PROJECT TITLE:	Parklands Pointe – Phase 2
CLIENT:	Harcourt Developments
DOCUMENT TITLE:	Public Lighting Report
DOCUMENT NUMBER:	D23015-EDC-XX-XX-RP-Z-0001

Rev.	Status	Date	Originator	Checker	Approved By
0	ISSUED FOR PLANNING	21.05.2024	AZ	GM	GM

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1 INTRODUCTION

This public lighting report has been developed for the Parklands Pointe, Saggart, Co. Dublin. The report will outline the design criteria, luminaire types proposed for the site and how the proposed design will meet the relevant public lighting standards.

The aim for road and public space lighting schemes can include any or all the following:

- Facilitation of safe movement of vehicles and people.
- Discouragement of illegal acts.
- Contributing to the prestige and amenity of an area through increased aesthetic appeal.
- Minimum light spill and glare.

The lighting system was designed to achieve the level of Lux and set up a plan to bring up the overall to the desired limits.

The lighting guidelines being used for the study require that in no event shall any light element associated with the buildings adversely impact the operation of motor vehicles on entire roads. Additionally, the Lux light levels shall not significantly adversely impact the workers community, nearby heritage, and ecological sensitive receptors.

2 PROPOSED DEVELOPMENT DISCRIPTION

The proposed development will consist of modifications to the development permitted under Reg. Ref. SHD ABP-305563-19 which comprised 488no. apartments and 1,985sq.m of non-residential floorspace within 5no. blocks (Blocks A to E) ranging in height from 5 to 9 storeys. The proposed modifications relate to the previously permitted 5 storey Blocks C, D & E only and consist of an additional storey on each block and reconfiguration of the previously permitted floor levels to provide an additional 86no. apartment units and a total of 396no. apartments and 752sq.m of non-residential floorspace in lieu of the previously permitted 310no. apartments and 896sq.m of non-residential floorspace. Overall, the permitted Blocks A & B and the modified Blocks C, D & E will accommodate 574no. apartments and 1,841sq.m of non-residential floorspace. The modified blocks will consist of: - Block C: 6-storey block accommodating 129no. units (26no. 1 bed units, 84no. 2 bed units and 19no. 3 bed units) with 3no. retail/ commercial units (555sq.m) and a licensed café/ bar/ restaurant unit (197sq.m) at ground floor level fronting onto the permitted local square; Block D:- 6-storey block accommodating 140no. units (32no. 1 bed units, 90no. 2 bed units and 18no. 3 bed units), Block E: 6-storey block accommodating 127no. units (48no. 1 bed units, 65no. 2 bed units and 14no. 3 bed units) and all associated communal amenity spaces and private amenity spaces comprising terraces/ balconies. Permission is also sought for extension and modifications to the permitted single level basement below Blocks C, D and E to accommodate 332no. car parking spaces, cycle parking spaces, bulky item and bin storage areas with 2no. vehicular accesses provided from Parklands Parade. The modified ground level areas adjoining Blocks C, D and E include 10no. car parking spaces, cycle parking, public lighting, ESB substations, boundary treatments, hard and soft landscaping, surface water drainage infrastructure and all associated site development and infrastructure works. No modifications are proposed to the permitted Blocks A & B or the separate basement level area relating to Blocks A & B.

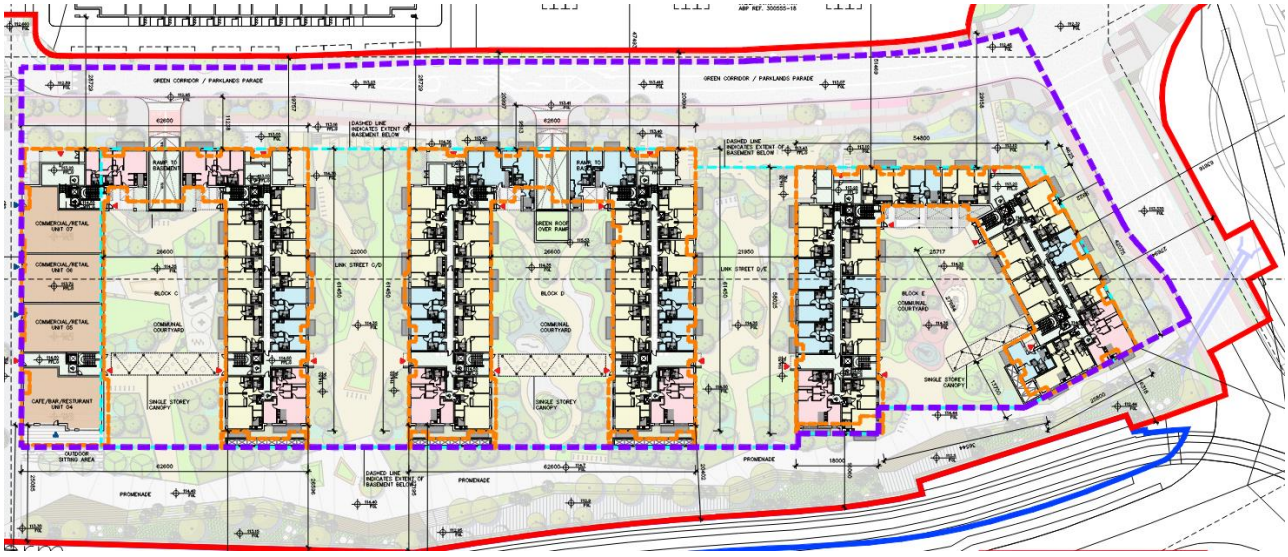

Figure 1 - Proposed Site Layout

3 LIGHTING STANDARDS

The lighting design will follow guidance from the following standards:

- SLL Code for Lighting – Society of Light and Lighting
- IS EN 12464-2 Lighting of Outdoor Workplaces
- BS5489-1:2020 – Design of Road Lighting
- BS EN 13201-2:2015 Road Lighting. Part 2: Performance requirements

Compliance with the above lighting standards will ensure a uniform level of light suitable to the task at hand is provided across the public areas.

4 LIGHTING DESIGN CRITERIA

4.1 LIGHTING DESIGN PROCESS STAGES

The lighting design process stages used to design the public lighting will be considered to comprise of three key steps:

a) Concept (valid for this stage).

b) Preliminary (will be developed in Preliminary Design Stage)

c) Detailed (will be developed in Tender Stage)

Concept Design:

The concept design stage was the first stage of the lighting design process that was used to develop the following aspects:

a) Identify the approximate extents of the area to be lit.

b) Undertake an initial assessment for the options using the energy performance indicators identified in IS EN 13201-5.

c) Identify constraints and hazards.

d) Initial risk assessments.

e) Prepare an outline design methodology summarising lighting aspect to be included as part of the design file and the assumptions that have been made in developing the concept lighting design.

f) Prepare the Lighting Design File

4.2 COMPETENCY FOR DESIGNERS & QUALITY ASSURANCE

The design of lighting was undertaken by competent and experienced Team who could demonstrate an appropriate understanding of road lighting design principles.

4.3 DESIGN FILE

This report has been prepared as a concept stage and this shall be developed during the preliminary and detailed design phases.

4.4 CONTROL OF OBTRUSIVE LIGHTING

To safeguard and enhance the night-time environment it is necessary to control obtrusive light (Also known as light pollution), which can present physiological and ecological problems to the surrounding areas and people. The limits of intrusive light for exterior installations, to minimise problems for people are given in the below table extracted from IS EN 12464-2 Lighting of Outdoor Workplaces. The designer proposes that the figures outlined in E3 are utilised. The external lighting design will ensure the positions of each luminaire are designed in such a way to limit obtrusive light.

Table 2 — Maximum obtrusive light permitted for exterior lighting installations

Environmental zone	Light on properties		Luminaire intensity		Upward light ratio	Luminance	
	E_v lx		I cd		R_{UL} %	L_b cd·m^{-2}	L_s cd·m^{-2}
	Pre-curfew[a]	Post-curfew	Pre-curfew	Post-curfew		Building facade	Signs
E1	2	0	2 500	0	0	0	50
E2	5	1	7 500	500	5	5	400
E3	10	2	10 000	1 000	15	10	800
E4	25	5	25 000	2 500	25	25	1 000

where

E1 represents intrinsically dark areas, such as national parks or protected sites;

E2 represents low district brightness areas, such as industrial or residential rural areas;

E3 represents medium district brightness areas, such as industrial or residential suburbs;

E4 represents high district brightness areas, such as town centres and commercial areas;

E_v is the maximum value of vertical illuminance on properties in lx;

I is the light intensity of each source in the potentially obtrusive direction in cd;

R_{UL} is the proportion of the flux of the luminaire(s) that is emitted above the horizontal, when the luminaire(s) is (are) mounted in its (their) installed position and attitude, and given in %;

L_b is the maximum average luminance of the facade of a building in cd·m^{-2};

L_s is the maximum average luminance of signs in cd·m^{-2}.

[a] In case no curfew regulations are available, the higher values shall not be exceeded and the lower values should be taken as preferable limits.

4.5 LUX LEVELS

The lighting design will follow guidance from the following standards:

- BS5489-1:2020 – Design of Road Lighting
- BS EN 13201-2:2015 Road Lighting. Part 2: Performance requirements:

Public Lighting

Access Roads are a part of the previously approved by South Dublin County Council Fortunestown Lane & Garter Lane residential development Phase 1,2 Public Lighting design:

- Main Access Road has been designed to the class P2
- Access Road Blocks C,D,E has been designed to the class P3

Table 3 — P lighting classes

Class	Horizontal illuminance		Additional requirement if facial recognition is necessary	
	$\bar{E}$ [a] [minimum maintained] lx	E_{min} [maintained] lx	$E_{v,min}$ [maintained] lx	$E_{sc,min}$ [maintained] lx
P1	15,0	3,00	5,0	5,0
P2	10,0	2,00	3,0	2,0
P3	7,50	1,50	2,5	1,5
P4	5,00	1,00	1,5	1,0
P5	3,00	0,60	1,0	0,6
P6	2,00	0,40	0,6	0,2
P7	performance not determined	performance not determined		

[a] To provide for uniformity, the actual value of the maintained average illuminance shall not exceed 1,5 times the minimum $\bar{E}$ value indicated for the class.

Private Landlord Lighting:

Residential Areas (Courtyards, Link Spaces, Promenade) have been designed to the class P4

Table 3 — P lighting classes

Class	Horizontal illuminance		Additional requirement if facial recognition is necessary	
	$\bar{E}$ [a] [minimum maintained] lx	E_{min} [maintained] lx	$E_{v,min}$ [maintained] lx	$E_{sc,min}$ [maintained] lx
P1	15,0	3,00	5,0	5,0
P2	10,0	2,00	3,0	2,0
P3	7,50	1,50	2,5	1,5
P4	5,00	1,00	1,5	1,0
P5	3,00	0,60	1,0	0,6
P6	2,00	0,40	0,6	0,2
P7	performance not determined	performance not determined		

[a] To provide for uniformity, the actual value of the maintained average illuminance shall not exceed 1,5 times the minimum $\bar{E}$ value indicated for the class.

5 KEY DEFINITIONS

In accordance with the Guidance Notes for the Reduction of Obtrusive Light, the following definitions are used to describe lighting effects in this assessment:

• Average Road Luminance: Road Luminance is a measure of the visibility of the road and it is based on the principle of illuminating the road enough to see the outline of the obstacle.

• Uniformity: Uniformity is an index to measure the uniformity of light distribution on the road, which can be expressed as overall uniformity (U0) and longitudinal uniformity (UI).

• Glare: Glare is the blinding sensation that occurs when the brightness of light exceeds the level of adaptation of the human eye to light.

• Light spill: the unwanted spillage of light onto adjacent areas and may affect sensitive receptors, particularly residential properties; (this includes the spill of light from a badly aimed floodlight stray in beyond the task area such as light into windows or a neighbouring property).

• Colour Rendering Index: The colour rendering index measures the ability of artificial light sources to display or reproduce the colour of the road or objects on the road relative to natural light sources.

6 PROPOSED LIGHT FITTINGS

The proposed light fittings will all be of the LED type:

- Fittings A – Philips Town Tune BDP260 Post Top Luminaire
- Fittings B – CU Phosco P862 Street Luminaire (approved by South Dublin County Council for the Fortunestown Lane & Garter Lane residential development Phase 1,2 Public Lighting design)

Fittings A – Post Top Luminaire

Fittings B – Street Luminaire

7 CONTROL STRATEGY

It is proposed that external luminaires will be controlled via photocells. The controls strategy aims to provide the necessary level of light at the time when it is needed in the most energy efficient manner.

The proposed fittings will have dimmable control gear and individual photocell control with factory set dimming profiles and 35/18 control regime to dimming profile U14

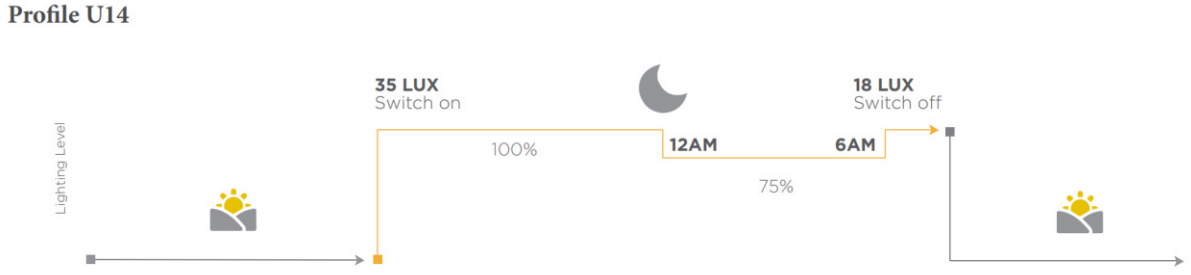

Figure 2 – Dimming Profile U14

APPENDIX A

PUBLIC LIGHTING FITTINGS INSIDE THIS AREA ARE A PART OF THE PREVIOUSLY APPROVED BY SOUTH DUBLIN COUNTY COUNCIL FORTUNESTOWN LANE & GARTER LANE RESIDENTIAL DEVELOPMENT PHASE 1,2 DESIGN

Access Road Blocks C,D,E

Main Access Road

Blocks C,D Courtyard, Link Space

Block E Courtyard, Link Space

Promenade

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER ARCHITECTS, STRUCTURAL ENGINEERS, BUILDING SERVICES, SPECIFICATIONS & SCHEDULES
2. ALL DIMENSIONS ARE IN MILLIMETERS
3. THE CONTRACTORS SHALL NOTE THAT THIS DRAWING IS INDICITIVE AND ILLUSTRATES DESIGN INTENT ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DETAILED DESIGN AND COORDINATION WITH OTHER SERVICES

LEGEND

PUBLIC LIGHTING FITTINGS AS PER APPROVED BY SDCC FORTUNESTOWN LANE & GARTER LANE RESIDENTIAL DEVELOPMENT PHASE 1,2 DESIGN:

TYPE B - PUBLIC LIGHTING FITTING CU PHOSCO P862 9.82klm, 81w, 4000K, 10m column

AREA TO BE TAKEN IN CHARGE

PRIVATE LANDLORD LIGHTING:

TYPE A - POST TOP FITTING PHILIPS TOWNTUNE 1.60klm, 10.2w, 4000K, 5m column

Blocks C,D Courtyard, Link Space
Results - Horizontal Illuminance (lux)
Eavr 5.98
Emin= 1.27
Emax= 13.68
Emin/Emax= 0.09
Emin/Eavr 0.21
Emax/Eavr= 2.29

Block E Courtyard, Link Space
Results - Horizontal Illuminance (lux)
Eavr 6.10
Emin= 1.20
Emax= 13.64
Emin/Emax= 0.09
Emin/Eavr 0.20
Emax/Eavr= 2.23

Access Road Blocks C,D,E
Results - Horizontal Illuminance (lux)
Eavr 7.83
Emin= 1.58
Emax= 17.82
Emin/Emax= 0.09
Emin/Eavr 0.20
Emax/Eavr= 2.28

Main Access Road
Results - Horizontal Illuminance (lux)
Eavr 10.02
Emin= 3.55
Emax= 22.03
Emin/Emax= 0.16
Emin/Eavr 0.36
Emax/Eavr= 2.20

Promenade
Results - Horizontal Illuminance (lux)
Eavr 6.19
Emin= 3.64
Emax= 11.53
Emin/Emax= 0.32
Emin/Eavr 0.59
Emax/Eavr= 1.86

1 PARKLANDS POINTE - PHASE 2 - EXTERNAL LIGHTING LAYOUT
1 : 250

Rev	Date	Description	Orig	App
0	21-05-2024	ISSUED FOR PLANNING	AZ	GM

Client: HARCOURT DEVELOPMENTS

Project: PARKLANDS POINTE - PHASE 2

Title: BLOCK C & D & E
EXTERNAL LIGHTING LAYOUT

Drawing No: G23010-EDC-ZZ-ZZ-DR-E-70500

RIBA Work Stage	Status Code	Revision
STAGE 2	P3	0

Scale @ A0	Model Manager	Project Manager
1:250	TB	GM

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APPENDIX B

DATE: **21 May 2024**

DESIGNER: **Andrii Zaporozhchenko**

PROJECT No: **D23010**

PROJECT NAME: **Parklands Pointe Phase 2**

Lighting to BS5489:1 2020

Public Lighting:
PUBLIC LIGHTING AS PER PREVIOUSLY APPROVED BY SOUTH DUBLIN COUNTY COUNCIL FORTUNESTOWN LANE & GARTER LANE RESIDENTIAL DEVELOPMENT PHASE 1,2 DESIGN:
Main Access Road lighting to class P2
Access Road Blocks C,D,E lighting to class P3
Light Type B) CU Phosco P862-64-F3-NW-F400-81W, 9.82klm, 81w, 10m column
Dimming To U14 Regime, 4000k colour temp.

Landlord Lighting:
Residential Area lighting to class P4
Light Type A) Philips TownTune BDP260, 1.60klm, 10.2w, 4000K, 5m column

Outdoor Lighting Report

PREPARED BY:

EDC-Mechanical & Electrical Consulting Engineers
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Layout Report

General Data

Dimensions in Metres Angles in Degrees

Calculation Grids

ID	Grid Name	X	Y	X' Length	Y' Length	X' Spacing	Y' Spacing
1	Blocks C,D Courtyard, Link...	-13194.67	5850.19	147.39	85.03	1.49	1.49
2	Block E Courtyard, Link Sp...	-13047.11	5849.53	75.60	85.69	1.48	1.48
3	Access Road Blocks C,D,E	-13194.49	5935.19	223.12	31.70	1.50	1.44
4	Main Access Road	-12936.99	5877.56	24.03	72.72	1.41	1.48
5	Promenade	-12968.62	5872.12	30.19	9.65	1.44	1.38

Luminaires

Luminaire A Data

Supplier	
Type	TownTune Central Post-Top - BDP260I - B DP260 LED16-4S/740 PSD
Lamp(s)	LED16-4S/740
LampFlux(klm)/Colour	1.60 4000/70
File Name	TownTune Central Post-Top - BDP260I - B DP260 LED16-4S_740 PSD DM33.ldt
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	213.7, 11.8, 0.0
No. in Project	53

Luminaire B Data

Supplier	
Type	P862-64-F3-NW-F400-81W
Lamp(s)	740P NW
Lamp Flux (klm)	9.82
File Name	P862-64-F3-NW-F400-81W.ldt
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	718.9, 376.5, 0.0
No. in Project	11

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	-13155.12	5918.84	5.00	130.00	0.00	0.00	0.00			
2	A	-13166.74	5901.64	5.00	90.00	0.00	0.00	0.00			
3	A	-13152.92	5895.26	5.00	160.00	0.00	0.00	0.00			
4	A	-13169.19	5881.83	5.00	90.00	0.00	0.00	0.00			
5	A	-13156.65	5883.35	5.00	110.00	0.00	0.00	0.00			
6	A	-13160.77	5871.57	5.00	190.00	0.00	0.00	0.00			
7	A	-13165.29	5913.98	5.00	90.00	0.00	0.00	0.00			
8	A	-13189.22	5857.32	5.00	105.00	0.00	0.00	0.00			
9	A	-13174.00	5856.97	5.00	65.00	0.00	0.00	0.00			
10	A	-13153.59	5863.38	5.00	290.00	0.00	0.00	0.00			
11	A	-13131.46	5864.94	5.00	205.00	0.00	0.00	0.00			
12	A	-13114.79	5868.62	5.00	200.00	0.00	0.00	0.00			
13	A	-13108.45	5855.79	5.00	105.00	0.00	0.00	0.00			
14	A	-13125.81	5855.23	5.00	80.00	0.00	0.00	0.00			
15	A	-13094.09	5866.31	5.00	280.00	0.00	0.00	0.00			
16	A	-13076.20	5867.75	5.00	275.00	0.00	0.00	0.00			

851439240

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
17	A	-13055.33	5861.86	5.00	90.00	0.00	0.00	0.00			
18	A	-13128.25	5930.90	5.00	180.00	0.00	0.00	0.00			
19	A	-13123.03	5921.06	5.00	205.00	0.00	0.00	0.00			
20	A	-13117.01	5909.53	5.00	205.00	0.00	0.00	0.00			
21	A	-13114.29	5884.92	5.00	130.00	0.00	0.00	0.00			
22	A	-13125.59	5893.84	5.00	290.00	0.00	0.00	0.00			
23	A	-13125.28	5875.48	5.00	10.00	0.00	0.00	0.00			
24	A	-13086.70	5916.46	5.00	30.00	0.00	0.00	0.00			
25	A	-13072.96	5912.61	5.00	140.00	0.00	0.00	0.00			
26	A	-13073.55	5904.93	5.00	225.00	0.00	0.00	0.00			
27	A	-13086.52	5885.58	5.00	90.00	0.00	0.00	0.00			
28	A	-13071.60	5885.65	5.00	90.00	0.00	0.00	0.00			
29	A	-13083.56	5901.31	5.00	250.00	0.00	0.00	0.00			
30	A	-13084.16	5877.13	5.00	30.00	0.00	0.00	0.00			
31	A	-13071.92	5876.70	5.00	165.00	0.00	0.00	0.00			
32	A	-13037.32	5928.30	5.00	90.00	0.00	0.00	0.00			
33	A	-13027.80	5924.03	5.00	120.00	0.00	0.00	0.00			
34	A	-13040.03	5916.59	5.00	25.00	0.00	0.00	0.00			
35	A	-13039.76	5903.68	5.00	355.00	0.00	0.00	0.00			
36	A	-13029.15	5897.46	5.00	155.00	0.00	0.00	0.00			
37	A	-13039.55	5889.35	5.00	175.00	0.00	0.00	0.00			
38	A	-13030.47	5885.56	5.00	90.00	0.00	0.00	0.00			
39	A	-13034.75	5875.93	5.00	195.00	0.00	0.00	0.00			
40	A	-13041.56	5867.71	5.00	300.00	0.00	0.00	0.00			
41	A	-13020.13	5870.83	5.00	275.00	0.00	0.00	0.00			
42	A	-12998.80	5915.84	5.00	80.00	0.00	0.00	0.00			
43	A	-12989.38	5911.37	5.00	130.00	0.00	0.00	0.00			
44	A	-12998.80	5898.52	5.00	35.00	0.00	0.00	0.00			
45	A	-12985.83	5904.46	5.00	200.00	0.00	0.00	0.00			
46	A	-12982.13	5890.69	5.00	115.00	0.00	0.00	0.00			
47	A	-13002.83	5889.16	5.00	270.00	0.00	0.00	0.00			
48	A	-12992.20	5879.60	5.00	215.00	0.00	0.00	0.00			
49	A	-13015.81	5938.01	5.00	180.00	0.00	0.00	0.00			
51	A	-13007.62	5863.55	5.00	5.00	0.00	0.00	0.00			
52	A	-12987.35	5870.55	5.00	180.00	0.00	0.00	0.00			
53	B	-13184.15	5938.82	10.00	90.00	0.00	0.00	0.40			

Layout Continued

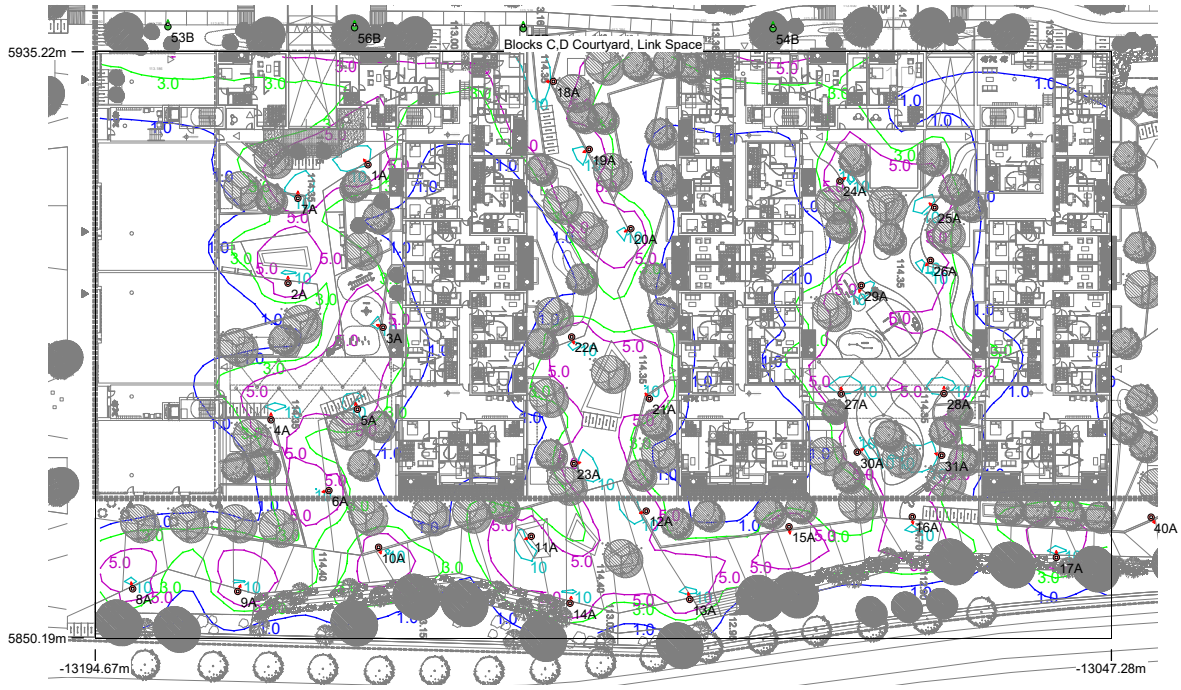
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
54	B	-13096.41	5938.55	10.00	90.00	3.00	0.00	0.40			
55	B	-13132.62	5938.58	10.00	90.00	0.00	0.00	0.40			
56	B	-13157.07	5938.72	10.00	90.00	0.00	0.00	0.40			
57	B	-12999.04	5961.23	10.00	270.00	0.00	0.00	0.40			
58	B	-13033.66	5959.01	10.00	270.00	0.00	0.00	0.40			
59	B	-13069.42	5958.79	10.00	270.00	0.00	0.00	0.40			
60	B	-12968.90	5937.29	10.00	30.00	0.00	0.00	0.40			
61	B	-12955.20	5912.82	10.00	30.00	0.00	0.00	0.40			
62	B	-12941.76	5894.06	10.00	35.00	0.00	0.00	0.40			
63	B	-12975.74	5945.24	10.00	70.00	0.00	0.00	0.40			
64	A	-12956.05	5884.70	5.00	120.00	0.00	0.00	0.00			
65	A	-12972.02	5877.30	5.00	95.00	0.00	0.00	0.00			

DATE: 21 May 2024 DESIGNER: Andrii Zaporozhchenko

PROJECT No: D23010 PROJECT NAME: Parklands Pointe Phase 2

Horizontal Illuminance (lux)

Blocks C,D Courtyard, Link Space



Results

Eav	5.98
Emin	1.27
Emax	13.68
Emin/Emax	0.09
Emin/Eav	0.21

DATE: 21 May 2024 DESIGNER: Andrii Zaporozhchenko

PROJECT No: D23010 PROJECT NAME: Parklands Pointe Phase 2

Horizontal Illuminance (lux)

Block E Courtyard, Link Space

Results

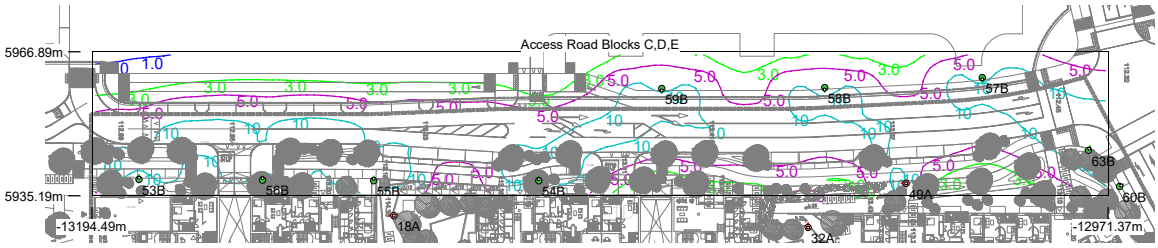
Eav	6.10
Emin	1.20
Emax	13.64
Emin/Emax	0.09
Emin/Eav	0.20

DATE: 21 May 2024 DESIGNER: Andrii Zaporozhchenko

PROJECT No: D23010 PROJECT NAME: Parklands Pointe Phase 2

Horizontal Illuminance (lux)

Access Road Blocks C,D,E



Results

Eav	7.83
Emin	1.58
Emax	17.82
Emin/Emax	0.09
Emin/Eav	0.20

851439240

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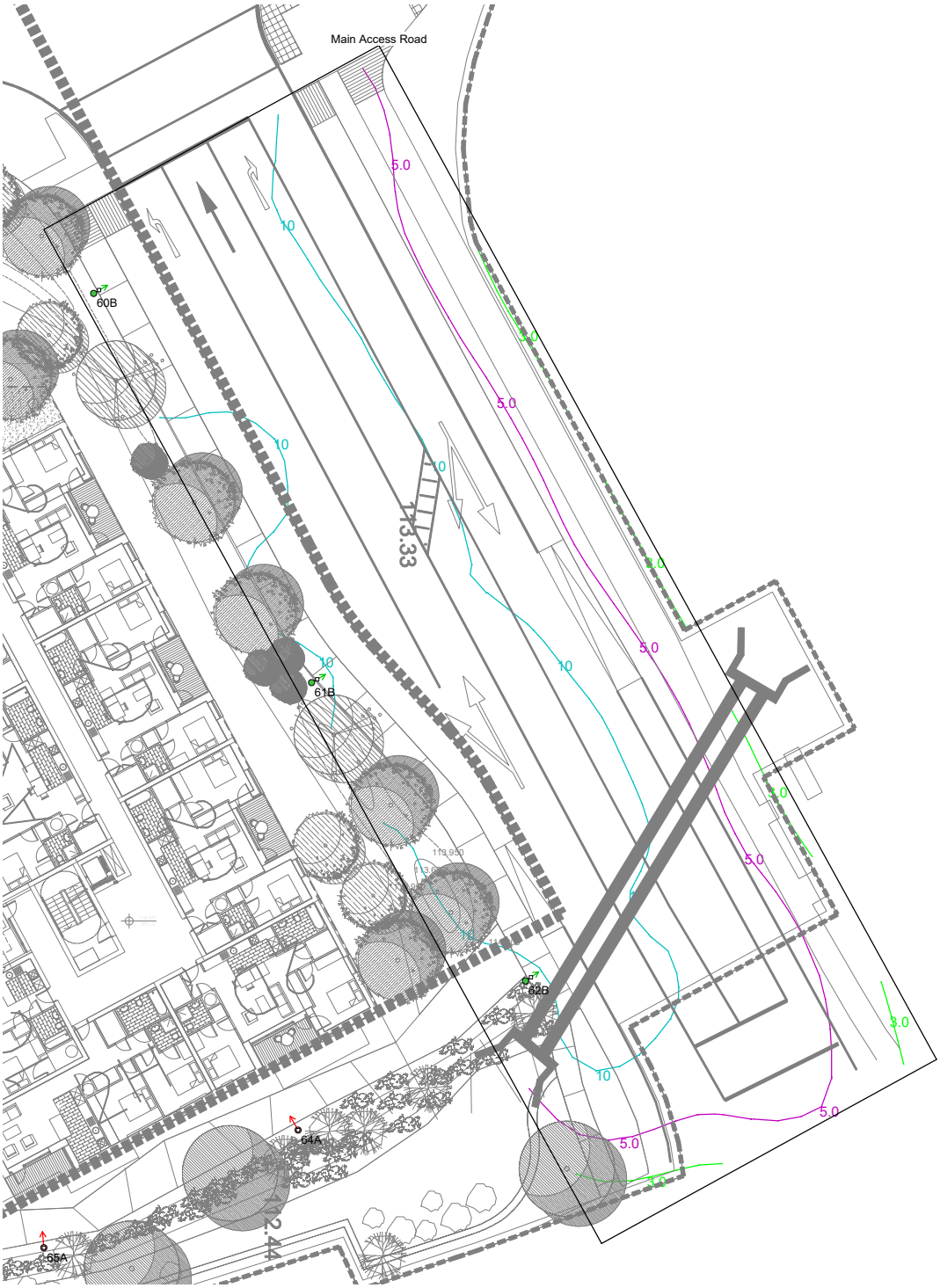
Horizontal Illuminance (lux)

Main Access Road



Results

Eav	10.02
Emin	3.56
Emax	22.03
Emin/Emax	0.16
Emin/Eav	0.36

851439240

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Horizontal Illuminance (lux)

Promenade

Results

Eav	6.19
Emin	3.64
Emax	11.53
Emin/Emax	0.32
Emin/Eav	0.59

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