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Annex 2: GLOSSARY

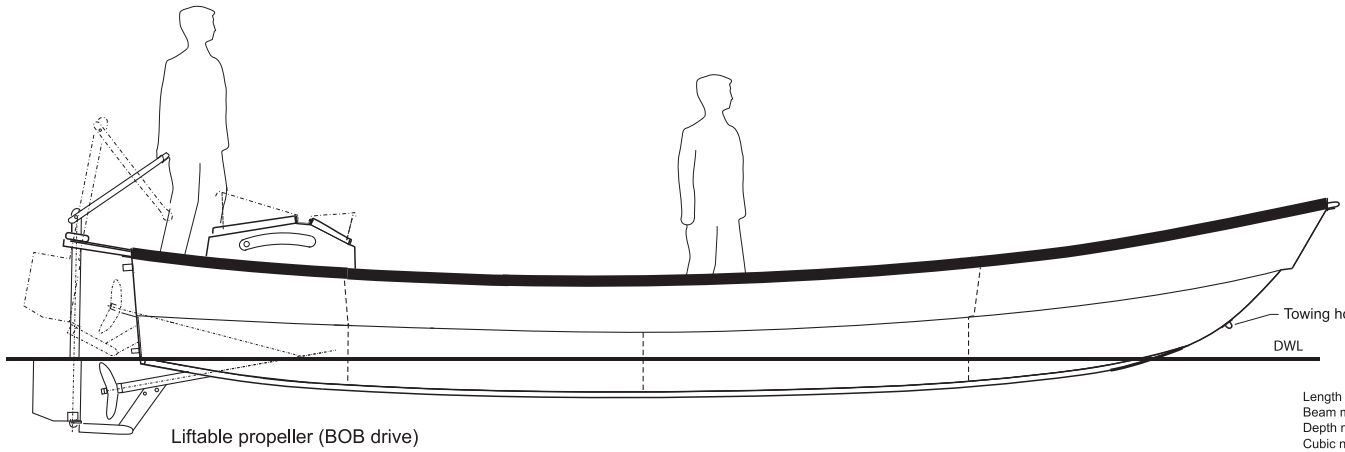
Backup layer or skin coat	The first layer next to the gelcoat.
Bulkhead	Structural interior panel set across the boat.
Accelerator (or cobalt)	Reduces gel time in polyester resins.
Acetone	Solvent for removal of uncured resin from equipment.
Alligatoring	Wrinkling of the gelcoat.
Barcol hardness	Used to measure hardness of a laminate and degree of cure.
Bidirectional	Type of sewn glassfibre mat, having fibres oriented in two directions.
Binder	Used to hold chopped strand mat (CSM) together until the binder is dissolved by the resin when laminating.
Bleeding	The softening of the back side of a gelcoat by a resin, allowing the pigment to escape the gelcoat.
Bond strength	The strength of the join between two surfaces.
Catalyst	Hardener.
Chalk powder	Talc.
CSM	Chopped strand mat. Its weight is expressed in grams per square metre.
Cobalt	See Accelerator.
g	Grams.
Consolidation	Rolling of glassfibre laminate to remove air.
Continuous roving	Unwoven uncut glassfibre.
Core	Central part of sandwich construction.
Crazing	Cracking of resin from internal stress.
Cure	The process of resin from gellation to full mechanical properties.
Delamination	The separation of a laminate into two layers.
Drain out	The leaking, sagging or puddling of resin from a laminate.
Exotherm	Heat produced from the cure of resin.
Fatigue	Repeated stress on a material over or near its limit of mechanical properties.
Fibre content (of a laminate)	Weight expressed as a ratio to resin.
Fillers	Aerosil, milled fibres or talc to thicken resin.
Frame	Structural member set across the boat.
FRP	Fibreglass reinforced plastic.
Gel	Partial curing stage of resin.
Gelcoat	Surface coating.
Gel time	Working time of a resin.
GRP	Glass reinforced plastic, same as FRP.
Humidity	Air moisture content.
Inhibitor	Chemical designed to increase working time of resin.
MEKP	Methyl ethyl ketone peroxide – Hardener or catalyst for polyester resin.
MEK	Methyl ethyl ketone – A solvent.
Milled fibres	Very short lengths of glass used as a filler powder to thicken resin.
Osmosis	When water creeps straight through the gelcoat and into the laminate causing blisters and other problems.
PVA	Polyvinyl acetate (wood glue).
PVA	Polyvinyl alcohol (mould release agent)
Pigment	Used to colour gelcoat.
Plug	Original part from which to take a mould.
Pre-release	When a part releases from the mould prematurely.

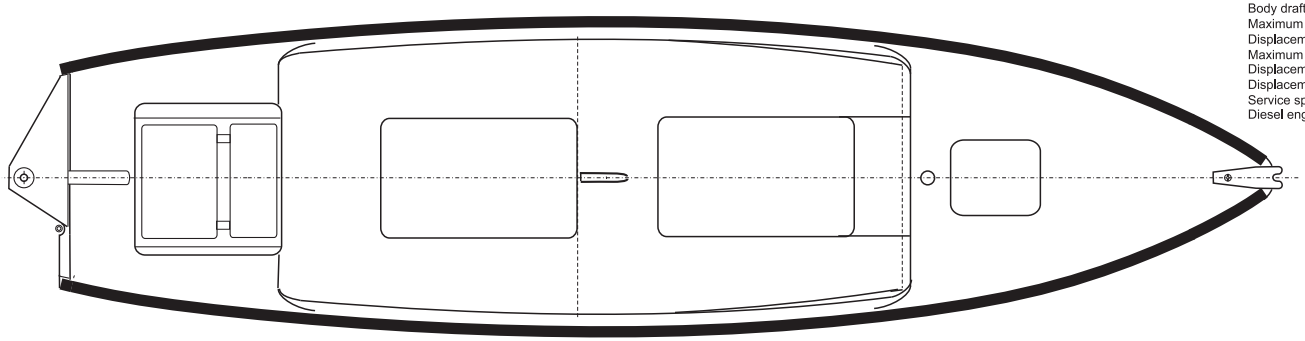
Print through	Visible glassfibre pattern on gelcoat.
Promoter	See Accelerator.
Release agent	Wax or PVA.
Resin rich	Too much resin in the laminate.
Roving	Continuous bunch of glassfibre.
Scantlings	Designed structure of the hull and deck
Shelf-life	The time an unused resin can be kept.
Skin coat	See Backup layer.
Surface mat	Very light tissue mat usually used next to the gelcoat.
Talc	Chalk powder.
Tooling gelcoat	Used for making moulds.
Viscosity	Thickness of the resin.
Voids	Air bubbles in the laminate.
Wax	Mould release agent.
WR	Woven roving – woven glassfibre cloth. Its weight is expressed in grams per square metre.

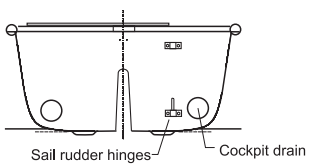
Annex 3: DRAWINGS

IND - 30
8 m BEACH-LANDING BOAT – THE PLUG

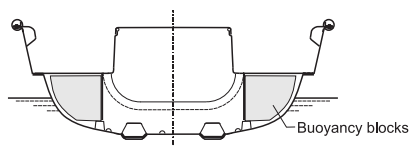
1. GENERAL ARRANGEMENT
2. LINES
3. OFFSET TABLE
4. TRANSOM
5. PLUG FRAME
6. FRAME 12
7. FRAME 13
8. FRAME 14
9. FRAME 15
10. STEM JIG
11. STEM ASSEMBLY
12. BUILDING JIG
13. RUBBING SHOE







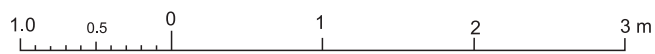
TRANSOM



MIDSHIP SECTION

MAIN DATA

Length of hull: L_H = 8.05 m (26 ft 3 in)
Beam moulded: B_M = 2.14 m (7 ft 0 in)
Depth moulded: D_M = 0.70 m (2ft 4 in)
Cubic number: CUNO = L_H x B_M x D_M = 12 m^3
Length DWL: L_{DWL} = 6.70 m
Beam DWL: B_{DWL} = 1.64 m
Body draft designed waterline : T_C = 0.24 m
Maximum draft loaded: T_{MAX} = 0.24 m
Displacement light: m_{LCC} = 800 kg
Maximum load: 800 kg
Displacement loaded: m_{LDC} =1600 kg
Displacement DWL: m_D =1500 kg
Service speed designed waterline: V = 6.0 knots
Diesel engine: 5 - 7.5 kw (7-10 hp)



Scale

30.07.2009	
27.03.2009	
REVISION	

8.0 m Beachlanding boat

GENERAL ARRANGEMENT

Scale = 1 : 40	Design no.	Drawing no
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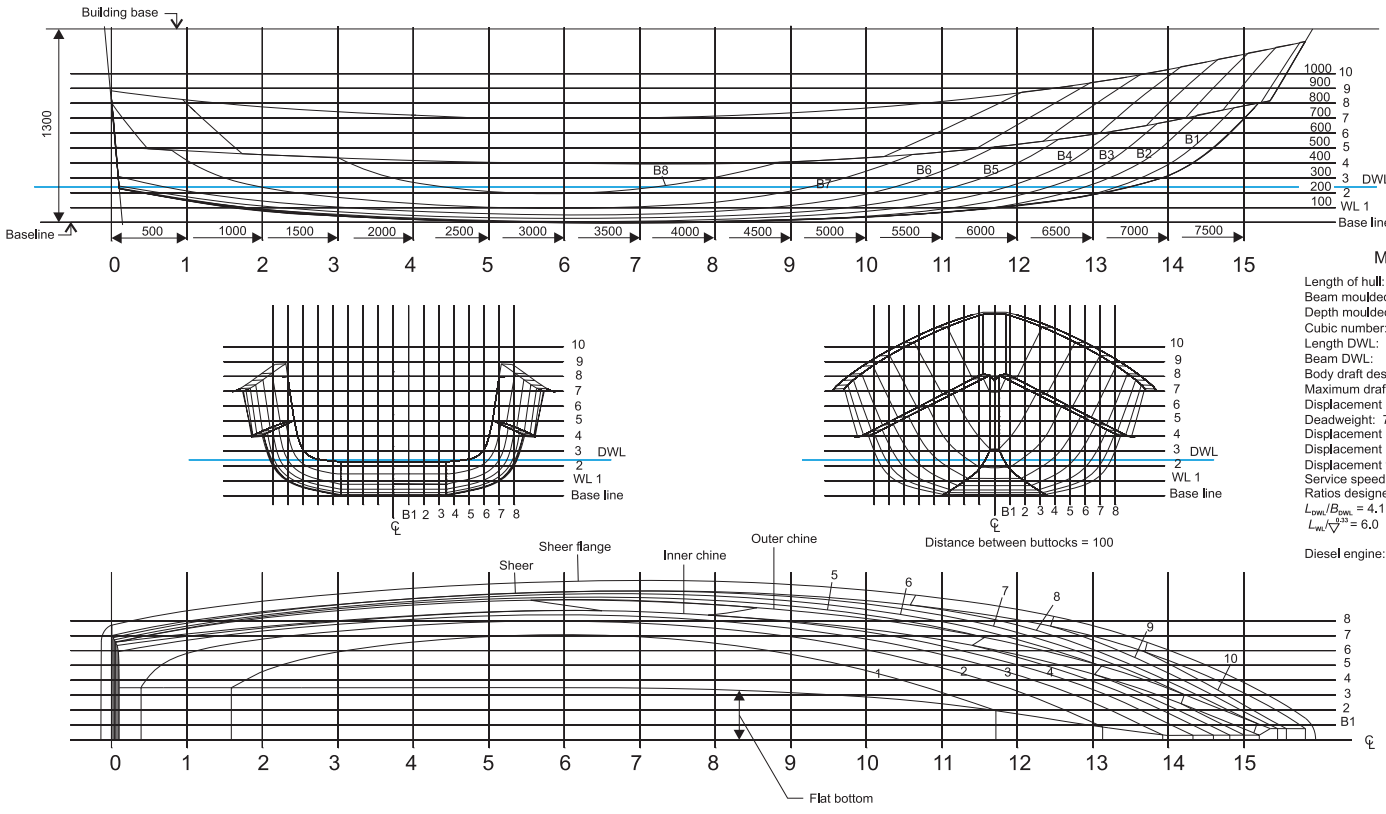
17.03.2009		



MAIN DATA

Length of hull: L_H = 8.05 m (26 ft 3 in)
Beam moulded: B_M = 2.14 m (7 ft 0 in)
Depth moulded: D_M = 0.7 m (2ft 4 in)
Cubic number: $CUNO = L_H \times B_M \times D_M = 12\ m^3$
Length DWL: L_{DWL} = 6.70 m
Beam DWL: B_{DWL} = 1.64 m
Body draft designed waterline : T_c = 0.24 m
Maximum draft loaded: T_{MAX} = 0.24 m
Displacement light: m_{Lcc} = 700 kg
Deadweight: 750 kg
Displacement loaded: m_{Loc} =1450 kg
Displacement DWL: m_D =1450 kg
Displacement volume DWL: $\nabla = 1.4\ m^3$
Service speed designed waterline: V = 6.0 knots
Ratios designed waterline:
L_{DWL}/B_{DWL} = 4.1, B_{DWL}/T_c = 6.6, $V/\sqrt{L_{DWL}}$ = 2.3
$L_{WL}/\nabla^{1/3}$ = 6.0

Diesel engine: 5 - 7.5 kw (7-10 hp)

10.02.2009
REVISION

8.0 m Beachlanding boat		
LINES		
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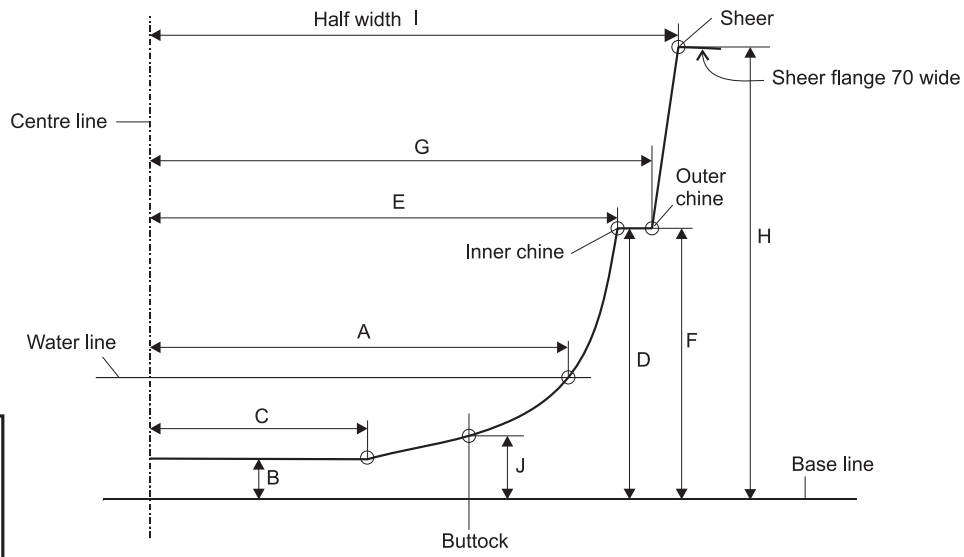
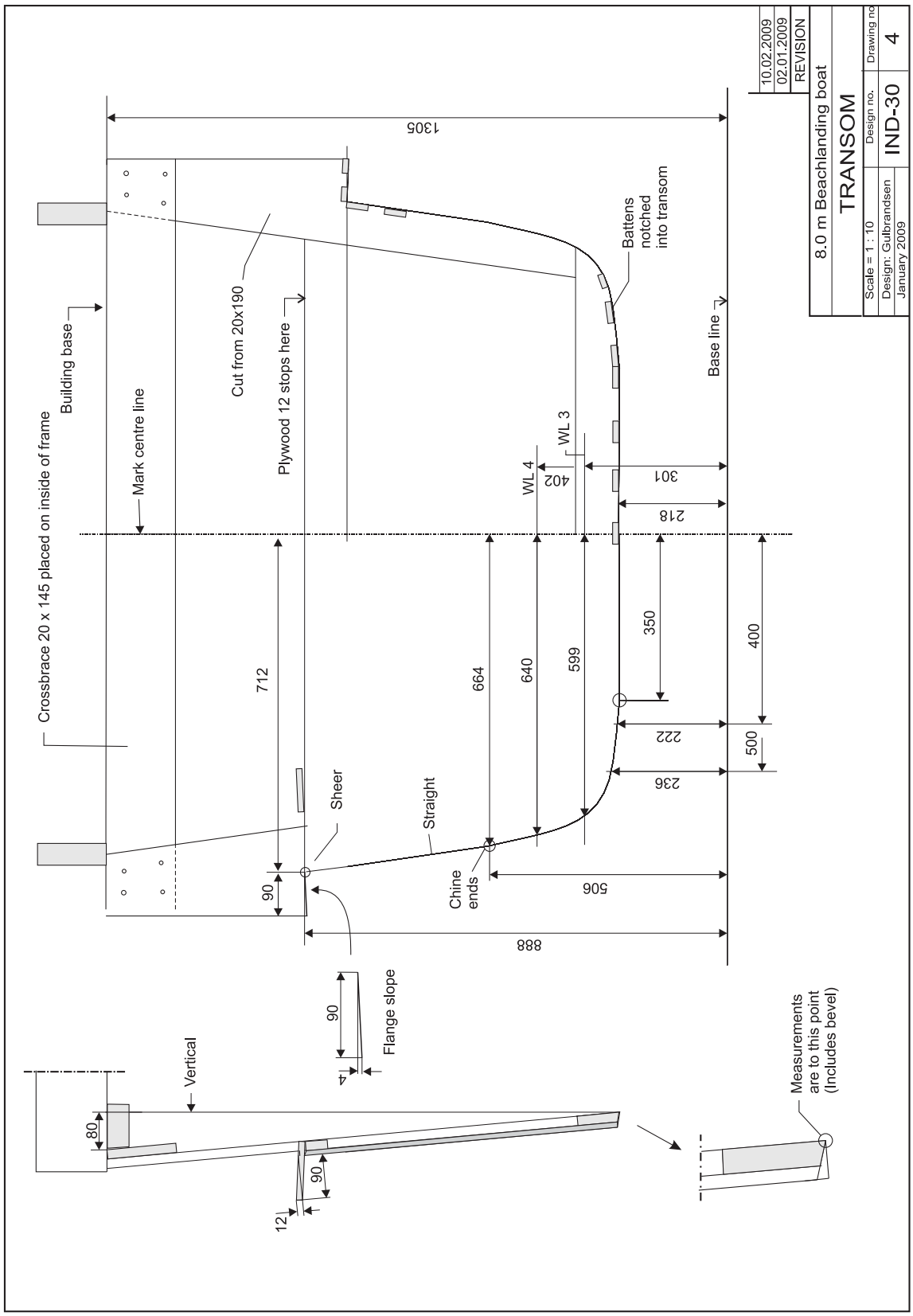
Design: Gulbrandsen January 2009	IND-30	2

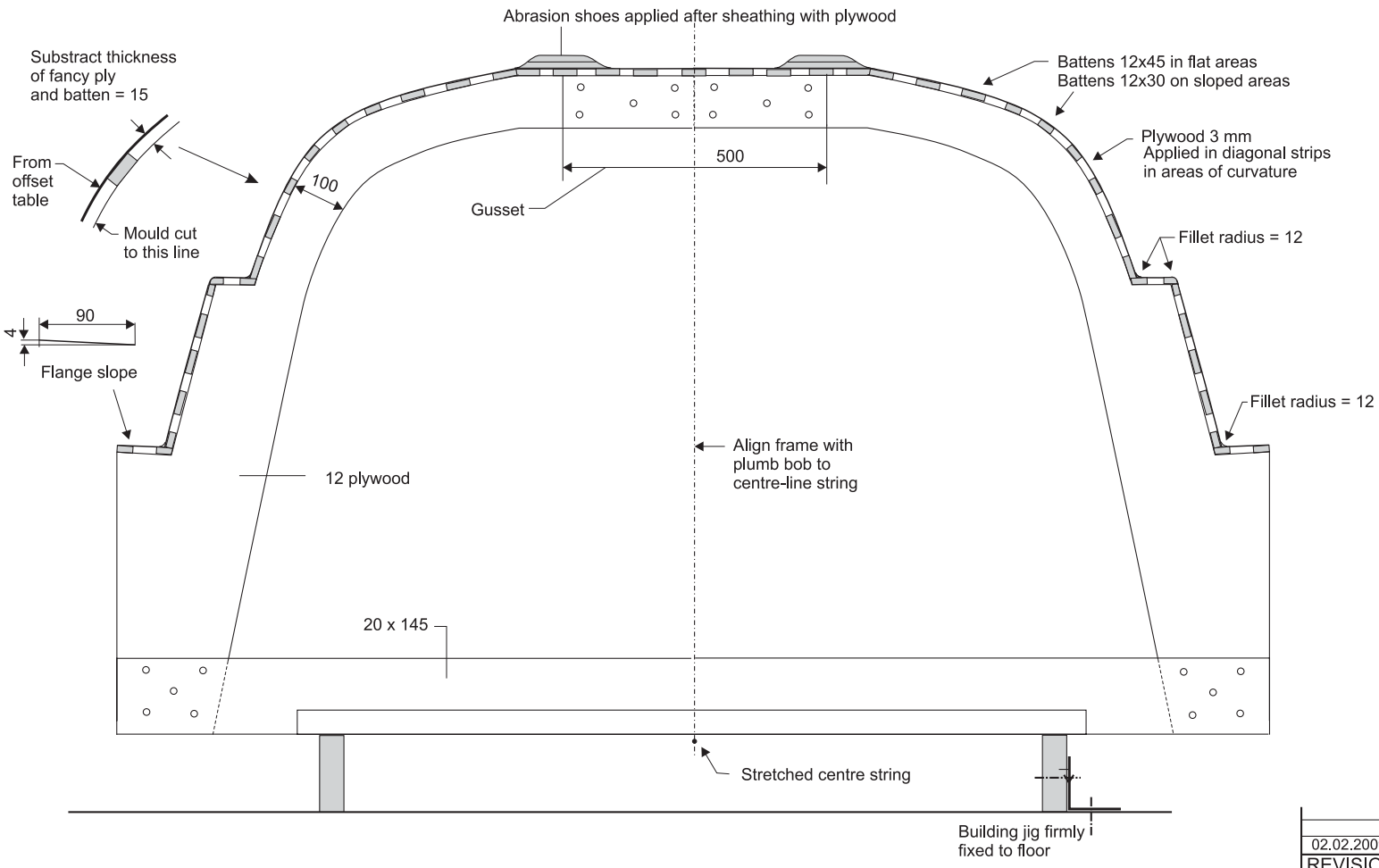


10.02.2009
0.2.02.2009
REVISION

IND - 30
OFFSET TABLE
Drawing no. 3

Section	1/2 WIDTH A WATERLINES						FLAT BOTTOM		INNER CHINE		OUTER CHINE		SHEER		BUTTOCK HEIGHT J		
	1	2	3	4	5	6	B Height	C 1/2 Width	D Height	E 1/2 Width	F Height	G 1/2 Width	H Height	I 1/2 Width	B4	B5	B6
1	0	582	669	697	751	768	147	350	476	711	476	747	822	804	149	170	
2	459	674	729	751	823	838	79	350	453	760	453	816	776	864	86	110	147
3	589	728	774	794	876	890	43	350	435	800	435	867	743	912	53	73	105
4	657	768	810	830	917	931	20	350	418	833	418	905	720	948	29	50	77
5	693	794	834	857	945	960	7	350	406	859	406	930	707	976	16	35	60
6	706	800	841	940	958	975	0	350	399	870	399	938	702	993	10	30	54
7	694	785	829	932	955	977	0	348	394	860	394	930	705	1000	10	30	57
8	653	750	798	908	936	964	7	337	397	835	397	906	719	994	21	43	74
9	576	693	749	790	898	929	20	317	411	796	411	868	743	972	40	68	113
10	466	609	677	726	839	874	38	287	438	744	438	815	777	935	74	116	
11	319	486	572	630	753	794	67	243	475	672	475	741	819	880	139		
12	0	328	436	502	555	674	115	174	527	571	527	640	872	806			
13	0	117	254	339	394	516	187	95	594	442	594	512	941	696			
14	0	0	0	0	180	230	313	35	681	276	681	345	1030	534			
15	0	0	0	0	0	0	694	35	786	74	786	144	1132	315			


10.02.2009
02.01.2009
REVISION
8.0 m Beachlanding boat
TRANSOM
Scale = 1 : 10
Design no.
Drawing no
Design: Gulbrandsen
IND-30
4
January 2009
1305
Battens notched into transom
Cut from 20x190
Plywood 12 stops here
Building base
Mark centre line
Base line
Crossbrace 20 x 145 placed on inside of frame
WL 4
WL 3
402
301
218
712
664
640
599
350
400
222
500
236
506
888
90
Sheer
Straight
Chine ends
90
Flange slope
4
Vertical
80
90
12
Measurements are to this point (Includes bevel)



REMEMBER TO SUBSTRACT THE THICKNESS OF THE SKIN AND BATTENS = 15 FROM THE OFFSET CURVE

		02.02.2009
		REVISION
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PLUG FRAME		
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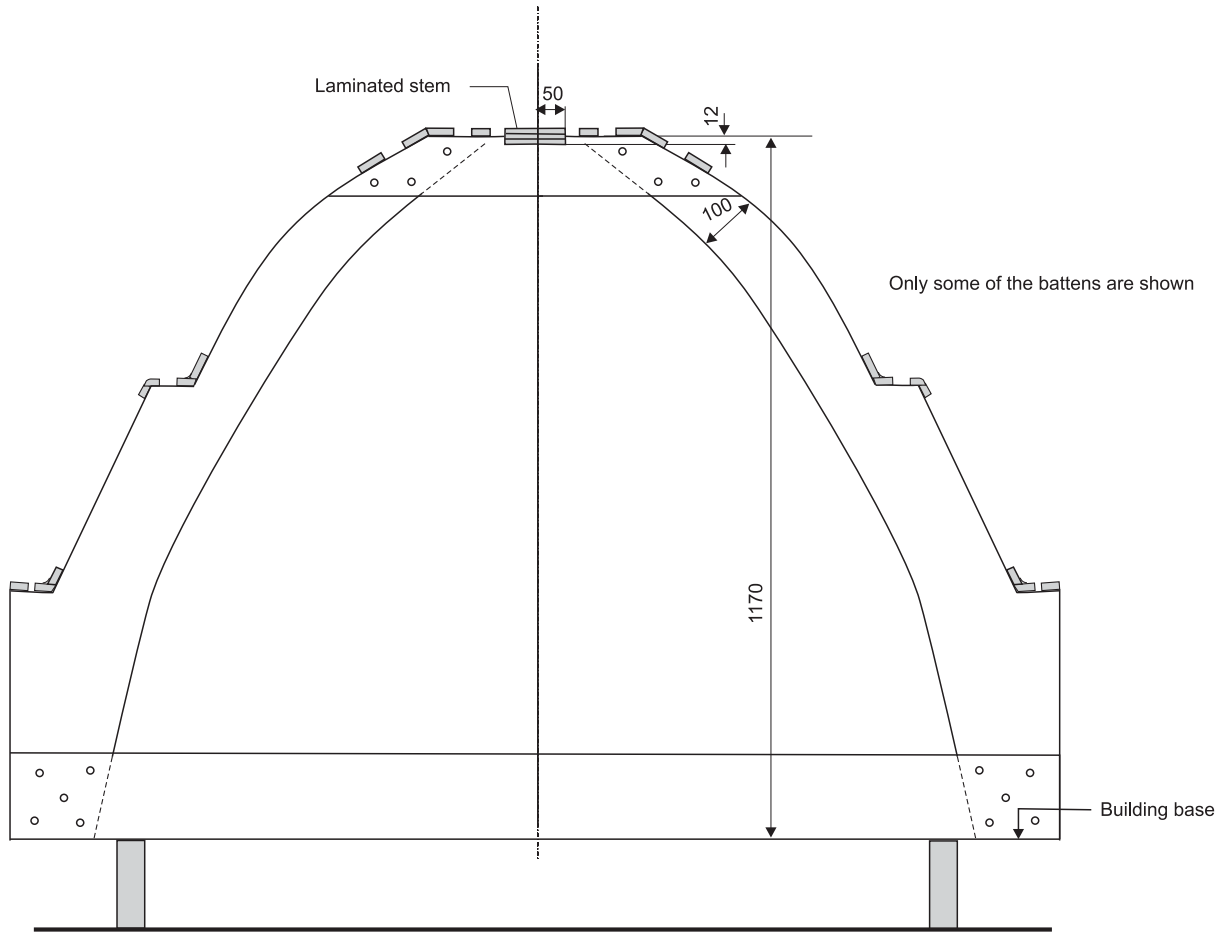
January 2009		



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FRAME 12		
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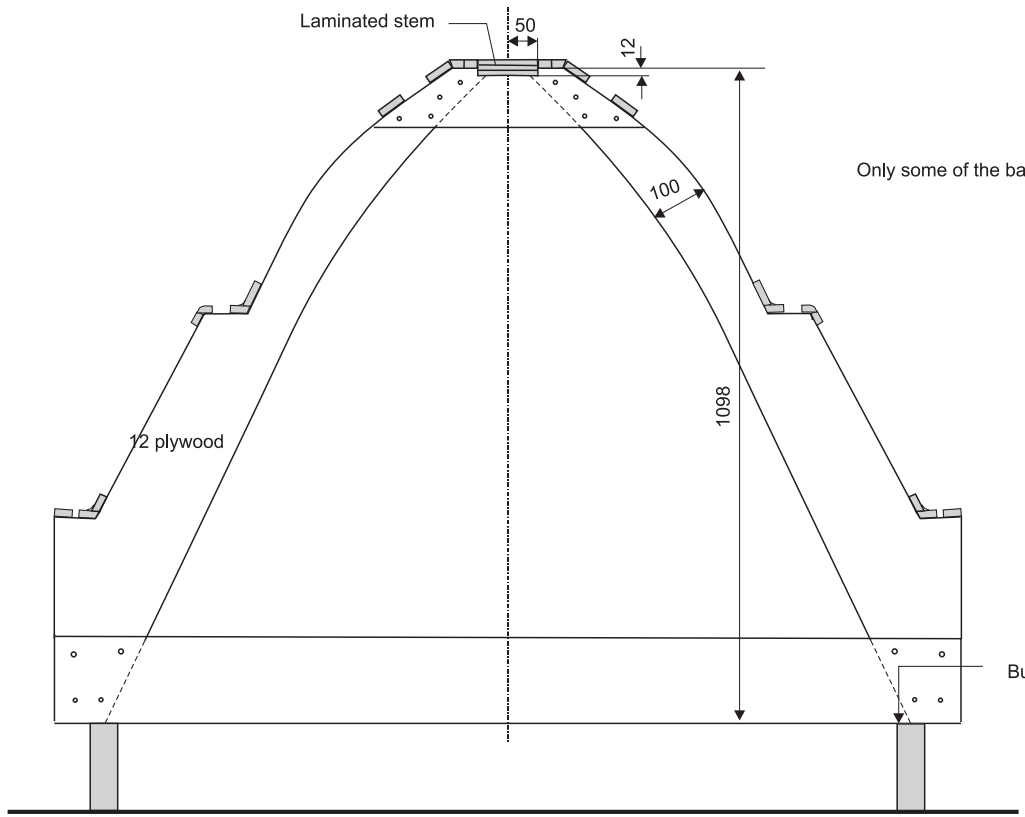

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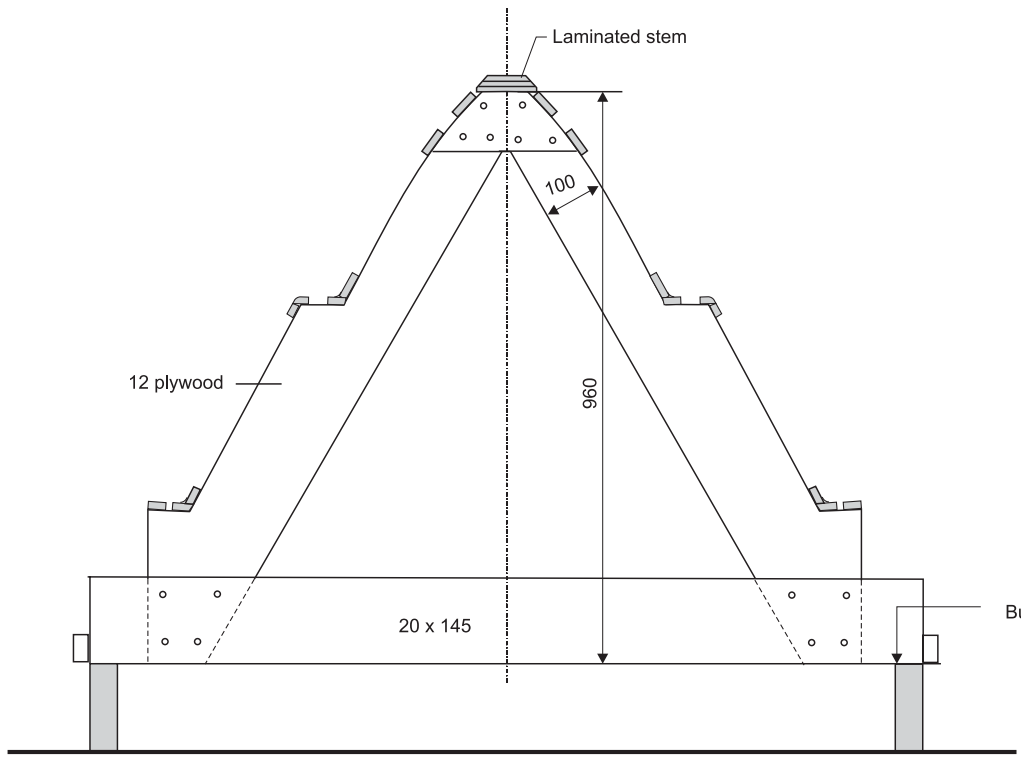
Design: Gulbrandsen	
January 2009	



02.02.2009
REVISION

8.0 m Beachlanding boat

FRAME 14

Scale = 1 : 15, 1 : 5	Design no.	Drawing no
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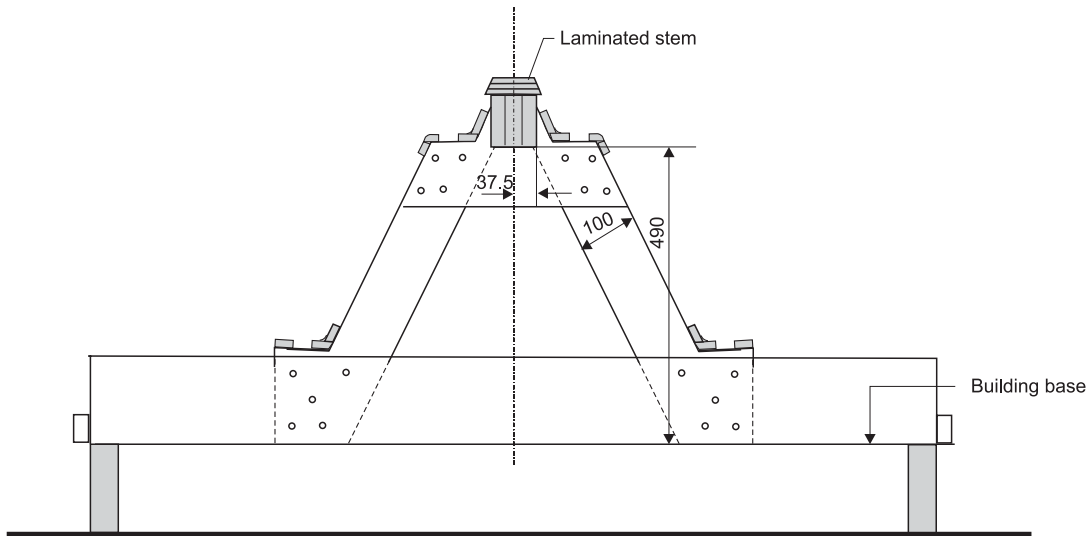

	02.02.2009
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8.0 m Beachlanding boat	
FRAME 15	
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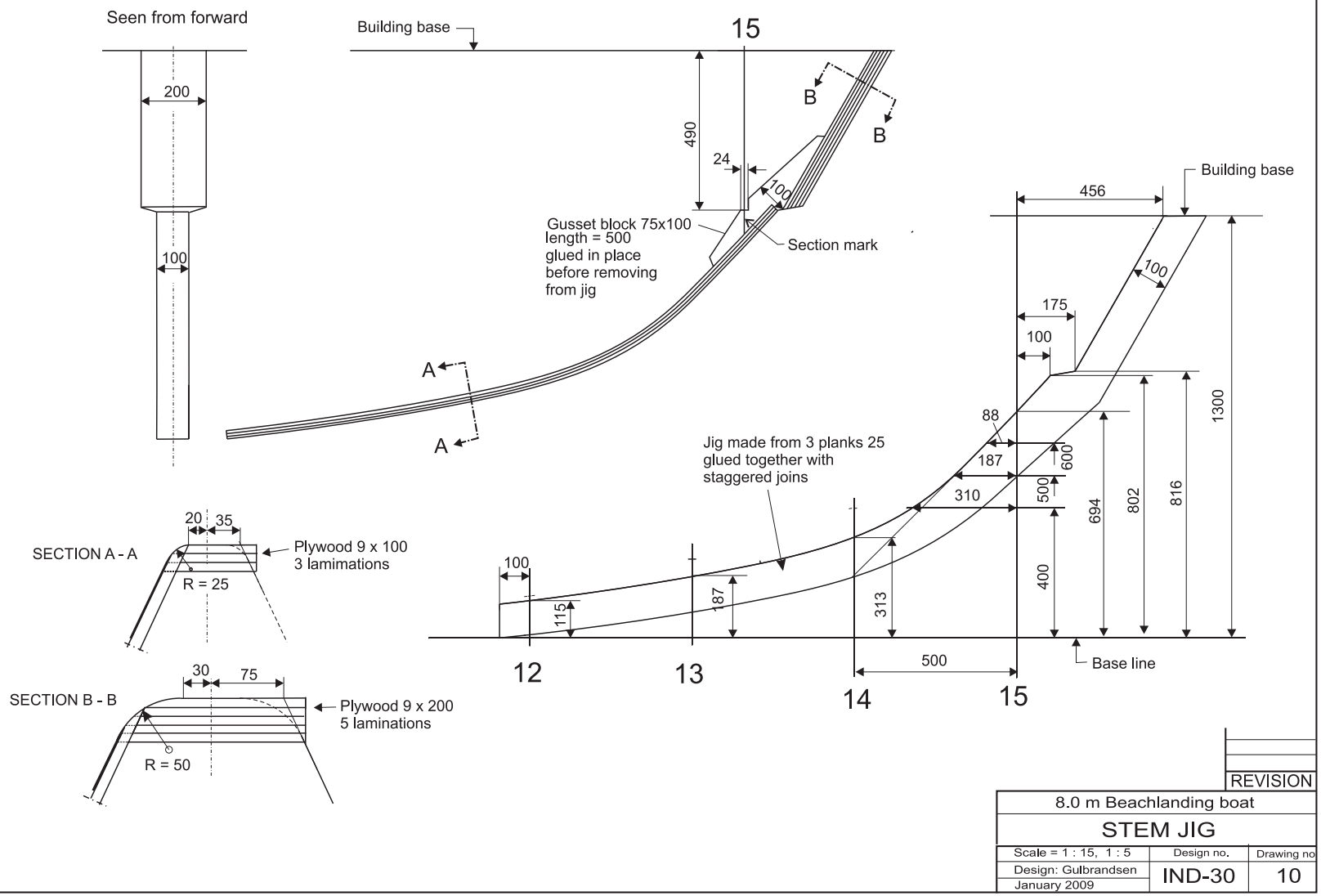
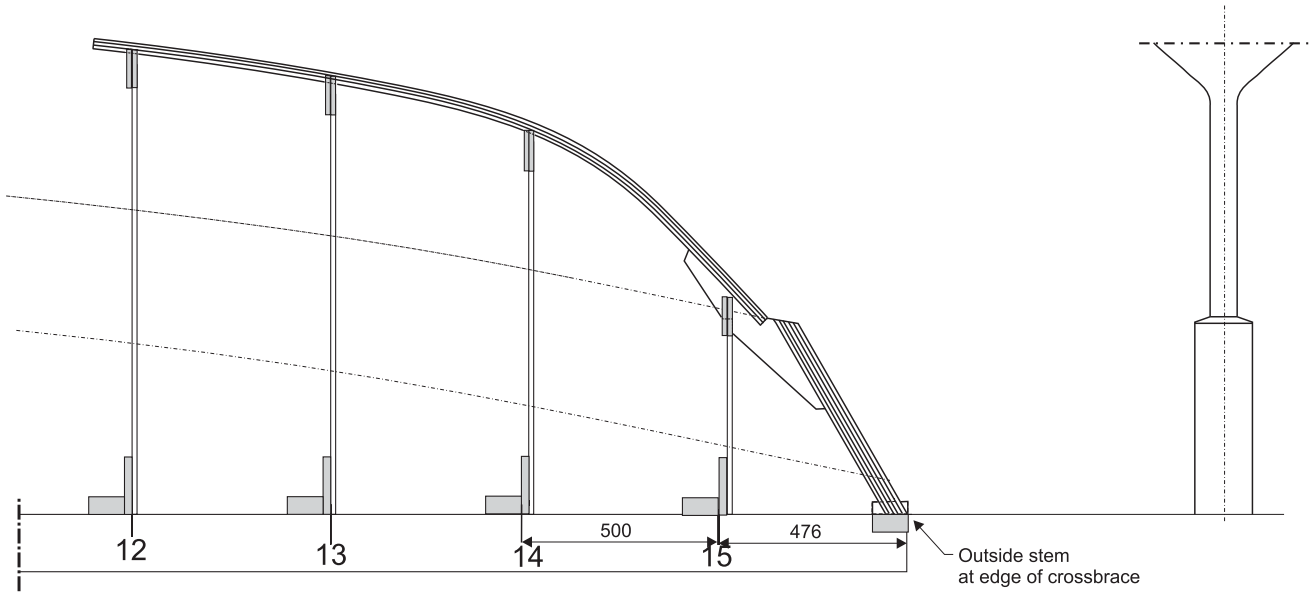
Design: Gulbrandsen	
January 2009	


Seen from forward
200
100
Building base
15
490
24
100
B
B
Gusset block 75x100
length = 500
glued in place
before removing
from jig
Section mark
A
A
Building base
456
100
175
100
88
187
310
600
500
694
802
816
1300
400
Jig made from 3 planks 25
glued together with
staggered joins
100
115
187
313
500
12
13
14
15
Base line
SECTION A - A
20
35
R = 25
Plywood 9 x 100
3 lamimations
SECTION B - B
30
75
R = 50
Plywood 9 x 200
5 laminations
REVISION
8.0 m Beachlanding boat
STEM JIG
Scale = 1 : 15, 1 : 5
Design: Gulbrandsen
January 2009
Design no.
IND-30
Drawing no
10



REVISION		
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STEM ASSEMBLY		
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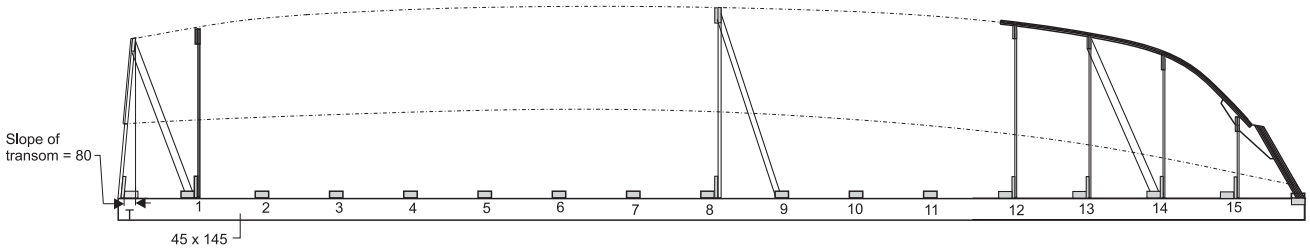

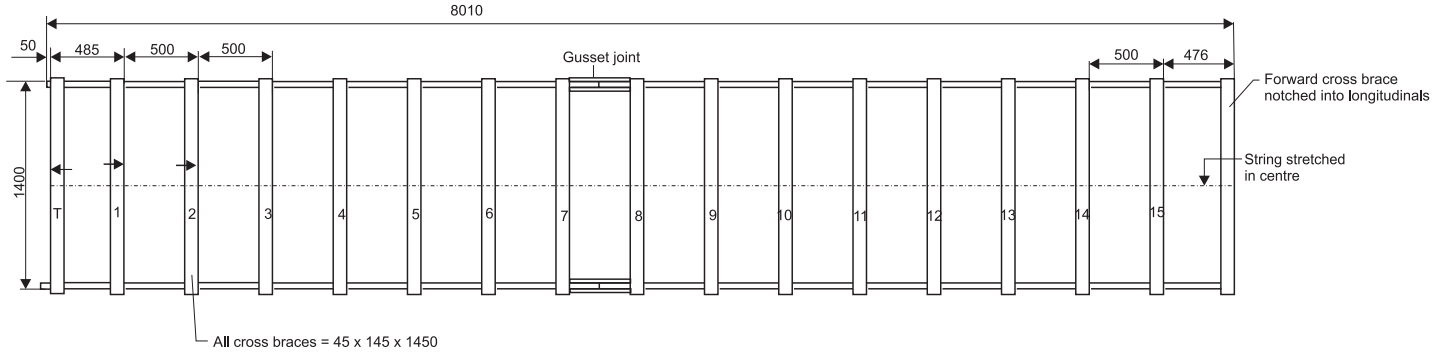

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BUILDING JIG		
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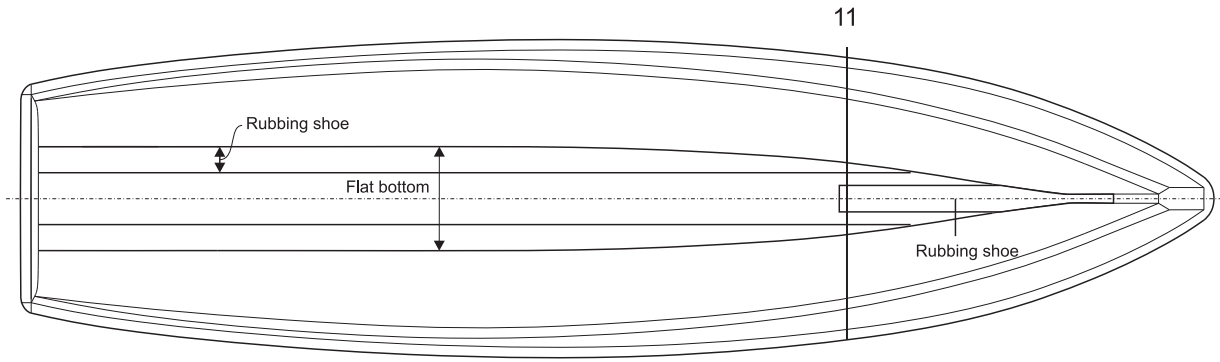

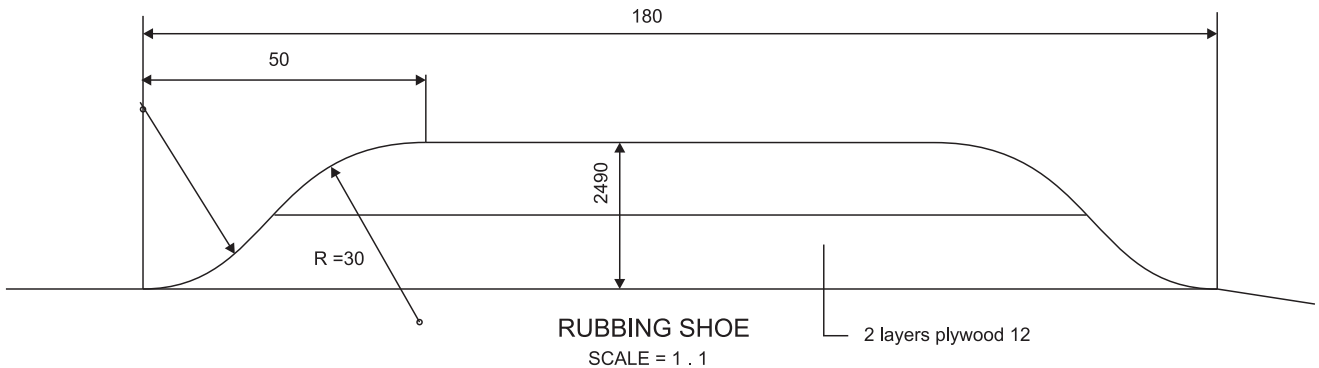

REVISION		
8.0 m Beachlanding boat		
RUBBING SHOE		
Scale = 1 : 1, 1 : 40	Design no.	Drawing no
Design: Gulbrandsen January 2009	IND-30	13