

DATE: 12 March 2015
DESIGNER: Aptus Utilities
PROJECT No: -
PROJECT NAME: Gateacre, Liverpool



Area Calc - Grids 1 - 6

Design Class - P3
Mounting Height - 6m
Luminaire - Philips Mini Luma Neutral White LED
Optic Setting - 12-30 DS-NW 1 R5 4.4klm
12-30 DS-NW 1 R6 5.6klm
12-30 DS-NW 1 R6 6.4klm
S/P ratio - 1.61
MF - 0.74

Required Illuminance Levels
Emin - 1.18lux Eav 5.89 - 8.84lux

Results - See below.

Outdoor Lighting Report

PREPARED BY: Aptus Utilities
01204 325000

Layout Report

General Data

Dimensions in Metres Angles in Degrees

Calculation Grids

No.	Grid Name	X	Y	X' Length	Y' Length	X' Spacing	Y' Spacing
1	Grid 1 - Plot 8 - 12	342074.00	388332.00	55.00	98.00	1.49	1.48
2	Grid 2 - Plot 31 - 34	342096.08	388218.93	95.00	65.00	1.48	1.48
3	Grid 3 Plot 50 - 54	342122.00	388175.00	110.00	49.00	1.49	1.48
4	Grid 4 - Plot 67 - 71	342166.00	388105.00	124.00	64.00	1.49	1.49
5	Grid 5 - Plot 85 - 87	342208.00	388044.00	80.00	55.00	1.48	1.49
6	Grid 6 - Plot 96 - 103	342278.00	388036.00	49.00	140.00	1.48	1.49

Luminaires

Luminaire A Data



Supplier	PHILIPS WRTL
Type	MiniLuma R5
Lamp(s)	12-30 DS-NW 1 1100-7850 NW LED
LampFlux(klm)/Colour	4.40 NW/70
File Name	MiniLuma R5 DS-NW 1 4400 NW LED.Idt
Maintenance Factor	0.74
Imax70,80,90(cd/klm)	445.4, 68.6, 0.0
No. in Project	3

Luminaire B Data



Supplier	PHILIPS WRTL
Type	MiniLuma R6
Lamp(s)	12-30 DS-NW 1 1100-7850 NW LED
LampFlux(klm)/Colour	5.60 NW/70
File Name	MiniLuma R6 DS-NW 1 5600 NW LED.Idt
Maintenance Factor	0.74
Imax70,80,90(cd/klm)	382.7, 69.7, 0.0
No. in Project	11

Luminaire C Data



Supplier	PHILIPS WRTL
Type	MiniLuma R6
Lamp(s)	12-30 DS-NW 1 1100-7850 NW LED
LampFlux(klm)/Colour	6.40 NW/70
File Name	MiniLuma R6 DS-NW 1 6400 NW LED.Idt
Maintenance Factor	0.74
Imax70,80,90(cd/klm)	382.7, 69.7, 0.0
No. in Project	5

Layout

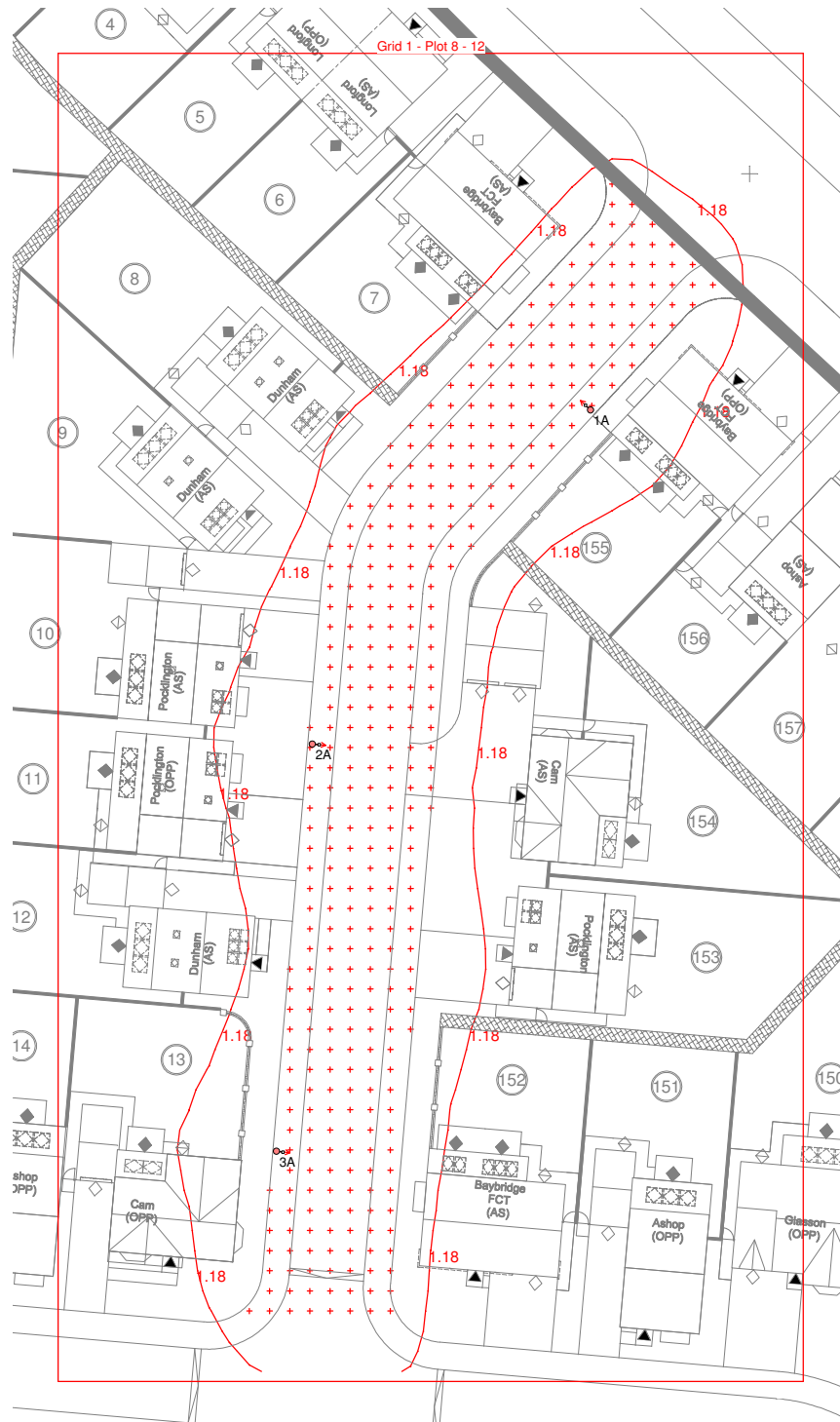
No.	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	342113.29	388403.68	6.00	136.00	0.00	0.00	0.50			
2	A	342092.76	388379.04	6.00	354.00	0.00	0.00	0.50			
3	A	342090.10	388348.99	6.00	353.00	0.00	0.00	0.50			
4	B	342088.79	388261.80	6.00	303.00	0.00	0.00	0.50			
5	B	342120.18	388266.54	6.00	122.00	0.00	0.00	0.50			

Layout Continued

No.	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
6	B	342139.90	388290.26	6.00	306.00	0.00	0.00	0.50			
7	C	342123.05	388210.62	6.00	304.00	0.00	0.00	0.50			
8	C	342160.18	388219.05	6.00	122.00	0.00	0.00	0.50			
9	C	342178.16	388246.63	6.00	313.00	0.00	0.00	0.50			
10	B	342170.71	388135.24	6.00	304.00	0.00	0.00	0.50			
11	B	342194.98	388151.13	6.00	313.00	0.00	0.00	0.50			
12	B	342222.33	388172.73	6.00	144.00	0.00	0.00	0.50			
13	B	342241.84	388190.72	6.00	123.00	0.00	0.00	0.50			
14	C	342208.59	388083.53	6.00	307.00	0.00	0.00	0.50			
15	C	342244.50	388092.68	6.00	122.00	0.00	0.00	0.50			
16	B	342228.10	388151.27	6.00	241.00	0.00	0.00	0.50			
17	B	342252.15	388126.46	6.00	214.00	0.00	0.00	0.50			
18	B	342273.17	388099.34	6.00	231.00	0.00	0.00	0.50			
19	B	342292.26	388065.91	6.00	35.00	0.00	0.00	0.50			

Horizontal Illuminance (lux)

Grid 1 - Plot 8 - 12

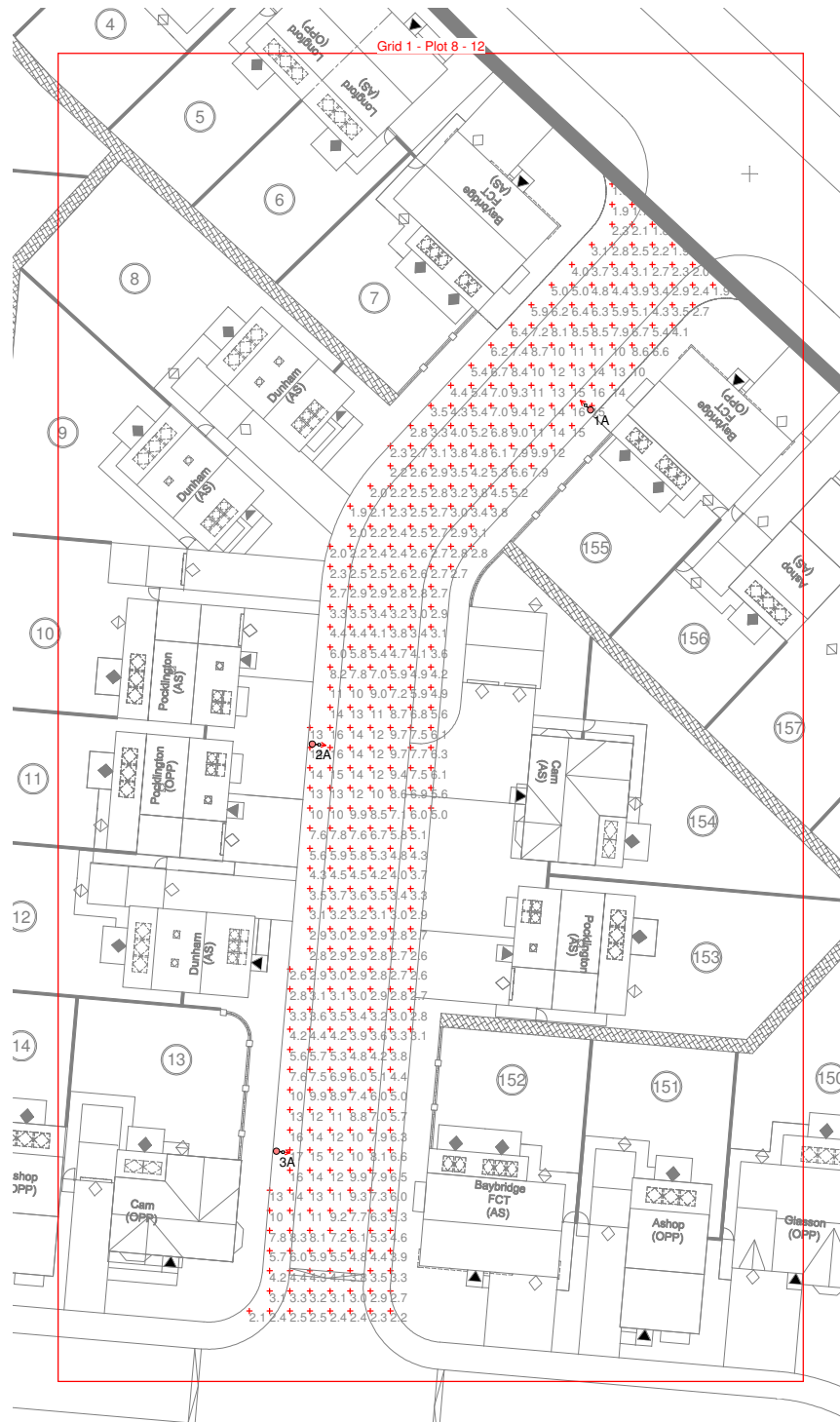


Results

Eav	6.05
Emin	1.59
Emax	16.53
Emin/Emax	0.10
Emin/Eav	0.26

Horizontal Illuminance (lux)

Grid 1 - Plot 8 - 12

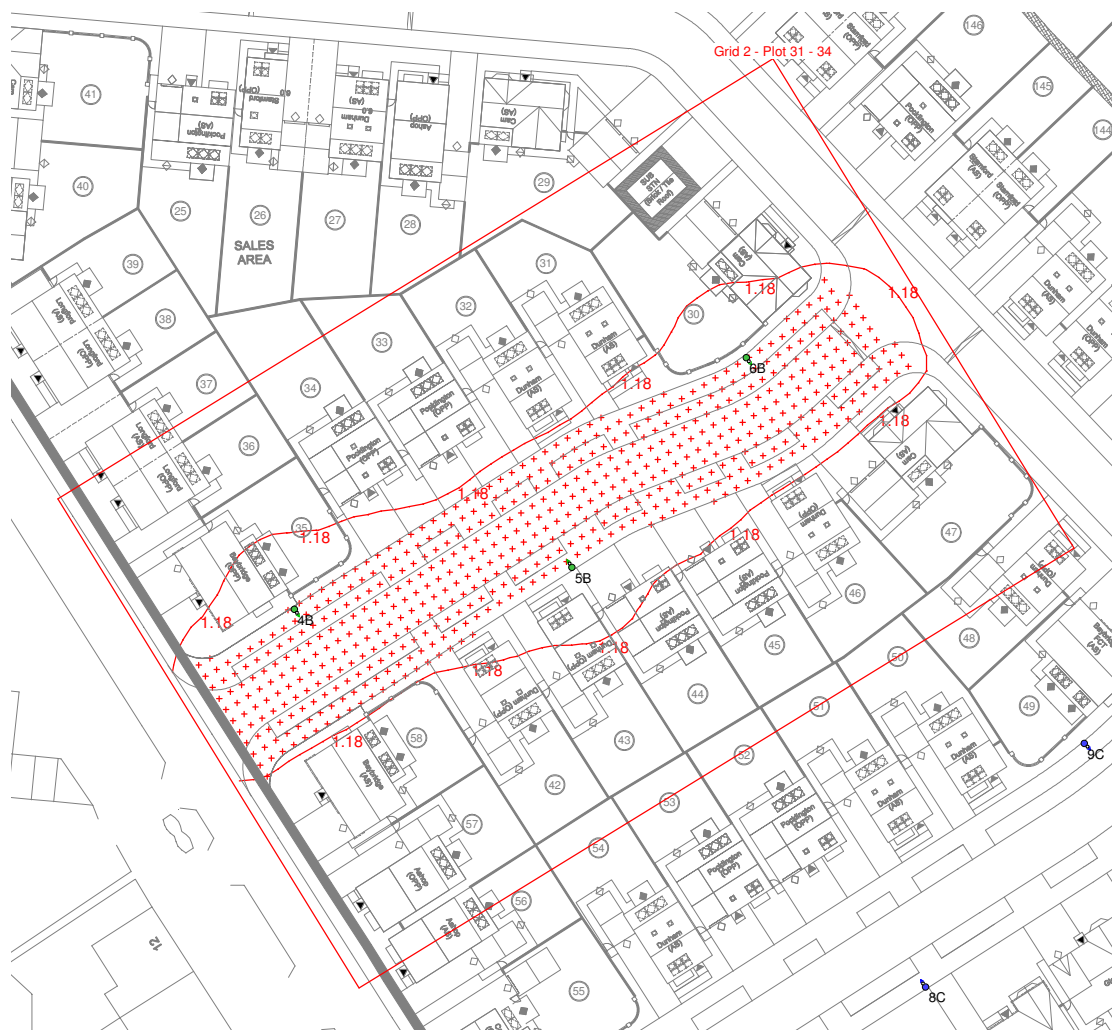


Results

Eav	6.05
Emin	1.59
Emax	16.53
Emin/Emax	0.10
Emin/Eav	0.26

Horizontal Illuminance (lux)

Grid 2 - Plot 31 - 34

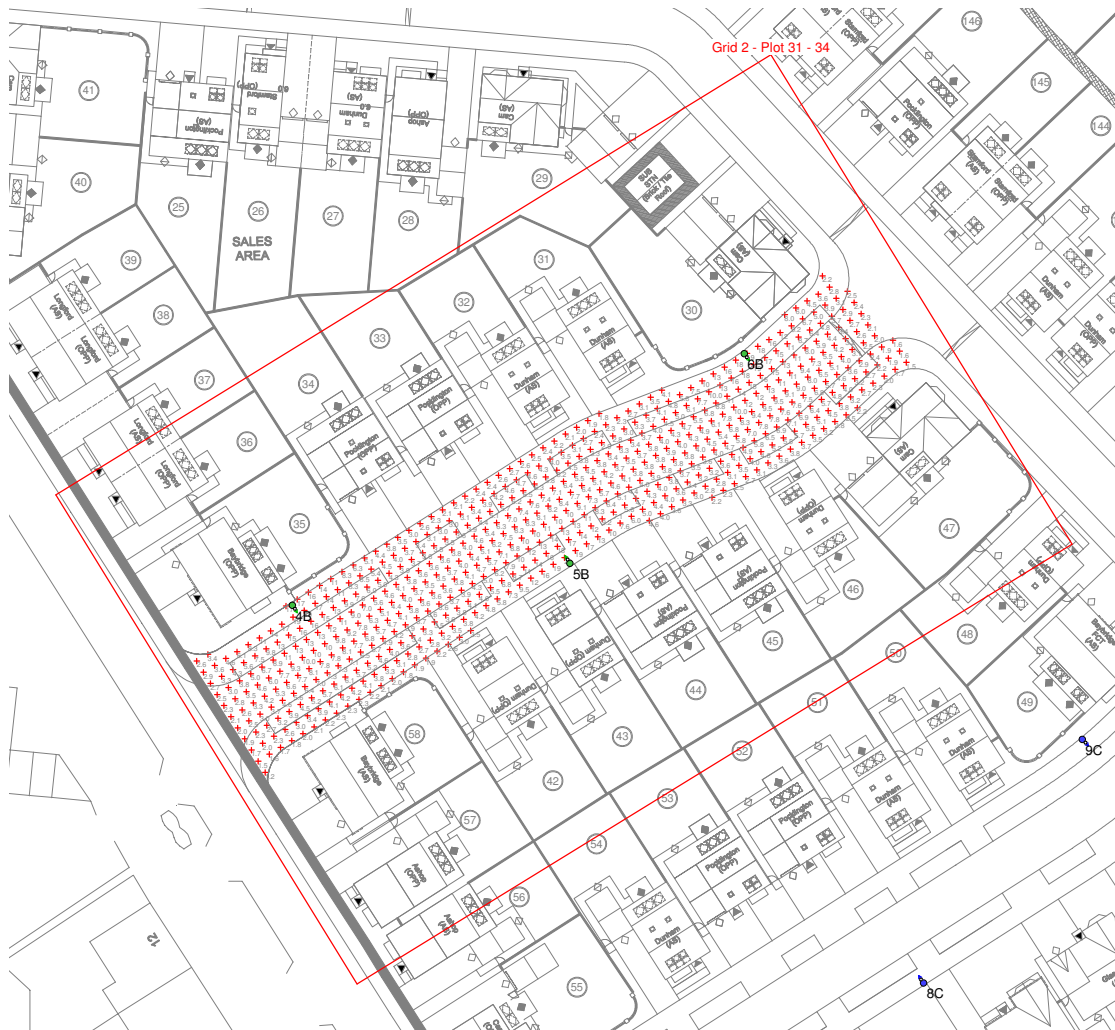


Results

Eav	6.00
Emin	1.18
Emax	19.67
Emin/Emax	0.06
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 2 - Plot 31 - 34



Results

Eav	6.00
Emin	1.18
Emax	19.67
Emin/Emax	0.06
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 3 Plot 50 - 54

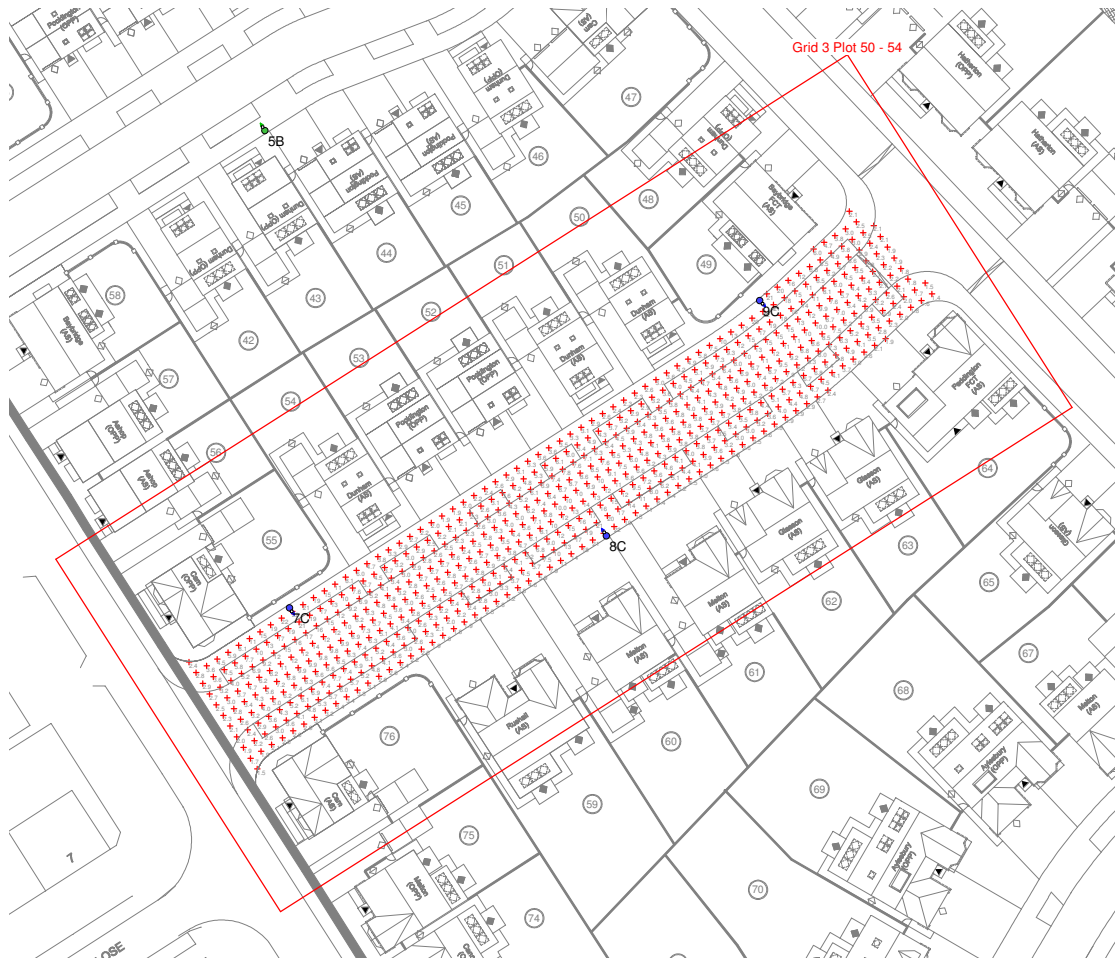


Results

Eav	6.22
Emin	1.39
Emax	22.37
Emin/Emax	0.06
Emin/Eav	0.22

Horizontal Illuminance (lux)

Grid 3 Plot 50 - 54

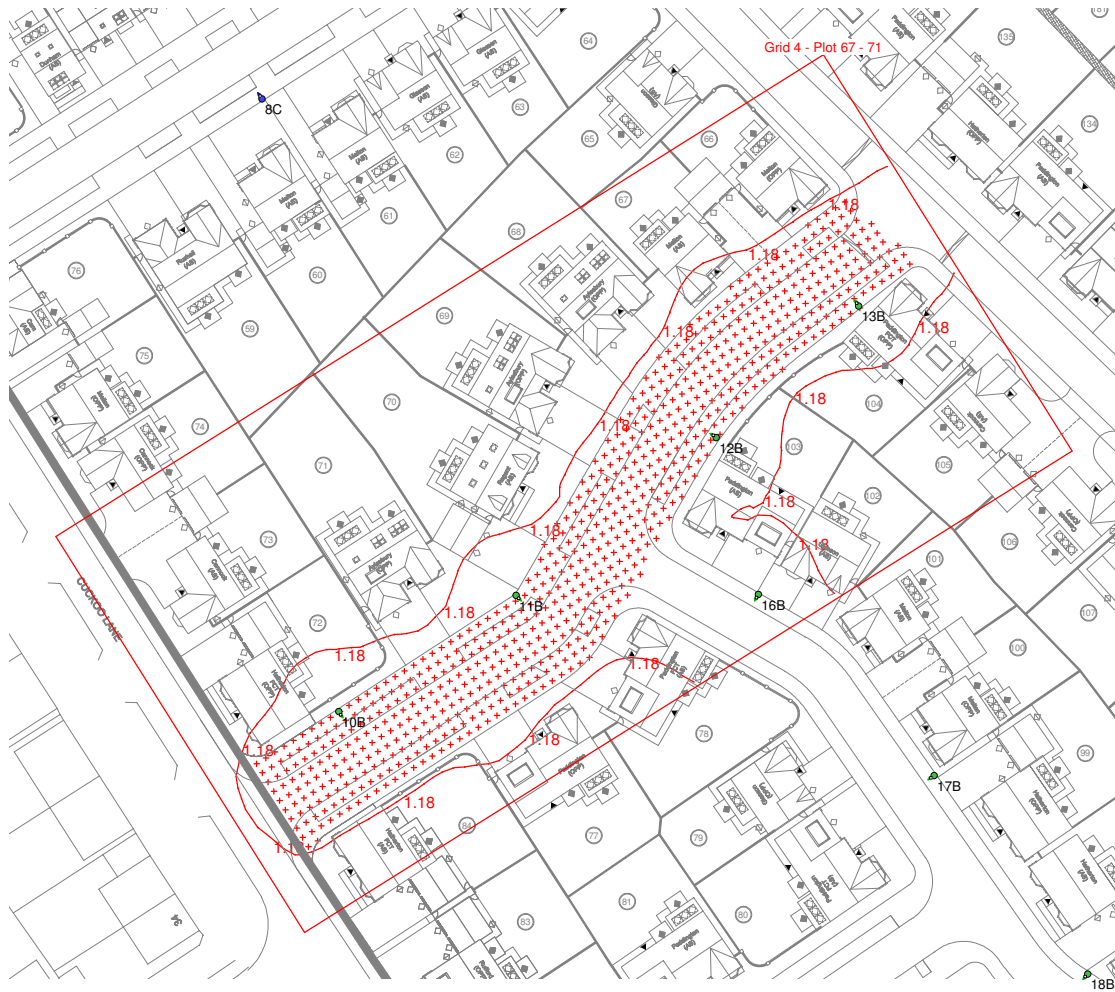


Results

Eav	6.22
Emin	1.39
Emax	22.37
Emin/Emax	0.06
Emin/Eav	0.22

Horizontal Illuminance (lux)

Grid 4 - Plot 67 - 71

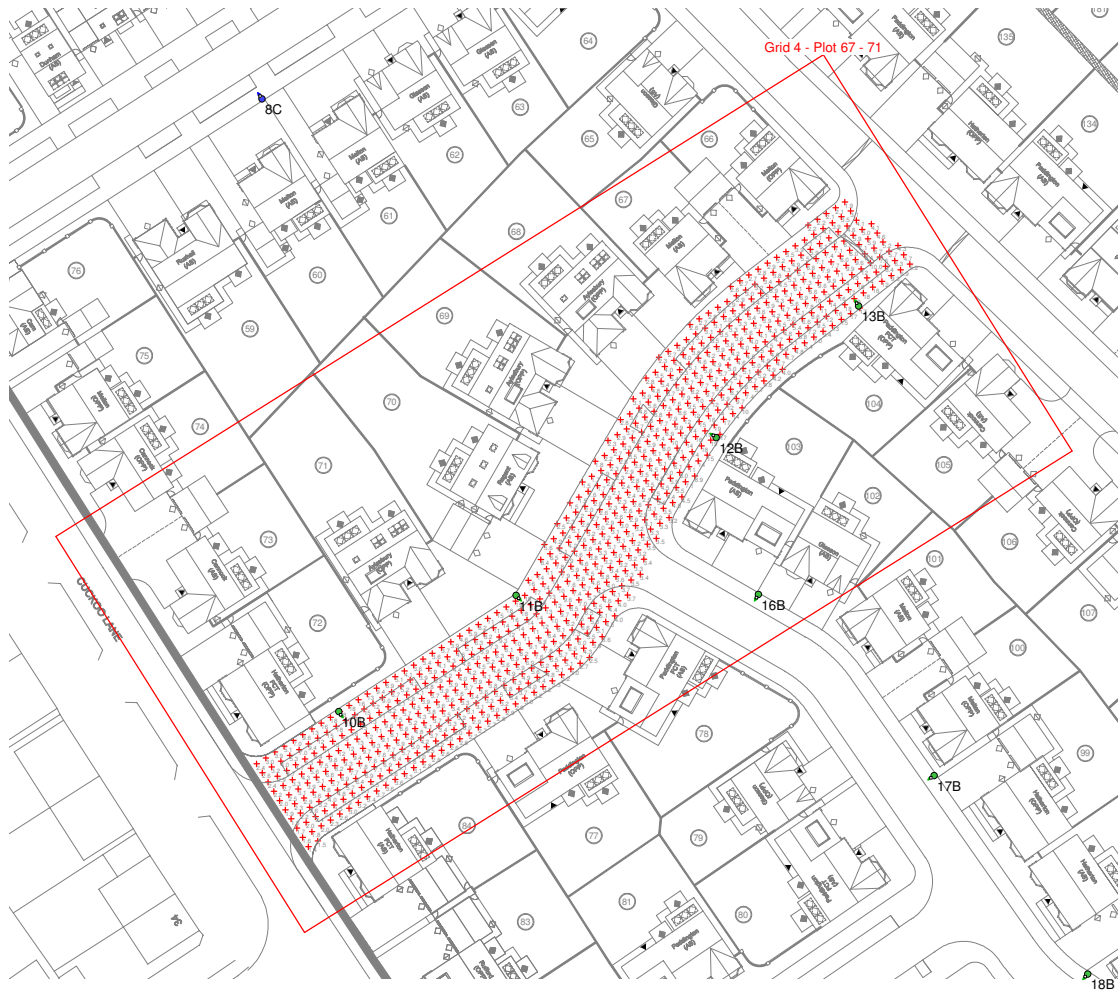


Results

Eav	6.21
Emin	1.37
E _{max}	19.49
Emin/E _{max}	0.07
Emin/Eav	0.22

Horizontal Illuminance (lux)

Grid 4 - Plot 67 - 71



Results

Eav	6.21
Emin	1.37
Emax	19.49
Emin/Emax	0.07
Emin/Eav	0.22

Horizontal Illuminance (lux)

Grid 5 - Plot 85 - 87



Results

Eav	6.04
Emin	1.26
E _{max}	22.39
Emin/E _{max}	0.06
Emin/Eav	0.21

Horizontal Illuminance (lux)

Grid 5 - Plot 85 - 87



Results

Eav	6.04
Emin	1.26
E _{max}	22.39
Emin/E _{max}	0.06
Emin/Eav	0.21

Horizontal Illuminance (lux)

Grid 6 - Plot 96 - 103



Results

Eav	6.31
Emin	1.30
E _{max}	19.48
Emin/E _{max}	0.07
Emin/Eav	0.21

Horizontal Illuminance (lux)

Grid 6 - Plot 96 - 103



Results

Eav	6.31
Emin	1.30
Emax	19.48
Emin/Emax	0.07
Emin/Eav	0.21

DATE: 12 March 2015
DESIGNER: Aptus Utilities
PROJECT No: -
PROJECT NAME: Gateacre, Liverpool



Area Calc - Grid 7

Design Class - P3
Mounting Height - 6m
Luminaire - Philips Mini Luma Neutral White LED
Optic Setting - 12-30 DS-NW 1 R5 4.4klm
12-30 DS-NW 1 R6 5.6klm
12-30 DS-NW 1 R6 6.4klm
S/P ratio - 1.61
MF - 0.74

Required Illuminance Levels
Emin - 1.18lux Eav 5.89 - 8.84lux

Results - Emin 1.34lux Eav 5.92lux

Outdoor Lighting Report

PREPARED BY: Aptus Utilities
01204 325000

Layout Report

General Data

Dimensions in Metres Angles in Degrees

Calculation Grids

No.	Grid Name	X	Y	X' Length	Y' Length	X' Spacing	Y' Spacing
1	Grid 7 - Plot 116 - 152	342243.34	387978.00	188.00	420.00	1.49	1.69

Luminaires

Luminaire A Data



Supplier	PHILIPS WRTL
Type	MiniLuma R5
Lamp(s)	12-30 DS-NW 1 1100-7850 NW LED
LampFlux(klm)/Colour	4.40 NW/70
File Name	MiniLuma R5 DS-NW 1 4400 NW LED.Idt
Maintenance Factor	0.74
Imax70,80,90(cd/klm)	445.4, 68.6, 0.0
No. in Project	15

Luminaire B Data



Supplier	PHILIPS WRTL
Type	MiniLuma R6
Lamp(s)	12-30 DS-NW 1 1100-7850 NW LED
LampFlux(klm)/Colour	5.60 NW/70
File Name	MiniLuma R6 DS-NW 1 5600 NW LED.Idt
Maintenance Factor	0.74
Imax70,80,90(cd/klm)	382.7, 69.7, 0.0
No. in Project	3

Luminaire C Data



Supplier	PHILIPS WRTL
Type	MiniLuma R6
Lamp(s)	12-30 DS-NW 1 1100-7850 NW LED
LampFlux(klm)/Colour	6.40 NW/70
File Name	MiniLuma R6 DS-NW 1 6400 NW LED.Idt
Maintenance Factor	0.74
Imax70,80,90(cd/klm)	382.7, 69.7, 0.0
No. in Project	4

Layout

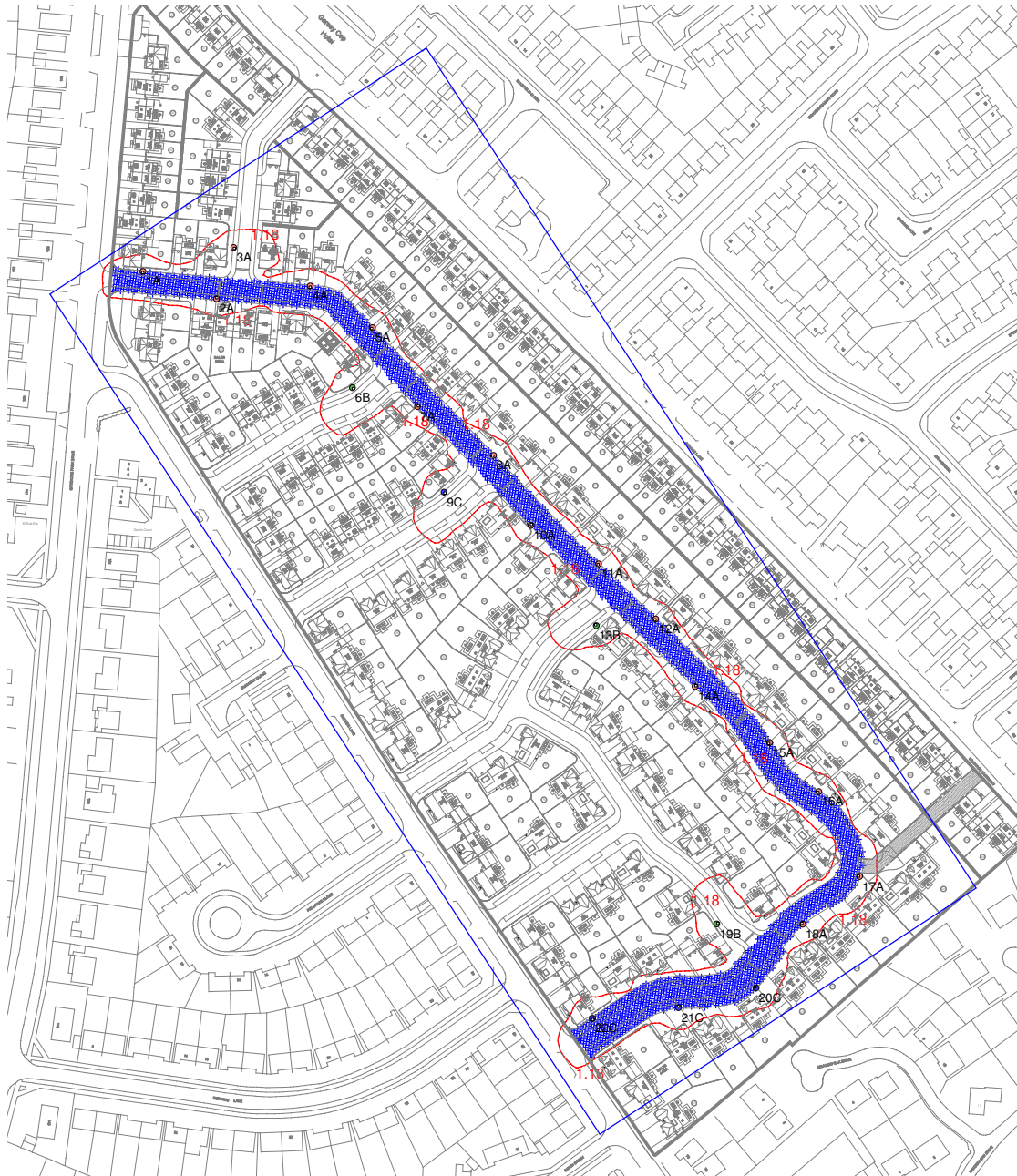
No.	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	342052.24	388338.92	6.00	263.00	0.00	0.00	0.50			
2	A	342083.04	388327.45	6.00	84.00	0.00	0.00	0.50			
3	A	342090.23	388349.00	6.00	290.00	0.00	0.00	0.50			
4	A	342122.18	388332.80	6.00	264.00	0.00	0.00	0.50			
5	A	342148.25	388315.43	6.00	224.00	0.00	0.00	0.50			
6	B	342139.90	388290.26	6.00	306.00	0.00	0.00	0.50			
7	A	342167.12	388282.38	6.00	47.00	0.00	0.00	0.50			
8	A	342198.92	388261.94	6.00	226.00	0.00	0.00	0.50			
9	C	342178.16	388246.63	6.00	313.00	0.00	0.00	0.50			
10	A	342214.46	388232.67	6.00	47.00	0.00	0.00	0.50			

Layout Continued

No.	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
11	A	342242.84	388216.57	6.00	230.00	0.00	0.00	0.50			
12	A	342266.74	388193.51	6.00	229.00	0.00	0.00	0.50			
13	B	342241.84	388190.72	6.00	123.00	0.00	0.00	0.50			
14	A	342283.22	388165.22	6.00	48.00	0.00	0.00	0.50			
15	A	342314.30	388141.79	6.00	213.00	0.00	0.00	0.50			
16	A	342334.88	388121.37	6.00	228.00	0.00	0.00	0.50			
17	A	342352.00	388085.87	6.00	163.00	0.00	0.00	0.50			
18	A	342328.19	388065.78	6.00	131.00	0.00	0.00	0.50			
19	B	342292.26	388065.91	6.00	35.00	0.00	0.00	0.50			
20	C	342308.62	388039.19	6.00	132.00	0.00	0.00	0.50			
21	C	342276.21	388030.99	6.00	94.00	0.00	0.00	0.50			
22	C	342240.12	388026.40	6.00	304.00	0.00	0.00	0.50			

Horizontal Illuminance (lux)

Grid 7 - Plot 116 - 152

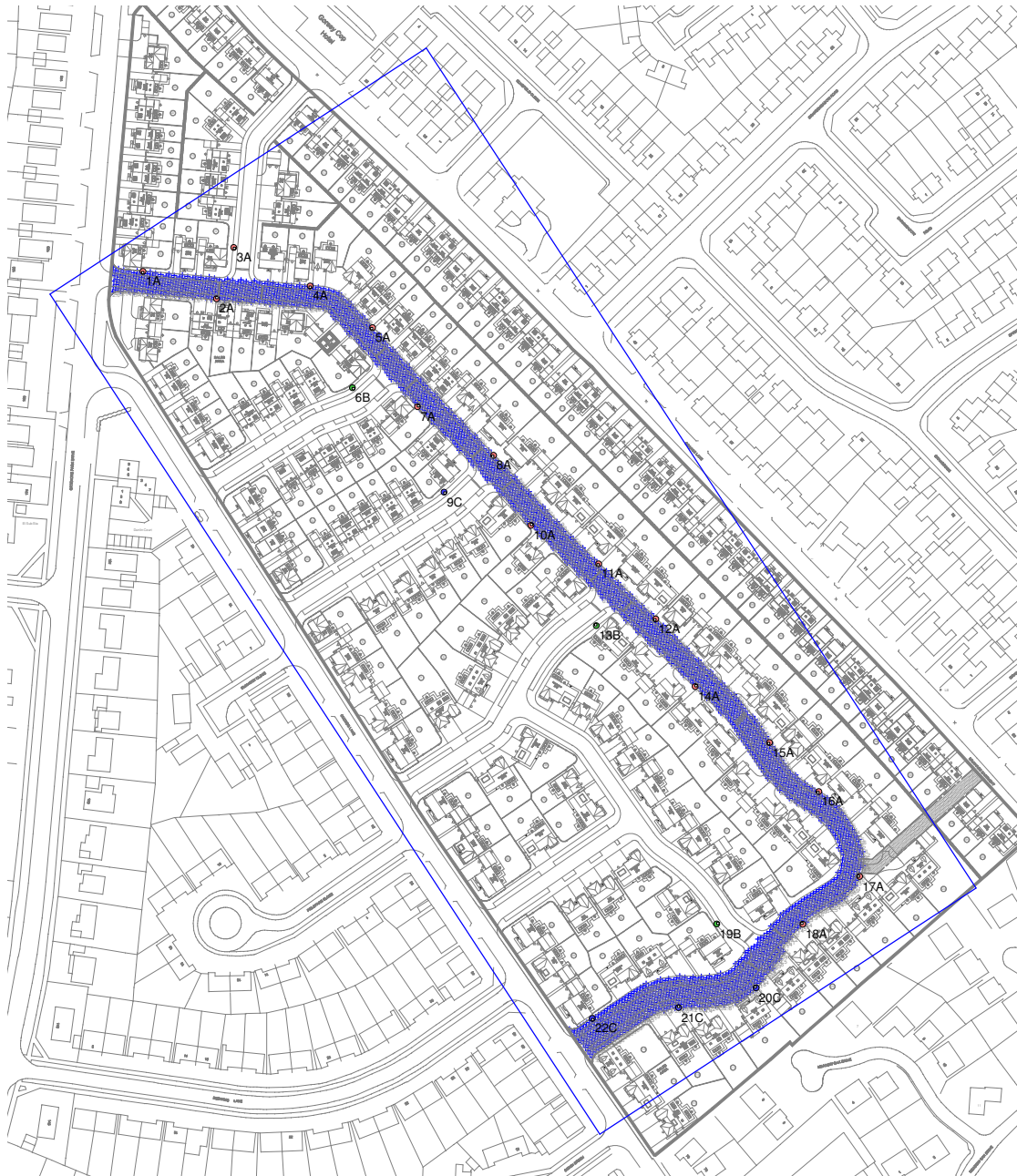


Results

Eav	5.92
Emin	1.34
Emax	22.53
Emin/Emax	0.06
Emin/Eav	0.23

Horizontal Illuminance (lux)

Grid 7 - Plot 116 - 152



Results

Eav	5.92
Emin	1.34
Emax	22.53
Emin/Emax	0.06
Emin/Eav	0.23

DATE: 12 March 2015
DESIGNER: Aptus Utilities
PROJECT No: -
PROJECT NAME: Gateacre, Liverpool



Road Calc to P3 - Single Sided max - 31.5m

Road Width - 9.5m
Mounting Height - 6m
Luminaire - Philips Mini Luma Neutral White LED
Optic Setting - R5 DS-NW 1 4400
Tilt - 0 degrees
S/P Ratio - 1.61
MF - 0.74

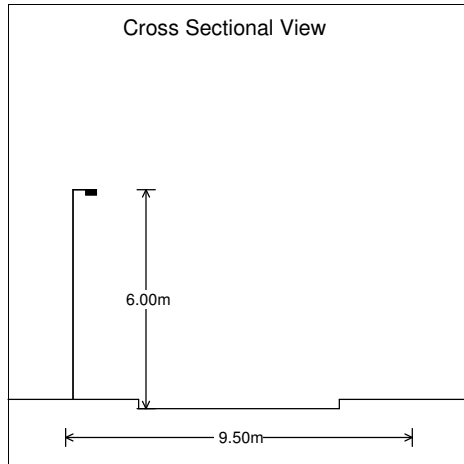
Required Illuminance Levels - Emin 1.18 lux Eav 5.89 - 8.84 lux
Results - Emin 2.49 lux Eav 5.90 lux

Roadway Lighting Report

PREPARED BY: Aptus Utilities
01204 325000

Roadway Report Summary

Layout



Road Data

Calculation Grid	BS5489 2013 Illuminance
Width (m)	9.50
No. of Lanes	2
Road Surface	R2
Q0	0.07
Left Footpath(m)	2.00
Right Footpath(m)	2.00

Main Lighting

Column Data

Configuration	Single Sided Left
Spacing (m)	31.50
Height (m)	6.00
Tilt (deg)	0.00
Setback (m)	1.80
Outreach (m)	0.50
Overhang (m)	-1.30

Luminaire Data



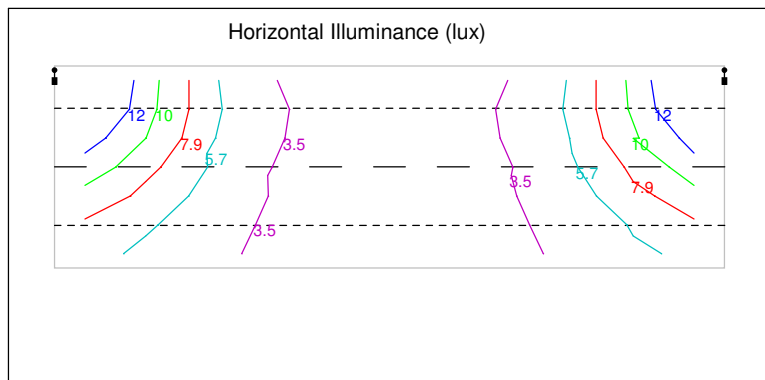
Supplier	PHILIPS WRTL
Type	MiniLuma R5
Lamp(s)	12-30 DS-NW 1 1100-7850 NW LED
LampFlux(klm)/Colour	4.40 NW/70
File Name	MiniLuma R5 DS-NW 1 4400 NW LED.lid
Maintenance Factor	0.74
Lum. Int. Class	G4
Lamp S/P Ratio	1.61

Results

Main

Complies with P3*
With S/P ratio = 1.61

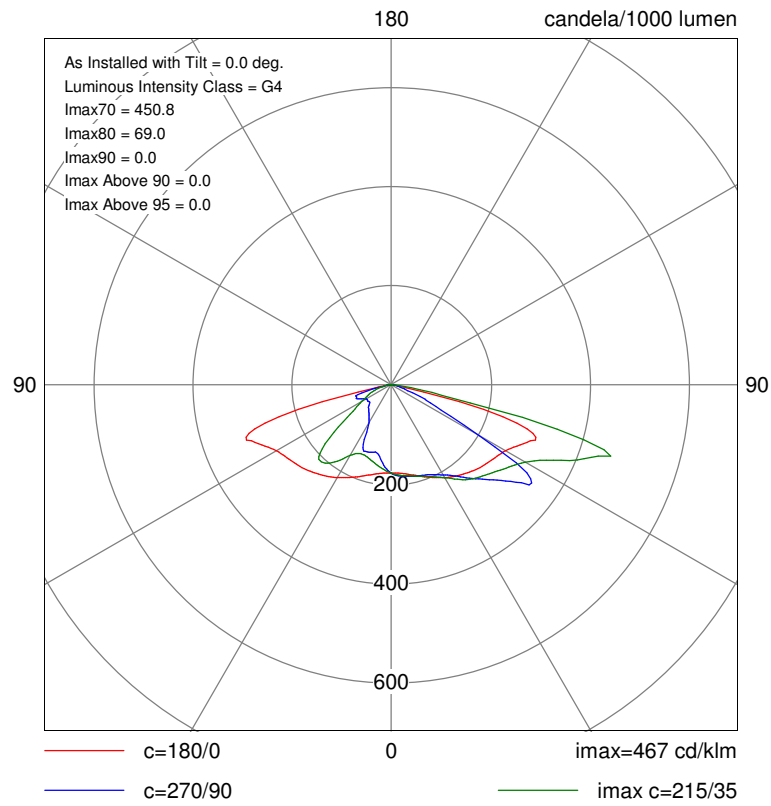
Eav	5.90
Emin	2.44
E _{max}	15.62
E _{min} /E _{max}	0.16
E _{min} /E _{av}	0.41



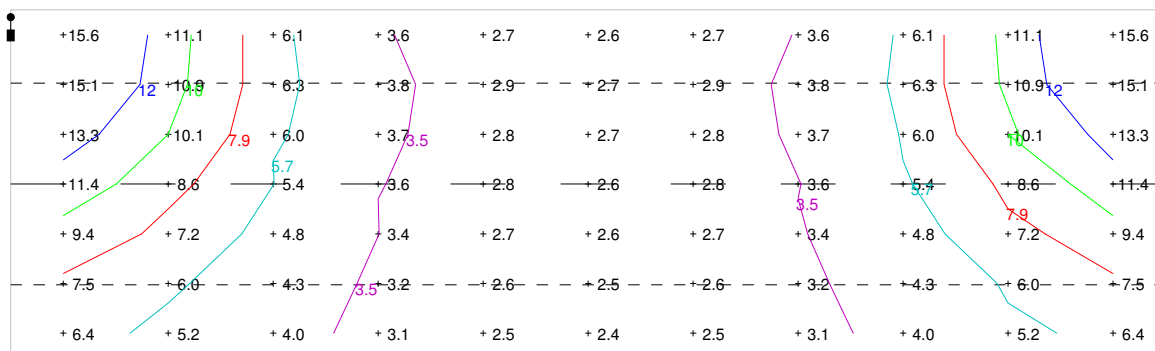
*The lighting class has been modified using the lamp S/P ratio in accordance with PLG03 With Eav from 5.89 to 8.84 and Emin 1.18

Polar Diagram

Main Luminaire MiniLuma R5



Horizontal Illuminance (lux)



Main Results

Eav	5.90
Emin	2.44
Emax	15.62
Emin/Emax	0.16
Emin/Eav	0.41

Horizontal Illuminance (lux)

+15.6	+11.1	+ 6.1	+ 3.6	+ 2.7	+ 2.6	+ 2.7	+ 3.6	+ 6.1	+11.1	+15.6
+15.1	+10.9	+ 6.3	+ 3.8	+ 2.9	+ 2.7	+ 2.9	+ 3.8	+ 6.3	+10.9	+15.1
+13.3	+10.1	+ 6.0	+ 3.7	+ 2.8	+ 2.7	+ 2.8	+ 3.7	+ 6.0	+10.1	+13.3
+11.4	+ 8.6	+ 5.4	+ 3.6	+ 2.8	+ 2.6	+ 2.8	+ 3.6	+ 5.4	+ 8.6	+11.4
+ 9.4	+ 7.2	+ 4.8	+ 3.4	+ 2.7	+ 2.6	+ 2.7	+ 3.4	+ 4.8	+ 7.2	+ 9.4
+ 7.5	+ 6.0	+ 4.3	+ 3.2	+ 2.6	+ 2.5	+ 2.6	+ 3.2	+ 4.3	+ 6.0	+ 7.5
+ 6.4	+ 5.2	+ 4.0	+ 3.1	+ 2.5	+ 2.4	+ 2.5	+ 3.1	+ 4.0	+ 5.2	+ 6.4

Main Results

Eav	5.90
Emin	2.44
E _{max}	15.62
Emin/E _{max}	0.16
Emin/Eav	0.41

DATE: 12 March 2015
DESIGNER: Aptus Utilities
PROJECT No: -
PROJECT NAME: Gateacre, Liverpool



Road Calc to P3 - Single Sided min - 21.5m

Road Width - 9.5m
Mounting Height - 6m
Luminaire - Philips Mini Luma Neutral White LED
Optic Setting - R5 DS-NW 1 4400
Tilt - 0 degrees
S/P Ratio - 1.61
MF - 0.74

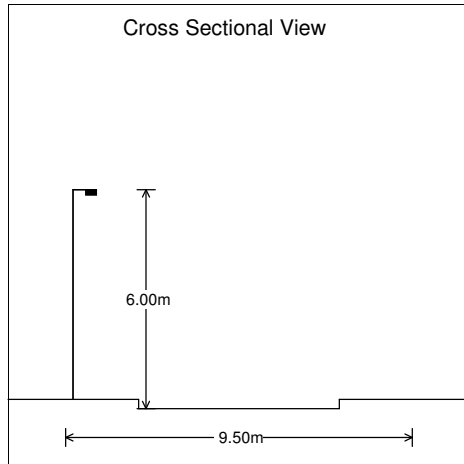
Required Illuminance Levels - Emin 1.18 lux Eav 5.89 - 8.84 lux
Results - Emin 4.81 lux Eav 8.63 lux

Roadway Lighting Report

PREPARED BY: Aptus Utilities
01204 325000

Roadway Report Summary

Layout



Road Data

Calculation Grid	BS5489 2013 Illuminance
Width (m)	9.50
No. of Lanes	2
Road Surface	R2
Q0	0.07
Left Footpath(m)	2.00
Right Footpath(m)	2.00

Main Lighting

Column Data

Configuration	Single Sided Left
Spacing (m)	21.50
Height (m)	6.00
Tilt (deg)	0.00
Setback (m)	1.80
Outreach (m)	0.50
Overhang (m)	-1.30

Luminaire Data



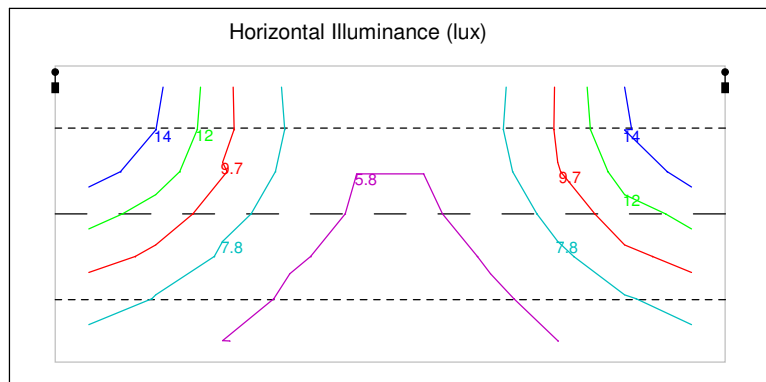
Supplier	PHILIPS WRTL
Type	MiniLuma R5
Lamp(s)	12-30 DS-NW 1 1100-7850 NW LED
LampFlux(klm)/Colour	4.40 NW/70
File Name	MiniLuma R5 DS-NW 1 4400 NW LED.lgt
Maintenance Factor	0.74
Lum. Int. Class	G4
Lamp S/P Ratio	1.61

Results

Main

Complies with P3*
With S/P ratio = 1.61

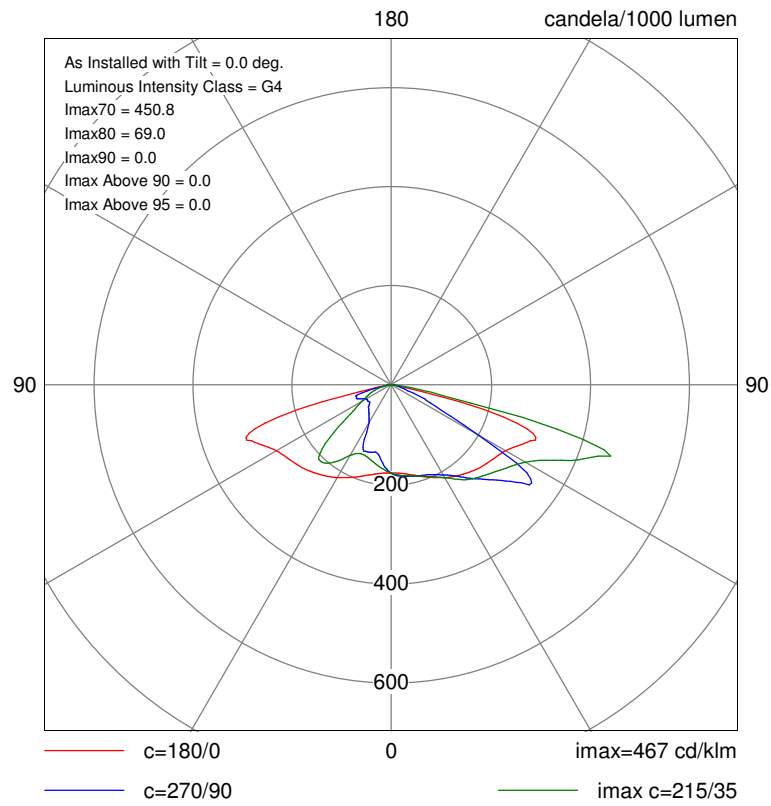
Eav	8.63
Emin	4.81
E _{max}	16.60
E _{min} /E _{max}	0.29
E _{min} /E _{av}	0.56



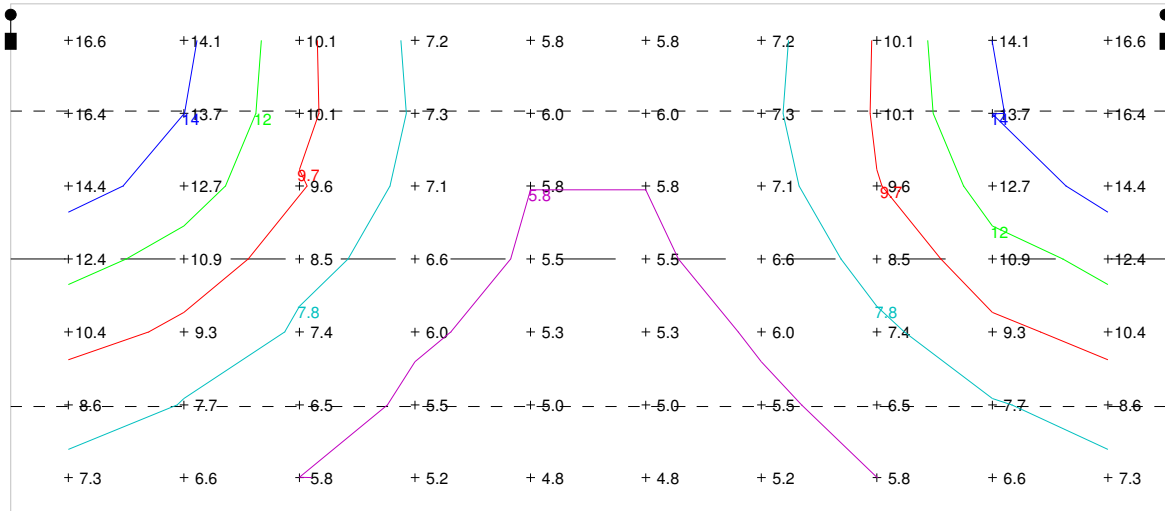
*The lighting class has been modified using the lamp S/P ratio in accordance with PLG03 With Eav from 5.89 to 8.84 and Emin 1.18

Polar Diagram

Main Luminaire MiniLuma R5



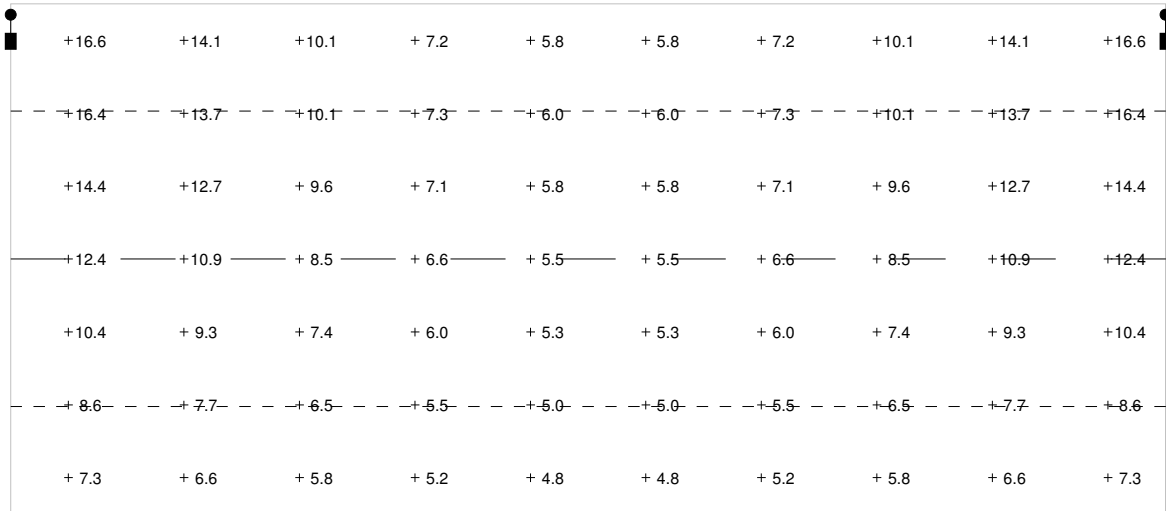
Horizontal Illuminance (lux)



Main Results

Eav	8.63
Emin	4.81
Emax	16.60
Emin/Emax	0.29
Emin/Eav	0.56

Horizontal Illuminance (lux)



Main Results

Eav	8.63
Emin	4.81
Emax	16.60
Emin/Emax	0.29
Emin/Eav	0.56

DATE: 12 March 2015
DESIGNER: Aptus Utilities
PROJECT No: -
PROJECT NAME: Gateacre, Liverpool



Road Calc to P3 - Staggered max - 31.5m

Road Width - 9.5m
Mounting Height - 6m
Luminaire - Philips Mini Luma Neutral White LED
Optic Setting - R5 DS-NW 1 4400
Tilt - 0 degrees
S/P Ratio - 1.61
MF - 0.74

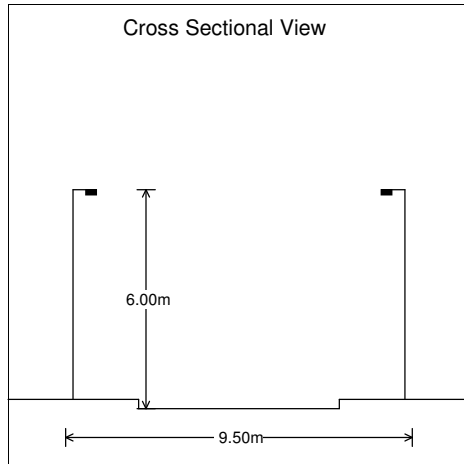
Required Illuminance Levels - Emin 1.18 lux Eav 5.89 - 8.84 lux
Results - Emin 2.49 lux Eav 5.90 lux

Roadway Lighting Report

PREPARED BY: Aptus Utilities
01204 325000

Roadway Report Summary

Layout



Road Data

Calculation Grid	BS5489 2013 Illuminance
Width (m)	9.50
No. of Lanes	2
Road Surface	R2
Q0	0.07
Left Footpath(m)	2.00
Right Footpath(m)	2.00

Main Lighting

Column Data

Configuration	Staggered
Spacing (m)	31.50
Height (m)	6.00
Tilt (deg)	0.00
Left Setback (m)	1.80
Left Outreach (m)	0.50
Left Overhang (m)	-1.30
Right Setback (m)	1.80
Right Outreach (m)	0.50
Right Overhang (m)	-1.30

Luminaire Data



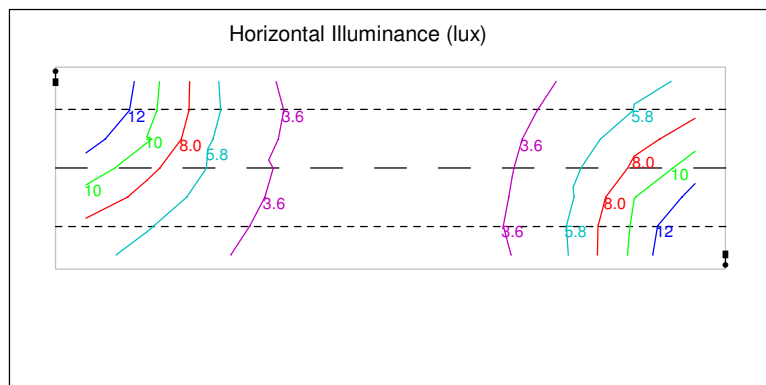
Supplier	PHILIPS WRTL
Type	MiniLuma R5
Lamp(s)	12-30 DS-NW 1 1100-7850 NW LED
LampFlux(klm)/Colour	4.40 NW/70
File Name	MiniLuma R5 DS-NW 1 4400 NW LED.lid
Maintenance Factor	0.74
Lum. Int. Class	G4
Lamp S/P Ratio	1.61

Results

Main

Complies with P3*
With S/P ratio = 1.61

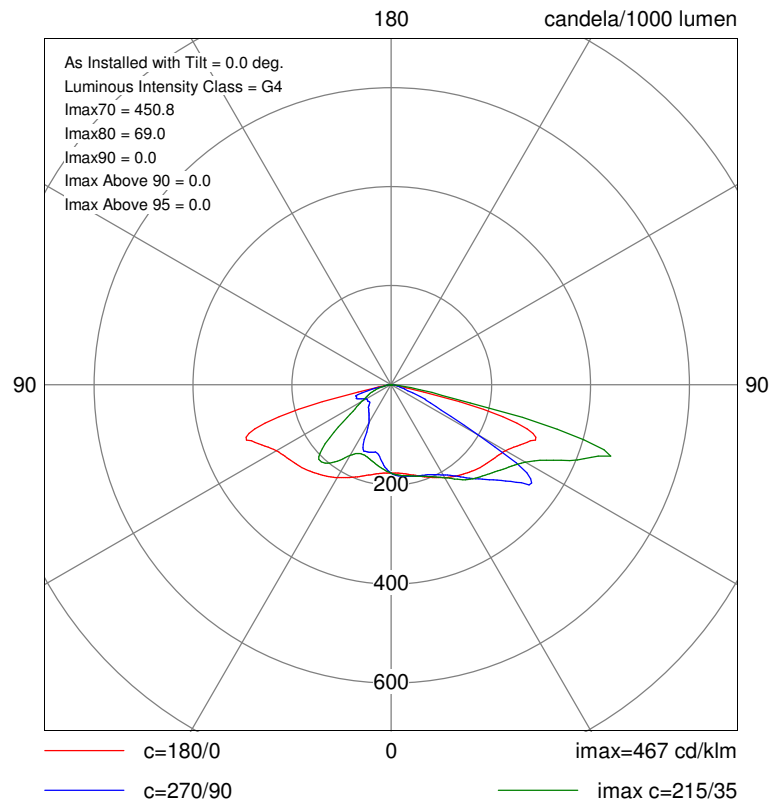
Eav	5.90
Emin	2.49
Emax	15.65
Emin/Emax	0.16
Emin/Eav	0.42



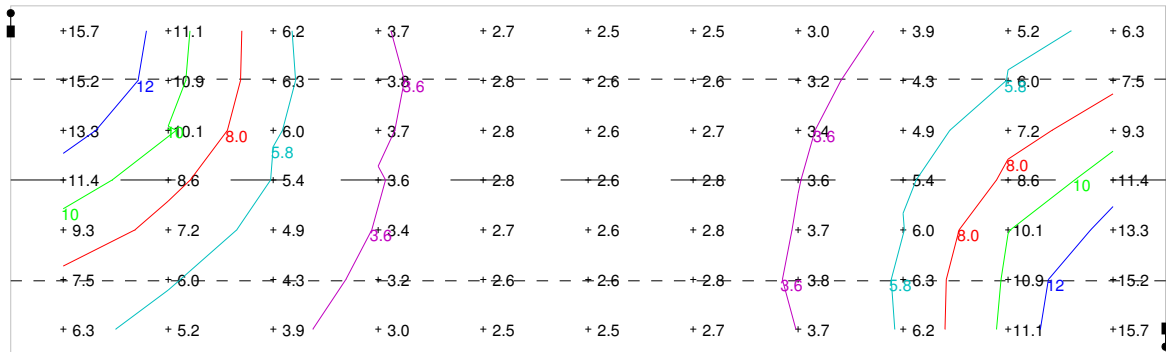
*The lighting class has been modified using the lamp S/P ratio in accordance with PLG03 With Eav from 5.89 to 8.84 and Emin 1.18

Polar Diagram

Main Luminaire MiniLuma R5



Horizontal Illuminance (lux)



Main Results

Eav	5.90
Emin	2.49
Emax	15.65
Emin/Emax	0.16
Emin/Eav	0.42

Horizontal Illuminance (lux)

+15.7	+11.1	+ 6.2	+ 3.7	+ 2.7	+ 2.5	+ 2.5	+ 3.0	+ 3.9	+ 5.2	+ 6.3
+15.2	+10.9	+ 6.3	+3.8	+2.8	+2.6	+2.6	+3.2	+4.3	+6.0	+7.5
+13.3	+10.1	+ 6.0	+ 3.7	+ 2.8	+ 2.6	+ 2.7	+ 3.4	+ 4.9	+ 7.2	+ 9.3
+11.4	+8.6	+5.4	+3.6	+2.8	+2.6	+2.8	+3.6	+5.4	+8.6	+11.4
+ 9.3	+ 7.2	+ 4.9	+ 3.4	+ 2.7	+ 2.6	+ 2.8	+ 3.7	+ 6.0	+10.1	+13.3
+ 7.5	+6.0	+ 4.3	+3.2	+ 2.6	+2.6	+2.8	+3.8	+6.3	+10.9	+15.2
+ 6.3	+ 5.2	+ 3.9	+ 3.0	+ 2.5	+ 2.5	+ 2.7	+ 3.7	+ 6.2	+11.1	+15.7

Main Results

Eav	5.90
Emin	2.49
E _{max}	15.65
Emin/E _{max}	0.16
Emin/Eav	0.42

DATE: 12 March 2015
DESIGNER: Aptus Utilities
PROJECT No: -
PROJECT NAME: Gateacre, Liverpool



Road Calc to P3 - Staggered min - 21.5m

Road Width - 9.5m
Mounting Height - 6m
Luminaire - Philips Mini Luma Neutral White LED
Optic Setting - R5 DS-NW 1 4400
Tilt - 0 degrees
S/P Ratio - 1.61
MF - 0.74

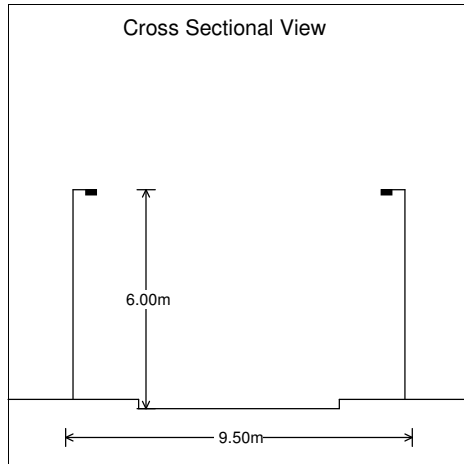
Required Illuminance Levels - Emin 1.18 lux Eav 5.89 - 8.84 lux
Results - Emin 5.09 lux Eav 8.63 lux

Roadway Lighting Report

PREPARED BY: Aptus Utilities
01204 325000

Roadway Report Summary

Layout



Road Data

Calculation Grid	BS5489 2013 Illuminance
Width (m)	9.50
No. of Lanes	2
Road Surface	R2
Q0	0.07
Left Footpath(m)	2.00
Right Footpath(m)	2.00

Main Lighting

Column Data

Configuration	Staggered
Spacing (m)	21.50
Height (m)	6.00
Tilt (deg)	0.00
Left Setback (m)	1.80
Left Outreach (m)	0.50
Left Overhang (m)	-1.30
Right Setback (m)	1.80
Right Outreach (m)	0.50
Right Overhang (m)	-1.30

Luminaire Data



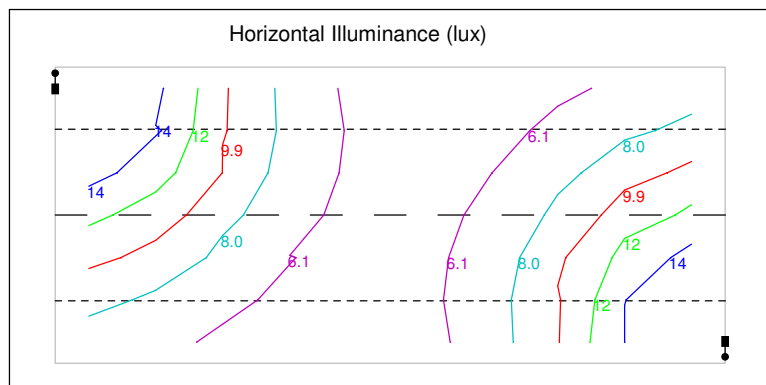
Supplier	PHILIPS WRTL
Type	MiniLuma R5
Lamp(s)	12-30 DS-NW 1 1100-7850 NW LED
LampFlux(klm)/Colour	4.40 NW/70
File Name	MiniLuma R5 DS-NW 1 4400 NW LED.lid
Maintenance Factor	0.74
Lum. Int. Class	G4
Lamp S/P Ratio	1.61

Results

Main

Complies with P3*
With S/P ratio = 1.61

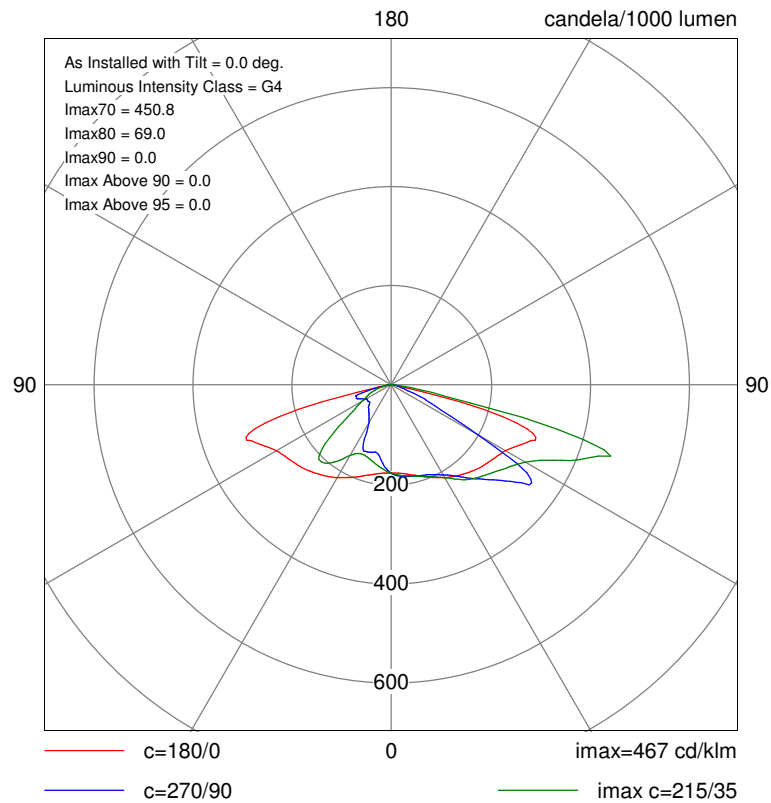
Eav	8.63
Emin	5.09
Emax	16.75
Emin/Emax	0.30
Emin/Eav	0.59



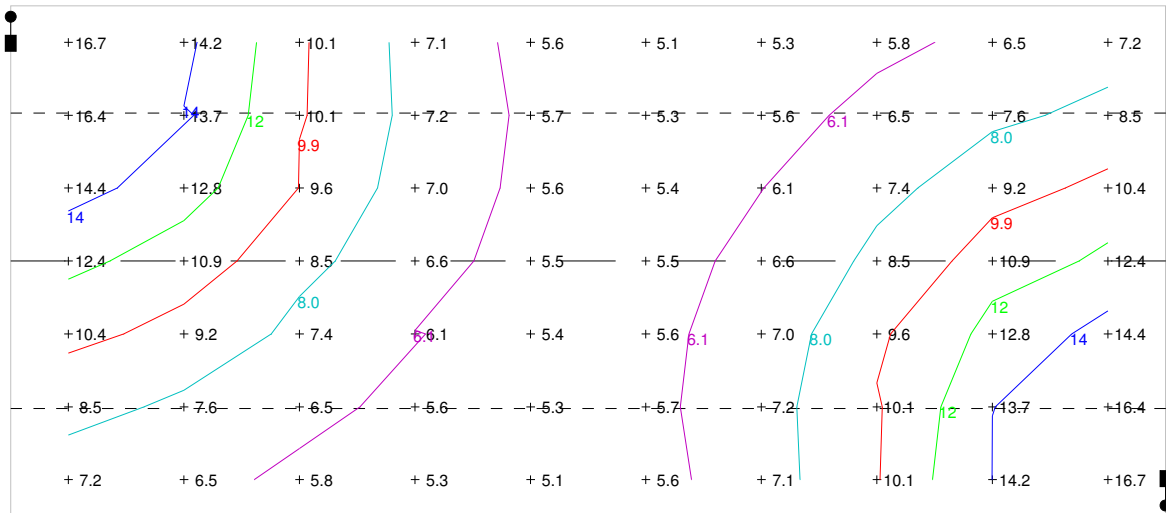
*The lighting class has been modified using the lamp S/P ratio in accordance with PLG03 With Eav from 5.89 to 8.84 and Emin 1.18

Polar Diagram

Main Luminaire MiniLuma R5



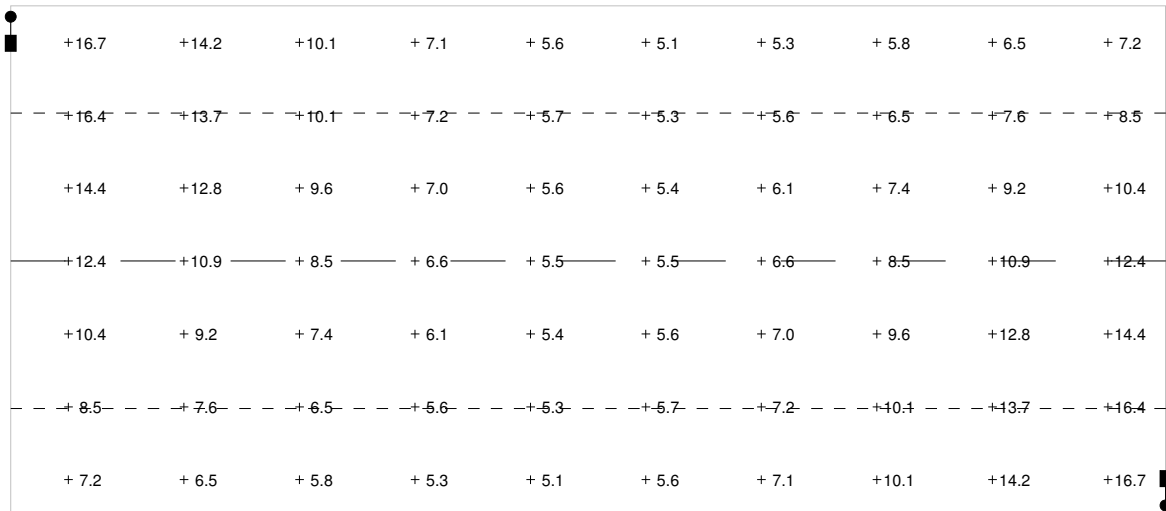
Horizontal Illuminance (lux)



Main Results

Eav	8.63
Emin	5.09
Emax	16.75
Emin/Emax	0.30
Emin/Eav	0.59

Horizontal Illuminance (lux)



Main Results

Eav	8.63
Emin	5.09
Emax	16.75
Emin/Emax	0.30
Emin/Eav	0.59

DATE: 12 March 2015
DESIGNER: Aptus Utilities
PROJECT No: -
PROJECT NAME: Gateacre, Liverpool



Road Calc to P3 - Single Sided max - 30.50m

Road Width - 13.5m
Mounting Height - 6m
Luminaire - Philips Mini Luma Neutral White LED
Optic Setting - R6 DS-NW 1 5600
Tilt - 0 degrees
S/P Ratio - 1.61
MF - 0.74

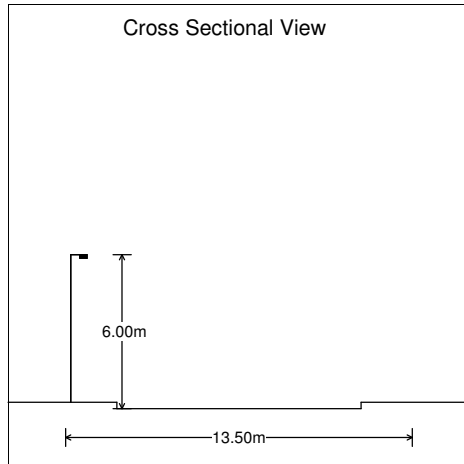
Required Illuminance Levels - Emin 1.18 lux Eav 5.89 - 8.84 lux
Results - Emin 2.40 lux Eav 5.92 lux

Roadway Lighting Report

PREPARED BY: Aptus Utilities
01204 325000

Roadway Report Summary

Layout



Road Data

Calculation Grid	BS5489 2013 Illuminance
Width (m)	13.50
No. of Lanes	2
Road Surface	R2
Q0	0.07
Left Footpath(m)	2.00
Right Footpath(m)	2.00

Main Lighting

Column Data

Configuration	Single Sided Left
Spacing (m)	30.50
Height (m)	6.00
Tilt (deg)	0.00
Setback (m)	1.80
Outreach (m)	0.50
Overhang (m)	-1.30

Luminaire Data



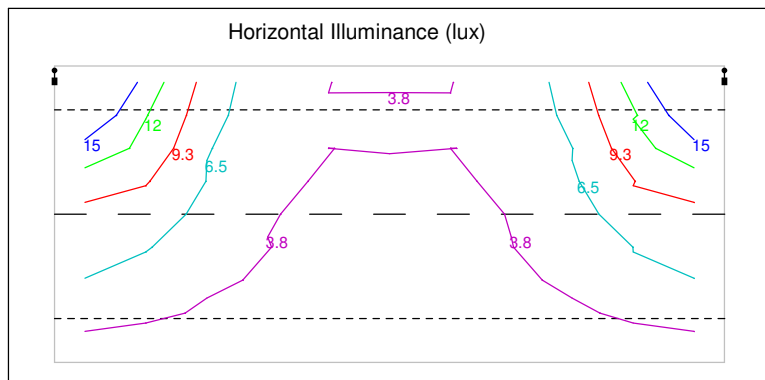
Supplier	PHILIPS WRTL
Type	MiniLuma R6
Lamp(s)	12-30 DS-NW 1 1100-7850 NW LED
LampFlux(klm)/Colour	5.60 NW/70
File Name	MiniLuma R6 DS-NW 1 5600 NW LED.lgt
Maintenance Factor	0.74
Lum. Int. Class	G4
Lamp S/P Ratio	1.61

Results

Main

Complies with P3*
With S/P ratio = 1.61

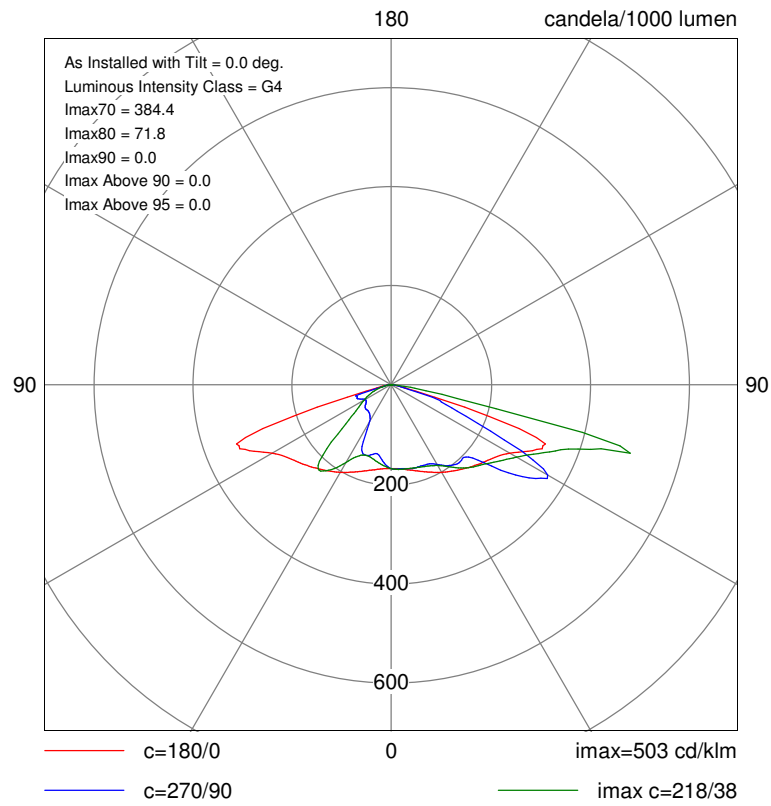
Eav	5.92
Emin	2.40
Emax	18.96
Emin/Emax	0.13
Emin/Eav	0.41



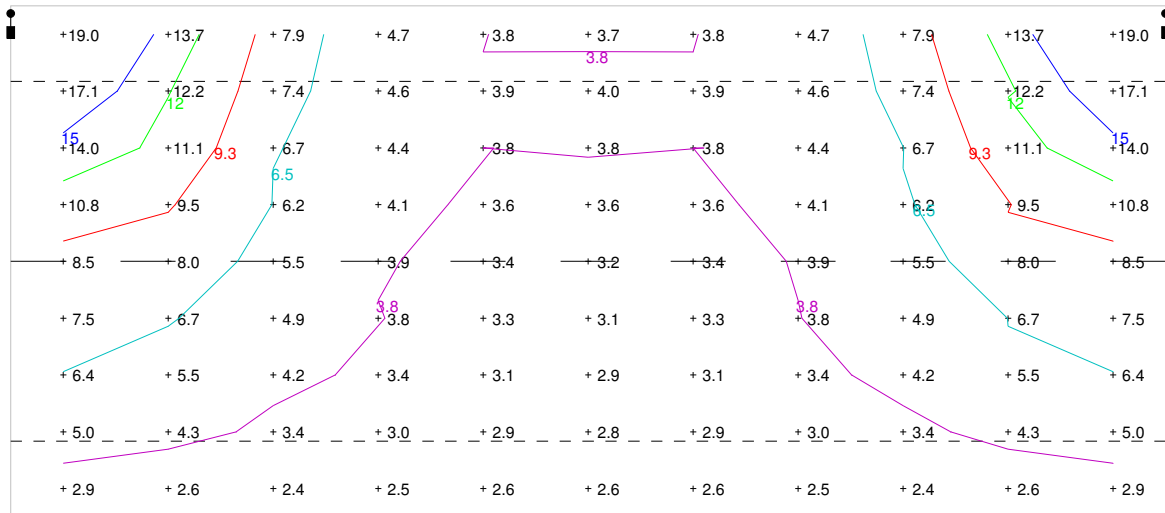
*The lighting class has been modified using the lamp S/P ratio in accordance with PLG03 With Eav from 5.89 to 8.84 and Emin 1.18

Polar Diagram

Main Luminaire MiniLuma R6



Horizontal Illuminance (lux)



Main Results

Eav	5.92
Emin	2.40
Emax	18.96
Emin/Emax	0.13
Emin/Eav	0.41

Horizontal Illuminance (lux)

+19.0	+13.7	+ 7.9	+ 4.7	+ 3.8	+ 3.7	+ 3.8	+ 4.7	+ 7.9	+13.7	+19.0
+17.1	+12.2	+ 7.4	+ 4.6	+ 3.9	+ 4.0	+ 3.9	+ 4.6	+ 7.4	+12.2	+17.1
+14.0	+11.1	+ 6.7	+ 4.4	+ 3.8	+ 3.8	+ 3.8	+ 4.4	+ 6.7	+11.1	+14.0
+10.8	+ 9.5	+ 6.2	+ 4.1	+ 3.6	+ 3.6	+ 3.6	+ 4.1	+ 6.2	+ 9.5	+10.8
+ 8.5	+ 8.0	+ 5.5	+ 3.9	+ 3.4	+ 3.2	+ 3.4	+ 3.9	+ 5.5	+ 8.0	+ 8.5
+ 7.5	+ 6.7	+ 4.9	+ 3.8	+ 3.3	+ 3.1	+ 3.3	+ 3.8	+ 4.9	+ 6.7	+ 7.5
+ 6.4	+ 5.5	+ 4.2	+ 3.4	+ 3.1	+ 2.9	+ 3.1	+ 3.4	+ 4.2	+ 5.5	+ 6.4
+ 5.0	+ 4.3	+ 3.4	+ 3.0	+ 2.9	+ 2.8	+ 2.9	+ 3.0	+ 3.4	+ 4.3	+ 5.0
+ 2.9	+ 2.6	+ 2.4	+ 2.5	+ 2.6	+ 2.6	+ 2.6	+ 2.5	+ 2.4	+ 2.6	+ 2.9

Main Results

Eav	5.92
Emin	2.40
Emax	18.96
Emin/Emax	0.13
Emin/Eav	0.41

DATE: 12 March 2015
DESIGNER: Aptus Utilities
PROJECT No: -
PROJECT NAME: Gateacre, Liverpool



Road Calc to P3 - Single Sided min - 20.50m

Road Width - 13.5m
Mounting Height - 6m
Luminaire - Philips Mini Luma Neutral White LED
Optic Setting - R6 DS-NW 1 5600
Tilt - 0 degrees
S/P Ratio - 1.61
MF - 0.74

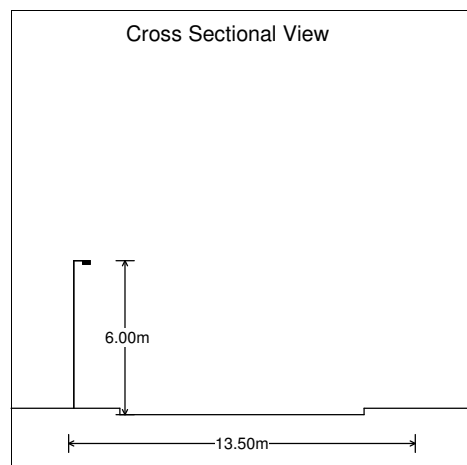
Required Illuminance Levels - Emin 1.18 lux Eav 5.89 - 8.84 lux
Results - Emin 3.26 lux Eav 8.81 lux

Roadway Lighting Report

PREPARED BY: Aptus Utilities
01204 325000

Roadway Report Summary

Layout



Road Data

Calculation Grid	BS5489 2013 Illuminance
Width (m)	13.50
No. of Lanes	2
Road Surface	R2
Q0	0.07
Left Footpath(m)	2.00
Right Footpath(m)	2.00

Main Lighting

Column Data

Configuration	Single Sided Left
Spacing (m)	20.50
Height (m)	6.00
Tilt (deg)	0.00
Setback (m)	1.80
Outreach (m)	0.50
Overhang (m)	-1.30

Luminaire Data



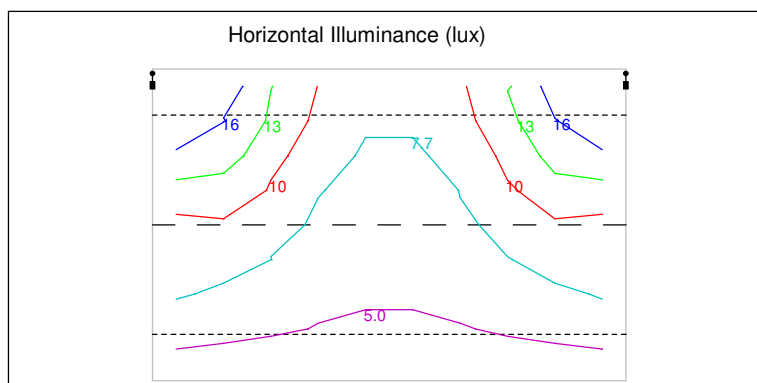
Supplier	PHILIPS WRTL
Type	MiniLuma R6
Lamp(s)	12-30 DS-NW 1 1100-7850 NW LED
LampFlux(klm)/Colour	5.60 NW/70
File Name	MiniLuma R6 DS-NW 1 5600 NW LED.lid
Maintenance Factor	0.74
Lum. Int. Class	G4
Lamp S/P Ratio	1.61

Results

Main

Complies with P3*
With S/P ratio = 1.61

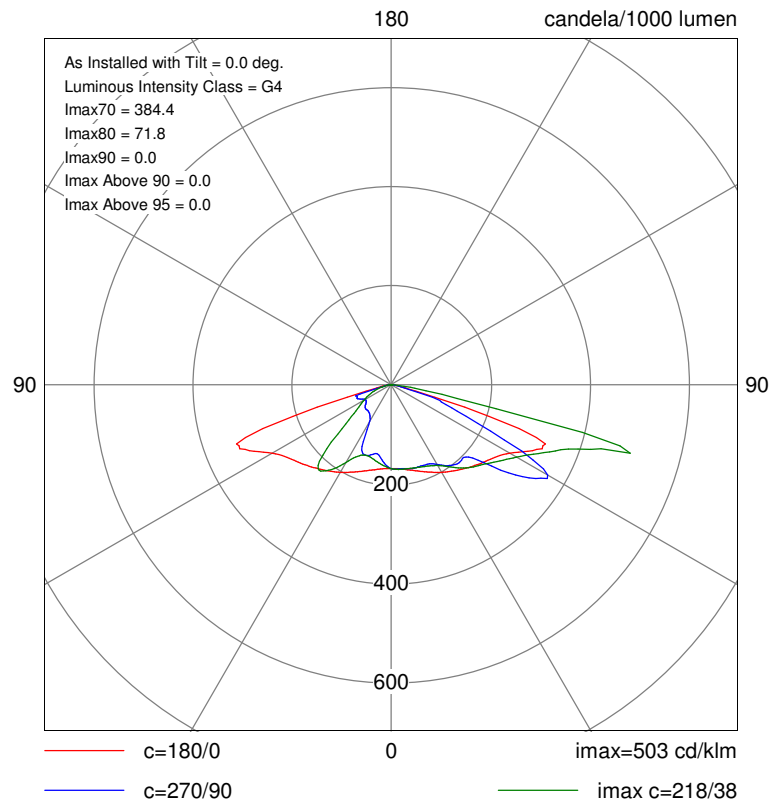
Eav	8.81
Emin	3.62
Emax	19.90
Emin/Emax	0.18
Emin/Eav	0.41



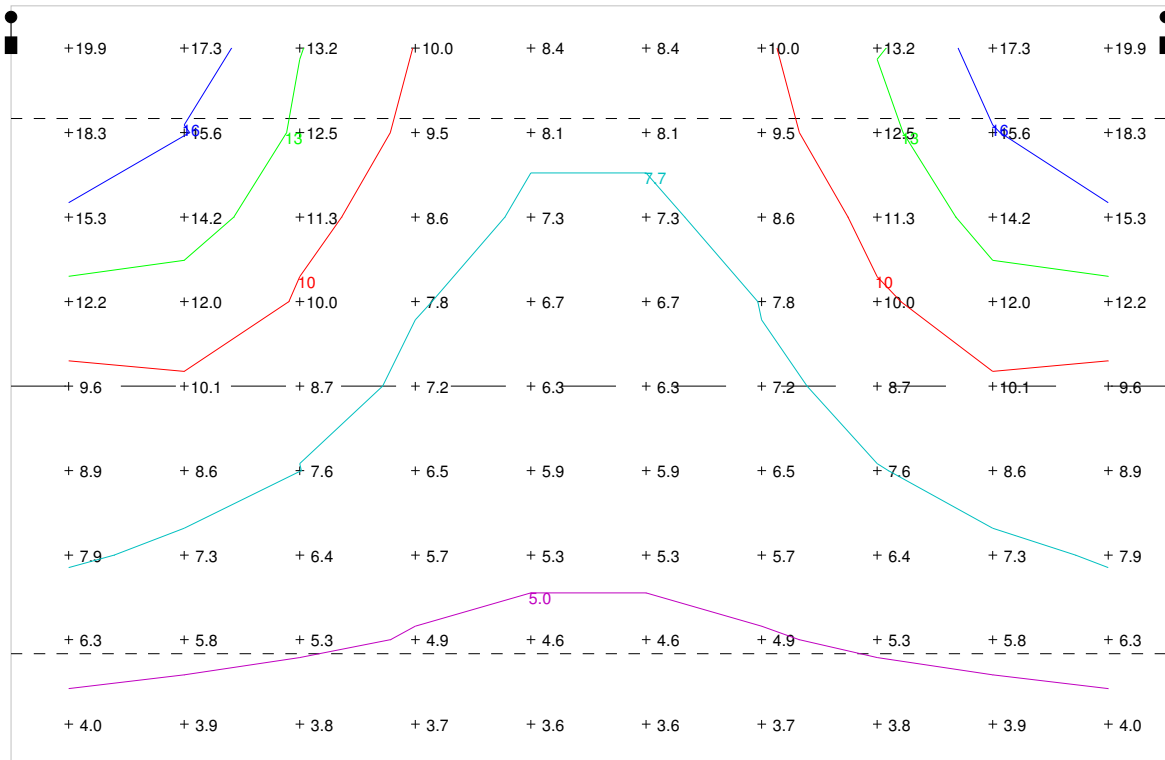
*The lighting class has been modified using the lamp S/P ratio in accordance with PLG03 With Eav from 5.89 to 8.84 and Emin 1.18

Polar Diagram

Main Luminaire MiniLuma R6



Horizontal Illuminance (lux)



Main Results

Eav	8.81
Emin	3.62
Emax	19.90
Emin/Emax	0.18
Emin/Eav	0.41

Horizontal Illuminance (lux)

+19.9	+17.3	+13.2	+10.0	+ 8.4	+ 8.4	+10.0	+13.2	+17.3	+19.9
+18.3	+15.6	+12.5	+ 9.5	+ 8.1	+ 8.1	+ 9.5	+12.5	+15.6	+18.3
+15.3	+14.2	+11.3	+ 8.6	+ 7.3	+ 7.3	+ 8.6	+11.3	+14.2	+15.3
+12.2	+12.0	+10.0	+ 7.8	+ 6.7	+ 6.7	+ 7.8	+10.0	+12.0	+12.2
+ 9.6	+10.1	+ 8.7	+ 7.2	+ 6.3	+ 6.3	+ 7.2	+ 8.7	+10.1	+ 9.6
+ 8.9	+ 8.6	+ 7.6	+ 6.5	+ 5.9	+ 5.9	+ 6.5	+ 7.6	+ 8.6	+ 8.9
+ 7.9	+ 7.3	+ 6.4	+ 5.7	+ 5.3	+ 5.3	+ 5.7	+ 6.4	+ 7.3	+ 7.9
+ 6.3	+ 5.8	+ 5.3	+ 4.9	+ 4.6	+ 4.6	+ 4.9	+ 5.3	+ 5.8	+ 6.3
+ 4.0	+ 3.9	+ 3.8	+ 3.7	+ 3.6	+ 3.6	+ 3.7	+ 3.8	+ 3.9	+ 4.0

Main Results

Eav	8.81
Emin	3.62
Emax	19.90
Emin/Emax	0.18
Emin/Eav	0.41

DATE: 12 March 2015
DESIGNER: Aptus Utilities
PROJECT No: -
PROJECT NAME: Gateacre, Liverpool



Road Calc to P3 - Staggered max - 30.50m

Road Width - 13.5m
Mounting Height - 6m
Luminaire - Philips Mini Luma Neutral White LED
Optic Setting - R6 DS-NW 1 5600
Tilt - 0 degrees
S/P Ratio - 1.61
MF - 0.74

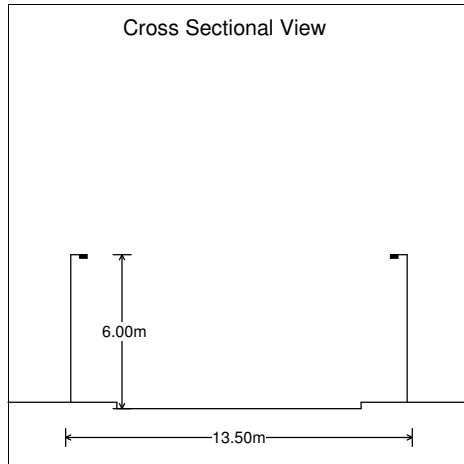
Required Illuminance Levels - Emin 1.18 lux Eav 5.89 - 8.84 lux
Results - Emin 2.09 lux Eav 5.92 lux

Roadway Lighting Report

PREPARED BY: Aptus Utilities
01204 325000

Roadway Report Summary

Layout



Road Data

Calculation Grid	BS5489 2013 Illuminance
Width (m)	13.50
No. of Lanes	2
Road Surface	R2
Q0	0.07
Left Footpath(m)	2.00
Right Footpath(m)	2.00

Main Lighting

Column Data

Configuration	Staggered
Spacing (m)	30.50
Height (m)	6.00
Tilt (deg)	0.00
Left Setback (m)	1.80
Left Outreach (m)	0.50
Left Overhang (m)	-1.30
Right Setback (m)	1.80
Right Outreach (m)	0.50
Right Overhang (m)	-1.30

Luminaire Data



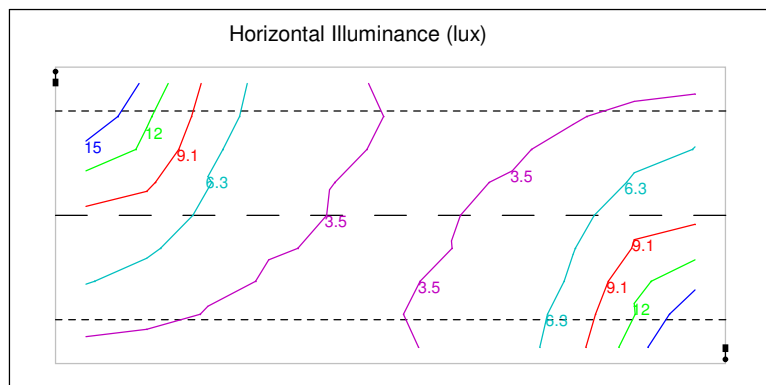
Supplier	PHILIPS WRTL
Type	MiniLuma R6
Lamp(s)	12-30 DS-NW 1 1100-7850 NW LED
LampFlux(klm)/Colour	5.60 NW/70
File Name	MiniLuma R6 DS-NW 1 5600 NW LED.lid
Maintenance Factor	0.74
Lum. Int. Class	G4
Lamp S/P Ratio	1.61

Results

Main

Complies with P3*
With S/P ratio = 1.61

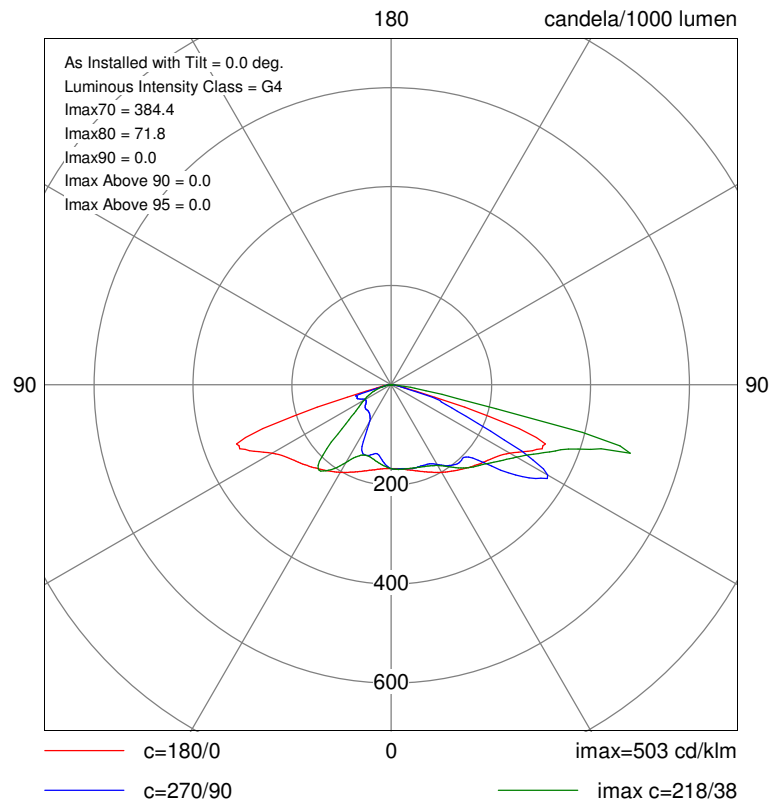
Eav	5.92
Emin	2.09
Emax	18.99
Emin/Emax	0.11
Emin/Eav	0.35



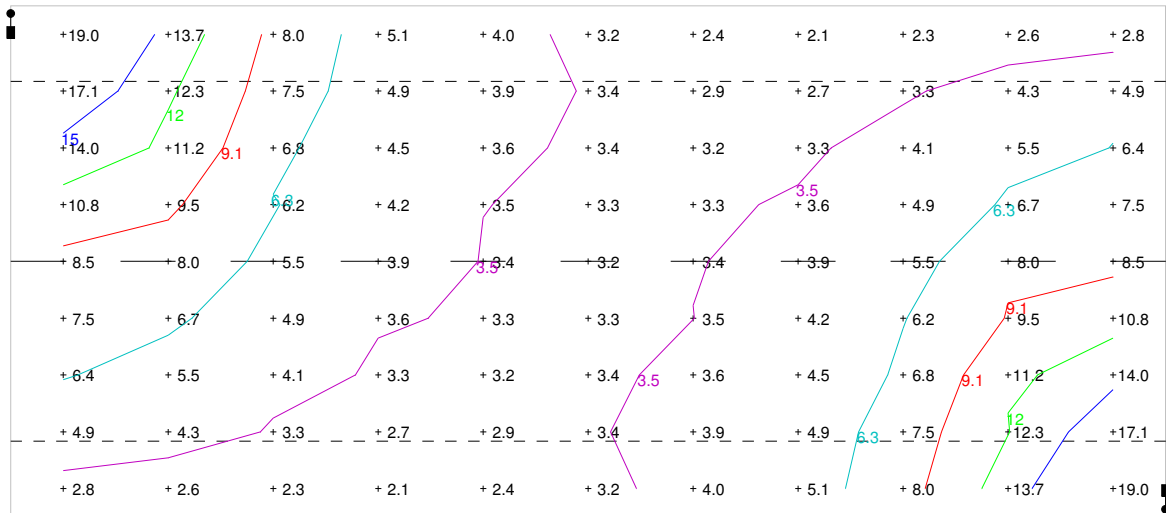
*The lighting class has been modified using the lamp S/P ratio in accordance with PLG03 With Eav from 5.89 to 8.84 and Emin 1.18

Polar Diagram

Main Luminaire MiniLuma R6



Horizontal Illuminance (lux)



Main Results

Eav	5.92
Emin	2.09
Emax	18.99
Emin/Emax	0.11
Emin/Eav	0.35

Horizontal Illuminance (lux)

+19.0	+13.7	+ 8.0	+ 5.1	+ 4.0	+ 3.2	+ 2.4	+ 2.1	+ 2.3	+ 2.6	+ 2.8
+17.1	+12.3	+ 7.5	+ 4.9	+ 3.9	+ 3.4	+ 2.9	+ 2.7	+ 3.3	+ 4.3	+ 4.9
+14.0	+11.2	+ 6.8	+ 4.5	+ 3.6	+ 3.4	+ 3.2	+ 3.3	+ 4.1	+ 5.5	+ 6.4
+10.8	+ 9.5	+ 6.2	+ 4.2	+ 3.5	+ 3.3	+ 3.3	+ 3.6	+ 4.9	+ 6.7	+ 7.5
+ 8.5	+ 8.0	+ 5.5	+ 3.9	+ 3.4	+ 3.2	+ 3.4	+ 3.9	+ 5.5	+ 8.0	+ 8.5
+ 7.5	+ 6.7	+ 4.9	+ 3.6	+ 3.3	+ 3.3	+ 3.5	+ 4.2	+ 6.2	+ 9.5	+10.8
+ 6.4	+ 5.5	+ 4.1	+ 3.3	+ 3.2	+ 3.4	+ 3.6	+ 4.5	+ 6.8	+11.2	+14.0
+ 4.9	+ 4.3	+ 3.3	+ 2.7	+ 2.9	+ 3.4	+ 3.9	+ 4.9	+ 7.5	+12.3	+17.1
+ 2.8	+ 2.6	+ 2.3	+ 2.1	+ 2.4	+ 3.2	+ 4.0	+ 5.1	+ 8.0	+13.7	+19.0

Main Results

Eav	5.92
Emin	2.09
Emax	18.99
Emin/Emax	0.11
Emin/Eav	0.35

DATE: 12 March 2015
DESIGNER: Aptus Utilities
PROJECT No: -
PROJECT NAME: Gateacre, Liverpool



Road Calc to P3 - Staggered min - 20.50m

Road Width - 13.5m
Mounting Height - 6m
Luminaire - Philips Mini Luma Neutral White LED
Optic Setting - R6 DS-NW 1 5600
Tilt - 0 degrees
S/P Ratio - 1.61
MF - 0.74

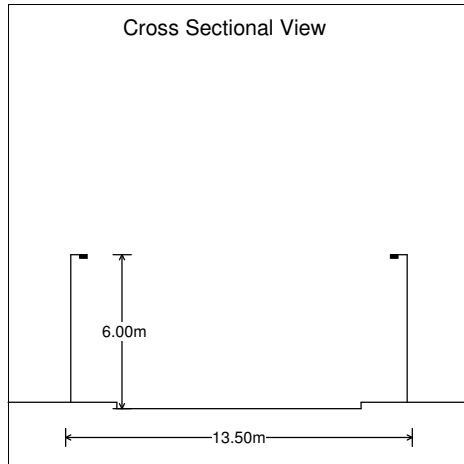
Required Illuminance Levels - Emin 1.18 lux Eav 5.89 - 8.84 lux
Results - Emin 3.45 lux Eav 8.81 lux

Roadway Lighting Report

PREPARED BY: Aptus Utilities
01204 325000

Roadway Report Summary

Layout



Road Data

Calculation Grid	BS5489 2013 Illuminance
Width (m)	13.50
No. of Lanes	2
Road Surface	R2
Q0	0.07
Left Footpath(m)	2.00
Right Footpath(m)	2.00

Main Lighting

Column Data

Configuration	Staggered
Spacing (m)	20.50
Height (m)	6.00
Tilt (deg)	0.00
Left Setback (m)	1.80
Left Outreach (m)	0.50
Left Overhang (m)	-1.30
Right Setback (m)	1.80
Right Outreach (m)	0.50
Right Overhang (m)	-1.30

Luminaire Data



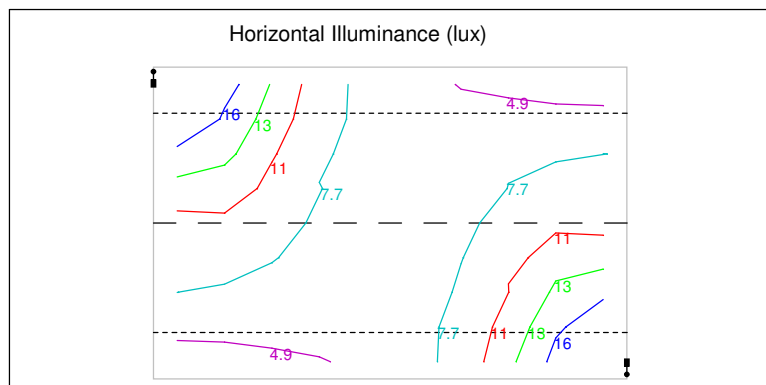
Supplier	PHILIPS WRTL
Type	MiniLuma R6
Lamp(s)	12-30 DS-NW 1 1100-7850 NW LED
LampFlux(klm)/Colour	5.60 NW/70
File Name	MiniLuma R6 DS-NW 1 5600 NW LED.lid
Maintenance Factor	0.74
Lum. Int. Class	G4
Lamp S/P Ratio	1.61

Results

Main

Complies with P3*
With S/P ratio = 1.61

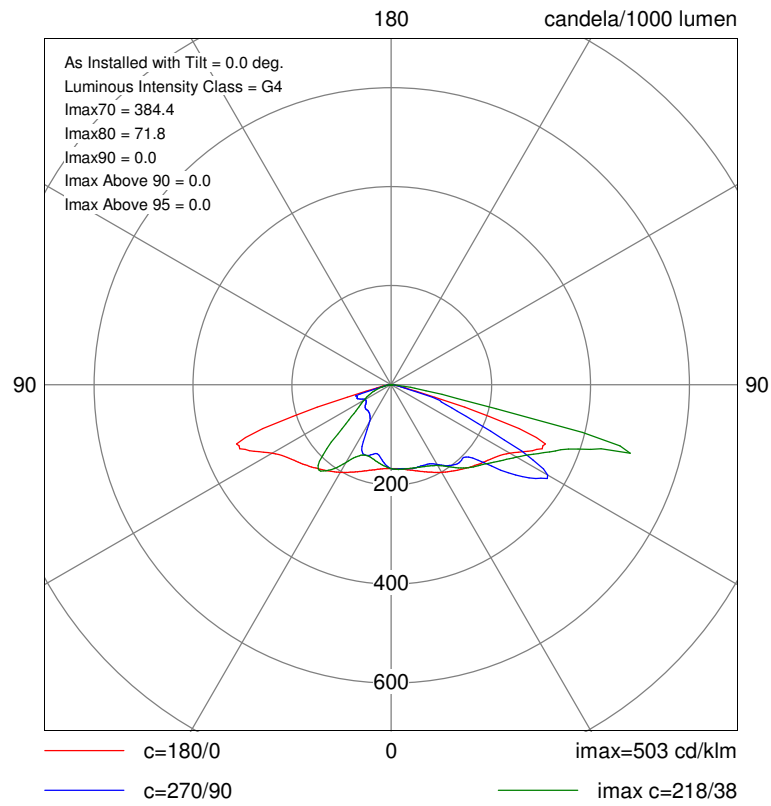
Eav	8.81
Emin	3.45
Emax	20.49
Emin/Emax	0.17
Emin/Eav	0.39



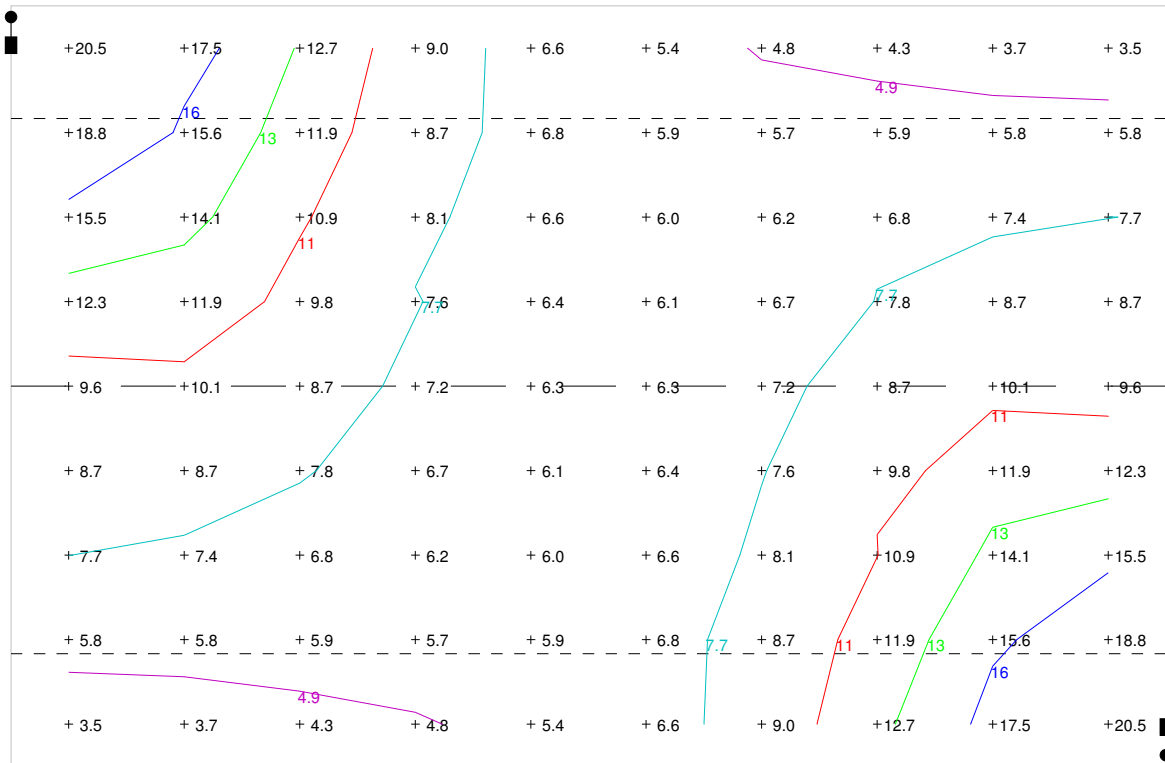
*The lighting class has been modified using the lamp S/P ratio in accordance with PLG03 With Eav from 5.89 to 8.84 and Emin 1.18

Polar Diagram

Main Luminaire MiniLuma R6



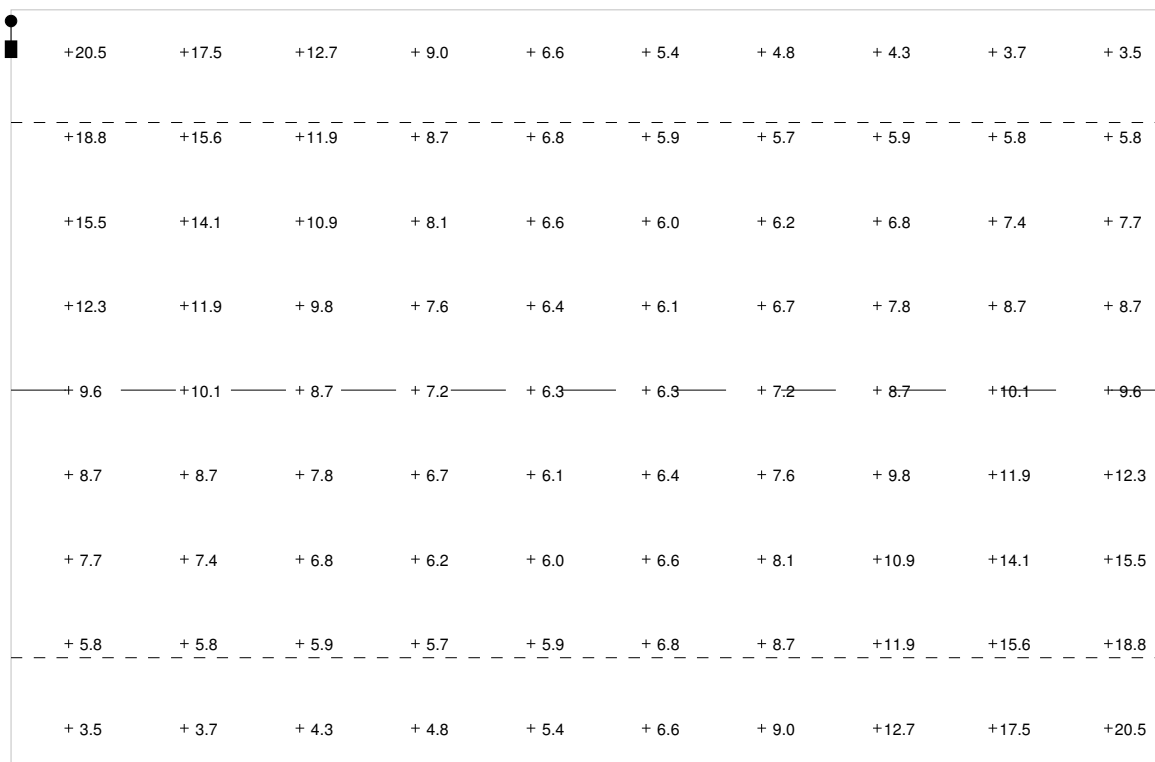
Horizontal Illuminance (lux)



Main Results

Eav	8.81
Emin	3.45
Emax	20.49
Emin/Emax	0.17
Emin/Eav	0.39

Horizontal Illuminance (lux)



Main Results

Eav	8.81
Emin	3.45
Emax	20.49
Emin/Emax	0.17
Emin/Eav	0.39

DATE: 12 March 2015
DESIGNER: Aptus Utilities
PROJECT No: -
PROJECT NAME: Gateacre, Liverpool



Road Calc to P3 - Single Sided max - 35.0m

Road Width - 13.5m
Mounting Height - 6m
Luminaire - Philips Mini Luma Neutral White LED
Optic Setting - R6 DS-NW 1 6400
Tilt - 0 degrees
S/P Ratio - 1.61
MF - 0.74

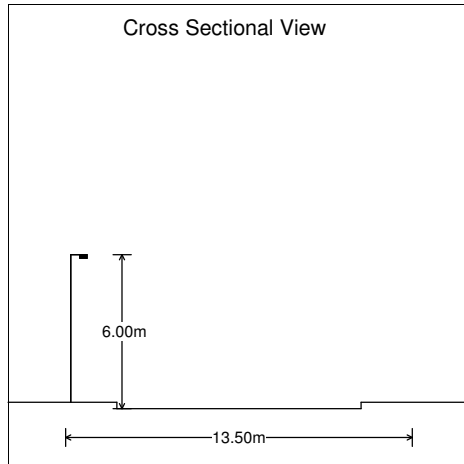
Required Illuminance Levels - Emin 1.18 lux Eav 5.89 - 8.84 lux
Results - Emin 2.20 lux Eav 5.90 lux

Roadway Lighting Report

PREPARED BY: Aptus Utilities
01204 325000

Roadway Report Summary

Layout



Road Data

Calculation Grid	BS5489 2013 Illuminance
Width (m)	13.50
No. of Lanes	2
Road Surface	R2
Q0	0.07
Left Footpath(m)	2.00
Right Footpath(m)	2.00

Main Lighting

Column Data

Configuration	Single Sided Left
Spacing (m)	35.00
Height (m)	6.00
Tilt (deg)	0.00
Setback (m)	1.80
Outreach (m)	0.50
Overhang (m)	-1.30

Luminaire Data



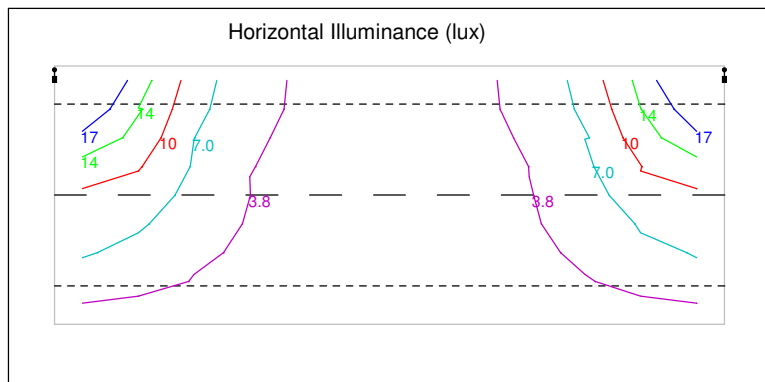
Supplier	PHILIPS WRTL
Type	MiniLuma R6
Lamp(s)	12-30 DS-NW 1 1100-7850 NW LED
LampFlux(klm)/Colour	6.40 NW/70
File Name	MiniLuma R6 DS-NW 1 6400 NW LED.lgt
Maintenance Factor	0.74
Lum. Int. Class	G4
Lamp S/P Ratio	1.61

Results

Main

Complies with P3*
With S/P ratio = 1.61

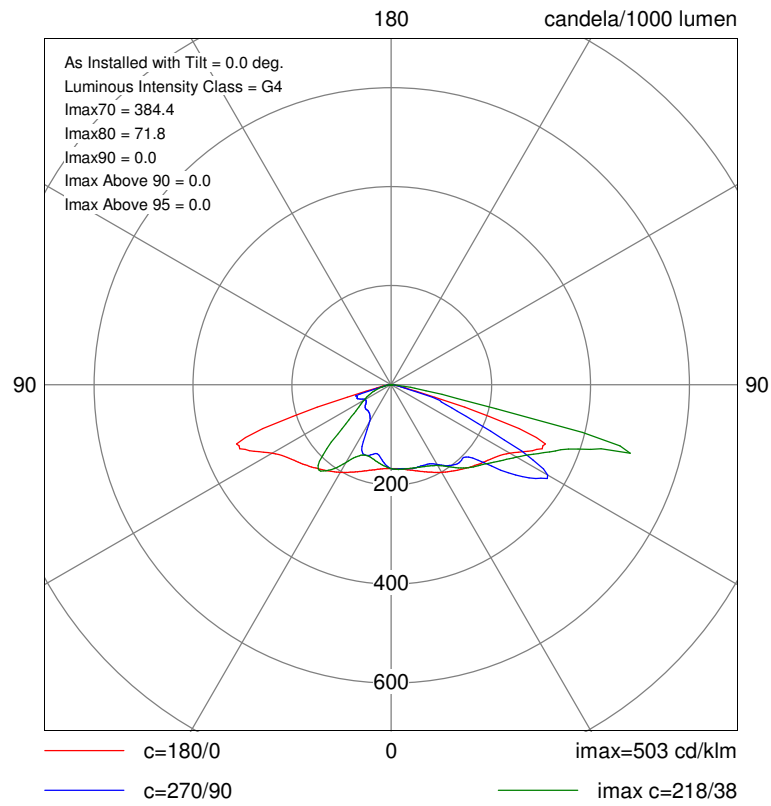
Eav	5.90
Emin	2.20
E _{max}	21.56
E _{min} /E _{max}	0.10
E _{min} /E _{av}	0.37



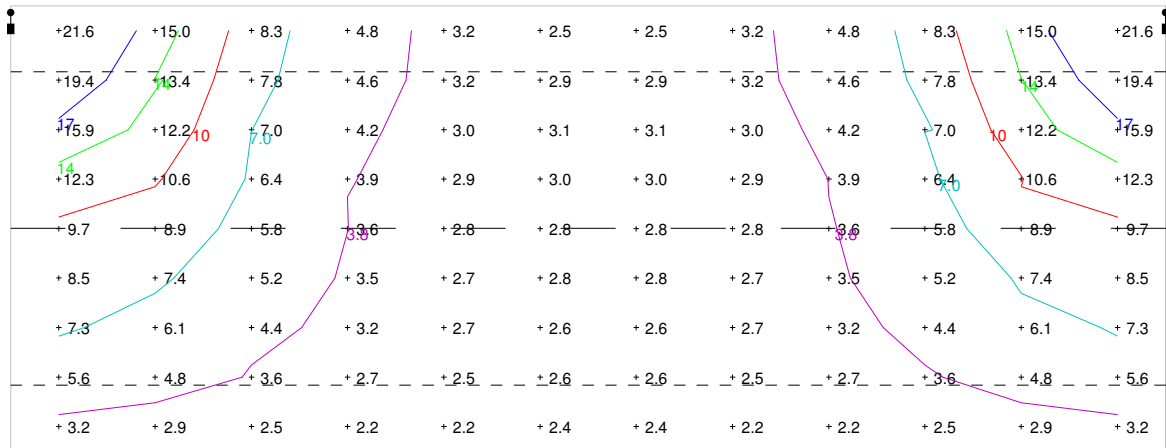
*The lighting class has been modified using the lamp S/P ratio in accordance with PLG03 With Eav from 5.89 to 8.84 and Emin 1.18

Polar Diagram

Main Luminaire MiniLuma R6



Horizontal Illuminance (lux)



Main Results

Eav	5.90
Emin	2.20
Emax	21.56
Emin/Emax	0.10
Emin/Eav	0.37

Horizontal Illuminance (lux)

+21.6	+15.0	+8.3	+4.8	+3.2	+2.5	+2.5	+3.2	+4.8	+8.3	+15.0	+21.6
+19.4	+13.4	+7.8	+4.6	+3.2	+2.9	+2.9	+3.2	+4.6	+7.8	+13.4	+19.4
+15.9	+12.2	+7.0	+4.2	+3.0	+3.1	+3.1	+3.0	+4.2	+7.0	+12.2	+15.9
+12.3	+10.6	+6.4	+3.9	+2.9	+3.0	+3.0	+2.9	+3.9	+6.4	+10.6	+12.3
+9.7	+8.9	+5.8	+3.6	+2.8	+2.8	+2.8	+2.8	+3.6	+5.8	+8.9	+9.7
+8.5	+7.4	+5.2	+3.5	+2.7	+2.8	+2.8	+2.7	+3.5	+5.2	+7.4	+8.5
+7.3	+6.1	+4.4	+3.2	+2.7	+2.6	+2.6	+2.7	+3.2	+4.4	+6.1	+7.3
+5.6	+4.8	+3.6	+2.7	+2.5	+2.6	+2.6	+2.5	+2.7	+3.6	+4.8	+5.6
+3.2	+2.9	+2.5	+2.2	+2.2	+2.4	+2.4	+2.2	+2.2	+2.5	+2.9	+3.2

Main Results

Eav	5.90
Emin	2.20
Emax	21.56
Emin/Emax	0.10
Emin/Eav	0.37

DATE: 12 March 2015
DESIGNER: Aptus Utilities
PROJECT No: -
PROJECT NAME: Gateacre, Liverpool



Road Calc to P3 - Single Sided min - 23.50m

Road Width - 13.5m
Mounting Height - 6m
Luminaire - Philips Mini Luma Neutral White LED
Optic Setting - R6 DS-NW 1 6400
Tilt - 0 degrees
S/P Ratio - 1.61
MF - 0.74

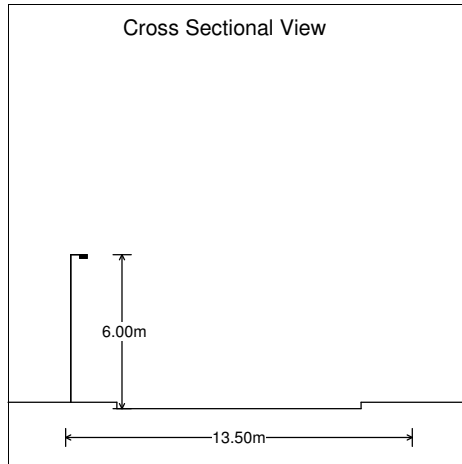
Required Illuminance Levels - Emin 1.18 lux Eav 5.89 - 8.84 lux
Results - Emin 3.73 lux Eav 8.78 lux

Roadway Lighting Report

PREPARED BY: Aptus Utilities
01204 325000

Roadway Report Summary

Layout



Road Data

Calculation Grid	BS5489 2013 Illuminance
Width (m)	13.50
No. of Lanes	2
Road Surface	R2
Q0	0.07
Left Footpath(m)	2.00
Right Footpath(m)	2.00

Main Lighting

Column Data

Configuration	Single Sided Left
Spacing (m)	23.50
Height (m)	6.00
Tilt (deg)	0.00
Setback (m)	1.80
Outreach (m)	0.50
Overhang (m)	-1.30

Luminaire Data



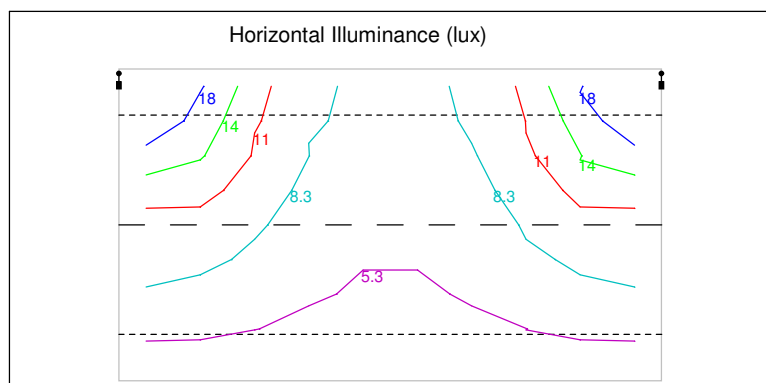
Supplier	PHILIPS WRTL
Type	MiniLuma R6
Lamp(s)	12-30 DS-NW 1 1100-7850 NW LED
LampFlux(klm)/Colour	6.40 NW/70
File Name	MiniLuma R6 DS-NW 1 6400 NW LED.lid
Maintenance Factor	0.74
Lum. Int. Class	G4
Lamp S/P Ratio	1.61

Results

Main

Complies with P3*
With S/P ratio = 1.61

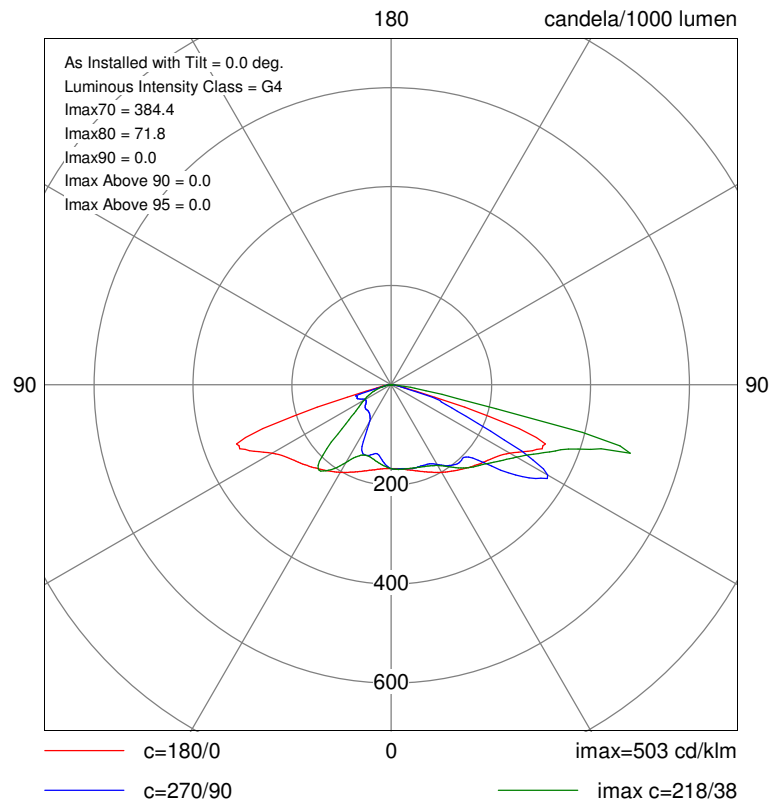
Eav	8.78
Emin	3.73
E _{max}	22.04
Emin/E _{max}	0.17
Emin/Eav	0.43



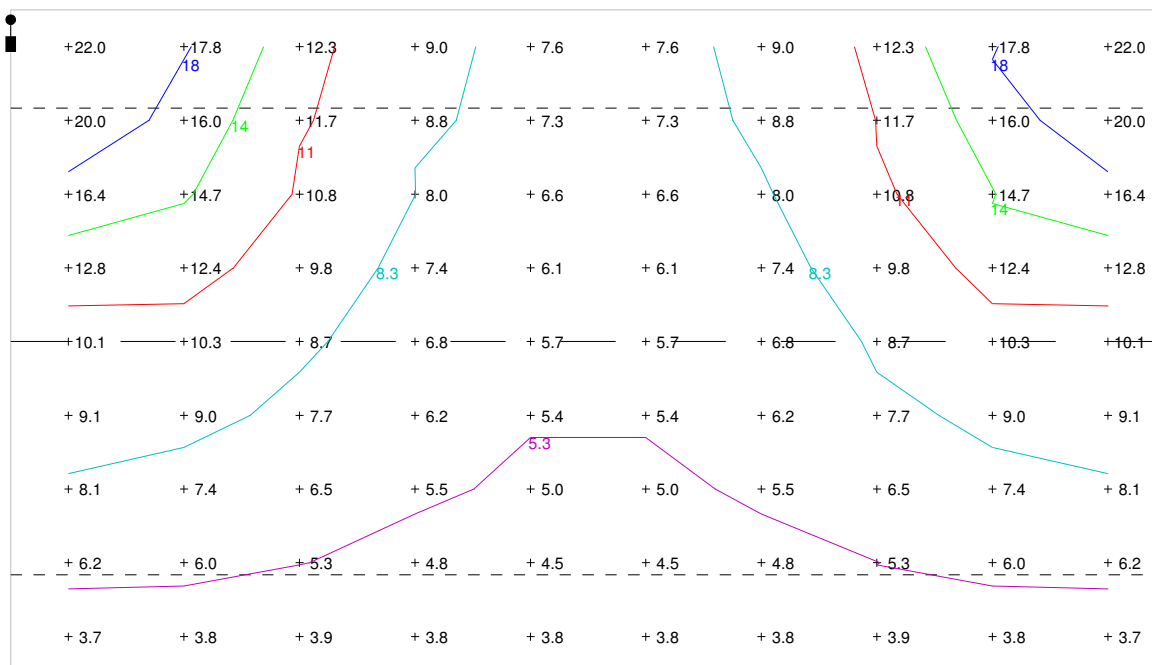
*The lighting class has been modified using the lamp S/P ratio in accordance with PLG03 With Eav from 5.89 to 8.84 and Emin 1.18

Polar Diagram

Main Luminaire MiniLuma R6



Horizontal Illuminance (lux)



Main Results

Eav	8.78
Emin	3.73
Emax	22.04
Emin/Emax	0.17
Emin/Eav	0.43

Horizontal Illuminance (lux)

+22.0	+17.8	+12.3	+9.0	+7.6	+7.6	+9.0	+12.3	+17.8	+22.0
+20.0	+16.0	+11.7	+8.8	+7.3	+7.3	+8.8	+11.7	+16.0	+20.0
+16.4	+14.7	+10.8	+8.0	+6.6	+6.6	+8.0	+10.8	+14.7	+16.4
+12.8	+12.4	+9.8	+7.4	+6.1	+6.1	+7.4	+9.8	+12.4	+12.8
+10.1	+10.3	+8.7	+6.8	+5.7	+5.7	+6.8	+8.7	+10.3	+10.1
+9.1	+9.0	+7.7	+6.2	+5.4	+5.4	+6.2	+7.7	+9.0	+9.1
+8.1	+7.4	+6.5	+5.5	+5.0	+5.0	+5.5	+6.5	+7.4	+8.1
+6.2	+6.0	+5.3	+4.8	+4.5	+4.5	+4.8	+5.3	+6.0	+6.2
+3.7	+3.8	+3.9	+3.8	+3.8	+3.8	+3.8	+3.9	+3.8	+3.7

Main Results

Eav	8.78
Emin	3.73
Emax	22.04
Emin/Emax	0.17
Emin/Eav	0.43

DATE: 12 March 2015
DESIGNER: Aptus Utilities
PROJECT No: -
PROJECT NAME: Gateacre, Liverpool



Road Calc to P3 - Staggered max - 35.00m

Road Width - 13.5m
Mounting Height - 6m
Luminaire - Philips Mini Luma Neutral White LED
Optic Setting - R6 DS-NW 1 6400
Tilt - 0 degrees
S/P Ratio - 1.61
MF - 0.74

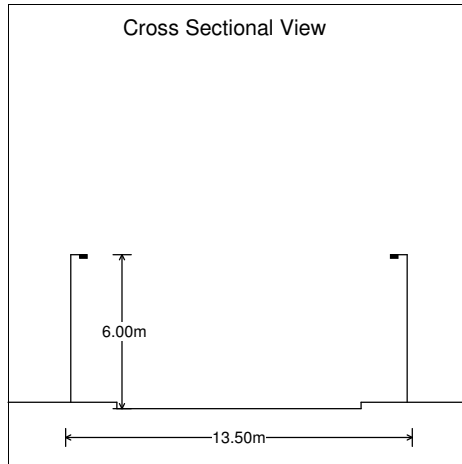
Required Illuminance Levels - Emin 1.18 lux Eav 5.89 - 8.84 lux
Results - Emin 1.94 lux Eav 5.90 lux

Roadway Lighting Report

PREPARED BY: Aptus Utilities
01204 325000

Roadway Report Summary

Layout



Road Data

Calculation Grid	BS5489 2013 Illuminance
Width (m)	13.50
No. of Lanes	2
Road Surface	R2
Q0	0.07
Left Footpath(m)	2.00
Right Footpath(m)	2.00

Main Lighting

Column Data

Configuration	Staggered
Spacing (m)	35.00
Height (m)	6.00
Tilt (deg)	0.00
Left Setback (m)	1.80
Left Outreach (m)	0.50
Left Overhang (m)	-1.30
Right Setback (m)	1.80
Right Outreach (m)	0.50
Right Overhang (m)	-1.30

Luminaire Data



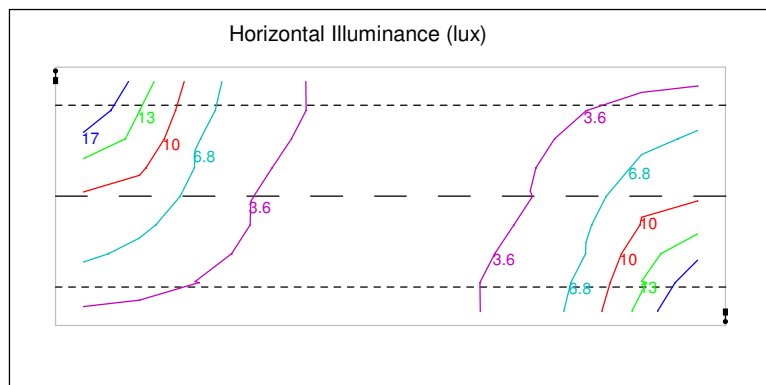
Supplier	PHILIPS WRTL
Type	MiniLuma R6
Lamp(s)	12-30 DS-NW 1 1100-7850 NW LED
LampFlux(klm)/Colour	6.40 NW/70
File Name	MiniLuma R6 DS-NW 1 6400 NW LED.lid
Maintenance Factor	0.74
Lum. Int. Class	G4
Lamp S/P Ratio	1.61

Results

Main

Complies with P3*
With S/P ratio = 1.61

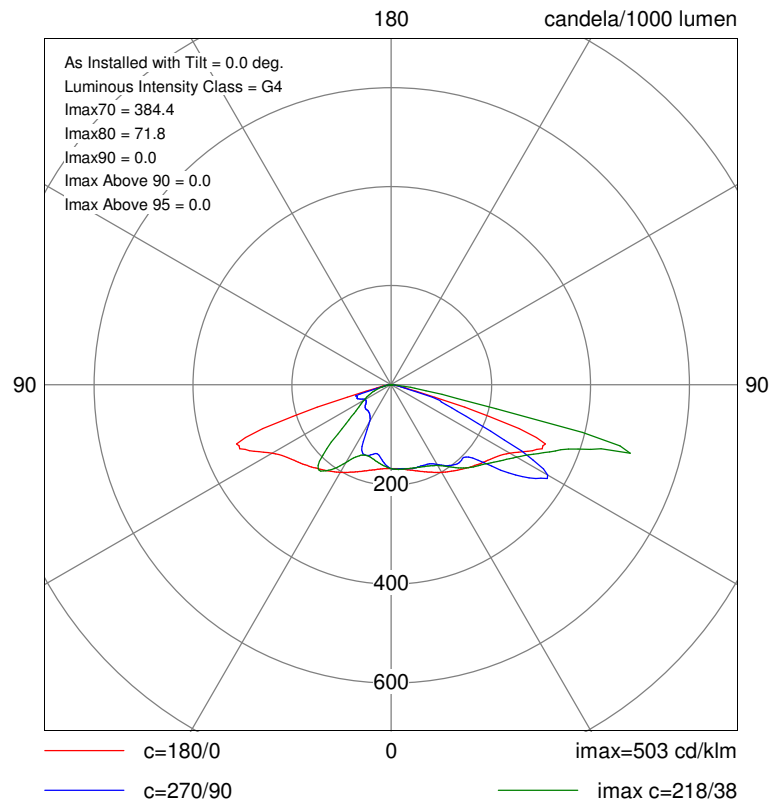
Eav	5.90
Emin	1.94
Emax	21.56
Emin/Emax	0.09
Emin/Eav	0.33



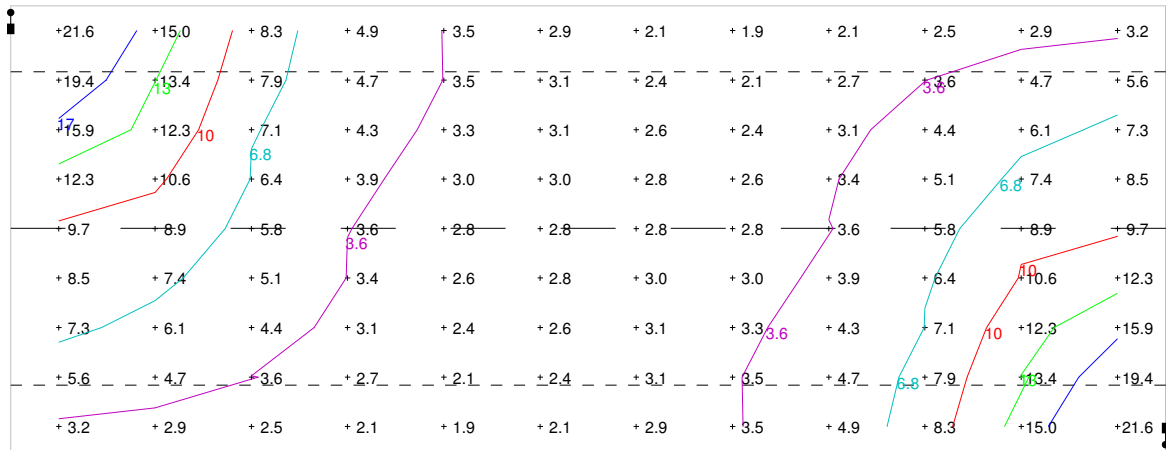
*The lighting class has been modified using the lamp S/P ratio in accordance with PLG03 With Eav from 5.89 to 8.84 and Emin 1.18

Polar Diagram

Main Luminaire MiniLuma R6



Horizontal Illuminance (lux)



Main Results

Eav	5.90
Emin	1.94
Emax	21.56
Emin/Emax	0.09
Emin/Eav	0.33

Horizontal Illuminance (lux)

+21.6	+15.0	+8.3	+4.9	+3.5	+2.9	+2.1	+1.9	+2.1	+2.5	+2.9	+3.2
+19.4	+13.4	+7.9	+4.7	+3.5	+3.1	+2.4	+2.1	+2.7	+3.6	+4.7	+5.6
+15.9	+12.3	+7.1	+4.3	+3.3	+3.1	+2.6	+2.4	+3.1	+4.4	+6.1	+7.3
+12.3	+10.6	+6.4	+3.9	+3.0	+3.0	+2.8	+2.6	+3.4	+5.1	+7.4	+8.5
+9.7	+8.9	+5.8	+3.6	+2.8	+2.8	+2.8	+2.8	+3.6	+5.8	+8.9	+9.7
+8.5	+7.4	+5.1	+3.4	+2.6	+2.8	+3.0	+3.0	+3.9	+6.4	+10.6	+12.3
+7.3	+6.1	+4.4	+3.1	+2.4	+2.6	+3.1	+3.3	+4.3	+7.1	+12.3	+15.9
+5.6	+4.7	+3.6	+2.7	+2.1	+2.4	+3.1	+3.5	+4.7	+7.9	+13.4	+19.4
+3.2	+2.9	+2.5	+2.1	+1.9	+2.1	+2.9	+3.5	+4.9	+8.3	+15.0	+21.6

Main Results

Eav	5.90
Emin	1.94
Emax	21.56
Emin/Emax	0.09
Emin/Eav	0.33

DATE: 12 March 2015
DESIGNER: Aptus Utilities
PROJECT No: -
PROJECT NAME: Gateacre, Liverpool



Road Calc to P3 - Staggered min - 23.50m

Road Width - 13.5m
Mounting Height - 6m
Luminaire - Philips Mini Luma Neutral White LED
Optic Setting - R6 DS-NW 1 6400
Tilt - 0 degrees
S/P Ratio - 1.61
MF - 0.74

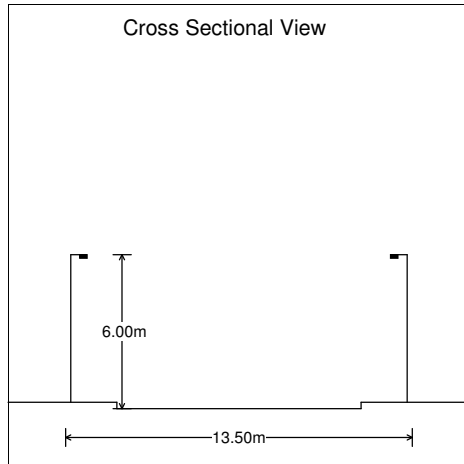
Required Illuminance Levels - Emin 1.18 lux Eav 5.89 - 8.84 lux
Results - Emin 3.35 lux Eav 8.78 lux

Roadway Lighting Report

PREPARED BY: Aptus Utilities
01204 325000

Roadway Report Summary

Layout



Road Data

Calculation Grid	BS5489 2013 Illuminance
Width (m)	13.50
No. of Lanes	2
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Left Footpath(m)	2.00
Right Footpath(m)	2.00

Main Lighting

Column Data

Configuration	Staggered
Spacing (m)	23.50
Height (m)	6.00
Tilt (deg)	0.00
Left Setback (m)	1.80
Left Outreach (m)	0.50
Left Overhang (m)	-1.30
Right Setback (m)	1.80
Right Outreach (m)	0.50
Right Overhang (m)	-1.30

Luminaire Data



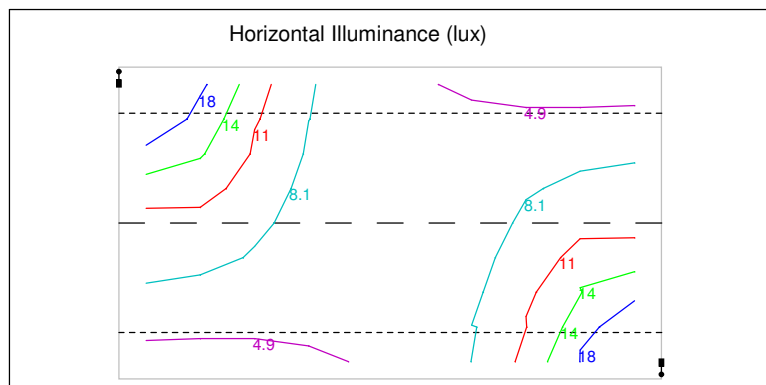
Supplier	PHILIPS WRTL
Type	MiniLuma R6
Lamp(s)	12-30 DS-NW 1 1100-7850 NW LED
LampFlux(klm)/Colour	6.40 NW/70
File Name	MiniLuma R6 DS-NW 1 6400 NW LED.lid
Maintenance Factor	0.74
Lum. Int. Class	G4
Lamp S/P Ratio	1.61

Results

Main

Complies with P3*
With S/P ratio = 1.61

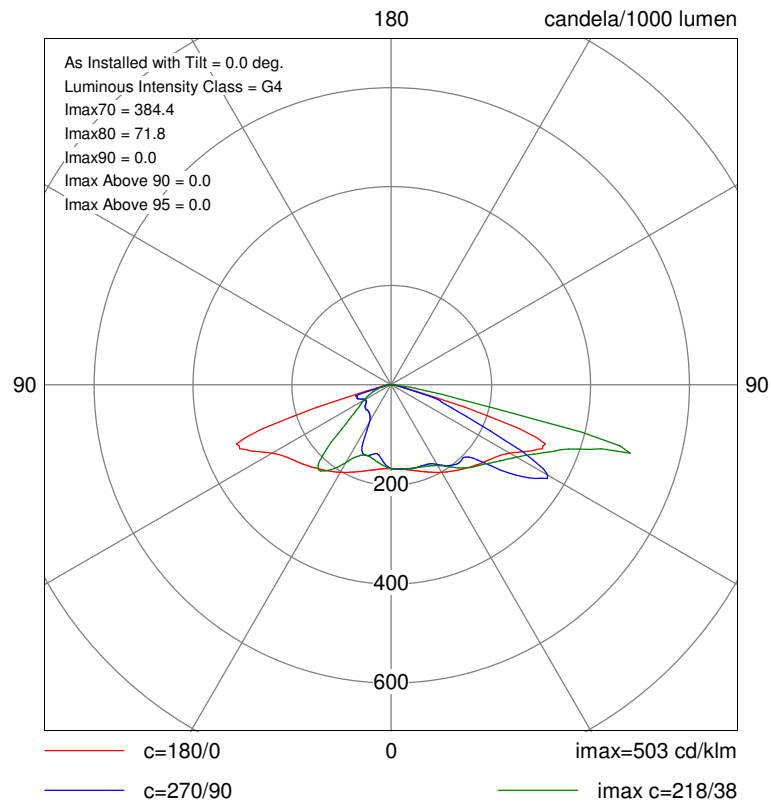
Eav	8.78
Emin	3.35
Emax	22.39
Emin/Emax	0.15
Emin/Eav	0.38



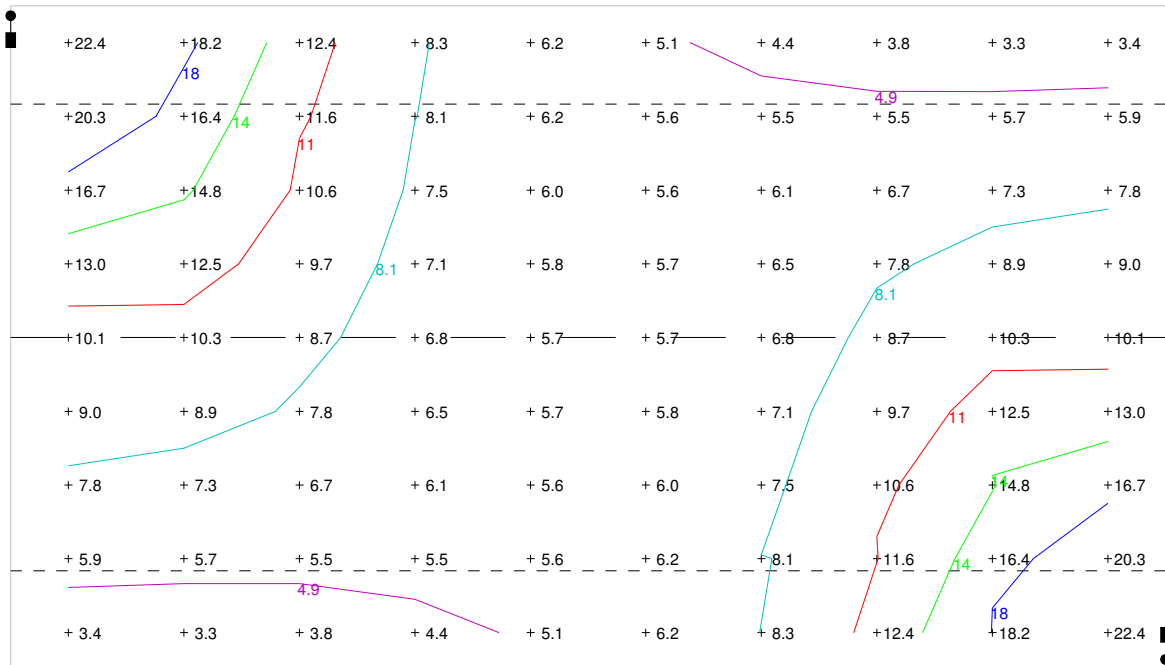
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Polar Diagram

Main Luminaire MiniLuma R6



Horizontal Illuminance (lux)



Main Results

Eav	8.78
Emin	3.35
Emax	22.39
Emin/Emax	0.15
Emin/Eav	0.38

Horizontal Illuminance (lux)

+22.4	+18.2	+12.4	+ 8.3	+ 6.2	+ 5.1	+ 4.4	+ 3.8	+ 3.3	+ 3.4
+20.3	+16.4	+11.6	+ 8.1	+ 6.2	+ 5.6	+ 5.5	+ 5.5	+ 5.7	+ 5.9
+16.7	+14.8	+10.6	+ 7.5	+ 6.0	+ 5.6	+ 6.1	+ 6.7	+ 7.3	+ 7.8
+13.0	+12.5	+ 9.7	+ 7.1	+ 5.8	+ 5.7	+ 6.5	+ 7.8	+ 8.9	+ 9.0
+10.1	+10.3	+ 8.7	+ 6.8	+ 5.7	+ 5.7	+ 6.8	+ 8.7	+10.3	+10.1
+ 9.0	+ 8.9	+ 7.8	+ 6.5	+ 5.7	+ 5.8	+ 7.1	+ 9.7	+12.5	+13.0
+ 7.8	+ 7.3	+ 6.7	+ 6.1	+ 5.6	+ 6.0	+ 7.5	+10.6	+14.8	+16.7
+ 5.9	+ 5.7	+ 5.5	+ 5.5	+ 5.6	+ 6.2	+ 8.1	+11.6	+16.4	+20.3
+ 3.4	+ 3.3	+ 3.8	+ 4.4	+ 5.1	+ 6.2	+ 8.3	+12.4	+18.2	+22.4

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