Installation : LiDL Hayes

Project number :
Customer : Carpark Lighting Proposal
Processed by :
Date : 20.11.2013

Project description:
Obstructions are not considered in these lighting calculations.

Lighting levels take into account approximated spill light from the stores sales area.

Lighting levels to BS EN 12464-2. Table 5.9 section 5.9.2.

All Lighting results based on assumed spill light contribution from the stores sales area.

Lanterns mounted on 8m and 6m columns. Linear Luminaires mounted at 2.7m.

The nominal values shown in this report are the result of precision calculations, based upon precisely positioned luminaires in a fixed relationship to each other and to the area under examination. In practice the values may vary due to tolerances on luminaires, luminaire positioning, reflection properties and electrical supply.

Lighting Proposal. See attached Appendix A.

Table of contents

1 Luminaire data

1.1 Philips Lighting, BGP303 1xLED49/740 DM (6m MH) (!)

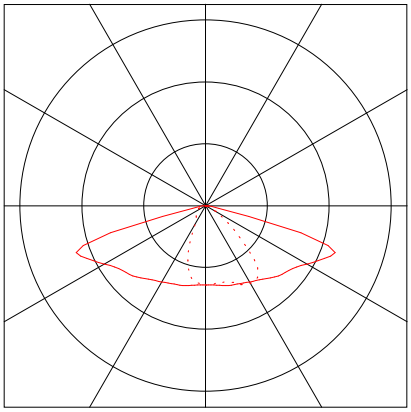
1.1.1 Data sheet

Manufacturer: Philips Lighting

! BGP303 1xLED49/740 DM (6m MH)

Luminaire data		
Luminaire efficiency	:	87%
Luminaire efficacy	:	77.06 lm/W
Classification	:	↓100.0% ↑0.0%
CIE Flux Codes	:	42 76 98 100 87
UGR 4H 8H (20%, 50%, 70%)		
C0 / C90	:	36.1 / 18.6
Control gear	:	
System power	:	56.9 W
Length	:	330 mm
Width	:	465 mm
Height	:	80 mm

Equipped with		
Quantity	:	1
Designation	:	LED49/740/-
Colour	:	-
Luminous flux	:	5040 lm



1 Luminaire data

1.2 Philips Lighting, BGP303 1xLED49/740 DM (8m MH) (!)

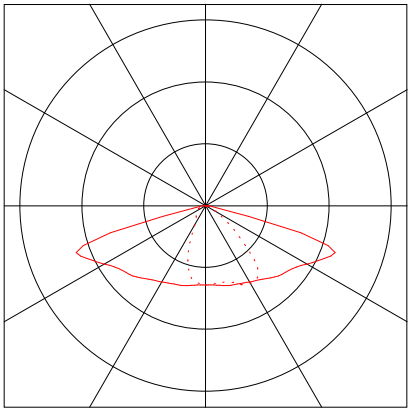
1.2.1 Data sheet

Manufacturer: Philips Lighting

! BGP303 1xLED49/740 DM (8m MH)

Luminaire data		
Luminaire efficiency	:	87%
Luminaire efficacy	:	77.06 lm/W
Classification	:	↓100.0% ↑0.0%
CIE Flux Codes	:	42 76 98 100 87
UGR 4H 8H (20%, 50%, 70%)		
C0 / C90	:	36.1 / 18.6
Control gear	:	
System power	:	56.9 W
Length	:	330 mm
Width	:	465 mm
Height	:	80 mm

Equipped with		
Quantity	:	1
Designation	:	LED49/740/-
Colour	:	-
Luminous flux	:	5040 lm



1 Luminaire data

1.3 Philips Lighting, WT460C L1300 1xLED23S/840 WB ()

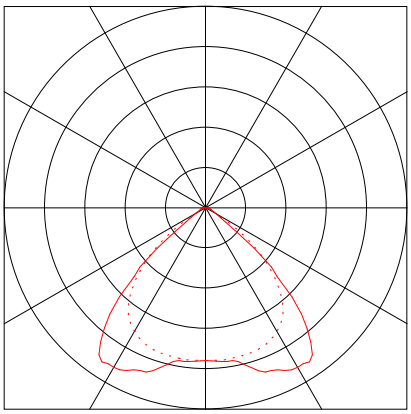
1.3.1 Data sheet

Manufacturer: Philips Lighting

WT460C L1300 1xLED23S/840 WB

Luminaire data		
Luminaire efficiency	:	100%
Luminaire efficacy	:	118.18 lm/W
Classification	:	A50 ↓99.9% ↑0.1%
CIE Flux Codes	:	63 96 99 100 100
UGR 4H 8H (20%, 50%, 70%)		
C0 / C90	:	16.9 / 17.1
Control gear	:	
System power	:	22 W
Length	:	1321 mm
Width	:	96 mm
Height	:	96 mm

Equipped with		
Quantity	:	1
Designation	:	LED23S/840/-
Colour	:	-
Luminous flux	:	2600 lm



2 Carpark

2.1 Description, Carpark

2.1.1 Luminaire data/Room elements

Product data:

Type No.\Make

Philips Lighting

1 6
Order No. : !
Luminaire name : BGP303 1xLED49/740 DM (6m MH)
Equipment : 1 x LED49/740/- / 5040 lm

2 15
Order No. : !
Luminaire name : TMS122 1xTL5-35W HFP
Equipment : 1 x TL5-35W/840 / 1000 lm

3 5
Order No. :
Luminaire name : BBS490 1xDLED-4000 PG
Equipment : 1 x DLED-4000 / 2260 lm

4 6
Order No. : !
Luminaire name : BGP303 1xLED49/740 DM (8m MH)
Equipment : 1 x LED49/740/- / 5040 lm

5 24
Order No. :
Luminaire name : WT460C L1300 1xLED23S/840 WB
Equipment : 1 x LED23S/840/- / 2600 lm

	Centre point			Rotation angle			Target coordinates		
No.	X [m]	Y [m]	Z [m]	Z [°]	C0 [°]	C90 [°]	Xa [m]	Ya [m]	Za [m]
Philips Lighting BGP303 1xLED49/740 DM (6m MH) !									
5	84.95	48.48	6.00	334.50	15.00	0.00	87.72	54.29	0.00
6	106.15	38.29	6.00	335.17	15.00	0.00	108.85	44.13	0.00
8	122.93	48.56	6.00	146.00	5.00	0.00	120.40	44.81	0.00
14	124.96	29.82	6.00	243.93	5.00	0.00	129.02	27.83	0.00
27	124.97	30.52	6.00	0.00	5.00	0.00	124.97	35.05	0.00
28	64.45	60.66	6.00	325.50	15.00	0.00	68.10	65.96	0.00
Philips Lighting TMS122 1xTL5-35W HFP !									
1.1	78.97	83.42	2.96	325.65	0.00	0.00	78.97	83.42	0.00
1.2	79.81	84.66	2.96	325.65	0.00	0.00	79.81	84.66	0.00
1.3	80.66	85.90	2.96	325.65	0.00	0.00	80.66	85.90	0.00
1.4	81.51	87.14	2.96	325.65	0.00	0.00	81.51	87.14	0.00
1.5	82.35	88.37	2.96	325.65	0.00	0.00	82.35	88.38	0.00
1.6	83.20	89.61	2.96	325.65	0.00	0.00	83.20	89.61	0.00
1.7	84.05	90.85	2.96	325.65	0.00	0.00	84.05	90.85	0.00
1.8	84.89	92.09	2.96	325.65	0.00	0.00	84.89	92.09	0.00
1.9	85.74	93.33	2.96	325.65	0.00	0.00	85.74	93.33	0.00
1.10	86.58	94.57	2.96	325.65	0.00	0.00	86.58	94.57	0.00
1.11	87.43	95.80	2.96	325.65	0.00	0.00	87.43	95.81	0.00
1.12	88.28	97.04	2.96	325.65	0.00	0.00	88.28	97.04	0.00
1.13	89.12	98.28	2.96	325.65	0.00	0.00	89.12	98.28	0.00
1.14	89.97	99.52	2.96	325.65	0.00	0.00	89.97	99.52	0.00
1.15	90.82	100.76	2.96	325.65	0.00	0.00	90.82	100.76	0.00
Philips Lighting BBS490 1xDLED-4000 PG									
2.1	80.06	74.27	3.00	1.00	0.00	0.00	80.06	74.26	0.00
2.2	78.24	75.50	3.00	1.00	0.00	0.00	78.24	75.50	0.00
2.3	76.41	76.73	3.00	1.00	0.00	0.00	76.41	76.73	0.00
2.4	74.59	77.96	3.00	1.00	0.00	0.00	74.59	77.96	0.00
2.5	72.76	79.19	3.00	1.00	0.00	0.00	72.76	79.19	0.00

2 Carpark

2.1 Description, Carpark

2.1.1 Luminaire data/Room elements

Philips Lighting BGP303 1xLED49/740 DM (8m MH) !									
1	60.10	94.35	8.00	235.50	15.00	0.00	67.17	89.49	0.00
2	53.11	84.03	8.00	235.50	15.00	0.00	60.18	79.17	0.00
3	53.50	68.71	8.00	325.50	15.00	0.00	58.36	75.78	0.00
7	86.61	113.56	8.00	146.00	5.00	0.00	83.24	108.56	0.00
24	67.24	104.67	8.00	235.50	15.00	0.00	74.31	99.82	0.00
29	54.09	68.27	8.00	325.50	15.00	0.00	58.95	75.34	0.00
Philips Lighting WT460C L1300 1xLED23S/840 WB									
3.1	84.22	70.04	2.70	55.89	0.00	90.00	--	--	--
3.2	86.44	68.50	2.70	55.89	0.00	90.00	--	--	--
4.1	88.80	66.97	2.70	55.89	0.00	90.00	--	--	--
4.2	91.02	65.44	2.70	55.89	0.00	90.00	--	--	--
5.1	93.24	63.84	2.70	55.89	0.00	90.00	--	--	--
5.2	95.46	62.31	2.70	55.89	0.00	90.00	--	--	--
6.1	97.69	60.80	2.70	55.89	0.00	90.00	--	--	--
6.2	99.91	59.26	2.70	55.89	0.00	90.00	--	--	--
7.1	102.27	57.64	2.70	55.89	0.00	90.00	--	--	--
7.2	104.50	56.11	2.70	55.89	0.00	90.00	--	--	--
8.1	106.88	54.53	2.70	55.89	0.00	90.00	--	--	--
8.2	109.10	53.00	2.70	55.89	0.00	90.00	--	--	--
9.1	111.48	51.35	2.70	55.89	0.00	90.00	--	--	--
9.2	113.70	49.82	2.70	55.89	0.00	90.00	--	--	--
10.1	115.64	48.48	2.70	55.89	0.00	90.00	--	--	--
11.1	81.58	71.81	2.70	55.89	0.00	90.00	--	--	--
12.1	125.86	49.76	2.70	146.29	0.00	90.00	--	--	--
12.2	127.38	52.00	2.70	146.29	0.00	90.00	--	--	--
12.3	128.90	54.23	2.70	146.29	0.00	90.00	--	--	--
12.4	130.42	56.46	2.70	146.29	0.00	90.00	--	--	--
12.5	131.93	58.70	2.70	146.29	0.00	90.00	--	--	--
12.6	133.45	60.93	2.70	146.29	0.00	90.00	--	--	--
12.7	134.97	63.16	2.70	146.29	0.00	90.00	--	--	--
12.8	136.49	65.40	2.70	146.29	0.00	90.00	--	--	--

Structural elements

Virtual measuring surface

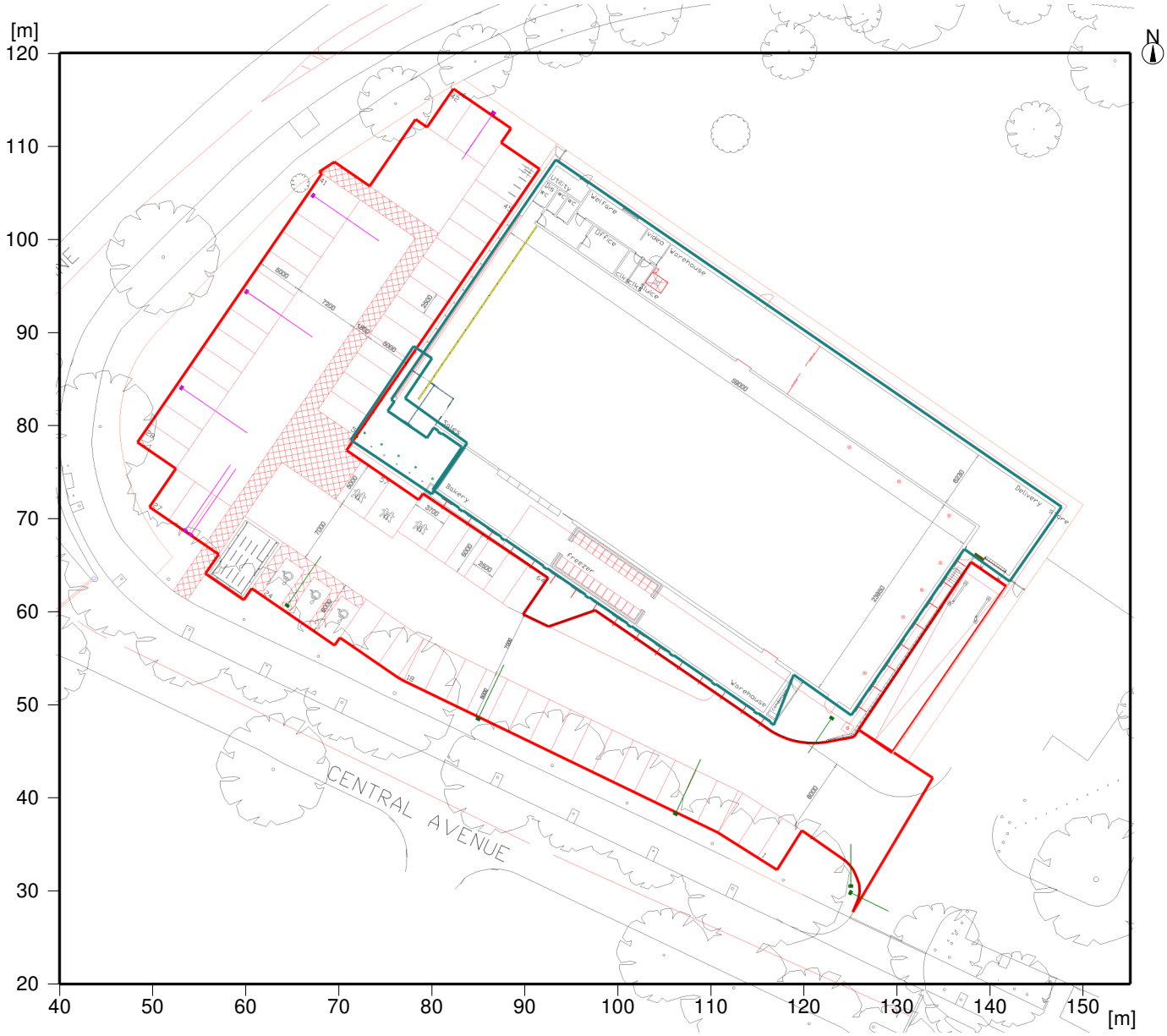
							Rotation angle	
No.	xm[m]	ym[m]	zm[m]	Length	Width	z axis	L axis	Q axis
Carpark								
m 1	82.30	116.14	0.00	108.87	100.01	325.54	0.00	0.00
Lorry Loading Bay								
m 2	125.83	47.32	0.00	15.91	20.59	56.15	0.00	0.00

Others

							Rotation angle	
No.	xm[m]	ym[m]	zm[m]	Length	Width	z axis	L axis	Q axis
A 2	78.03	88.50	3.00	15.53	15.97	56.17	0.00	0.00
A 3	93.30	108.53	0.00	75.15	67.63	325.54	0.00	0.00

2.1 Description, Carpark

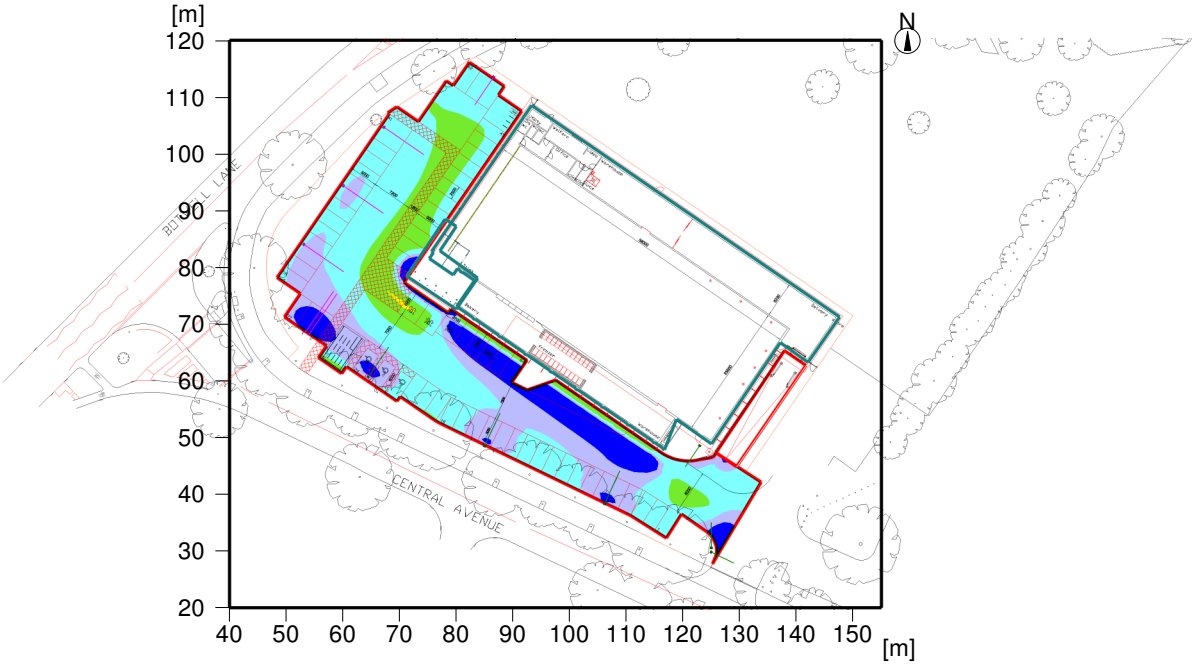
2.1.2 Floor plan



2 Carpark

2.2 Summary, Carpark

2.2.1 Result overview, Carpark



Illuminance [lx]

General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.77
Total luminous flux of all lamps	149180 lm
Total power	1963.3 W
Total power per area (11500.00 m²)	0.17 W/m²
Upward light ratio (ULR)	0.25

Illuminance

Average illuminance	Eav	19.1 lx
Minimum illuminance	Emin	4.7 lx
Maximum illuminance	Emax	78.6 lx
Uniformity Uo	Emin/Em	1:4.07 (0.25)
Diversity Ud	Emin/Emax	1:16.8 (0.06)

Type No.\Make

Philips Lighting

1 6

Order No.	: !
Luminaire name	: BGP303 1xLED49/740 DM (6m MH)
Equipment	: 1 x LED49/740/- / 5040 lm

2 15

Order No.	: !
Luminaire name	: TMS122 1xTL5-35W HFP
Equipment	: 1 x TL5-35W/840 / 1000 lm

The ULR value has been calculated without obstruction by other objects.

2 Carpark

2.2 Summary, Carpark

2.2.1 Result overview, Carpark

3 5

Order No. :
Luminaire name : BBS490 1xDLED-4000 PG
Equipment : 1 x DLED-4000 / 2260 lm

4 6

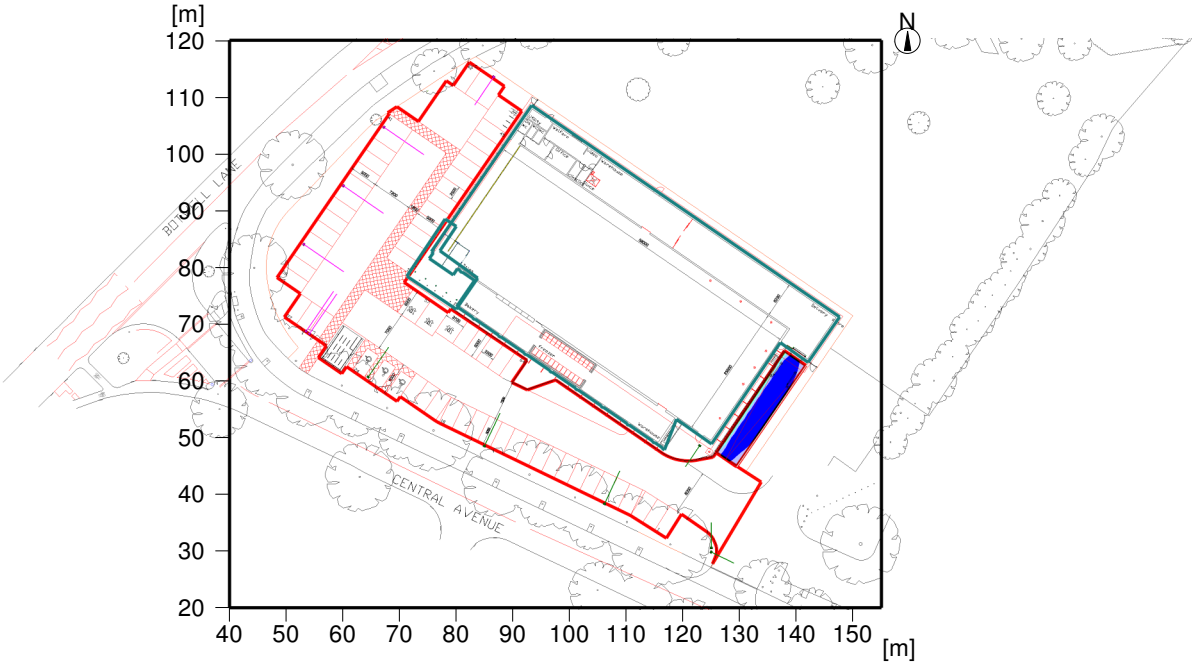
Order No. : !
Luminaire name : BGP303 1xLED49/740 DM (8m MH)
Equipment : 1 x LED49/740/- / 5040 lm

5 24

Order No. :
Luminaire name : WT460C L1300 1xLED23S/840 WB
Equipment : 1 x LED23S/840/- / 2600 lm

2.2 Summary, Carpark

2.2.2 Result overview, Lorry Loading Bay



Illuminance [lx]

General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.77
Total luminous flux of all lamps	149180 lm
Total power	1963.3 W
Total power per area (11500.00 m²)	0.17 W/m²
Upward light ratio (ULR)	0.25

Illuminance

Average illuminance	Eav	38 lx
Minimum illuminance	Emin	8.7 lx
Maximum illuminance	Emax	59.3 lx
Uniformity Uo	Emin/Em	1:4.35 (0.23)
Diversity Ud	Emin/Emax	1:6.79 (0.15)

Type No.\Make

Philips Lighting

1 6 Order No. : !
Luminaire name : BGP303 1xLED49/740 DM (6m MH)
Equipment : 1 x LED49/740/- / 5040 lm

2 15 Order No. : !
Luminaire name : TMS122 1xTL5-35W HFP
Equipment : 1 x TL5-35W/840 / 1000 lm

The ULR value has been calculated without obstruction by other objects.

2.2 Summary, Carpark

2.2.2 Result overview, Lorry Loading Bay

3 5

Order No. :
Luminaire name : BBS490 1xDLED-4000 PG
Equipment : 1 x DLED-4000 / 2260 lm

4 6

Order No. : !
Luminaire name : BGP303 1xLED49/740 DM (8m MH)
Equipment : 1 x LED49/740/- / 5040 lm

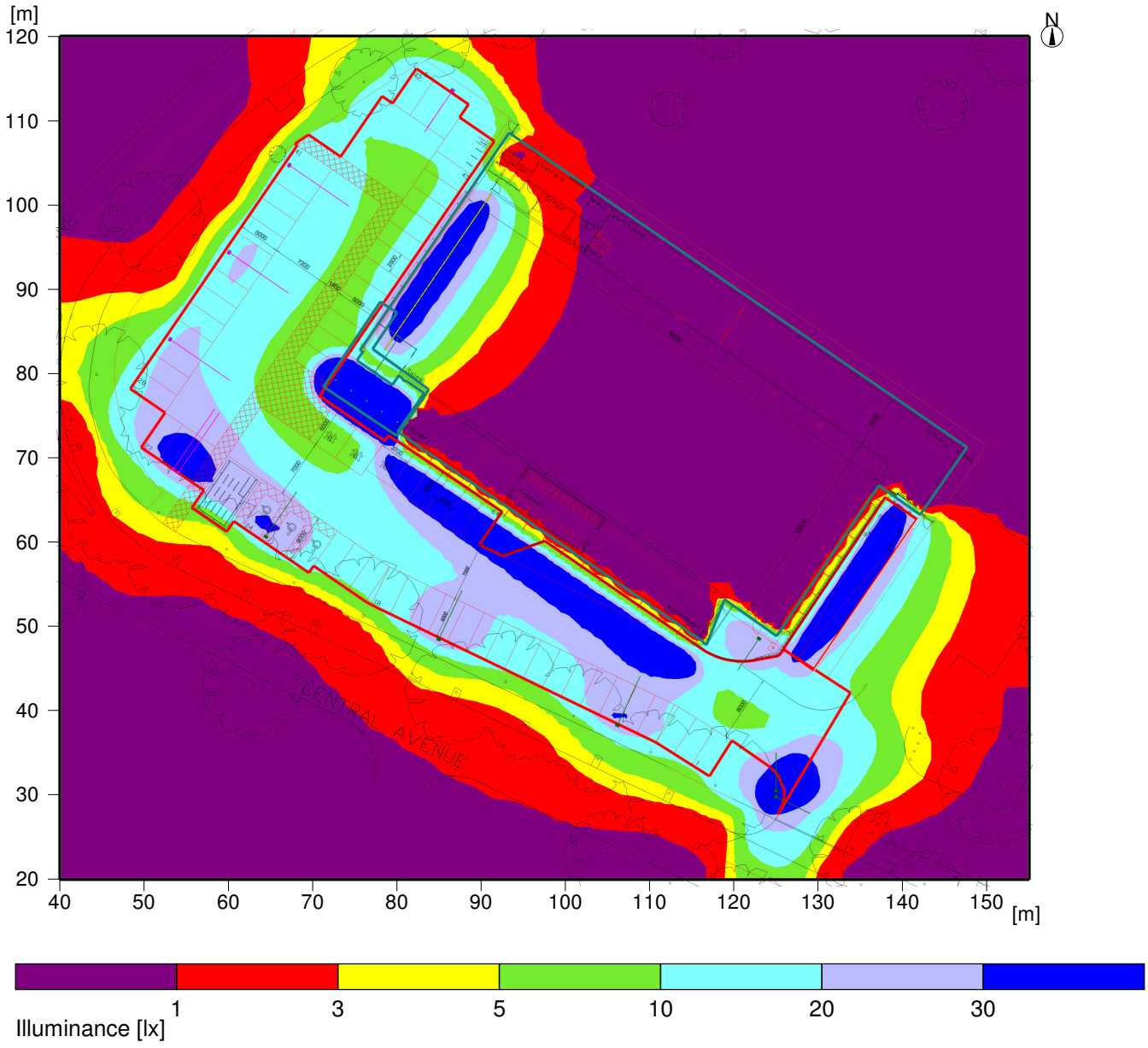
5 24

Order No. :
Luminaire name : WT460C L1300 1xLED23S/840 WB
Equipment : 1 x LED23S/840/- / 2600 lm

2 Carpark

2.3 Calculation results, Carpark

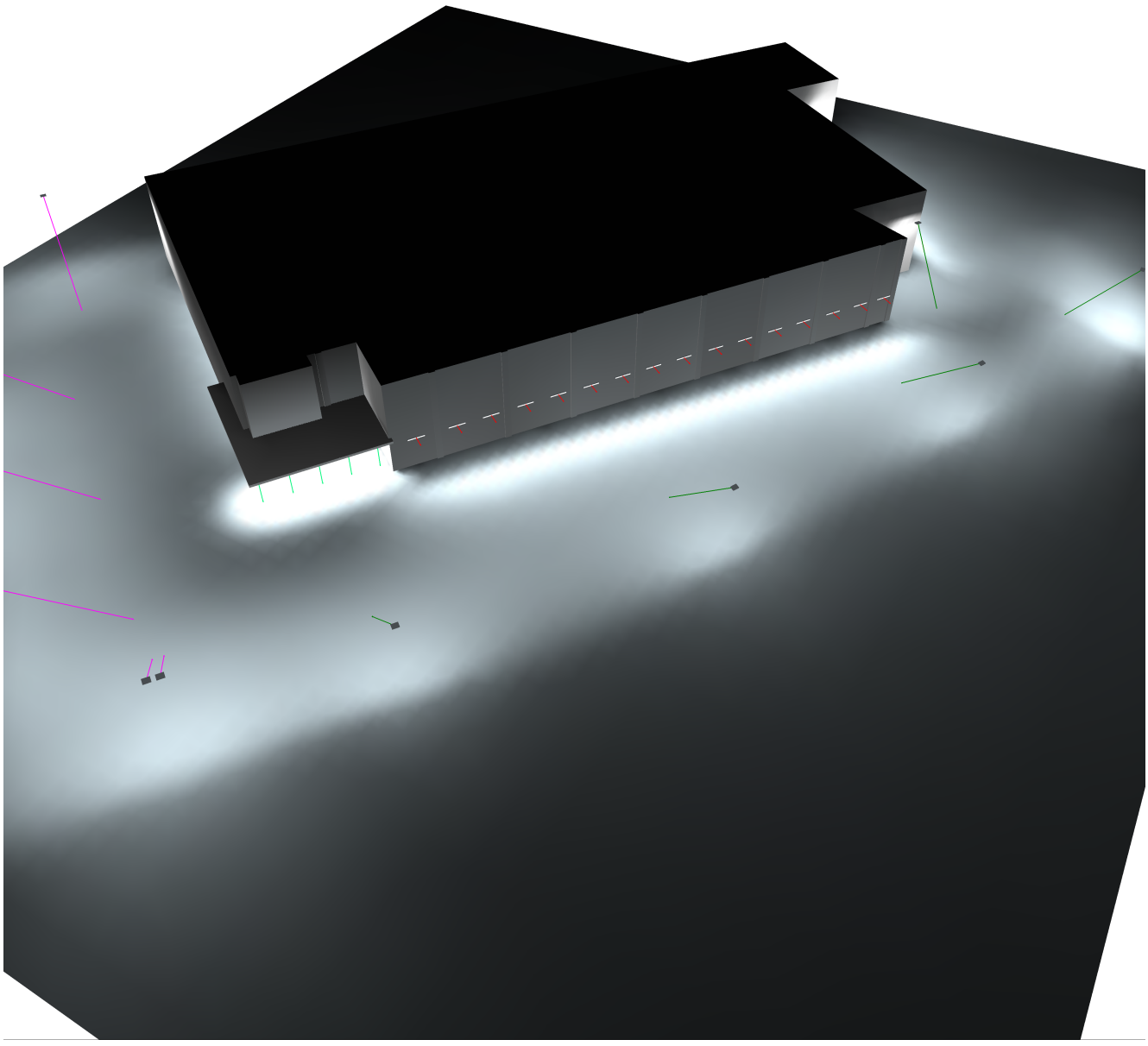
2.3.1 Pseudo colours, Floor (E)



Average illuminance		Eav	: 6 lx
Minimum illuminance		Emin	: 0 lx
Maximum illuminance		Emax	: 161 lx
Uniformity Uo		Emin/Eav	: 1 : 950.80 (0.00)
Diversity Ud		Emin/Emax	: 1 : 25629.13 (0.00)

2.3 Calculation results, Carpark

2.3.2 3D luminance, View 1



Luminance in the scene
Minimum: : 0 cd/m²
Maximum: : 27.5 cd/m²

Appendix A

PHILIPS

Philips Lighting

Philips Centre, Guildford Business Park, Guildford, Surrey GU2 8XH Tel: +44 (0) 845 6011283

Lighting Proposal Terms and Conditions of Use

These terms and conditions apply to any proposal(s) supplied by Philips Electronics UK Limited ("**Philips**") to which this document has been attached or accompanies, whether or not this is specifically acknowledged or referenced within the proposal.

For the purposes of these terms and conditions a proposal ("**proposal**") is understood to mean a CAD drawing, lighting calculation, written document, verbal conversation, or in fact any medium used to demonstrate or communicate a proposed lighting arrangement using Philips lighting products. A customer ("**customer**") is the person or organisation for whom the proposal is intended, whilst a design ("**design**") or designer ("**designer**") should have the meaning set out in the Construction, Design and Management Regulations 2007.

General Statement

The proposal has been provided in order to demonstrate how Philips lighting products could be arranged in order to facilitate the requirements particular to the relevant project, and is therefore only a suggested lighting design.

This information is provided subject to the following limitations:

- Philips has not undertaken any risk assessment for this design. Philips will not be held liable for any risk associated with the implementation of the design.
- Philips may not have had physical access to the site of the project to verify the information which has been provided and the proposal is therefore based solely on information provided by the customer to Philips. The customer is therefore responsible for ensuring that the proposal can be safely implemented in compliance with any laws and regulations.

Accordingly, the information contained in the proposal does not constitute a design for the purposes of the Construction, Design and Management Regulations 2007 and Philips does not accept or assume the role of designer.

The nominal values described in the proposal are likely to have been as a result of precision calculations, based upon precisely positioned luminaires in a fixed relationship to each other and to the area under examination which is usually considered to be a flat surface with no solid obstructions. In practice the values may vary due to a number of tolerances including; positions of lamps, luminaires, gear/drivers, ambient temperature, electrical supply behaviours, road camber, surface reflections, obstructions, and the precise positioning and angle of the luminaires for example.

The proposal should be considered as guidance only and must not be used in place of the final principal or construction drawings. Philips recommends that in the event that this proposal is taken forward as the preferred solution, that the calculations and arrangements are first scrutinised, verified and approved by a suitably qualified designer before being transposed onto the relevant working drawings as appropriate.

Installation and Maintenance Notes

1) The proposal must be read in conjunction with all other relevant project drawings and specifications.
2) Do not scale from the proposal. If in doubt please request further information.
3) The proposal may show lighting layout information, but should not be used for installation purposes or construction drawings. Please refer to the official contractor's working drawings which should also include additional information such as electrical connections, other illuminated equipment, and site specific hazards and other safety considerations.
4) All relevant laws and regulations must be fully complied with including the undertaking of any required site risk assessments before installation commences.
5) The proposal is based upon customer supplied information and it should be assumed that no survey on site has been carried out by Philips. Utility information such as underground and over ground cables and gas pipes etc. will need to be checked on site by the appropriate person/organisation before any excavation works or installation of lighting equipment.
6) The proposal may contain symbols which indicate the proposed locations of the lighting equipment. For further information please refer to the luminaire schedules and details.
7) Locations and orientation of all equipment must be confirmed with the client prior to installation. Exact orientation of luminaires may need to be finalised during final focusing. Please refer to the Philips lighting solutions drawings and specifications for details of electrical engineering associated with lighting works.
8) The customer shall ensure that all proposed lighting equipment is suitable for the particular environmental conditions prevalent at the proposed location.
9) All lighting equipment must be supplied with adequate means for protection during transport to site and any subsequent storage prior to installation.
10) For lighting on structures such as bridges, tunnels, buildings, canopies, furniture or water features for example, please refer to the relevant drawings and details.
11) For details of all luminaires please refer to the Philips lighting solutions luminaire schedule.
12) For cable routes, driver locations and any electrical works associated with the lighting installation please refer to the contractor's installation drawings and documentation.
13) The lighting installation requires a variety of luminaire types to achieve the desired effects. Information has been provided on the proposal as general guidance and outline of good practice. For more specific recommendations please refer to manufacturer's details for application, operation, handling cleaning and disposal instructions.
14) Installation and maintenance of lighting equipment installed at any height above ground requires specific precautions to be taken. Access arrangements should be in strict accordance with the projects access report, method statement and health and safety guidelines.
15) All fixtures must be electrically isolated prior to any testing or maintenance.
16) Luminaries may need to be powered up for focusing during the hours of darkness, and in which case they must be specified as being fully enclosed and earthed, or operated at extra low voltage.
17) Certain lighting fixtures need to be protected from thermal damage caused by over heating by means of thermal cut-out or similar device. Please refer to the relevant documentation.