

Sarah O'Brien
Exbury Homes
Fairview House
2a Osborne View Road
Hill Head
Fareham
PO14 3JN

SSE Enterprise Lighting
1st Floor
Solent Park
Walton Road
Portsmouth
PO6 1UJ
Tel: 02392 276486

24/03/2020

Our Ref: SSE272997

Your Ref: fc2789.28

Dear Sarah O'Brien,

Lighting Design - Land East of Woodcroft Lane, Waterlooville, Hampshire

Thank you for your scheme enquiry for the - Land East of Woodcroft Lane, Waterlooville.

We have under taken a lighting design for the area using Micro Luma lanterns on 6 metre post top columns. Lighting has been designed in accordance with BS5489-01:2013, and a lighting class of P6 was applied.

Following the completed design work if there are changes to the road layouts which require design revisions these may incur further charges.

Yours sincerely,

A black rectangular box redacting the signature of James Duffin.

James Duffin BA (Hons) IEng MILP
Lighting Designer

E-mail: james.duffin@sse.com or lightingdesign@sse.com

Design Commentary Land East of Woodcroft Lane

Drawings

Drawing at 1:500 scale.

General Layout

Small proposed residential development, adjacent to Woodcroft Primary School. The lighting levels on the section 278 at the entrance to the site have also been calculated and have been found to exceed those of S4 (the design class of the road during PFI CIP) as such SSE feel no additional works are required, and due to the proximity of the school to the site that any reduction in lighting in this area is not justified.

Street Lighting Class

The lighting design for the section 38 has been carried out in accordance with the requirements of BS5489-01:2013.

Road Lighting Class P6, with S/P ratio of 1.61

(S/P ratio of 1.61 applies to Philips Luma with 4000K neutral white LEDs).

	Standard lighting levels			S/P ratio lighting levels (1.61)		
	Eav (lux)	Eav Max (lux)	Emin (lux)	Eav (lux)	Eav Max (lux)	Emin (lux)
P6	2.00	3.00	0.40	1.20	1.80	0.40

Other Considerations

Low speed road, residential, E3 environmental zone.

Maintenance factor

Environmental maintenance factor assuming a 48-month clean is 0.94.

Luminaire maintenance is 0.9 (this considers lumen depreciation and LED failures, L90B10).

Giving overall maintenance factors of 0.85.

Column Locations

Columns are to be installed either rear of footpath or rear of verge. Where verges are at least 1 metre wide columns are to be installed rear of verge. Columns have been positioned to reduce light intrusion.

Column Type

Columns to be 6 metre galvanized tubular steel straight shaft (no outreach bracket), Abcite coated, colour 12B21, Mineral Green.

Lantern Type

Philips Luma 5.1S with DALI dimming ballast fitted with Mayflower six pin NEMA socket, post-top mounted, tilt 0 degrees. Lanterns to be finished in 12B21 (mineral green). Optics have been chosen to minimise light intrusion into residential properties.

Every lighting scheme is required to install one Mayflower Complete Lighting Control DALI Sub-master unit to control Nodes and link to Central Management System

DATE: 24 March 2020
DESIGNER: James Duffin
PROJECT No: SSE272997-AC-001-A
PROJECT NAME: Woodcroft Lane, Waterloooville



Woodcroft Lane, Waterloooville
(Section 278 & Section 38)

Lighting Class - P6 Section 38
Lantern - Micro Luma (BGP615)
Colour Temperature - 4000K
SP Ratio - 1.61
Maintenance Factor - 0.85

Lighting Class - P4 (Section 278 Woodcroft Lane Existing)
Lantern - WRTL Libra 55W
Colour Temperature - 4000K
SP Ratio - 1.61
Maintenance Factor - 0.85

(P6 grids (2-4) Eave slightly high due to irregular road geometry)

Outdoor Lighting Report

PREPARED BY: James Duffin BA (Hons) IEng MILP
Lighting Designer
SSE Enterprise Lighting
Solent Park, 1st Floor,
Walton Road,
Portsmouth.
PO6 1UJ

e-mail: james.duffin@sse.com

Layout Report

General Data

Dimensions in Metres Angles in Degrees

Calculation Grids

ID	Grid Name	X	Y	X' Length	Y' Length	X' Spacing	Y' Spacing
1	Grid 1 - Section 278 - S4	367634.00	306152.00	54.00	45.00	1.50	1.50
2	Grid 2 - Section 38 - P6	367573.88	306096.77	105.00	30.00	1.50	1.50
3	Grid 3 - Section 38 - P6	367517.57	306105.84	48.00	30.00	1.50	1.50
4	Grid 4	367486.06	306076.21	63.00	39.00	1.50	1.50
5	Grid 5 - Vertical plots 2,...	367608.63	306131.01	24.71	5.00	1.45	1.25
6	Grid 6 - Vertical plot 13	367602.63	306110.03	9.43	5.00	1.35	1.25
7	Grid 7 - Vertical plots 16...	367564.17	306105.48	14.23	5.00	1.42	1.25
8	Grid 8 - Vertical plots 32...	367529.87	306136.66	9.59	5.00	1.37	1.25
9	Grid 9 - Vertical plots 34...	367509.61	306122.12	9.61	5.00	1.37	1.25
10	Grid 10 - Vertical plots 2...	367506.95	306103.95	16.32	5.00	1.48	1.25
11	Grid 11 - Vertical plots 2...	367493.20	306095.24	17.46	5.00	1.45	1.25
12	Grid 12	367478.97	306113.99	10.11	5.00	1.44	1.25

Luminaire

Luminaire A Data



Supplier	Philips
Type	BGP615 DW50
Lamp(s)	LED-HB 5.1S
Lamp Flux (klm)	1.20
File Name	Luma Micro_BGP615_DW50_1200_6LED_5.1S_CLO_L90_NW.ies
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	616.7, 39.5, 0.0
Lamp S/P Ratio	1.61
No. in Project	3

Luminaire B Data



Supplier	Philips
Type	BGP615 DM10
Lamp(s)	LED-HB 5.1S
Lamp Flux (klm)	1.00
File Name	Luma Micro_BGP615_DM10_1000_6LED_5.1S_CLO_L90_NW.ies
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	540.9, 56.1, 0.0
Lamp S/P Ratio	1.61
No. in Project	5

Luminaire C Data



Supplier	Philips
Type	BGP615 DM10 BL1
Lamp(s)	LED-HB 5.1S
Lamp Flux (klm)	1.00
File Name	Luma Micro_BGP615_DM10 BL1_1000_6LED_5.1S_CLO_L90_NW.ies
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	529.5, 53.6, 0.0
Lamp S/P Ratio	1.61
No. in Project	1

Luminaire F Data

Supplier	South Coast PFI
Type	2570/2571 PNN*
Lamp(s)	1FL-L 55W
Lamp Flux (klm)	4.80
File Name	INR732C
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	184.0, 89.0, 9.0
Lamp S/P Ratio	0.00
No. in Project	4

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	367637.51	306166.22	6.00	287.00	0.00	0.00	0.40			
2	A	367608.96	306148.15	6.00	300.00	0.00	0.00	0.40			
3	B	367601.65	306119.92	6.00	34.00	0.00	0.00	0.40			
4	B	367580.65	306127.27	6.00	297.00	0.00	0.00	0.40			
5	B	367557.50	306117.33	6.00	266.00	0.00	0.00	0.40			
6	A	367529.50	306128.94	6.00	272.00	0.00	0.00	0.40			
7	C	367505.90	306106.23	6.00	126.00	0.00	0.00	0.40			
8	B	367488.36	306082.09	6.00	37.00	0.00	0.00	0.40			
9	B	367471.95	306106.68	6.00	35.00	0.00	0.00	0.40			
10	F	367653.73	306183.17	6.00	219.00	0.00	0.00	0.50			
11	F	367665.15	306163.60	6.00	80.00	0.00	0.00	0.50			
12	F	367681.21	306170.38	6.00	268.00	0.00	0.00	0.50			
13	F	367630.46	306206.78	6.00	225.00	0.00	0.00	0.50			

Horizontal Illuminance (lux)

Grid 1 - Section 278 - S4

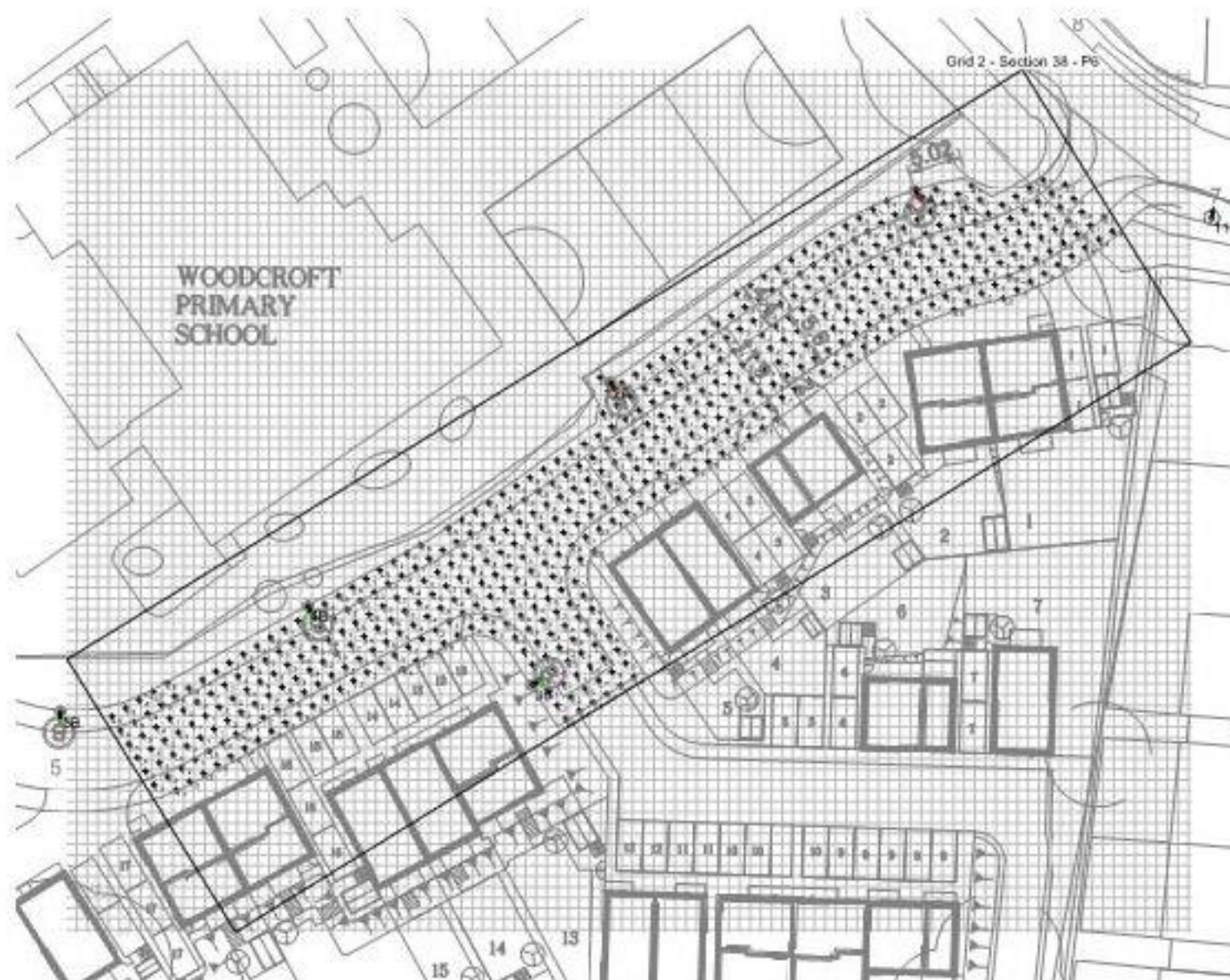


Results

Eav	8.11
Emin	1.28
Emax	20.29
Emin/Emax	0.06
Emin/Eav	0.16

Horizontal Illuminance (lux)

Grid 2 - Section 38 - P6

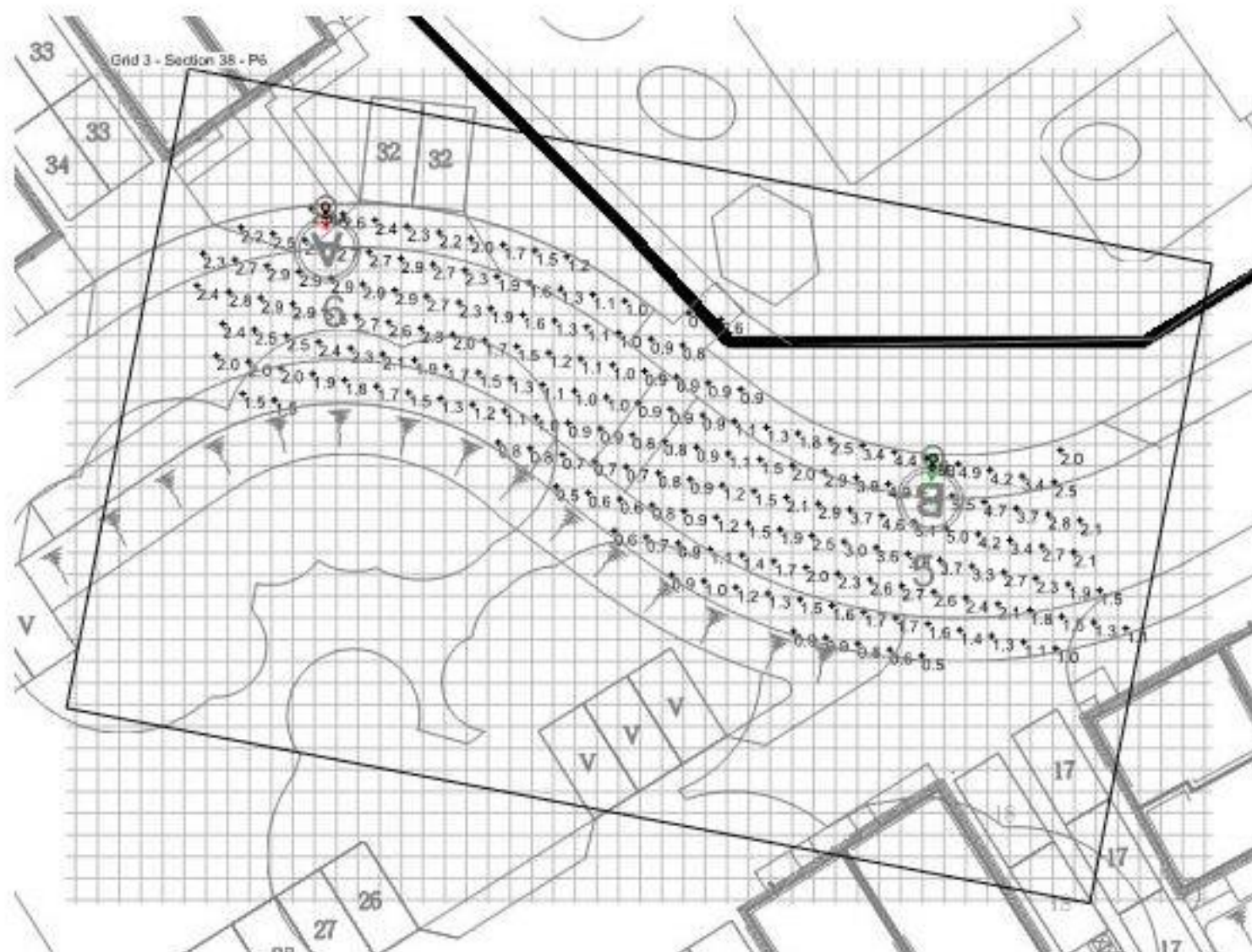


Results

Eav	1.88
Emin	0.49
E _{max}	5.56
E _{min} /E _{max}	0.09
E _{min} /E _{av}	0.26

Horizontal Illuminance (lux)

Grid 3 - Section 38 - P6

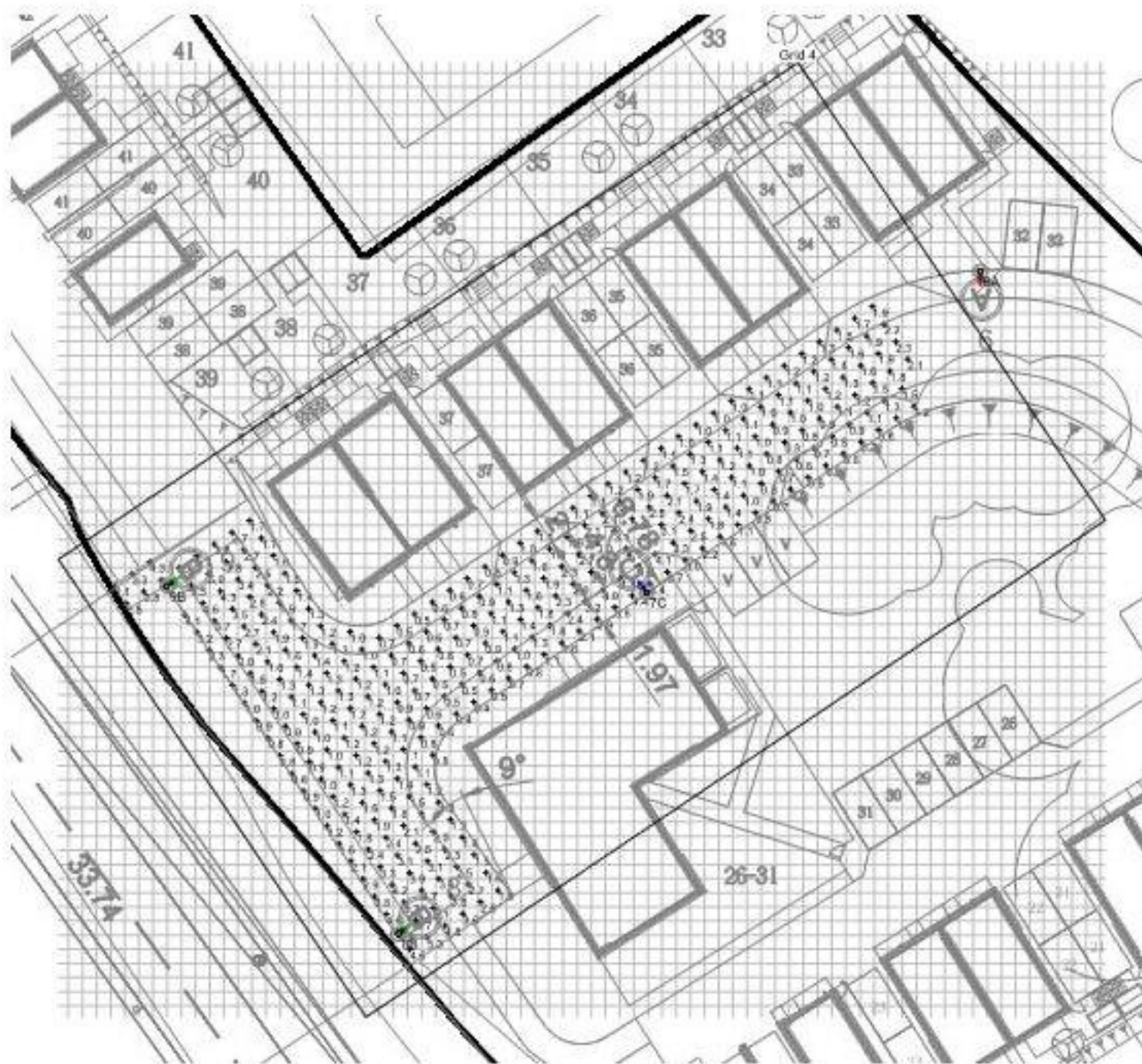


Results

Eav	1.98
Emin	0.54
E _{max}	5.63
E _{min} /E _{max}	0.10
E _{min} /E _{av}	0.27

Horizontal Illuminance (lux)

Grid 4



Results

Eav	1.81
Emin	0.43
E _{max}	5.66
Emin/E _{max}	0.08
Emin/Eav	0.24

Illuminance (lux)

Grid 5 - Vertical plots 2,3,4

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.3

Results

Eav	0.16
Emin	0.02
E _{max}	0.51
Emin/E _{max}	0.03
Emin/Eav	0.10

Illuminance (lux)

Grid 6 - Vertical plot 13

0.0	0.1	0.1	0.2	0.3	0.6	0.8
0.1	0.1	0.2	0.3	0.5	0.8	1.0
0.1	0.2	0.2	0.4	0.5	0.7	0.9
0.2	0.3	0.3	0.4	0.6	0.9	1.1

Results

Eav	0.43
Emin	0.04
E _{max}	1.09
Emin/E _{max}	0.03
Emin/Eav	0.08

Illuminance (lux)

Grid 7 - Vertical plots 16 & 17

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0
0.1	0.1	0.1	0.2	0.7	0.8	0.7	0.6	0.4	0.3
0.2	0.4	0.8	1.2	1.4	1.4	1.2	1.0	0.7	0.6

Results

Eav	0.34
Emin	0.00
E _{max}	1.41
Emin/E _{max}	0.00
Emin/Eav	0.01

Illuminance (lux)

Grid 8 - Vertical plots 32 & 33

0.1	0.2	0.3	0.4	0.3	0.3	0.2
0.3	0.4	0.6	0.8	0.9	0.8	1.0
0.4	0.5	0.7	0.9	0.9	0.9	1.3
0.4	0.5	0.7	0.8	0.8	0.8	1.2

Results

Eav	0.63
Emin	0.11
E _{max}	1.30
Emin/E _{max}	0.09
Emin/Eav	0.18

Illuminance (lux)

Grid 9 - Vertical plots 34 & 35

0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.1	0.1	0.3
0.1	0.1	0.2	0.3	0.6	1.0	1.5
0.4	0.5	0.7	0.8	1.0	1.1	1.3

Results

Eav	0.36
Emin	0.00
E _{max}	1.46
Emin/E _{max}	0.00
Emin/Eav	0.01

Illuminance (lux)

Grid 10 - Vertical plots 26-31

0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1
0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2

Results

Eav	0.10
Emin	0.00
E _{max}	0.35
Emin/E _{max}	0.00
Emin/Eav	0.01

Illuminance (lux)

Grid 11 - Vertical plots 26-31

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3

Results

Eav	0.09
Emin	0.01
E _{max}	0.27
Emin/E _{max}	0.02
Emin/Eav	0.07

Illuminance (lux)

Grid 12

0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	0.1	0.1	0.1	0.1	0.1	0.0
0.2	0.2	0.2	0.1	0.1	0.1	0.1
0.3	0.3	0.3	0.3	0.3	0.3	0.4

Results

Eav	0.14
Emin	0.01
E _{max}	0.36
E _{min} /E _{max}	0.03
E _{min} /E _{av}	0.08

SSE Enterprise Contracting

Purpose Key		Media Key
1 = For Information	5 = For Construction	E = Electronic
2 = For Comment	6 = As Built	D = Disk
3 = For Costing	7 =	P = Paper
4 = For Approval	8 =	

	<u>Lighting Design Hazard Elimination and Management List.</u>		Applies to: All Consultants and Contractors.
	SSE Enterprise Lighting Designs will be carried out with all due reasonable skill, care and diligence in accordance with BS5489-1 2013. SSE Designers have in accordance with the Construction Design and Management Regulations 2015 (CDM2015), identified site-specific hazards/risks, and reasonably endeavoured to eliminate or reduce these for construction, maintenance, and decommissioning of the Lighting Design, as far as reasonably practicable. This document should be used in conjunction with: addendum sheets as indicated and any consultants' and contractors' own Hazard Elimination and Management List. The construction works should be carried out by competent persons, in accordance to HSG47 Avoiding danger from underground services, G39 Working in the vicinity of DNO equipment, New Roads and Street Works Act 1991, Traffic Signs Manual Chapter 8, with consultants' and contractors' own relevant method statements, procedures and policies.		Document number: FO-CG-LS-048
Prepared by: S Bushell, SSE Lighting Design, Portsmouth.	Uncontrolled if printed.	Document Owner: S Bushell.	Rev: 4.00
Approved by: Steve Reed	Approval Date: 24/07/2019	Issue Date: 31/07/2019	Review Date: 31/07/2021

Client	Exbury Homes						Document Ref.	SSE272997-HE-001-A						
Project Name	Land East of Woodcroft Lane, Waterloo, Hampshire						Assessed by	James Duffin			Date	24/03/2020		
Hazards/Risk, Identified. (Safety, Health & Environmental).	At Risk.			Assessment of risk before Design.			Actions taken at the Design Stage, to identify site-specific Hazards/Risks, eliminate or reduce these Hazards/Risks for Construction, Maintenance, and Decommissioning of the Units, as far as reasonably practicable.			Assessment of risk after design.			Addendum sheet required?	
	SSE / Sub C	Users	Environment.	L	S	RR				L	S	RR	NO	YES (See addendum sheet).
Underground Low Voltage Electricity Cables (LV) in the vicinity.	✓			3	10	H	New units have been designed close to LV cables, for power supply in order to minimise excavation and associated risks.			2	10	H		(See LV network maps).
Manual Handling.	✓			3	5	H	New units have been located to eliminate the need of manual handling as far as reasonably practicable.			1	5	M	✓	
Trees in the vicinity.		✓		1	2	L	Wherever reasonably practicable new Units have been designed away from trees. Where the tree growth does/could impact/encroach on this scheme, pruning requirements have been indicated.			1	1	L	✓	
Visual impact / light pollution /intrusion.		✓	✓	1	2	L	Wherever reasonably practicable new units have been designed to be in keeping with the road characteristics, reduce light pollution and light intrusion. Columns positioned to minimise light intrusion in line with ILP GN01:2020, for and E2 zone (lower than the E3 zone the design is situated in).			1	1	L	✓	
Passive Safety Equipment.		✓		3	10	H	The Principal Designer is yet to determine the need for the protection of roadside features or passive street furniture (determination to be in accordance with good practice such as the UKRLG 'Provision of Road Restraint Systems on Local Authority Roads', TD19, the Overseeing Organisation's policy & practice, etc). Standard equipment has been specified at this stage, subject to review by the Principal Designer.			3	10	H	✓	

Client	Exbury Homes					Document Ref.	SSE272997-HE-001-A							
Project Name	Land East of Woodcroft Lane, Waterlooville, Hampshire					Assessed by	James Duffin		Date	24/03/2020				
Hazards/Risk, Identified. (Safety, Health & Environmental).	At Risk.			Assessment of risk before Design.		Actions taken at the Design Stage, to identify site-specific Hazards/Risks, eliminate or reduce these Hazards/Risks for Construction, Maintenance, and Decommissioning of the Units, as far as reasonably practicable.			Assessment of risk after design.		Addendum sheet required?			
	SSE / Sub C	Users	Environment	L	S	RR				L	S	RR	NO	YES (See addendum sheet).
Environmental Impact Assessment	✓		✓	3	5	H	The designer has not been notified by the principal designer or client about site-specific Environmental Impact Assessments, mitigations or other designations of nature conservation (including but not limited to SSSI, SAC, SPA).			3	5	H		
Schools & Emergency Services Buildings in the vicinity.	✓	✓		1	10	M	The presence of schools and emergency services buildings have been indicated on this scheme's drawing.			1	10	M	✓	
Telecommunication Poles and Cables in the vicinity.	✓			1	2	L	New units have been designed away from telecommunications poles and cables.			1	1	L	✓	
Legend - Major Site specific, Safety, Health and Environmental Hazards – Will any of the following hazards affect SSE staff, client's staff, general public or affect the environment? Use "Risk Rating"(RR) matrix to assess each hazard and indicate level of risk i.e.; L = 1- 4, M = 5 – 10, H = 15 - 30 or VH = 50, in space next to each hazard.						Risk Rating (RR) Matrix - Indicate L, M, H, or VH in box. L = Likelihood, Multiply by S = Severity, for Risk Rating (RR). 1 Unlikely to be affected. 1 Minor First Aid Injury Only. 2 May be affected. 2 Hospital Treatment & Off Work. 3 Occasionally affected. 5 Some Disability - Long absence. 5 Likely to be affected. 10 Permanent Disability/Death.								
Declaration: I the undersigned have read and understood the hazards / risks identified in this Lighting Design Hazard Elimination and Management List.														
Construction Manager (sign):				(Print):		Date:		/ /						

Proposed Unit Number	Proposed Setback
1	Rear of path
2	Rear of path
3	Rear of path
4	Rear of path
5	Rear of path
6	Rear of path
7	Rear of path
8	Rear of verge
9	Rear of verge

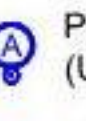
Symbol	Count	Mounting Height	Column Material	Column Type	Column Colour	Installation Type	Root Length	Lantern	Mounting	Lantern Tilt	Lantern Colour	Optic Setting	Output	Number of LEDs	Colour Temperature	Wattage	Lantern Weight	Windage	Control Unit	Switching Unit	Isolator	Electricity Supply	Luminaire Elexon Code	Switching Elexon Code
	3	6 metres	Galvanised Steel	Stepped tubular (South Coast PFI Spec)	BS4800 12B21 Mineral Green	Planted	1000mm Factory Standard	Micro Luma (BGP615) [5.1S]	Post Top	0 degrees	BS4800 12B21 Mineral Green	DW50	1.2klm	6 LEDs	4000K (Neutral White)	8W	7.6kg	0.049m²	Electronic DALI Enabled	Mayflower External GPS Node	DNO Isolator	DNO	42 0007 0000 100	98 0001 0010 100
	5	6 metres	Galvanised Steel	Stepped tubular (South Coast PFI Spec)	BS4800 12B21 Mineral Green	Planted	1000mm Factory Standard	Micro Luma (BGP615) [5.1S]	Post Top	0 degrees	BS4800 12B21 Mineral Green	DM10	1.0klm	6 LEDs	4000K (Neutral White)	7W	7.6kg	0.049m²	Electronic DALI Enabled	Mayflower External GPS Node	DNO Isolator	DNO	42 0008 0000 100	98 0001 0010 100
	1	6 metres	Galvanised Steel	Stepped tubular (South Coast PFI Spec)	BS4800 12B21 Mineral Green	Planted	1000mm Factory Standard	Micro Luma (BGP615) [5.1S]	Post Top	0 degrees	BS4800 12B21 Mineral Green	DM10 BL1	1.0klm	6 LEDs	4000K (Neutral White)	7W	7.6kg	0.049m²	Electronic DALI Enabled	Mayflower External GPS Node	DNO Isolator	DNO	42 0008 0000 100	98 0001 0010 100

- Notes
- Do not scale from drawing if not printed at original paper size.
 - All street lighting equipment and works to be carried out in accordance with current Hampshire County Council specification TG13 and standard detail drawings HCC10/L & HCC10/C series.
 - Contractor to confirm position of statutory undertakers plant before commencement of the works. For statutory undertaker's information visit www.linesearchbeforeudig.co.uk
 - During works all traffic management to be in accordance with Chapter 8 of the Traffic Signs Manual.
 - Lighting columns to be fed by DNO supply unless otherwise shown.
 - Each luminaire to be fitted with Mayflower Complete Lighting control S6000 socket (NEMA).
 - Maintenance numbers as shown on the drawing are to be confirmed by HCC.
 - Columns to be numbered using adhesive labels suitable for exterior use. Letters and numerals shall be 50mm high black on a white background.
 - One mayflower complete lighting control DALI sub-master unit to be installed to control nodes and link central management system.
 - All apparatus are to be new at the time of installation and be supported by relevant manufacturer's guarantees.
 - All apparatus shall be sited so as to minimise, in so far as is reasonable and practical, nuisance, danger and obstruction to all residents, businesses and users of the highway.
 - All illuminated apparatus must be installed and tested in compliance with BS7671 at the time of adoption.
 - All installations must be installed in such a way that trees or any other foliage on the site does not interfere with the level of lighting. Refer to HCC's drawing HCC10/L/170 'Areas to be kept clear of trees and shrubs'.
 - This detailed design has been prepared in accordance with the HEA-HEMSA guidance note - CDM2015 regulations, issue 1.1, dated 09/04/15 Procedure 4: information has been supplied by the client or another designer or the principal designer and includes a site visit by the lighting scheme designer which forms the basis of this lighting scheme design and includes the hazards identified by others on their hazard elimination and management list.
 - Eastings and Northings for column locations not provided as mapping data is not set to OS coordinates for the site.

Lighting Clases - BS5489-1:2013	
Woodcroft Lane (S278)	P4 (S/P RATIO 1.61)
New Road (S38)	P6 (S/P RATIO 1.61)

SAFETY HEALTH AND ENVIRONMENTAL (SHE) INFORMATION

Please refer to: Hazard Elimination List
Document Ref:SSE272997-HE-001-A

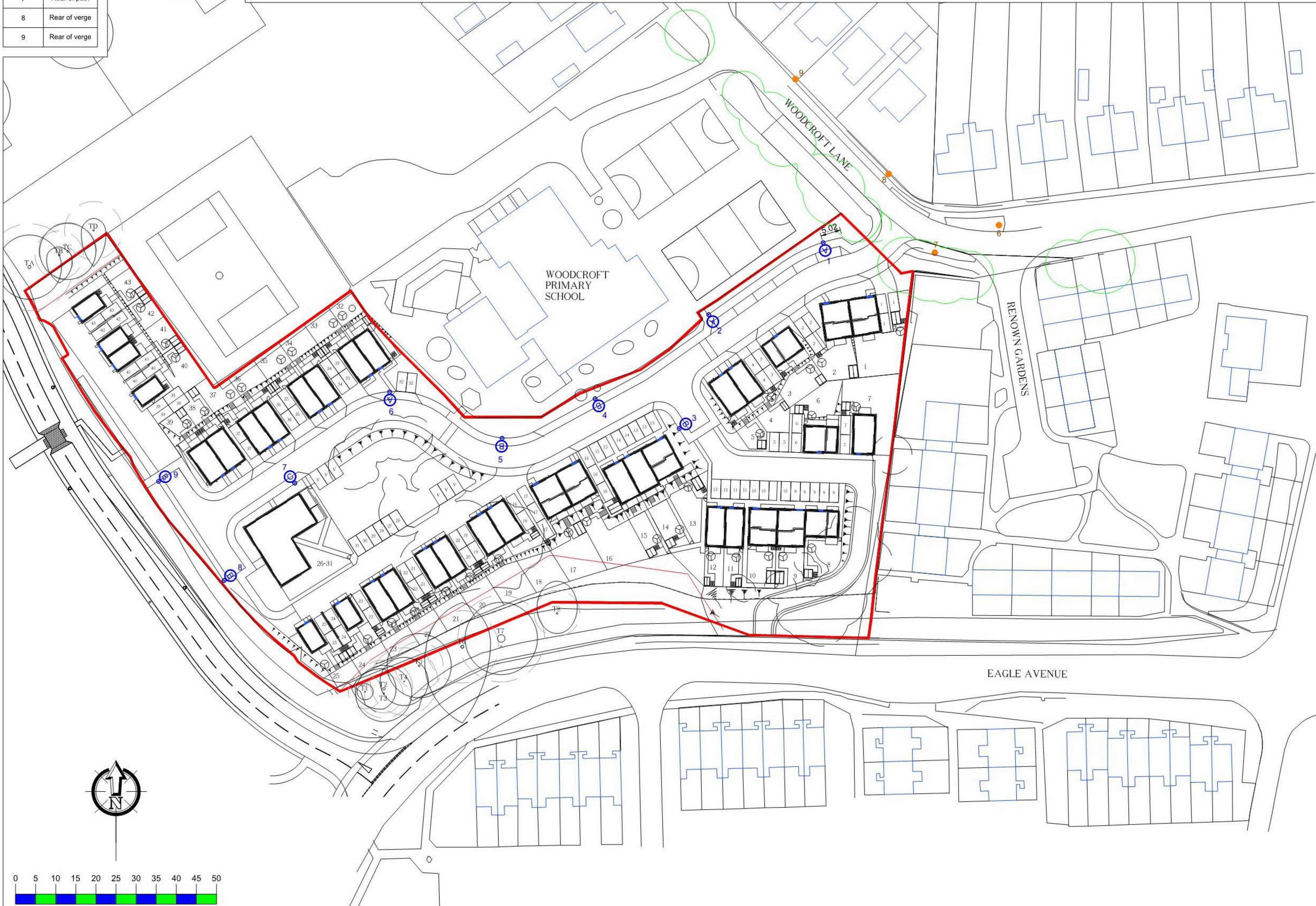
- 1 Existing column number
1 Proposed column number
 Proposed street lighting column (Unit Type ID displayed inside symbol)
 Existing column to remain (Shown for information only)

A	Original Issue	24/03/20	JLD
REV	DESCRIPTION	DATE	BY



SSE Enterprise - Lighting, 1st Floor, Solent Park, Walton Road, Portsmouth, PO6 1UJ

TITLE	
Section 278 & 38 Lighting Layout	
PROJECT Land East of Woodcroft Lane, Waterlooville Exbury Homes	
SCALE	DATE 24/03/20
1:500	DRAWN JLD
	CHECKED RHJ
PAPER SIZE A1	APPROVED SAB
DRAWING NUMBER	REVISION
SSE272997-LD-001	A



DATE: 14 March 2020
DESIGNER: James Duffin
PROJECT No: SSE272997-RC-001-A
PROJECT NAME: Woodcroft Lane, Waterlooville



Woodcroft Lane, Waterlooville
Section 38

Lighting Class - P6
Lantern - Micro Luma (BGP615)

Colour Temperature - 4000K
SP Ratio - 1.61
Maintenance Factor - 0.85

Roadway Lighting Report

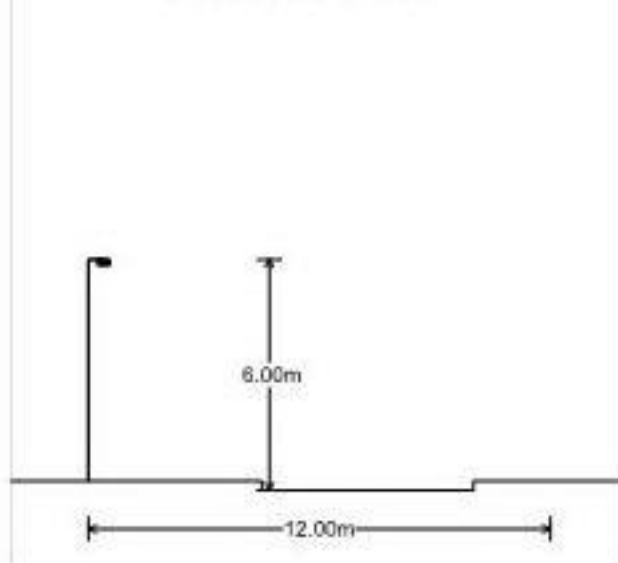
PREPARED BY: James Duffin BA (Hons) IEng MILP
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Walton Road,
Portsmouth.
PO6 1UJ

e-mail: james.duffin@sse.com

Roadway Report Summary

Layout

Cross Sectional View



Road Data

Calculation Grid	BS5489 2013 Illuminance
Width (m)	12.00
No. of Lanes	2
Road Surface	C2
Q0	0.07
Left Footpath(m)	4.50
Right Footpath(m)	2.00

Main Lighting

Column Data

Configuration	Single Sided Left
Spacing (m)	36.00
Height (m)	6.00
Tilt (deg)	0.00
Setback (m)	4.50
Outreach (m)	0.40
Overhang (m)	-4.10

Luminaire Data

Supplier	Philips
Type	BGP615 DW50
Lamp(s)	LED-HB 5.1S
Lamp Flux (klm)	1.20
File Name	Luma Micro_BGP615_DW50_1200_6LED_5.1S_CLO_L90_NW.ies
Maintenance Factor	0.65
Lum. Int. Class	G3
Lamp S/P Ratio	1.61

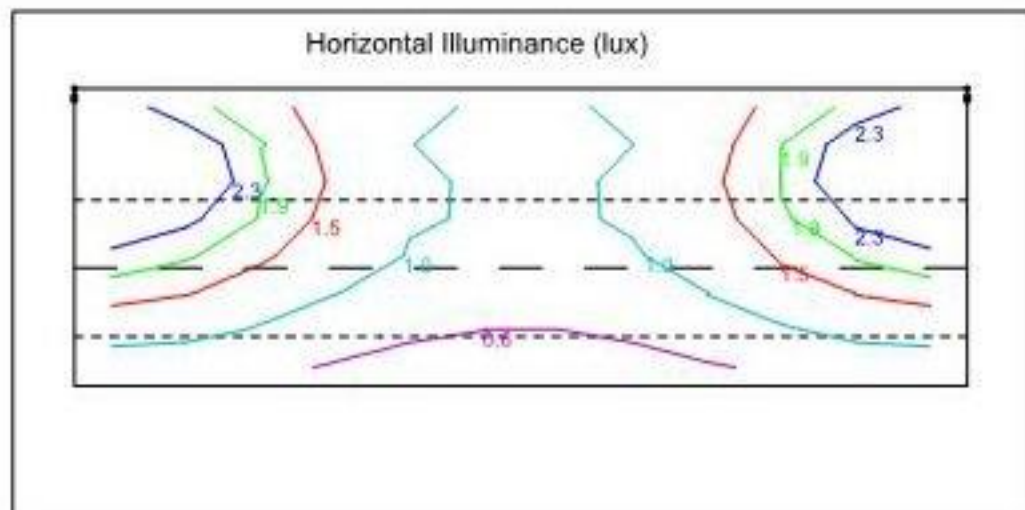


Results

Main

Complies with P6*
With S/P ratio = 1.61

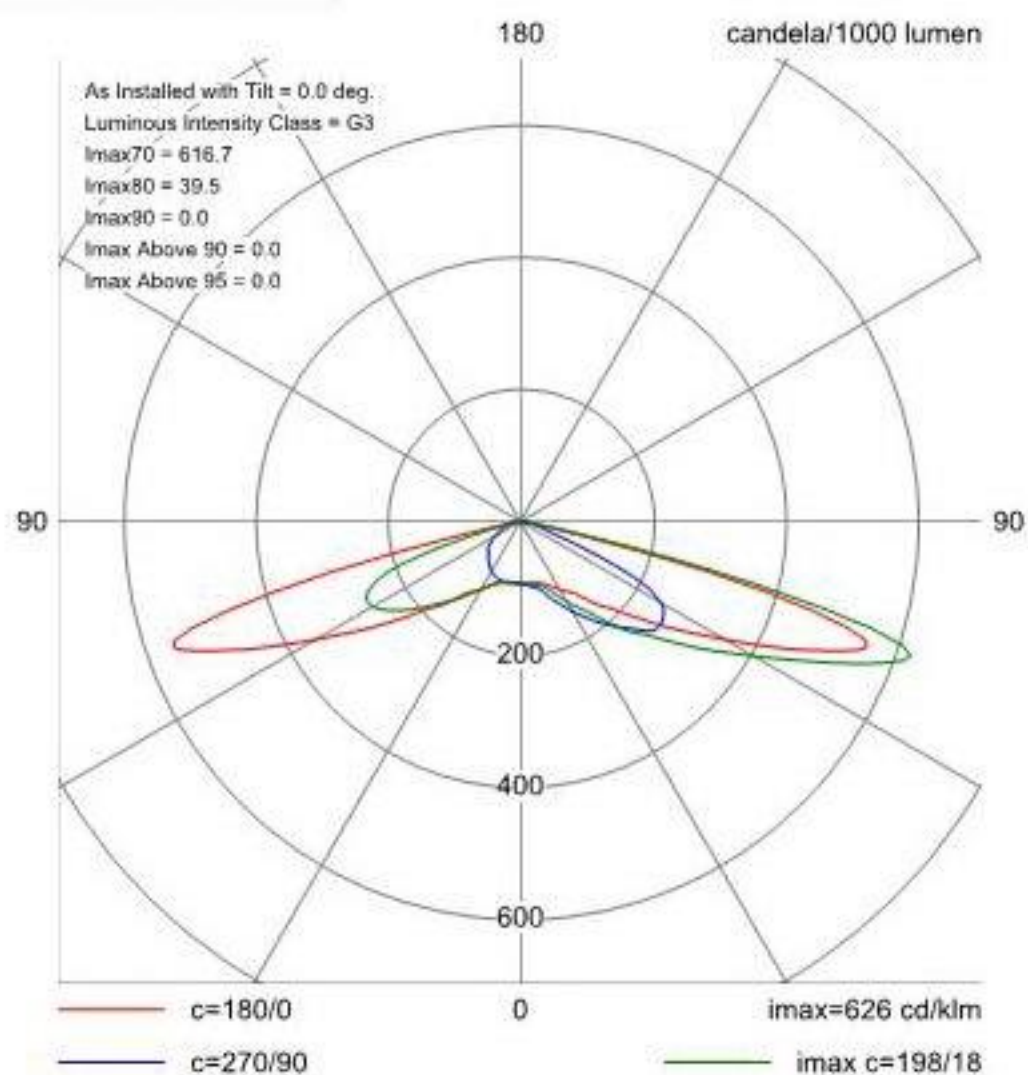
Eav	1.38
Emin	0.40
E _{max}	2.93
E _{min} /E _{max}	0.14
E _{min} /E _{av}	0.29



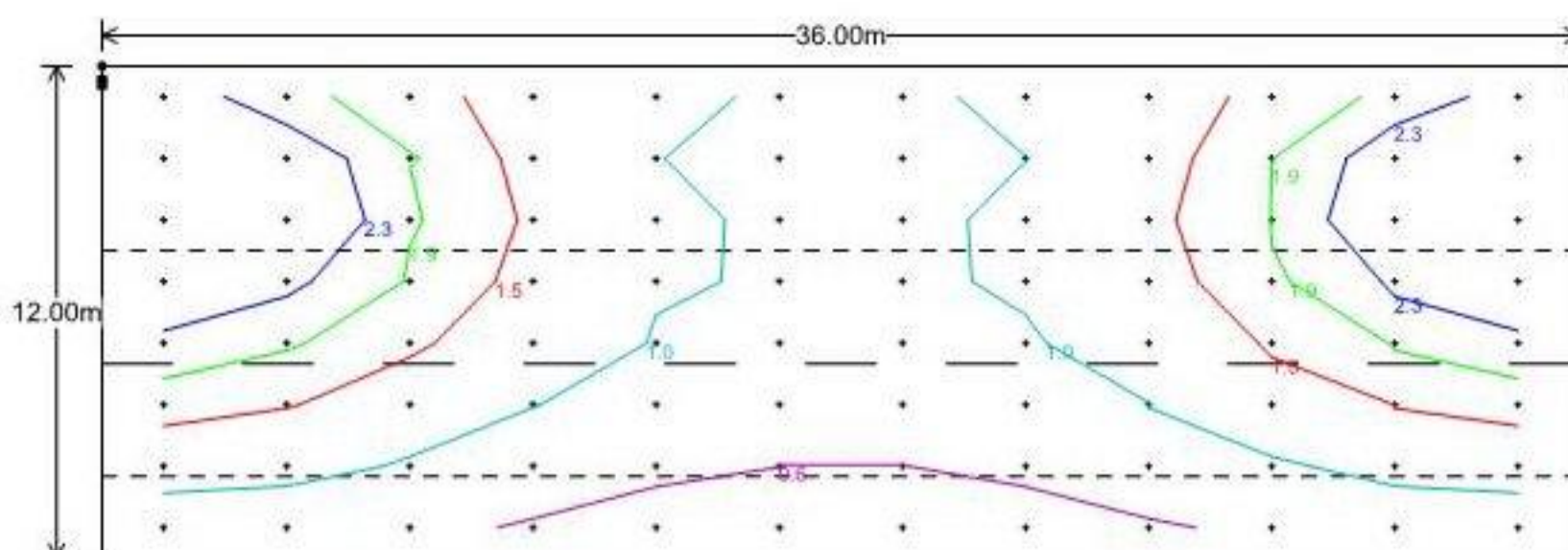
*The lighting class has been modified using the lamp S/P ratio in accordance with PLG03 With Eav from 1.20 to 1.80 and Emin 0.40

Polar Diagram

Main Luminaire BGP615 DW50



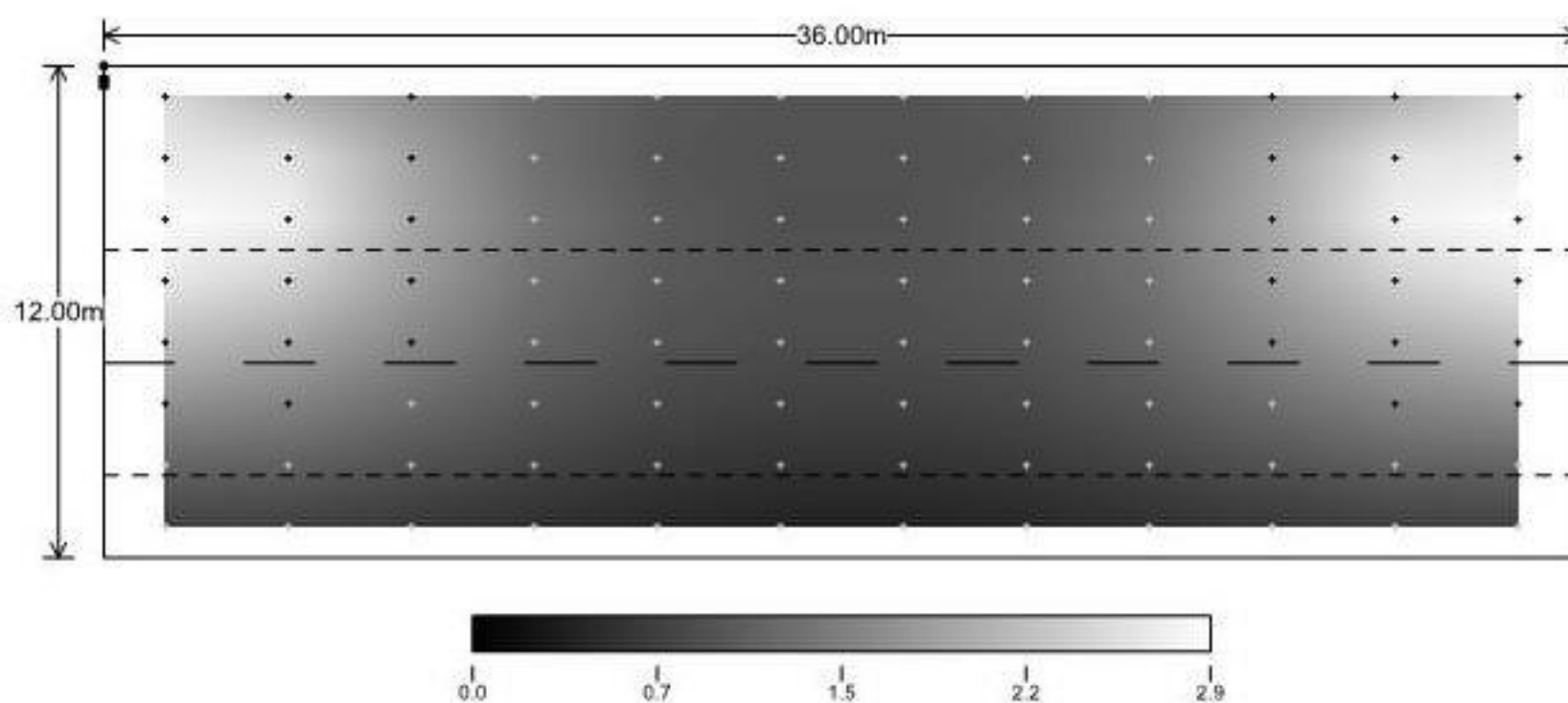
Horizontal Illuminance (lux)



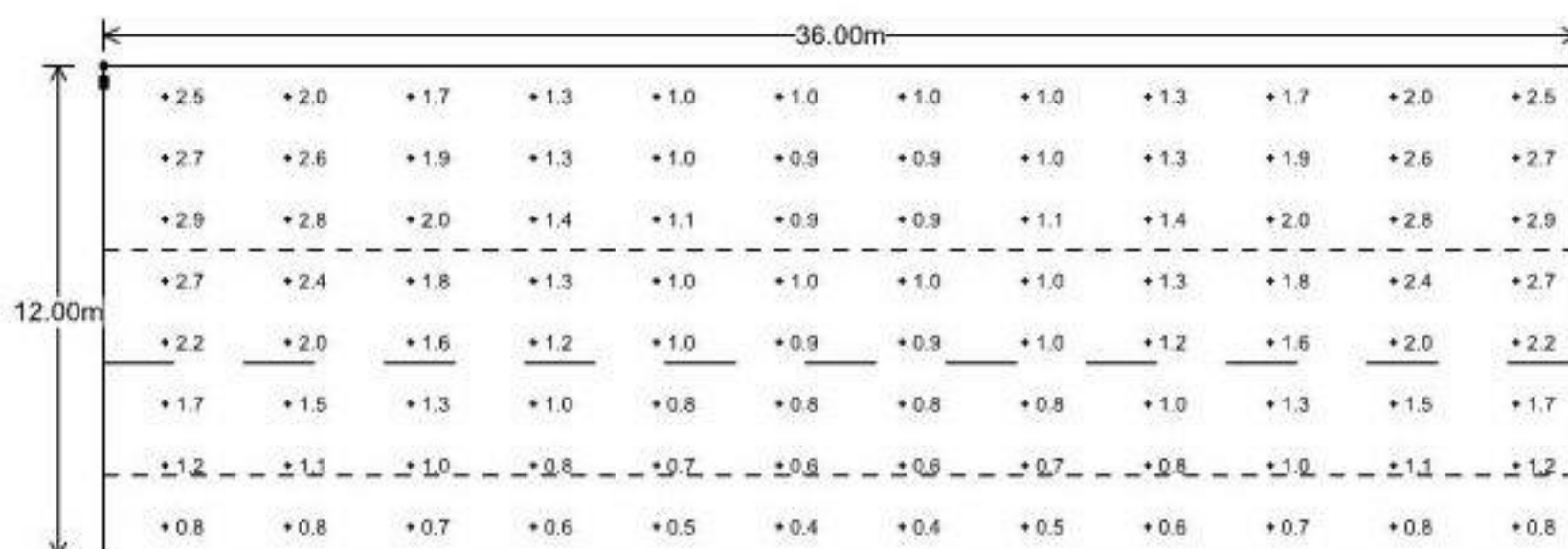
Main Results

Eav	1.38
Emin	0.40
E _{max}	2.93
E _{min} /E _{max}	0.14
E _{min} /E _{av}	0.29

Horizontal Illuminance (lux)



Horizontal Illuminance (lux)



DATE: 14 March 2020
DESIGNER: James Duffin
PROJECT No: SSE272997-RC-002-A
PROJECT NAME: Woodcroft Lane, Waterlooville



Woodcroft Lane, Waterlooville
Section 38

Lighting Class - P6
Lantern - Micro Luma (BGP615)

Colour Temperature - 4000K
SP Ratio - 1.61
Maintenance Factor - 0.85

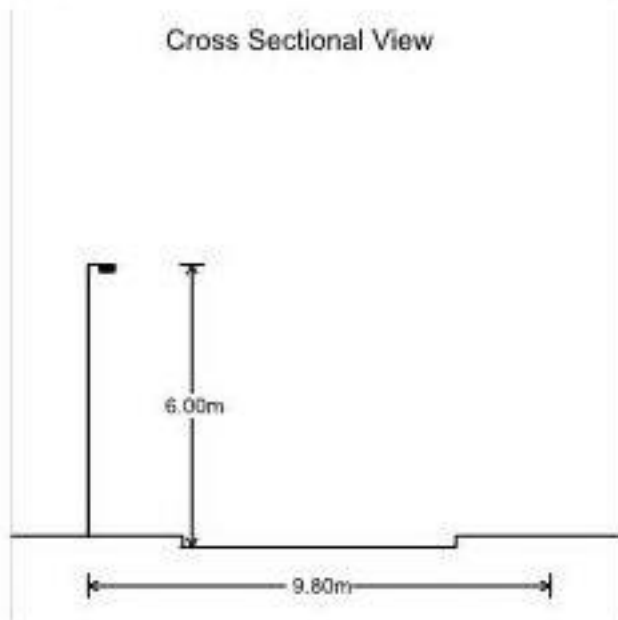
Roadway Lighting Report

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Roadway Report Summary

Layout



Road Data

Calculation Grid	BS5489 2013 Illuminance
Width (m)	9.80
No. of Lanes	2
Road Surface	C2
Q0	0.07
Left Footpath(m)	2.00
Right Footpath(m)	2.00

Main Lighting

Column Data

Configuration	Single Sided Left
Spacing (m)	37.00
Height (m)	6.00
Tilt (deg)	0.00
Setback (m)	2.00
Outreach (m)	0.40
Overhang (m)	-1.60

Luminaire Data

Supplier	Philips
Type	BGP615 DM10
Lamp(s)	LED-HB 5.1S
Lamp Flux (klm)	1.00
File Name	Luma Micro_BGP615_DM10_1000_6LED_5.1S_CLO_L80_NW.ies
Maintenance Factor	0.65
Lum. Int. Class	G3
Lamp S/P Ratio	1.61

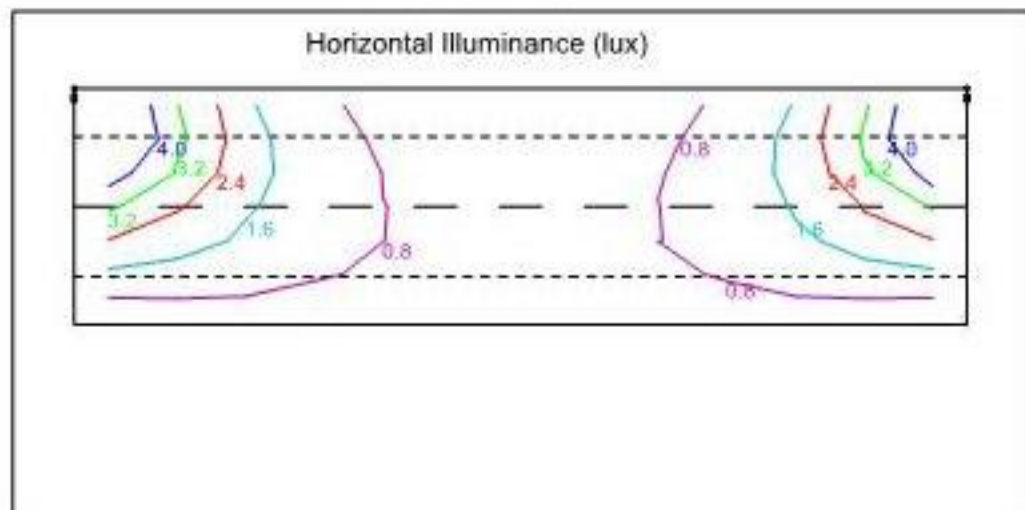


Results

Main

Complies with P6*
With S/P ratio = 1.61

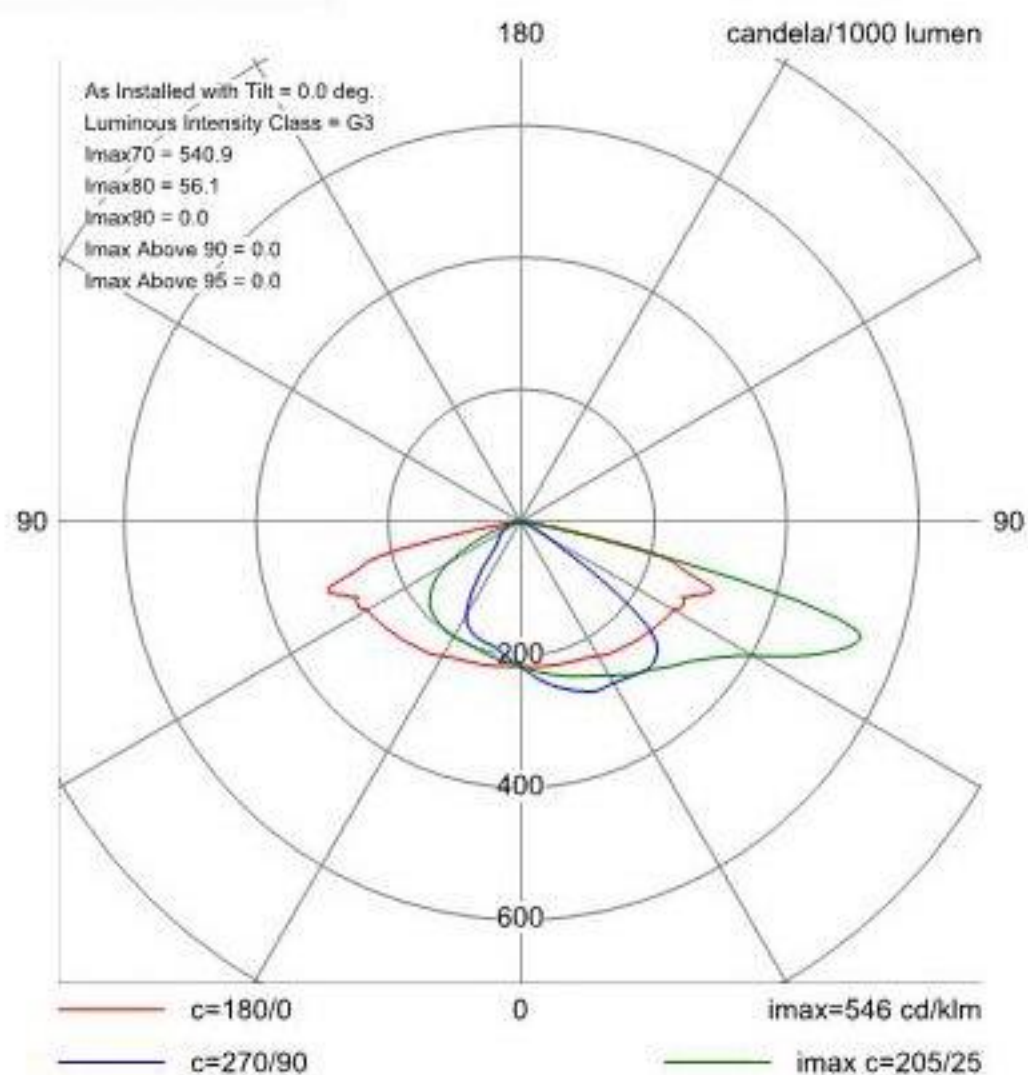
Eav	1.45
Emin	0.41
E _{max}	5.19
E _{min} /E _{max}	0.08
E _{min} /E _{av}	0.28



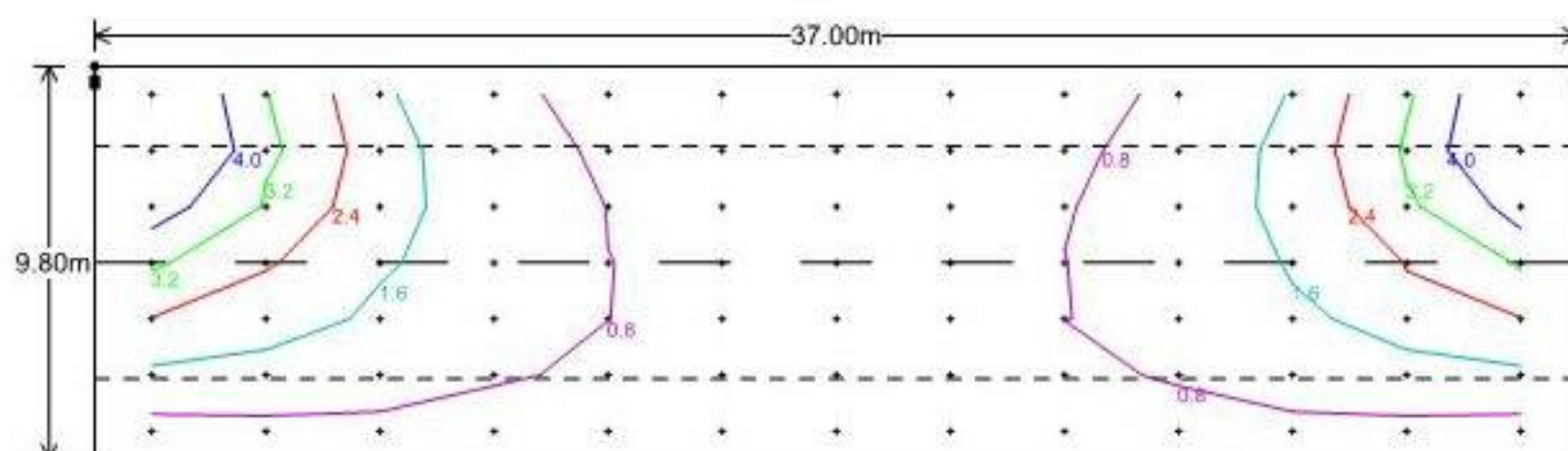
*The lighting class has been modified using the lamp S/P ratio in accordance with PLG03 With Eav from 1.20 to 1.80 and Emin 0.40

Polar Diagram

Main Luminaire BGP615 DM10



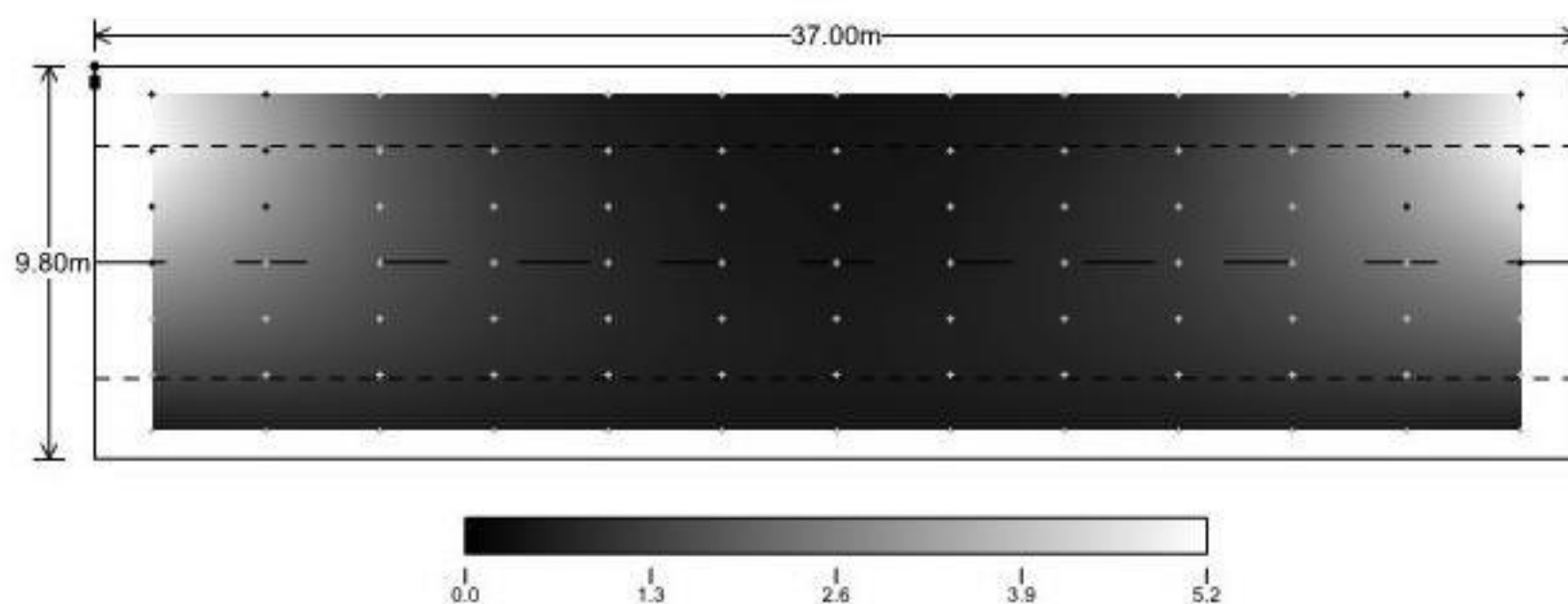
Horizontal Illuminance (lux)



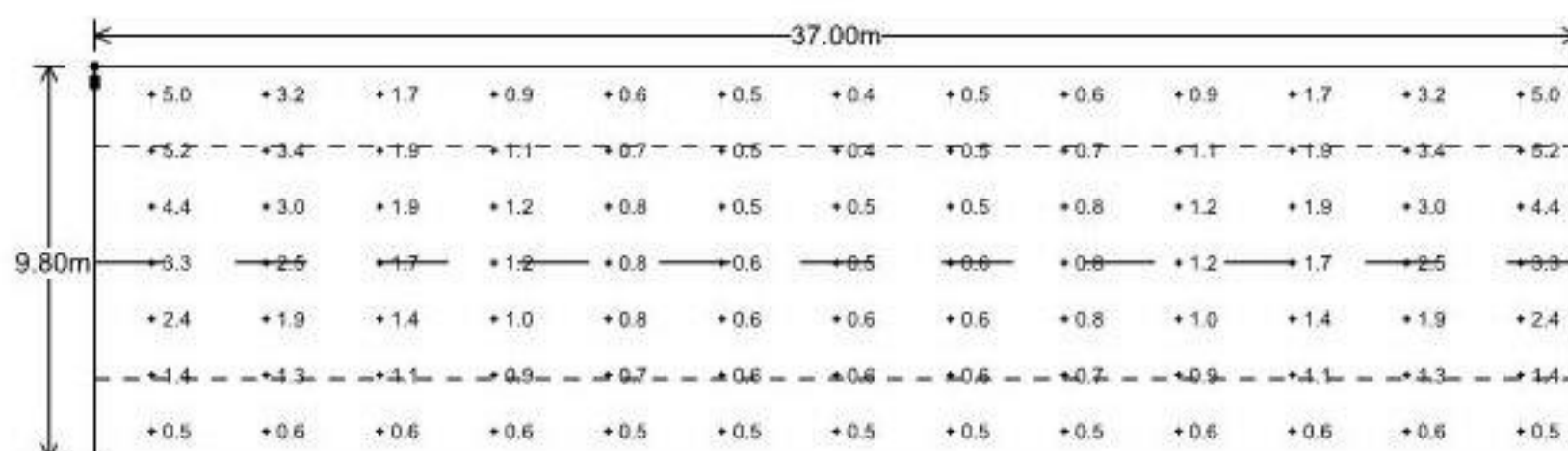
Main Results

Eav	1.45
Emin	0.41
E _{max}	5.19
E _{min} /E _{max}	0.08
E _{min} /E _{av}	0.28

Horizontal Illuminance (lux)



Horizontal Illuminance (lux)



DATE: 14 March 2020
DESIGNER: James Duffin
PROJECT No: SSE272997-RC-002-A
PROJECT NAME: Woodcroft Lane, Waterlooville



Woodcroft Lane, Waterlooville
Section 38

Lighting Class - P6
Lantern - Micro Luma (BGP615)

Colour Temperature - 4000K
SP Ratio - 1.61
Maintenance Factor - 0.85

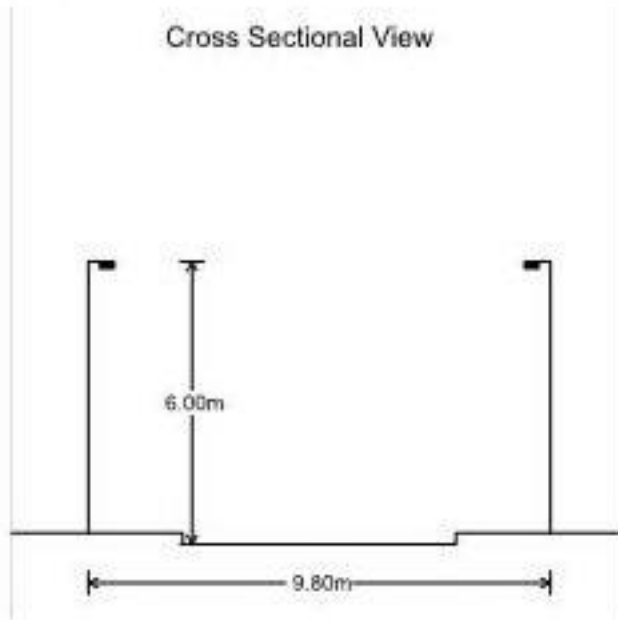
Roadway Lighting Report

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Roadway Report Summary

Layout



Road Data

Calculation Grid	BS5489 2013 Illuminance
Width (m)	9.80
No. of Lanes	2
Road Surface	C2
Q0	0.07
Left Footpath(m)	2.00
Right Footpath(m)	2.00

Main Lighting

Column Data

Configuration	Staggered
Spacing (m)	38.00
Height (m)	6.00
Tilt (deg)	0.00
Left Setback (m)	2.00
Left Outreach (m)	0.40
Left Overhang (m)	-1.60
Right Setback (m)	2.00
Right Outreach (m)	0.40
Right Overhang (m)	-1.60

Luminaire Data

Supplier	Philips
Type	BGP615 DM10
Lamp(s)	LED-HB 5.1S
Lamp Flux (klm)	1.00
File Name	Luma Micro_BGP615_DM10_1000_6LED_5.1S_CLO_L80_NW.ies
Maintenance Factor	0.85
Lum. Int. Class	G3
Lamp S/P Ratio	1.61

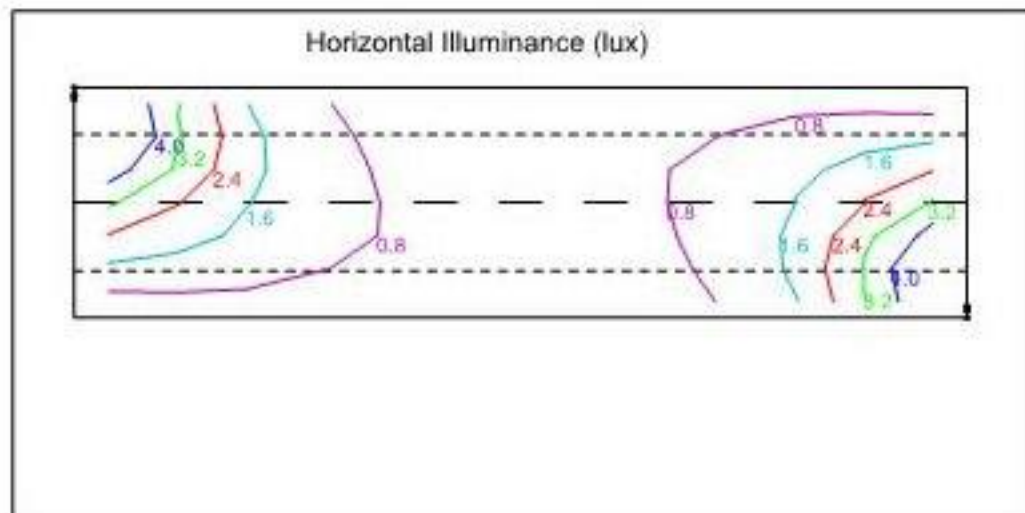


Results

Main

Complies with P6*
With S/P ratio = 1.61

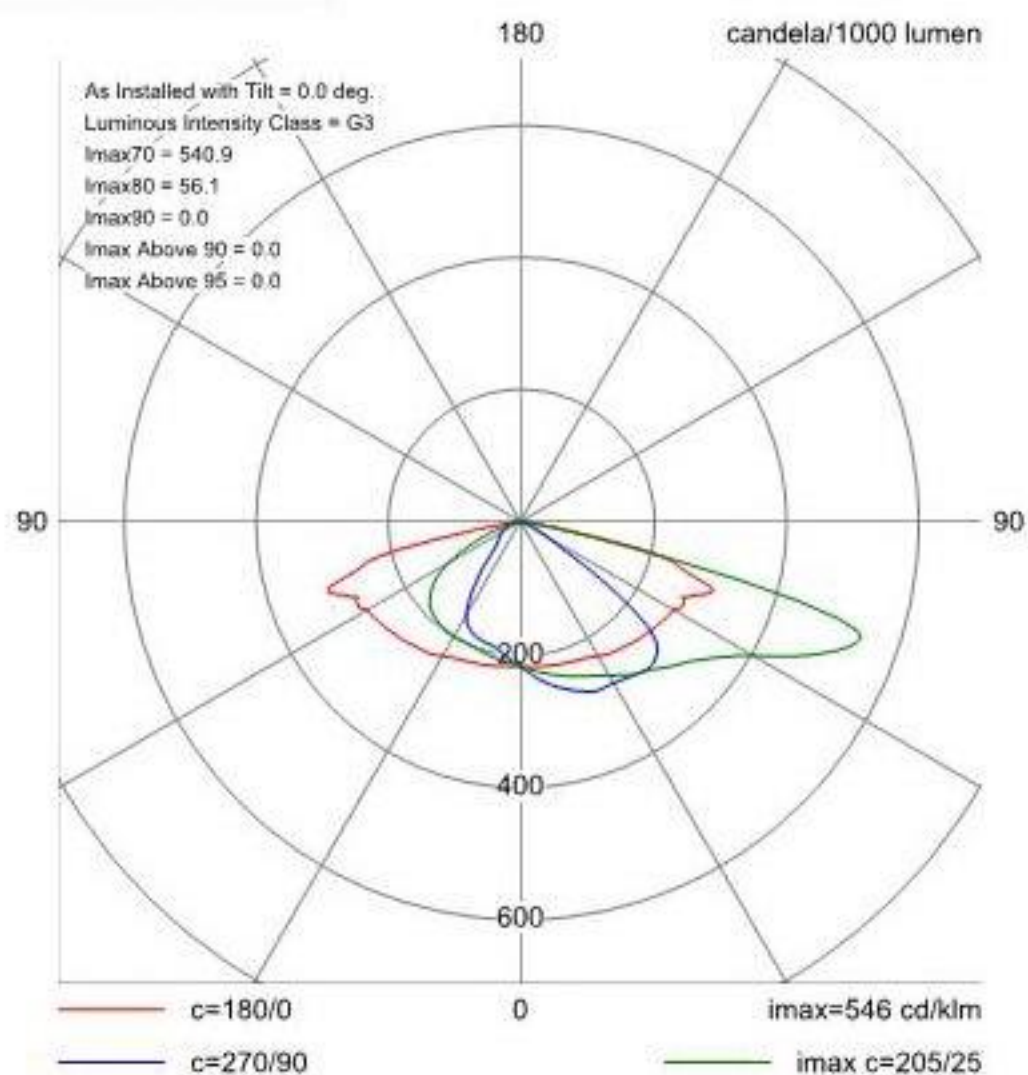
Eav	1.41
Emin	0.40
E _{max}	5.17
E _{min} /E _{max}	0.08
E _{min} /E _{av}	0.29



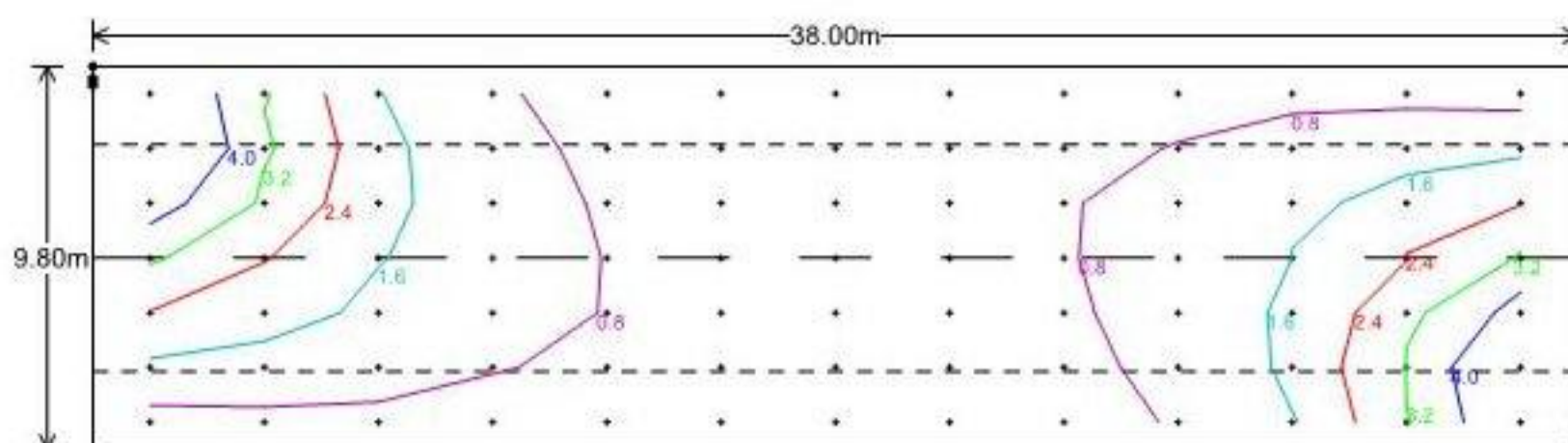
*The lighting class has been modified using the lamp S/P ratio in accordance with PLG03 With Eav from 1.20 to 1.80 and Emin 0.40

Polar Diagram

Main Luminaire BGP615 DM10



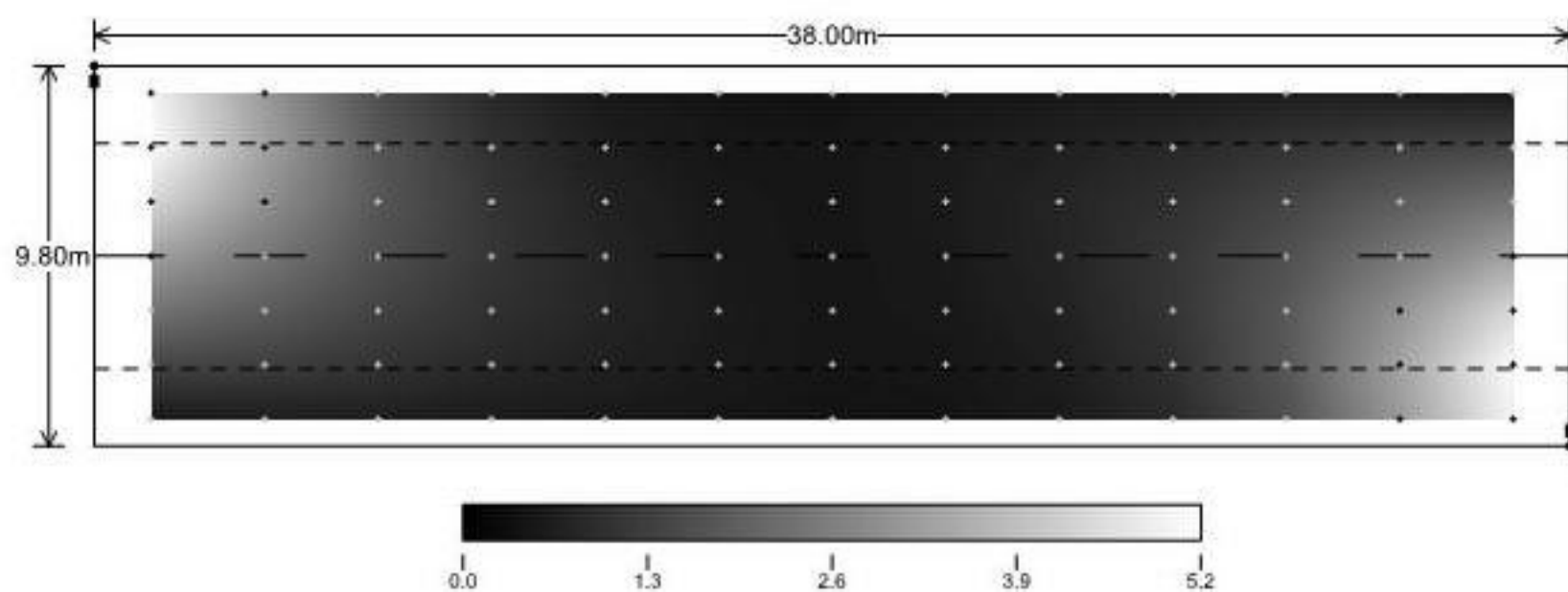
Horizontal Illuminance (lux)



Main Results

Eav	1.41
Emin	0.40
E _{max}	5.17
Emin/E _{max}	0.08
Emin/Eav	0.29

Horizontal Illuminance (lux)



Horizontal Illuminance (lux)

