

Valkas pilseta

Tranzita A3 _Gajeju celins

Project code: LED gaismekli
Date: 28-12-2011

Description: Ielas apgaismojuma noslogotibas kategorija (M4)
Ielas platums 7,5m + Gajeju ietve 3,2m
Attalums starp balstiem ielai 33.0m
Apgaismes Balsts 6,0m
Balsta konsole H-2m L-1.50m 0 gradi
Balsta attalums no Celja braucamas daljas - 1,5m

Attalums starp balstiem gajeju ietvei 25.0m
Apgaismes Balsts 6,0m
Balsta konsole - nav
Balsta attalums no ietves malas - 0,50m

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.

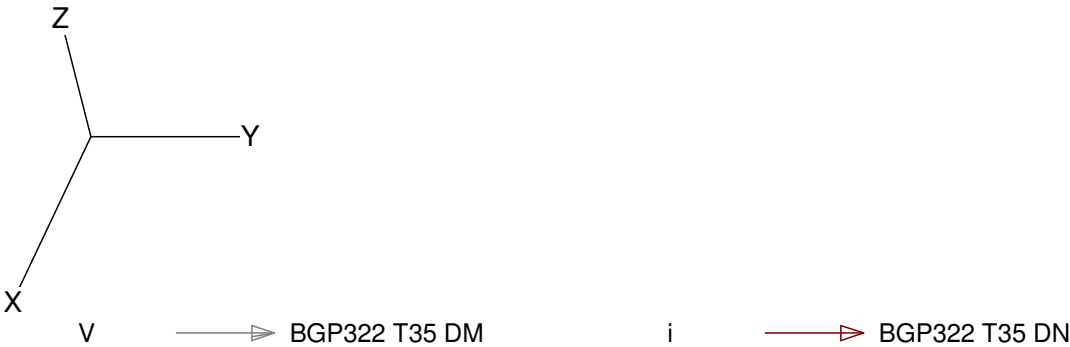
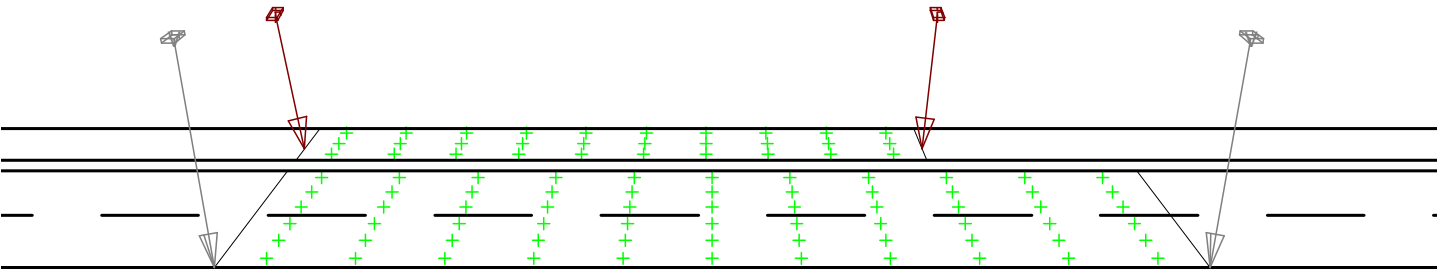
Ingars Ozolins

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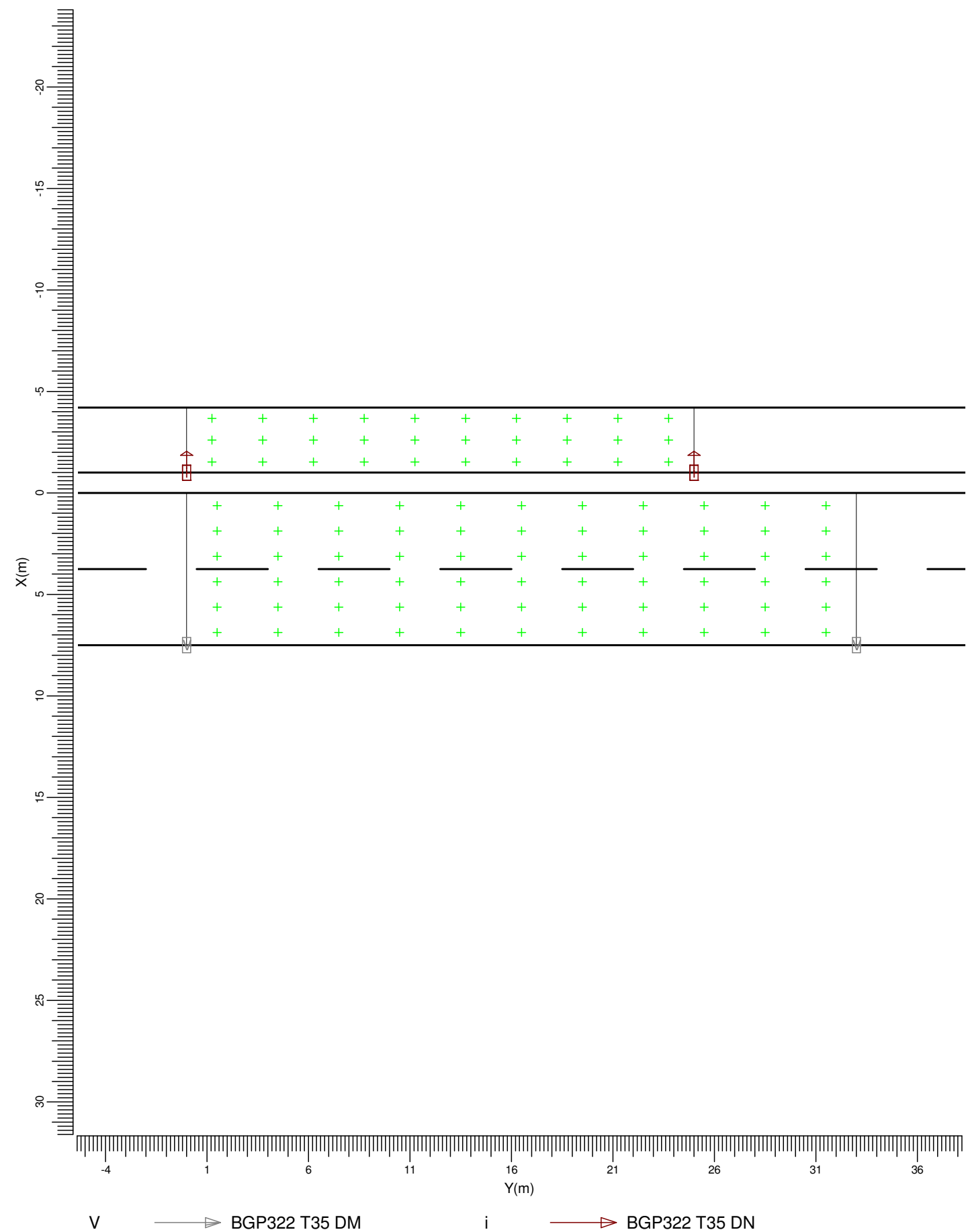
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1. Project Description

1.1 3-D Project Overview

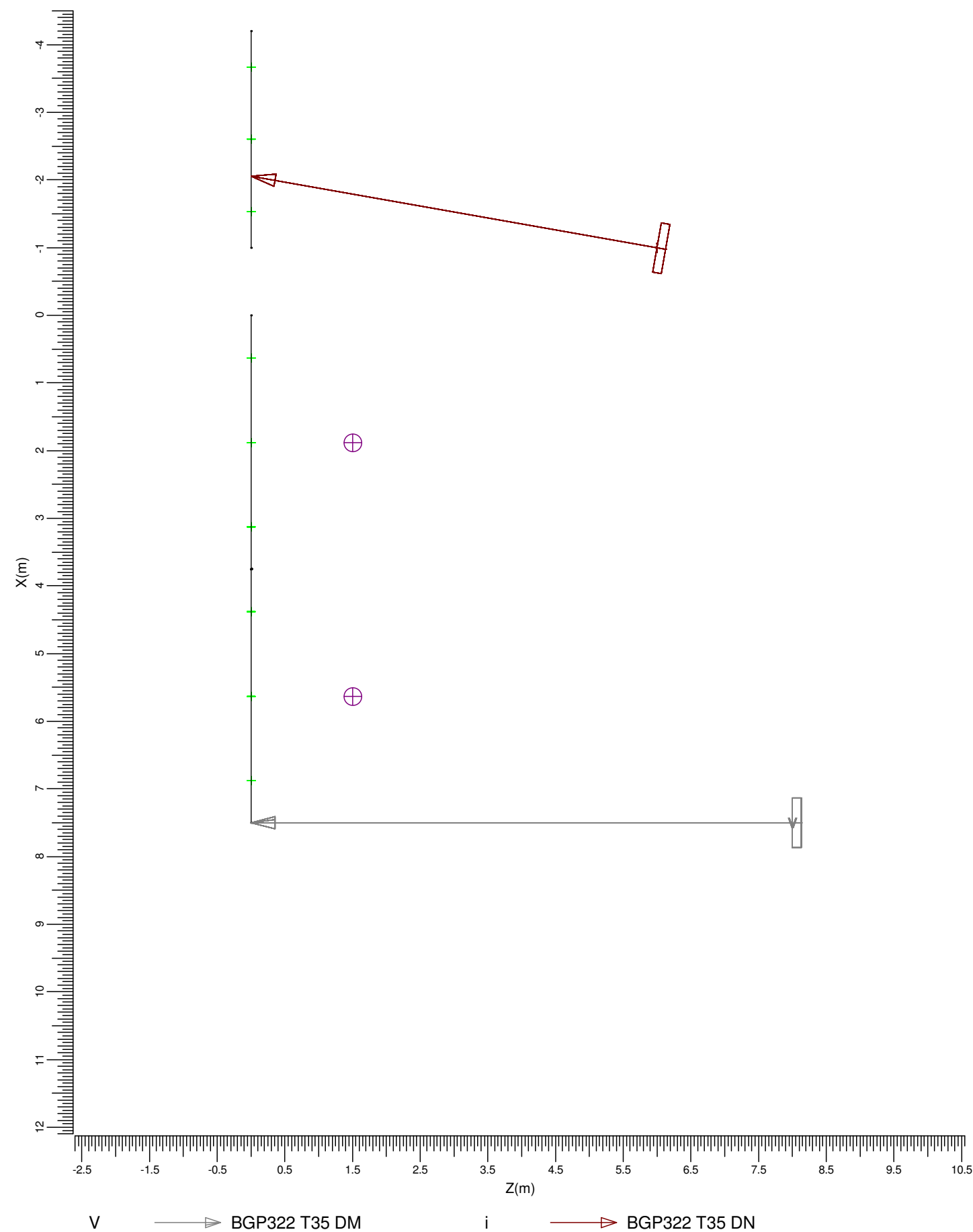


1.2 Top Project Overview



Scale
1:250

1.3 Front Project Overview



Scale
1:75

2. Overview of Schemes

The overall maintenance factor used for this project is 0.80.

Main Field grid is based on the CEN Luminance grid method.

Code	Luminaire Type	Lamp Type	Power (W)	Flux (lm)
V	BGP322 T35 DM	1 * ECO71-2S/740	68.4	1 * 7081

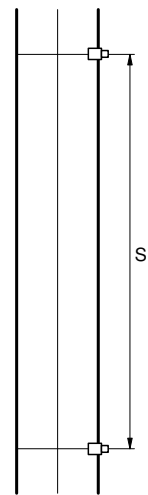
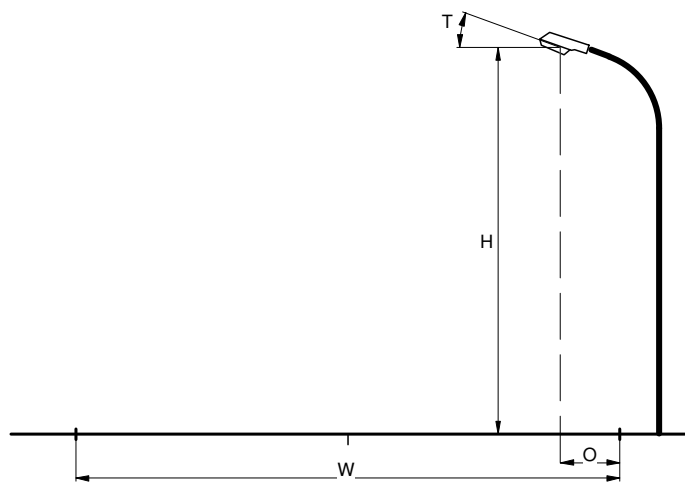
	Unit	Scheme 1
Carriageway		Single Carriageway
Road Width	m	7.50
Number of Lanes		2
Reflection Table		CIE C2
Q0 of Table		0.070
Maintenance Factor		0.80
Luminaire Code		V
Installation		Single Sided Right
Height	m	8.00
Spacing	m	33.00
Overhang	m	0.00
Tilt90	deg	0.0
L ave	cd/m2	0.86
L min/ave		0.62
TI	%	11.1
Eh ave	lux	13.2

The calculation results include the contributions of user defined luminaires

3. Summary

3.1 Main Road

Luminaire Type	:	BGP322 T35 DM
Lamp Type	:	1 * ECO71-2S/740
Lamp Flux	:	7081 lumen
Tilt90 (T)	:	0.0 deg
Grid Method	:	CEN Luminance
Project Maintenance Factor	:	0.80



Carriageway	:	Single Carriageway
Road Width (W)	:	7.50 m
Number of Lanes	:	2
Reflection Table	:	CIE C2
Q0 of Table	:	0.070
Maintenance Factor	:	0.80
Installation	:	Single Sided Right
Height (H)	:	8.00 m
Spacing (S)	:	33.00 m
Overhang (O)	:	0.00 m

Overall quality figures for the above road scheme.

Luminance

Average	=	0.86 cd/m2
Minimum/Average	=	0.62

Horizontal Illuminance

Average	=	13.2 lux
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Glare

TI	=	11.1 %
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3.2 Additional Rows of Luminaires

Project Luminaires:

Code	Qty	Luminaire Type	Lamp Type	Flux (lm)
i	13	BGP322 T35 DN	1 * ECO42-2S/740	1 * 4248

Qty and Code	Position			Aiming Angles		
	X (m)	Y (m)	Z (m)	Rot.	Tilt90	Tilt0
1 * i	-1.00	-0.00	6.00	-180.0	10.0	0.0
1 * i	-1.00	25.00	6.00	-180.0	10.0	0.0
1 * i	-1.00	50.00	6.00	-180.0	10.0	0.0
1 * i	-1.00	75.00	6.00	-180.0	10.0	0.0
1 * i	-1.00	100.00	6.00	-180.0	10.0	0.0
1 * i	-1.00	125.00	6.00	-180.0	10.0	0.0
1 * i	-1.00	150.00	6.00	-180.0	10.0	0.0
1 * i	-1.00	175.00	6.00	-180.0	10.0	0.0
1 * i	-1.00	200.00	6.00	-180.0	10.0	0.0
1 * i	-1.00	225.00	6.00	-180.0	10.0	0.0
1 * i	-1.00	250.00	6.00	-180.0	10.0	0.0
1 * i	-1.00	275.00	6.00	-180.0	10.0	0.0
1 * i	-1.00	300.00	6.00	-180.0	10.0	0.0

3.3 Additional Calculations

(II)luminance Calculations:

Calculation	Type	Unit	Ave	Min/Ave	Min/Max
Single Carriageway	Surface Illuminance	lux	16.9	0.54	0.29

4. Calculation Results

4.1 Single Carriageway: Textual Table

Grid : Single Carriageway at Z = -0.00 m
Calculation : Surface Illuminance (lux)

Y (m)	1.25	3.75	6.25	8.75	11.25	13.75	16.25	18.75	21.25	23.75
X (m)										
-3.67	24	18	14	11	10	10	11	14	19	25
-2.60	29	21	15	11	9	10	12	16	22	30
-1.53	32	22	15	10	9<	9	11	16	23	32>

Average
16.9

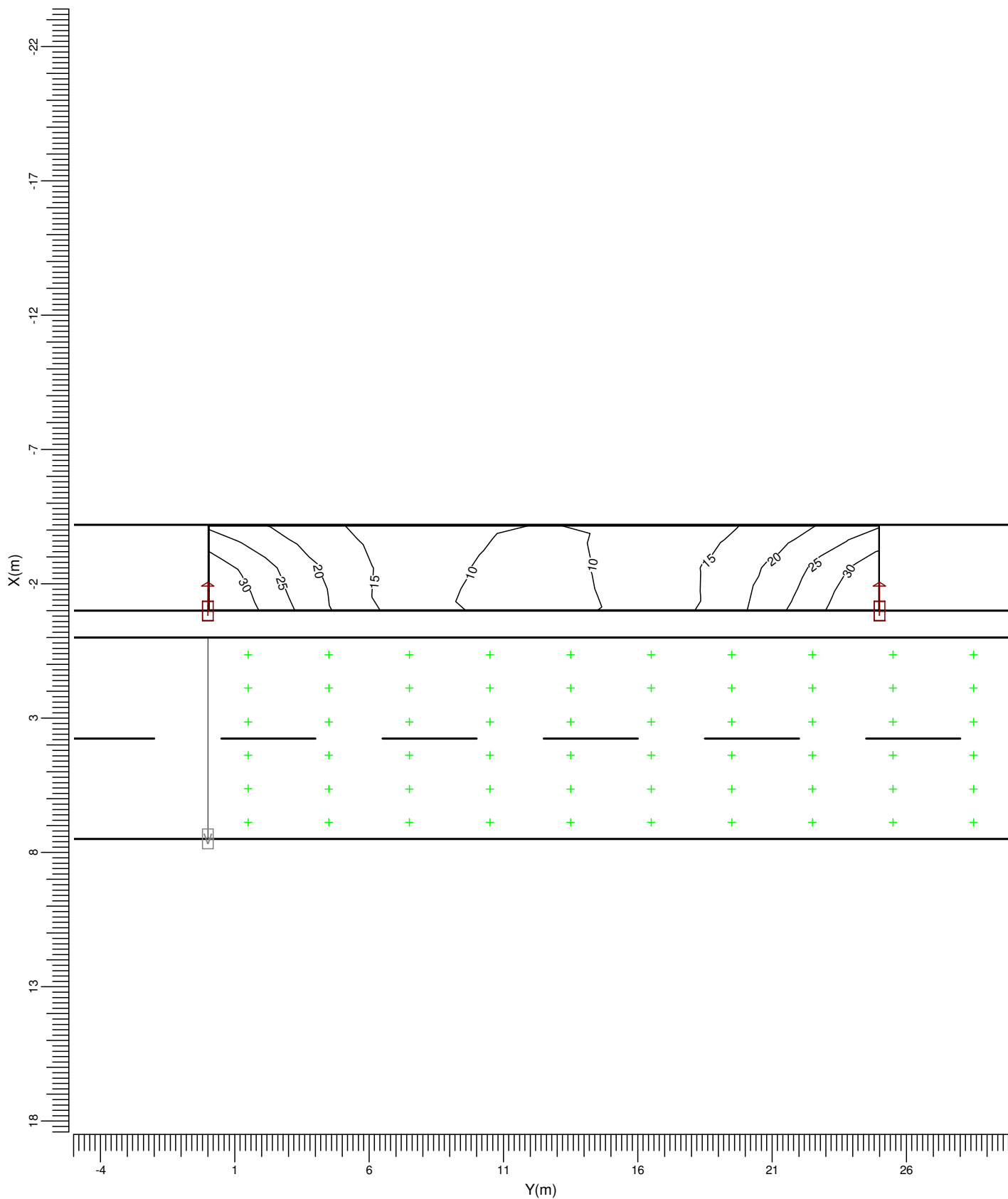
Min/Ave
0.54

Min/Max
0.29

Project maintenance factor
0.80

4.2 Single Carriageway: Iso Contour

Grid : Single Carriageway at Z = -0.00 m
Calculation : Surface Illuminance (lux)



V



BGP322 T35 DM

i



BGP322 T35 DN

Average
16.9

Min/Ave
0.54

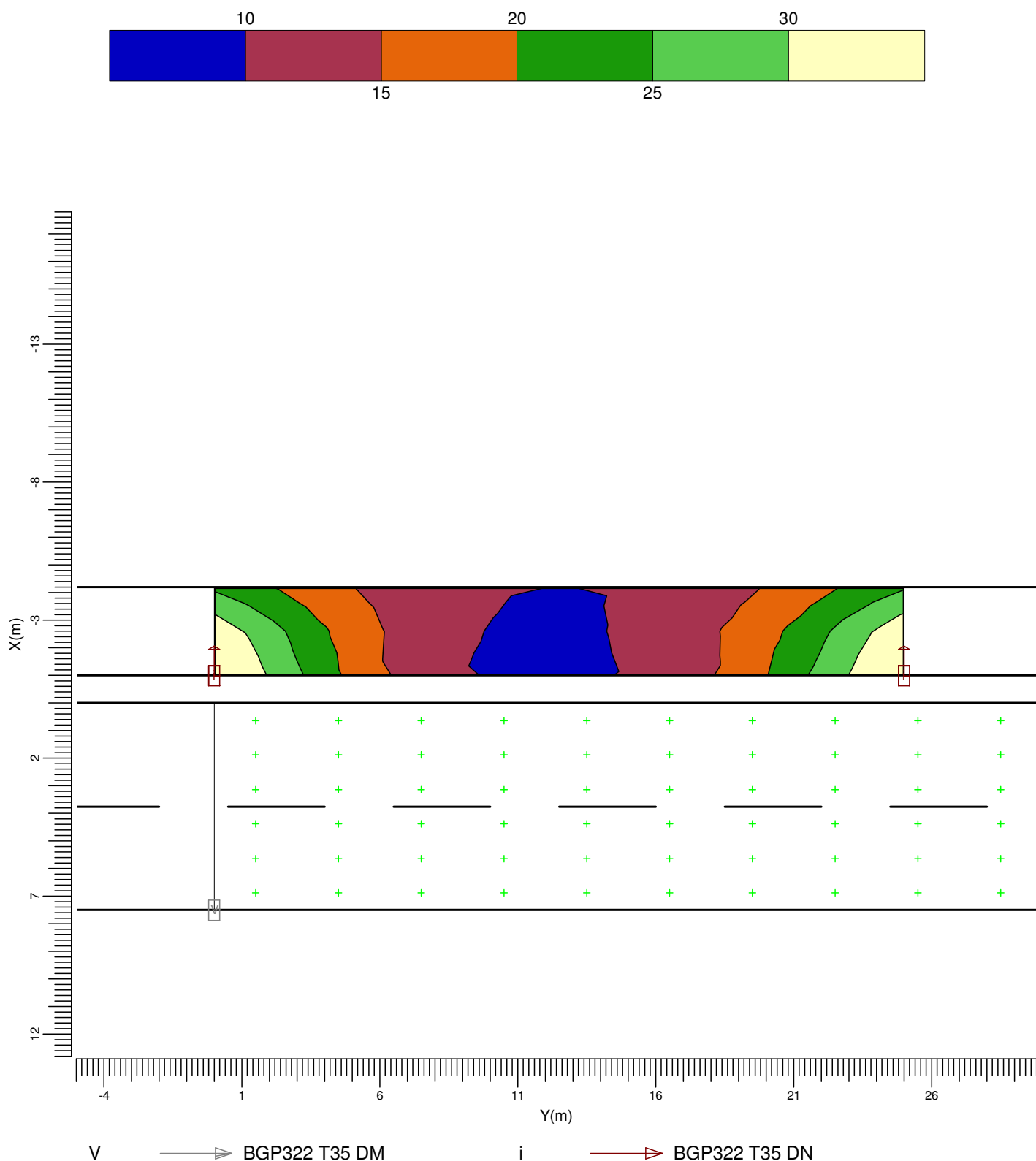
Min/Max
0.29

Project maintenance factor
0.80

Scale
1:200

4.3 Single Carriageway: Filled Iso Contour

Grid : Single Carriageway at Z = -0.00 m
Calculation : Surface Illuminance (lux)



Average
16.9

Min/Ave
0.54

Min/Max
0.29

Project maintenance factor
0.80

Scale
1:200

4.4 Main L (O1): Textual Table

Grid : Main at Z = -0.00 m TI (1.88,-17.88, 1.50) = 8.4%
 Calculation : Luminance towards CEN Observer (O1) (1.88,
 -60.00, 1.50) (cd/m2)
 Road Surface : CIE C2 with Q0 = 0.070

Y (m)	1.50	4.50	7.50	10.50	13.50	16.50	19.50	22.50	25.50	28.50	31.50
X (m)											
0.63	0.81	0.67	0.57	0.57<	0.61	0.74	0.88	0.97	0.89	0.76	0.63
1.88	0.74	0.69	0.66	0.64	0.65	0.71	0.79	0.85	0.83	0.77	0.70
3.13	0.84	0.82	0.81	0.77	0.77	0.79	0.86	0.91	0.89	0.83	0.79
4.38	0.98	0.98	0.98	0.99	0.98	0.97	0.99	1.01	0.99	0.93	0.89
5.63	1.12	1.16	1.20	1.23>	1.20	1.19	1.20	1.19	1.18	1.05	1.02
6.88	0.98	0.97	0.99	1.03	1.08	1.12	1.14	1.19	1.19	1.10	1.05

Average
0.92

Min/Ave
0.62

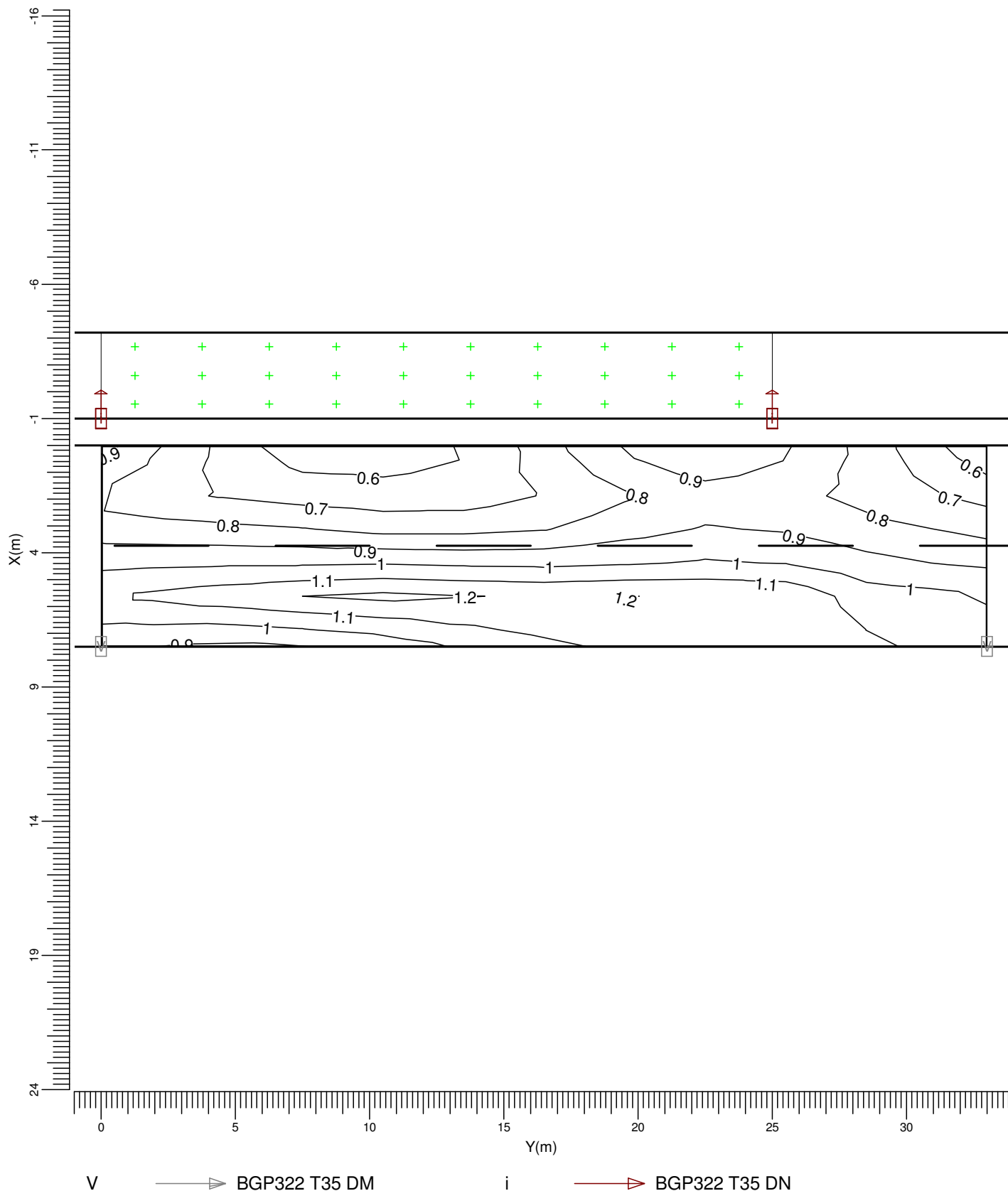
Min/Max
0.46

Project maintenance factor
0.80

4.5 Main L (O1): Iso Contour

Grid : Main at Z = -0.00 m
Calculation : Luminance towards CEN Observer (O1) (1.88, -60.00, 1.50) (cd/m2)
Road Surface : CIE C2 with Q0 = 0.070

TI (1.88,-17.88, 1.50) = 8.4%



Average
0.92

Min/Ave
0.62

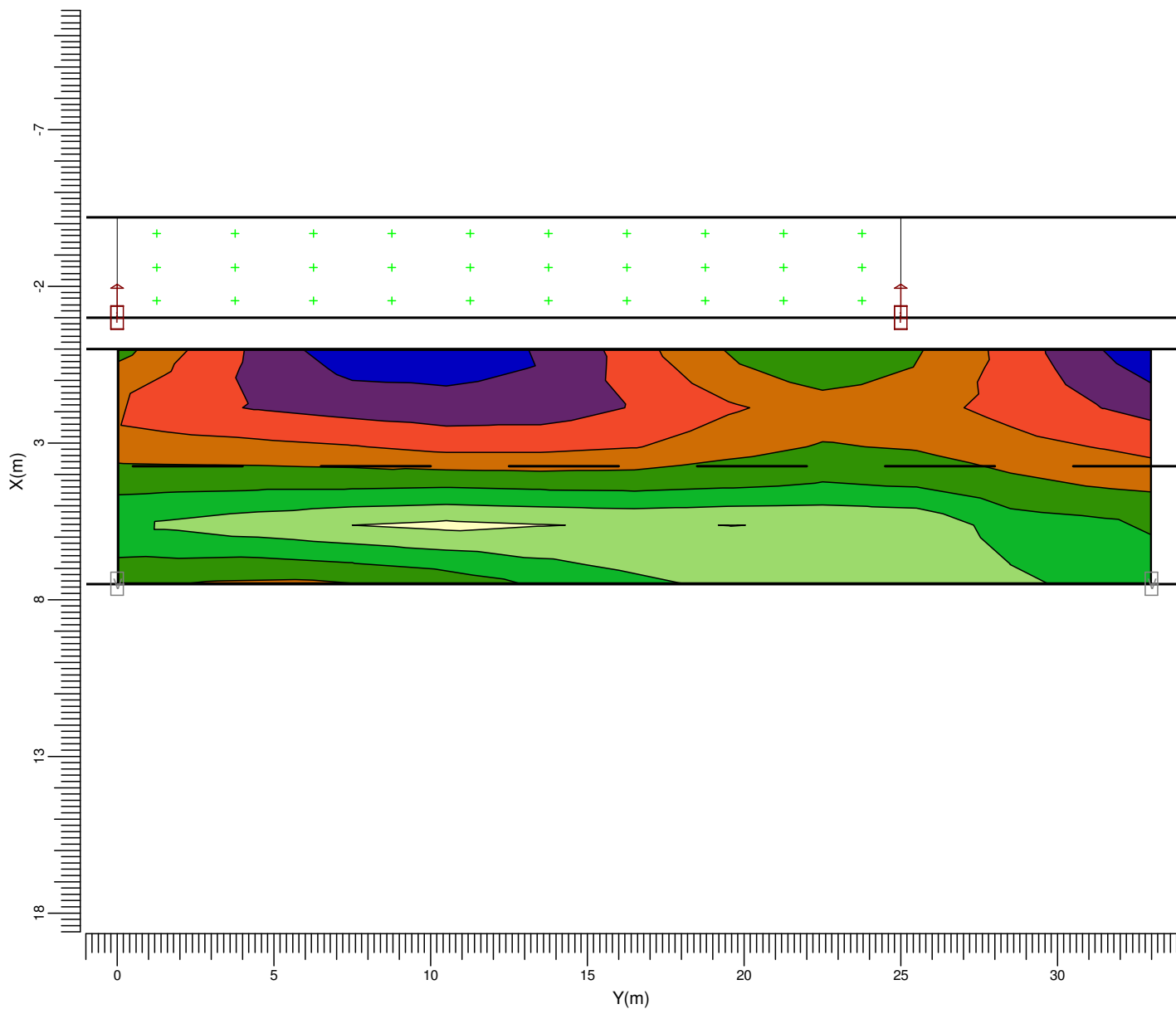
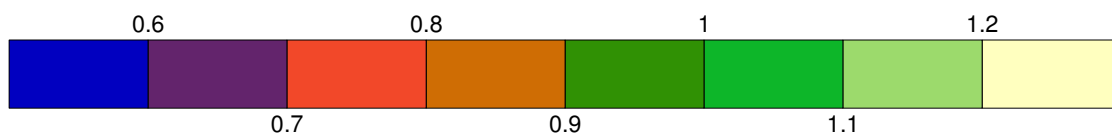
Min/Max
0.46

Project maintenance factor
0.80

Scale
1:200

4.6 Main L (O1): Filled Iso Contour

Grid : Main at Z = -0.00 m TI (1.88,-17.88, 1.50) = 8.4%
 Calculation : Luminance towards CEN Observer (O1) (1.88,
 -60.00, 1.50) (cd/m2)
 Road Surface : CIE C2 with Q0 = 0.070



V — BGP322 T35 DM

i — BGP322 T35 DN

Average
0.92

Min/Ave
0.62

Min/Max
0.46

Project maintenance factor
0.80

Scale
1:200

4.7 Main L (O2): Textual Table

Grid : Main at Z = -0.00 m TI (5.63,-17.88, 1.50) = 11.1%
 Calculation : Luminance towards CEN Observer (O2) (5.63,
 -60.00, 1.50) (cd/m2)
 Road Surface : CIE C2 with Q0 = 0.070

Y (m)	1.50	4.50	7.50	10.50	13.50	16.50	19.50	22.50	25.50	28.50	31.50
X (m)											
0.63	0.80	0.66	0.56	0.55<	0.60	0.73	0.86	0.96	0.89	0.76	0.63
1.88	0.72	0.66	0.61	0.59	0.59	0.66	0.74	0.81	0.81	0.75	0.68
3.13	0.76	0.71	0.68	0.66	0.64	0.69	0.77	0.85	0.86	0.81	0.76
4.38	0.85	0.81	0.79	0.78	0.76	0.81	0.87	0.93	0.93	0.89	0.84
5.63	0.99	0.98	0.98	0.98	1.00	1.02	1.06	1.12	1.12	1.01	0.97
6.88	1.09	1.11	1.10	1.09	1.10	1.13	1.14	1.18	1.20>	1.11	1.07

Average
0.86

Min/Ave
0.64

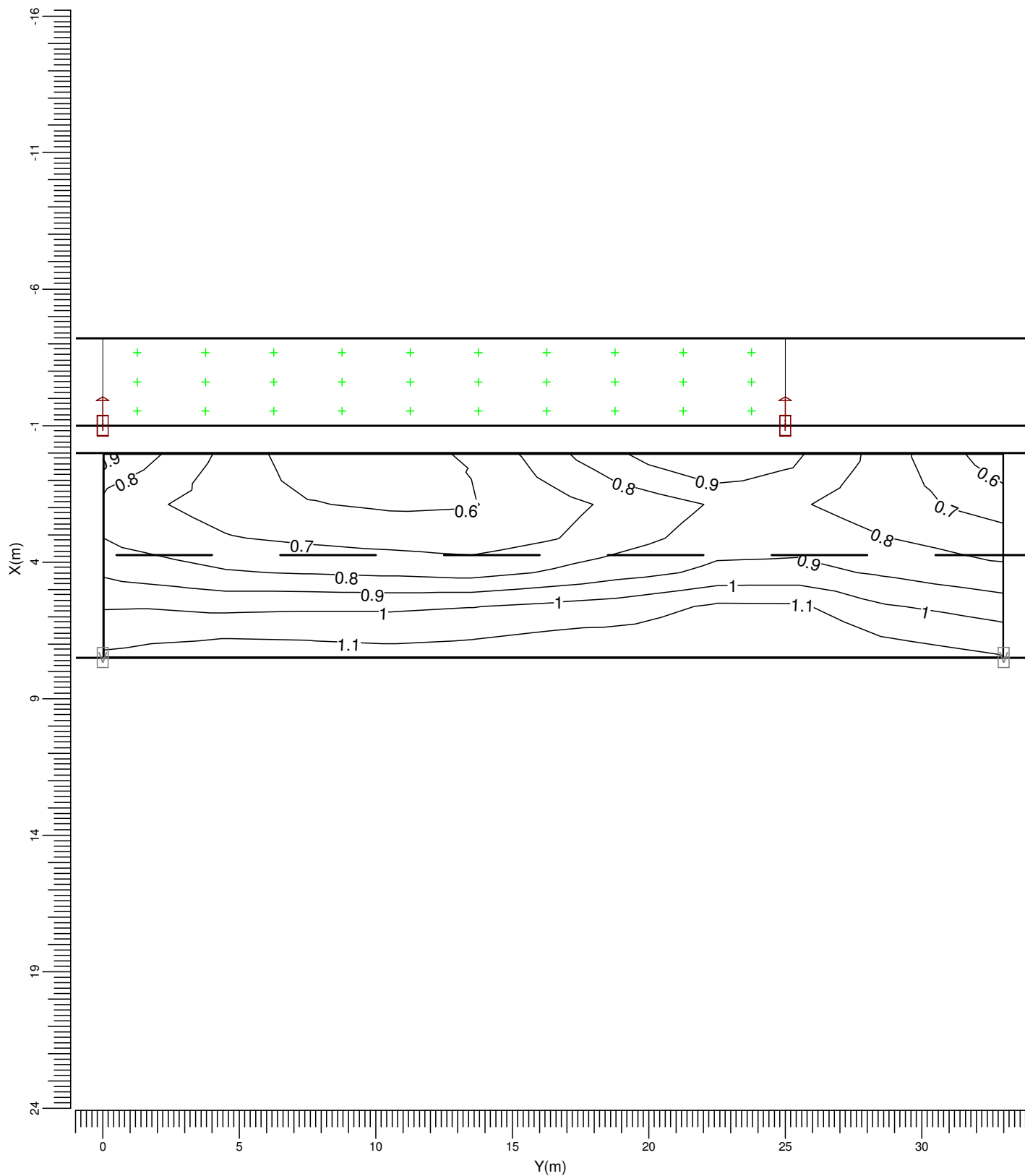
Min/Max
0.46

Project maintenance factor
0.80

4.8 Main L (O2): Iso Contour

Grid : Main at Z = -0.00 m
Calculation : Luminance towards CEN Observer (O2) (5.63, -60.00, 1.50) (cd/m2)
Road Surface : CIE C2 with Q0 = 0.070

TI (5.63,-17.88, 1.50) = 11.1%



V



BGP322 T35 DM

i



BGP322 T35 DN

Average
0.86

Min/Ave
0.64

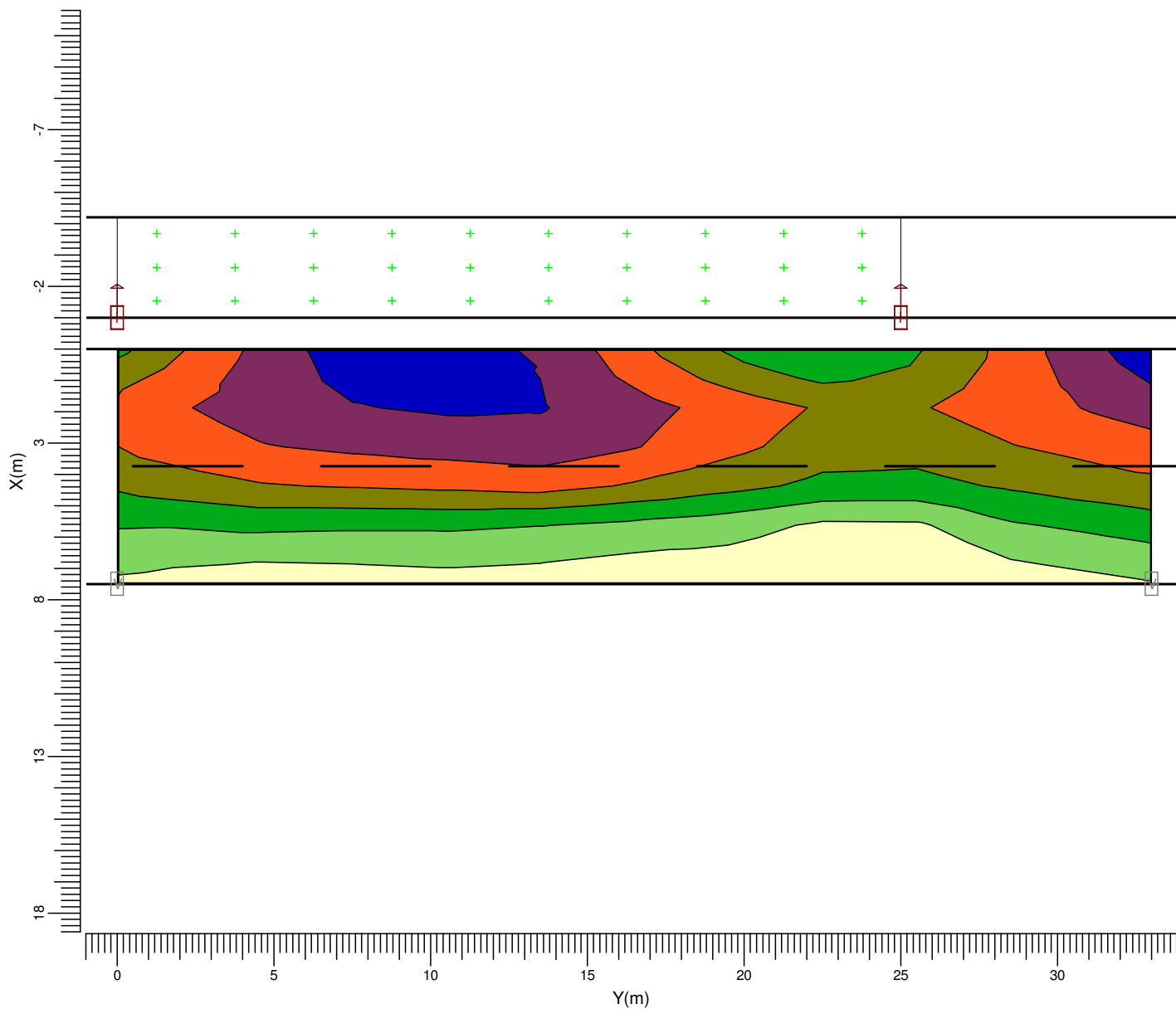
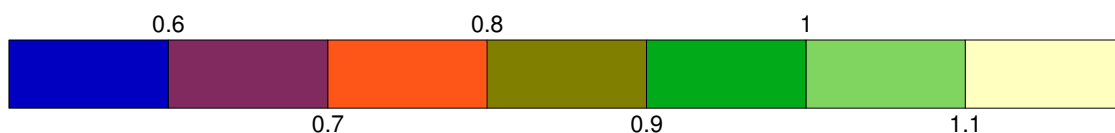
Min/Max
0.46

Project maintenance factor
0.80

Scale
1:200

4.9 Main L (O2): Filled Iso Contour

Grid : Main at Z = -0.00 m TI (5.63,-17.88, 1.50) = 11.1%
 Calculation : Luminance towards CEN Observer (O2) (5.63,
 -60.00, 1.50) (cd/m2)
 Road Surface : CIE C2 with Q0 = 0.070



V — BGP322 T35 DM

i — BGP322 T35 DN

Average
0.86

Min/Ave
0.64

Min/Max
0.46

Project maintenance factor
0.80

Scale
1:200

4.10 Main Eh: Textual Table

Grid : Main at Z = -0.00 m
Calculation : Horizontal Illuminance (lux)

Y (m)	1.50	4.50	7.50	10.50	13.50	16.50	19.50	22.50	25.50	28.50	31.50
X (m)											
0.63	21	16	11	9	8	9	11	17	20	17	14
1.88	19	15	12	10	9	8	10	13	15	16	16
3.13	20	16	12	10	8	8	9	11	14	17	18
4.38	21	17	12	9	7	7	8	10	14	17	20
5.63	23	18	12	9	7	6	7	10	14	18	22
6.88	25>	19	12	8	6	6<	6	9	13	19	24

Average
13.2

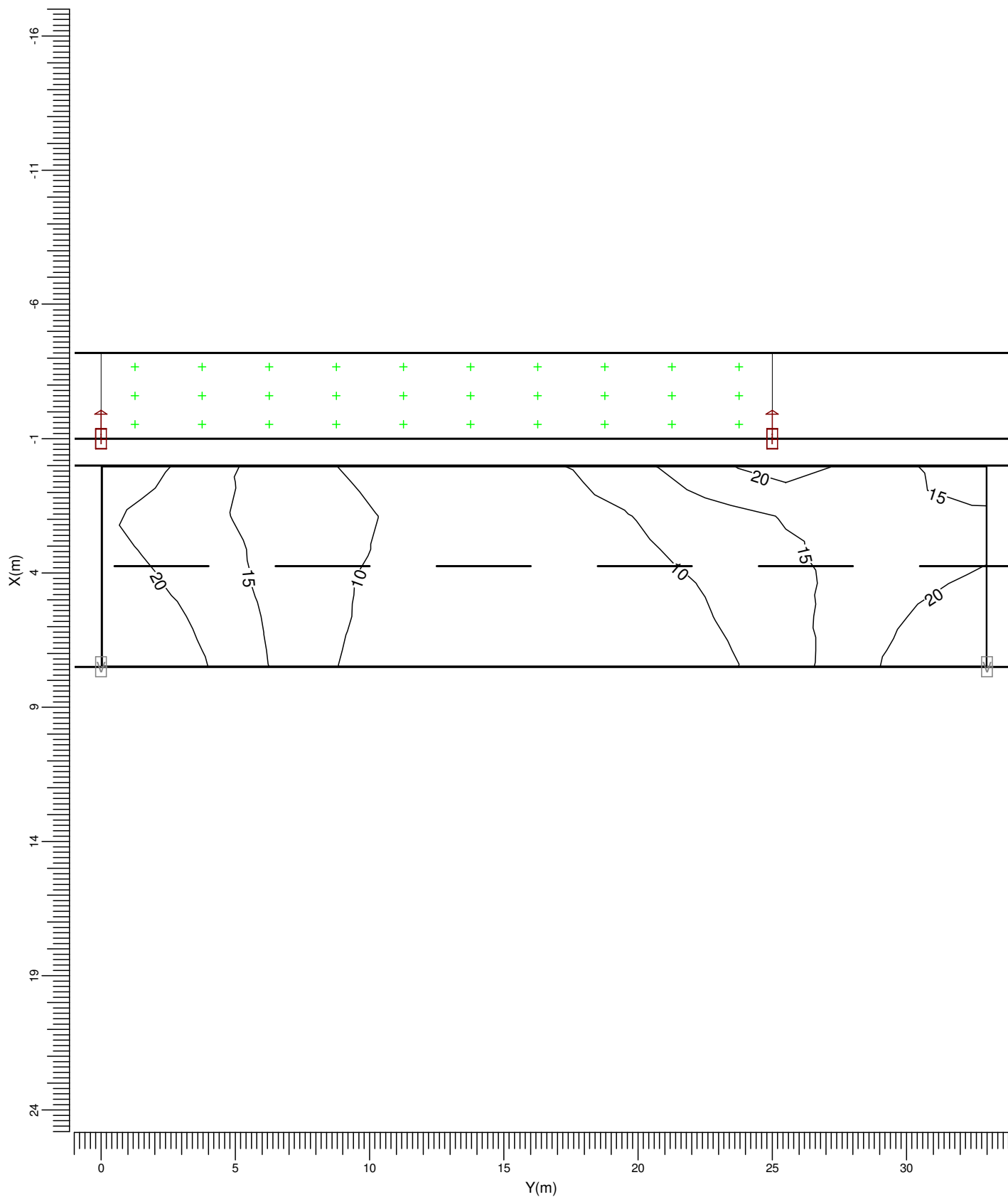
Min/Ave
0.42

Min/Max
0.22

Project maintenance factor
0.80

4.11 Main Eh: Iso Contour

Grid : Main at Z = -0.00 m
Calculation : Horizontal Illuminance (lux)



V — BGP322 T35 DM

i — BGP322 T35 DN

Average
13.2

Min/Ave
0.42

Min/Max
0.22

Project maintenance factor
0.80

Scale
1:200

4.12 Main Eh: Filled Iso Contour

Grid : Main at Z = -0.00 m
Calculation : Horizontal Illuminance (lux)

