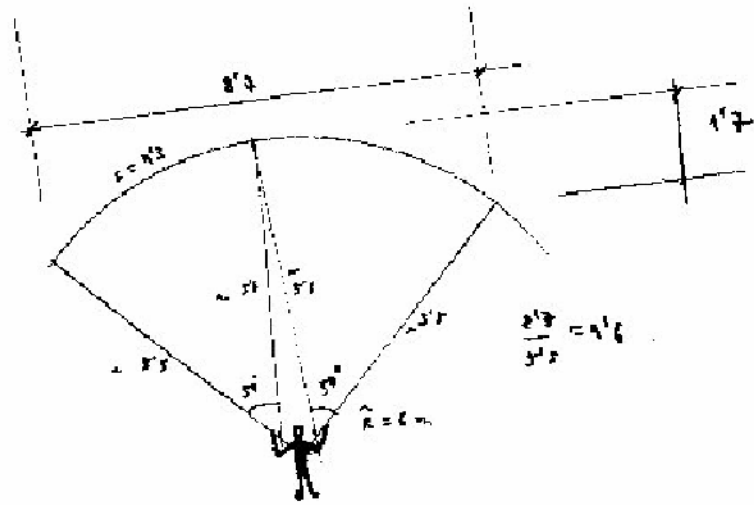


# LABORATORI D'ENVOL

## Glider Engineering



LE gnuLAB2
MODEL: Laboratori d'envol gnuLAB2
AREA: 25 m <sup>2</sup>
WEIGHT IN FLIGHT: 70-85 Kg
SPAN: 10.84 m
ASPECT RATIO: 4.7
CELLS: 29
AIRFOIL: LE gnuLAB2 18%
GLIDE: 7.0
SAIL: NYLON RIPSTOP 40 gr/m <sup>2</sup> and 31 gr/m <sup>2</sup>
LINES: DYNNEMA 1.5 mm and 1.1 mm
REINFORCEMENTS: MYLAR
RISERS: POLYESTER 22 mm (4 per side)
MAILLONS: INOX Ø3.5 mm (8 units)
HOMOLOGATION: NO (EXPERIMENTAL)

# "gnuLAB2" PARAGLIDER

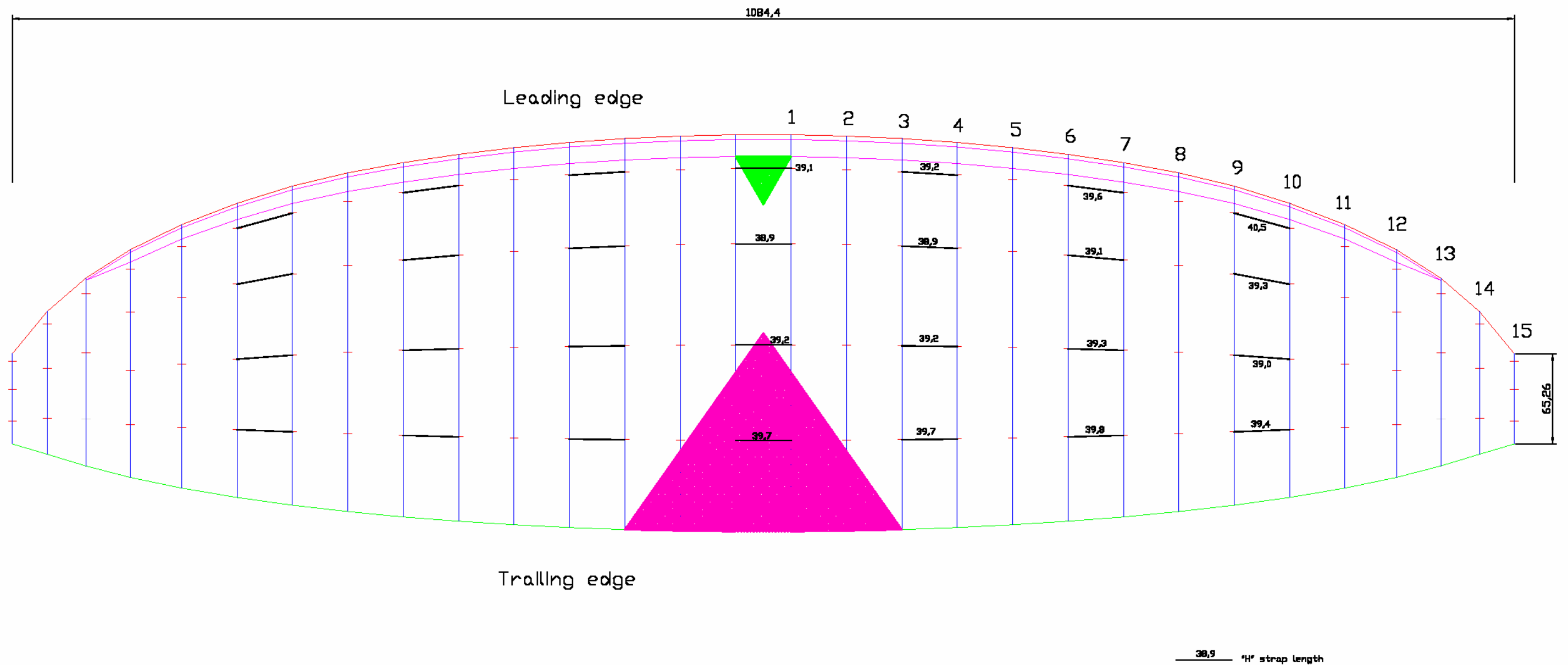
Pere H. Casellas  
 Teià-Barcelona, march - december 2010  
<http://www.laboratoridenvol.com>  
[info@laboratoridenvol.com](mailto:info@laboratoridenvol.com)

LICENSE: It is allowed the free study, copy, and modification of these planes, and the derived glider, in agreement with the criteria of GNU General Public License 2.0 <http://www.gnu.org>

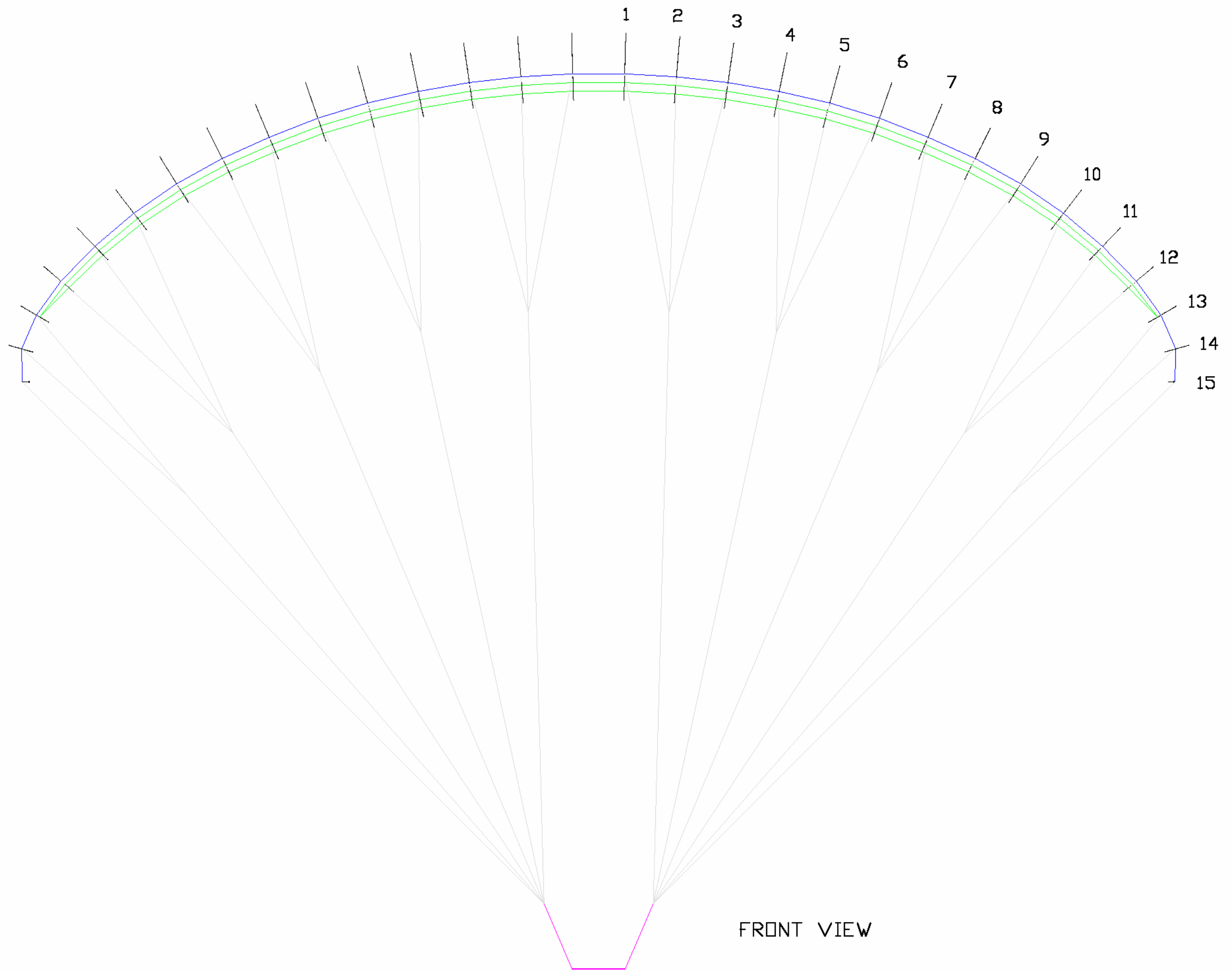
	INDEX	
1	INDEX AND GENERAL DATA	1
2	PLANFORM	1
3	FRONT VIEW	1
4	CALAGE	1
5	RIBS	5
6	PANELS	11
7	LINES AND RISERS	2
8	DETAILS	1
	TOTAL	23

Version 0.1: 2010-03-21  
 Version 0.2: 2010-12-08 "As-built"

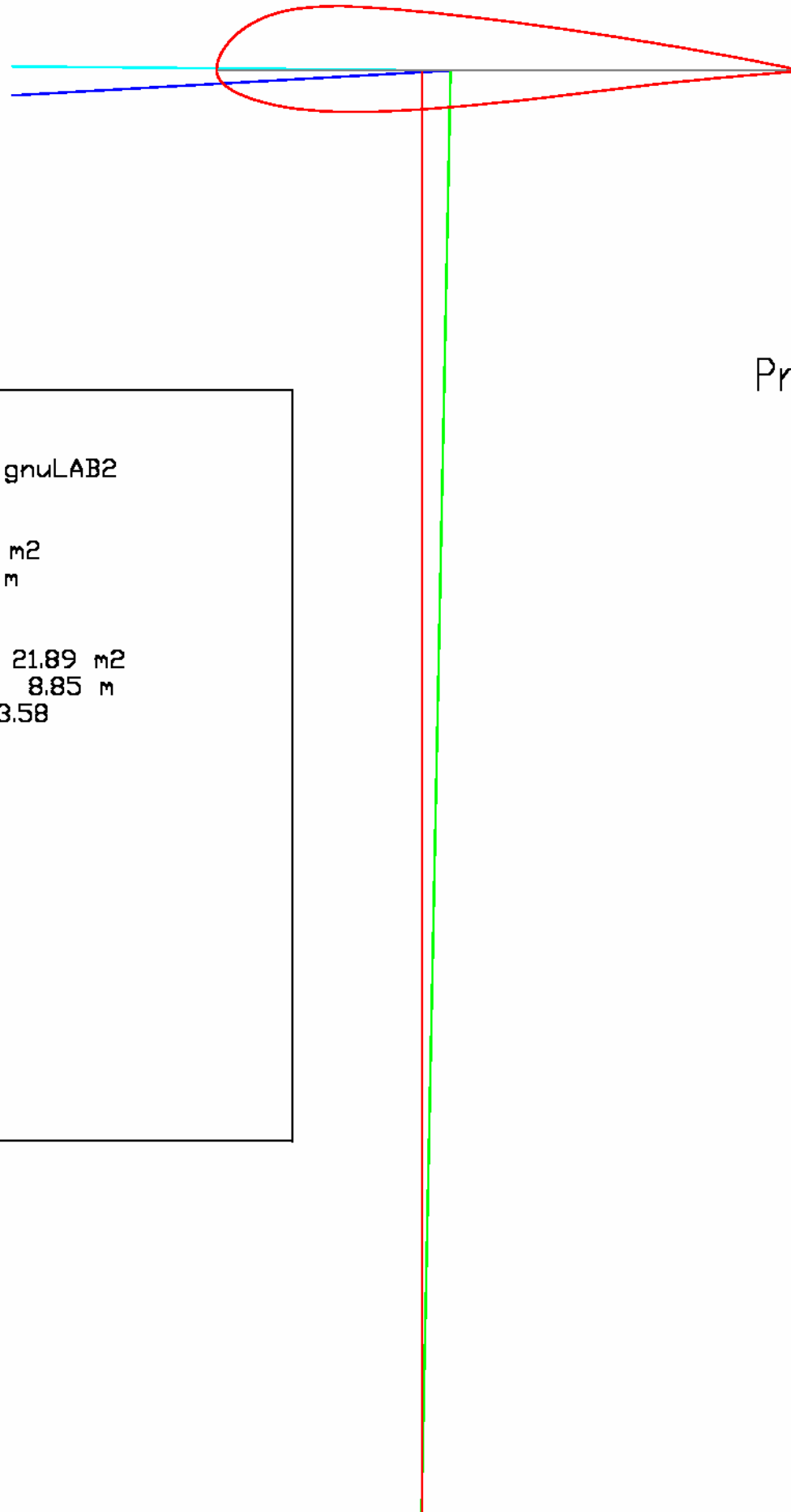
Attention! The information contained in these plans only must be used by people with high formation in paragliding, that knows well the associated risks of the activity. Laboratori d'envol does not take responsibility of the accidents or deaths caused by the use of this information.



PLANFORM



FRONT VIEW



Proto trim speed

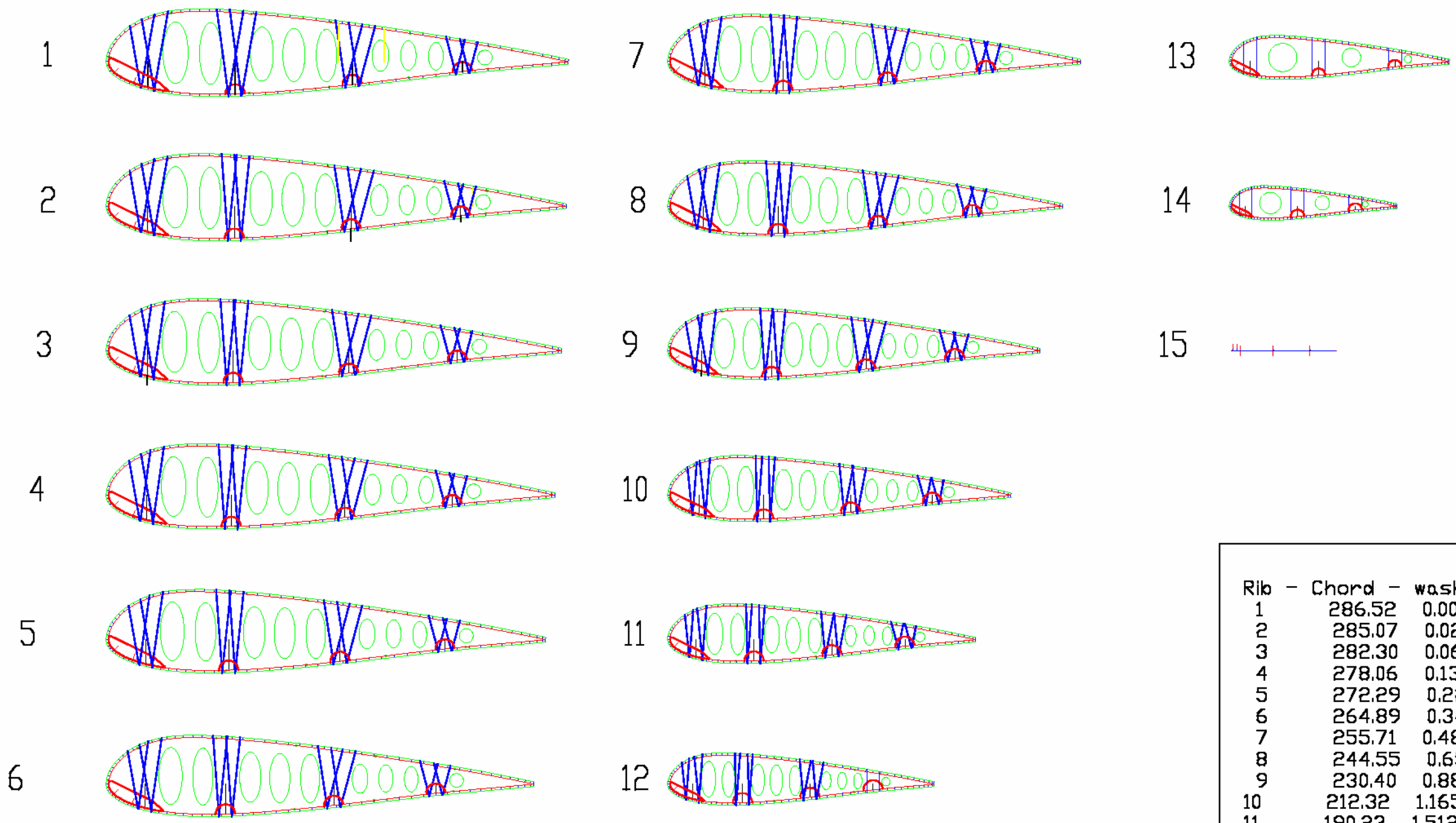
Paraglider model = gnuLAB2

Flat area = 25.03 m<sup>2</sup>  
Flat span = 10.84 m  
Flat A/R = 4.70

Projected area = 21.89 m<sup>2</sup>  
Projected span = 8.85 m  
Projected A/R = 3.58

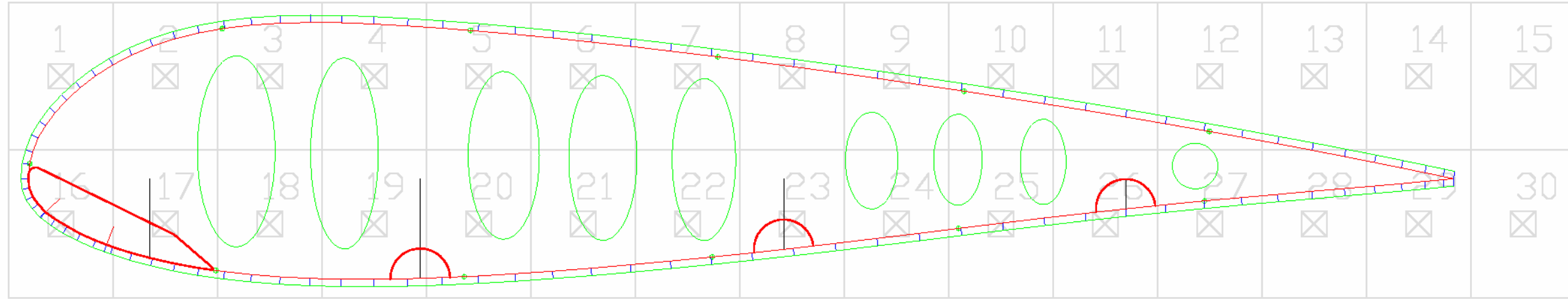
Calage 35%

Ribs number = 30  
Cells number = 29

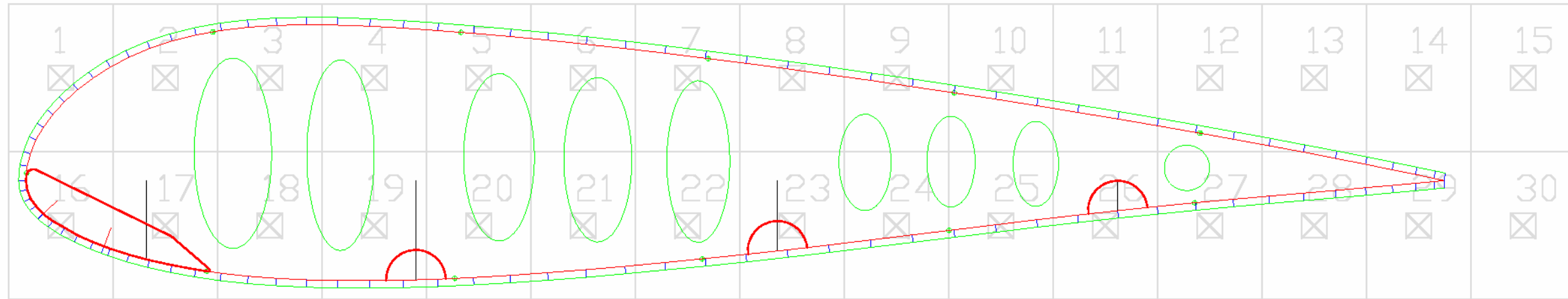


Rib	Chord	washin	beta
1	286.52	0.000	1.65
2	285.07	0.023	4.79
3	282.30	0.066	8.28
4	278.06	0.133	11.58
5	272.29	0.223	15.18
6	264.89	0.340	19.04
7	255.71	0.484	22.91
8	244.55	0.659	26.60
9	230.40	0.881	32.12
10	212.32	1.165	37.60
11	190.23	1.512	43.78
12	164.39	1.918	49.64
13	135.71	2.369	59.57
14	102.88	2.884	74.46
15	65.26	4.500	90.00

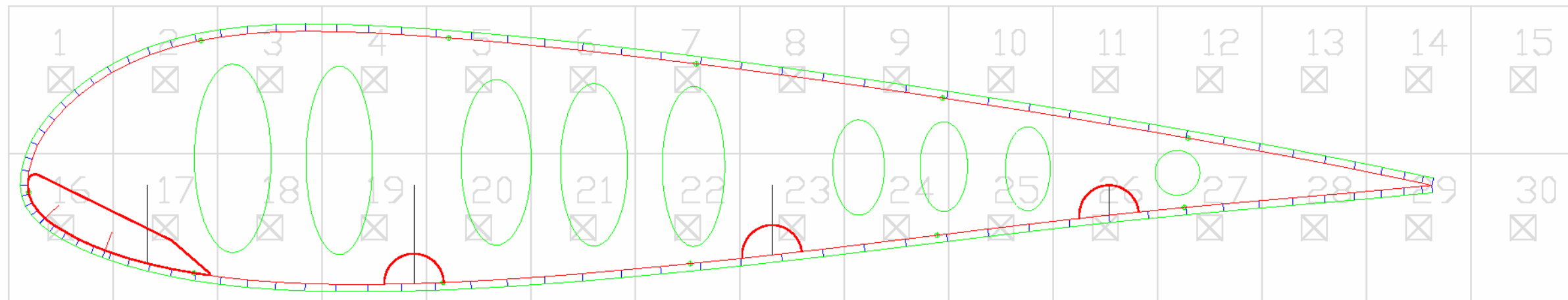
### Ribs 1,1'



### Ribs 2,2'

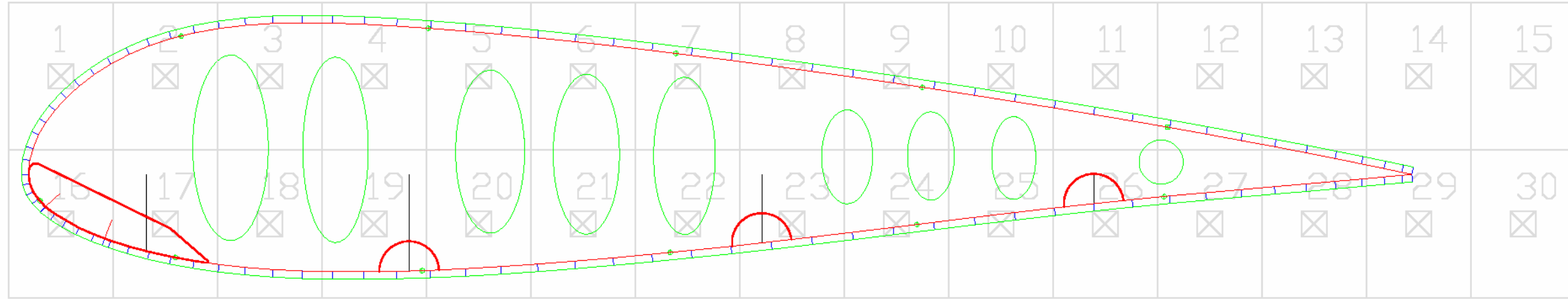


### Ribs 3,3'

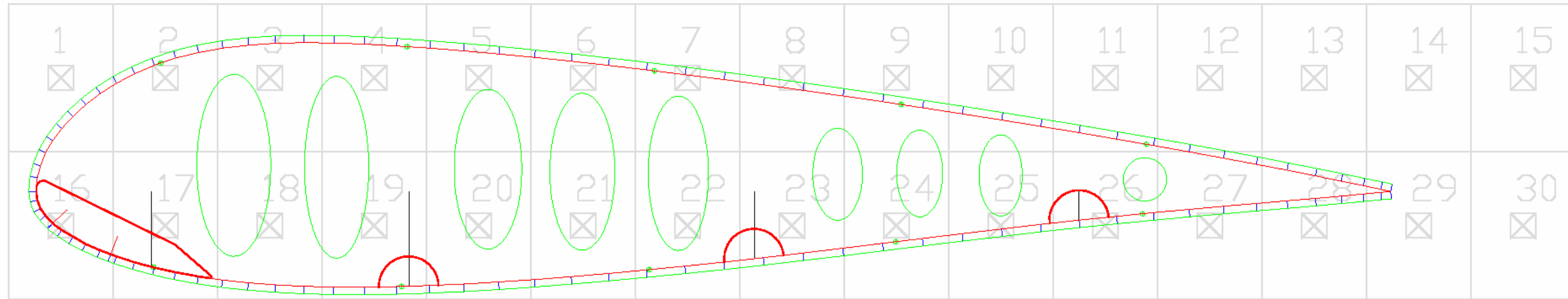


A4 sheets 210 mm X 297 mm for easy plotting

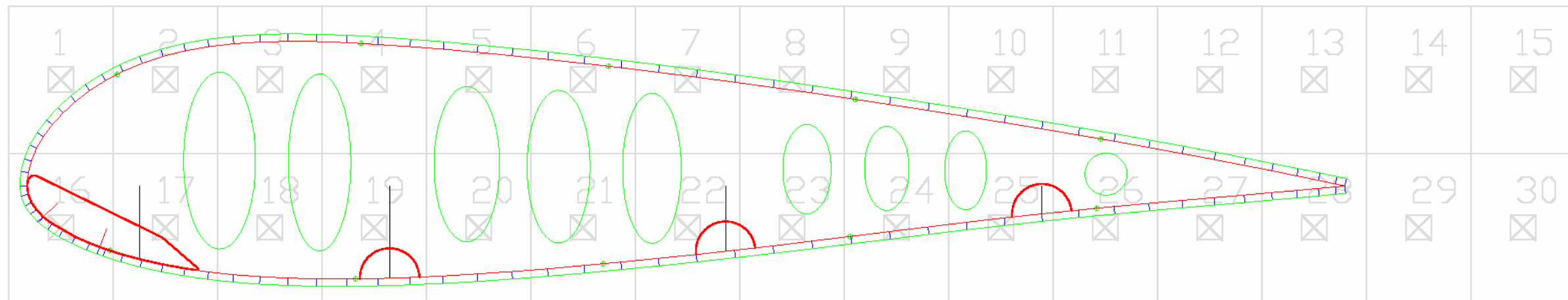
### Ribs 4,4'



### Ribs 5,5'

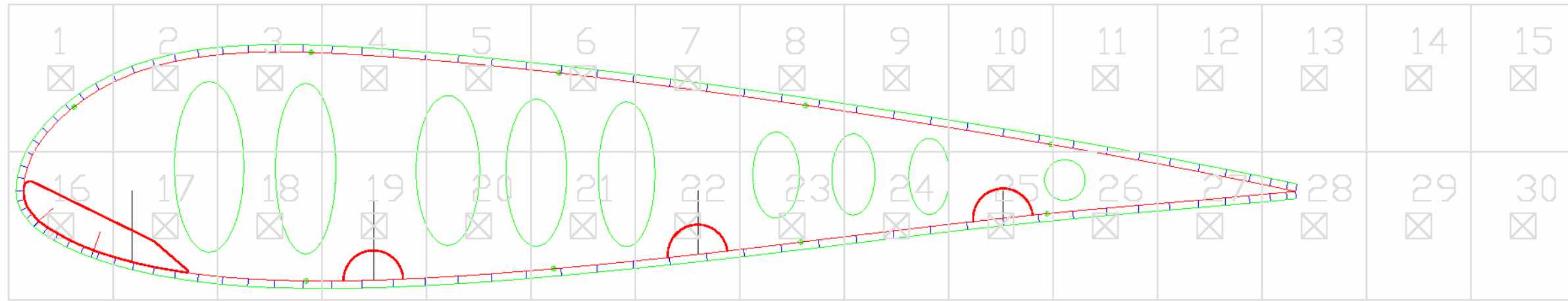


### Ribs 6,6'



A4 sheets 210 mm X 297 mm for easy plotting

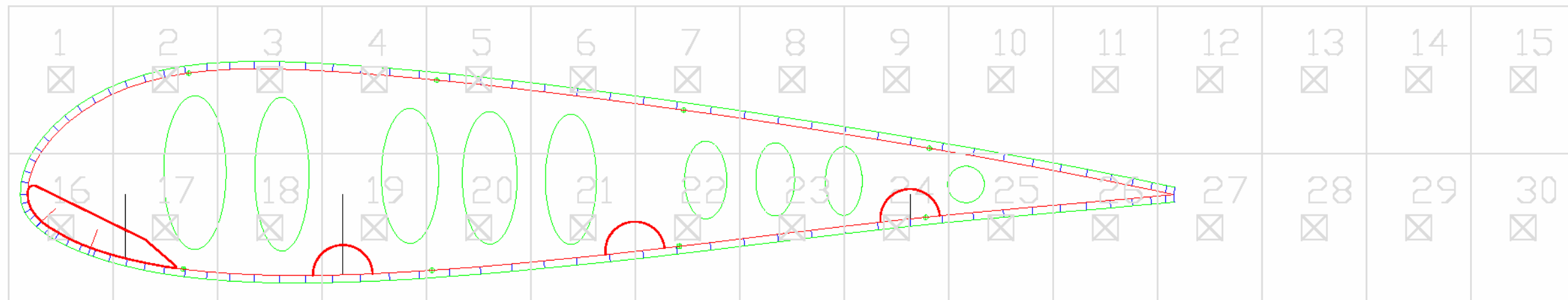
### Ribs 7,7'



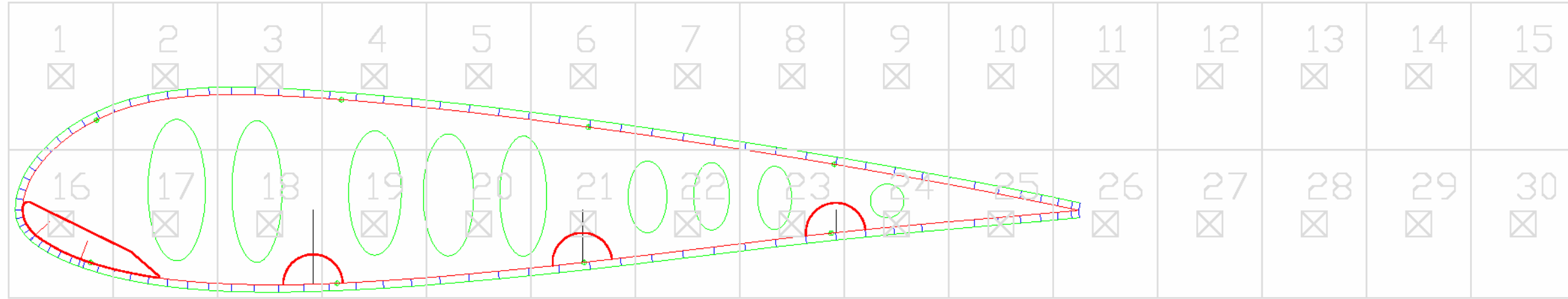
### Ribs 8,8'



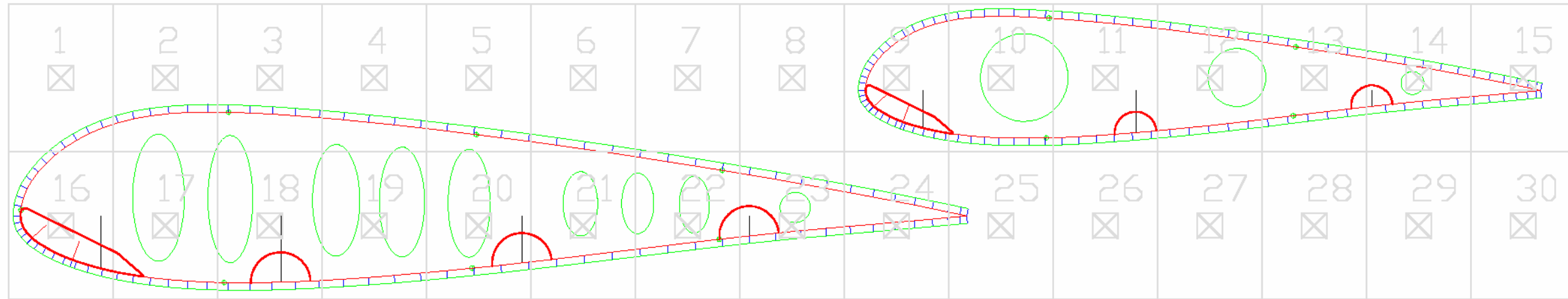
### Ribs 9,9'



Ribs 10,10'

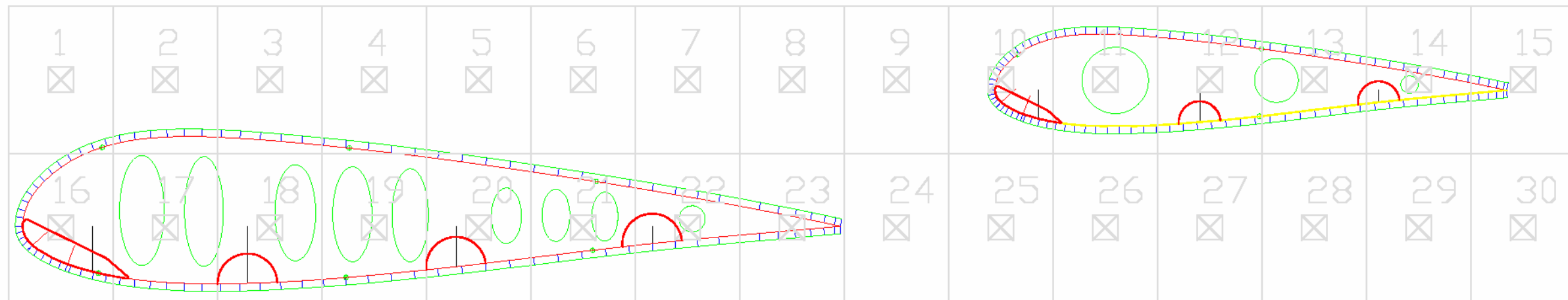


Ribs 11,11'

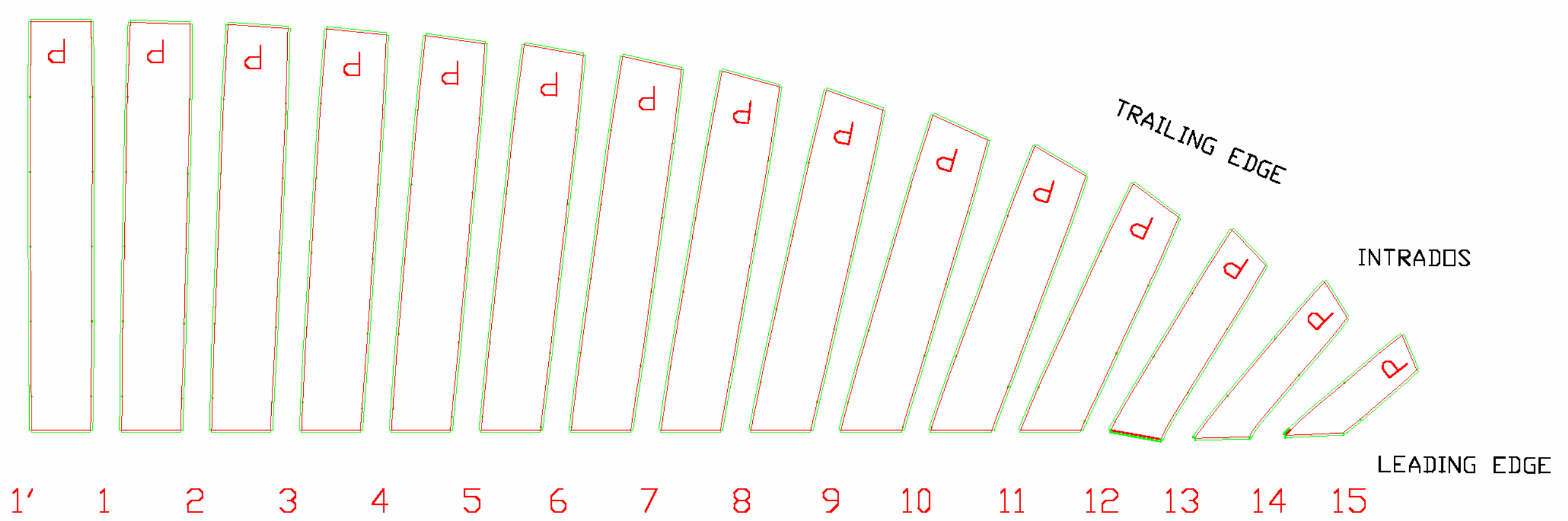
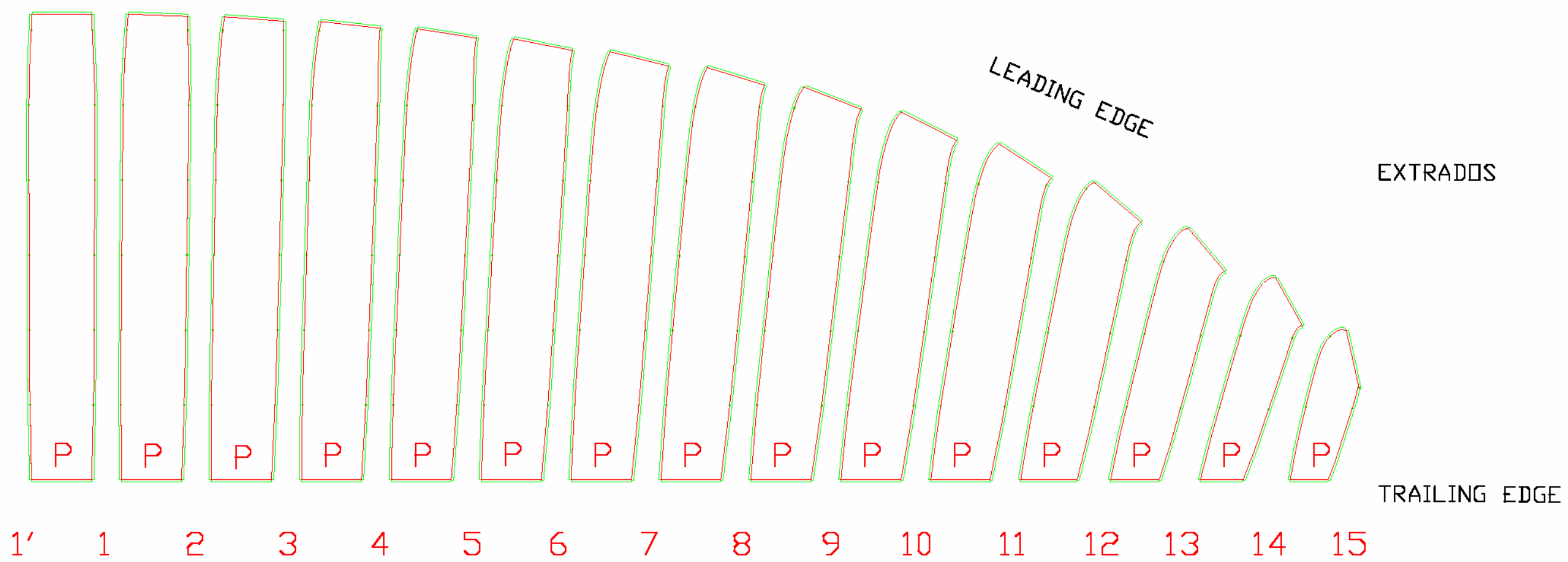


Ribs 13,13'

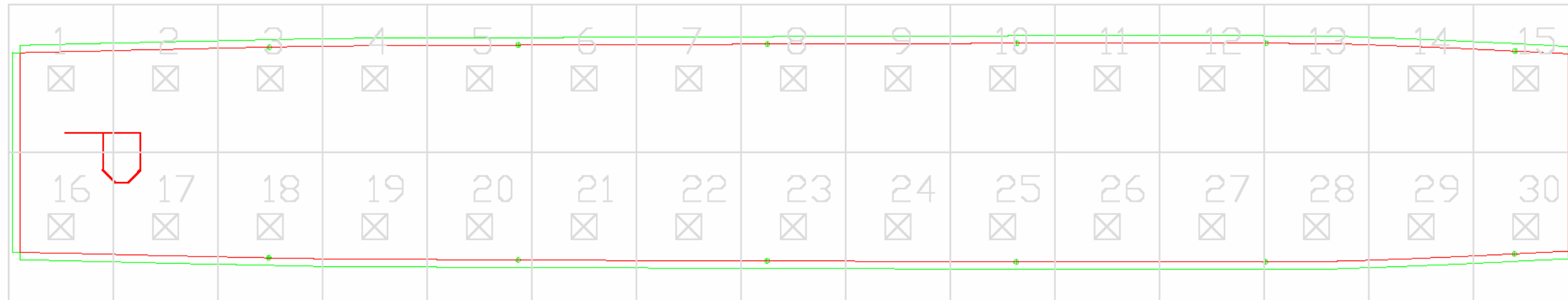
Ribs 12,12'



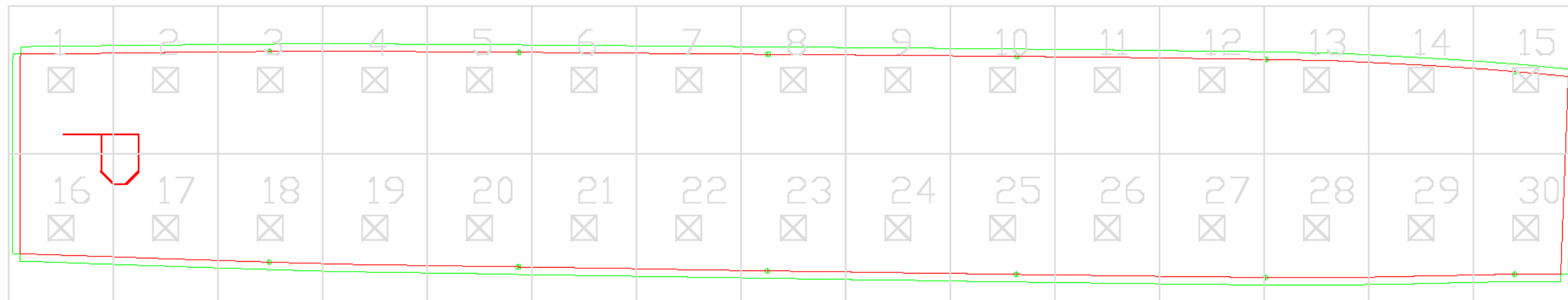
Ribs 14,14'



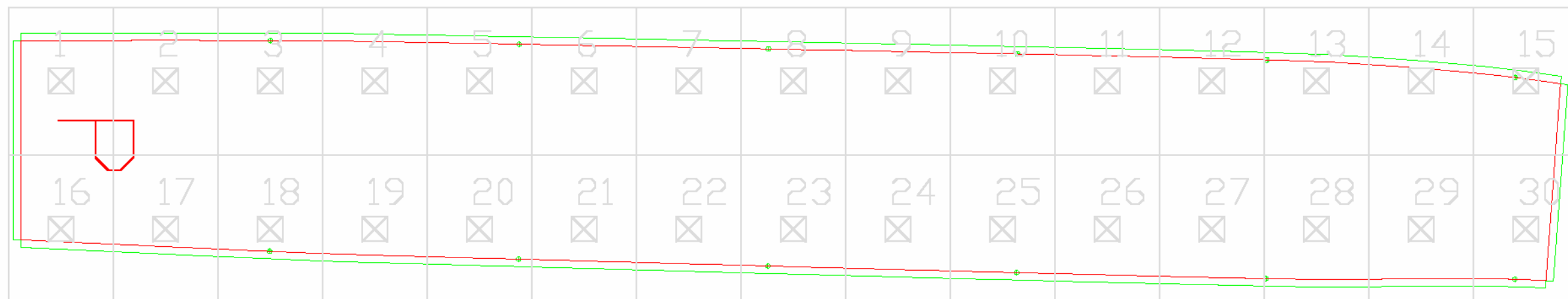
Panel 1'-1



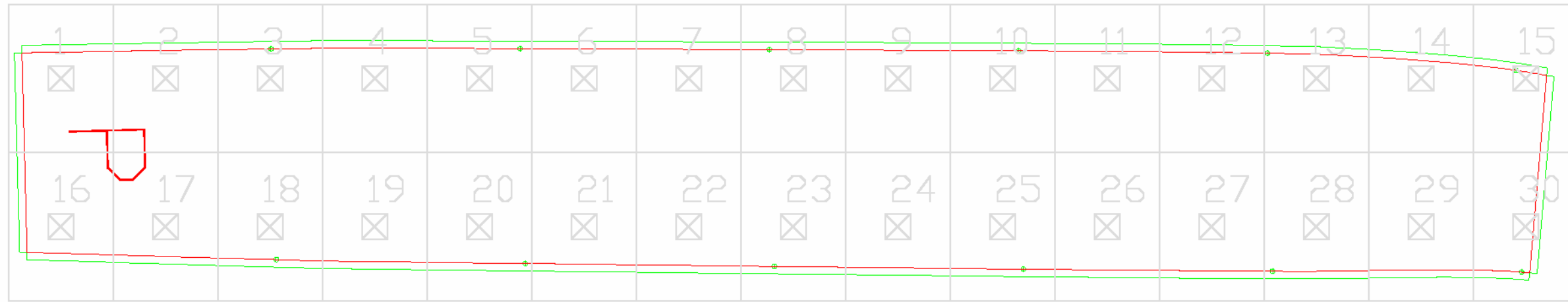
Panel 1-2



Panel 2-3



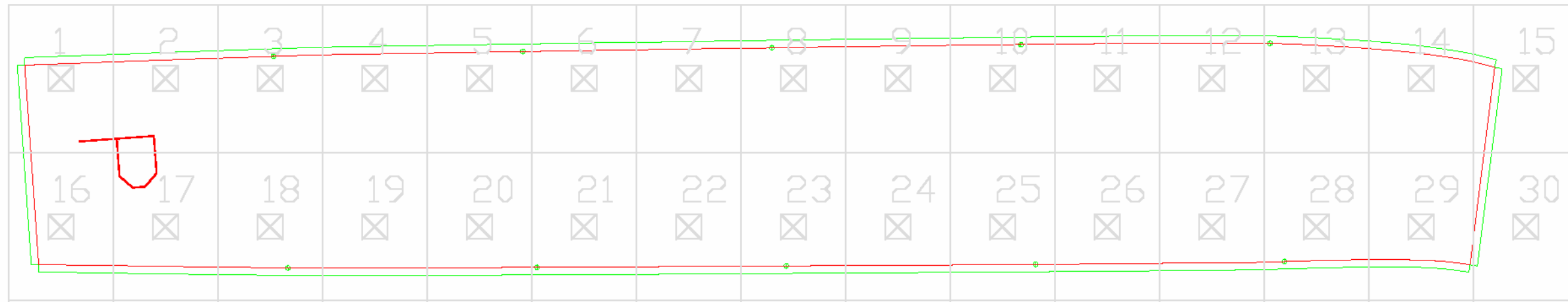
Panel 3-4



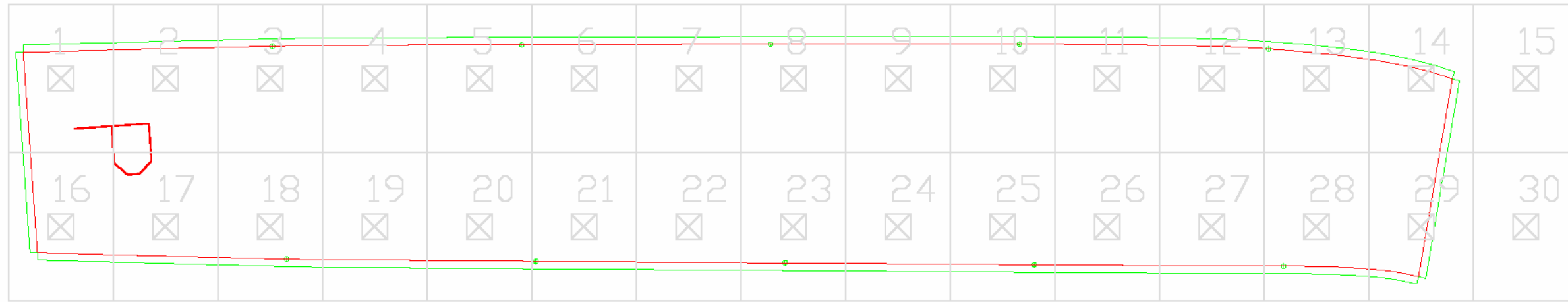
Panel 4-5



Panel 5-6



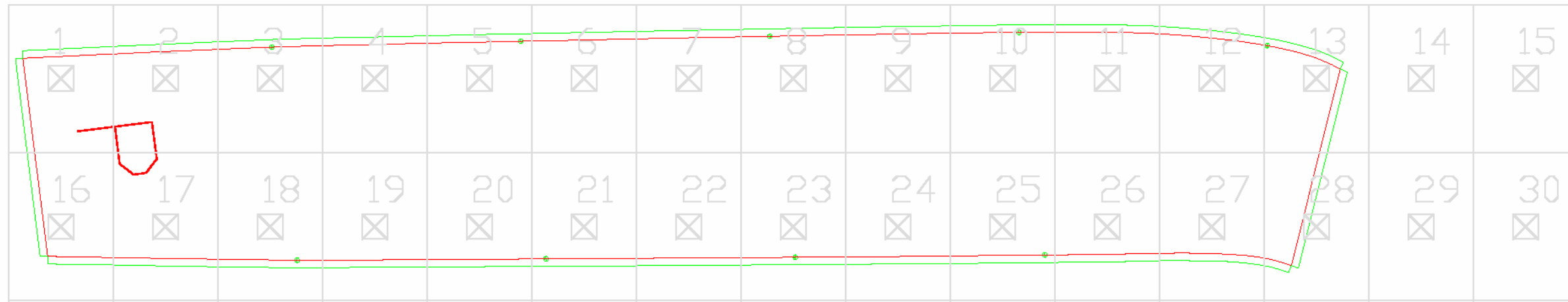
Panel 6-7



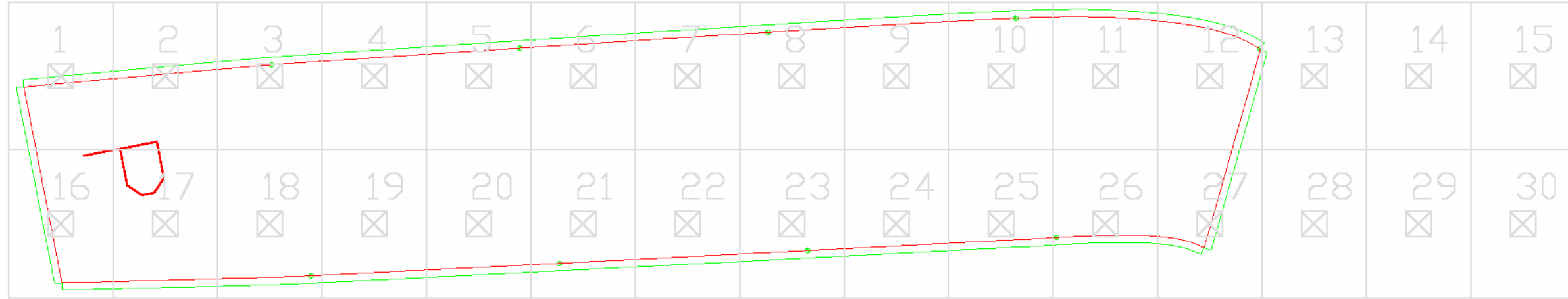
Panel 7-8



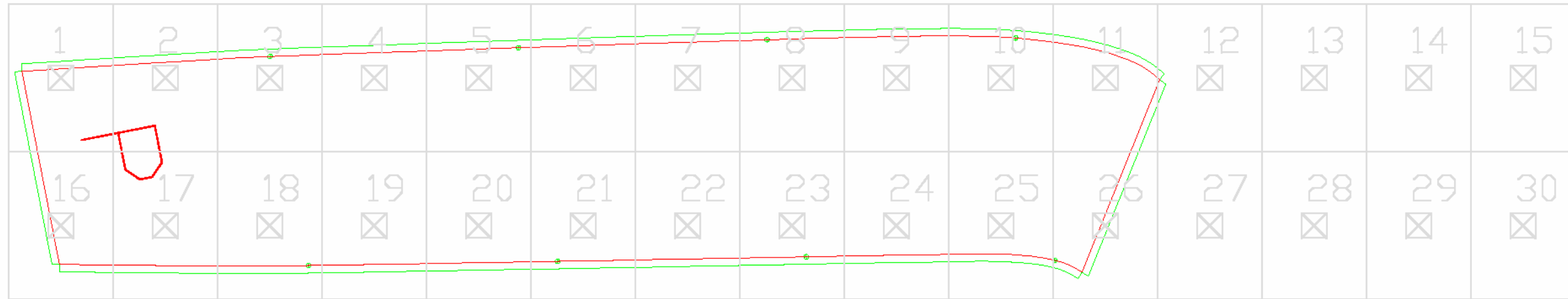
Panel 8-9



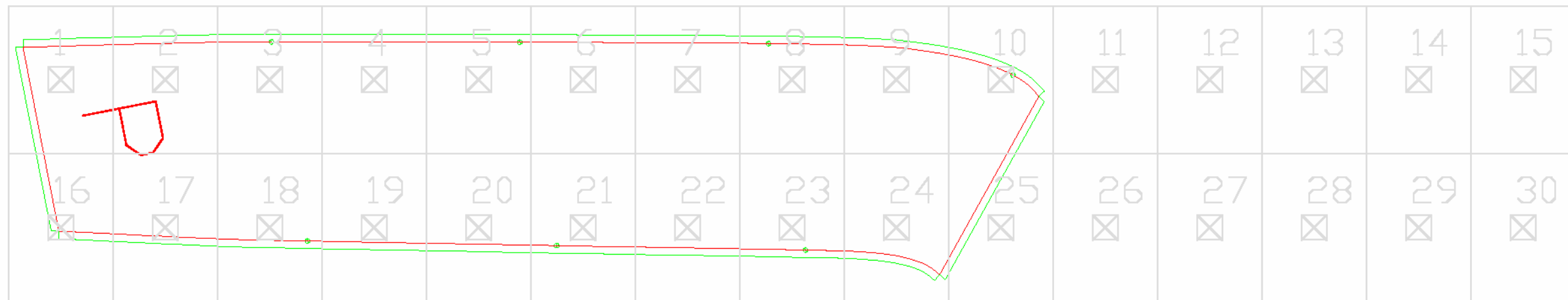
Panel 9-10



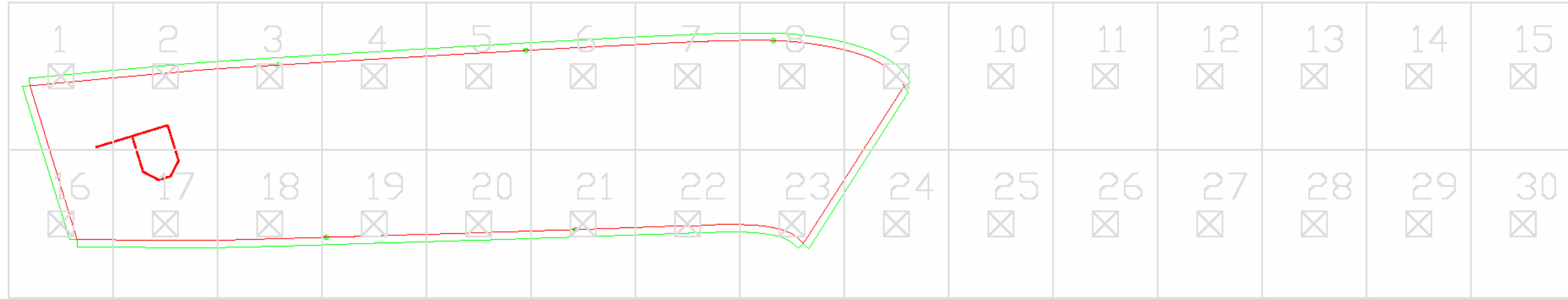
Panel 10-11



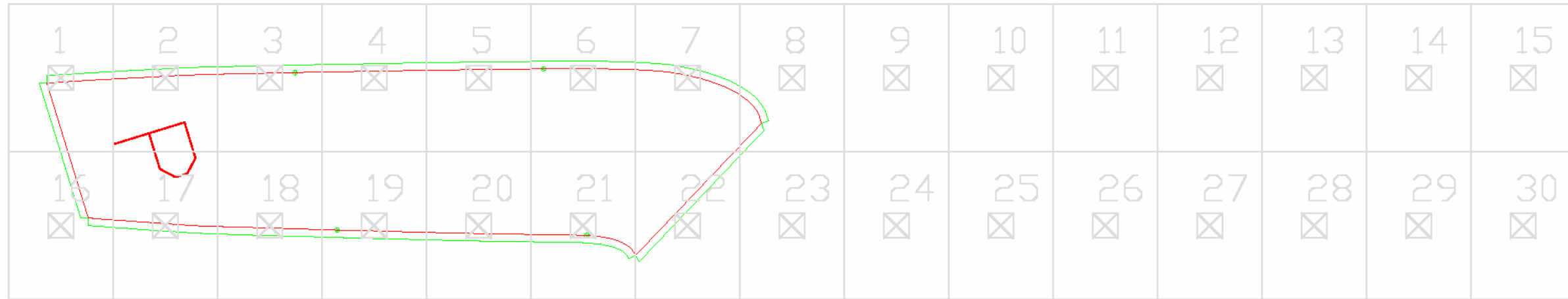
Panel 11-12



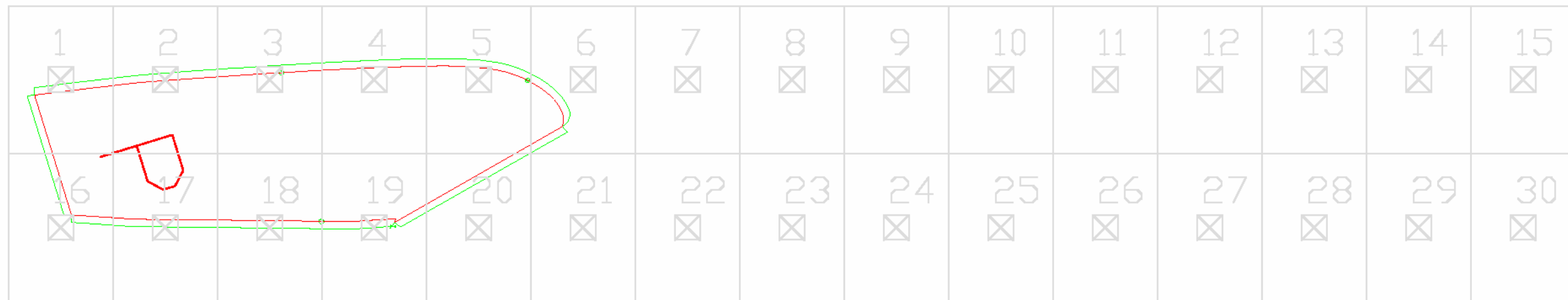
Panel 12-13

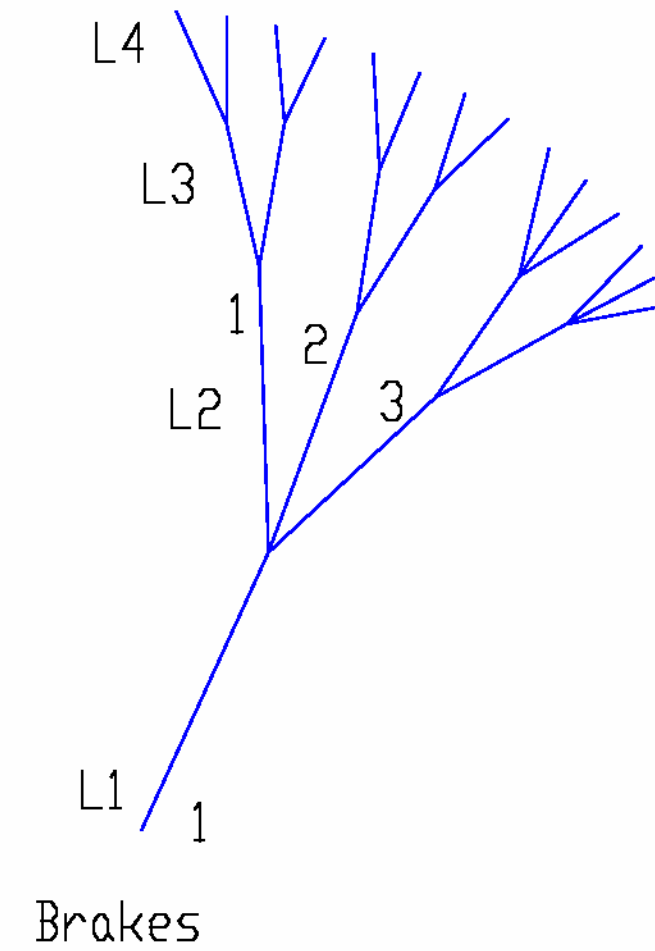
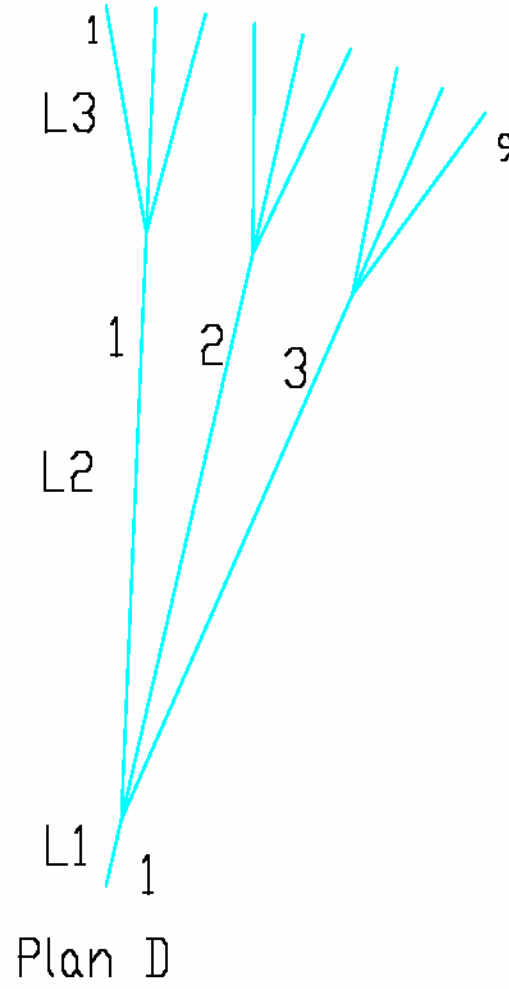
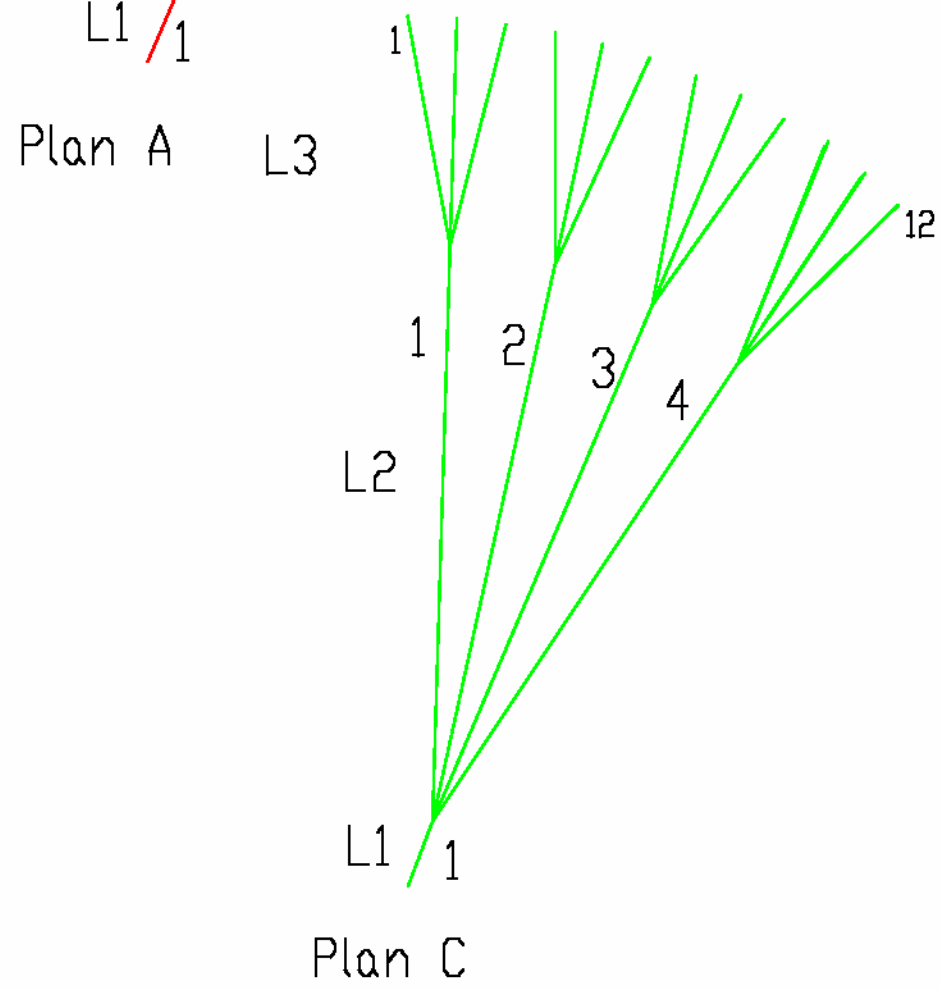
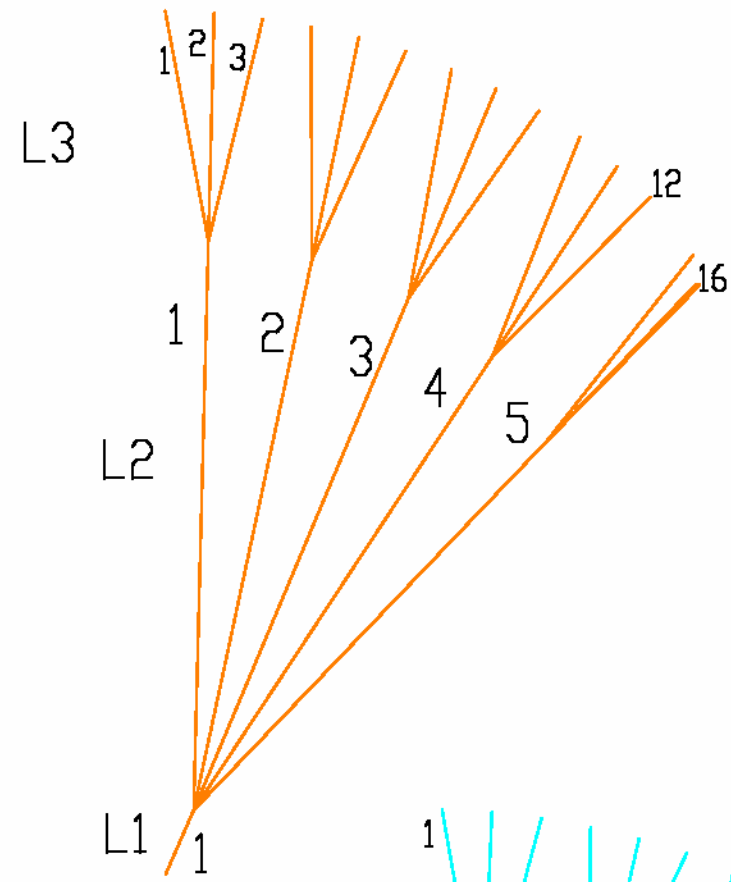
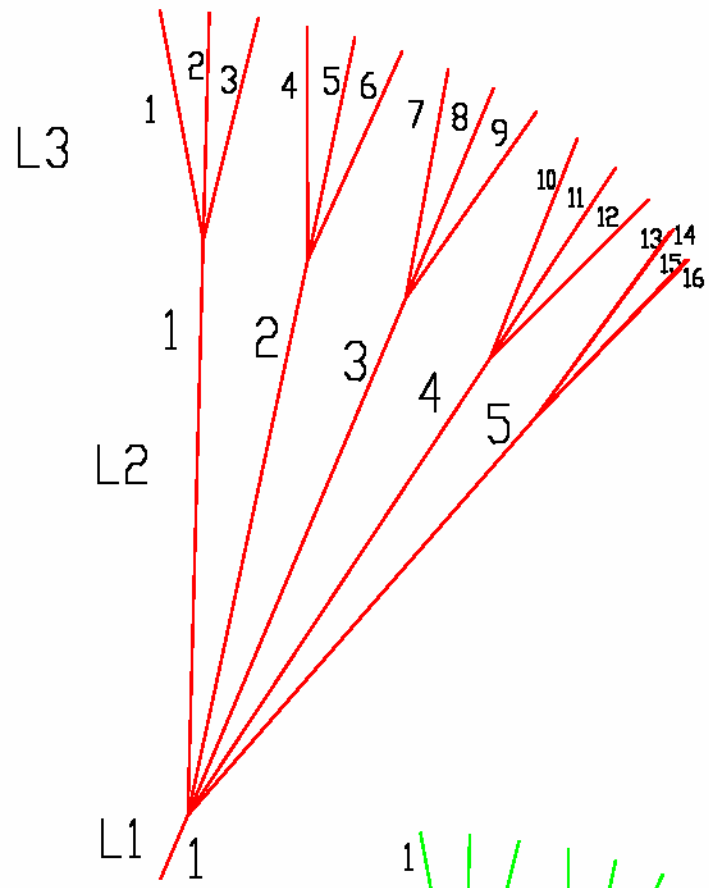


Panel 13-14



Panel 14-15





A RISERS

Line	plan	level	order	ap	r	row	rib	length
1	1	1	1	16	3	2	14	L = 55.00
2	1	2	1	3	3	1	3	L = 459.82
3	1	2	2	3	3	1	6	L = 453.59
4	1	2	3	3	3	1	9	L = 446.48
5	1	2	4	3	3	1	12	L = 434.71
6	1	2	5	4	3	2	14	L = 419.90
7	1	3	1	1	3	1	1	L = 186.05
8	1	3	2	1	3	1	2	L = 180.76
9	1	3	3	1	3	1	3	L = 181.63
10	1	3	4	1	3	1	4	L = 185.75
11	1	3	5	1	3	1	5	L = 180.92
12	1	3	6	1	3	1	6	L = 181.83
13	1	3	7	1	3	1	7	L = 186.26
14	1	3	8	1	3	1	8	L = 181.01
15	1	3	9	1	3	1	9	L = 181.12
16	1	3	10	1	3	1	10	L = 189.02
17	1	3	11	1	3	1	11	L = 180.82
18	1	3	12	1	3	1	12	L = 178.21
19	1	3	13	1	3	1	13	L = 185.70
20	1	3	14	1	3	1	14	L = 174.87
21	1	3	15	1	3	2	13	L = 184.36
22	1	3	16	1	3	2	14	L = 176.79

C RISERS

Line	plan	level	order	ap	r	row	rib	length
23	2	1	1	16	3	3	14	L = 55.00
24	2	2	1	3	3	2	3	L = 452.12
25	2	2	2	3	3	2	6	L = 446.42
26	2	2	3	3	3	2	9	L = 440.54
27	2	2	4	3	3	2	12	L = 431.01
28	2	2	5	4	3	3	14	L = 409.54
29	2	3	1	1	3	2	1	L = 185.95
30	2	3	2	1	3	2	2	L = 180.75
31	2	3	3	1	3	2	3	L = 181.66
32	2	3	4	1	3	2	4	L = 185.42
33	2	3	5	1	3	2	5	L = 180.90
34	2	3	6	1	3	2	6	L = 182.06
35	2	3	7	1	3	2	7	L = 185.63
36	2	3	8	1	3	2	8	L = 180.95
37	2	3	9	1	3	2	9	L = 181.53
38	2	3	10	1	3	2	10	L = 187.86
39	2	3	11	1	3	2	11	L = 180.74
40	2	3	12	1	3	2	12	L = 178.72
41	2	3	13	1	3	1	15	L = 174.17
42	2	3	14	1	3	2	15	L = 174.20
43	2	3	15	1	3	3	15	L = 177.05
44	2	3	16	1	3	3	14	L = 193.08

BRAKES

Line	plan	level	order	ap	r	row	rib	length
78	5	1	1	14	4	6	15	L = 250.00
79	5	2	1	4	4	6	5	L = 235.00
80	5	2	2	4	4	6	9	L = 208.76
81	5	2	3	6	4	6	15	L = 184.05
82	5	3	1	2	4	6	3	L = 120.00
83	5	3	2	2	4	6	5	L = 120.00
84	5	3	3	2	4	6	7	L = 120.00
85	5	3	4	2	4	6	9	L = 120.00
86	5	3	5	3	4	6	12	L = 120.00
87	5	3	6	3	4	6	15	L = 120.00
88	5	4	1	1	4	6	2	L = 100.52
89	5	4	2	1	4	6	3	L = 87.56
90	5	4	3	1	4	6	4	L = 79.42
91	5	4	4	1	4	6	5	L = 76.68
92	5	4	5	1	4	6	6	L = 95.34
93	5	4	6	1	4	6	7	L = 85.79
94	5	4	7	1	4	6	8	L = 81.75
95	5	4	8	1	4	6	9	L = 81.98
96	5	4	9	1	4	6	10	L = 108.22
97	5	4	10	1	4	6	11	L = 95.19
98	5	4	11	1	4	6	12	L = 93.65
99	5	4	12	1	4	6	13	L = 87.36
100	5	4	13	1	4	6	14	L = 80.09
101	5	4	14	1	4	6	15	L = 70.85

B RISERS

Line	plan	level	order	ap	r	row	rib	length
45	3	1	1	15	3	4	12	L = 55.00
46	3	2	1	3	3	3	3	L = 458.42
47	3	2	2	3	3	3	6	L = 453.06
48	3	2	3	3	3	3	9	L = 447.15
49	3	2	4	6	3	4	12	L = 441.78
50	3	3	1	1	3	3	1	L = 185.86
51	3	3	2	1	3	3	2	L = 180.74
52	3	3	3	1	3	3	3	L = 181.83
53	3	3	4	1	3	3	4	L = 185.35
54	3	3	5	1	3	3	5	L = 180.85
55	3	3	6	1	3	3	6	L = 182.09
56	3	3	7	1	3	3	7	L = 185.68
57	3	3	8	1	3	3	8	L = 180.93
58	3	3	9	1	3	3	9	L = 181.43
59	3	3	10	1	3	3	10	L = 184.82
60	3	3	11	1	3	3	11	L = 177.10
61	3	3	12	1	3	3	12	L = 174.14
62	3	3	13	1	3	4	10	L = 195.59
63	3	3	14	1	3	4	11	L = 187.06
64	3	3	15	1	3	4	12	L = 182.91

D RISERS

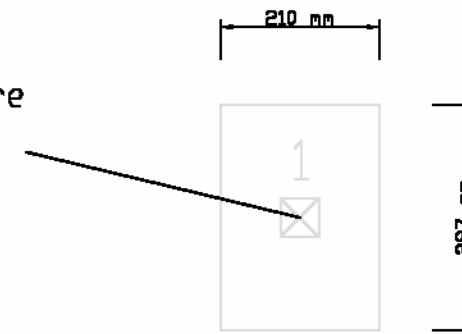
Line	plan	level	order	ap	r	row	rib	length
65	4	1	1	9	3	4	9	L = 55.00
66	4	2	1	3	3	4	3	L = 472.89
67	4	2	2	3	3	4	6	L = 468.05
68	4	2	3	3	3	4	9	L = 461.48
69	4	3	1	1	3	4	1	L = 185.61
70	4	3	2	1	3	4	2	L = 180.74
71	4	3	3	1	3	4	3	L = 182.18
72	4	3	4	1	3	4	4	L = 185.33
73	4	3	5	1	3	4	5	L = 180.77
74	4	3	6	1	3	4	6	L = 182.05
75	4	3	7	1	3	4	7	L = 186.09
76	4	3	8	1	3	4	8	L = 180.94
77	4	3	9	1	3	4	9	L = 181.04

PLEASE: ASK THE DESIGNER LAST LINE LENGTHS ADJUSTEMENTS



DETAILS:

50x50 mm centered square  
( scale control )

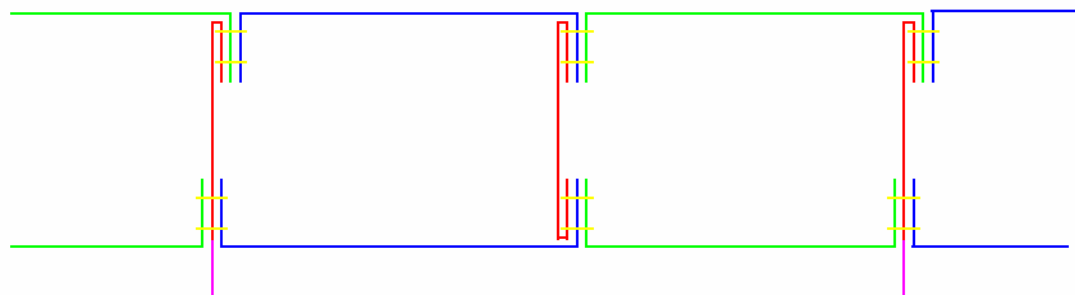


LEADING EDGE MYLARS

### SEWING TIPS

Sewing allowance: 15 mm

Sewing panels-ribs:



gnuLAB2 Materials list	
Material	QUANTITY
NYLON RIPSTOP EXTRADOS 40 gr/m2	27 m
NYLON RIPSTOP INTRADOS 31 gr/m2	25 m
NYLON RIPSTOP RIBS 40 gr/m2	24 m
RIPSTOP GREAT TRIANGLE COLOR	2 m
RIPSTOP SMALL TRIANGLE COLOR	0,5 m
MYLARS 120 gr/m2	2 m
LINES dyneema 1.5 mm	200 m
LINES dyneema 1.1 mm	300 m
LINES dyneema 1.8 mm brakes	8 m
STRAP 25 mm ANCHORAGE POINTS	35 m
STRAP 10 mm (leading edge border)	35 m
POLYESTER RISERS	6 m
MAILLONS ø 3.5 mm	8
PULLEYS	2
BRAKE HANDLES	2
POLYESTER THREAD 40/3 (sail)	1
POLYESTER THREAD 60/3 (lines)	1