

DATE: 12 July 2023
DESIGNER: Pete Harris
PROJECT No: S278 Design Check (R0)
PROJECT NAME: Land Adjacent Oldcastle Avenue, Guilsfield



Lighting Residential Roads - Designed in Accordance with BS5489-1 2020

The main purpose of lighting for subsidiary roads, namely access roads, residential roads and associated pedestrian areas, footpaths and cycle tracks and areas associated with those roads is to enable pedestrians and cyclists to orientate themselves and detect vehicular and other hazards, and to discourage crime against people and property. The lighting on such roads can provide some guidance for motorists, but is unlikely to be sufficient for revealing objects on the road without the use of headlights.

P4 - Eav = 5.00-7.50 Lux, Emin 1.00 Lux

=6.00m in environmental zones E1 or E2 from BS5489 LMF = 0.92
Maintenance factor = LLMF x LMF = 0.95 x 0.92 = 0.87

Dimming to 50% between Midnight and 05.00am (Labelled PN50)

Outdoor Lighting Report

No account is taken for the blocking effect caused by buildings, trees etc.
The calculation shown by this drawing assumes that the whole area being considered is in the same plane, i.e. there are no changes in gradient or elevation.

This lighting design proposal is a suggested lighting layout to present how TRT products could be used to meet the design criteria. No design risk assessment has been conducted for the lighting layout and TRT may not have undertaken a site survey. The lighting design has been based entirely on information supplied by others and therefore TRT cannot be held responsible for any risk associated with the implementation of the design. This lighting design proposal should be considered only as guidance and not as a final design for the purposes of Construction Design and Management Regs 2015.

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Layout Report

General Data

Dimensions in Metres Angles in Degrees
 Grid Origin 2560.0m x 1640.0m
 Area 225.0m x 175.0m
 Sample Spacing 1.50m x 1.50m

Luminaires

Luminaire A Data



Supplier	TRT Lighting
Type	OPM4_LED_23W_GR5 (Blue)_3000K_FG
Lamp(s)	42 0023 0000 100
Lamp Flux (klm)	2.68
File Name	OPM4_LED_23W_GR5 (Blue)_3000K_FG.i es
Maintenance Factor	0.87
Imax70,80,90(cd/klm)	509.9, 259.0, 0.0
No. in Project	5

Luminaire B Data



Supplier	TRT Lighting
Type	OPM4_LED_23W_GA2 (Yellow)_3000K_FG
Lamp(s)	42 0023 0000 100
Lamp Flux (klm)	2.53
File Name	OPM4_LED_23W_GA2 (Yellow)_3000K_F G.i es
Maintenance Factor	0.87
Imax70,80,90(cd/klm)	504.9, 94.8, 0.0
No. in Project	2

Luminaire C Data



Supplier	TRT Lighting
Type	OPM4_LED_19W_GR5 (Blue)_3000K_FG
Lamp(s)	42 0019 0000 100
Lamp Flux (klm)	2.29
File Name	OPM4_LED_19W_GR5 (Blue)_3000K_FG.i es
Maintenance Factor	0.87
Imax70,80,90(cd/klm)	509.9, 259.0, 0.0
No. in Project	4

Luminaire D Data



Supplier	TRT Lighting
Type	OPM4_LED_14W_GR5 (Blue)_3000K_FG
Lamp(s)	42 0014 0000 100
Lamp Flux (klm)	1.66
File Name	OPM4_LED_14W_GR5 (Blue)_3000K_FG.i es
Maintenance Factor	0.87
Imax70,80,90(cd/klm)	509.9, 259.0, 0.0
No. in Project	1

Layout

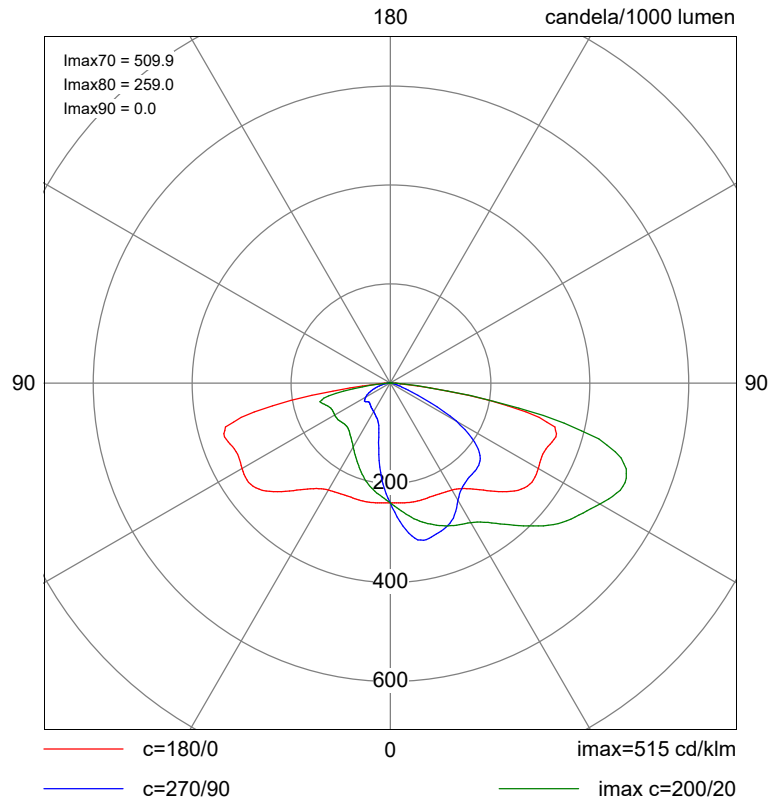
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	2591.95	1782.83	6.00	184.00	0.00	0.00	0.30			
2	A	2596.36	1753.13	6.00	189.00	0.00	0.00	0.30			
3	A	2600.34	1723.61	6.00	188.00	0.00	0.00	0.30			
4	A	2594.19	1694.32	6.00	359.00	0.00	0.00	0.30			
5	A	2600.20	1665.03	6.00	180.00	0.00	0.00	0.30			
6	B	2614.13	1699.22	6.00	242.00	0.00	0.00	0.30			
7	B	2622.40	1679.85	6.00	23.00	0.00	0.00	0.30			
8	C	2634.85	1691.62	6.00	316.00	0.00	0.00	0.30			
9	C	2652.17	1709.49	6.00	315.00	0.00	0.00	0.30			
10	C	2663.39	1728.03	6.00	306.00	0.00	0.00	0.30			

Layout Continued

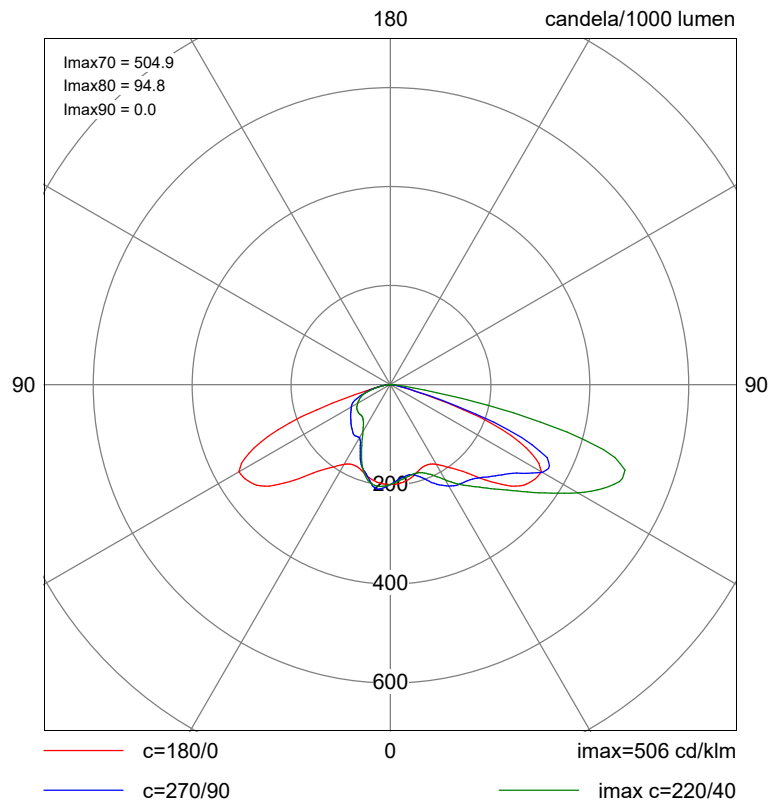
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
11	C	2689.89	1728.75	6.00	115.00	0.00	0.00	0.30			
12	D	2668.73	1740.60	6.00	20.00	0.00	0.00	0.30			

Polar Diagrams

Luminaire A OPM4 LED 23W GR5 (Blue) 3000K FG

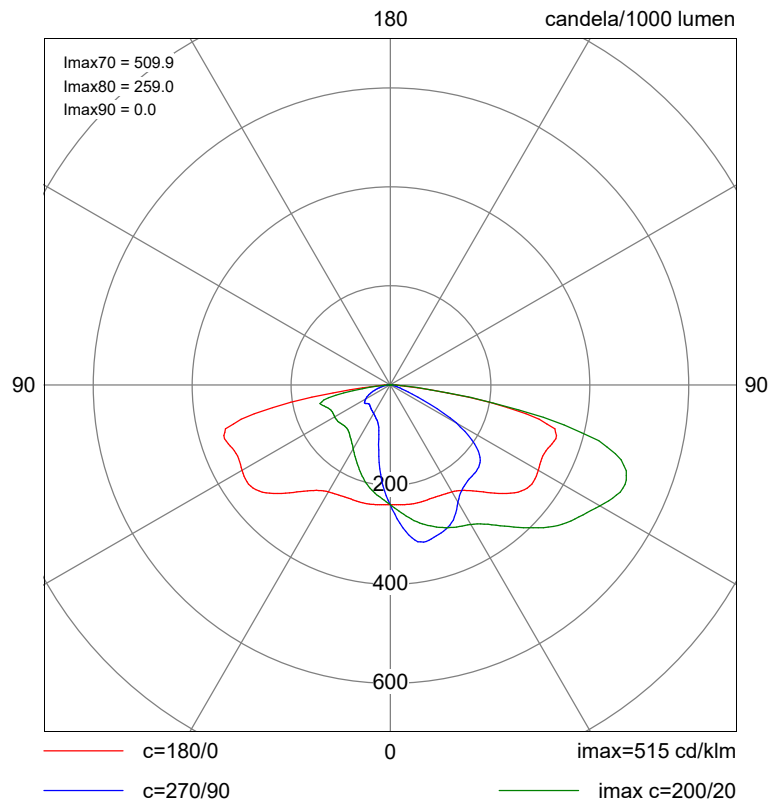


Luminaire B OPM4 LED 23W GA2 (Yellow) 3000K FG

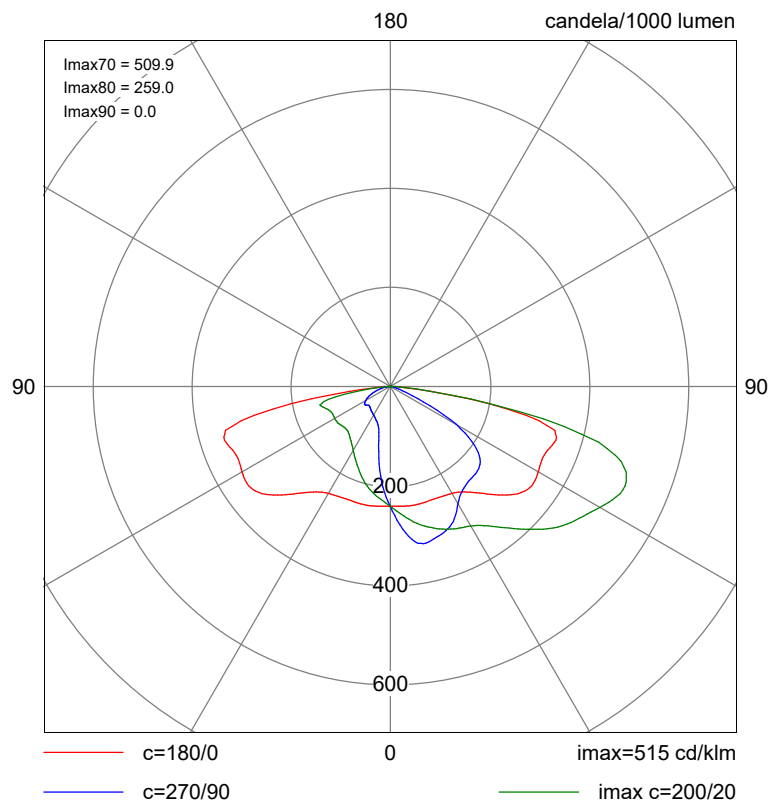


Polar Diagrams Continued

Luminaire C OPM4 LED 19W GR5 (Blue) 3000K FG

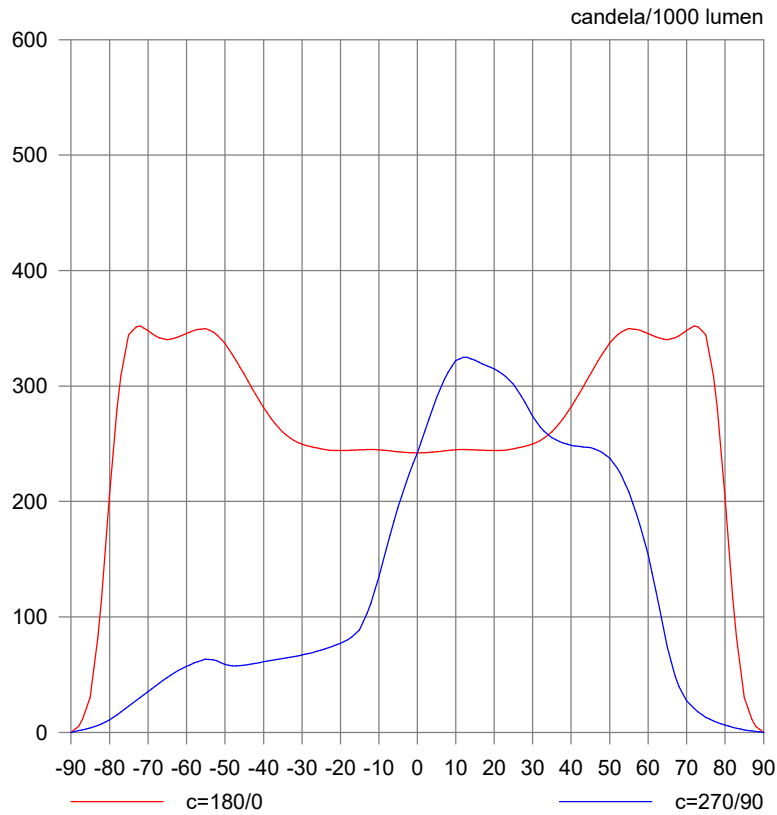


Luminaire D OPM4 LED 14W GR5 (Blue) 3000K FG

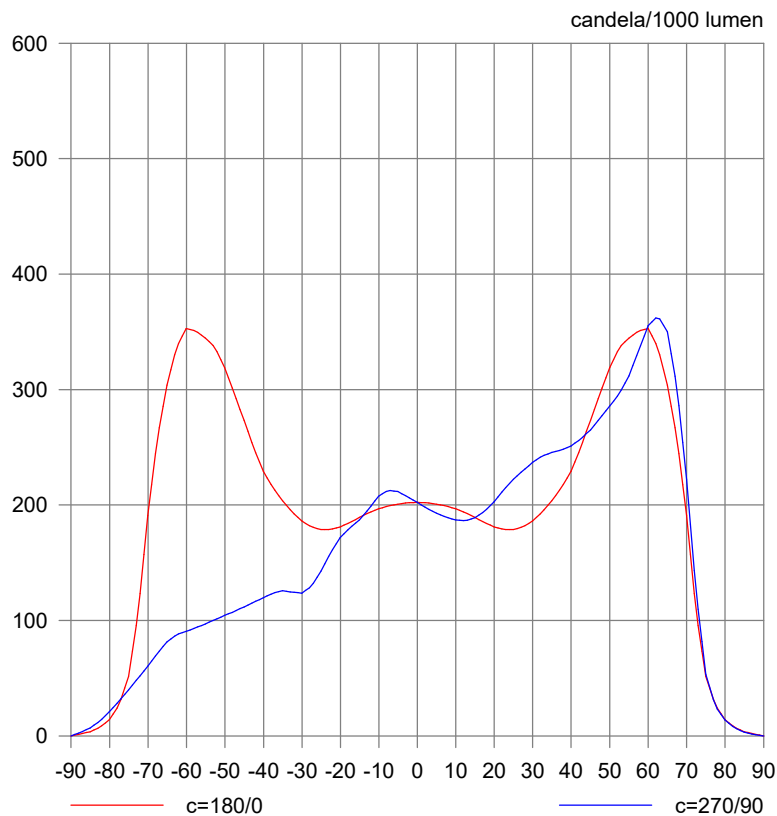


Cartesian Diagrams

Luminaire A OPM4 LED 23W GR5 (Blue) 3000K FG

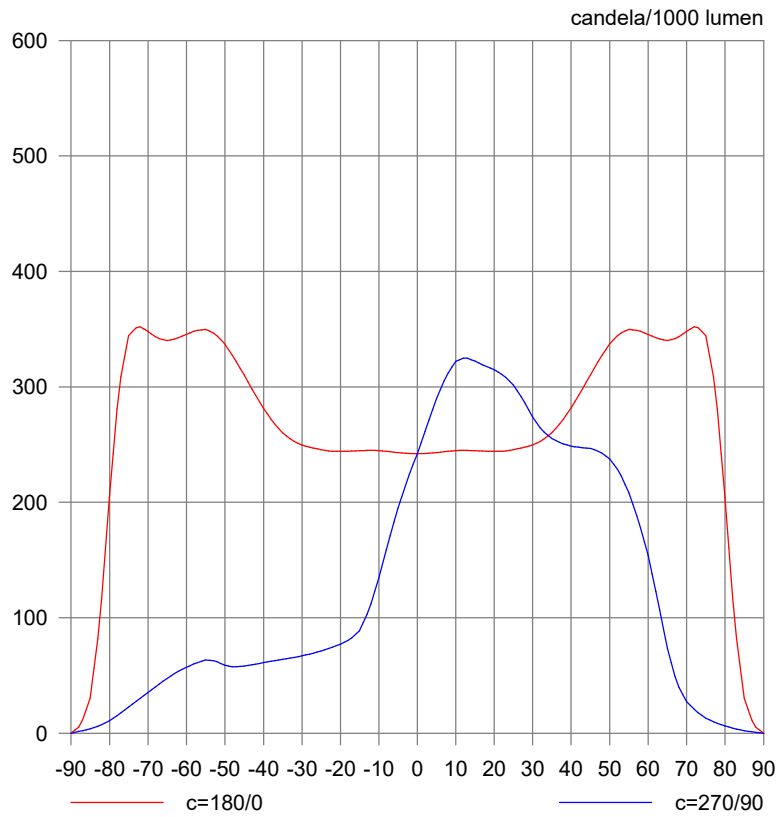


Luminaire B OPM4 LED 23W GA2 (Yellow) 3000K FG

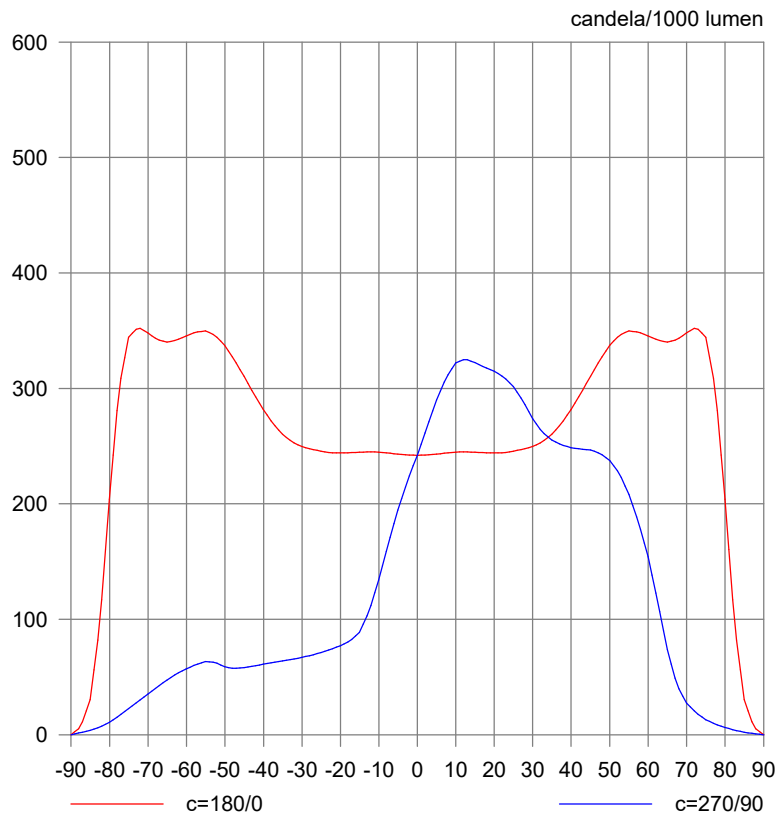


Cartesian Diagrams Continued

Luminaire C OPM4 LED 19W GR5 (Blue) 3000K FG

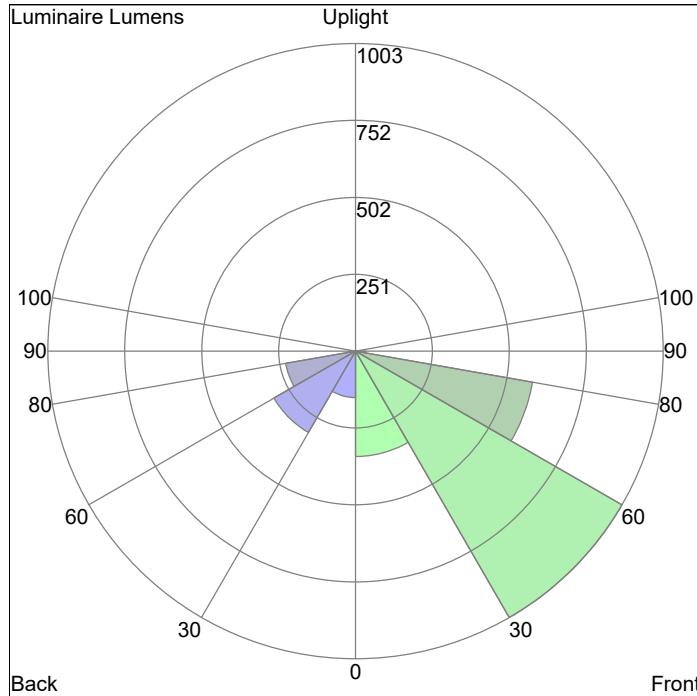


Luminaire D OPM4 LED 14W GR5 (Blue) 3000K FG



Luminaire Classification System (LCS) Graphs

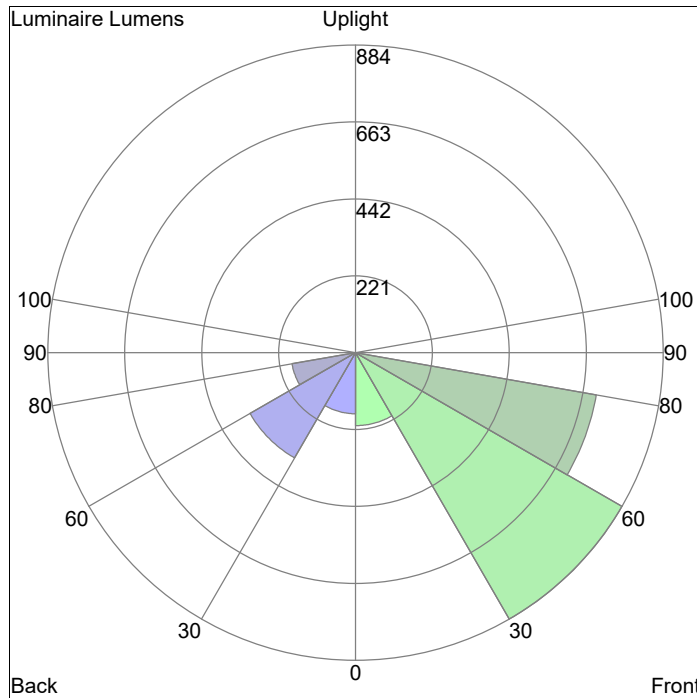
Luminaire A OPM4 LED 23W GR5 (Blue) 3000K FG



LCS	Lumens	%Lamp	%Lum
FL	344.0	12.8	12.8
FM	1003.2	37.4	37.4
FH	586.1	21.9	21.9
FVH	34.3	1.3	1.3
BL	151.6	5.7	5.7
BM	306.6	11.4	11.4
BH	230.6	8.6	8.6
BVH	22.7	0.8	0.8
UL	0.0	0.0	0.0
UH	0.0	0.0	0.0
Total	2679.0	100.0	100.0

BUG rating=B1-U0-G1

Luminaire B OPM4 LED 23W GA2 (Yellow) 3000K FG

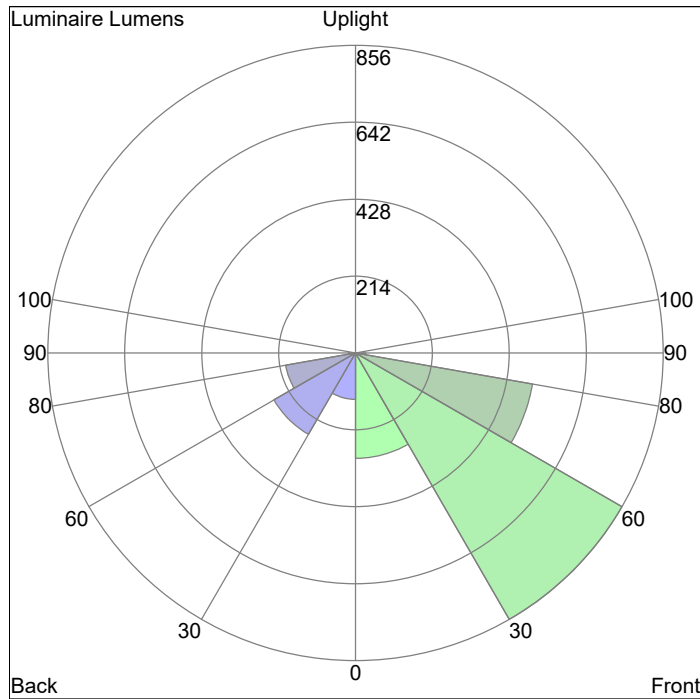


LCS	Lumens	%Lamp	%Lum
FL	210.0	8.3	8.3
FM	883.9	35.0	35.0
FH	702.3	27.8	27.8
FVH	15.0	0.6	0.6
BL	175.8	7.0	7.0
BM	349.4	13.8	13.8
BH	184.7	7.3	7.3
BVH	7.9	0.3	0.3
UL	0.0	0.0	0.0
UH	0.0	0.0	0.0
Total	2529.0	100.0	100.0

BUG rating=B1-U0-G1

Luminaire Classification System (LCS) Graphs Continued

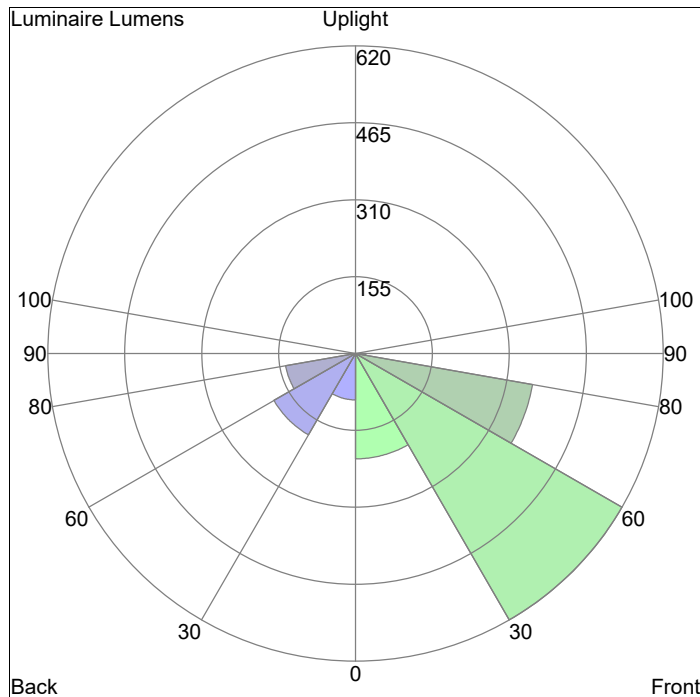
Luminaire C OPM4 LED 19W GR5 (Blue) 3000K FG



LCS	Lumens	%Lamp	%Lum
FL	293.5	12.8	12.8
FM	856.1	37.4	37.4
FH	500.1	21.9	21.9
FVH	29.3	1.3	1.3
BL	129.4	5.7	5.7
BM	261.6	11.4	11.4
BH	196.8	8.6	8.6
BVH	19.4	0.8	0.8
UL	0.0	0.0	0.0
UH	0.0	0.0	0.0
Total	2286.0	100.0	100.0

BUG rating=B1-U0-G1

Luminaire D OPM4 LED 14W GR5 (Blue) 3000K FG

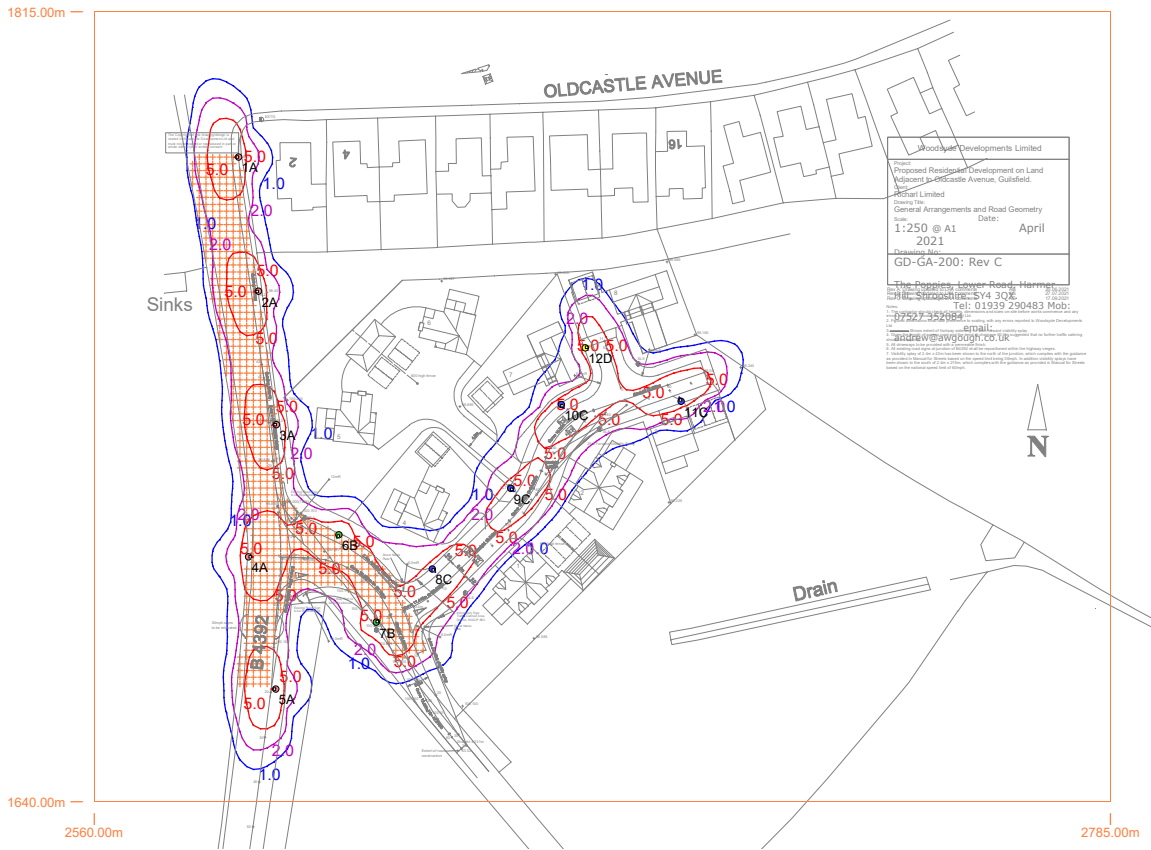


LCS	Lumens	%Lamp	%Lum
FL	212.5	12.8	12.8
FM	619.8	37.4	37.4
FH	362.1	21.9	21.9
FVH	21.2	1.3	1.3
BL	93.7	5.7	5.7
BM	189.4	11.4	11.4
BH	142.5	8.6	8.6
BVH	14.0	0.8	0.8
UL	0.0	0.0	0.0
UH	0.0	0.0	0.0
Total	1655.0	100.0	100.0

BUG rating=B1-U0-G1

Horizontal Illuminance (lux)

Grid 1



Woodward Developments Limited
 Proposed Residential Development on Land
 Adjacent to Oldcastle Avenue, Guilsfield.
 Project Name: Woodward Developments Limited
 Drawing Title: General Arrangements and Road Geometry
 Date: April 2021
 Scale: 1:250 @ A1
 Drawing No: GD-GA-200: Rev C

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Results

Eav	5.95
Emin	1.17
Emax	20.44
Emin/Emax	0.06
Emin/Eav	0.20