



**PUBLIC LIGHTING
KILCULLEN ROAD, BLUEBRELL, NAAS.
DESIGN CALCULATIONS REPORT**

**Proposed Development,
Kilcullen Road,
Bluebell,
Naas, Co. Kildare**

for

**Lighting Department
Kildare County Council**

**Project: 1848
Issue: Planning
Rev: 00**

Date: Oct. 2018

Table of Contents

1. Introduction.....	3
2. Design	3
3. Grid Results.....	6
4. ESB	7

1. Introduction

This report will outline the design intent and considerations taken to propose an LED Public Lighting design for a proposed residential development and new entry roads and Kilcullen Road, Bluebell, Naas, Co. Kildare.

The report considers the lighting design as developed by Fallon Design and developed with the following core considerations:

- To provide adequate illumination to contribute toward the safe use of the access roads and pathways for vehicular and pedestrian access.
- Minimise lighting pollution on surrounding areas and neighbours
- Reduce Glare on Pedestrians and other users of the access areas
- Use of highly efficient artificial Lighting to reduce energy consumption

The complete installation is installed to meet regulation standards:

- S.I. No. 291 of 2013: Safety, Health and Welfare at work (Construction Reg. 2013)
- ETCI National Rules for electrical Installation ET101-2008
- BS 5489-1:2013 Code of Practice for the design of road lighting
- IS EN 13201-1-2015
- IS EN 13201-2-2015 Class P2 with S/P Ratio 1.64
- Housing Scheme: Guidebook ESB Networks Standards for Electrical Services
- Kildare County Council Street Lighting Technical Specification

2. Design

The design proposes to use 3 No. Luminaires types mounted at varying heights and with varying beam widths.

Proposed luminaire design layout as per drawing 1848-BW50-04 including indicative ducting routes and lighting circuits.

Type A) C.U.Phosco P852-12-NW- P4-D0500-20W @ 6m	Type B) C.U.Phosco P852-6-R3B- NW-D0350-8W @ 5m	Type C) C.U.Phosco P862-32-P4-NW-F0500- 51W @ 8m.
Development Lighting	Development Lighting	Entry Link Road
		

Lighting Reality Calculations:

- ISEN 13201-1:2015 Class P4 with S/P Ratio of 1.64

Development Lighting:

- The Average Horizontal Illuminance is 5 Lux ($E_m \geq 5$ Lux) P4 to be compliant.
Average achieved: 5.01
- The Minimum Horizontal Illuminance is 1 Lux ($E_{min} \geq 1$ Lux) P4 to be compliant.
Average achieved: 0.98

2.1 Residential Roads

Luminaires:



Luminaire A Data

Supplier	C U Phosco
Type	P852-12-P4-NW-F0400-17W
Lamp(s)	740P NW
Lamp Flux (klm)	2.02
File Name	P852-12-P4-NW-F0400-17W.ies
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	683.8, 87.2, 1.6
No. in Project	37



Luminaire B Data

Supplier	C U Phosco
Type	P852-6-R3B-NW-F0300-8W
Lamp(s)	740P NW
Lamp Flux (klm)	0.78
File Name	P852-6-R3B-NW-F0300-8W.ies
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	966.9, 31.9, 3.0
No. in Project	6

ID	Type	X	Y	Height	Angle	Tilt	Can't	Out-reach	Target X	Target Y	Target Z
1	A	688639.72	717621.74	6.00	336.00	5.00	0.00	0.40			
2	A	688656.74	717639.05	6.00	155.00	5.00	0.00	0.40			
3	A	688645.28	717681.98	6.00	80.00	5.00	0.00	0.40			
4	A	688685.61	717680.88	6.00	249.00	5.00	0.00	0.40			
5	A	688727.46	717659.07	6.00	159.00	5.00	0.00	0.40			
6	A	688709.63	717678.56	6.00	247.00	5.00	0.00	0.40			
7	A	688702.70	717657.19	6.00	74.00	5.00	0.00	0.40			
8	A	688617.11	717691.68	6.00	70.00	5.00	0.00	0.40			
9	A	688643.88	717710.86	6.00	336.00	5.00	0.00	0.40			
10	A	688653.16	717733.23	6.00	336.00	5.00	0.00	0.40			

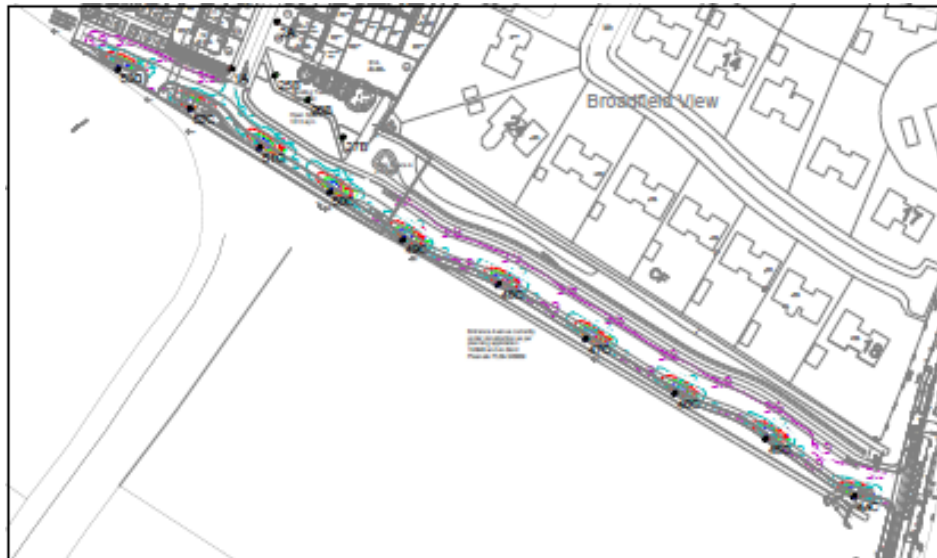
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
11	B	688675.99	717692.52	5.00	155.00	0.00	0.00	0.40			
12	A	688681.91	717745.26	6.00	101.00	5.00	0.00	0.40			
13	A	688657.28	717771.25	6.00	249.00	5.00	0.00	0.40			
14	B	688685.91	717715.84	5.00	159.00	0.00	0.00	0.40			
15	B	688695.26	717738.39	5.00	158.00	0.00	0.00	0.40			
16	A	688701.37	717754.70	6.00	234.00	5.00	0.00	0.40			
17	A	688723.95	717753.02	6.00	246.00	5.00	0.00	0.40			
18	A	688751.28	717741.71	6.00	246.00	5.00	0.00	0.40			
19	A	688696.22	717774.03	6.00	157.00	5.00	0.00	0.40			
20	A	688705.60	717796.91	6.00	163.00	5.00	0.00	0.40			
21	A	688692.60	717826.17	6.00	264.00	5.00	0.00	0.40			
22	A	688722.72	717822.10	6.00	257.00	5.00	0.00	0.40			
23	A	688753.11	717816.55	6.00	250.00	5.00	0.00	0.40			
24	A	688776.80	717807.96	6.00	246.00	5.00	0.00	0.40			
25	B	688656.18	717619.35	5.00	191.00	0.00	0.00	0.40			
26	B	688667.92	717610.46	5.00	244.00	0.00	0.00	0.40			
27	B	688680.93	717596.52	5.00	197.00	0.00	0.00	0.40			
28	A	688627.80	717706.19	6.00	245.00	5.00	0.00	0.40			
29	A	688665.04	717755.35	6.00	336.00	5.00	0.00	0.40			
30	A	688656.98	717698.23	6.00	200.00	5.00	0.00	0.40			
31	A	688665.36	717721.27	6.00	165.00	5.00	0.00	0.40			
32	A	688668.18	717667.19	6.00	157.00	5.00	0.00	0.40			
33	A	688740.08	717722.19	6.00	76.00	5.00	0.00	0.40			
34	A	688720.73	717730.14	6.00	72.00	5.00	0.00	0.40			
35	A	688683.69	717779.35	6.00	336.00	5.00	0.00	0.40			
36	A	688692.72	717802.44	6.00	338.00	5.00	0.00	0.40			
37	A	688683.09	717779.67	6.00	154.00	5.00	0.00	0.40			
38	A	688692.15	717802.60	6.00	149.00	5.00	0.00	0.40			
39	A	688667.61	717835.64	6.00	247.00	5.00	0.00	0.40			
40	A	688744.09	717801.48	6.00	69.00	5.00	0.00	0.40			
41	A	688771.29	717790.25	6.00	69.00	5.00	0.00	0.40			
42	A	688792.96	717822.21	6.00	336.00	5.00	0.00	0.40			
43	A	688677.76	717814.90	6.00	87.00	5.00	0.00	0.40			
44	C	688668.64	717464.46	8.00	79.00	5.00	0.00	0.40			
45	C	688636.24	717485.82	8.00	64.00	5.00	0.00	0.40			
46	C	688802.76	717502.46	8.00	62.00	5.00	0.00	0.40			
47	C	688770.12	717522.43	8.00	58.00	5.00	0.00	0.40			
48	C	688737.82	717542.35	8.00	64.00	5.00	0.00	0.40			
49	C	688702.76	717558.91	8.00	58.00	5.00	0.00	0.40			
50	C	688676.03	717576.45	8.00	59.00	5.00	0.00	0.40			
51	C	688650.18	717592.49	8.00	58.00	5.00	0.00	0.40			
52	C	688624.67	717606.79	8.00	69.00	5.00	0.00	0.40			
53	C	688598.10	717621.59	8.00	67.00	5.00	0.00	0.40			

Grid Results



Results

Eav	5.01
Emin	0.98
Emax	14.48
Emin/Emax	0.07
Emin/Eav	0.20



Results

Eav	7.48
Emin	1.77
E _{max}	27.41
Emin/E _{max}	0.06
Emin/Eav	0.24

3. ESB

The following is the ESB public lighting GMPRN for the lighting standards;

- GMPRN – TBC