Christ's Hospital Athletics Track

LED Floodlighting

Project code:	a22-0718129c
Date:	13-03-2024
Customer:	Christ's Hospital School
Customer Representative:	Francis Pulvermacher
Designer:	Ben Leslie - Christy Lighting Masts
Description:	Athletics Track & Infield Maintained Illuminance: 200lux Uniformity >0.5 Luminaire Source: 26no. GigaTera 1200W MAFGen2 LED Columns: 10no. Christy Lighting 17m Raise & Lower Columns Infield Pitch Playing Lines 100m / 64m Maintained Illuminance: 200lux Uniformity >0.6 Car Park Lighting & Access Road Maintained Illuminance: 20lux Uniformity: 0.25 Luminaire Source: 41no. GigaTera 50W WAPA LED Columns: 39no. 6m Static Root Mounted Streetlighting Masts Amenity Lighting Luminaire Source: 12no. GigaTera 50W WAPA LED Columns: 11no. 5m Static Root Mounted Streetlighting Masts

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.

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Table of Contents

1. Project Description **3**

1.1 Top Project Overview 3

2. Summary **4**

2.1 Observer Information 4
2.2 Project Luminaires 4
2.3 Calculation Results 5

3. Calculation Results **6**

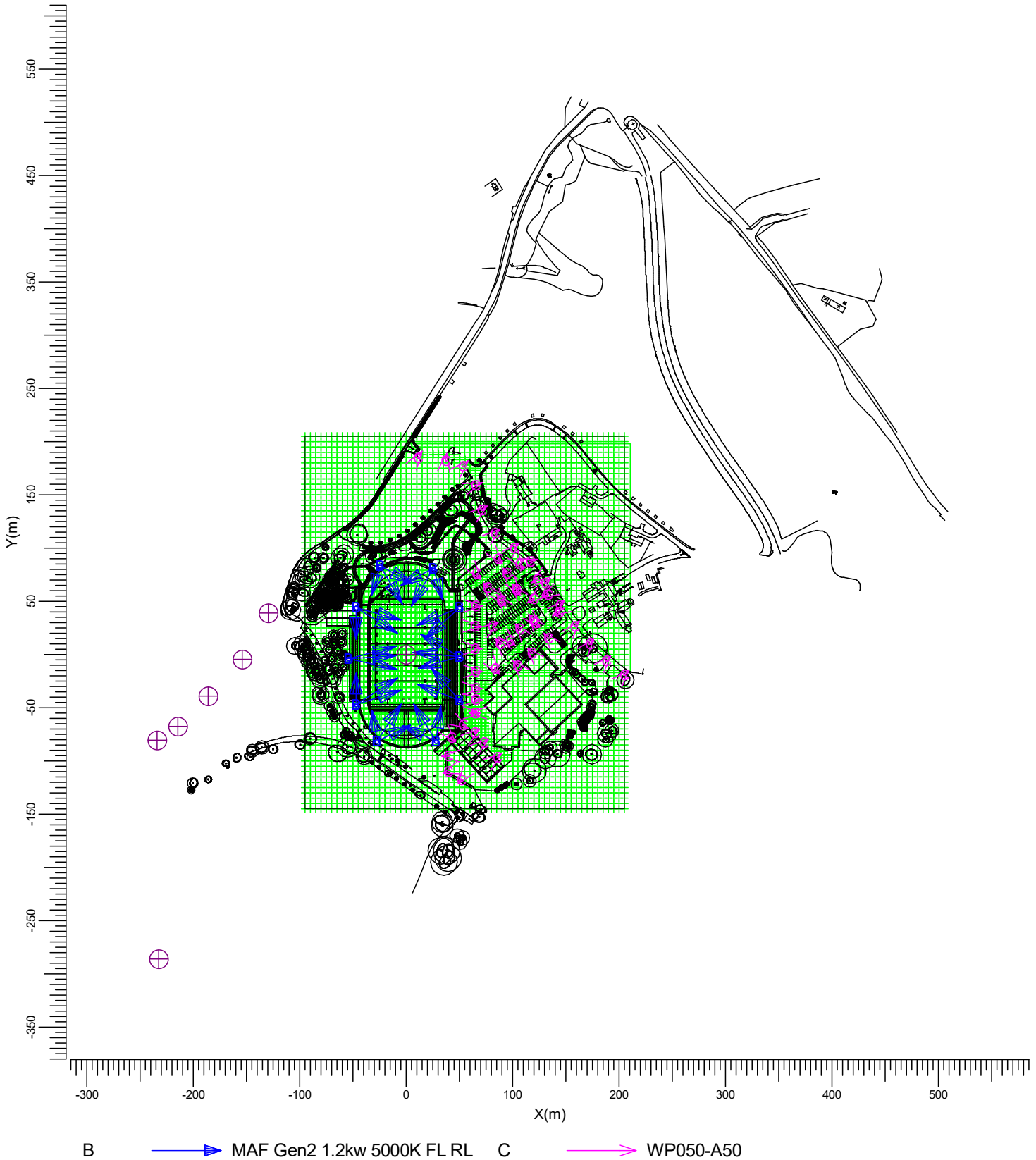
3.1 Athletics Grid: Graphical Table 6
3.2 Rugby: Graphical Table 7
3.3 Long Jump Grid: Graphical Table 8
3.4 Car Park Grid: Graphical Table 9
3.5 Access Road: Graphical Table 10
3.6 Amenity Lighting Grid: Graphical Table 11
3.7 H Spill Calculation: Graphical Table 12
3.8 H Spill Calculation: Iso Contour 13
3.9 H Spill Calculation: Filled Iso Contour 14

4. Installation Data **15**

4.1 Legends 15
4.2 Luminaire Positioning and Orientation 15

1. Project Description

1.1 Top Project Overview



Scale
1:5000

2. Summary

2.1 Observer Information

Code	Observer	Position		
		X (m)	Y (m)	Z (m)
Bb	Source Intensity Point 1	-129.50	39.00	1.50
Cc	Source Intensity Point 2	-154.00	-4.50	1.50
Dd	Source Intensity Point 3	-185.95	-39.09	1.50
Ee	Source Intensity Point 4	-214.72	-67.39	1.50
Ff	Source Intensity Point 5	-234.10	-80.67	1.50
Gg	Source Intensity Point 6	-232.64	-286.30	1.50

2.2 Project Luminaires

Code	Qty	Luminaire Type	Lamp Type	Power (W)	Flux (lm)
B	28	MAF Gen2 1.2kw 5000K FL RL	1 * LED 1.2kW	1200.0	1 * 156870
C	53	WP050-A50	1 * WP050-A50	51.0	1 * 6885

The total installed power: 36.30 (kWatt)

Number of Luminaires Per Switching Mode:

Switching Mode	Luminaire Code		Power (kWatt)
	B	C	
Track Lighting	26	0	31.20
In Field Lighting	26	0	31.20
All On	28	53	36.30
Car Park	0	27	1.38
Access Road	0	14	0.71
Amenity Lighting	0	14	0.71
Long Jump	9	0	10.80

Number of Luminaires Per Arrangement:

Arrangement	Luminaire Code		Power (kWatt)
	B	C	
Bend Left Col1	3	0	3.60
Bend Left Col3	3	0	3.60
Bend Left Col4	3	0	3.60
Bend Top Right Col	3	0	3.60
Centre Left Col1	1	0	1.20
Centre Left Col2	2	0	2.40
Centre Right Col1	1	0	1.20
Centre Right Col2	2	0	2.40
Corner Left Col1	3	0	3.60
Corner Left Col2	3	0	3.60
Corner Right Col1	2	0	2.40
Corner Right Col2	2	0	2.40
Individuals	0	53	2.70

2.3 Calculation Results

Switching Modes:

Code	Switching Mode	Maintenance factor
1	Track Lighting	0.95
2	In Field Lighting	0.95
3	All On	0.95
4	Car Park	0.90
5	Access Road	0.90
6	Amenity Lighting	0.90
7	Long Jump	0.95

(Il)luminance Calculations:

Calculation	Switching Mode	Type	Unit	Ave	Min/Ave	Min/Max
Athletics Grid	1	Surface Illuminance	lux	238	0.60	0.35
Rugby	1	Surface Illuminance	lux	214	0.66	0.36
Long Jump Grid	7	Surface Illuminance	lux	217	0.68	0.50
Car Park Grid	4	Surface Illuminance	lux	25.6	0.25	0.08
Access Road	5	Surface Illuminance	lux	26.9	0.26	0.10
Amenity Lighting Grid	6	Surface Illuminance	lux	37.5	0.21	0.08
H Spill Calculation	3	Surface Illuminance	lux	41.7	0.00	0.00

Obtrusive Light Calculations:

Switching Mode	Observer Code	Luminaire Code	Position			Aiming Angles			Maximum Intensity (cd)
			X (m)	Y (m)	Z (m)	Rot.	Tilt90	Tilt0	
1	Bb	B	49.70	44.00	17.00	-157.23	68.47	0.00	949
1	Cc	B	49.70	44.00	17.00	-137.38	68.77	0.00	809
1	Dd	B	49.70	-2.00	17.00	174.99	68.59	0.00	376
1	Ee	B	49.70	-2.00	17.00	174.99	68.59	0.00	279
1	Ff	B	49.70	44.00	17.00	-137.38	68.77	0.00	248
1	Gg	B	49.70	44.00	17.00	-137.38	68.77	0.00	133

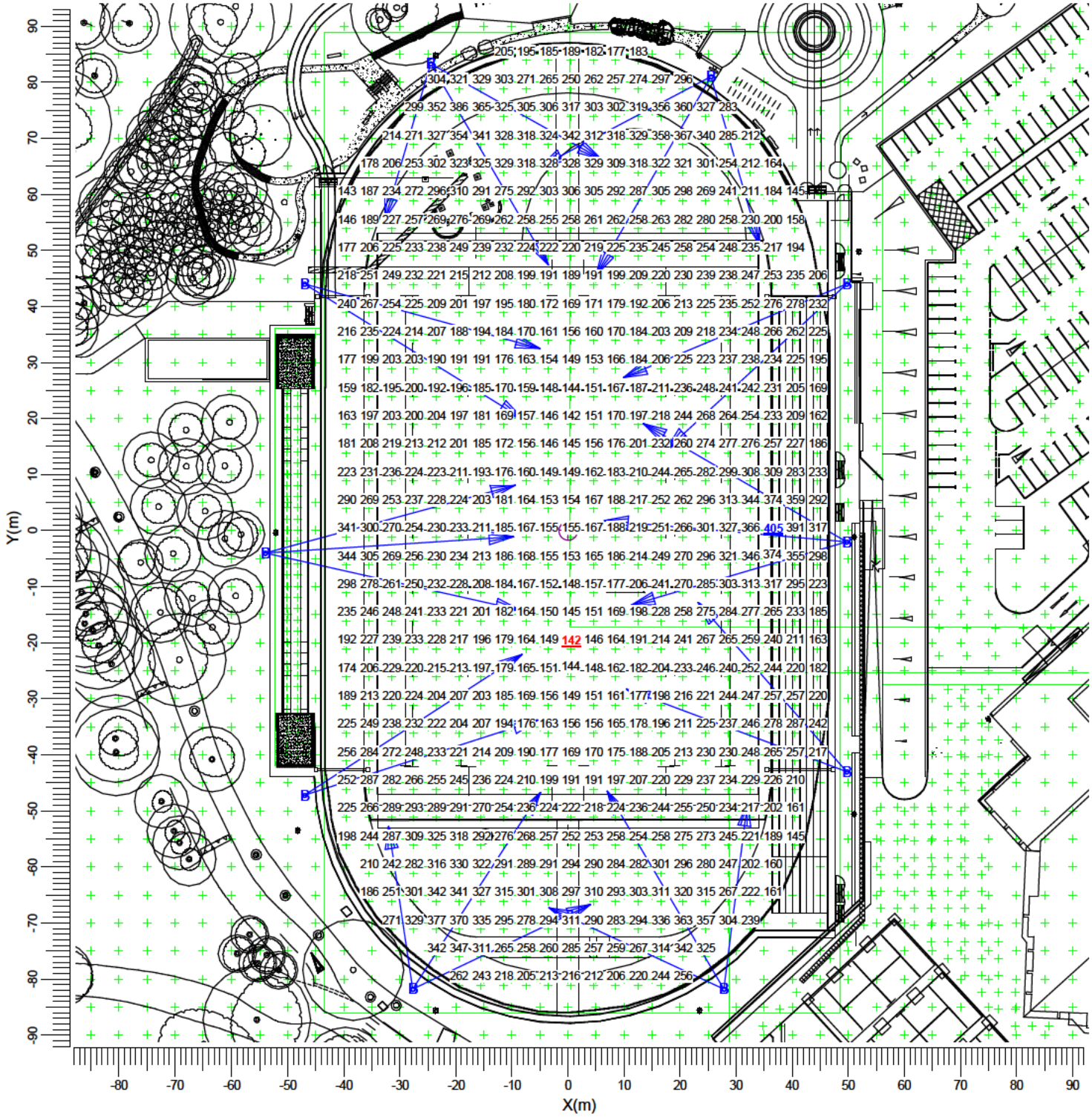
Switching Mode	ULR
1	0.00
2	0.00
3	0.00
4	0.00
5	0.00
6	0.00
7	0.00

3. Calculation Results

3.1 Athletics Grid: Graphical Table

Track Lighting

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



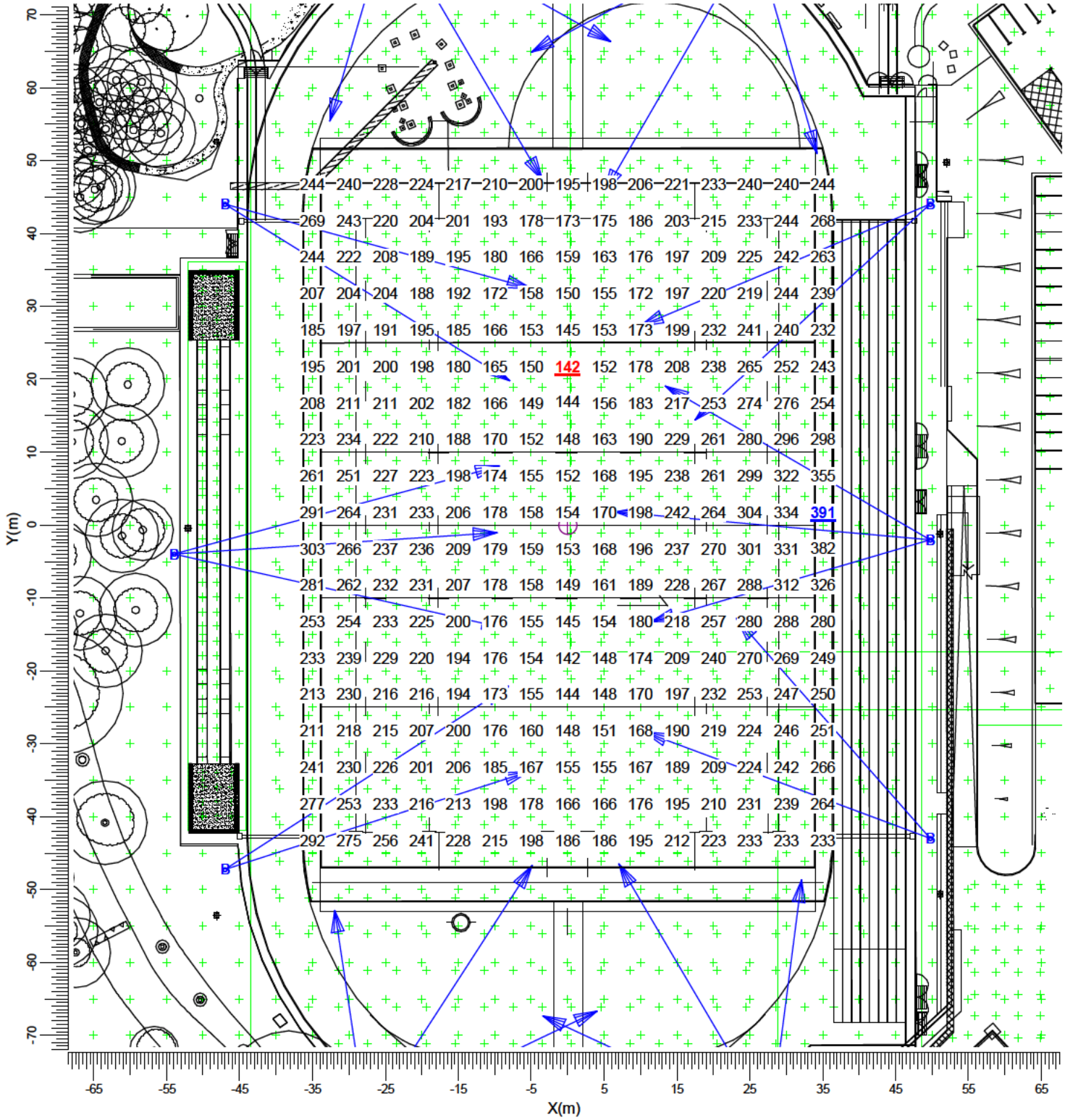
B → MAF Gen2 1.2kw 5000K FL RL

Average	Min/Ave	Min/Max	Project maintenance factor	Scale
238	0.60	0.35	0.95	1:1000

3.2 Rugby: Graphical Table

Track Lighting

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



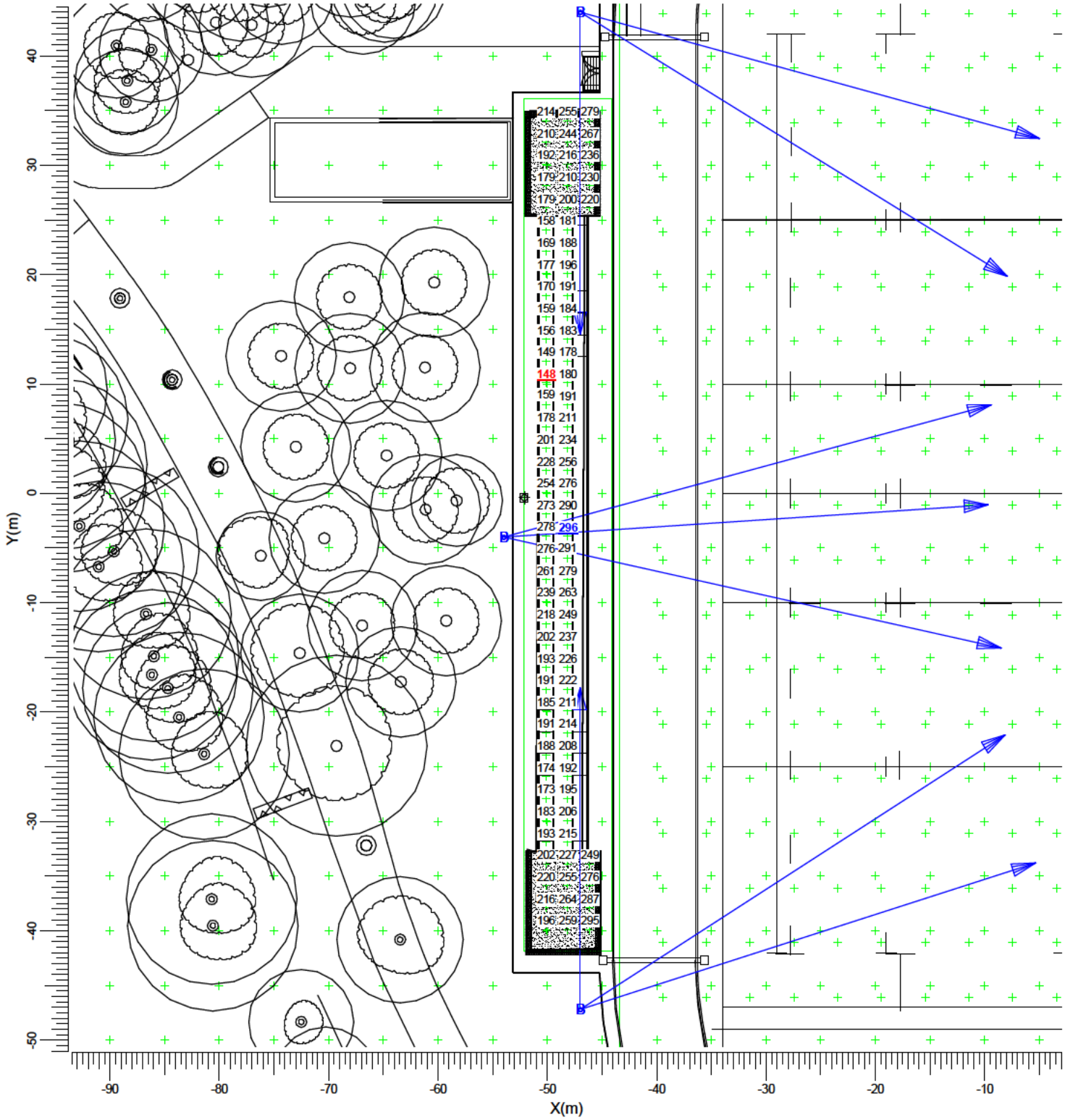
B ⟶ MAF Gen2 1.2kw 5000K FL RL

Average	Min/Ave	Min/Max	Project maintenance factor	Scale
214	0.66	0.36	0.95	1:750

3.3 Long Jump Grid: Graphical Table

Long Jump

Grid : Long Jump Grid at Z = -0.00 m
Calculation : Surface Illuminance (lux)



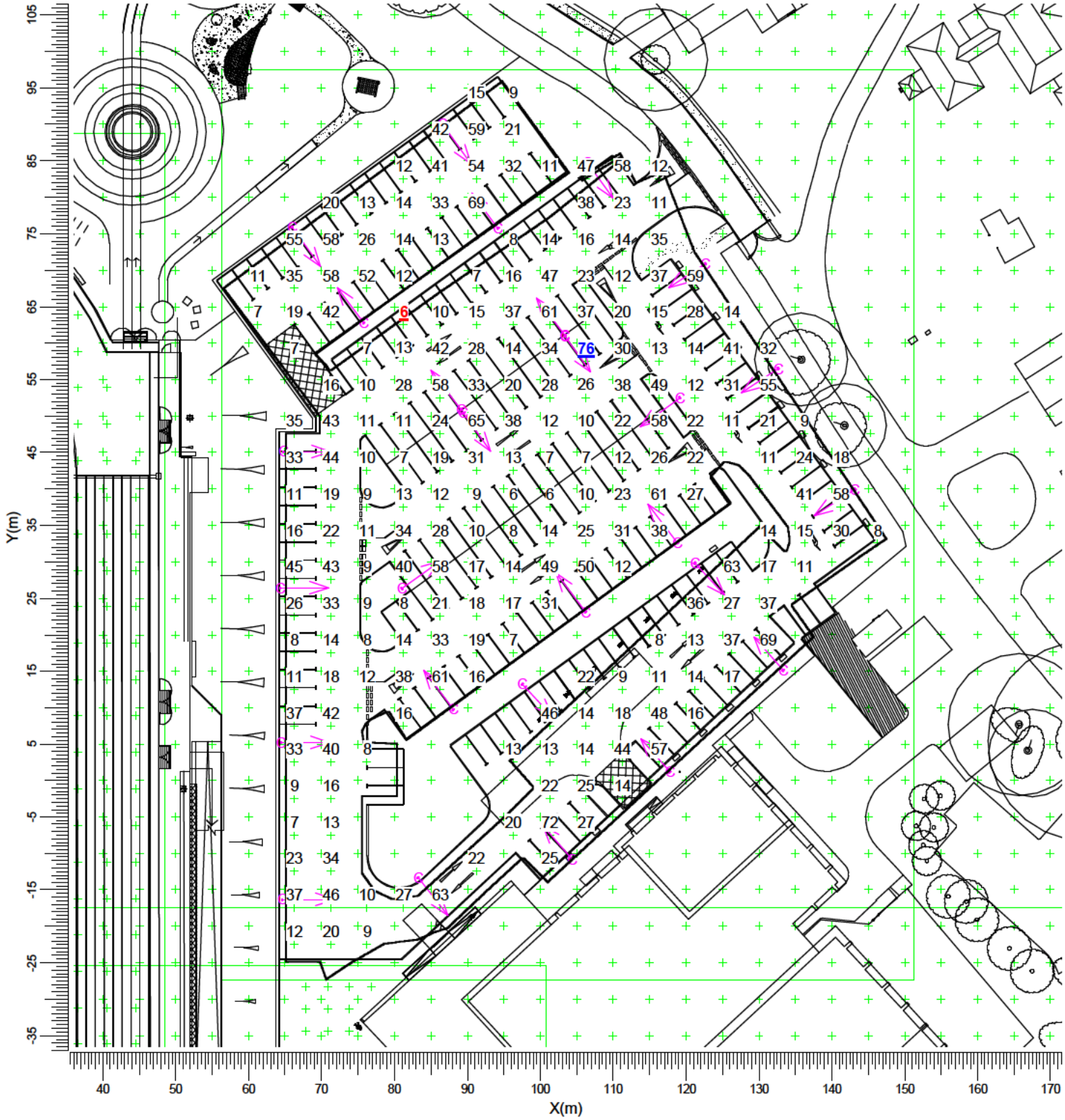
B → MAF Gen2 1.2kw 5000K FL RL

Average	Min/Ave	Min/Max	Project maintenance factor	Scale
217	0.68	0.50	0.95	1:500

3.4 Car Park Grid: Graphical Table

Car Park

Grid : Car Park Grid at Z = -0.00 m
Calculation : Surface Illuminance (lux)



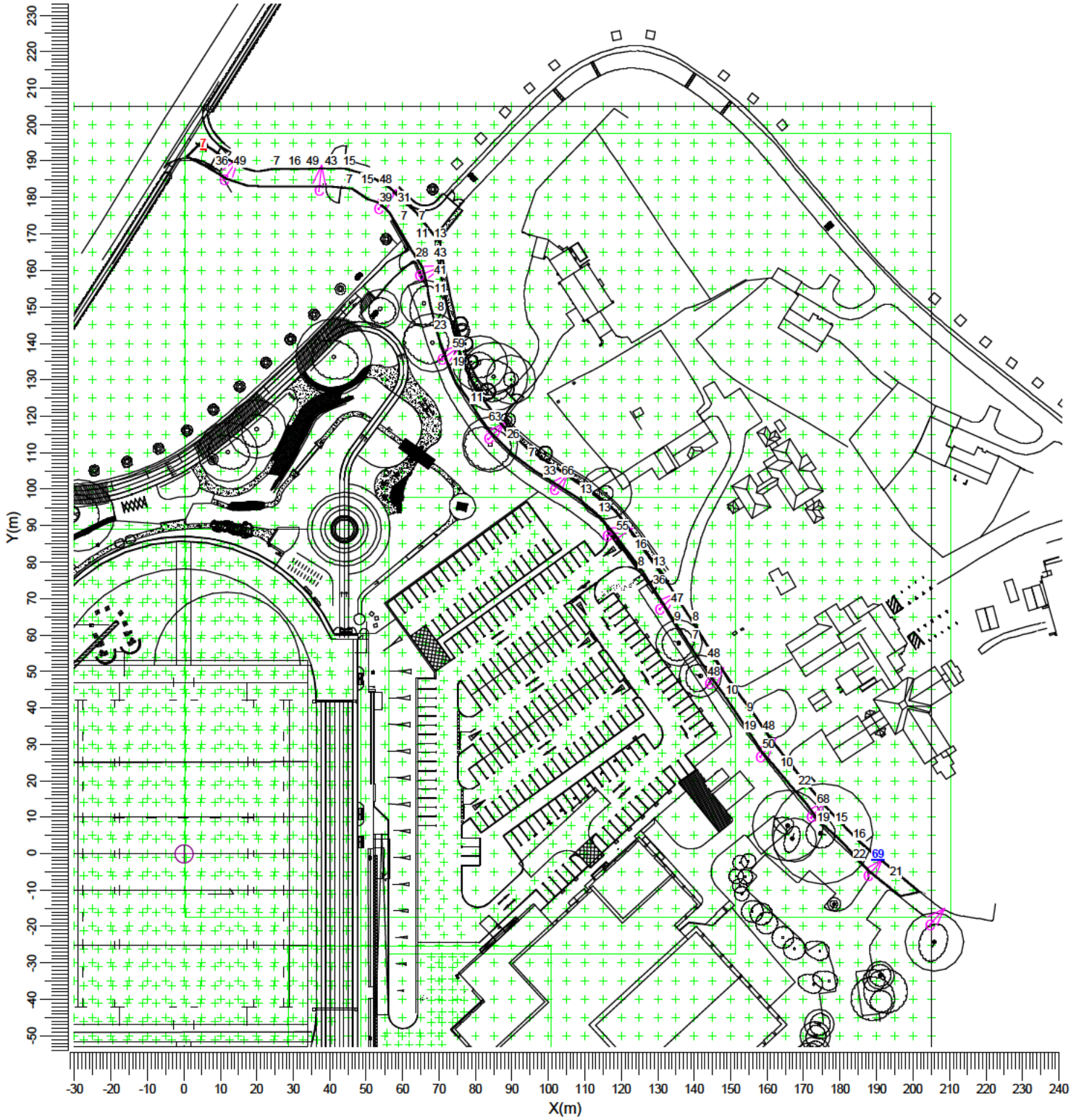
C → WP050-A50

Average	Min/Ave	Min/Max	Project maintenance factor	Scale
25.6	0.25	0.08	0.90	1:750

3.5 Access Road: Graphical Table

Access Road

Grid : Access Road at Z = -0.00 m
Calculation : Surface Illuminance (lux)



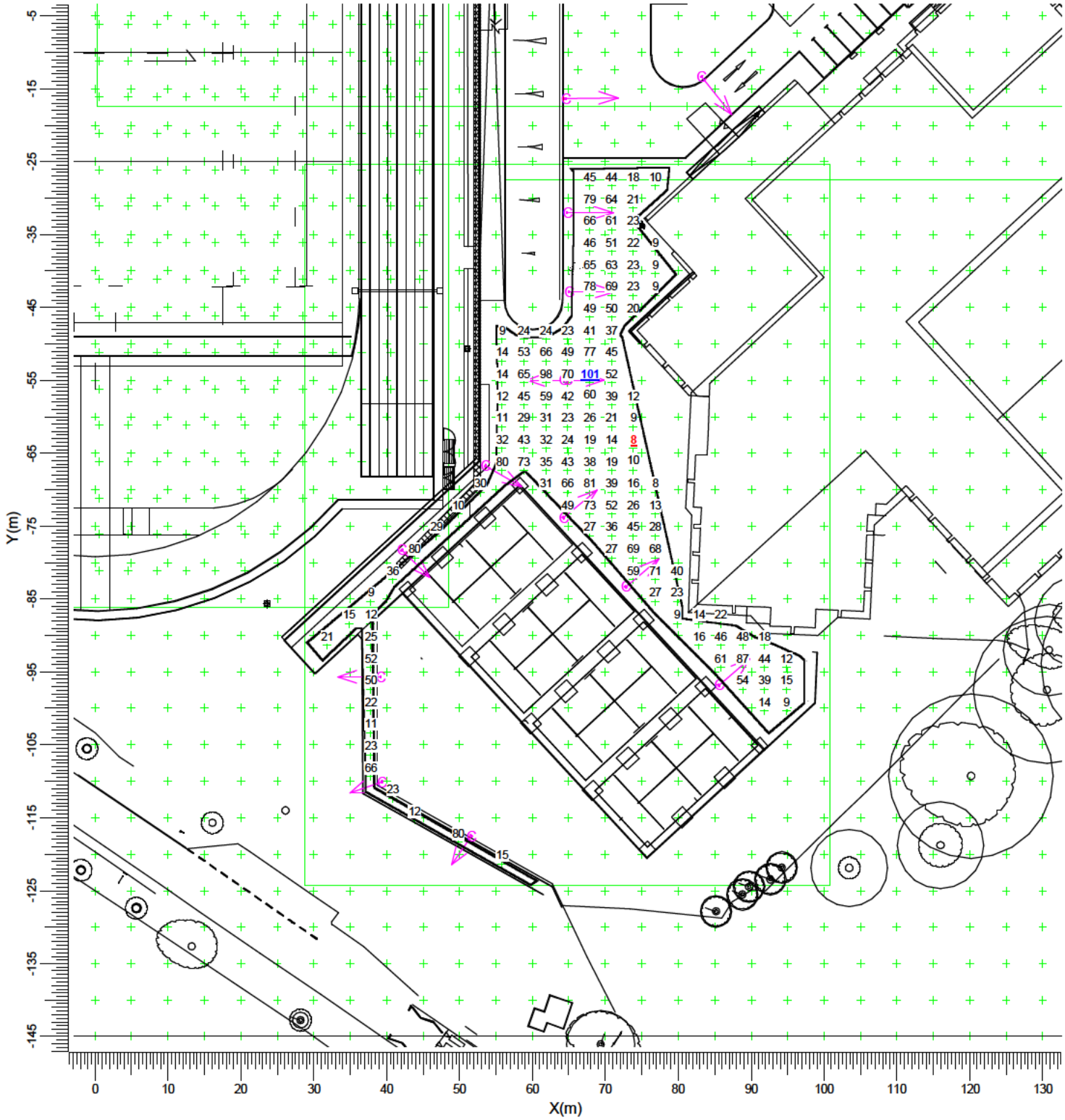
C → WP050-A50

Average	Min/Ave	Min/Max	Project maintenance factor	Scale
26.9	0.26	0.10	0.90	1:1500

3.6 Amenity Lighting Grid: Graphical Table

Amenity Lighting

Grid : Amenity Lighting Grid at Z = -0.00 m
Calculation : Surface Illuminance (lux)



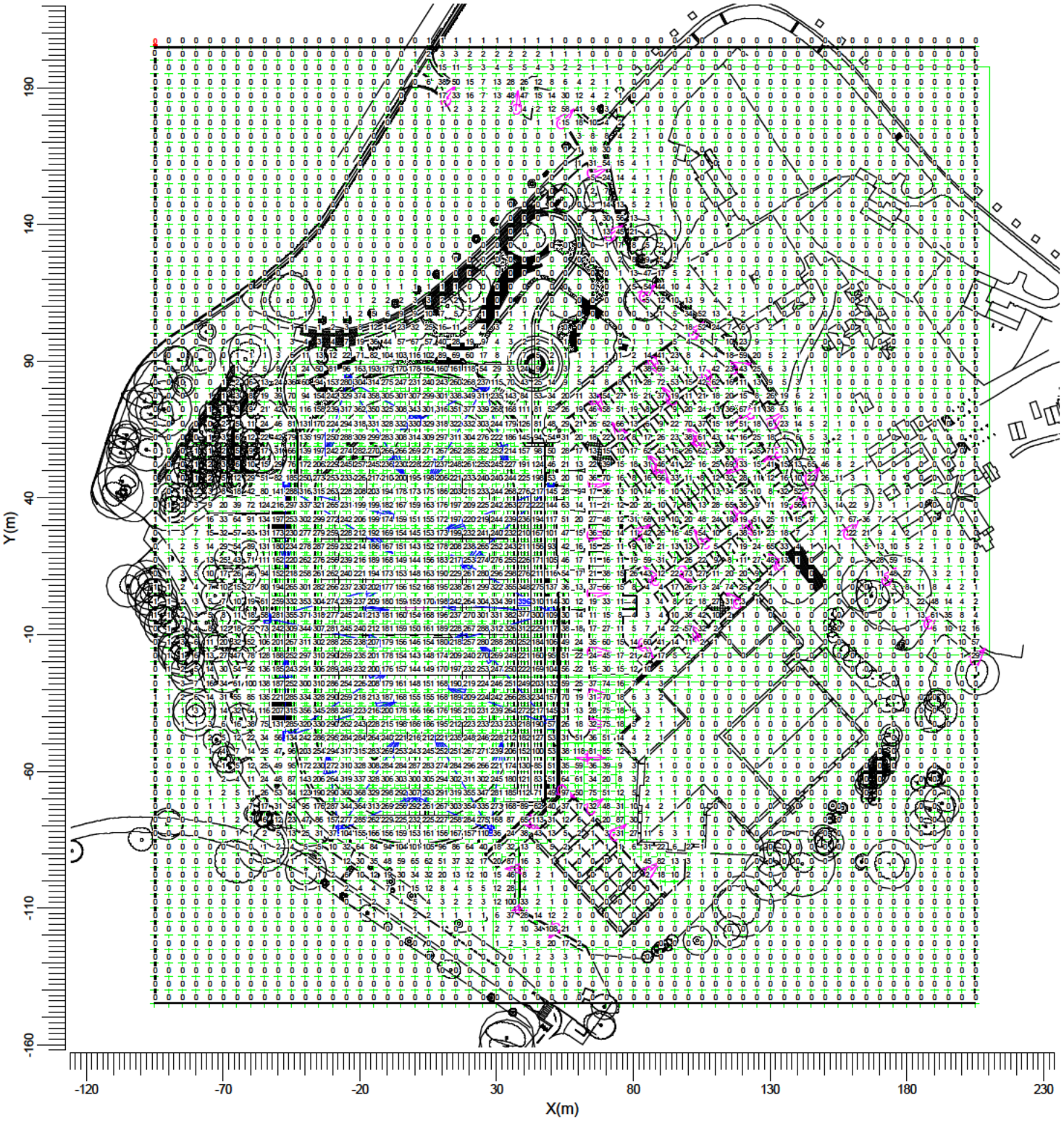
C → WP050-A50

Average	Min/Ave	Min/Max	Project maintenance factor	Scale
37.5	0.21	0.08	0.90	1:750

3.7 H Spill Calculation: Graphical Table

All On

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



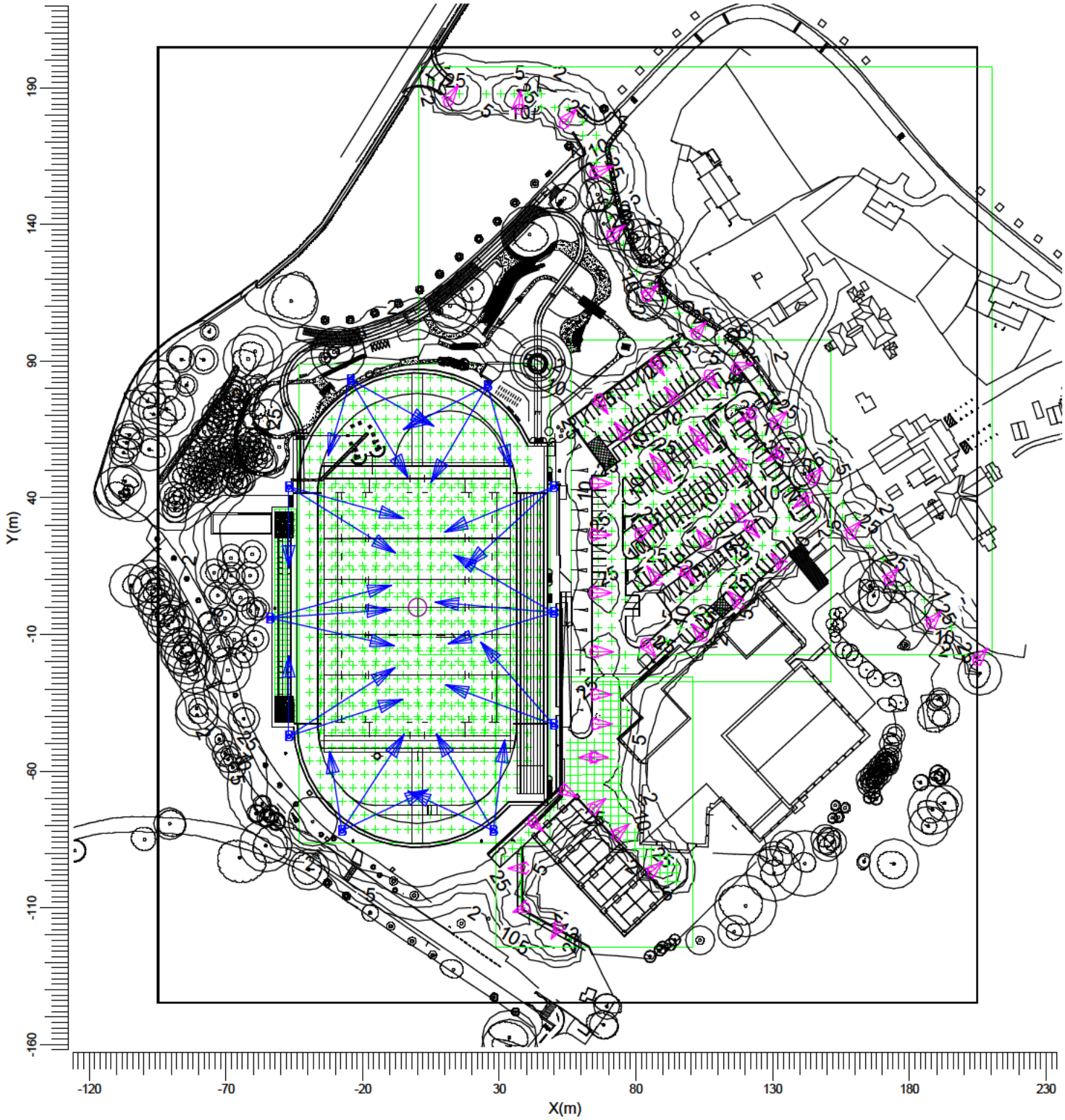
B → MAF Gen2 1.2kw 5000K FL RL C → WP050-A50

Average	Min/Ave	Min/Max	Project maintenance factor	Scale
41.7	0.00	0.00	0.95	1:2000

3.8 H Spill Calculation: Iso Contour

All On

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



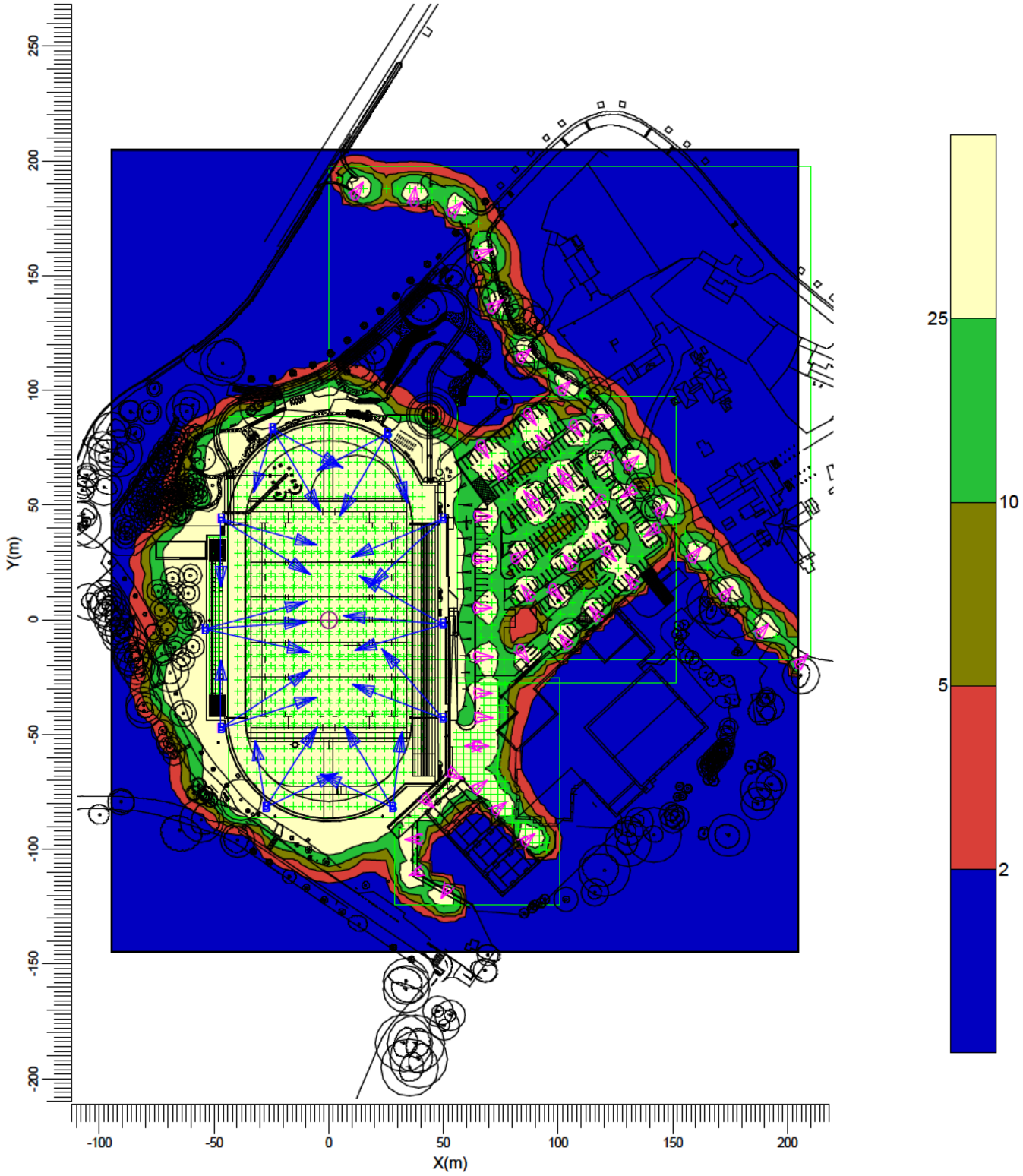
B MAF Gen2 1.2kw 5000K FL RL C WP050-A50

Average	Min/Ave	Min/Max	Project maintenance factor	Scale
41.7	0.00	0.00	0.95	1:2000

3.9 H Spill Calculation: Filled Iso Contour

All On

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



B → MAF Gen2 1.2kw 5000K FL RL C → WP050-A50

Average	Min/Ave	Min/Max	Project maintenance factor	Scale
41.7	0.00	0.00	0.95	1:2500

4. Installation Data

4.1 Legends

Project Luminaires:

Code	Qty	Luminaire Type	Lamp Type	Flux (lm)
B	28	MAF Gen2 1.2kw 5000K FL RL	1 * LED 1.2kW	1 * 156870
C	53	WP050-A50	1 * WP050-A50	1 * 6885

Switching Modes:

Code	Switching Mode
1	Track Lighting
2	In Field Lighting
3	All On
4	Car Park
5	Access Road
6	Amenity Lighting
7	Long Jump

4.2 Luminaire Positioning and Orientation

Qty and Code	Position			Aiming Angles			ULR	ULOR_i	Switching Modes						
	X (m)	Y (m)	Z (m)	Rot.	Tilt90	Tilt0			1	2	3	4	5	6	7
1 * B	-54.00	-4.00	17.00	15.2	69.8	0.0	0.00	0.00	+	+	+	-	-	-	+
1 * B	-54.00	-4.00	17.00	-12.6	70.0	0.0	0.00	0.00	+	+	+	-	-	-	+
1 * B	-54.00	-4.00	17.00	3.8	69.1	0.0	0.00	0.00	+	+	+	-	-	-	+
1 * B	-47.00	-47.23	17.00	32.9	69.8	0.0	0.00	0.00	+	+	+	-	-	-	+
1 * B	-47.00	-47.23	17.00	17.8	68.8	0.0	0.00	0.00	+	+	+	-	-	-	+
1 * B	-47.00	-47.23	17.00	90.0	60.0	-0.0	0.00	0.00	-	-	+	-	-	-	+
1 * B	-47.00	44.00	17.00	-31.8	69.7	0.0	0.00	0.00	+	+	+	-	-	-	+
1 * B	-47.00	44.00	17.00	-15.4	68.7	0.0	0.00	0.00	+	+	+	-	-	-	+
1 * B	-47.00	44.00	17.00	-90.0	60.0	0.0	0.00	0.00	-	-	+	-	-	-	+
1 * B	-27.62	-81.80	17.00	98.5	59.8	0.0	0.00	0.00	+	+	+	-	-	-	-
1 * B	-27.62	-81.80	17.00	57.1	67.9	0.0	0.00	0.00	+	+	+	-	-	-	-
1 * B	-27.62	-81.80	17.00	25.5	64.1	0.0	0.00	0.00	+	+	+	-	-	-	-
1 * B	-24.44	83.27	17.00	-106.4	59.7	0.0	0.00	0.00	+	+	+	-	-	-	-
1 * B	-24.44	83.27	17.00	-59.7	67.8	0.0	0.00	0.00	+	+	+	-	-	-	-
1 * B	-24.44	83.27	17.00	-29.2	64.0	0.0	0.00	0.00	+	+	+	-	-	-	-
1 * C	10.96	184.76	6.00	56.0	50.4	0.0	0.00	0.00	-	-	+	-	+	-	-
1 * B	25.50	81.00	17.00	-73.8	61.5	0.0	0.00	0.00	+	+	+	-	-	-	-
1 * B	25.50	81.00	17.00	-120.0	67.4	0.0	0.00	0.00	+	+	+	-	-	-	-
1 * B	25.50	81.00	17.00	-152.2	63.7	0.0	0.00	0.00	+	+	+	-	-	-	-
1 * B	27.82	-81.84	17.00	82.7	63.1	0.0	0.00	0.00	+	+	+	-	-	-	-
1 * B	27.82	-81.84	17.00	120.5	67.5	0.0	0.00	0.00	+	+	+	-	-	-	-
1 * B	27.82	-81.84	17.00	155.1	63.7	0.0	0.00	0.00	+	+	+	-	-	-	-
1 * C	37.03	181.77	6.00	83.8	50.0	0.0	0.00	0.00	-	-	+	-	+	-	-
1 * C	39.16	-95.69	5.00	-180.0	49.5	0.0	0.00	0.00	-	-	+	-	-	+	-
1 * C	39.33	-110.07	5.00	-160.4	42.8	0.0	0.00	0.00	-	-	+	-	-	+	-
1 * C	42.08	-78.31	5.00	-44.2	47.0	0.0	0.00	0.00	-	-	+	-	-	+	-
1 * B	49.70	-43.00	17.00	131.3	67.0	0.0	0.00	0.00	+	+	+	-	-	-	-
1 * B	49.70	-43.00	17.00	159.6	67.9	0.0	0.00	0.00	+	+	+	-	-	-	-

Qty and Code	Position			Aiming Angles			ULR	ULOR_i	Switching Modes						
	X (m)	Y (m)	Z (m)	Rot.	Tilt90	Tilt0			1	2	3	4	5	6	7
1 * B	49.70	-2.00	17.00	-163.6	66.9	0.0	0.00	0.00	+	+	+	-	-	-	-
1 * B	49.70	-2.00	17.00	175.0	68.6	0.0	0.00	0.00	+	+	+	-	-	-	-
1 * B	49.70	-2.00	17.00	149.8	67.9	0.0	0.00	0.00	+	+	+	-	-	-	-
1 * B	49.70	44.00	17.00	-137.4	68.8	0.0	0.00	0.00	+	+	+	-	-	-	-
1 * B	49.70	44.00	17.00	-157.2	68.5	0.0	0.00	0.00	+	+	+	-	-	-	-
1 * C	51.60	-117.48	5.00	-124.3	43.6	0.0	0.00	0.00	-	-	+	-	-	+	-
1 * C	53.40	176.89	6.00	47.0	50.0	0.0	0.00	0.00	-	-	+	-	+	-	-
1 * C	53.57	-66.71	5.00	-30.6	48.9	0.0	0.00	0.00	-	-	+	-	-	+	-
1 * C	64.27	-55.00	5.00	180.0	45.0	0.0	0.00	0.00	-	-	+	-	-	+	-
1 * C	64.28	-73.81	5.00	39.1	50.0	0.0	0.00	0.00	-	-	+	-	-	+	-
1 * C	64.32	26.45	6.00	0.0	48.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	64.46	5.23	6.00	0.0	48.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	64.59	-16.31	6.00	0.1	50.4	0.0	0.00	0.00	-	-	+	+	-	+	-
1 * C	64.63	158.63	6.00	22.0	51.2	0.0	0.00	0.00	-	-	+	-	+	-	-
1 * C	64.72	45.12	6.00	0.0	47.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	64.81	-54.99	5.00	0.1	45.0	0.0	0.00	0.00	-	-	+	-	-	+	-
1 * C	64.81	-32.03	5.00	-0.2	51.7	0.0	0.00	0.00	-	-	+	-	-	+	-
1 * C	65.02	-42.79	5.00	-0.1	51.9	0.0	0.00	0.00	-	-	+	-	-	+	-
1 * C	65.94	75.93	6.00	-54.2	48.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	70.79	135.53	6.00	37.4	47.5	0.0	0.00	0.00	-	-	+	-	+	-	-
1 * C	72.81	-83.33	5.00	40.3	50.0	0.0	0.00	0.00	-	-	+	-	-	+	-
1 * C	75.76	62.80	6.00	126.7	45.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	81.02	26.37	6.00	35.9	47.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	83.23	-13.33	6.00	-51.6	47.6	0.0	0.00	0.00	-	-	+	+	-	+	-
1 * C	83.50	113.70	6.00	44.9	46.0	0.0	0.00	0.00	-	-	+	-	+	-	-
1 * C	85.57	-96.82	5.00	40.3	48.2	0.0	0.00	0.00	-	-	+	-	-	+	-
1 * C	86.55	90.04	6.00	-54.2	48.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	88.03	9.77	6.00	127.1	48.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	89.14	50.89	6.00	127.4	48.6	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	89.38	50.40	6.00	-54.2	47.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	94.17	75.81	6.00	126.7	45.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	97.55	13.20	6.00	-47.0	45.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	101.54	99.70	6.00	48.8	45.3	0.0	0.00	0.00	-	-	+	-	+	-	-
1 * C	103.37	60.96	6.00	-54.2	45.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	103.37	61.08	6.00	127.1	47.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	104.35	-10.74	6.00	131.2	45.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	106.19	23.15	6.00	127.1	48.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	106.44	84.77	6.00	-54.2	45.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	116.18	87.19	6.00	17.0	50.1	0.0	0.00	0.00	-	-	+	-	+	-	-
1 * C	117.74	1.22	6.00	131.2	45.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	118.81	32.61	6.00	127.1	48.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	119.08	52.49	6.00	-143.8	48.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	121.20	29.82	6.00	-47.0	45.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	122.64	70.90	6.00	-146.6	45.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	130.58	67.04	6.00	43.9	47.4	0.0	0.00	0.00	-	-	+	-	+	-	-
1 * C	132.59	56.54	6.00	-146.6	45.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	133.30	15.17	6.00	131.2	45.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	143.14	39.97	6.00	-146.6	48.0	0.0	0.00	0.00	-	-	+	+	-	-	-
1 * C	144.16	46.47	6.00	48.8	45.0	0.0	0.00	0.00	-	-	+	-	+	-	-
1 * C	158.16	26.55	6.00	50.1	46.9	0.0	0.00	0.00	-	-	+	-	+	-	-
1 * C	172.12	9.83	6.00	48.8	45.0	0.0	0.00	0.00	-	-	+	-	+	-	-

Qty and Code	Position			Aiming Angles			ULR	ULOR_i	Switching Modes						
	X (m)	Y (m)	Z (m)	Rot.	Tilt90	Tilt0			1	2	3	4	5	6	7
1 * C	187.68	-6.15	6.00	48.8	45.0	0.0	0.00	0.00	-	-	+	-	+	-	-
1 * C	204.68	-19.58	6.00	48.8	45.0	0.0	0.00	0.00	-	-	+	-	+	-	-