

დამკვეთი: LLC “Excellent Team” ობიექტი: რაგბის მოედანი
- ქ.თბილისი

პროექტის ავტორი: შ.პ.ს. „ჯი თი ჯი“
პროექტის დიზაინერი: კახაბერ ბუცხრიკიძე
პროექტზე პასუხისმგებელი: გიორგი ჩილაჩავა, მიხეილ ხუბულური

საშუალო ჰორიზონტალური განათება: 430 ლუქსი

GR index, დამაბრმავებელი კოეფ: 38,8

გამოყენებული პროექტორები: MVF403/2000W 32 ცალი
რაოდენობა:



ARTIFICIAL COVER FIELD

RUGBY - 2

Date: 06-11-2015

Designer: KAKHABER BUTSKHRIKIDZE

Description: HEAD FIELD - average 430 lux 0,77 / 0,63
32 FLOODLIGHTS - 403 - 2175 wats Lamps - MHN SAH
2000 W/ 400 / 956 - light flow 226 000 lu

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.

GTG

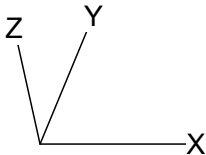
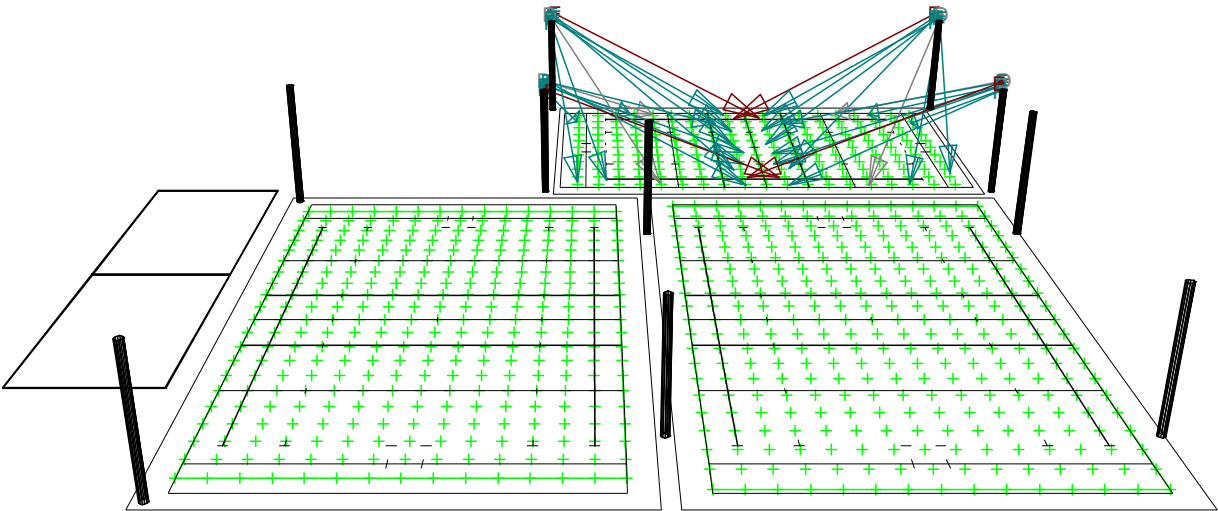
director Mkheil Khubuluri
fin. director Giorgi Chilachava

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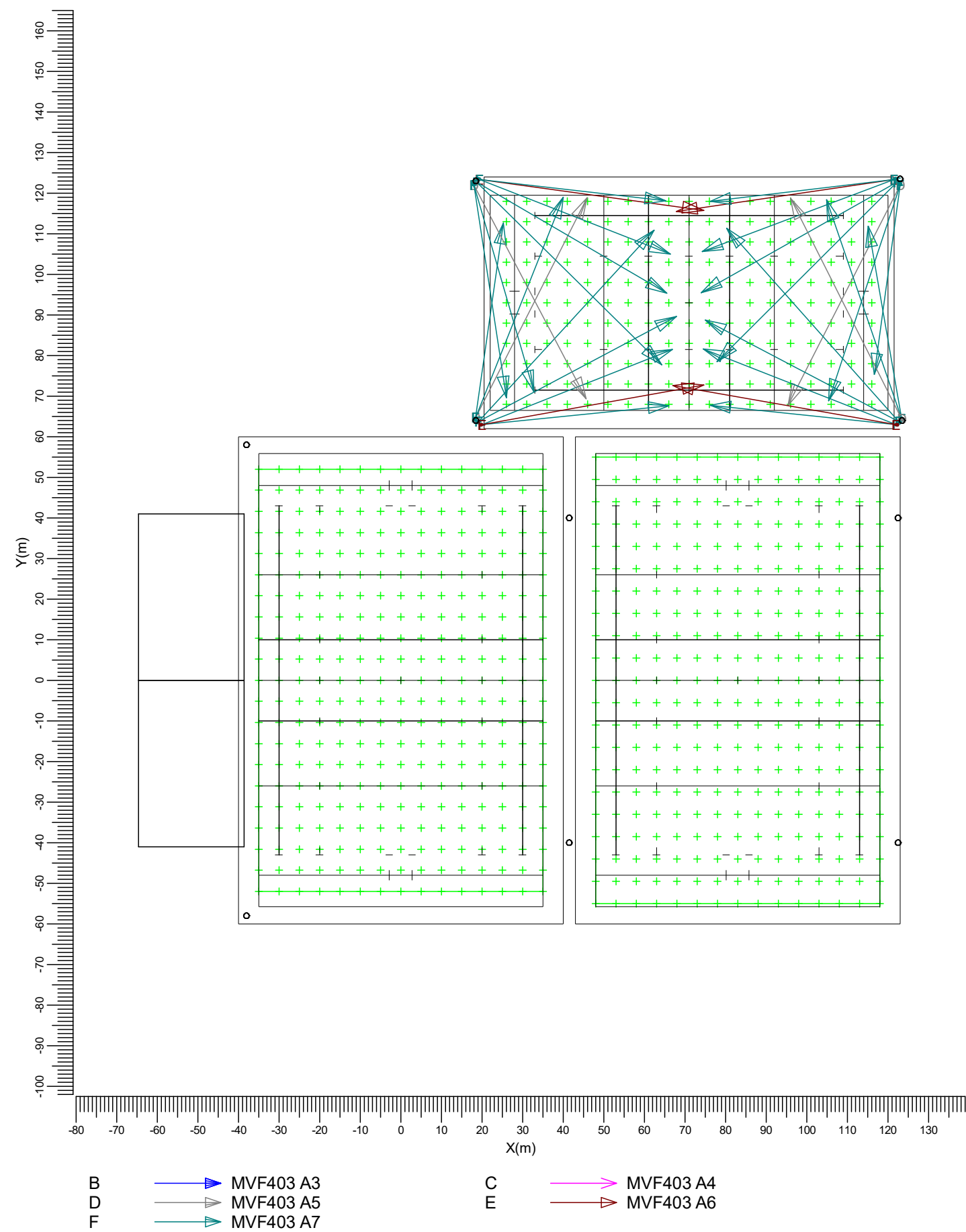
1. Project Description

1.1 3-D Project Overview



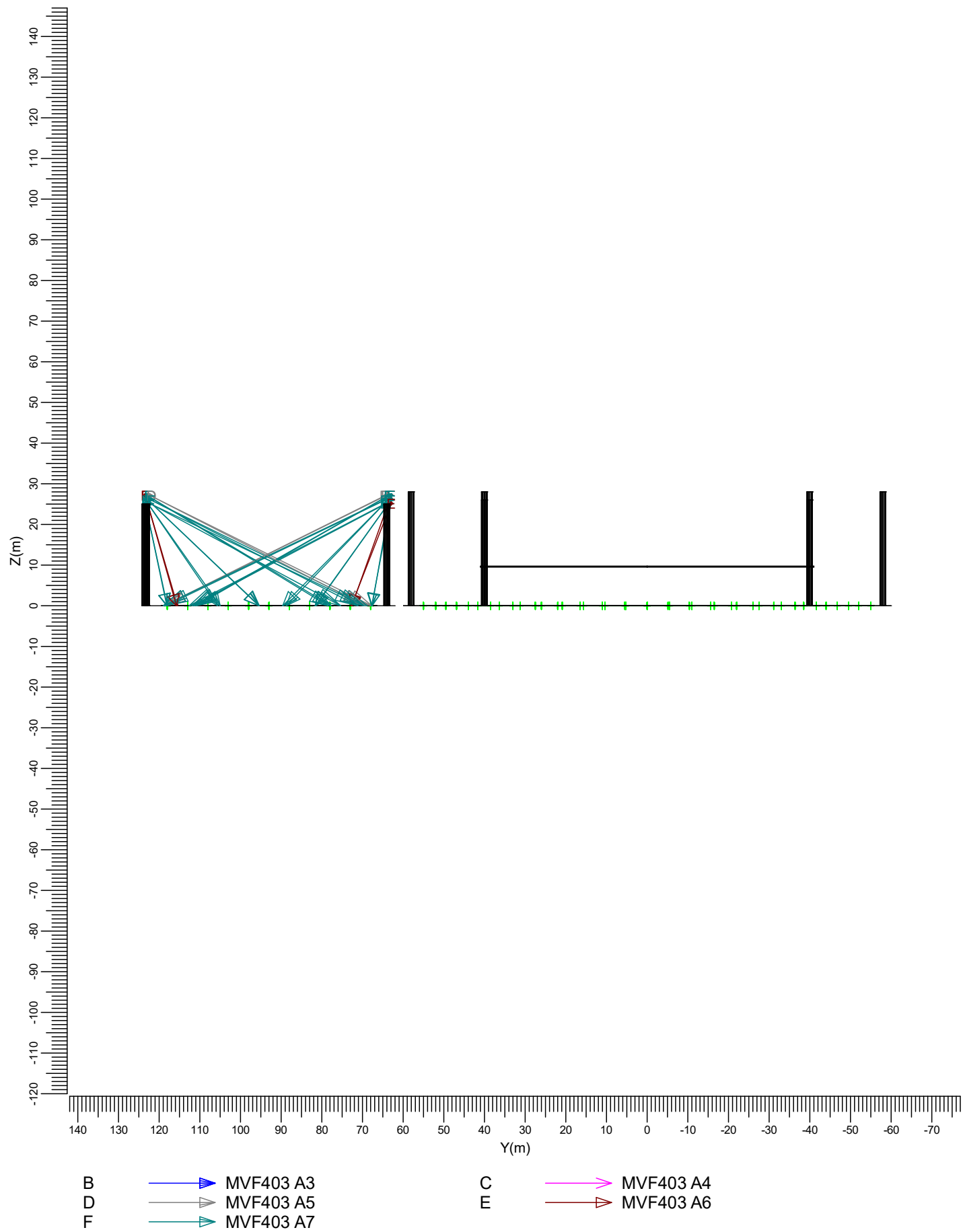
- | | | | | | |
|---|---|-----------|---|--|-----------|
| B |  | MVF403 A3 | C |  | MVF403 A4 |
| D |  | MVF403 A5 | E |  | MVF403 A6 |
| F |  | MVF403 A7 | | | |

1.2 Top Project Overview



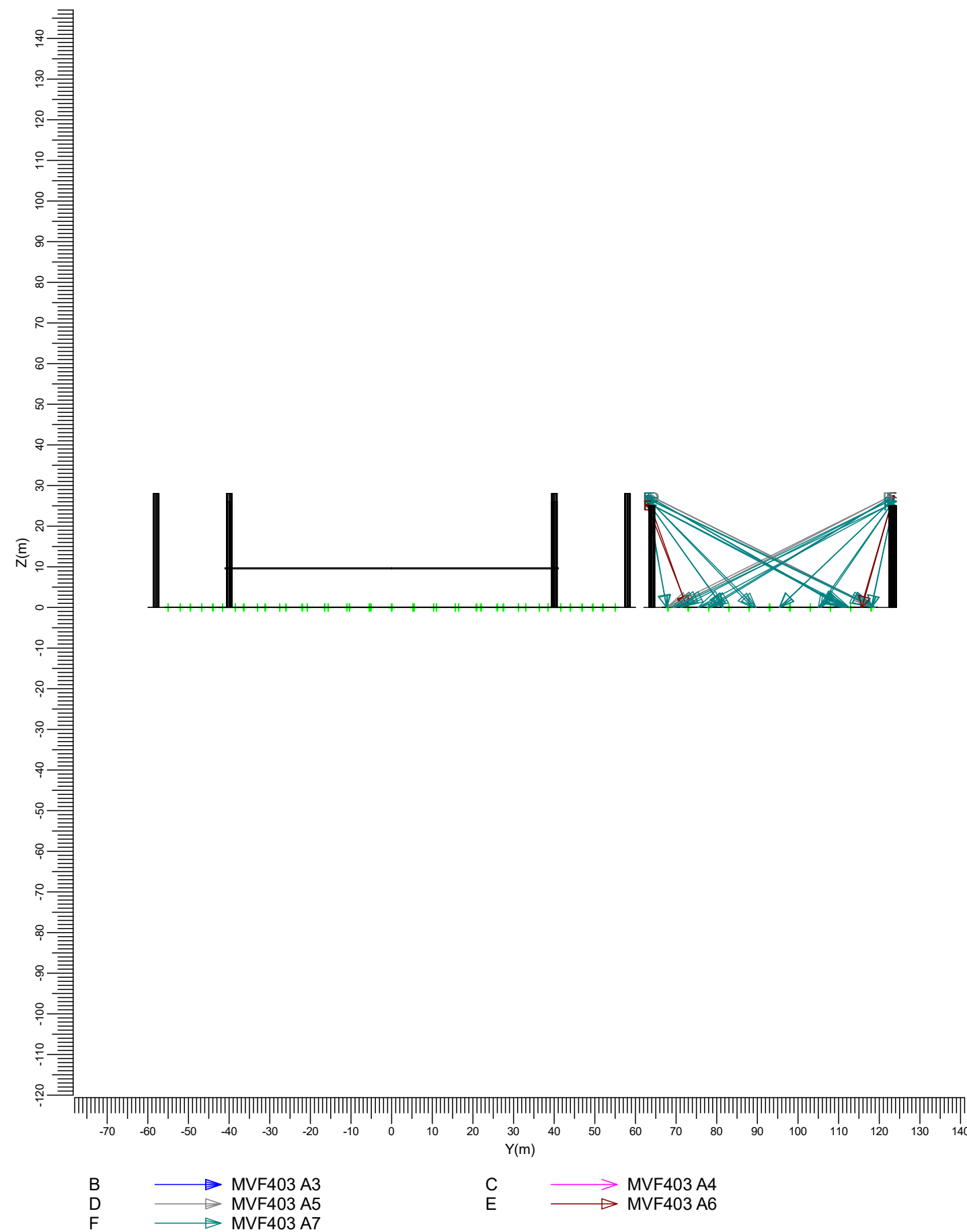
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1.3 Left Project Overview



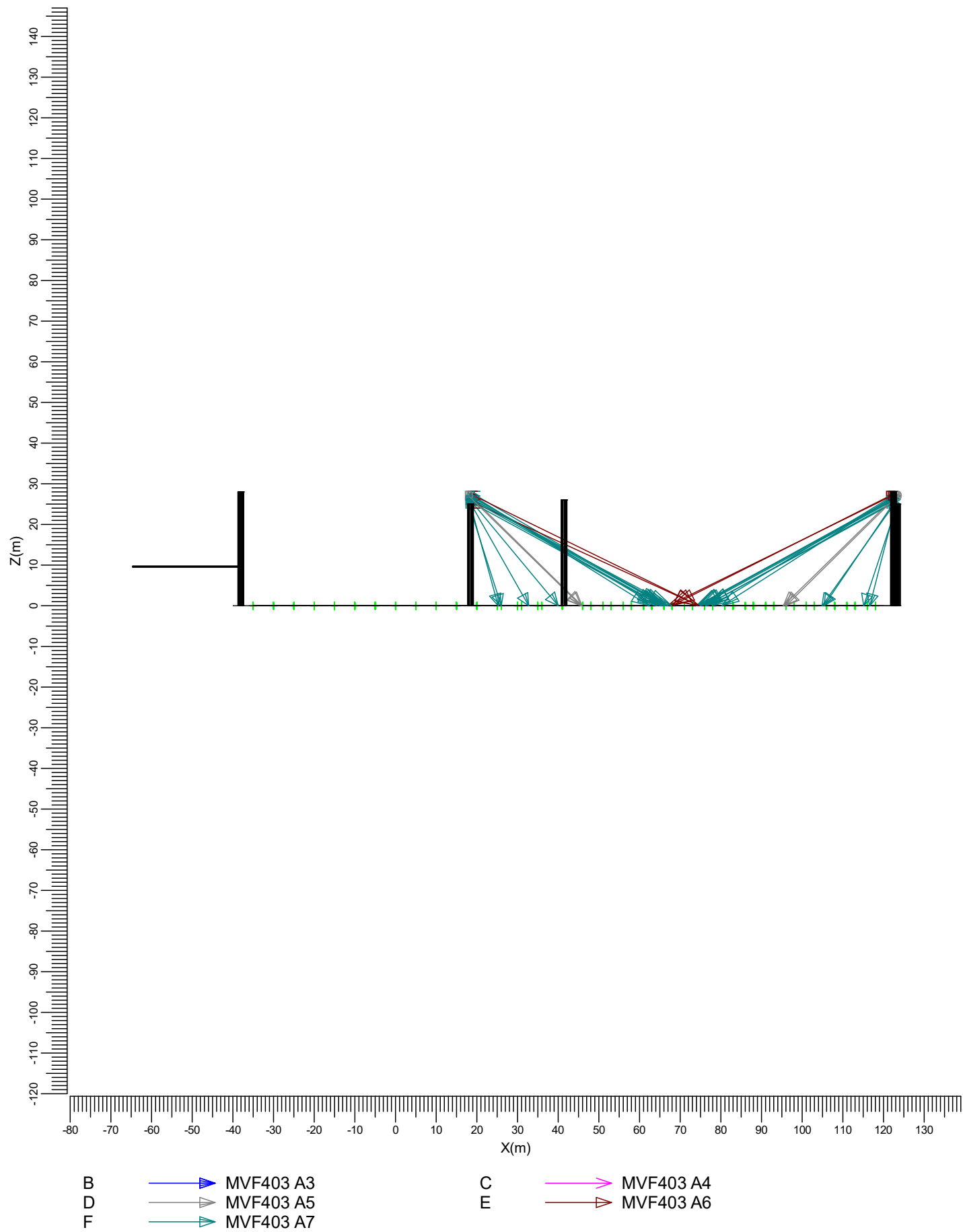
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1.4 Right Project Overview



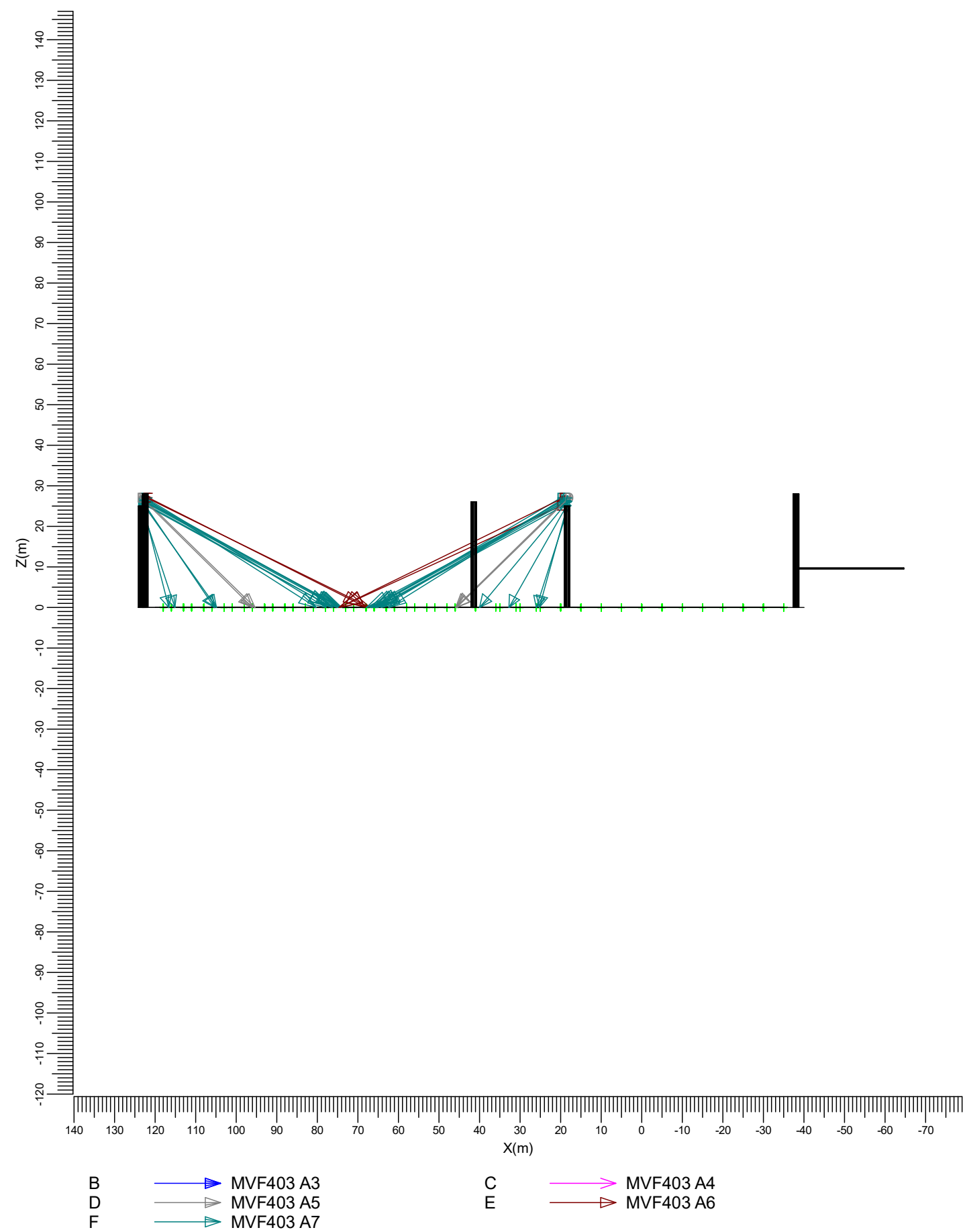
Scale
1:1250

1.5 Front Project Overview



Scale
1:1250

1.6 Back Project Overview



Scale
1:1250

2. Summary

2.1 General Information

The overall maintenance factor used for this project is 0.75.

2.2 Obstacle Information

Obstacle	Transparency (%)	Position		
		X (m)	Y (m)	Z (m)
bloc	0	-64.60	0.00	9.50
R	100	-64.60	0.00	9.50
RR1	100	-38.00	-58.00	0.00
R1	100	-38.00	58.00	0.00
R2 m1	100	41.50	40.00	0.00
R2m2	100	41.50	-40.00	0.00
R2m3	100	122.50	40.00	0.00
R2m4	100	122.50	-40.00	0.00
R2 m1	100	18.50	64.00	0.00
R2m2	100	18.50	123.00	0.00
R2m3	100	123.00	123.50	0.00
R2m4	100	123.50	64.00	0.00

2.3 Project Luminaires

Code	Qty	Luminaire Type	Lamp Type	Power (W)	Flux (lm)
D	4	MVF403 A5	1 * MHN-SAH2000W/400V/956	2175.0	1 * 226000
E	4	MVF403 A6	1 * MHN-SAH2000W/400V/956	2175.0	1 * 226000
F	24	MVF403 A7	1 * MHN-SAH2000W/400V/956	2175.0	1 * 226000

The total installed power: 69.60 (kWatt)

Number of Luminaires Per Arrangement:

Arrangement	Luminaire Code			Power (kWatt)
	D	E	F	
R	0	0	0	0.00
R - 1	0	0	0	0.00
R - 1 (1)	0	0	0	0.00
R - 2 (1)	1	1	6	17.40
R - 2 (2)	1	1	6	17.40
R - 2 (4)	1	1	6	17.40
R - 2 (3)	1	1	6	17.40
RR	0	0	0	0.00

2.4 Calculation Results

(II)luminance Calculations:

Calculation	Type	Unit	Ave	Min	Max	Min/Ave	Min/Max
RUGBY - 2	Surface Illuminance	lux	430	332	529	0.77	0.63

Glare Rating for Grid of Observers:

Calculation	Observer Grid	Reference Grid	Reflectance	GR-Max
GR RUGBY - 2	RUGBY - 2	RUGBY - 2	0.25	38.8

Obtrusive Light Calculations:

The upward light ratio (ULR) is 0.03.

3. Calculation Results

3.1 RUGBY - 2: Textual Table

Grid : RUGBY - 2 at Z = -0.00 m
Calculation : Surface Illuminance (lux)

X (m)	26.00	31.00	36.00	41.00	46.00	51.00	56.00	61.00	66.00	71.00	76.00	81.00	86.00
Y (m)													
118.00	343	363	354	410	471	418	398	383	370	370	373	388	406
113.00	388	400	411	483	521	462	435	426	410	411	415	434	442
108.00	373	399	439	519	521	458	449	435	425	423	428	440	448
103.00	365	401	448	506	491	444	437	429	414	417	419	430	432
98.00	415	456	481	485	443	419	436	417	409	414	413	418	432
93.00	464	491	490	471	419	402	423	410	408	410	407	411	418
88.00	398	447	480	484	454	433	436	421	412	415	411	422	434
83.00	360	405	445	503	499	449	436	437	426	422	425	436	439
78.00	391	409	435	502	519	459	449	442	431	432	432	444	449
73.00	398	406	406	458	517	462	434	426	410	409	412	429	433
68.00	332<	362	352	387	458	413	391	380	368	368	369	380	392

Continue >

Average	Minimum	Maximum	Min/Ave	Min/Max	Project maintenance factor
430	332	529	0.77	0.63	0.75

< Continue

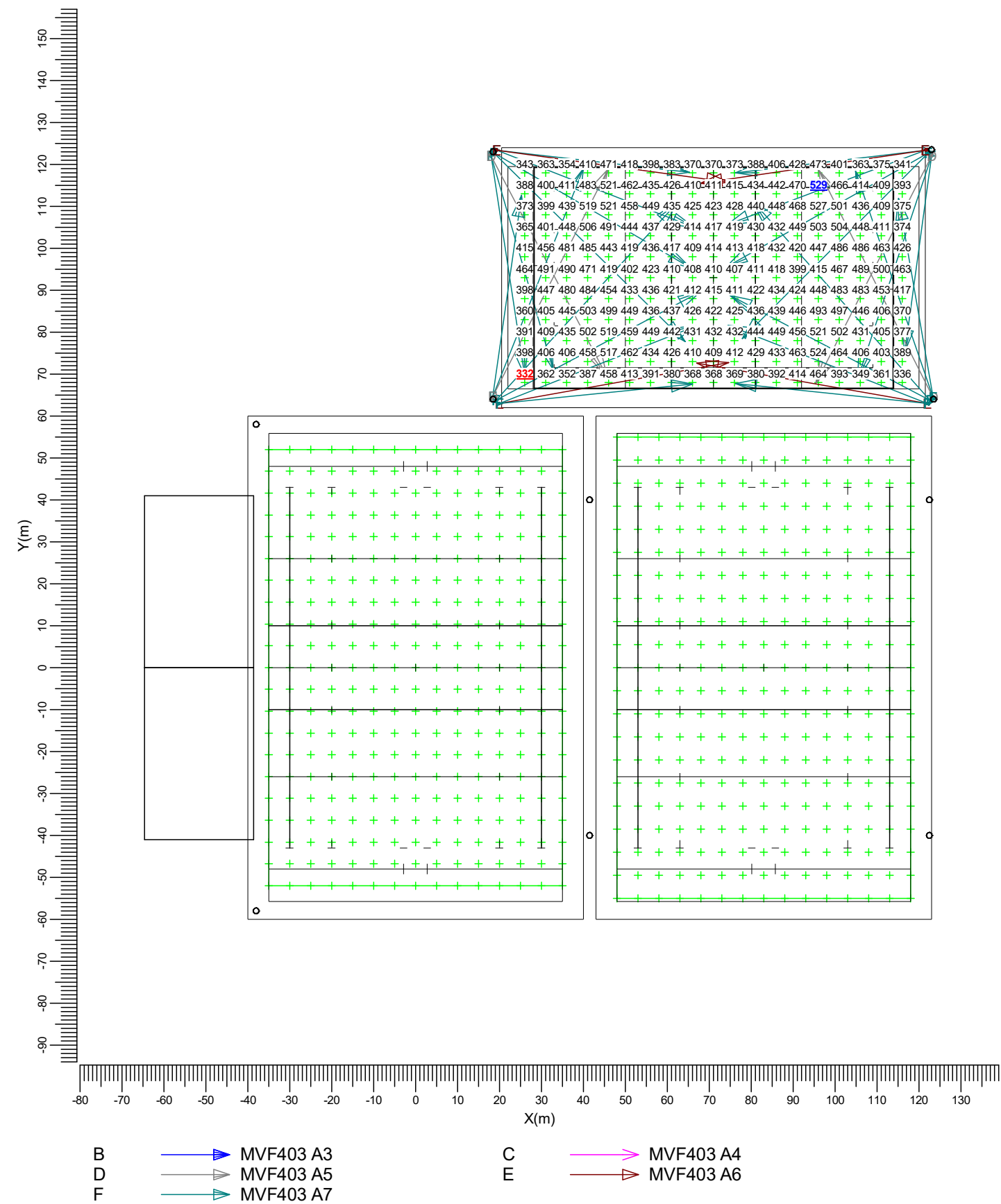
Grid : RUGBY - 2 at Z = -0.00 m
 Calculation : Surface Illuminance (lux)

X (m)	91.00	96.00	101.00	106.00	111.00	116.00
Y (m)						
118.00	428	473	401	363	375	341
113.00	470	529>	466	414	409	393
108.00	468	527	501	436	409	375
103.00	449	503	504	448	411	374
98.00	420	447	486	486	463	426
93.00	399	415	467	489	500	463
88.00	424	448	483	483	453	417
83.00	446	493	497	446	406	370
78.00	456	521	502	431	405	377
73.00	463	524	464	406	403	389
68.00	414	464	393	349	361	336

Average	Minimum	Maximum	Min/Ave	Min/Max	Project maintenance factor
430	332	529	0.77	0.63	0.75

3.2 RUGBY - 2: Graphical Table

Grid : RUGBY - 2 at Z = -0.00 m
Calculation : Surface Illuminance (lux)



Average	Minimum	Maximum	Min/Ave	Min/Max	Project maintenance factor	Scale
430	332	529	0.77	0.63	0.75	1:1250

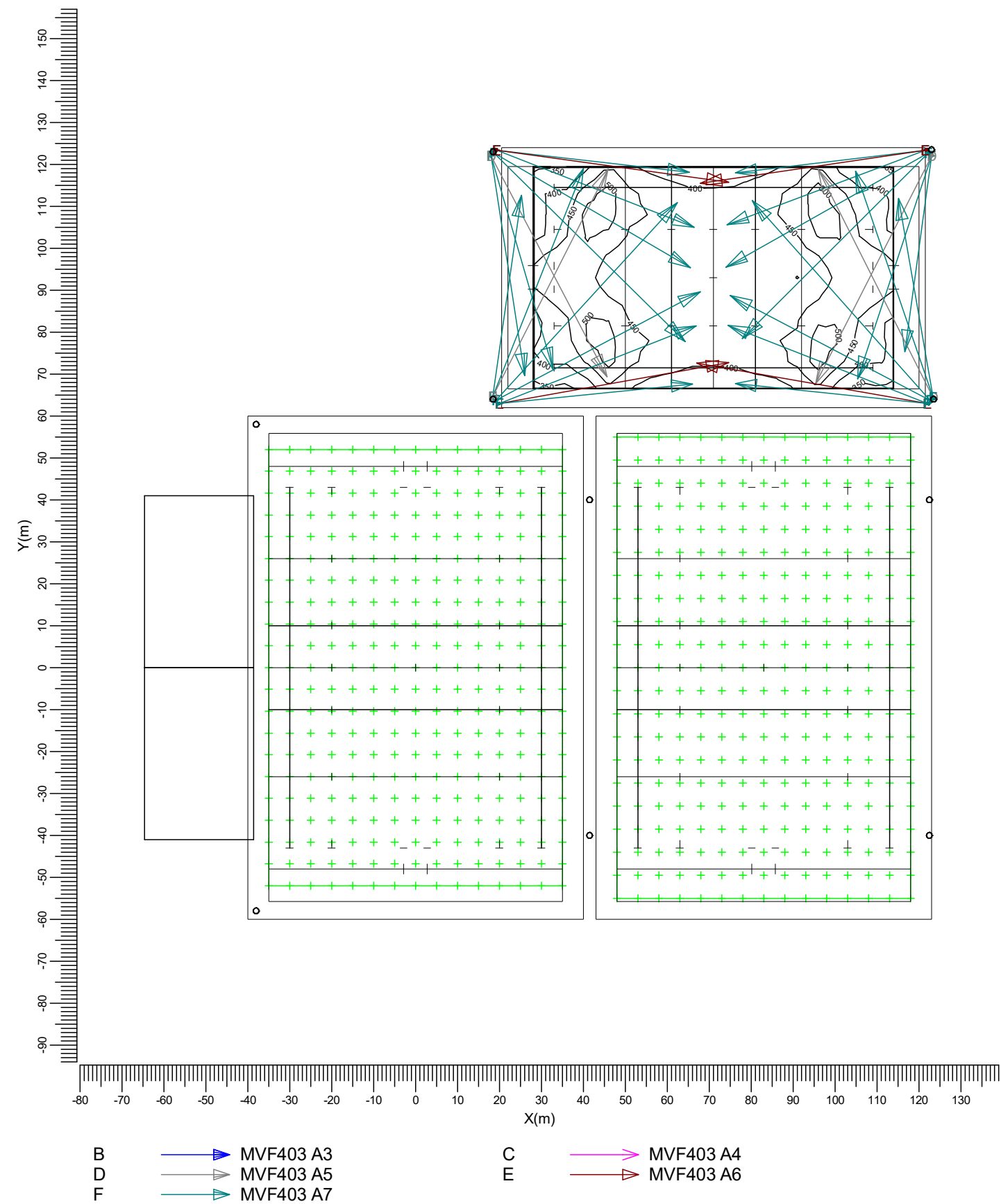
3.3 RUGBY - 2: Iso Contour

Grid

: RUGBY - 2 at Z = -0.00 m

Calculation

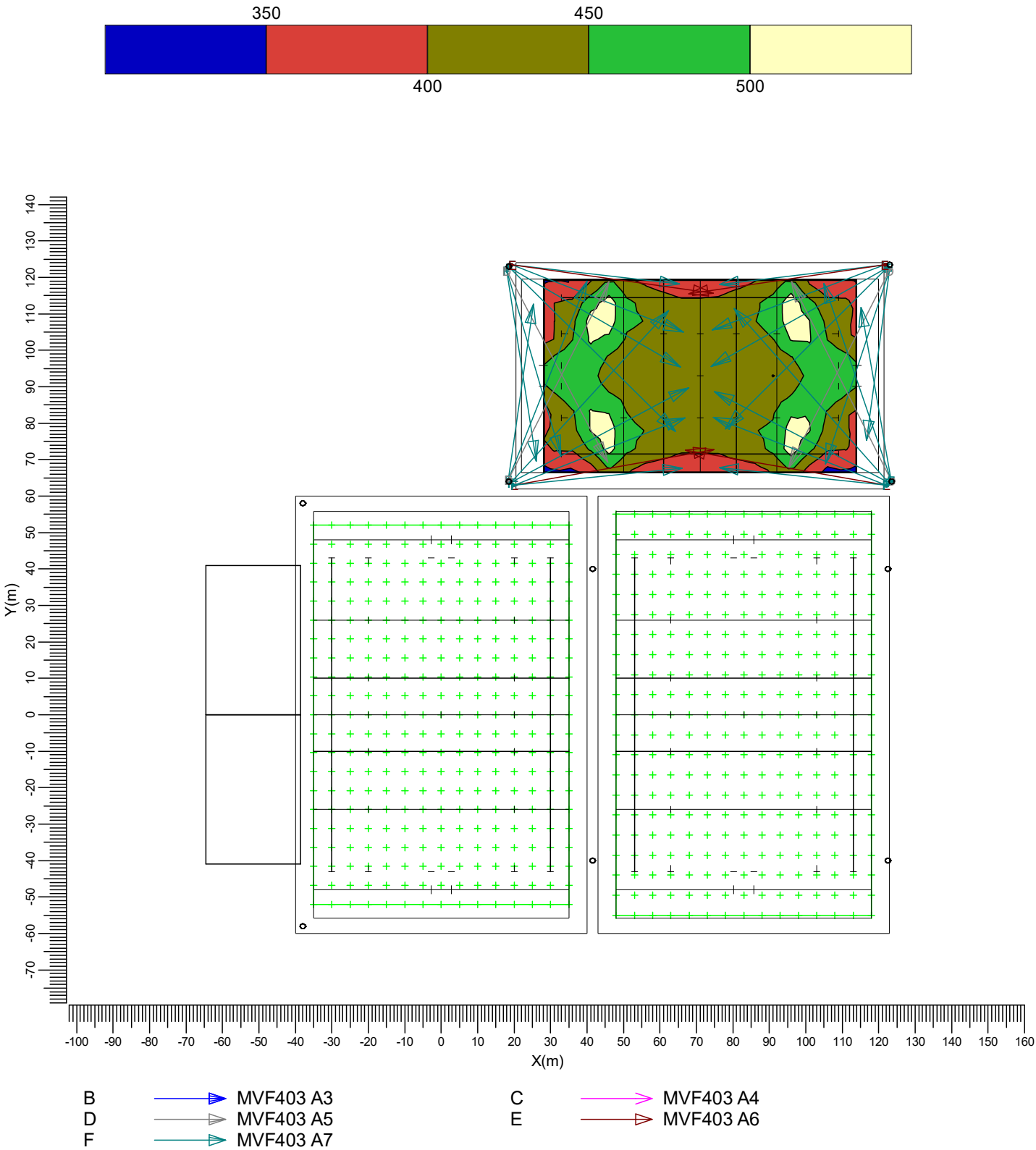
: Surface Illuminance (lux)



Average	Minimum	Maximum	Min/Ave	Min/Max	Project maintenance factor	Scale
430	332	529	0.77	0.63	0.75	1:1250

3.4 RUGBY - 2: Filled Iso Contour

Grid : RUGBY - 2 at Z = -0.00 m
Calculation : Surface Illuminance (lux)



Average	Minimum	Maximum	Min/Ave	Min/Max	Project maintenance factor	Scale
430	332	529	0.77	0.63	0.75	1:1500

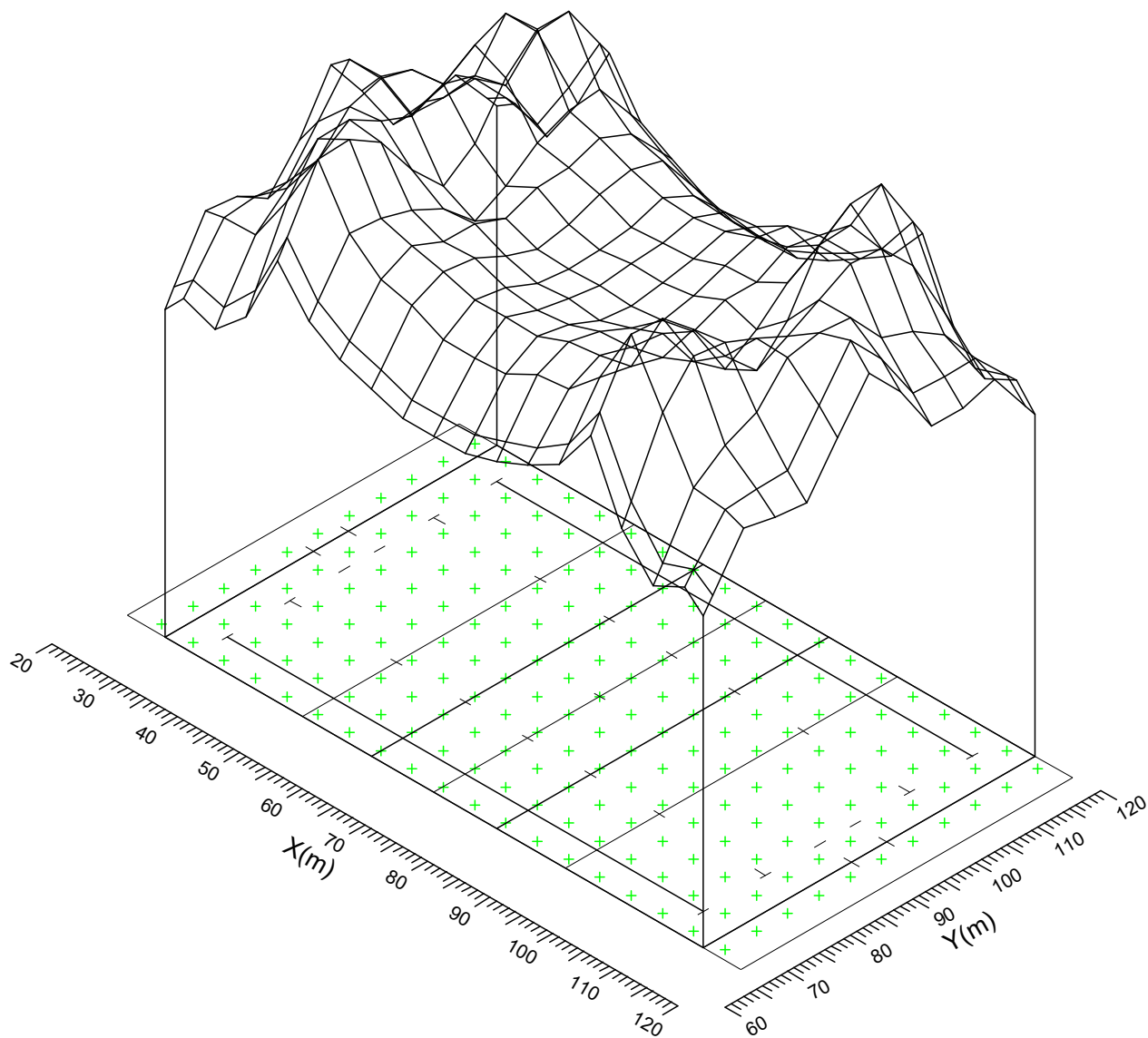
3.5 RUGBY - 2: Mountain Plot

Grid

: RUGBY - 2 at Z = -0.00 m

Calculation

: Surface Illuminance (lux)



Average	Minimum	Maximum	Min/Ave	Min/Max	Project maintenance factor
430	332	529	0.77	0.63	0.75

3.6 GR RUGBY - 2: Textual Table

Grid of Observers : RUGBY - 2
 Calculation : Glare Rating
 Grid for Background Luminance : RUGBY - 2 (Reflectance: 0.25)
 Vertical Viewing Angle : -2.0 deg

X	Y	Z	Angle	GR-Max	X	Y	Z	Angle	GR-Max
26.00	68.00	0.00	90	34	111.00	73.00	0.00	90	35
31.00	68.00	0.00	90	35	116.00	73.00	0.00	90	34
36.00	68.00	0.00	90	35	26.00	78.00	0.00	90	34
41.00	68.00	0.00	90	34	31.00	78.00	0.00	90	34
46.00	68.00	0.00	135	37	36.00	78.00	0.00	90	34
51.00	68.00	0.00	135	37	41.00	78.00	0.00	135	36
56.00	68.00	0.00	135	37	46.00	78.00	0.00	135	38
61.00	68.00	0.00	135	38	51.00	78.00	0.00	135	38
66.00	68.00	0.00	135	38	56.00	78.00	0.00	135	38
71.00	68.00	0.00	180	38	61.00	78.00	0.00	135	38
76.00	68.00	0.00	45	38	66.00	78.00	0.00	180	38
81.00	68.00	0.00	45	38	71.00	78.00	0.00	180	38
86.00	68.00	0.00	45	37	76.00	78.00	0.00	180	38
91.00	68.00	0.00	45	37	81.00	78.00	0.00	45	38
96.00	68.00	0.00	45	36	86.00	78.00	0.00	45	38
101.00	68.00	0.00	90	35	91.00	78.00	0.00	45	38
106.00	68.00	0.00	90	35	96.00	78.00	0.00	45	37
111.00	68.00	0.00	90	35	101.00	78.00	0.00	45	35
116.00	68.00	0.00	90	34	106.00	78.00	0.00	90	34
26.00	73.00	0.00	90	35	111.00	78.00	0.00	90	34
31.00	73.00	0.00	90	35	116.00	78.00	0.00	90	33
36.00	73.00	0.00	90	35	26.00	83.00	0.00	0	31
41.00	73.00	0.00	135	36	31.00	83.00	0.00	0	32
46.00	73.00	0.00	135	38	36.00	83.00	0.00	0	33
51.00	73.00	0.00	135	38	41.00	83.00	0.00	135	35
56.00	73.00	0.00	135	38	46.00	83.00	0.00	135	37
61.00	73.00	0.00	135	38	51.00	83.00	0.00	135	38
66.00	73.00	0.00	180	38	56.00	83.00	0.00	135	38
71.00	73.00	0.00	180	39	61.00	83.00	0.00	135	38
76.00	73.00	0.00	180	38	66.00	83.00	0.00	135	37
81.00	73.00	0.00	45	38	71.00	83.00	0.00	180	37
86.00	73.00	0.00	45	38	76.00	83.00	0.00	45	37
91.00	73.00	0.00	45	38	81.00	83.00	0.00	45	38
96.00	73.00	0.00	45	38	86.00	83.00	0.00	45	38
101.00	73.00	0.00	45	35	91.00	83.00	0.00	45	37
106.00	73.00	0.00	90	35	96.00	83.00	0.00	45	36

Continue >

Maximum
38.8Project maintenance factor
0.75

< Continue

Continue >

Grid of Observers : RUGBY - 2
 Calculation : Glare Rating
 Grid for Background Luminance : RUGBY - 2 (Reflectance: 0.25)
 Vertical Viewing Angle : -2.0 deg

X	Y	Z	Angle	GR-Max	X	Y	Z	Angle	GR-Max
101.00	83.00	0.00	45	34	96.00	93.00	0.00	180	33
106.00	83.00	0.00	180	33	101.00	93.00	0.00	180	33
111.00	83.00	0.00	180	32	106.00	93.00	0.00	180	32
116.00	83.00	0.00	90	32	111.00	93.00	0.00	180	32
26.00	88.00	0.00	0	31	116.00	93.00	0.00	180	31
31.00	88.00	0.00	0	32	26.00	98.00	0.00	0	31
36.00	88.00	0.00	0	32	31.00	98.00	0.00	0	31
41.00	88.00	0.00	0	33	36.00	98.00	0.00	0	32
46.00	88.00	0.00	135	35	41.00	98.00	0.00	0	33
51.00	88.00	0.00	135	36	46.00	98.00	0.00	225	34
56.00	88.00	0.00	135	38	51.00	98.00	0.00	225	35
61.00	88.00	0.00	135	37	56.00	98.00	0.00	225	37
66.00	88.00	0.00	135	37	61.00	98.00	0.00	225	37
71.00	88.00	0.00	180	36	66.00	98.00	0.00	225	37
76.00	88.00	0.00	45	37	71.00	98.00	0.00	180	36
81.00	88.00	0.00	45	37	76.00	98.00	0.00	315	37
86.00	88.00	0.00	45	37	81.00	98.00	0.00	315	37
91.00	88.00	0.00	45	35	86.00	98.00	0.00	315	37
96.00	88.00	0.00	45	34	91.00	98.00	0.00	315	35
101.00	88.00	0.00	180	33	96.00	98.00	0.00	315	34
106.00	88.00	0.00	180	32	101.00	98.00	0.00	180	33
111.00	88.00	0.00	180	32	106.00	98.00	0.00	180	32
116.00	88.00	0.00	180	31	111.00	98.00	0.00	180	32
26.00	93.00	0.00	0	31	116.00	98.00	0.00	180	31
31.00	93.00	0.00	0	32	26.00	103.00	0.00	270	31
36.00	93.00	0.00	0	32	31.00	103.00	0.00	0	32
41.00	93.00	0.00	0	33	36.00	103.00	0.00	0	32
46.00	93.00	0.00	0	33	41.00	103.00	0.00	225	34
51.00	93.00	0.00	135	35	46.00	103.00	0.00	225	36
56.00	93.00	0.00	135	36	51.00	103.00	0.00	225	37
61.00	93.00	0.00	135	36	56.00	103.00	0.00	225	38
66.00	93.00	0.00	225	36	61.00	103.00	0.00	225	38
71.00	93.00	0.00	180	35	66.00	103.00	0.00	225	37
76.00	93.00	0.00	45	36	71.00	103.00	0.00	180	37
81.00	93.00	0.00	45	36	76.00	103.00	0.00	315	37
86.00	93.00	0.00	45	36	81.00	103.00	0.00	315	38
91.00	93.00	0.00	180	34	86.00	103.00	0.00	315	38

Maximum
38.8

Project maintenance factor
0.75

< Continue

Grid of Observers : RUGBY - 2
 Calculation : Glare Rating
 Grid for Background Luminance : RUGBY - 2 (Reflectance: 0.25)
 Vertical Viewing Angle : -2.0 deg

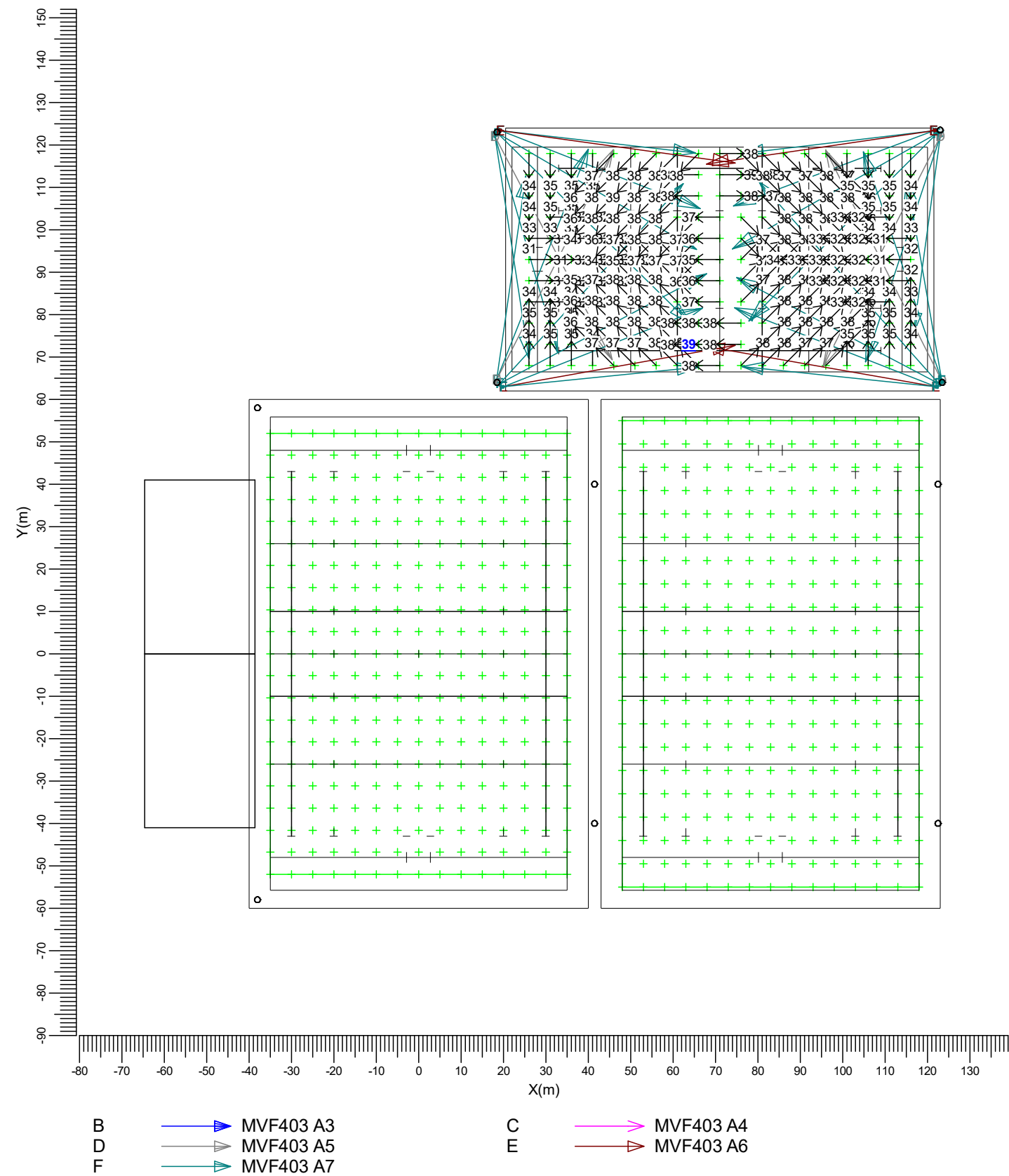
X	Y	Z	Angle	GR-Max	X	Y	Z	Angle	GR-Max
91.00	103.00	0.00	315	37	91.00	113.00	0.00	315	38
96.00	103.00	0.00	315	36	96.00	113.00	0.00	315	38
101.00	103.00	0.00	315	34	101.00	113.00	0.00	315	36
106.00	103.00	0.00	180	33	106.00	113.00	0.00	270	35
111.00	103.00	0.00	180	32	111.00	113.00	0.00	270	35
116.00	103.00	0.00	270	32	116.00	113.00	0.00	270	34
26.00	108.00	0.00	270	33	26.00	118.00	0.00	270	34
31.00	108.00	0.00	270	33	31.00	118.00	0.00	270	35
36.00	108.00	0.00	270	33	36.00	118.00	0.00	270	35
41.00	108.00	0.00	225	36	41.00	118.00	0.00	270	35
46.00	108.00	0.00	225	38	46.00	118.00	0.00	225	37
51.00	108.00	0.00	225	38	51.00	118.00	0.00	225	38
56.00	108.00	0.00	225	38	56.00	118.00	0.00	225	38
61.00	108.00	0.00	225	38	61.00	118.00	0.00	225	38
66.00	108.00	0.00	180	38	66.00	118.00	0.00	225	38
71.00	108.00	0.00	0	38	71.00	118.00	0.00	0	38
76.00	108.00	0.00	0	37	76.00	118.00	0.00	315	38
81.00	108.00	0.00	315	38	81.00	118.00	0.00	315	37
86.00	108.00	0.00	315	38	86.00	118.00	0.00	315	37
91.00	108.00	0.00	315	38	91.00	118.00	0.00	315	38
96.00	108.00	0.00	315	38	96.00	118.00	0.00	315	37
101.00	108.00	0.00	315	36	101.00	118.00	0.00	270	35
106.00	108.00	0.00	270	34	106.00	118.00	0.00	270	35
111.00	108.00	0.00	270	34	111.00	118.00	0.00	270	35
116.00	108.00	0.00	270	33	116.00	118.00	0.00	270	34
26.00	113.00	0.00	270	34					
31.00	113.00	0.00	270	35					
36.00	113.00	0.00	270	35					
41.00	113.00	0.00	225	36					
46.00	113.00	0.00	225	38					
51.00	113.00	0.00	225	39					
56.00	113.00	0.00	225	38					
61.00	113.00	0.00	225	38					
66.00	113.00	0.00	180	38					
71.00	113.00	0.00	0	39					
76.00	113.00	0.00	0	38					
81.00	113.00	0.00	315	38					
86.00	113.00	0.00	315	38					

Maximum
38.8

Project maintenance factor
0.75

3.7 GR RUGBY - 2: Graphical Table

Grid of Observers : RUGBY - 2
Calculation : Glare Rating
Grid for Background Luminance : RUGBY - 2 (Reflectance: 0.25)
Vertical Viewing Angle : -2.0 deg



4. Luminaire Details

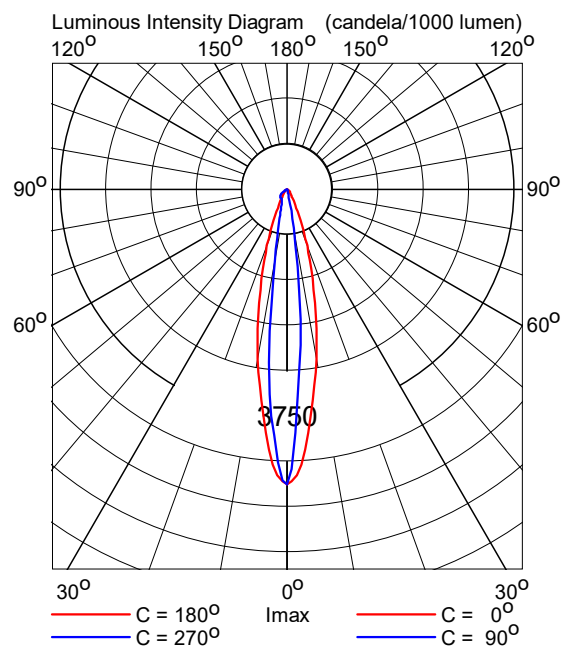
4.1 Project Luminaires

MVF403
MVF403 1xMHN-SAH2000W/400V/956 A5



Light output ratios
 DLOR : 0.80
 ULOR : 0.01
 TLOR : 0.81
 Ballast : Conventional
 Lamp flux : 226000 lm
 Luminaire wattage : 2175.0 W
 Measurement code : LVM1246200

Note: This luminaire is a special version of the mentioned measurement code.

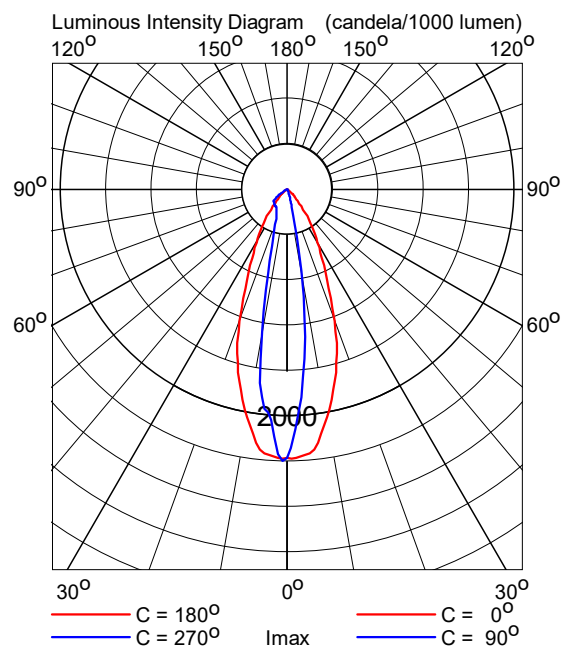


MVF403
MVF403 1xMHN-SAH2000W/400V/956 A6



Light output ratios
 DLOR : 0.80
 ULOR : 0.00
 TLOR : 0.80
 Ballast : Conventional
 Lamp flux : 226000 lm
 Luminaire wattage : 2175.0 W
 Measurement code : LVM1246300

Note: This luminaire is a special version of the mentioned measurement code.



MVF403 1xMHN-
SAH2000W/400V/956 A7



Light output ratios
DLOR : 0.80
ULOR : 0.00
TLOR : 0.80
Ballast : Conventional
Lamp flux : 226000 lm
Luminaire wattage : 2175.0 W
Measurement code : LVM1246400

Note: This luminaire is a special version of the mentioned measurement code.

