

Haydon School

Artificial Turf Pitch

Project code: G-214594
Date: 02-12-2025

Designer: ME

Description: Match play requirements:
Maintained average illuminance >200 lux
Uniformity Ratio (Ev.min/Ev.ave) >0.60

All luminaires have a zero upward light ratio without the use of additional accessories.

Observers have been set at heights relative to the AGP height, which is further outlined within Appendix C

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.

Surfacing Standards LTD

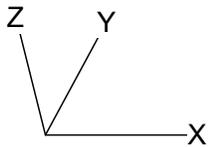
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Table of Contents

1.	Project Description	3
1.1	3-D Project Overview	3
1.2	Top Project Overview	4
2.	Summary	5
2.1	Observer Information	5
2.2	Project Luminaires	5
2.3	Calculation Results	6
3.	Calculation Results	8
3.1	Football 200 Lux: Graphical Table	8
3.2	Football 120 Lux: Graphical Table	9
3.3	Ground Spillage: Filled Iso Contour	10
3.4	Ground Spillage Zoomed: Filled Iso Contour	11
3.5	Horizontal Spill @ 3.0m: Filled Iso Contour	12
3.6	Horizontal @ 3.0m Zoomed: Filled Iso Contour	13
3.7	Glare: Graphical Table	14
4.	Luminaire Details	15
4.1	Project Luminaires	15
5.	Installation Data	16
5.1	Legends	16
5.2	Luminaire Positioning and Orientation	16

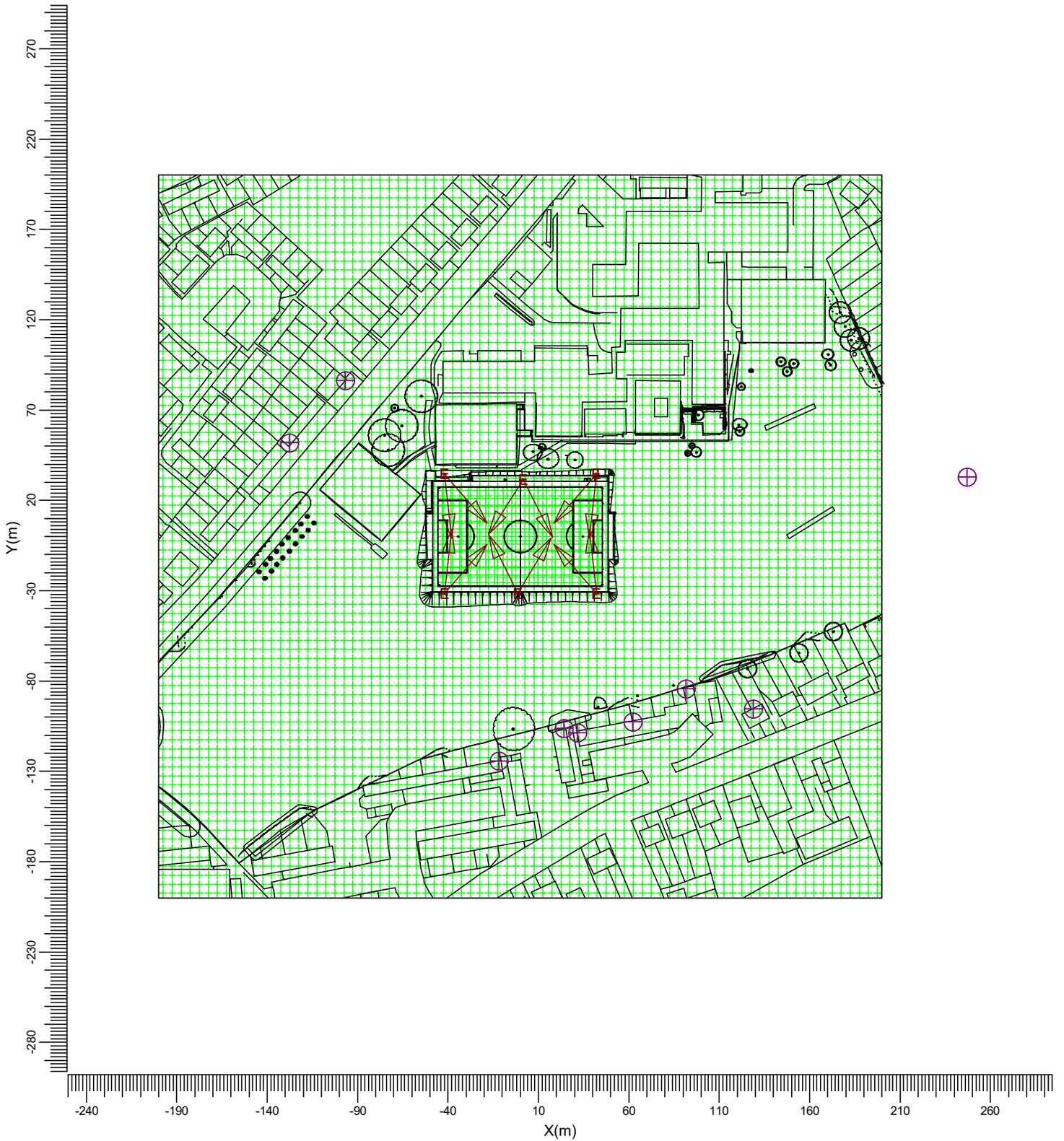
1. Project Description

1.1 3-D Project Overview



- | | | | | | |
|---|---|---------------------------|---|---|---------------------------|
| C |  | BVP528 OUT T35 A35-NB LO | D |  | BVP528 OUT T35 A35-NB LTM |
| E |  | BVP518 OUT T35 A35-NB LTM | | | |

1.2 Top Project Overview



- | | | | | | |
|---|---|---------------------------|---|---|---------------------------|
| C |  | BVP528 OUT T35 A35-NB LO | D |  | BVP528 OUT T35 A35-NB LTM |
| E |  | BVP518 OUT T35 A35-NB LTM | | | |

Scale
1:3000

2. Summary

2.1 Observer Information

Code	Observer	Position		
		X (m)	Y (m)	Z (m)
Aa	House 1 - 1.8m	-11.97	-124.13	-4.29
Bb	House 1 - 3.6m	-11.97	-124.13	-2.49
Cc	House 2 - 1.8m	24.02	-106.33	-3.34
Dd	House 2 - 3.6m	24.02	-106.33	-1.54
Ee	House 3 - 1.8m	31.60	-108.60	-2.95
Ff	House 3 - 3.6m	31.60	-108.60	-1.15
Gg	House 4 - 1.8m	62.11	-102.45	-2.91
Hh	House 4 - 3.6m	62.11	-102.45	-1.11
Ii	House 5 - 1.8m	91.53	-84.40	-2.26
Jj	House 5 - 3.6m	91.53	-84.40	-0.46
Kk	House 6 - 1.8m	128.83	-95.45	-1.90
Ll	House 6 - 3.6m	128.83	-95.45	-0.10
Mm	House 7 - 1.8m	247.00	33.00	4.88
Nn	House 7 - 3.6m	247.00	33.00	6.68
Oo	House 8 - 1.8m	-127.74	51.76	0.25
Pp	House 8 - 3.6m	-127.74	51.76	-0.00
Qq	House 9 - 1.8m	-96.69	86.36	2.12
Rr	House 9 - 3.6m	-96.69	86.36	3.92

2.2 Project Luminaires

Code	Qty	Luminaire Type	Lamp Type	Power (W)	Flux (lm)
E	12	BVP518 OUT T35 A35-NB LTM	1 * LED1720-4S/740	1006.0	1 * 172000

The total installed power: 12.07 (kWatt)

Number of Luminaires Per Switching Mode:

Switching Mode	Luminaire Code	Power (kWatt)
	E	
200lux Switching	12	12.07
120lux Switching	12	12.07
Spillage Switching	12	12.07

Number of Luminaires Per Arrangement:

Arrangement	Luminaire Code	Power (kWatt)
	E	
Mast1	0	0.00
Mast2	2	2.01
Mast3	8	8.05
Mast4	2	2.01

2.3 Calculation Results

Switching Modes:

Code	Switching Mode	Maintenance factor
1	200lux Switching	0.95
2	120lux Switching	0.60
3	Spillage Switching	1.00

(Il)luminance Calculations:

Calculation	Switching Mode	Type	Unit	Ave Min/AveMin/Max		
Football 200 Lux	1	Surface Illuminance	lux	209	0.64	0.49
Football 120 Lux	2	Surface Illuminance	lux	132	0.64	0.49
Ground Spillage	3	Surface Illuminance	lux	9.09	0.00	0.00
Ground Spillage Zoomed	3	Surface Illuminance	lux	9.09	0.00	0.00
Horizontal Spill @ 3.0m	3	Horizontal Illuminance	lux			
Horizontal @ 3.0m Zoomed	3	Horizontal Illuminance	lux			

Glare Rating for Grid of Observers:

Calculation	Switching Mode	Observer Grid	Reference Grid	Reflectance	GR-Max
Glare	3	Football	Football	0.25	49.0

Obtrusive Light Calculations:

Switching Mode	Observer Code	Luminaire Code	Position			Aiming Angles			Maximum Intensity (cd)
			X (m)	Y (m)	Z (m)	Rot.	Tilt90	Tilt0	
3	Aa	E	1.50	31.50	13.00	-62.87	70.00	0.00	1267
3	Bb	E	1.50	31.50	13.00	-62.87	70.00	0.00	1103
3	Cc	E	42.00	34.50	13.00	-130.85	70.00	-0.00	1185
3	Dd	E	42.00	34.50	13.00	-130.85	70.00	-0.00	1023
3	Ee	E	42.00	34.50	13.00	-130.85	70.00	-0.00	936
3	Ff	E	-42.00	34.50	13.00	-83.65	70.00	0.00	898
3	Gg	E	-42.00	34.50	13.00	-83.65	70.00	0.00	1035
3	Hh	E	-42.00	34.50	13.00	-83.65	70.00	0.00	897
3	li	E	42.00	34.50	13.00	-96.35	70.00	-0.00	1355
3	Jj	E	42.00	34.50	13.00	-96.35	70.00	-0.00	1172
3	Kk	E	1.50	31.50	13.00	-62.87	70.00	0.00	807
3	Ll	E	1.50	31.50	13.00	-62.87	70.00	0.00	832
3	Mm	E	-1.50	-31.50	13.00	58.76	70.00	0.00	412
3	Nn	E	-1.50	-31.50	13.00	58.76	70.00	0.00	383
3	Oo	E	-1.50	-31.50	13.00	116.32	70.00	0.00	937
3	Pp	E	-1.50	-31.50	13.00	116.32	70.00	0.00	958
3	Qq	E	-42.00	-31.50	13.00	83.65	70.00	-0.00	910
3	Rr	E	42.00	-31.50	13.00	130.85	70.00	0.00	781

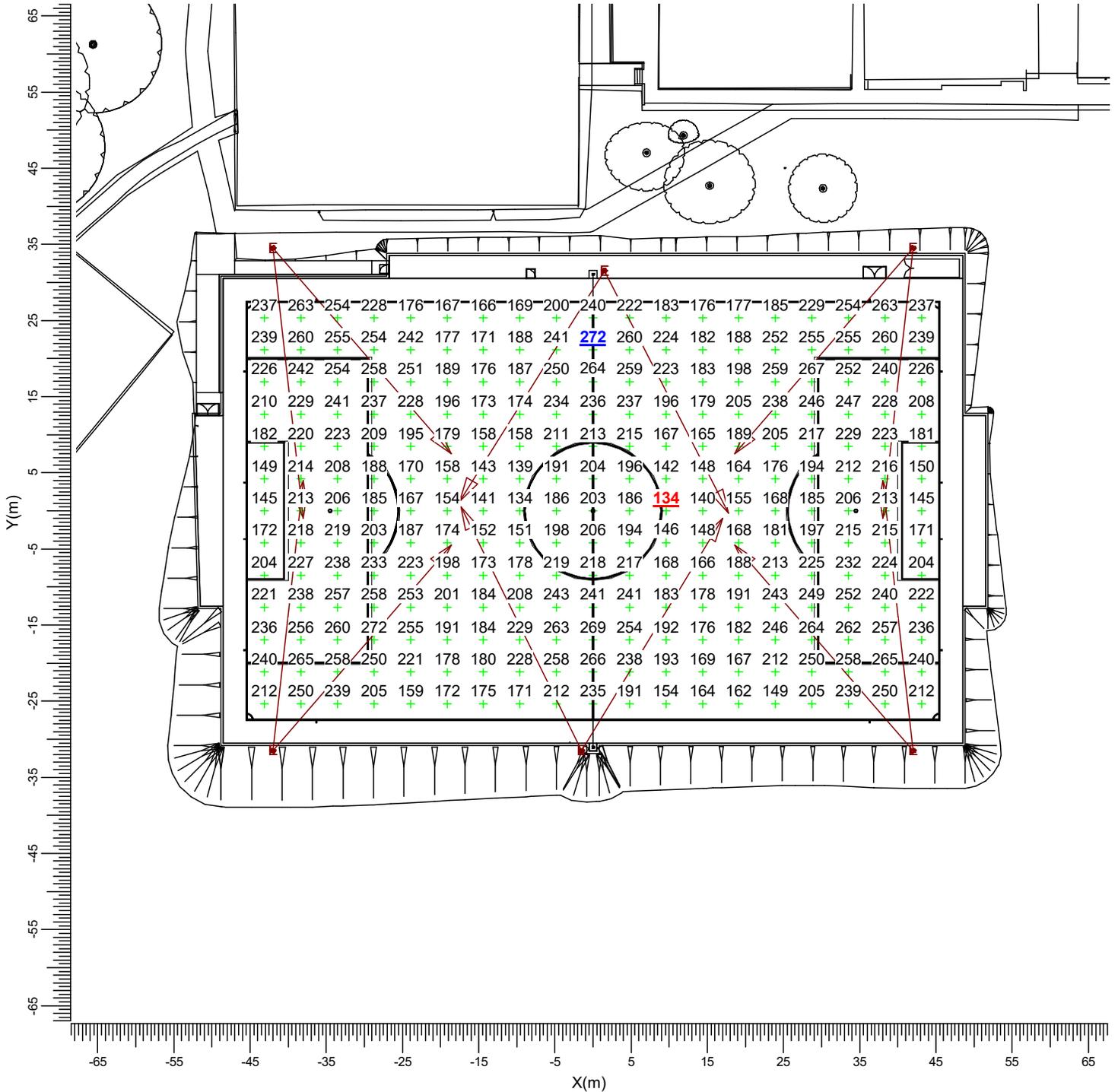
Switching Mode	ULR
1	0.00
2	0.00
3	0.00

3. Calculation Results

3.1 Football 200 Lux: Graphical Table

200lux Switching

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



C → BVP528 OUT T35 A35-NB LO D → BVP528 OUT T35 A35-NB LTM
E → BVP518 OUT T35 A35-NB LTM

Average
209

Min/Ave
0.64

Min/Max
0.49

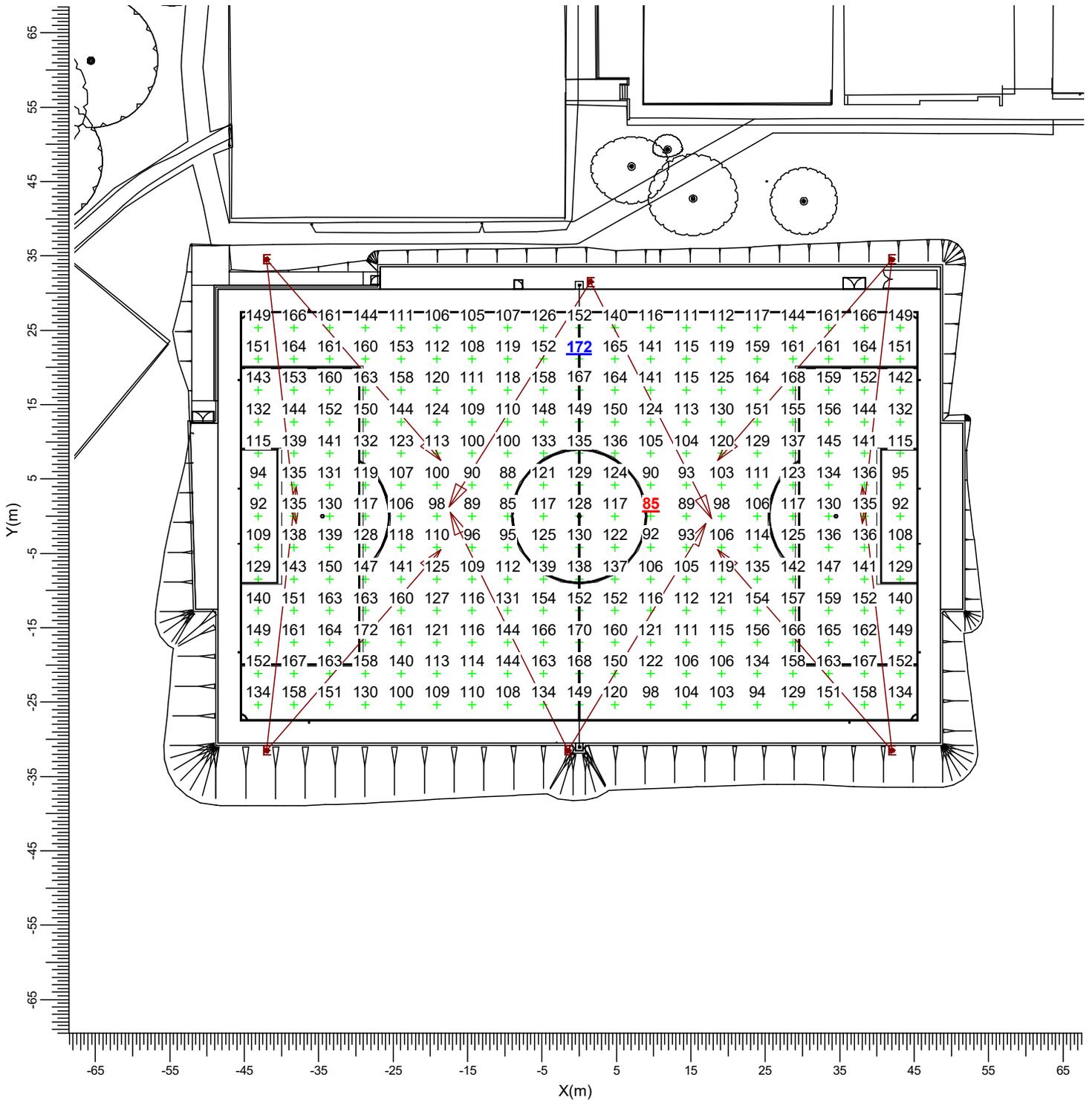
Project maintenance factor
0.95

Scale
1:750

3.2 Football 120 Lux: Graphical Table

120lux Switching

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



C → BVP528 OUT T35 A35-NB LO D → BVP528 OUT T35 A35-NB LTM
E → BVP518 OUT T35 A35-NB LTM

Average
132

Min/Ave
0.64

Min/Max
0.49

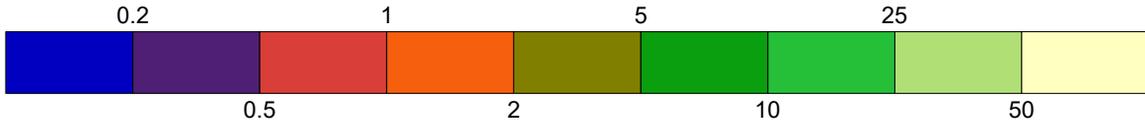
Project maintenance factor
0.60

Scale
1:750

3.3 Ground Spillage: Filled Iso Contour

Spillage Switching

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



C BVP528 OUT T35 A35-NB LO D BVP528 OUT T35 A35-NB LTM
 E BVP518 OUT T35 A35-NB LTM

Average
9.09

Min/Ave
0.00

Min/Max
0.00

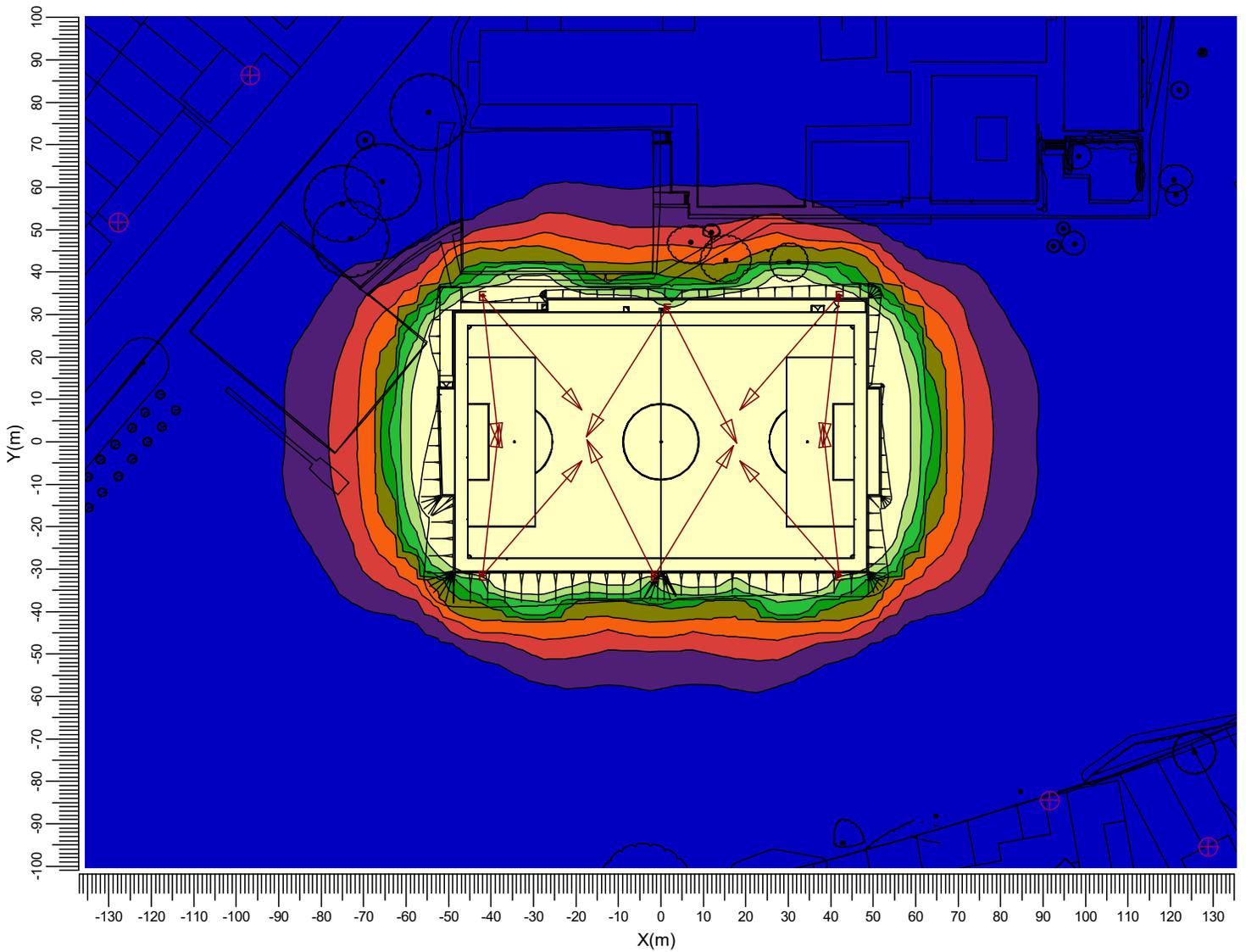
Project maintenance factor
1.00

Scale
1:4000

3.4 Ground Spillage Zoomed: Filled Iso Contour

Spillage Switching

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



C BVP528 OUT T35 A35-NB LO D BVP528 OUT T35 A35-NB LTM
E BVP518 OUT T35 A35-NB LTM

Average
9.09

Min/Ave
0.00

Min/Max
0.00

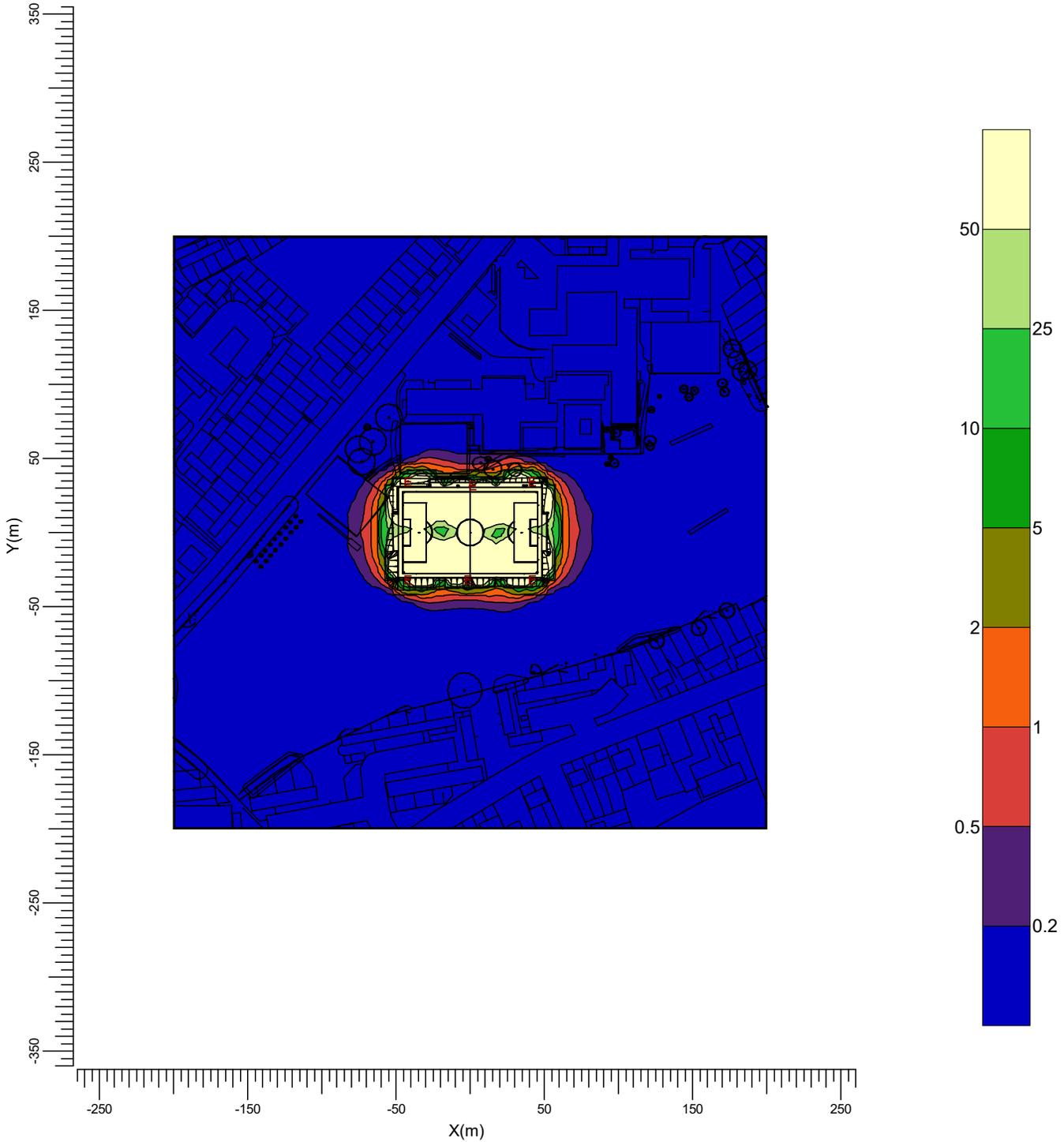
Project maintenance factor
1.00

Scale
1:1500

3.5 Horizontal Spill @ 3.0m: Filled Iso Contour

Spillage Switching

Grid : Spillage Grid at Z = -0.00 m
Calculation : Horizontal Illuminance (lux)
Height above grid : 3.00 m



C : BVP528 OUT T35 A35-NB LO
E : BVP518 OUT T35 A35-NB LTM

D : BVP528 OUT T35 A35-NB LTM

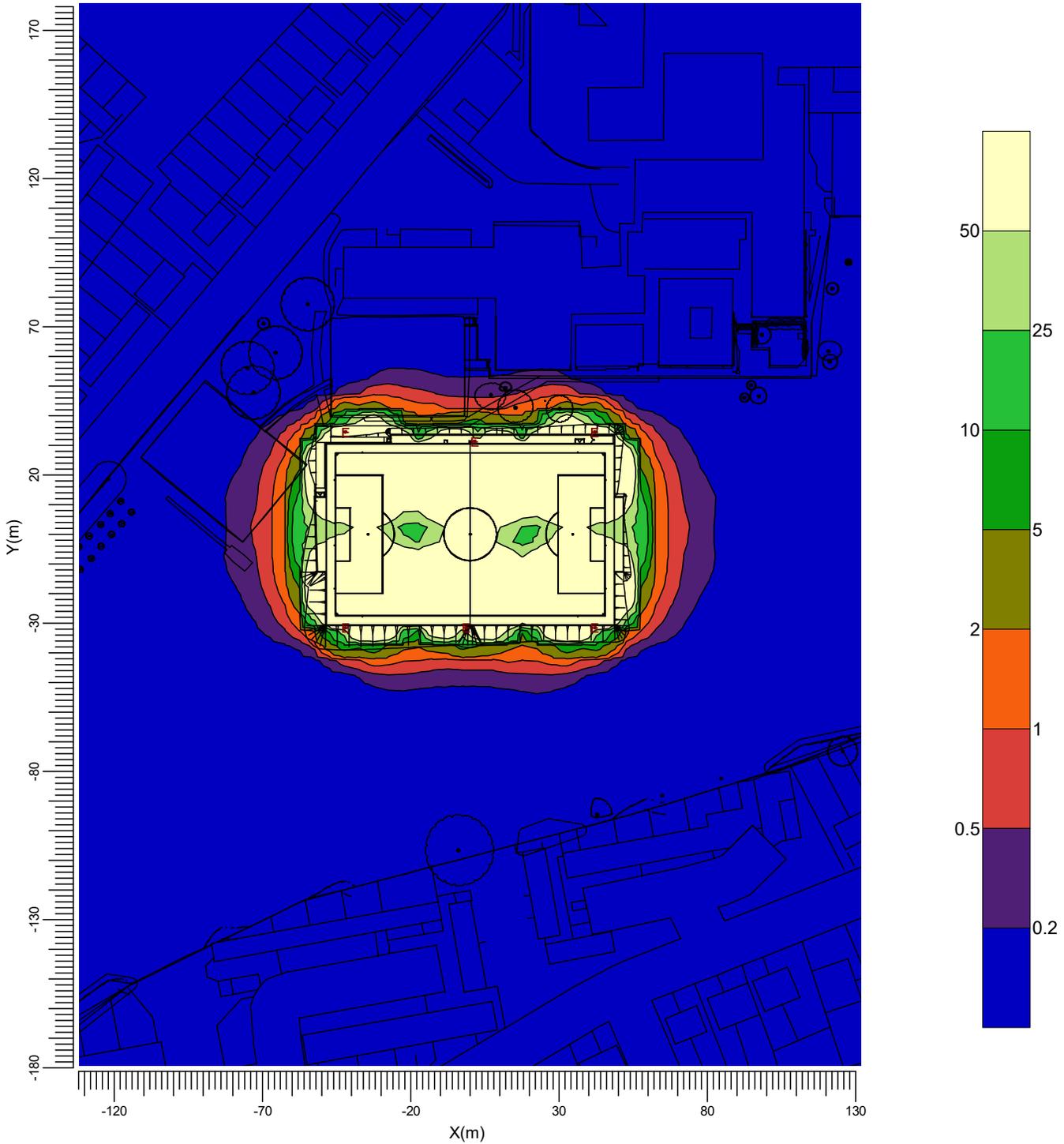
Project maintenance factor
1.00

Scale
1:4000

3.6 Horizontal @ 3.0m Zoomed: Filled Iso Contour

Spillage Switching

Grid : Spillage Grid at Z = -0.00 m
Calculation : Horizontal Illuminance (lux)
Height above grid : 3.00 m



C : BVP528 OUT T35 A35-NB LO
E : BVP518 OUT T35 A35-NB LTM

D : BVP528 OUT T35 A35-NB LTM

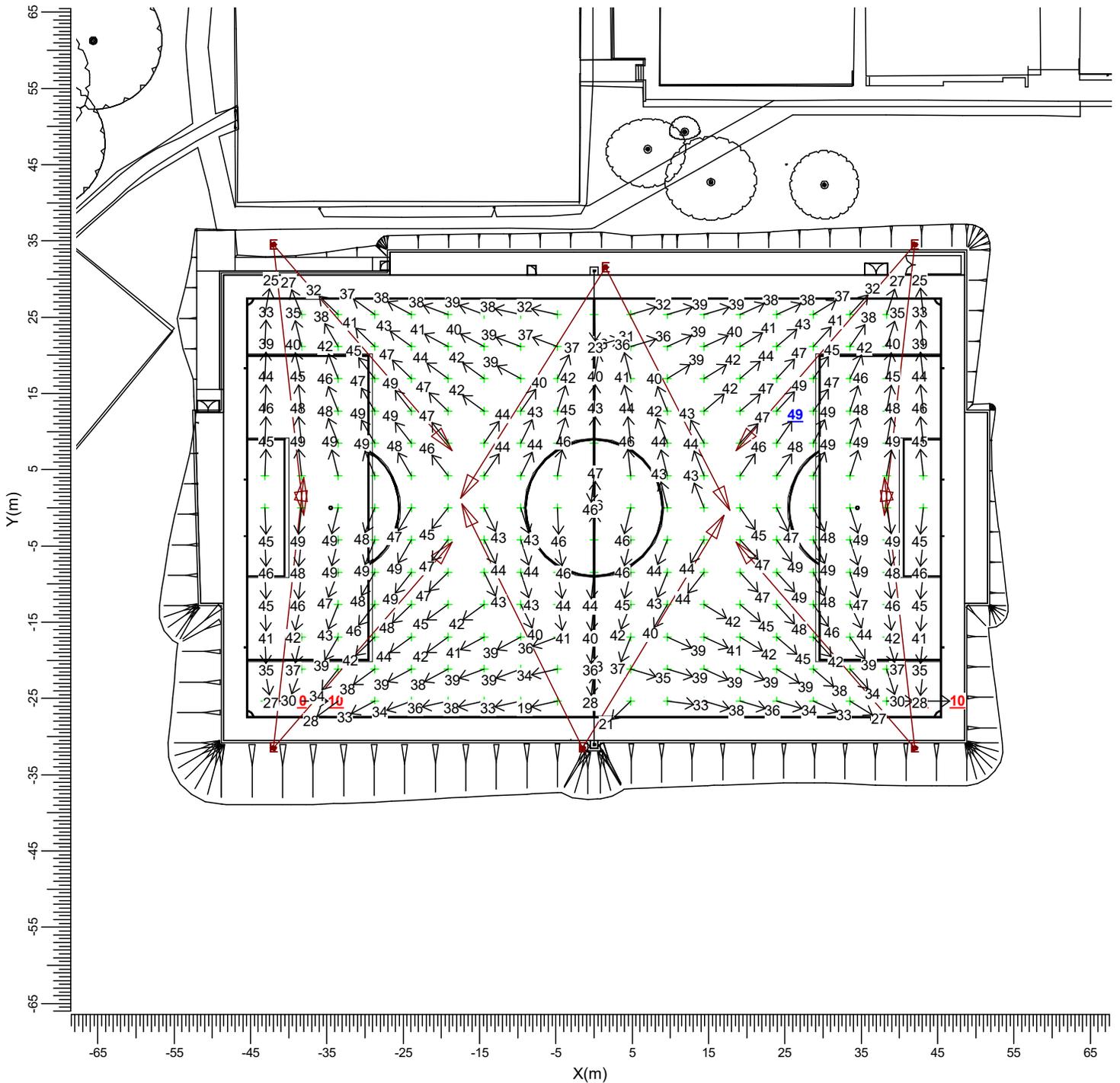
Project maintenance factor
1.00

Scale
1:2000

3.7 Glare: Graphical Table

Spillage Switching

Grid of Observers : Football
Calculation : Glare Rating
Grid for Background Luminance: Football (Reflectance: 0.25)
Vertical Viewing Angle : -2.0 deg



C BVP528 OUT T35 A35-NB LO D BVP528 OUT T35 A35-NB LTM
E BVP518 OUT T35 A35-NB LTM

Project maintenance factor
1.00

Scale
1:750

4. Luminaire Details

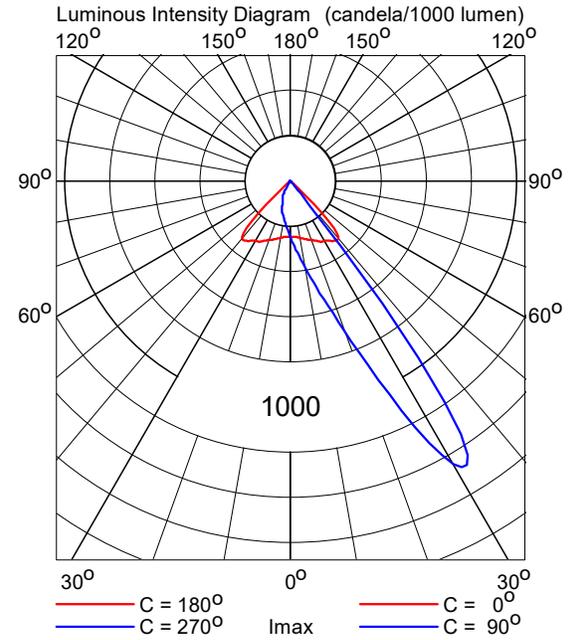
4.1 Project Luminaires

OptiVision LED gen3.5 2022
BVP518 OUT T35 1xLED1720-4S/740/740 E3/D4I A35-NB LTM

Light output ratios

DLOR	: 0.71
ULOR	: 0.00
TLOR	: 0.71
Ballast	: E3/D4I
Lamp flux	: 172000 lm
Luminaire wattage	: 1006.0 W
Measurement code	: LVM2047600

Note: Luminaire data not from database.



5. Installation Data

5.1 Legends

Project Luminaires:

Code	Qty	Luminaire Type	Lamp Type	Flux (lm)
E	12	BVP518 OUT T35 A35-NB LTM	1 * LED1720-4S/740	1 * 172000

Switching Modes:

Code	Switching Mode
1	200lux Switching
2	120lux Switching
3	Spillage Switching

5.2 Luminaire Positioning and Orientation

Qty and Code	Position			Aiming Angles			Switching Modes		
	X (m)	Y (m)	Z (m)	Rot.	Tilt90	Tilt0	1	2	3
1 * E	-42.00	-31.50	13.00	83.7	70.0	-0.0	+	+	+
1 * E	-42.00	-31.50	13.00	49.1	70.0	-0.0	+	+	+
1 * E	-42.00	34.50	13.00	-83.7	70.0	0.0	+	+	+
1 * E	-42.00	34.50	13.00	-49.1	70.0	0.0	+	+	+
1 * E	-1.50	-31.50	13.00	116.3	70.0	0.0	+	+	+
1 * E	-1.50	-31.50	13.00	58.8	70.0	0.0	+	+	+
1 * E	1.50	31.50	13.00	-62.9	70.0	0.0	+	+	+
1 * E	1.50	31.50	13.00	-122.1	70.0	0.0	+	+	+
1 * E	42.00	-31.50	13.00	96.3	70.0	0.0	+	+	+
1 * E	42.00	-31.50	13.00	130.9	70.0	0.0	+	+	+
1 * E	42.00	34.50	13.00	-96.3	70.0	-0.0	+	+	+
1 * E	42.00	34.50	13.00	-130.9	70.0	-0.0	+	+	+