



MARWOOD ELECTRICAL COMPANY LTD.

SPECIALISTS IN LIGHTING

Maidstone Road, Paddock Wood,
Tonbridge, Kent TN12 6DR

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Fax: 01892 833877 V.A.T. No. GB 219 8914 30

Website: www.marwoodelectrical.co.uk

E-mail: sales@marwoodelectrical.co.uk

Project: New Access Road, Radcliffe.

8th December 2023

Customer: Via Solutions,
The Old Coach House,
1 Campbell Street,
Pudsey. LS28 6DP.
Attention: Chris Yarrow.

As requested, we have provided our lighting design for the new access road off Spring Lane, Radcliffe.

From table A.5 of BS54899-1:2020 we have determined that this road should be lit to lighting class P3. This is suitable for a busy traffic flow (areas where the traffic usage is high and can be associated with local amenities), speed limit ≤ 30 mph, environmental zone E3 to E4. For P3 we need to provide maintained illuminance (Eav) 7.50 to 11.25 lux, minimum illuminance (Emin) 1.50 lux. Our plot shows that using the layout shown we can achieve Eav 7.92 lux, Emin 1.50 lux. The access road also has a roundabout and this needs to be treated as a conflict area. The lighting requirements for a conflict area are determined from the class of the approach road. The approach road lighting class is P3 therefore the conflict area lighting class will be C4. For C4 we need to provide (Eav) 10 lux, uniformity (Emin/Eav) 0.40. Our plot shows that using the layout shown we can achieve Eav 10.84 lux, Emin/Eav 0.41.

Bury Council Street Lighting Specification version 6 requires that the lanterns should be Signify (formally Philips) DigiStreet Micro NW 20LED 6.00klm DW50 optic and we have used these lanterns in our design.

This lighting design has been prepared in accordance with the HEA-HEMSA Guidance Note – CDM2015 Regulations, issue 1.1, dated 09/04/15 Procedure 2. Outline Design.

The client has duties under regulations 9-10 of CDM 2015 please refer to the CDM2015 ACoP and HSE leaflet INDG 411 – “Need building work done? – A short guide for clients on the Construction (Design and Management) regulations 2015”

This lighting design is an outline design and has been prepared based on the information supplied by the client at the time of request. This does not include information on any hazards and risks present.

We trust this is of assistance to you please contact our Lighting Sales Engineer Graham Bradley (M: 07787 104647) or the writer (M: 07717 835035) should you wish to discuss any aspect of this project.

Graham Lucas Eng. Tech AMILP MSL
Lighting Engineer

A handwritten signature in blue ink, appearing to read 'G. J. C.' followed by a stylized flourish.

Marwood Electrical Company Limited
Maidstone Road, Paddock Wood
Tonbridge, Kent, TN12 6DR

DATE: 6 December 2023
DESIGNER: Graham Lucas
PROJECT No: 2159/GJL/11/A
PROJECT NAME: New Access Road, Radcliffe.



Road Lighting to BS5489-1:2020 Lighting class P3.
Roundabout lit as a conflict area to PLG02 for an approach road
class of P3 conflict area needs to be lit to lighting class C4.

P3 - Eav 7.50 lux to 11.50 lux, Emin 1.50 lux.
C4 - Eav 10.00 lux, Emin/Eav 0.40.
Actual achieved Access Road Eav 7.92 lux, Emin 1.50 lux.
Conflict Area Eav 10.84 lux, Emin/Eav 0.41.

Outdoor Lighting Report

This lighting design shows results based on precision positions of luminaires and columns including mounting heights and aiming angles as you would expect when using design software. When making comparisons between measured and designed values a variation may result due to manufacturing tolerances, installation tolerances, electrical supply tolerances and tolerances in photometric measurements.

PREPARED BY: Marwood Electrical Company Limited
Maidstone Road
Paddock Wood
Tonbridge
Kent
TN12 6DR
e-mail: grahamlucas@marwoodelectrical.co.uk
website: www.marwoodelectrical.co.uk

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	Road to roundabout	127.65	79.98	87.85	104.61	1.49	1.49
2	Grid 2	97.15	185.15	47.43	35.72	1.48	1.49

Luminares



Luminaire A Data

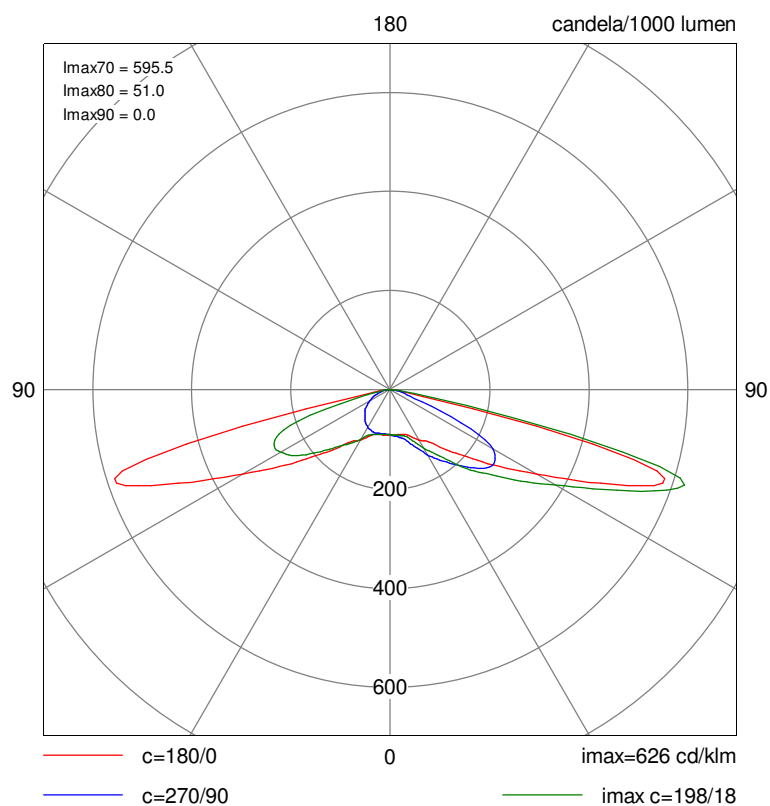
Supplier	Philips
Type	BGP760_DW50_6000_20LED_5.1S_CLO_L90_NW.ies
Lamp(s)	LED-HB 5.1S NW
Lamp Flux (klm)	6.00
File Name	DigiStreet Micro _BGP760_DW50_6000_20LED_5.1S_CLO_L90_NW.ies
Maintenance Factor	0.76
Imax70,80,90(cd/klm)	595.5, 51.0, 0.0
No. in Project	10

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	213.21	94.94	6.00	179.00	0.00	0.00	0.50			
2	A	207.41	119.65	6.00	202.00	0.00	0.00	0.50			
3	A	191.43	139.29	6.00	220.00	0.00	0.00	0.50			
4	A	173.02	156.68	6.00	215.00	0.00	0.00	0.50			
5	A	154.60	174.00	6.00	220.00	0.00	0.00	0.50			
6	A	138.42	193.18	6.00	208.00	0.00	0.00	0.50			
7	A	111.65	216.24	6.00	293.00	0.00	0.00	0.50			
8	A	138.28	217.81	6.00	167.00	0.00	0.00	0.50			
9	A	109.81	190.30	6.00	55.00	0.00	0.00	0.50			
10	A	101.47	205.32	6.00	32.00	0.00	0.00	0.50			

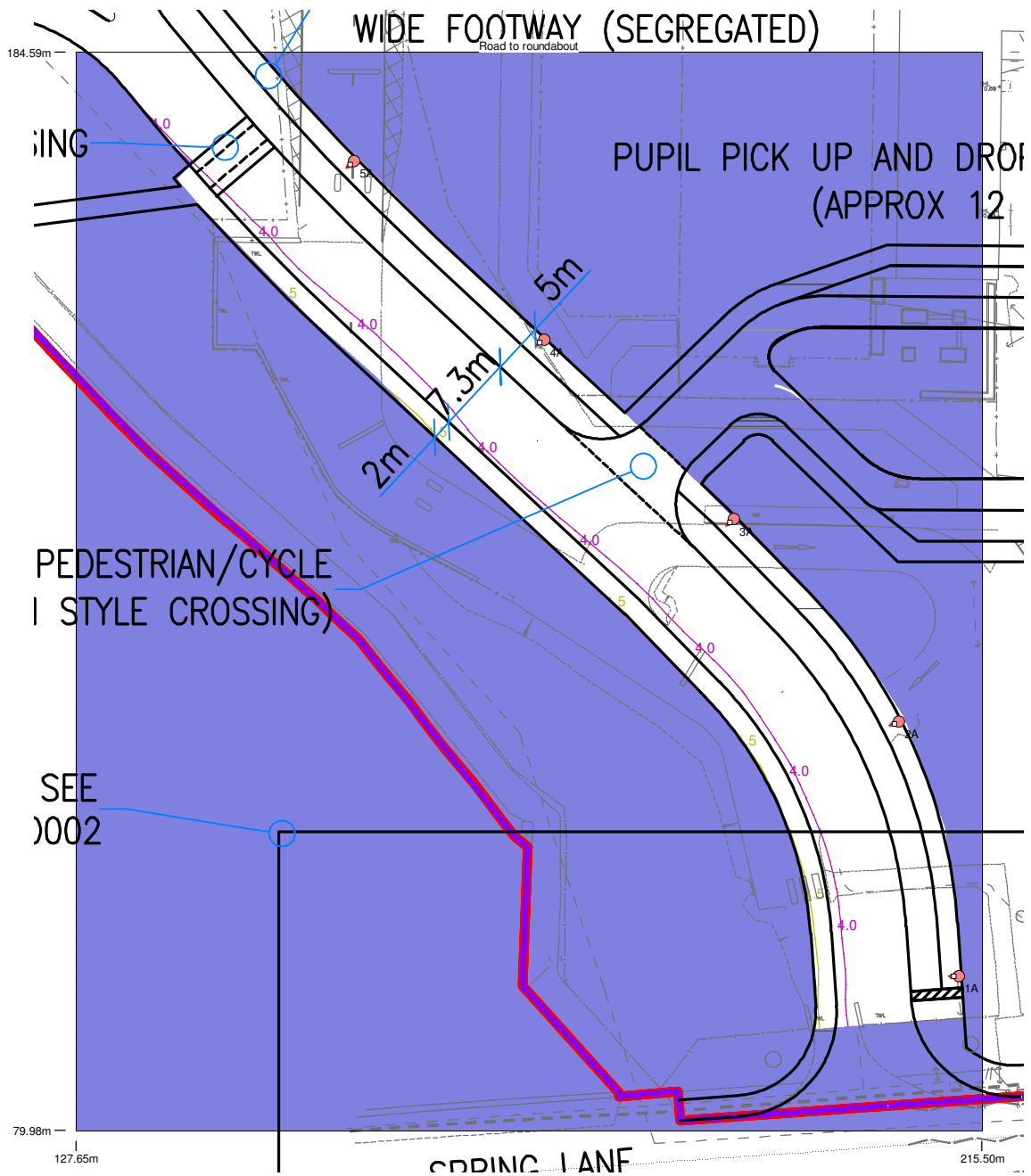
Polar Diagram

Luminaire A BGP760 DW50 6000 20LED 5.1S CLO L90 NW.ies



Horizontal Illuminance (lux)

Road to roundabout

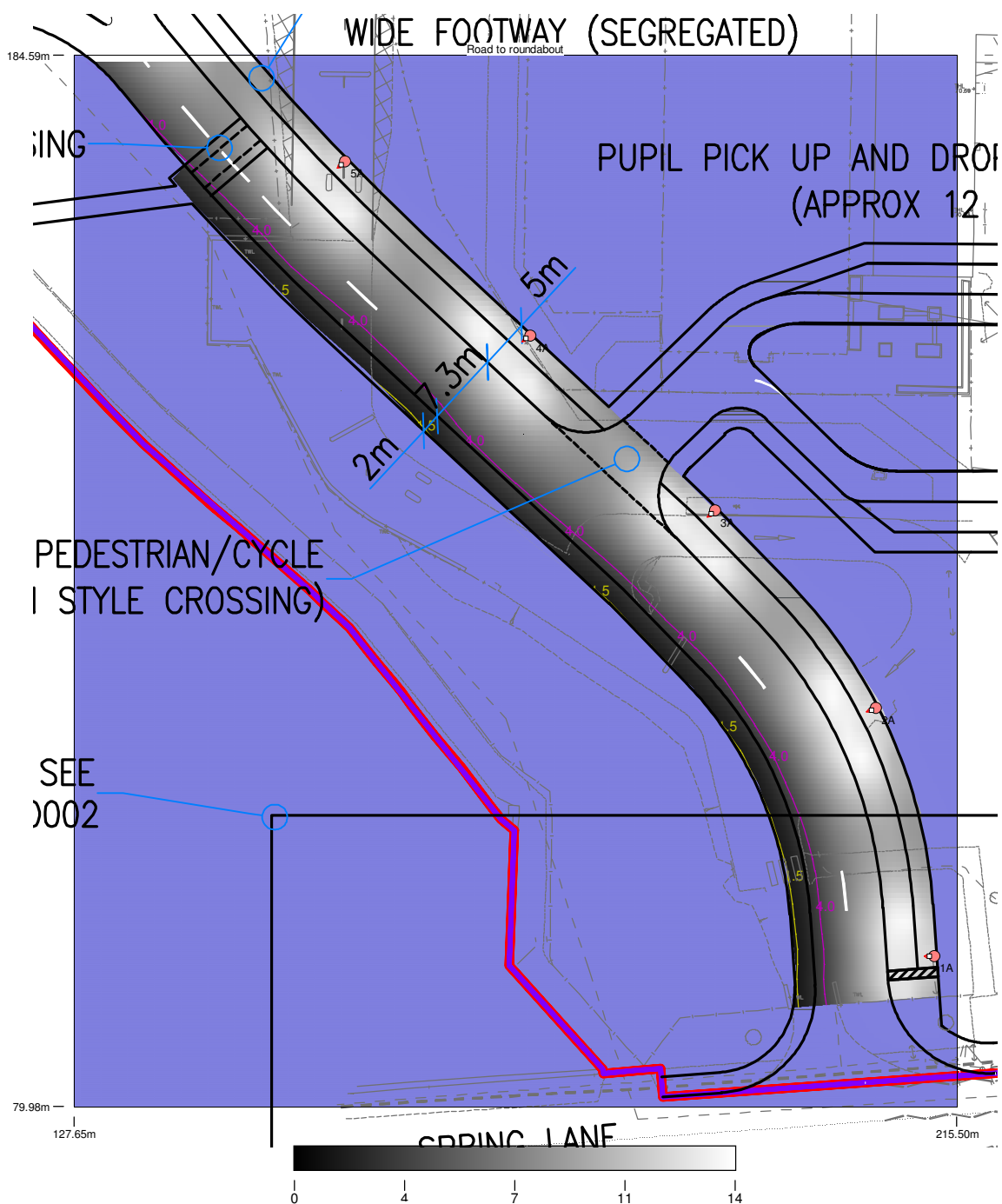


Results

Eav	7.92
Emin	1.50
Emax	14.14
Emin/Emax	0.11
Emin/Eav	0.19

Horizontal Illuminance (lux)

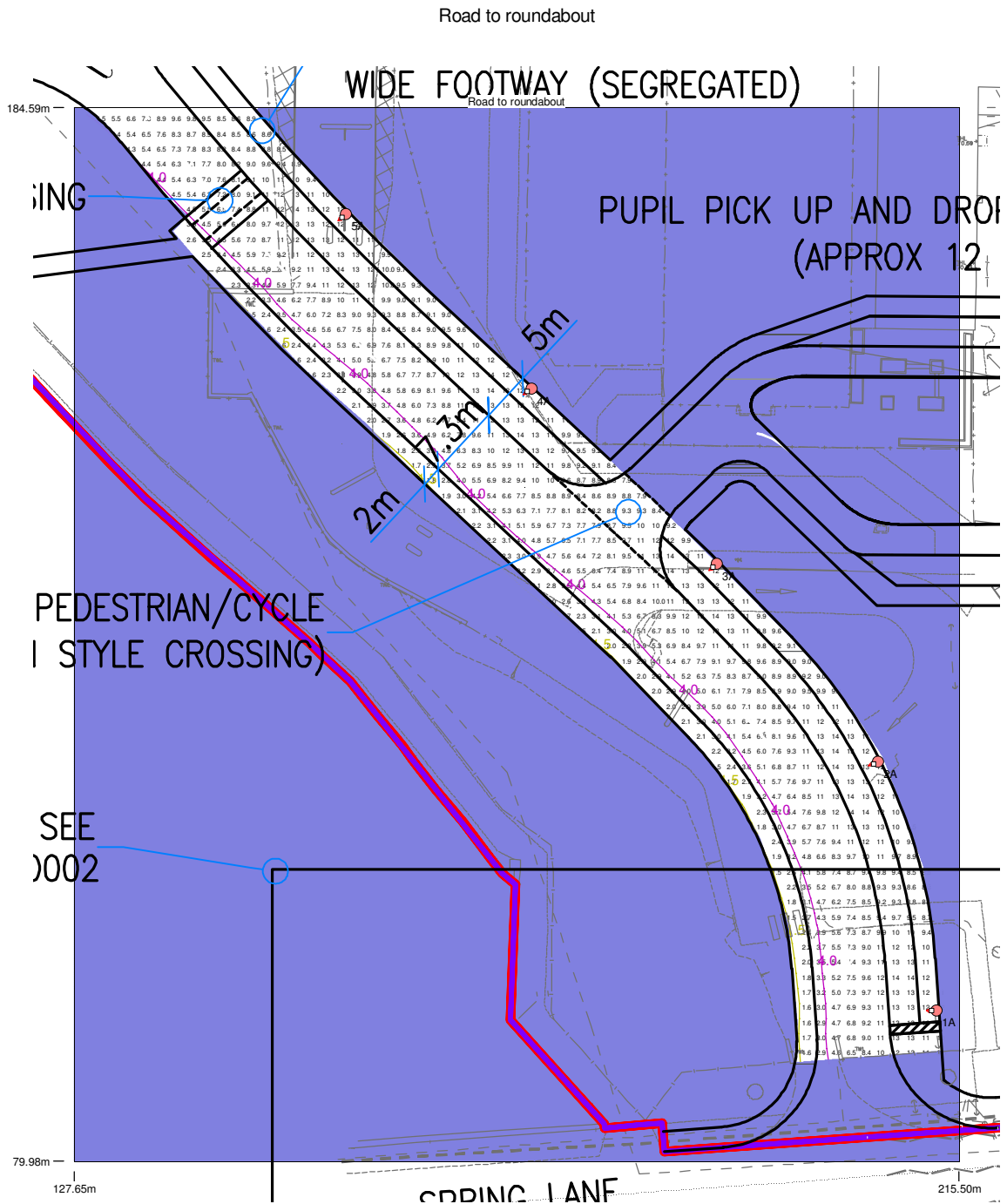
Road to roundabout



4 Results

Eav	7.92
Emin	1.50
E _{max}	14.14
Emin/E _{max}	0.11
Emin/Eav	0.19

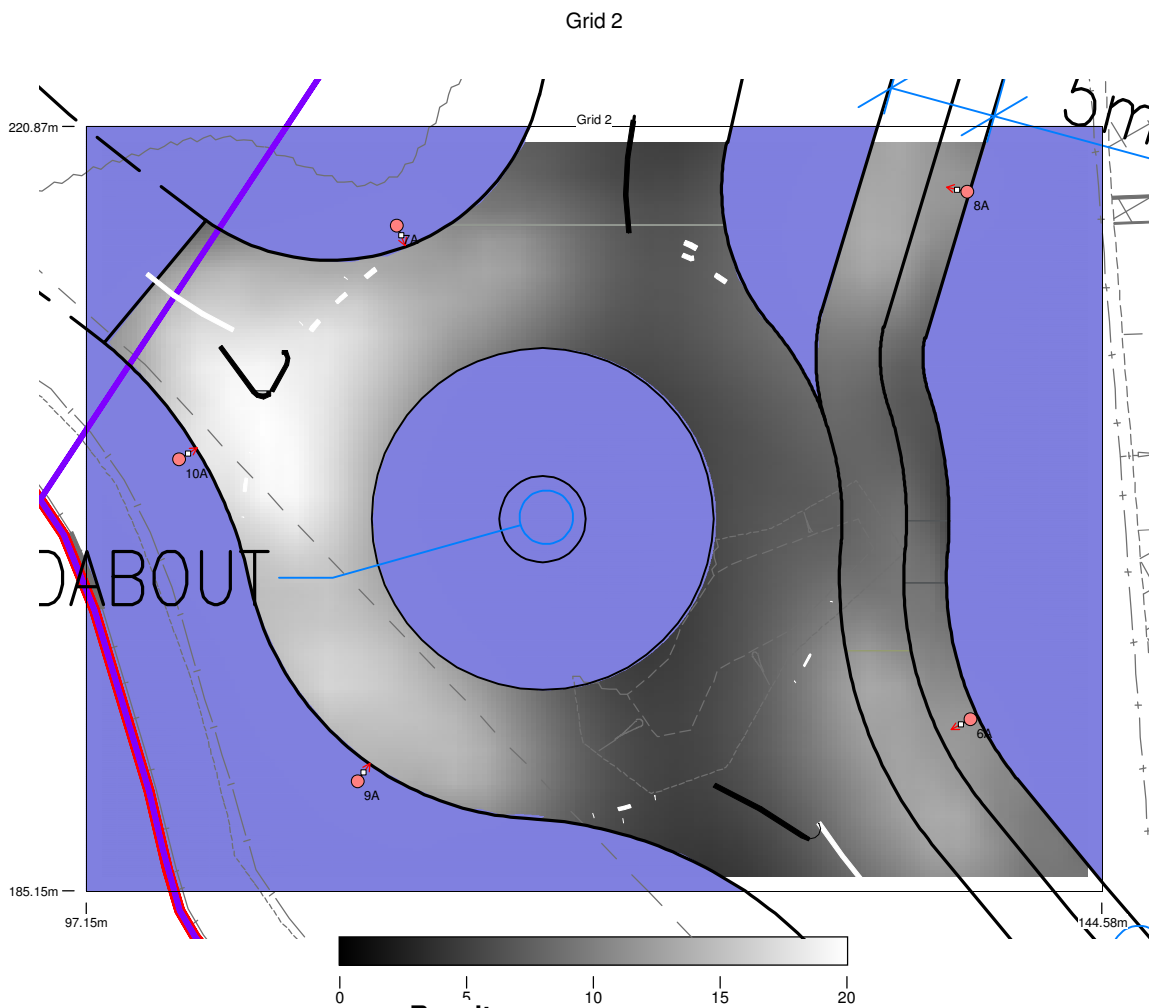
Horizontal Illuminance (lux)



Results

Eav	7.92
Emin	1.50
Emax	14.14
Emin/Emax	0.11
Emin/Eav	0.19

Horizontal Illuminance (lux)

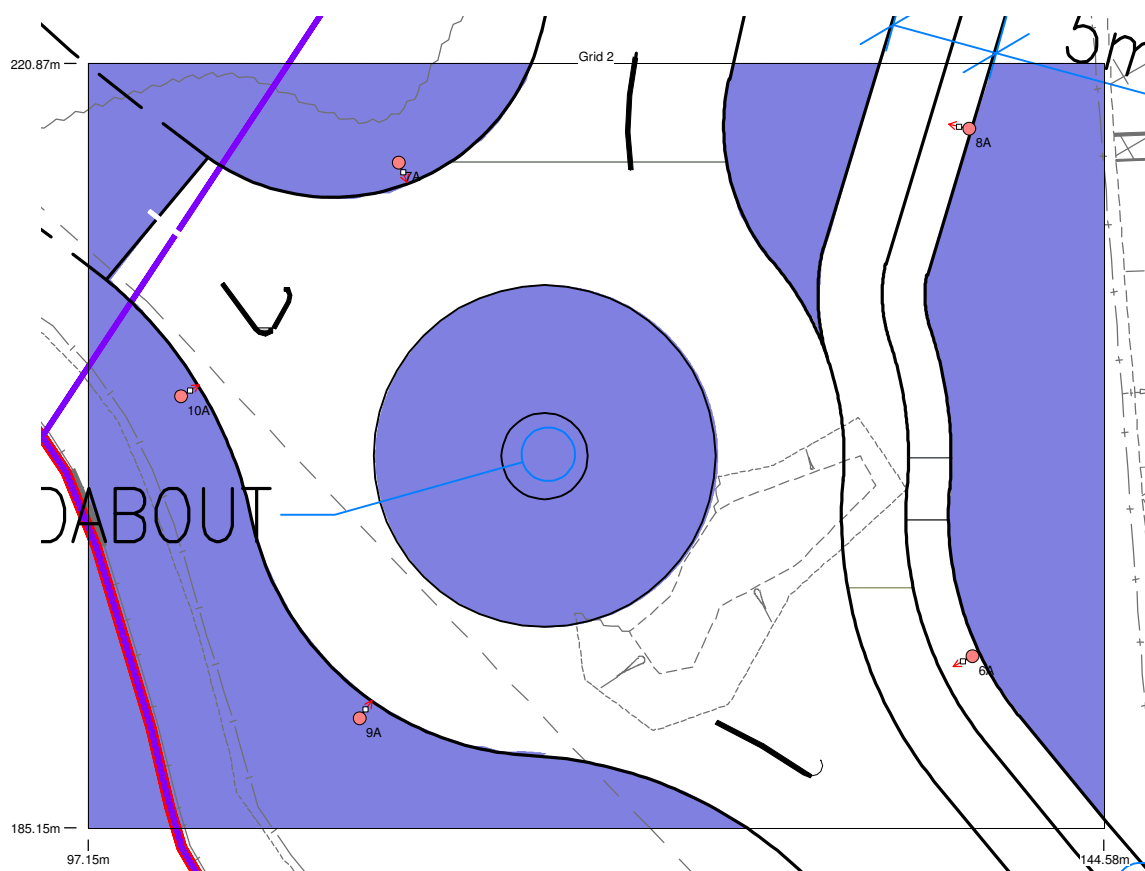


Results

Eav	10.84
Emin	4.43
Emax	20.31
Emin/Emax	0.22
Emin/Eav	0.41

Horizontal Illuminance (lux)

Grid 2

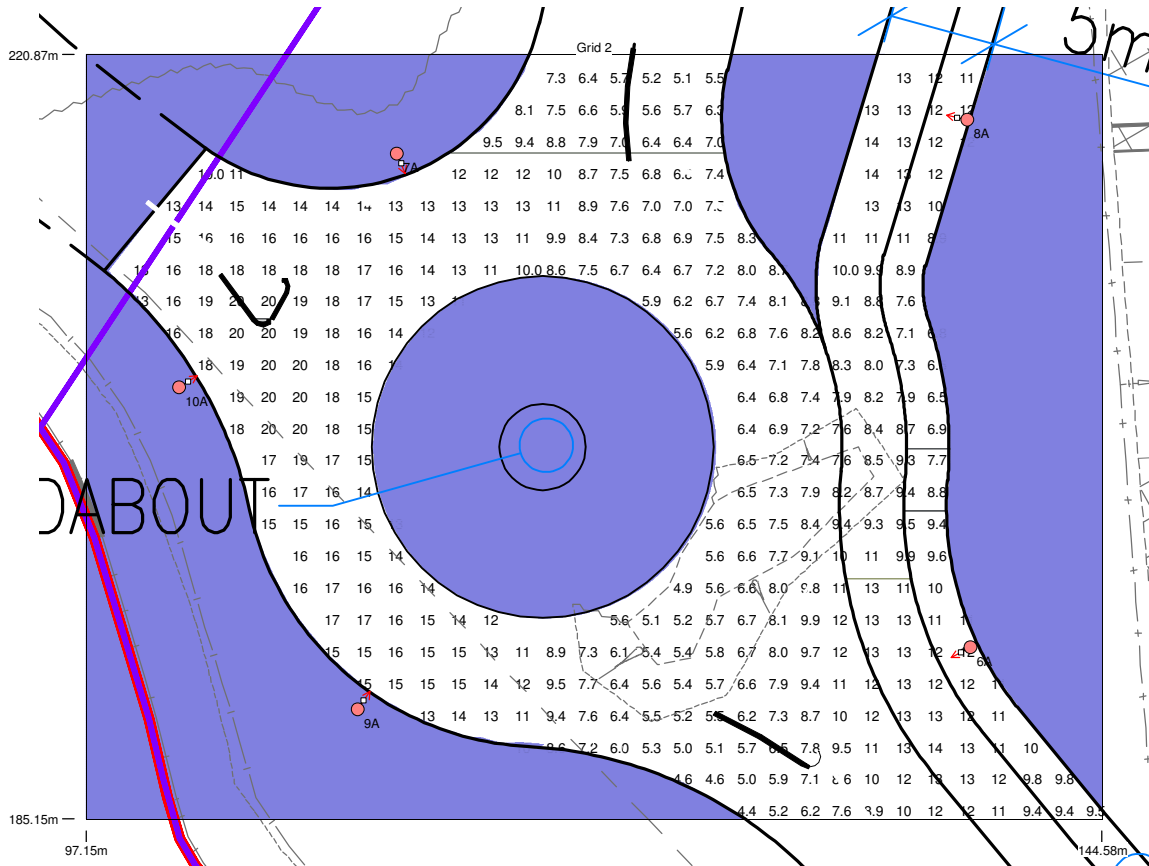


Results

Eav	10.84
Emin	4.43
E _{max}	20.31
E _{min} /E _{max}	0.22
E _{min} /E _{av}	0.41

Horizontal Illuminance (lux)

Grid 2



Results

Eav	10.84
Emin	4.43
Emax	20.31
Emin/Emax	0.22
Emin/Eav	0.41

This typing design has been prepared in accordance with the IHEA-HCMSA Guidance Note - CDM2015 Regulations, issue 1.1, dated 09/04/15 Procedure 2. The client has duties under regulations 9-11 of CDM 2015 please refer to the CDM2015 ACP and SHE leaflet (NIG 411 - 'Need building work?' - A short guide for clients on the Construction (Design and Management) Regulations 2015).

This typing design is an outline design and has been prepared based on the information supplied by the client at the time of request. This does not include information on any hazards or risks present.

RAISED CROSSING FOR PEDESTRIAN/BICYCLE
PRIORITY (COPENHAGEN STYLE CROSSING)

1. THIS DRAWING SHOWS THE PRELIMINARY LAYOUT ONLY (NOT TO BE USED FOR CONSTRUCTION) AND IS SUBJECT TO DETAILED DESIGN, FULL CDM COMPLIANCE, STATUTORY UNDERTAKERS SEARCH/DIVERSION REQUIREMENTS, HIGHWAY DRAINAGE PROVISION, LAND OWNERSHIP AND LOCAL AUTHORITY APPROVAL.

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Drawing Title:	Proposed Road Lighting.
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MARWOOD ELECTRICAL COMPANY LTD.

SPECIALISTS IN LIGHTING

Maidstone Road, Paddock Wood,
Tonbridge, Kent TN12 6DR

Tel No: Paddock Wood 01892 835211

Fax: 01892 833877 V.A.T. No. GB 219 8914 30

Website: www.marwoodelectrical.co.uk

E-mail: sales@marwoodelectrical.co.uk

Project: New Signalised Junction, Radcliffe.

8th February 2024

Customer: Via Solutions,
The Old Coach House,
1 Campbell Street,
Pudsey. LS28 6DP.
Attention: Chris Yarrow.

As requested, we have provided our lighting design for the new signalised junction, Radcliffe.

The closest traffic count point to the junction is on the A665, Water Street and the ADT is 17863. Not all traffic will travel onto Spring Steet however it is likely that the ADT for Spring Street will be above 7000. BS5489-1:2020 Table A.3 - Lighting classes for traffic routes ($v \leq 40$ mph) states that "low to moderate traffic flow might be defined as having an ADT of between 7000 and 40,000". From the table, for this traffic flow on a single carriageway the lighting class is M4. As this junction is a conflict area and as it is signalised then from ILP PLG02 section 3.2.3 then it should be lit to the C class corresponding to the traffic route class, i.e. $M4 = C4$. As the traffic composition consists of a mixture of slow-moving vehicles, cyclists and pedestrians then it will be beneficial to increase the lighting level. The lighting class has been increased by one class to C3.

Bury Council Street Lighting Specification version 6 requires that the lanterns should be Signify (formally Philips) DigiStreet. For main roads one of the lanterns that can be used is DigiStreet Medium NW 80LED 22.00klm DW10 optic and we have used this lantern type in our design.

Our plot that shows the lighting levels that can be achieved is attached along with our layout drawing that shows the proposed mounting positions of the lanterns and columns.

This lighting design has been prepared in accordance with the HEA-HEMSA Guidance Note – CDM2015 Regulations, issue 1.1, dated 09/04/15 Procedure 2. Outline Design.

The client has duties under regulations 9-10 of CDM 2015 please refer to the CDM2015 ACoP and HSE leaflet INDG 411 – "Need building work done? – A short guide for clients on the Construction (Design and Management) regulations 2015"

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We trust this is of assistance to you please contact our Lighting Sales Engineer Graham Bradley (M: 07787 104647) or the writer (M: 07717 835035) should you wish to discuss any aspect of this project.

Graham Lucas Eng. Tech AMILP MSL
Lighting Engineer

A handwritten signature in blue ink, appearing to read 'G. J. C.' followed by a stylized flourish.

Marwood Electrical Company Limited
Maidstone Road, Paddock Wood
Tonbridge, Kent, TN12 6DR

DATE: 7 February 2024
DESIGNER: Graham Lucas
PROJECT No: 2170/GJL/11/A
PROJECT NAME: New Signalised Junction, Radcliffe.



Traffic count between 7000 and 40000 = Low to moderate see BS5489-1:2020 Table A.3 - Lighting classes for traffic routes ($v \leq 40$ mph) for this traffic flow on a single carriageway the lighting class is M4. As this is a conflict area then for a signalised junction (PLG 02 section 3.2.3) area to be lit to C class corresponding to the traffic route class i.e. M4 = C4. Adjusted due to the traffic composition. As the traffic consists of a mixture of slow-moving vehicles, cyclists and pedestrians then it will be beneficial to increase the lighting level. The class used for this junction is increased by one class to C3.

C3 - Eav 15.00 lux, Emin/Eav 0.40.
Actual achieved Eav 18.53 lux, Emin/Eav 0.41.

Outdoor Lighting Report

This lighting design shows results based on precision positions of luminaires and columns including mounting heights and aiming angles as you would expect when using design software. When making comparisons between measured and designed values a variation may result due to manufacturing tolerances, installation tolerances, electrical supply tolerances and tolerances in photometric measurements.

PREPARED BY: Marwood Electrical Company Limited
Maidstone Road
Paddock Wood
Tonbridge
Kent
TN12 6DR
e-mail: grahamlucas@marwoodelectrical.co.uk
website: www.marwoodelectrical.co.uk

Layout Report

General Data

Dimensions in Metres Angles in Degrees

Grid Origin 17.3m x 48.0m

Area 132.3m x 44.7m

Sample Spacing 1.49m x 1.49m

Luminaires



Luminaire A Data

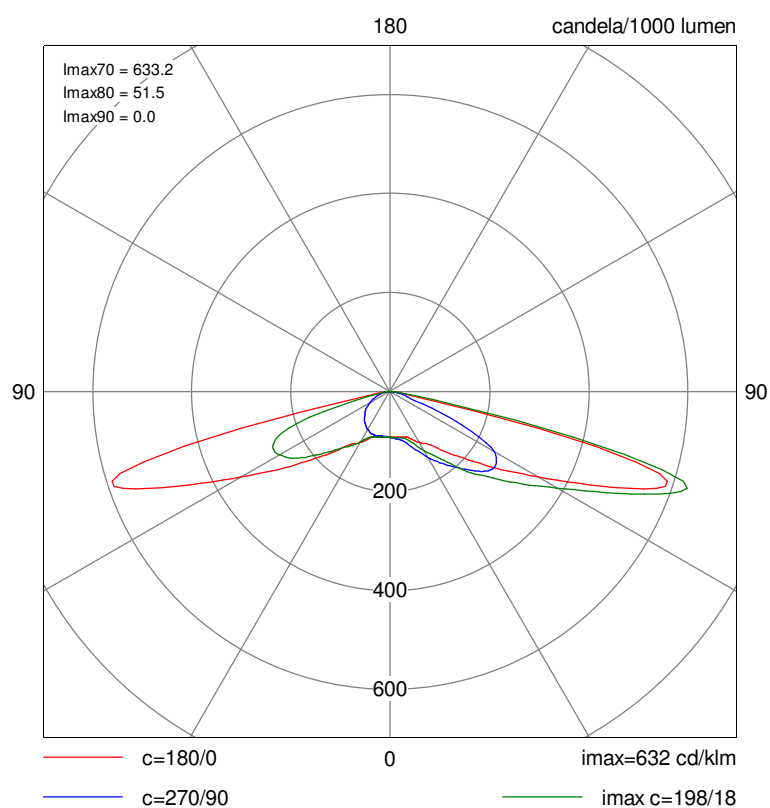
Supplier	Philips
Type	BGP762_DW50_22000_80LED_5.1S_CLO_L 90_NW.ies
Lamp(s)	LED-HB 5.1S NW
Lamp Flux (klm)	22.00
File Name	DigiStreet Medium_BGP762_DW50_22000_8 0LED_5.1S_CLO_L90_NW.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	601.5, 51.5, 0.0
No. in Project	5

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out- reach	Target X	Target Y	Target Z
1	A	72.07	58.86	10.00	96.00	0.00	0.00	0.50			
2	A	56.32	82.55	10.00	311.00	0.00	0.00	0.50			
3	A	81.98	85.65	10.00	229.00	0.00	0.00	0.50			
4	A	125.42	77.39	10.00	273.00	0.00	0.00	0.50			
5	A	28.07	74.01	10.00	276.00	0.00	0.00	0.50			

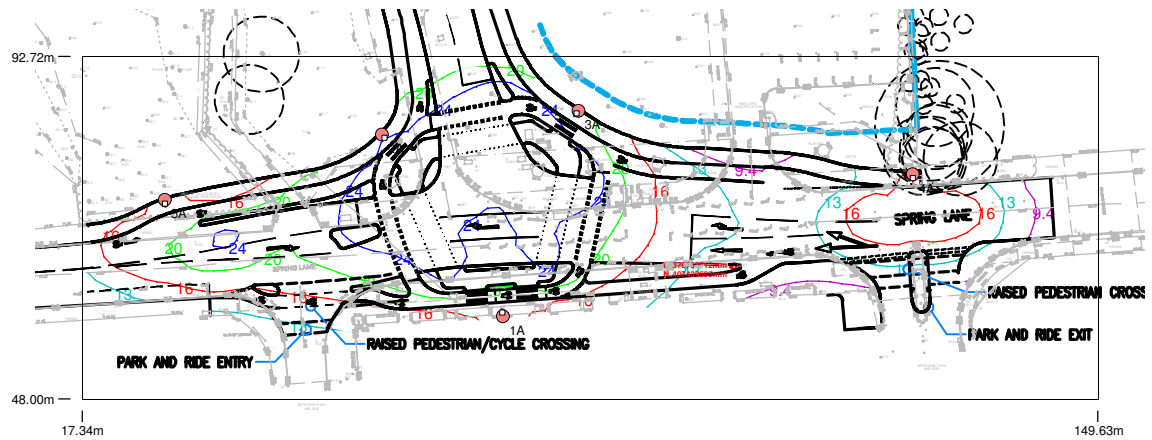
Polar Diagram

Luminaire A BGP762 DW50 22000 80LED 5.1S CLO L90 NW.ies



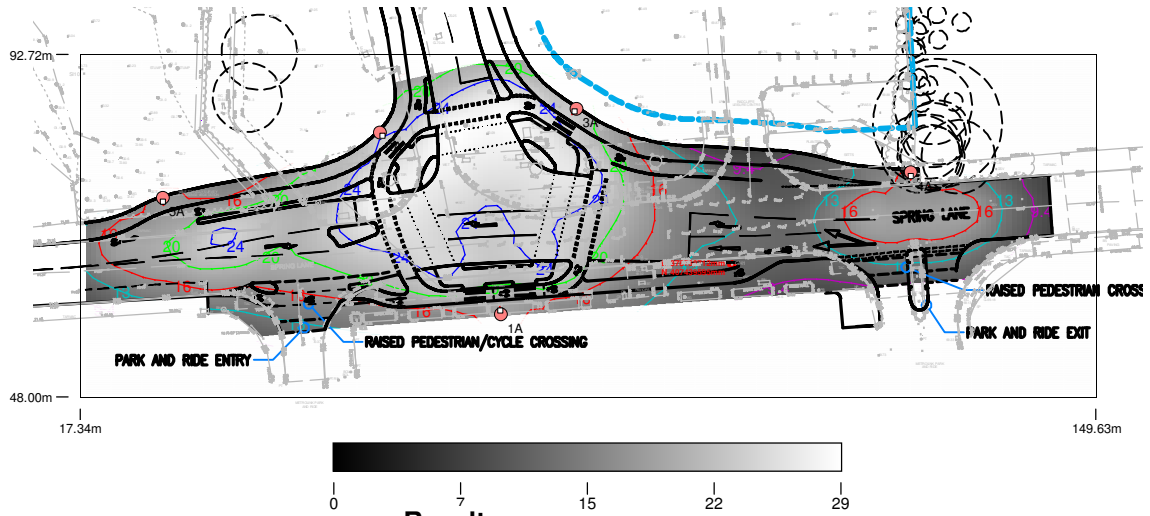
Horizontal Illuminance (lux)

Grid 1



Horizontal Illuminance (lux)

Grid 1

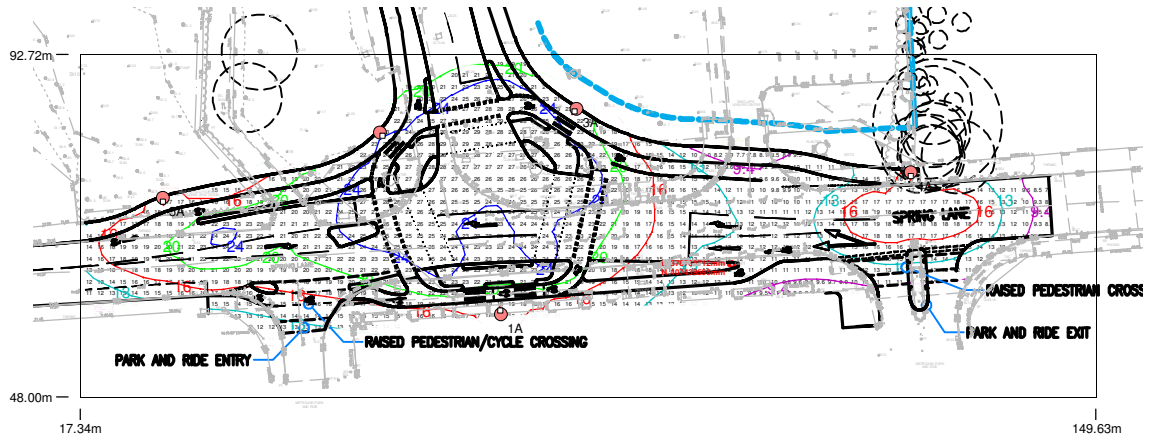


Results

Eav	18.53
Emin	7.62
Emax	29.03
Emin/Emax	0.26
Emin/Eav	0.41

Horizontal Illuminance (lux)

Grid 1



Results

Eav	18.53
Emin	7.62
Emax	29.03
Emin/Emax	0.26
Emin/Eav	0.41

[illegible]

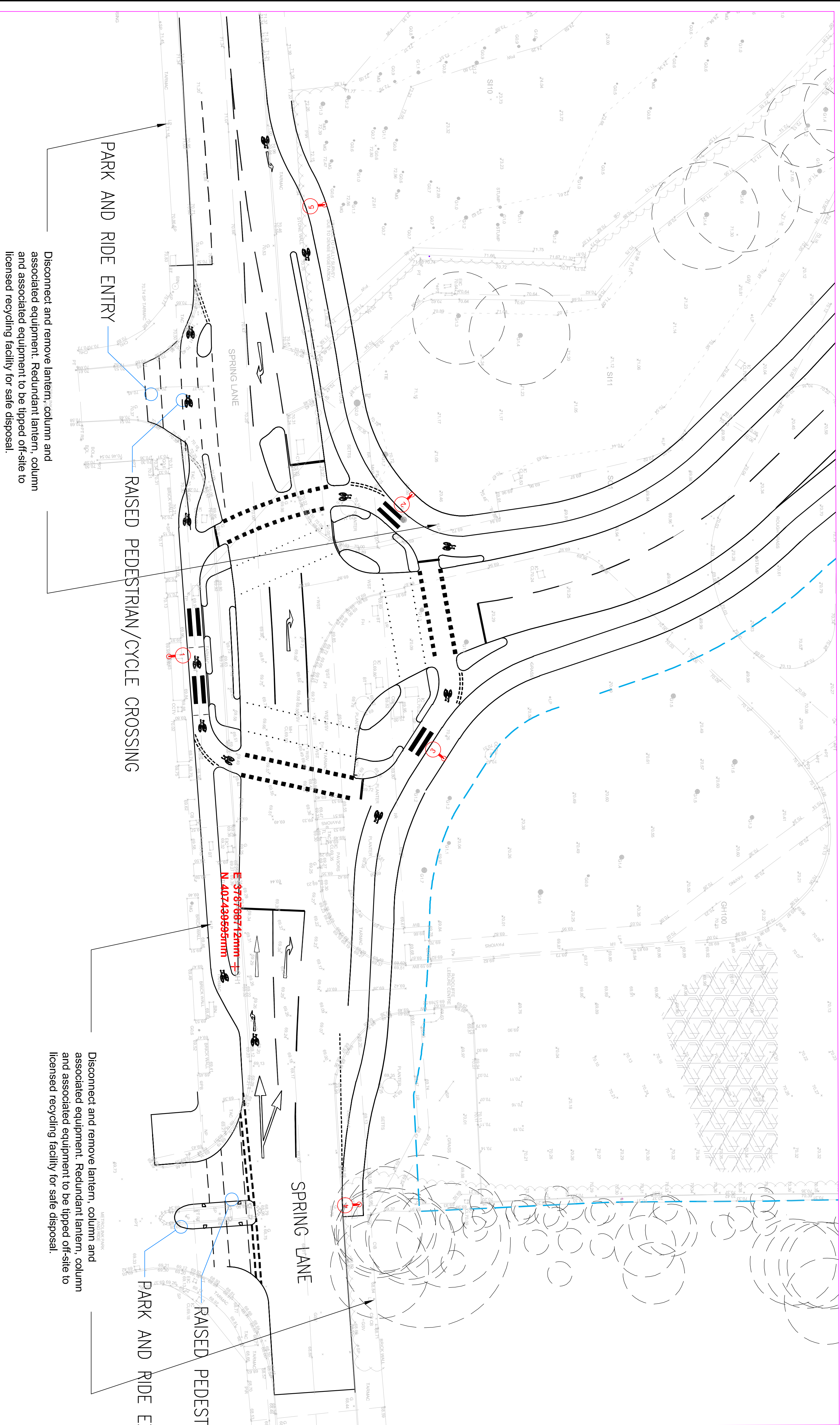
This lighting design has been prepared in accordance with the HSE+CMSA Guidance Note - CON2015 Regulations, Issue 1.1, dated 09/04/15 Procedure 2. The client has duties under regulations 5-10 of CON 2015 please refer to the CON2015 ACP¹ and HSE leaflet INDG 411 - 'New building work'. A short guide for clients on the Construction (Design and Management) regulation 2015.

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NOTES

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		Date	Int.
Rev.	Description		

Site Name:	New Signalised Junction, Radcliffe.
Drawing Title:	Proposed Road Lighting.