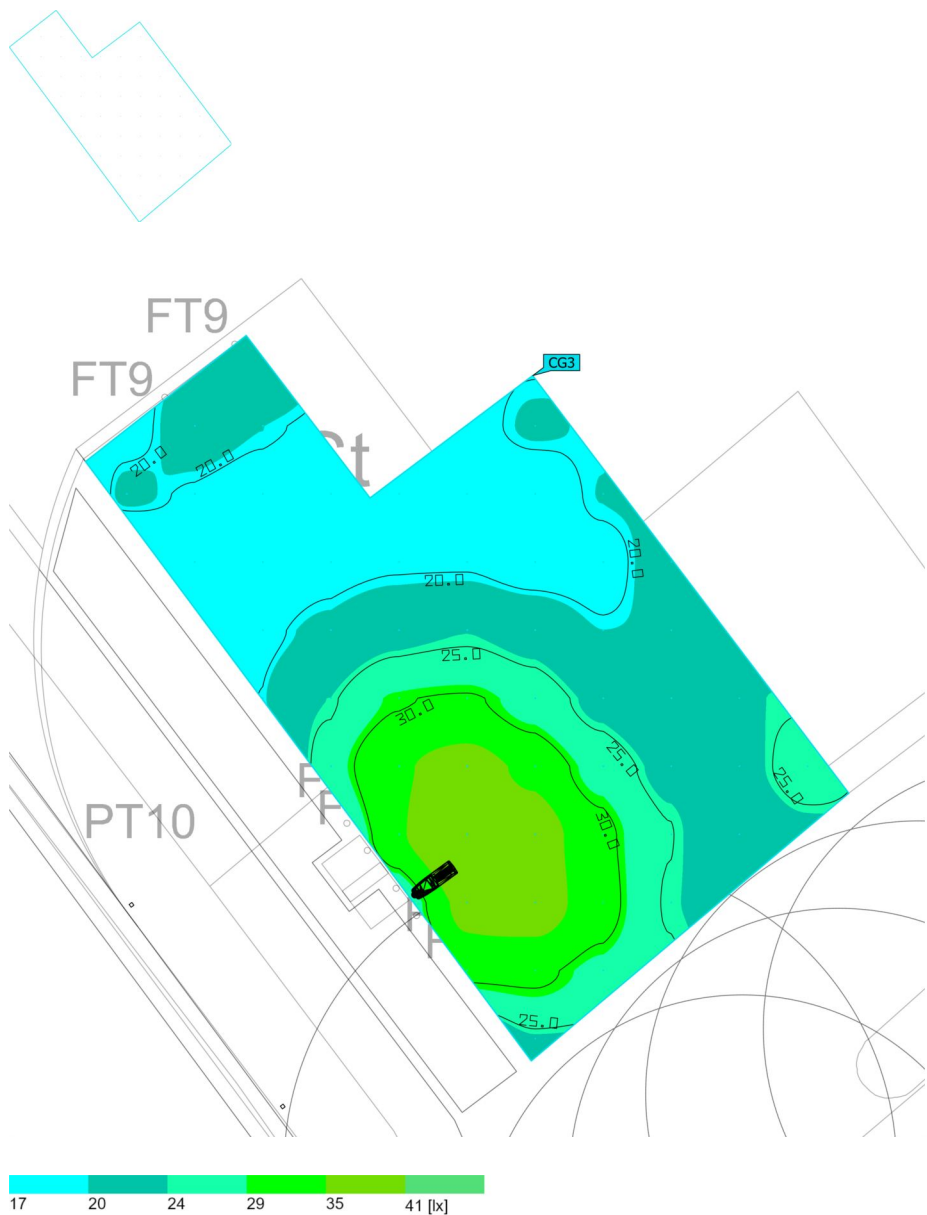


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Car Park Roadway Area (Hotel) Perpendicular illuminance Height: 0.050 m	33.7 lx	17.4 lx	55.8 lx	0.52	0.31	CG2

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

SMP, Huyton (Public Realm External Lighting) (External Lighting)

Acc./EV Car Park Bays & M/C Bays (Hotel)

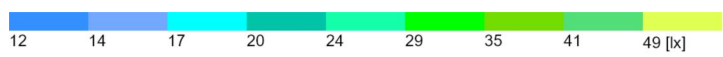
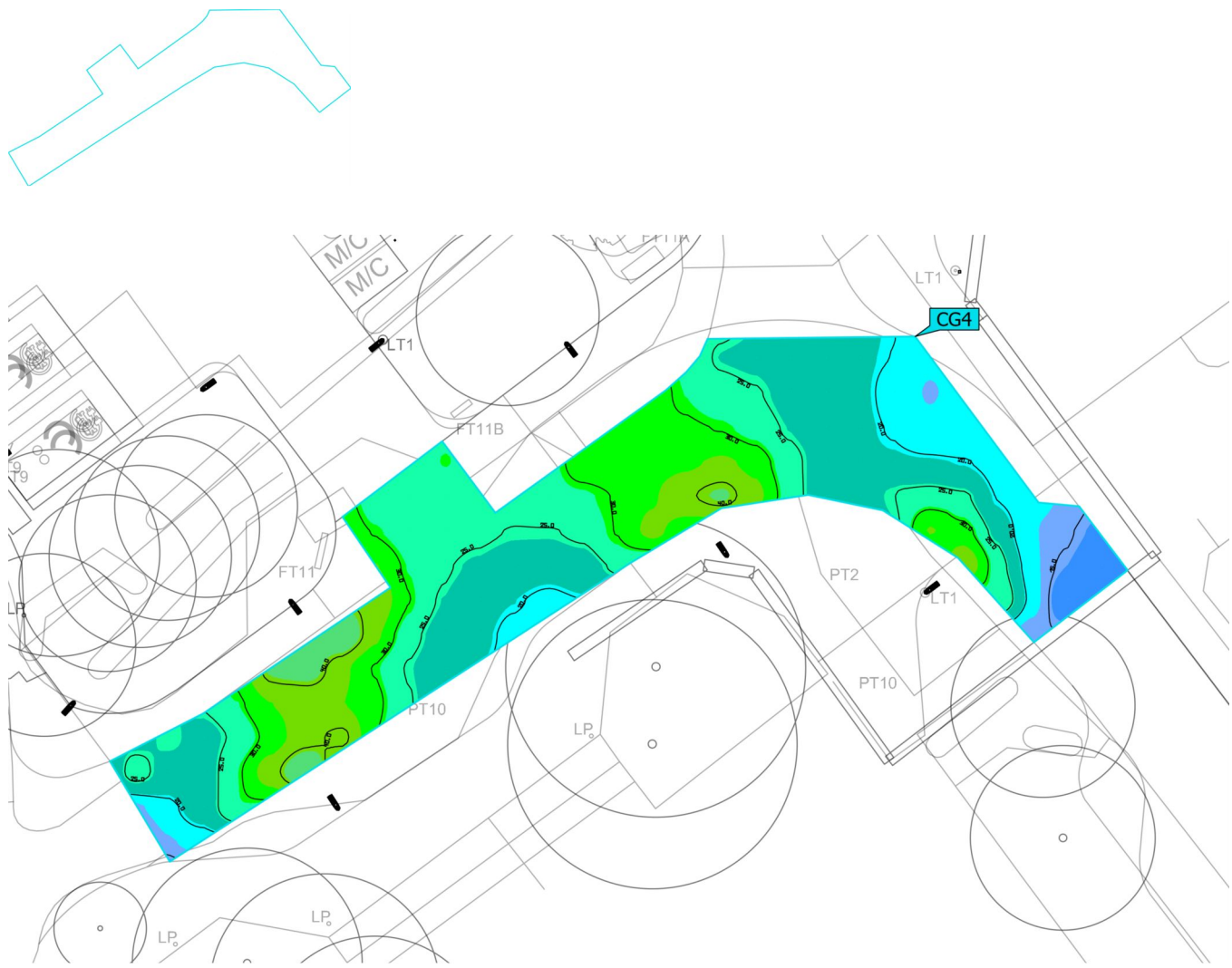


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Acc./EV Car Park Bays & M/C Bays (Hotel) Perpendicular illuminance Height: 0.050 m	24.6 lx	17.7 lx	39.6 lx	0.72	0.45	CG3

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

SMP, Huyton (Public Realm External Lighting) (External Lighting)

Roadway (Hotel)

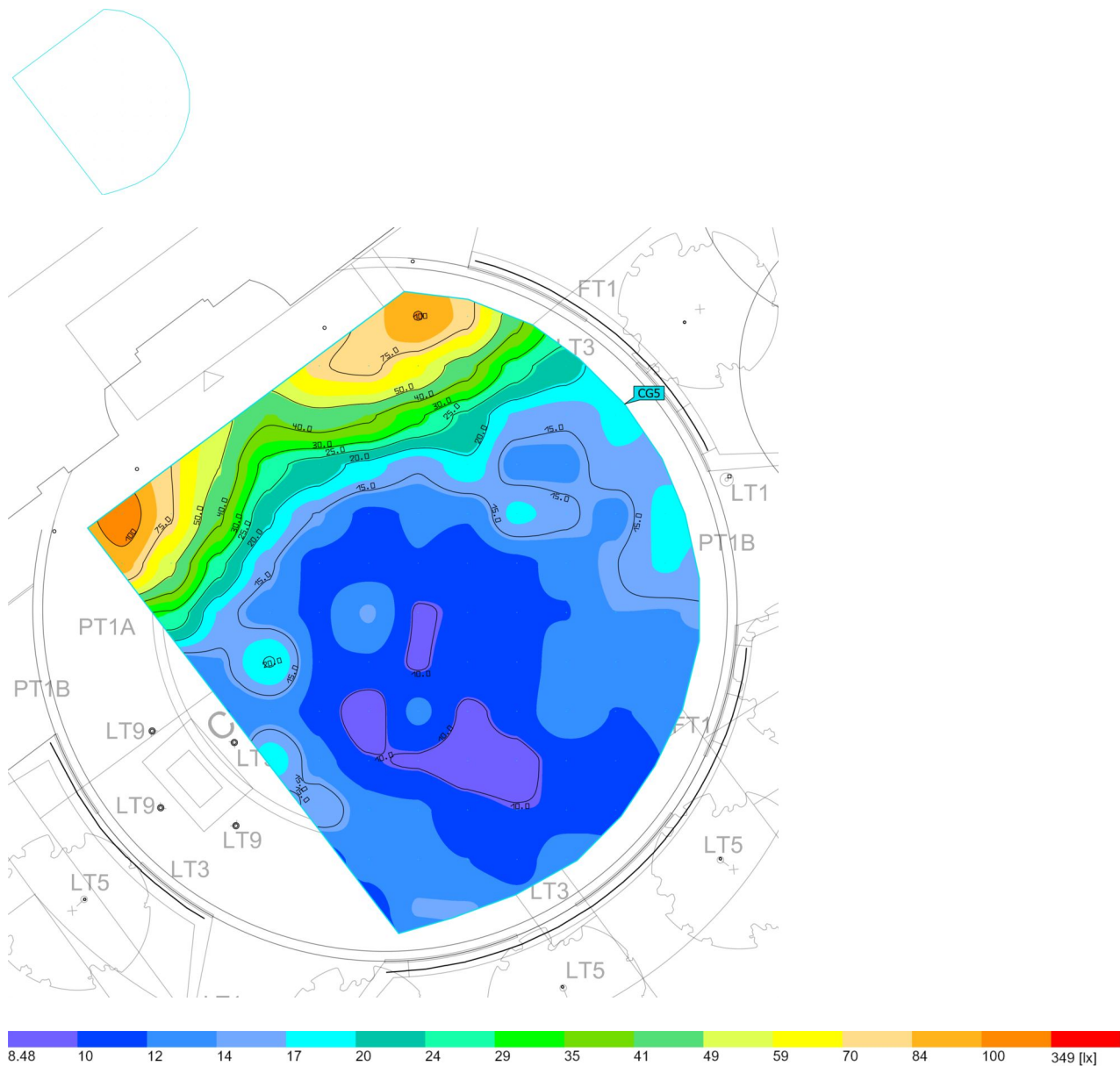


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Roadway (Hotel) Perpendicular illuminance Height: 0.050 m	26.8 lx	12.0 lx	47.3 lx	0.45	0.25	CG4

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

SMP, Huyton (Public Realm External Lighting) (External Lighting)

Cenotaph Area

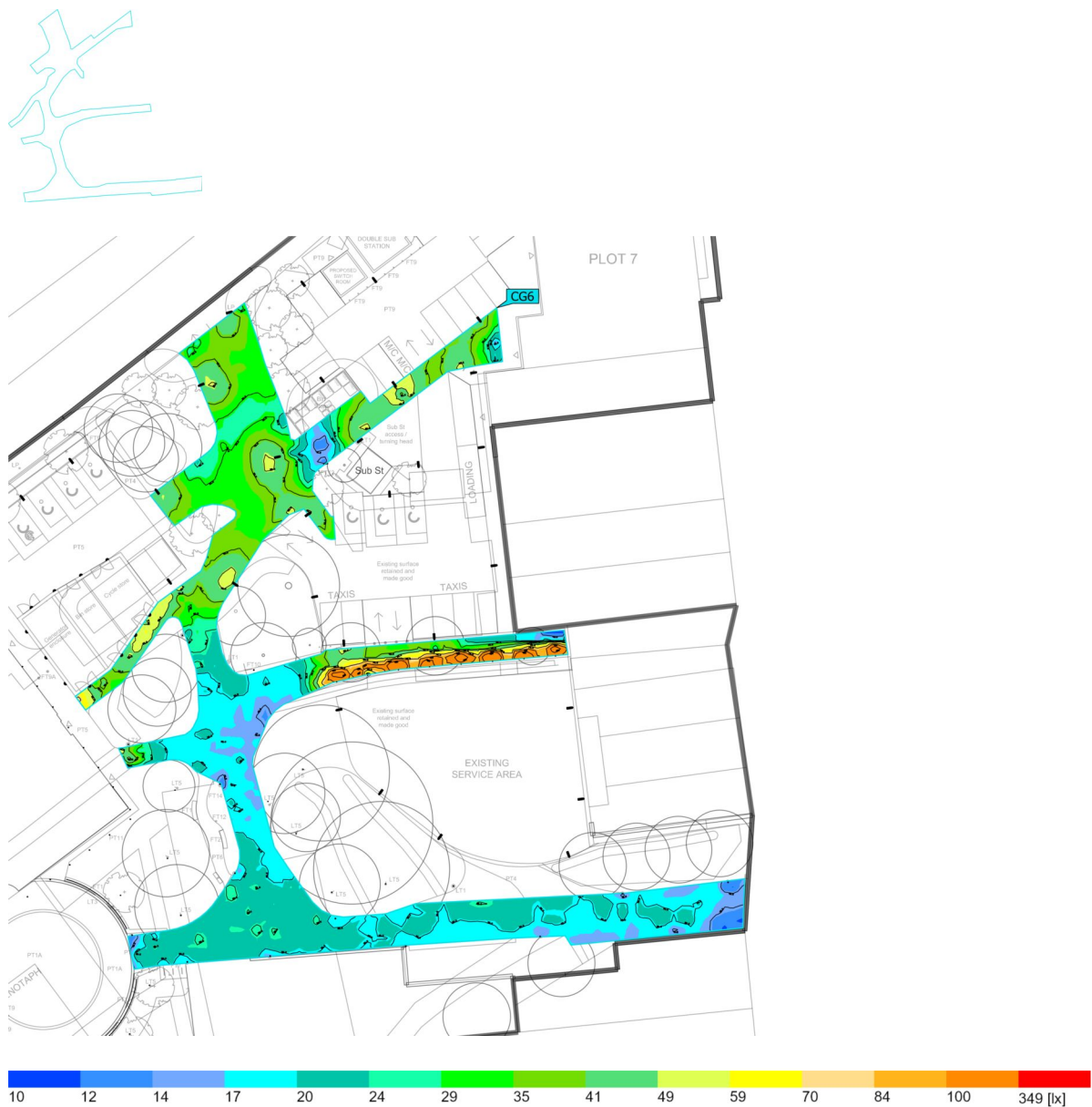


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Cenotaph Area Perpendicular illuminance Height: 0.050 m	22.1 lx	9.02 lx	112 lx	0.41	0.081	CG5

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

SMP, Huyton (Public Realm External Lighting) (External Lighting)

Shared Pedestrian (incl. existing)/Cycle Walkways

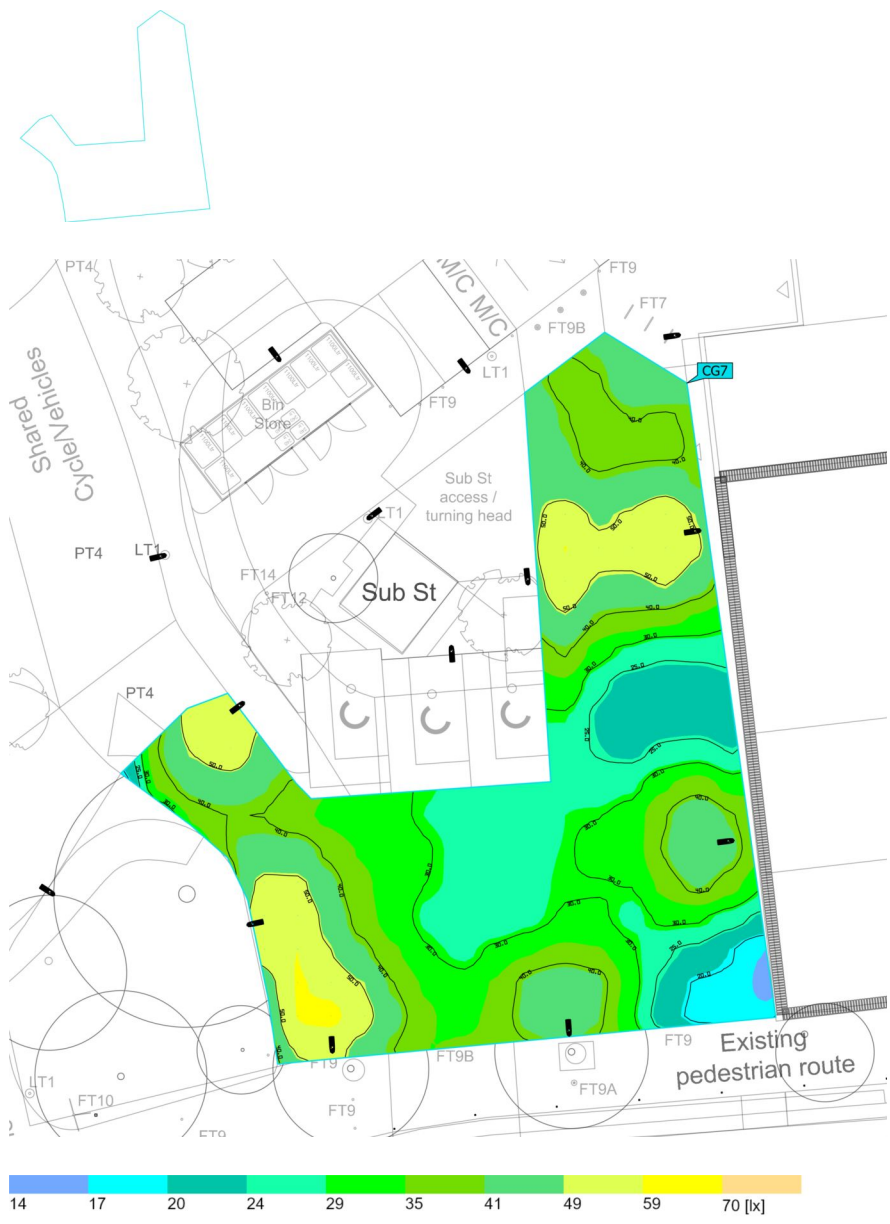


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Shared Pedestrian (incl. existing)/Cycle Walkways Perpendicular illuminance Height: 0.050 m	31.6 lx	10.4 lx	338 lx	0.33	0.031	CG6

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

SMP, Huyton (Public Realm External Lighting) (External Lighting)

Existing Taxis & Loading Bays

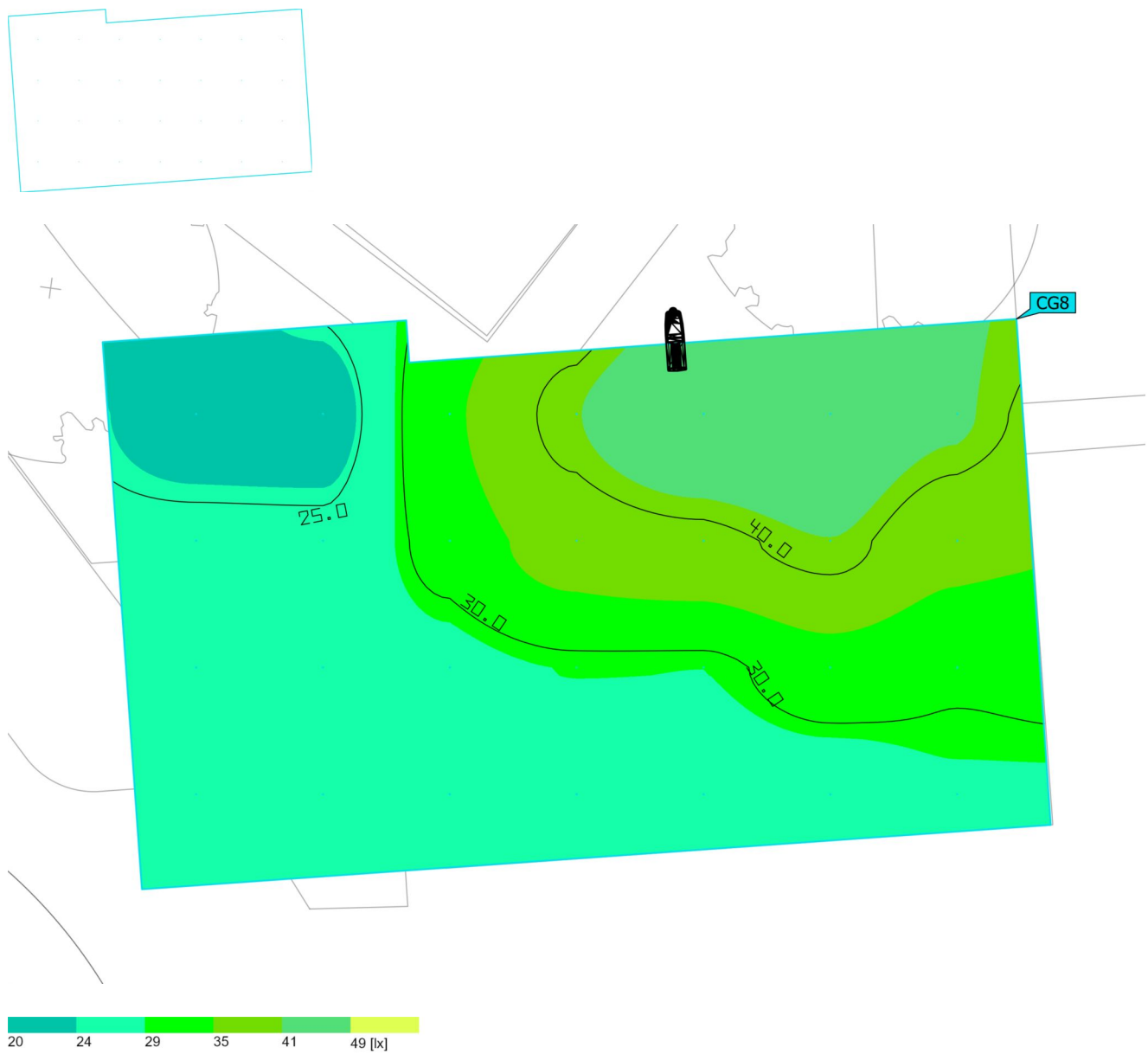


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Existing Taxis & Loading Bays Perpendicular illuminance Height: 0.050 m	37.3 lx	15.7 lx	60.8 lx	0.42	0.26	CG7

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

SMP, Huyton (Public Realm External Lighting) (External Lighting)

Existing Acc. Car Park Bays

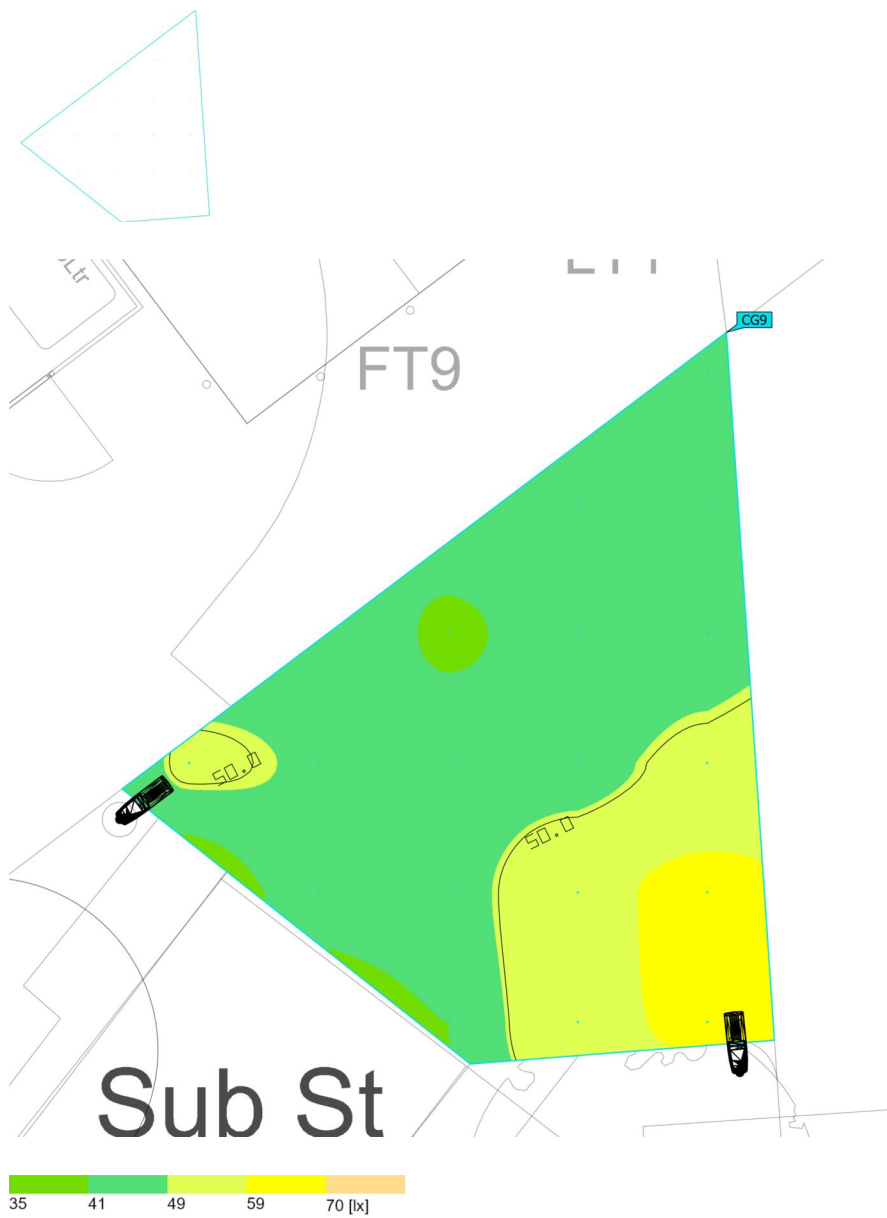


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Existing Acc. Car Park Bays Perpendicular illuminance Height: 0.050 m	31.5 lx	22.5 lx	44.9 lx	0.71	0.50	CG8

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

SMP, Huyton (Public Realm External Lighting) (External Lighting)

Sub Station/Turning Head

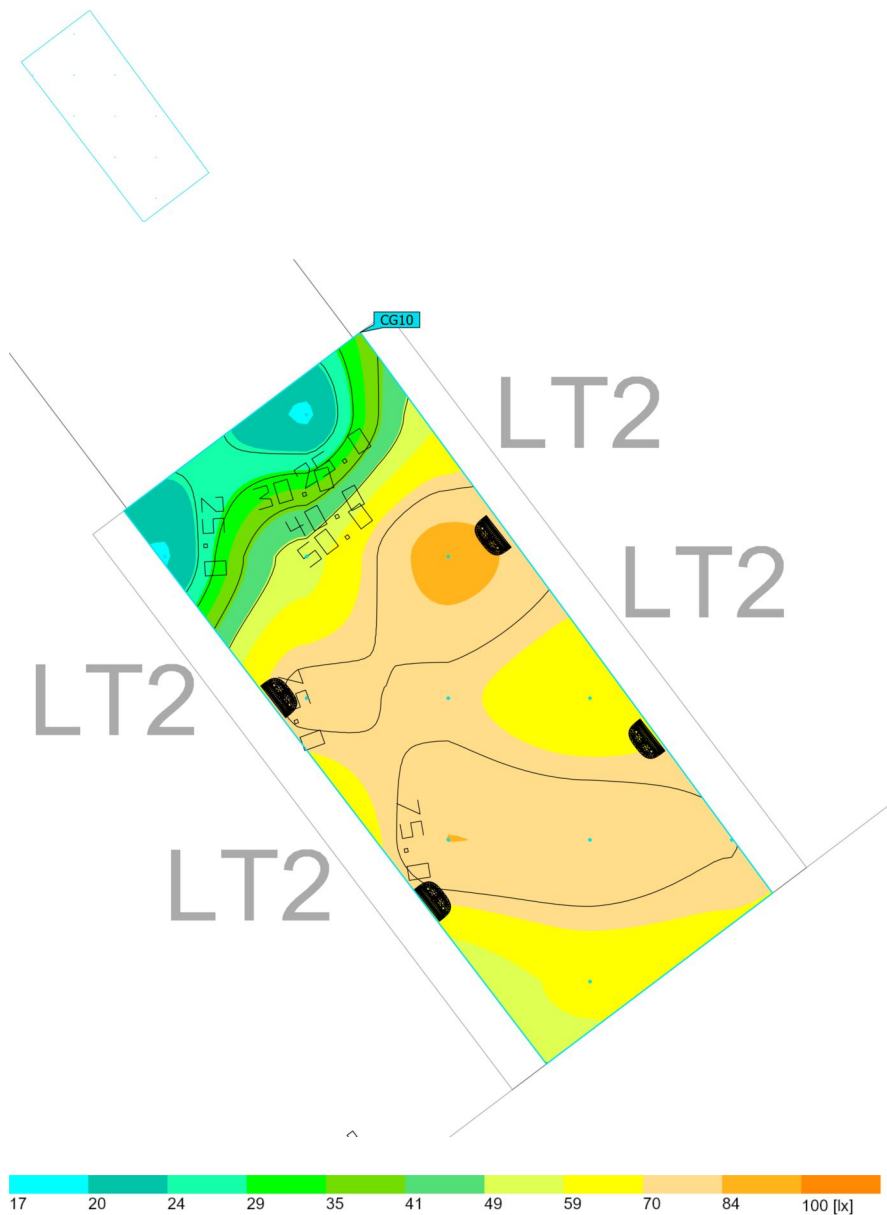


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Sub Station/Turning Head Perpendicular illuminance Height: 0.050 m	49.1 lx	40.6 lx	61.0 lx	0.83	0.67	CG9

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

SMP, Huyton (Public Realm External Lighting) (External Lighting)

Pedestrian Steps (Council HQ Rear)

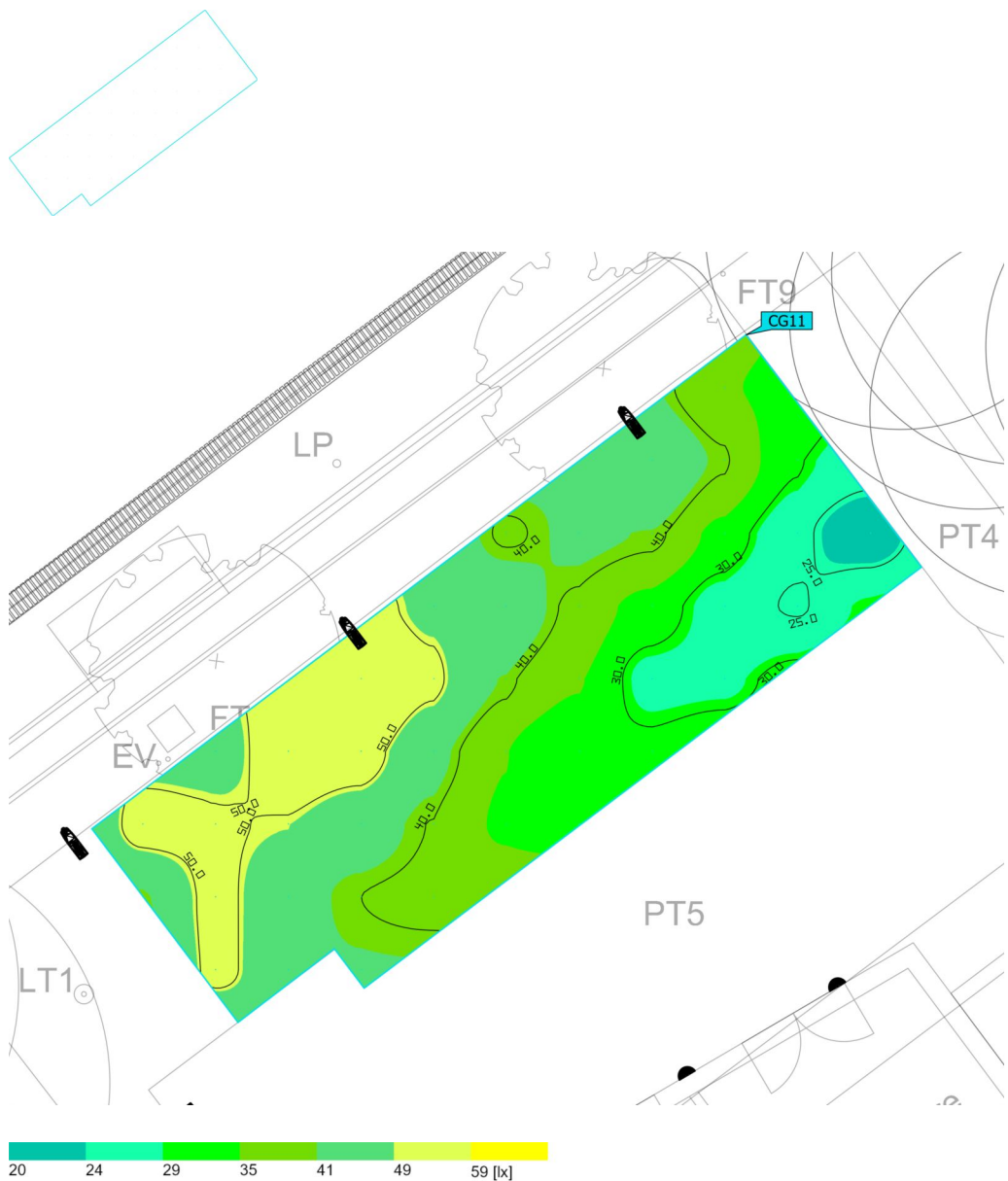


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Pedestrian Steps (Council HQ Rear) Perpendicular illuminance Height: 0.050 m	63.6 lx	20.1 lx	88.1 lx	0.32	0.23	CG10

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

SMP, Huyton (Public Realm External Lighting) (External Lighting)

Acc./EV Car Park Bays & M/C Bays (Council HQ)

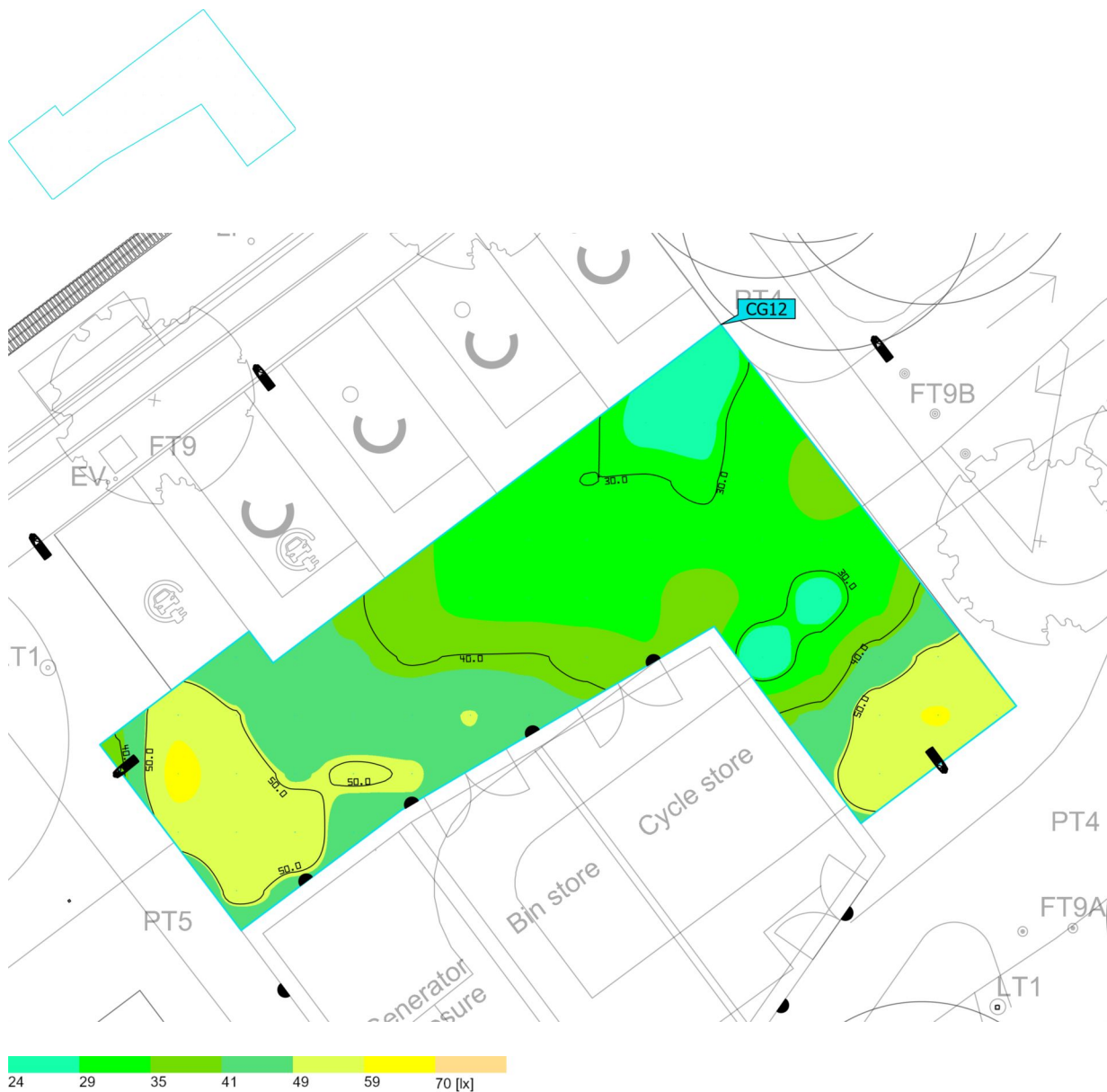


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Acc./EV Car Park Bays & M/C Bays (Council HQ) Perpendicular illuminance Height: 0.050 m	40.2 lx	22.1 lx	57.0 lx	0.55	0.39	CG11

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

SMP, Huyton (Public Realm External Lighting) (External Lighting)

Car Park Roadway Area (Council HQ)



Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Car Park Roadway Area (Council HQ) Perpendicular illuminance Height: 0.050 m	40.5 lx	25.3 lx	61.3 lx	0.62	0.41	CG12

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

SMP, Huyton (Public Realm External Lighting) (External Lighting)

Car Park Roadway Area (Corner)

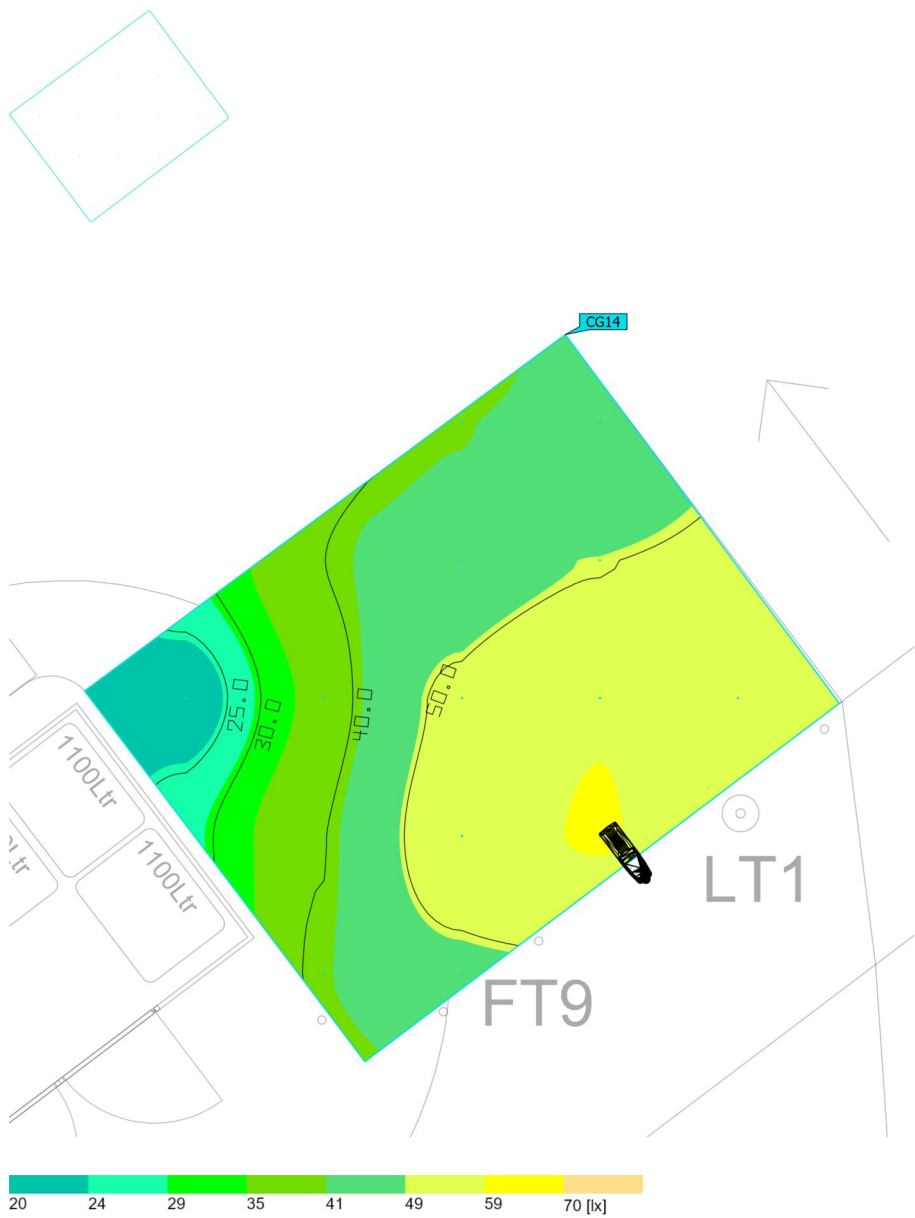


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Car Park Roadway Area (Corner) Perpendicular illuminance Height: 0.050 m	35.7 lx	21.0 lx	46.9 lx	0.59	0.45	CG13

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

SMP, Huyton (Public Realm External Lighting) (External Lighting)

M/C Bays (Corner)

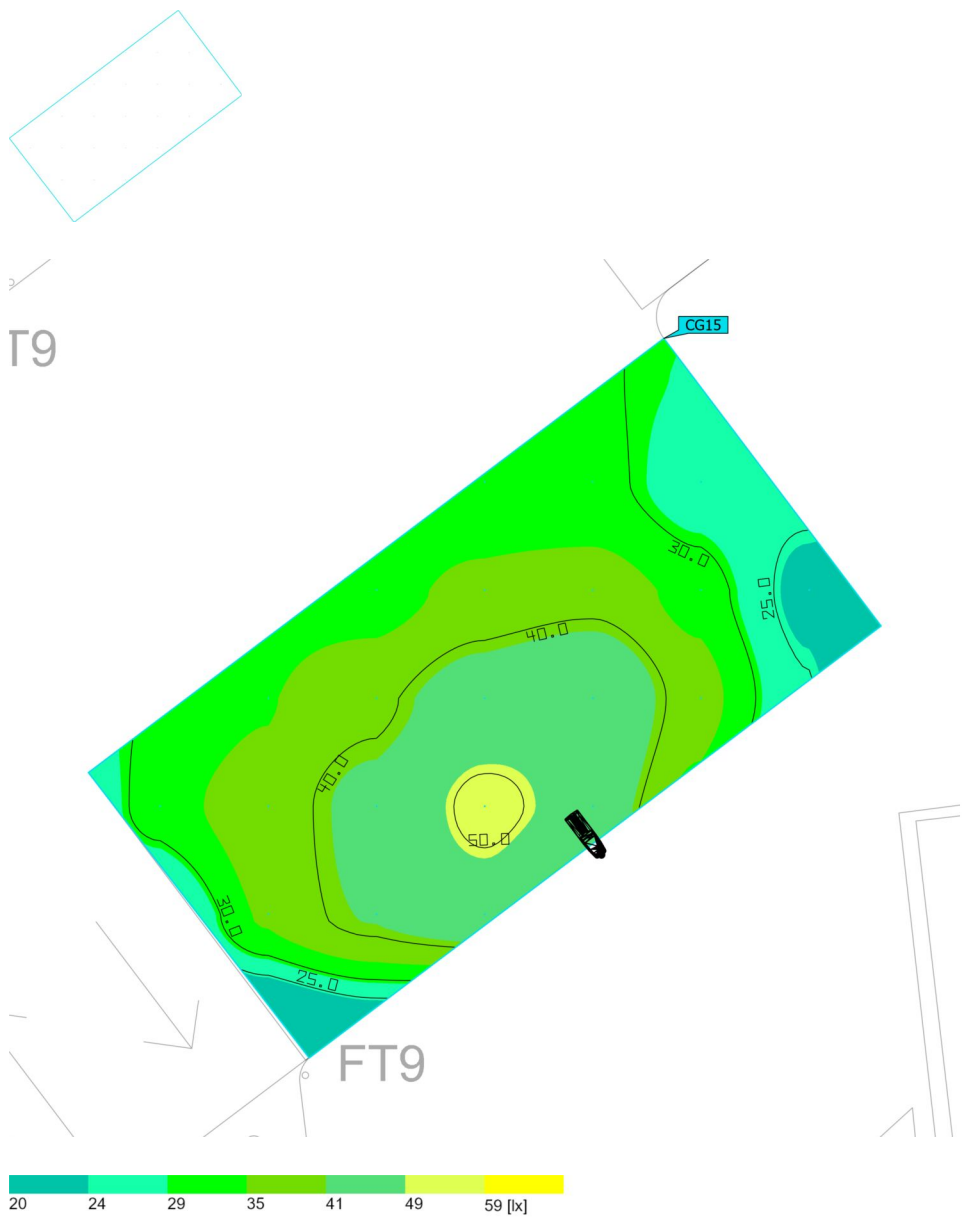


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
M/C Bays (Corner) Perpendicular illuminance Height: 0.050 m	45.5 lx	21.8 lx	59.4 lx	0.48	0.37	CG14

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

SMP, Huyton (Public Realm External Lighting) (External Lighting)

4x Car Park Bays (Corner)

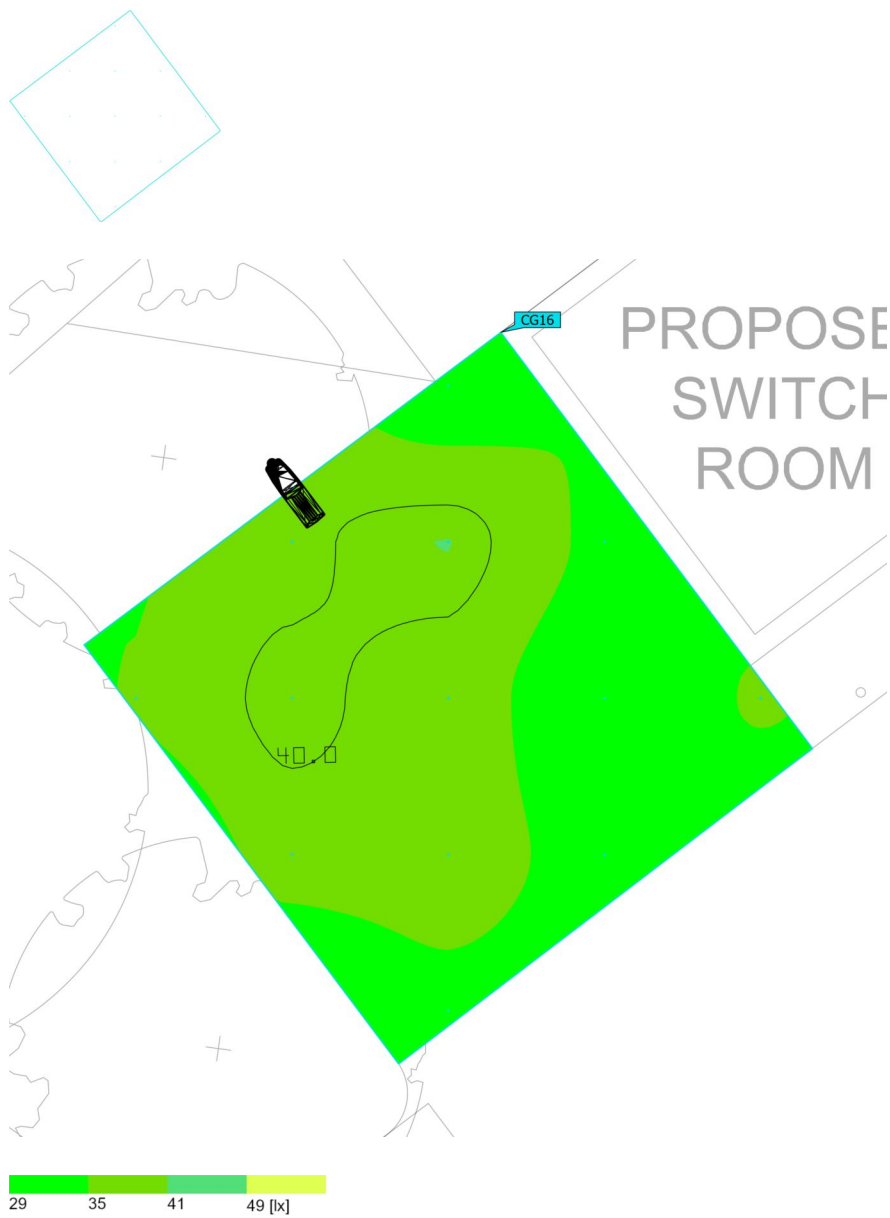


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
4x Car Park Bays (Corner) Perpendicular illuminance Height: 0.050 m	37.7 lx	23.1 lx	51.1 lx	0.61	0.45	CG15

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

SMP, Huyton (Public Realm External Lighting) (External Lighting)

2x Car Park Bays (Corner)

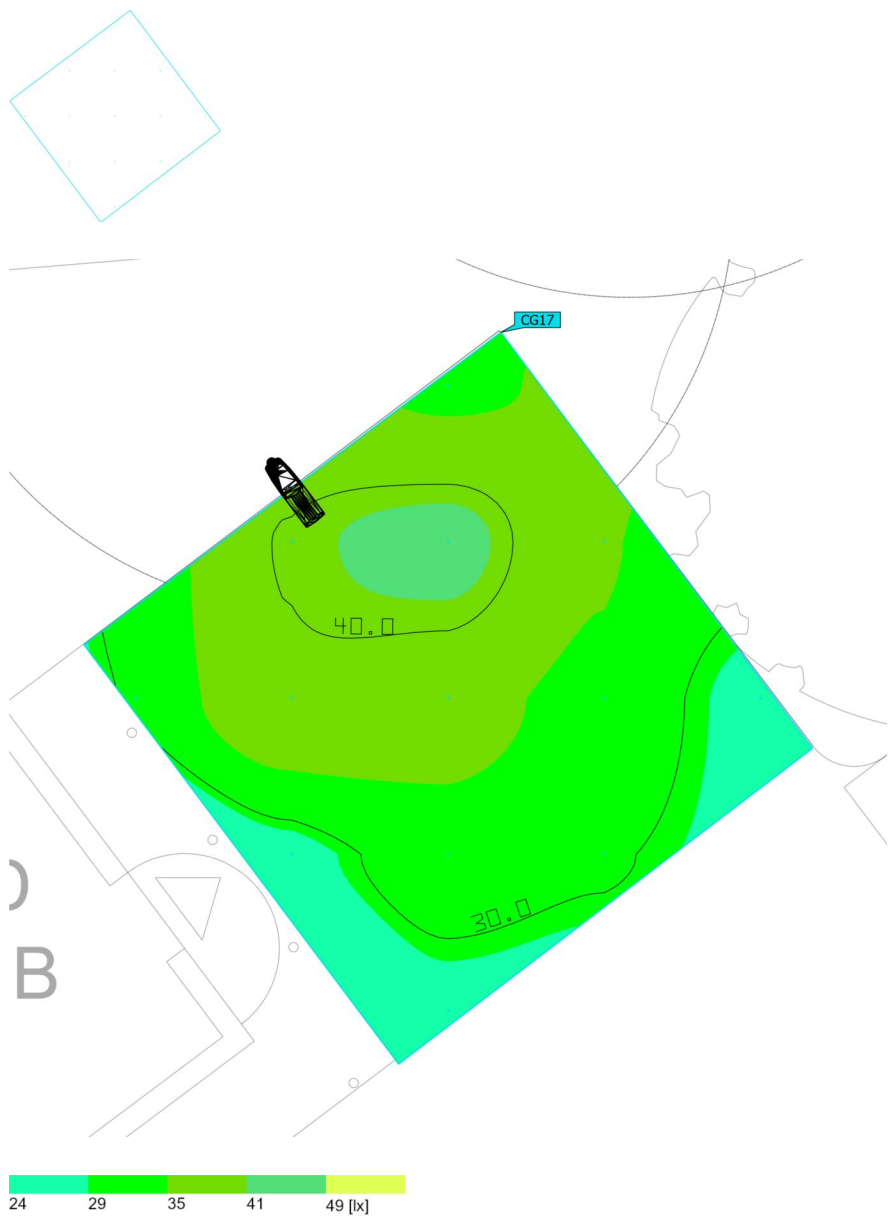


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
2x Car Park Bays (Corner) Perpendicular illuminance Height: 0.050 m	35.8 lx	30.4 lx	41.4 lx	0.85	0.73	CG16

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

SMP, Huyton (Public Realm External Lighting) (External Lighting)

2x Car Park Bays (Corner)

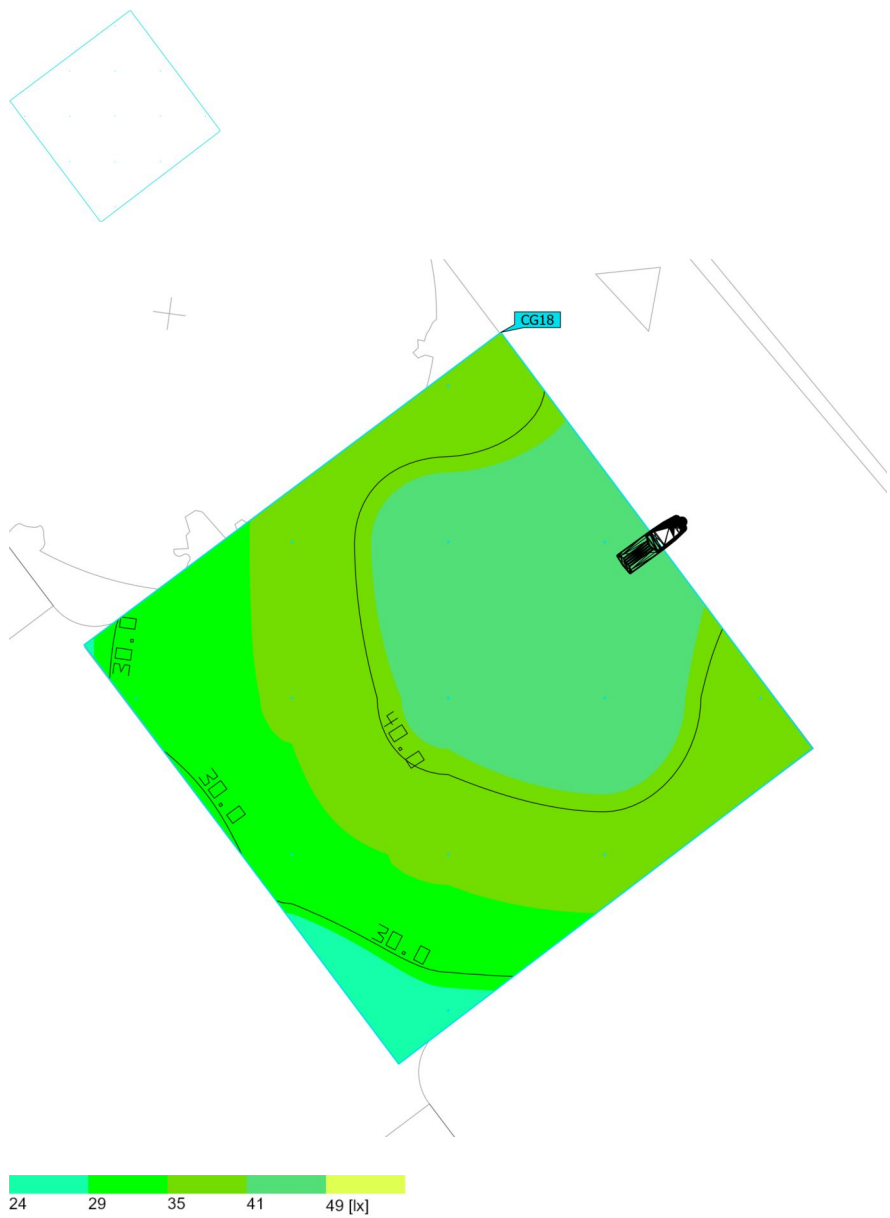


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
2x Car Park Bays (Corner) Perpendicular illuminance Height: 0.050 m	33.6 lx	27.2 lx	42.8 lx	0.81	0.64	CG17

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

SMP, Huyton (Public Realm External Lighting) (External Lighting)

2x Car Park Bays (Corner)



Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
2x Car Park Bays (Corner) Perpendicular illuminance Height: 0.020 m	37.4 lx	27.9 lx	46.4 lx	0.75	0.60	CG18

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

SMP, Huyton (Public Realm External Lighting) (External Lighting)

Pedestrian Path (Council HQ Rear)



Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Pedestrian Path (Council HQ Rear) Perpendicular illuminance Height: 0.020 m	30.0 lx	24.2 lx	39.3 lx	0.81	0.62	CG19

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))