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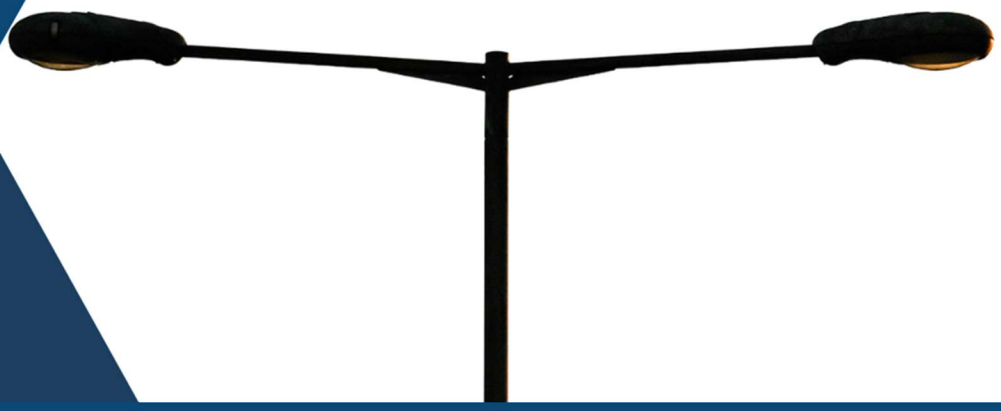

LOUGHGLYNN DEVELOPMENTS LTD

PUBLIC LIGHTING REPORT

GRANGE END, DUNSHAUGHLIN

FOR THE Meath COUNTY COUNCIL

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5288	CCE	XXXX	XX	RP	E01	000001	PUBLIC LIGHTING REPORT	S4	P2

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Status:	Rev:	Author:	Reviewed by:	Approved by:	Date:	Comments:
S0	P1	Ilaria	Barry Coffey	Barry Coffey	12/07/2023	Planning
S4	P2	Ilaria	Dirk Coetzee	Dirk Coetzee	24/01/2025	Planning

LEGEND

Work In Progress
S0-Intial Status- P1-Pn
Shared (non-contractual)
S1- Suitable for co-ordination- P1-Pn
S2-Suitable for information-P1-Pn
S3-Suitable for review and comment -P1-Pn
S4- Suitable for stage approval- P1-Pn
S5-Withdraen- P1-Pn
S6-Suitable for PIM authorisation- P1-Pn
S7 Suitable for AIM authorisation- P1-Pn

Published (Contractual)
D1- Suitable for Costing- P1-Pn
D2- Suitable for tender - T1-Tn
A1-An- authorised, accepted/construction C1-Cn
B1-Bn- partial sign-off (with comments)- P1-Pn
Published (for AIM acceptance)
CR- As constructed record document- C1-Cn

CONTENTS

1 INTRODUCTION

This report by Coffey Consulting Engineering (CCE) will outline the design intent for the public lighting for the proposed new residential development at Grange End, in Meath.

The report details the preliminary lighting design of the development, including:

- Providing adequate illumination for both pedestrians and vehicles.
- Minimise light pollution on the surrounding areas and neighbours.
- Reduce glare on users.
- The use of high efficiency LED lighting technology.

The complete installation shall be in accordance with all relevant Irish and European Standards, including:

- IS 10101:2020 - National Rules for Electrical Installations;
- S.I. No. 291 of 2013: Safety. Health and Welfare at Work (Construction) Regulations 2013;
- IS EN 13201-2:2015 Road Lighting – Part 2: Performance Requirements;
- IS EN 13201-3:2015 Road Lighting – Part 3: Calculation of Performance;
- IS EN 13201-4:2015 Road Lighting – Part 4: Methods of Measuring Lighting Performance;
- BS 5489-1:2020 Code of Practice for the Design of Road Lighting. Part 1: Lighting of Roads and Public Amenity Areas;
- Meath Public Lighting Technical Specification & Requirements
- ESB Networks National Code of Practice for Customer Interface
- ESB Networks – Housing Schemes: Guidebook for ESB Networks Standards for Electrical Services
- Recommendations for Site Development Works in Housing Areas, DoEHLG
- Ecologist's recommendations

2 EXTERNAL LIGHTING DESIGN

It is proposed to install new luminaires throughout the scheme:

Internal roads & paths:

- no. 64 x Metro Streetlights 27w LED 3000K (45 x Street Optic R01 and 19 x Forward Throw A Optic) mounted on 6m columns with 0/5 degree tilt.

R159 & Distributor road:

- no. 24 x Metro Streetlights LED 4000K Street Optic R03 (no. 15 Veelite Metro Streetlight 73w LED Street Optic R03 & no. 9 Veelite Metro Streetlight 68w LED Street Optic R03) on the Distributor Road), all mounted on 8m columns with no tilt.

2.1 PROPOSED LIGHT FITTING DETAILS

The lighting design is based on the following light fittings:

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Veelite Metro Streetlight LED Street Optic R01		
	Led:	No. 45 x 27w LED/3000K
	Construction:	Die-cast aluminium. IP66. IK09 as standard. Driver and LED Modules are accessible for maintenance or replacement.
	Finish:	Grey RAL 9006 as standard. Other RAL colours on request.
	Life:	100,000h - L90@25°C
	Height:	Mounted on 6 m poles with 0/5 degree tilt

Veelite Metro Streetlight LED Forward Throw A Optic		
	Led:	No. 19 x 27w LED/3000K
	Construction:	Die-cast aluminium. IP66. IK09 as standard. Driver and LED Modules are accessible for maintenance or replacement.
	Finish:	Grey RAL 9006 as standard. Other RAL colours on request.
	Life:	100,000h - L90@25°C
	Height:	Mounted on 6 m poles with 0/5 degree tilt

Veelite Metro Streetlight LED Street Optic R03		
	Led:	No. 15 x 73w LED/4000K
	Construction:	Die Cast aluminium, flat glass optics (ie. no uplight). IP66.Driver and LED Modules are accessible for maintenance or replacement.
	Finish:	Grey RAL 9006 as standard. Other RAL colours on request.
	Life:	100,000h - L90@25°C
	Height:	Mounted on 8m columns with no tilt

Veelite Metro Streetlight LED Street Optic R03		
	Led:	No. 9 x 68w LED/4000K
	Construction:	Die Cast aluminium, flat glass optics (ie. no uplight). IP66.Driver and LED Modules are accessible for maintenance or replacement.
	Finish:	Grey RAL 9006 as standard. Other RAL colours on request.
	Life:	100,000h - L90@25°C
	Height:	Mounted on 8m columns with no tilt

Please note that the design will be developed during the detailed design stage and the exact position and manufacturer of the light fittings may change, however the overall lighting installation will comply with the Standards listed in 2.1.

The preliminary calculations were carried out using Lighting Reality software. Results below and on the drawings

- 5288-CCE-XXXX-XX-DR-E01-006300
- 5288- CCE -XXXX-XX-DR- E01-006310

2.2 GENERAL DATA

R159 DISTRIBUTOR ROAD

Dimensions in Meters, Angles in Degrees

ID	Grid Name	X	Y	X' Length	Y' Length	X' Spacing	Y' Spacing
1	Distributor road	364.65	145.73	129.00	294.65	1.50	1.50
2	R159	-10.56	220.61	125.49	364.85	1.49	1.50
3	Path / Cycle lane 1	369.65	150.73	110.37	294.65	1.49	1.50
4	Path / Cycle lane 2	-10.44	220.79	104.61	364.85	1.49	1.50
5	Path / Cycle lane 3	369.65	150.73	110.37	299.65	1.49	1.50
6	Isolines	-5.41	14.94	462.71	455.81	1.85	1.82

Luminaire Location Summary								
Luminaire Reference	Type	Location			Angle	Tilt	Cant	Outreach
		X	Y	Height				
1	A	44.55	162.91	8.00	154.00	0.00	0.00	0.50
2	A	61.68	188.65	8.00	143.00	0.00	0.00	0.50
3	A	85.60	207.19	8.00	120.00	0.00	0.00	0.50
4	A	112.58	217.19	8.00	108.00	0.00	0.00	0.50
5	A	139.00	230.37	8.00	141.00	0.00	0.00	0.50
6	A	159.74	254.98	8.00	156.00	0.00	0.00	0.50
7	A	178.24	286.91	8.00	147.00	0.00	0.00	0.50
8	A	220.80	338.41	8.00	124.00	0.00	0.00	0.50
9	A	249.66	354.94	8.00	120.00	0.00	0.00	0.50
10	A	279.55	369.88	8.00	117.00	0.00	0.00	0.50
11	A	305.57	382.07	8.00	120.00	0.00	0.00	0.50
12	A	195.80	315.29	8.00	148.00	0.00	0.00	0.50
13	A	334.80	397.22	8.00	115.00	0.00	0.00	0.50
14	A	357.68	422.69	8.00	295.00	0.00	0.00	0.50
15	A	393.61	432.01	8.00	119.00	0.00	0.00	0.50
16	B	394.18	353.81	8.00	196.00	0.00	0.00	0.50
17	B	402.94	328.58	8.00	199.00	0.00	0.00	0.50
18	B	412.98	299.23	8.00	198.00	0.00	0.00	0.50
19	B	420.70	269.98	8.00	196.00	0.00	0.00	0.50
20	B	425.59	243.10	8.00	188.50	0.00	0.00	0.50
21	B	429.34	182.73	8.00	184.00	0.00	0.00	0.50
22	B	428.67	212.78	8.00	185.00	0.00	0.00	0.50
23	B	383.82	383.19	8.00	195.00	0.00	0.00	0.50
24	B	371.96	412.18	8.00	209.00	0.00	0.00	0.50

Light levels area as follows:

- Distributor Road : 16.7 lux average, 6.9 lux minimum (0.41 uniformity).
- R159 : 15.0 lux average, 6.4 lux minimum (0.43 uniformity).

These levels comply with class C3 of IS EN 13201-2:2015 / BS 5489-1:2020 for roads (15.0 lux average, 0.40 uniformity).

- Path/Cycle Lane 1 : 20 lux average, 6 lux minimum.
- Path/Cycle Lane 2 : 19 lux average, 3 lux minimum.
- Path/Cycle Lane 3 : 7.7 lux average, 1.8 lux minimum.

These levels comply with the following lighting classes for paths as per IS EN 13201-2:2015 / BS 5489-1:2020 – Class P1 (15 lux average, 3 lux minimum) & Class P3 (7.5 lux average, 1.5 lux minimum).

INTERNAL ROADS & PATHS

Dimensions in Meters, Angles in Degrees

ID	Grid Name	X	Y	X' Length	Y' Length	X' Spacing	Y' Spacing
1	Road & Paths – Section 1	42.59	12.41	374.80	244.10	1.50	1.50
2	Road & Paths – Section 2	115.35	256.51	374.80	199.44	1.50	1.50
3	Isolines	-10.10	12.41	466.33	436.83	1.87	1.75

Luminaire Location Summary								
Luminaire Reference	Type	Location			Angle	Tilt	Cant	Outreach
		X	Y	Height				
1	A	382.98	316.31	6.00	285.00	5.00	0.00	0.50
2	B	321.42	344.82	6.00	107.00	5.00	0.00	0.50
3	A	388.38	300.11	6.00	113.00	0.00	0.00	0.50
4	B	408.39	228.36	6.00	110.00	5.00	0.00	0.50
5	A	389.01	202.01	6.00	196.00	0.00	0.00	0.50
6	A	301.95	262.90	6.00	204.00	5.00	0.00	0.50
7	B	282.20	169.26	6.00	259.00	5.00	0.00	0.50
8	A	279.31	185.49	6.00	54.00	5.00	0.00	0.50
9	A	252.28	166.51	6.00	145.00	5.00	0.00	0.50
10	A	249.38	111.88	6.00	171.00	5.00	0.00	0.50
11	A	231.51	76.77	6.00	117.00	5.00	0.00	0.50
12	A	267.45	333.98	6.00	22.00	5.00	0.00	0.50
13	A	313.75	325.74	6.00	110.00	5.00	0.00	0.50
14	A	291.19	293.31	6.00	202.00	5.00	0.00	0.50
15	B	204.12	315.21	6.00	62.00	5.00	0.00	0.50
16	A	268.82	269.45	6.00	108.00	5.00	0.00	0.50
17	A	223.09	264.72	6.00	290.00	5.00	0.00	0.50
18	A	233.67	237.11	6.00	24.00	5.00	0.00	0.50
19	A	246.97	199.48	6.00	25.00	5.00	0.00	0.50
20	A	249.10	140.41	6.00	167.00	5.00	0.00	0.50
21	A	313.92	228.99	6.00	198.00	5.00	0.00	0.50
22	B	382.90	219.39	6.00	113.00	0.00	0.00	0.50
23	A	351.31	185.95	6.00	199.00	5.00	0.00	0.50
24	B	357.60	333.58	6.00	206.00	5.00	0.00	0.50
25	B	338.98	388.53	6.00	204.00	5.00	0.00	0.50
26	B	348.76	359.03	6.00	203.00	5.00	0.00	0.50
27	A	354.18	373.12	6.00	290.00	5.00	0.00	0.50
28	B	290.25	333.98	6.00	111.00	5.00	0.00	0.50
29	A	271.60	310.15	6.00	114.50	5.00	0.00	0.50
30	A	243.34	298.74	6.00	208.00	5.00	0.00	0.50
31	A	267.02	360.33	6.00	209.00	5.00	0.00	0.50
32	A	221.80	160.57	6.00	113.00	5.00	0.00	0.50
33	A	197.16	128.28	6.00	21.00	5.00	0.00	0.50
34	A	187.37	156.81	6.00	16.00	5.00	0.00	0.50
35	A	177.88	210.48	6.00	206.00	5.00	0.00	0.50
36	A	147.40	162.04	6.00	108.00	5.00	0.00	0.50

37	A	244.35	320.93	6.00	283.00	5.00	0.00	0.50
38	B	179.02	173.21	6.00	108.00	5.00	0.00	0.50
39	B	199.17	275.64	6.00	283.00	5.00	0.00	0.50
40	B	135.16	115.28	6.00	193.00	5.00	0.00	0.50
41	A	128.43	141.60	6.00	190.00	5.00	0.00	0.50
42	A	62.93	162.76	6.00	90.00	5.00	0.00	0.50
43	A	118.82	165.91	6.00	202.00	5.00	0.00	0.50
44	A	105.41	204.01	6.00	195.00	5.00	0.00	0.50
45	A	273.19	144.88	6.00	100.00	5.00	0.00	0.50
46	A	154.40	238.99	6.00	49.00	5.00	0.00	0.50
47	A	204.65	296.77	6.00	333.00	5.00	0.00	0.50
48	A	225.41	280.21	6.00	23.00	5.00	0.00	0.50
49	B	352.14	208.52	6.00	110.00	0.00	0.00	0.50
50	A	308.10	192.97	6.00	111.00	5.00	0.00	0.50
51	B	232.43	329.98	6.00	203.00	5.00	0.00	0.50
52	A	186.14	256.00	6.00	292.00	5.00	0.00	0.50
53	B	353.39	301.12	6.00	18.00	0.00	0.00	0.50
54	B	363.31	273.26	6.00	23.00	5.00	0.00	0.50
55	B	371.65	249.29	6.00	23.00	5.00	0.00	0.50
56	B	329.41	215.83	6.00	286.00	5.00	0.00	0.50
57	A	367.86	229.34	6.00	291.00	5.00	0.00	0.50
58	A	102.18	161.32	6.00	85.00	5.00	0.00	0.50
59	A	82.88	182.53	6.00	309.00	5.00	0.00	0.50
60	A	292.66	223.58	6.00	203.00	0.00	0.00	0.50
61	A	274.89	255.41	6.00	211.00	5.00	0.00	0.50
62	A	335.31	180.18	6.00	26.00	0.00	0.00	0.50
63	A	373.02	196.05	6.00	26.00	0.00	0.00	0.50
64	B	300.50	352.24	6.00	292.00	0.00	0.00	0.50

Light levels area as follows:

- Road Paths - Section 1 : 6.3 lux average, 1.2 lux minimum (0.20 uniformity).
- Road Paths - Section 2 : 5.7 lux average, 1.1 lux minimum (0.20 uniformity).

These levels comply with class P4 of IS EN 13201-2:2015 / BS 5489-1:2020 for residential roads & paths (5.0 lux average, 1.0 lux minimum).

3 ECOLOGY

Optics/ shields/ cowls shall be installed where necessary, in consideration of wildlife (e.g. bats) and to prevent unnecessary up lighting or illumination of nearby trees, buildings etc.

The site lighting design will be developed further during the detailed design stage, taking on board any further recommendations from the Ecologist/ MCC.

4 FUTURE DESIGN SUBMISSION

In accordance with Meath Public Lighting requirements, a formal design submission shall be made to Meath for approval, prior to the installation of any public lighting, or associated columns/ poles, ducts etc. on site.

The formal submission will include the following, as required:

- Lighting performance modelling calculations by Lighting Reality® in soft format. The cover shall show:
  - The identity of the lighting designer;
  - The project name;
  - The lighting classification designed to;
  - The combined maintenance factor for the luminaire and how it was derived.
- Lighting Reality® report in PDF format.
- CAD drawing in soft format showing the following information:
  - The site boundary;
  - All landscaping details;
  - All services;
  - All private areas to be hatched and identified;
  - Individually numbered columns with icons of a size to allow accurate assessment of column positions;
  - PL Ducts and Cable Access Chambers;
  - Individually numbered micro pillar locations;
  - ESB cabinet locations;
  - Individually numbered single line circuit diagrams;
  - All duct, column foundation or any other detail shall only show MCC approved versions;
- Technical specifications for the proposed equipment, including TM21 and LM80 reports.
- Written details outlining the OEM warranty and the procedure for transferring warranty to WCC after the project is taken in charge.
- Voltage drop calculations for each circuit.
- Lantern details including number of LEDs and drive current must be provided.
- Energy calculations including the designed dimming regime.

APPENDIX A: 5288-CCE-XXXX-XX-DR-E01-006300- EXTERNAL LIGHTING LAYOUT – INTERNAL ROADS

APPENDIX B: 5288-CCE-XXXX-XX-DR-E01-006310- EXTERNAL LIGHTING LAYOUT – ROAD, PATHS & CYCLE LANES