Puttaghan Lands LRD

PUBLIC LIGHTING REPORT

COFFEY CONSULTING ENGINEERING
BLOCK A, MARLINSTOWN BUSINESS PARK, MULLINGAR, CO. WESTMEATH

DOCUMENT REVISION HISTORY			Ref:	5251 – Public Lighting Report – Wellwood, Tullamore
Rev	**Author**	**Verified By**	**Date**	**Comments / Status**
P1	R. Kerrigan	B. Coffey	05/01/2023	Preliminary Issue
P2	R. Kerrigan	B. Coffey	02/02/2023	Preliminary Issue
P3	R. Kerrigan	B. Coffey	07/02/2023	Issued for Planning
P4	R. Kerrigan	B. Coffey	31/03/2023	Planning Issue
P5	R. Kerrigan	B. Coffey	24/04/2023	Planning Issue
P6	R. Kerrigan	B. Coffey	04/09/2023	Planning Issue

Contents

1-0 INTRODUCTION

This report by Coffey Consulting Engineering will outline the design intent for the public lighting for the proposed residential development in Wellwood, Tullamore.

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 5489-1:2013 Code of Practice for the Design of Road Lighting. Part 1: Lighting of Roads and Public Amenity Areas;
- Offaly County Council Requirements for Public Lighting Works for Residential Developments
- 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

2-0 EXTERNAL LIGHTING DESIGN

It is proposed to install new luminaires throughout the scheme, 47 x Metro Streetlights 19w LED 3000K (31 x Street Optic R03, 10 x Forward Throw A Optic and 3 x Twin Head Forward Throw A Optic) mounted on 6 metre poles and 2 x Metre Streetlights 36W LED 3000K, mounted on 8m poles with no tilt., as per the drawing 5251-CCE-XXXX-XX-DR-E01-000100 and 5251-CCE-XXXX-XX-DR-E01-000110.

Proposed Light Fitting

The preliminary lighting design is based on the following light fitting:

Veelite Metro Streetlight 19w LED Street Optic R03

Construction:	Die-cast aluminium. IP66 and IK08 rated. Driver and LED modules are accessible for maintenance and removeable.
Lens:	Tempered glass
Finish:	Grey RAL 9006
Luminaire:	19W LED. 4,000K.
Life:	>100,000 hours @25ºC
Height:	6 metres

Veelite Metro Streetlight 19w LED Forward Throw A Optic

Construction:	Die-cast aluminium. IP66 and IK08 rated. Driver and LED modules are accessible for maintenance and removeable.
Lens:	Tempered glass
Finish:	Grey RAL 9006
Luminaire:	19W LED. 4,000K.
Life:	>100,000 hours @25ºC
Height:	6 metres

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 Section 1.0.

The preliminary calculations were carried out using Lighting Reality software. Results below and on the drawings 5251-CCE-XXXX-XX-DR-E01-000120 and 5251-CCE-XXXX-XX-DR-E01-000130

General Data

Dimensions in Meters, Angles in Degrees

Grid Origin: 27.5m x 10.4m
Area: 372.8m x 292.6m
Sample Spacing: 1.50m x 1.49m

Luminaire Location Summary								
Luminaire Reference	Type	Location			Angle	Tilt	Cant	Outreach
		X	Y	Height				
1	A	368.51	200.10	6	241.00	0.00	0.00	0.50
2	A	349.84	222.60	6	216.00	0.00	0.00	0.50
3	B	318.49	249.01	6	303.00	0.00	0.00	0.50
4	A	348.41	258.69	6	118.00	0.00	0.00	0.50
5	B	299.77	238.89	6	285.00	0.00	0.00	0.50
6	A	274.46	225.03	6	304.00	0.00	0.00	0.50
7	A	251.95	202.46	6	115.00	0.00	0.00	0.50
8	A	309.02	211.57	6	41.00	0.00	0.00	0.50
9	A	327.04	222.66	6	269.00	0.00	0.00	0.50
10	A	220.55	195.29	6	306.00	0.00	0.00	0.50
11	A	203.65	171.21	6	152.00	0.00	0.00	0.50
12	A	192.21	187.57	6	207.00	0.00	0.00	0.50
13	A	180.30	179.04	6	21.00	0.00	0.00	0.50
14	A	176.06	146.13	6	319.00	0.00	0.00	0.50
15	A	154.75	121.09	6	324.00	0.00	0.00	0.50
16	A	134.99	179.91	6	281.00	0.00	0.00	0.50
17	A	136.59	96.09	6	322.00	0.00	0.00	0.50
18	A	117.20	100.30	6	237.00	0.00	0.00	0.50
19	B	97.21	112.85	6	218.00	0.00	0.00	0.50
20	B	89.80	94.77	6	142.00	0.00	0.00	0.50
21	B	79.51	76.60	6	148.00	0.00	0.00	0.50
22	A	54.09	36.40	6	169.00	0.00	0.00	0.50
23	A	95.84	134.44	6	180.00	0.00	0.00	0.50
24	A	95.01	168.16	6	179.00	0.00	0.00	0.50
25	A	154.35	153.53	6	244.00	0.00	0.00	0.50
26	A	159.26	167.59	6	209.00	0.00	0.00	0.50
27	A	114.64	130.68	6	135.00	0.00	0.00	0.50
28	A	111.40	169.68	6	240.00	0.00	0.00	0.50
29	B	85.62	199.20	6	356.00	0.00	0.00	0.50
30	B	102.39	196.69	6	105.00	0.00	0.00	0.50
31	B	129.31	202.95	6	105.00	0.00	0.00	0.50
32	B	110.32	212.24	6	194.00	0.00	0.00	0.50
33	B	110.96	212.34	6	16.00	0.00	0.00	0.50
34	B	142.81	220.69	6	195.00	0.00	0.00	0.50
35	A	157.51	209.55	6	106.00	0.00	0.00	0.50
36	A	173.36	221.62	6	206.00	0.00	0.00	0.50
37	B	167.51	202.27	6	37.00	0.00	0.00	0.50
38	B	328.71	235.34	6	25.00	0.00	0.00	0.50
39	A	139.97	72.57	6	238.00	0.00	0.00	0.50
40	B	158.91	60.07	6	143.00	0.00	0.00	0.50
41	A	194.30	128.06	6	241.00	0.00	0.00	0.50
42	A	132.98	153.53	6	163.00	0.00	0.00	0.50
43	A	61.16	72.11	6	35.00	0.00	0.00	0.50
44	A	101.52	154.91	6	113.00	0.00	0.00	0.50
45	A	68.57	57.23	6	162.00	0.00	0.00	0.50
46	B	85.29	199.26	6	180.00	0.00	0.00	0.50
47	B	143.29	220.81	6	18.00	0.00	0.00	0.50
48	C	382.91	185.65	8	160.00	0.00	0.00	0.50
49	C	394.14	208.05	8	162.00	0.00	0.00	0.50

The preliminary light levels are:

Road & Paths:

- 5.7 lux average,
- 1.1 lux minimum
- 0.20 uniformity.

This complies with class P4 of IS EN 13201/BS 5489 for residential roads (5.0 lux average, 1.0 lux minimum).

Tyrell's Road:

- 9.3 lux average,
- 3.7 lux minimum
- 0.40 uniformity.

This complies with class C5 for conflict areas (7.5 lux average, 0.40 uniformity) and also with class P3 for roads (7.5 lux average, 1.5 lux minimum).

3-0 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/ OCC.

4-0 FUTURE DESIGN SUBMISSION TO OFFALY COUNTY COUNCIL

In accordance with Offaly County Council Public Lighting requirements, a formal design submission, shall be made to Offaly County Council (OCC) 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 OCC 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 OCC 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 I - PUBLIC LIGHTING LAYOUTS

APPENDIX II - LIGHTING CONTOURS

APPENDIX III - PUBLIC LIGHTING CALCULATIONS