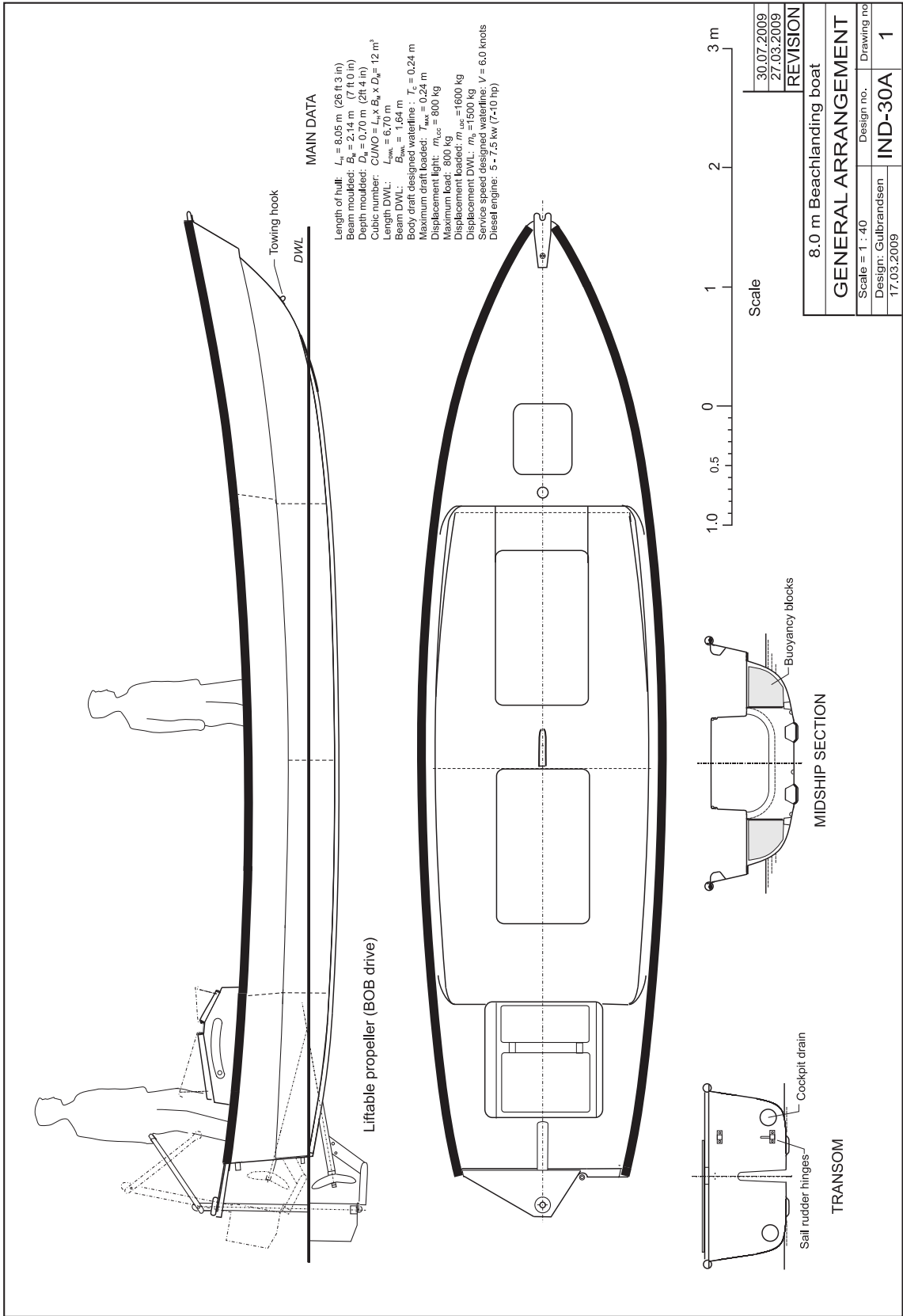
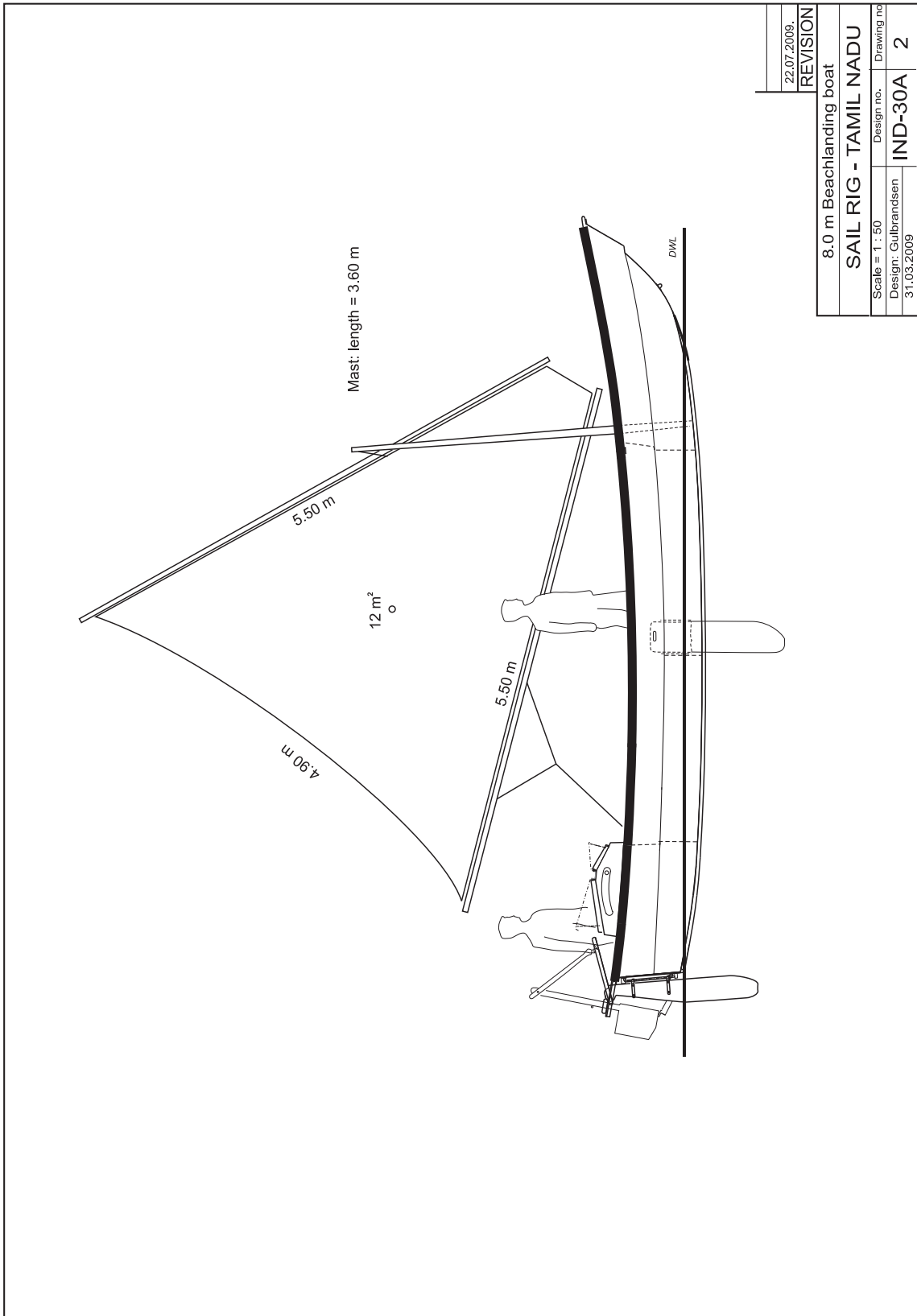
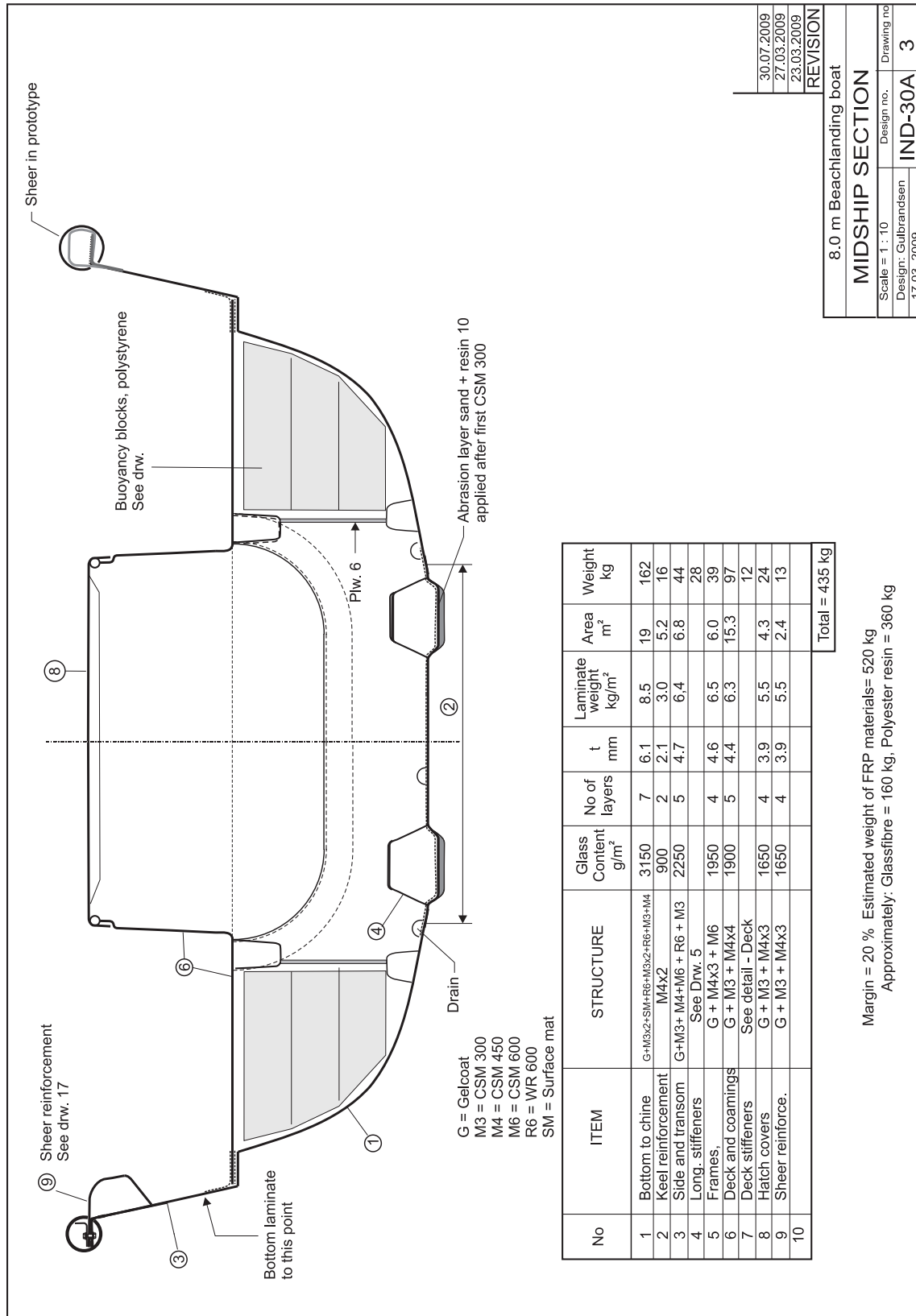


**IND - 30A**  
**8 m BEACH-LANDING BOAT**

- |                           |                           |
|---------------------------|---------------------------|
| 1. General arrangement    | 18. Hatch lock 1          |
| 2. Sail rig - Tamil Nadu  | 19. Hatch lock 2          |
| 3. Midship section        | 20. Sailing rudder        |
| 4. FRP layup              | 21. Rudder hinge          |
| 5. Bottom stiffening      | 22. Transom assembly      |
| 6. Propeller shaft tunnel | 23. Centreboard           |
| 7. Centreboard case       | 24. Towing hook           |
| 8. Frame 1                | 25. Mooring bitt          |
| 9. Frame 2                | 26. Buoyancy blocks       |
| 10. Frame 3               | 27. Right after capsize   |
| 11. Frame 4               | 28. Engine installation A |
| 12. Frame 5               | 29. Engine installation A |
| 13. Lower deck            | 30. Side view             |
| 14. Coaming details       | 31. Engine installation B |
| 15. Upper deck            | 32. Engine bed            |
| 16. Non-skid and details  | 33. Engine hatch cover    |
| 17. Rail                  |                           |







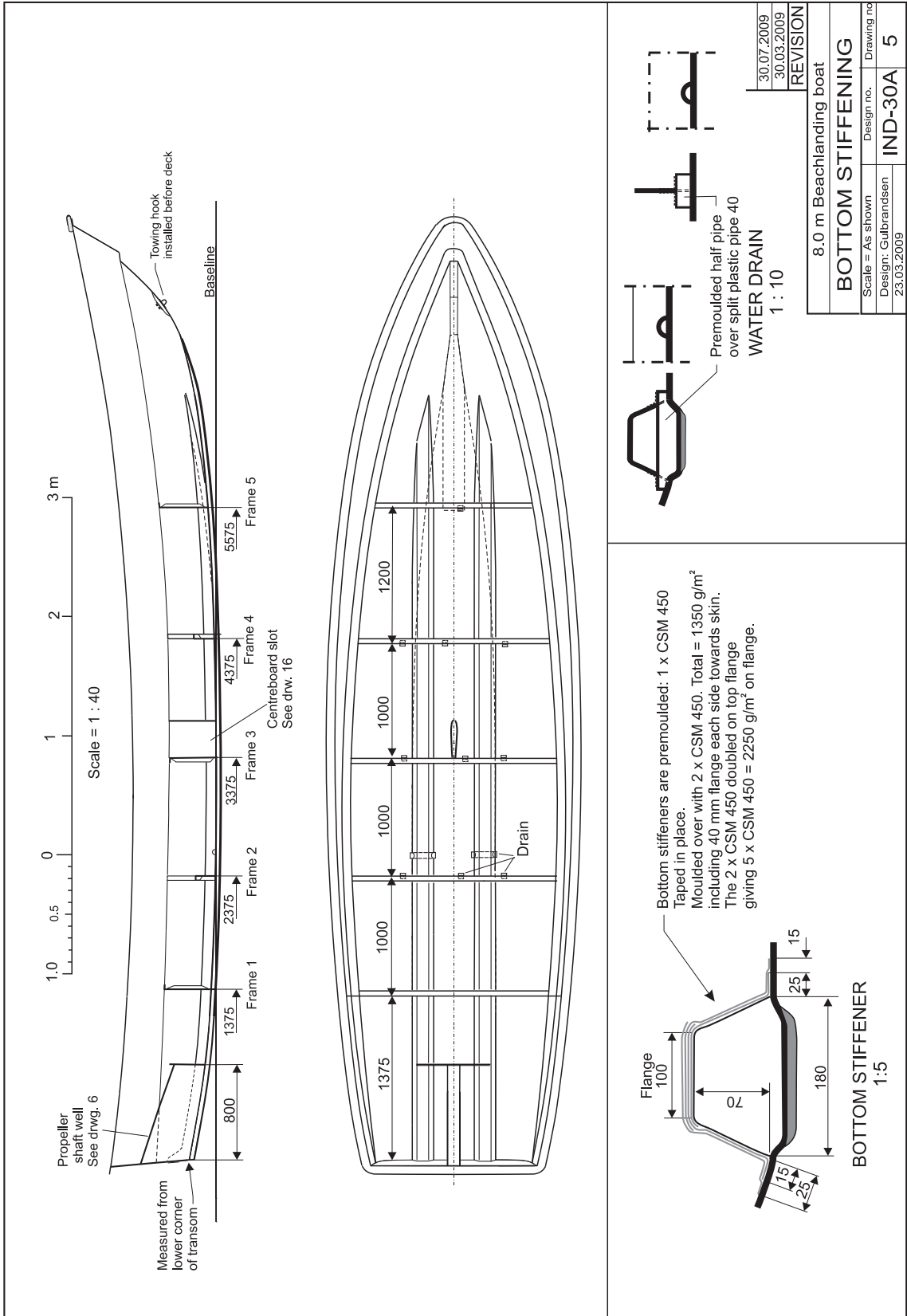
No	ITEM	STRUCTURE	Glass Content g/m <sup>2</sup>	No of layers	t mm	Laminate weight kg/m <sup>2</sup>	Area m <sup>2</sup>	Weight kg
1	Bottom to chine	G+M3x2+SM+R6+M3x2+R6+M3+M4	3150	7	6.1	8.5	19	162
2	Keel reinforcement	M4x2	900	2	2.1	3.0	5.2	16
3	Side and transom	G+M3+M4+M6+R6+M3	2250	5	4.7	6.4	6.8	44
4	Long. stiffeners	See Drw. 5						28
5	Frames,	G+M4x3+M6	1950	4	4.6	6.5	6.0	39
6	Deck and coamings	G+M3+M4x4	1900	5	4.4	6.3	15.3	97
7	Deck stiffeners	See detail - Deck						12
8	Hatch covers	G+M3+M4x3	1650	4	3.9	5.5	4.3	24
9	Sheer reinforce.	G+M3+M4x3	1650	4	3.9	5.5	2.4	13
10								
								Total = 435 kg

Margin = 20 % Estimated weight of FRP materials= 520 kg  
 Approximately: Glassfibre = 160 kg, Polyester resin = 360 kg

30.07.2009	REVISION
27.03.2009	
23.03.2009	

8.0 m Beachlanding boat	
<b>MIDSHIP SECTION</b>	
Scale = 1 : 10	Design no.
Design: Gulbrandsen	<b>IND-30A</b>
17.03.2009	Drawing no.
	<b>3</b>



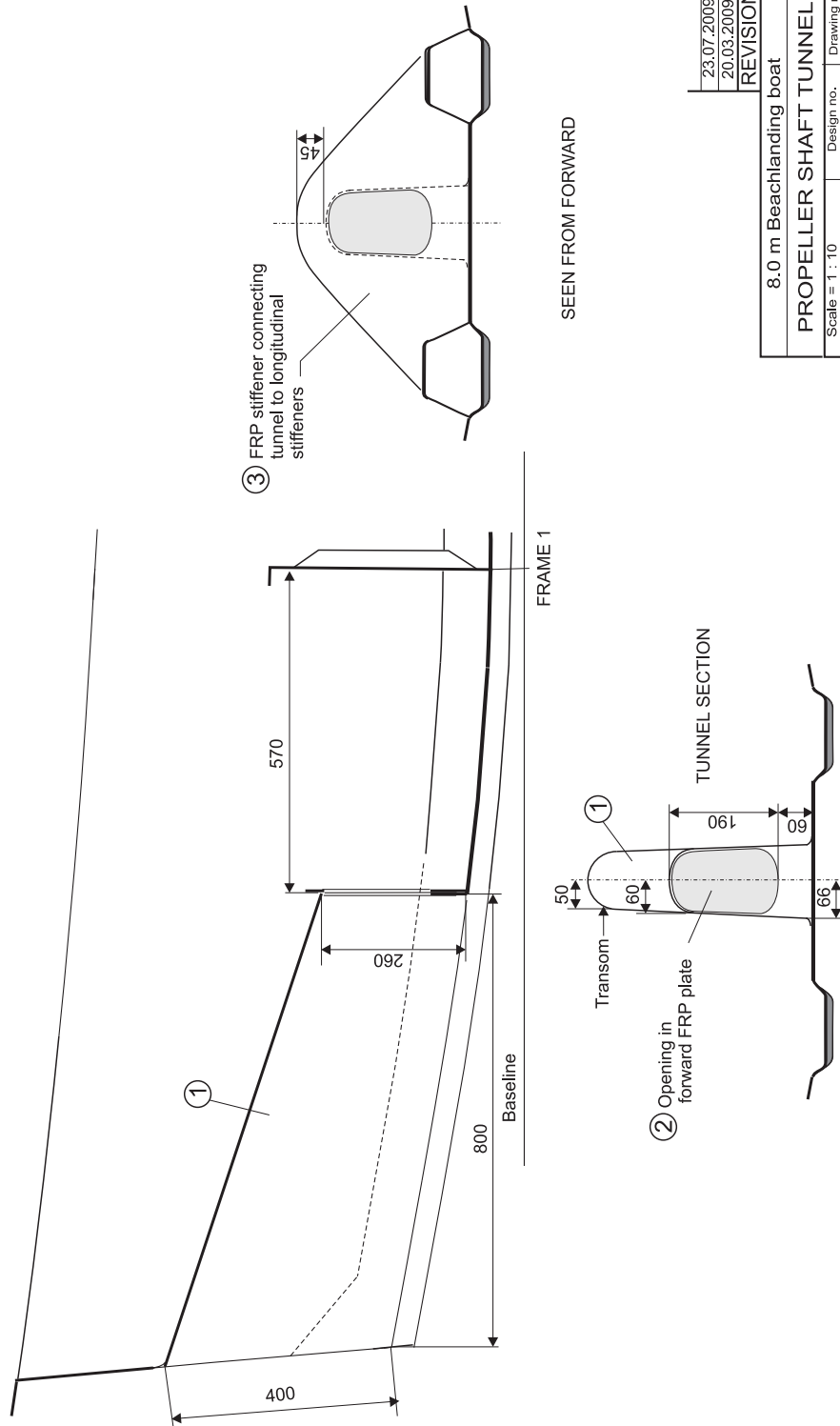


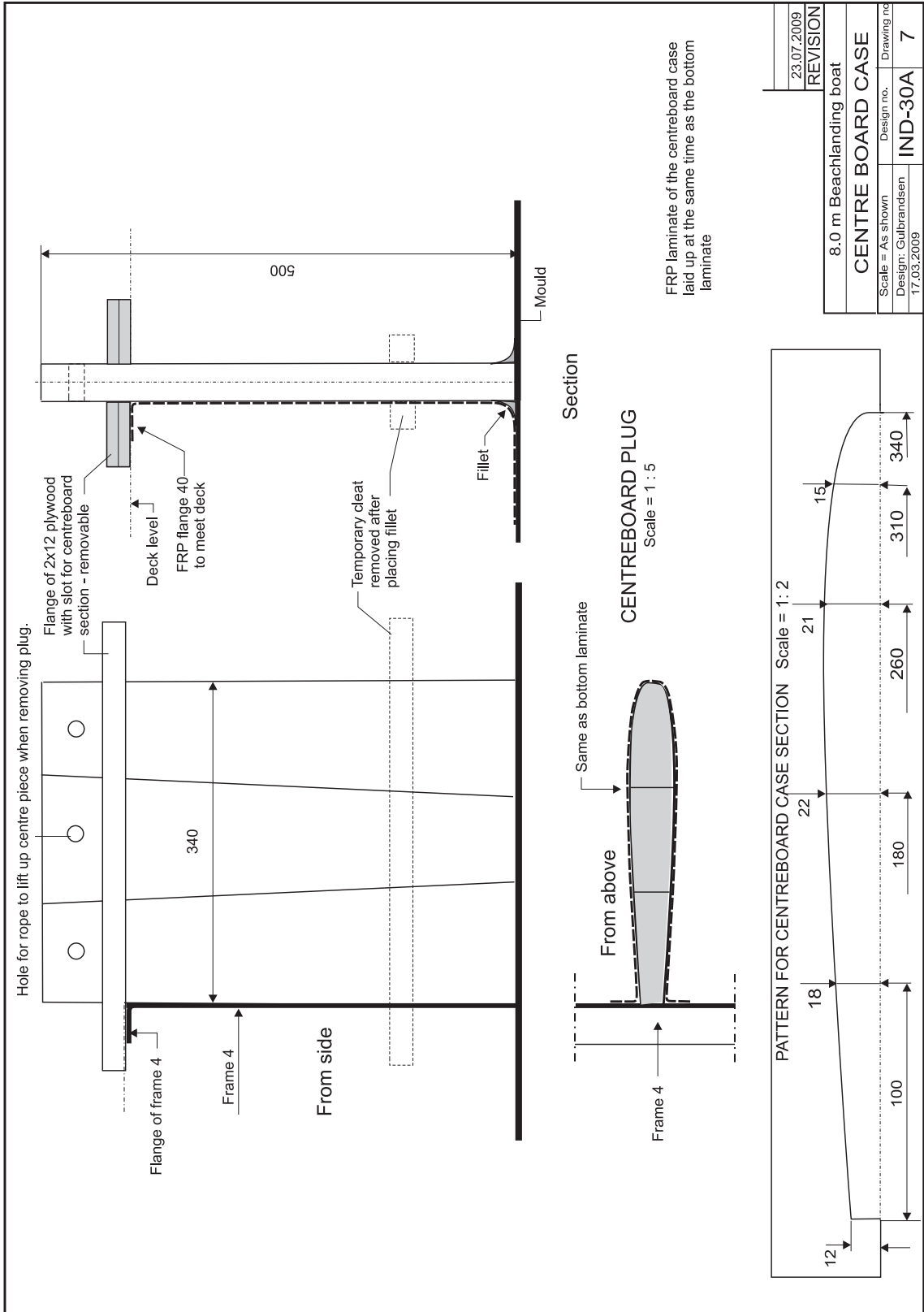
Bottom stiffeners are pre-moulded: 1 x CSM 450  
 Taped in place.  
 Moulded over with 2 x CSM 450, Total = 1350 g/m<sup>2</sup>  
 including 40 mm flange each side towards skin.  
 The 2 x CSM 450 doubled on top flange  
 giving 5 x CSM 450 = 2250 g/m<sup>2</sup> on flange.

Premoulded half pipe over split plastic pipe 40  
**WATER DRAIN**  
 1 : 10

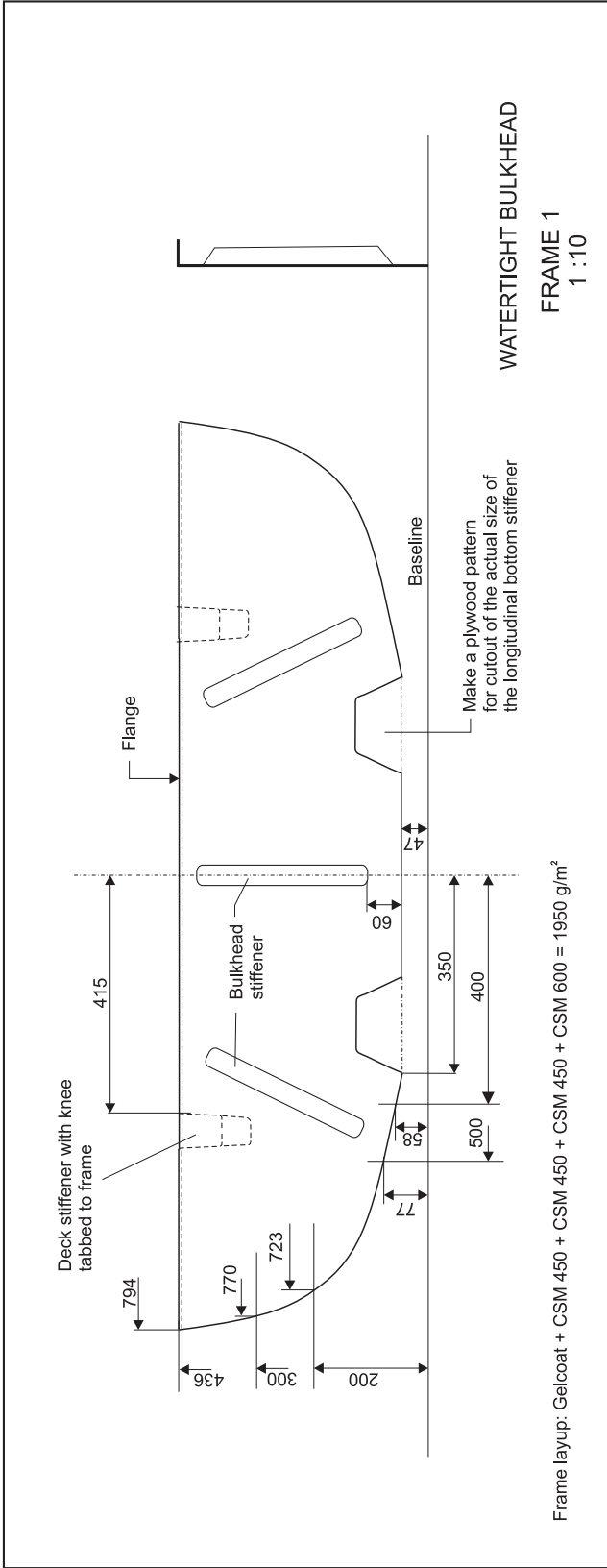
30.07.2009	REVISION
30.03.2009	
8.0 m Beachlanding boat	
<b>BOTTOM STIFFENING</b>	
Scale = As shown	Design no.
Design: Gulbrandsen	<b>IND-30A</b>
23.03.2009	Drawing no.
	<b>5</b>

- ① The tunnel including the front end should be part of the mould and laid up at the same time as the skin laminate.
- ② An opening to be cut in the forward part of the tunnel according to the dimensions shown.
- ③ The transverse stiffening should be laid up on a flat panel, cut to shape including opening and tabbed to the tunnel, the bottom laminate and the stiffeners.









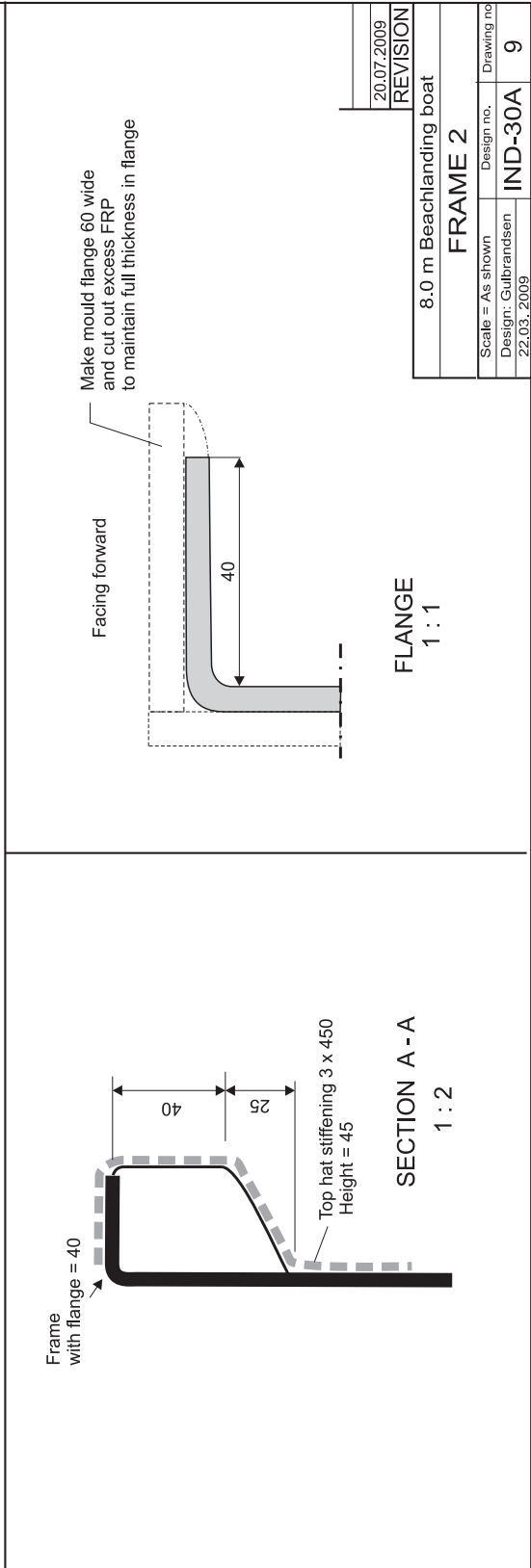
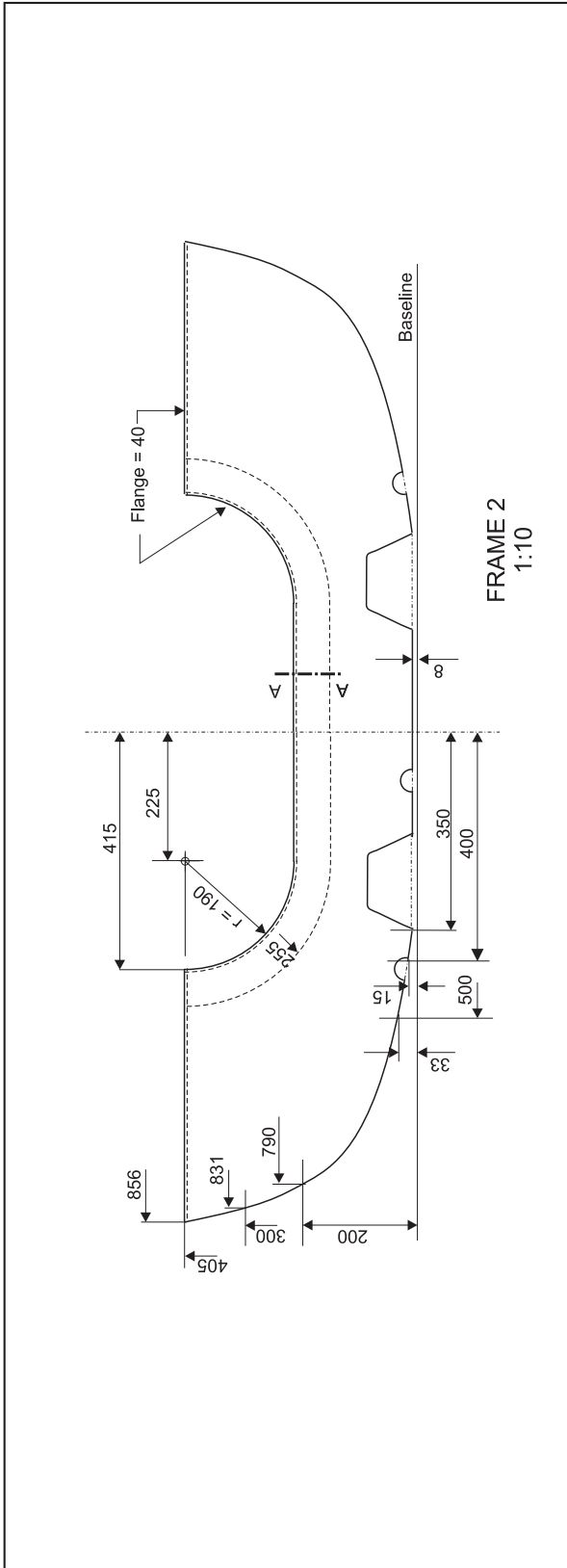
Frame layup: Galcoat + CSM 450 + CSM 450 + CSM 450 + CSM 600 = 1950 g/m<sup>2</sup>

BULKHEAD STIFFENER  
1 : 5

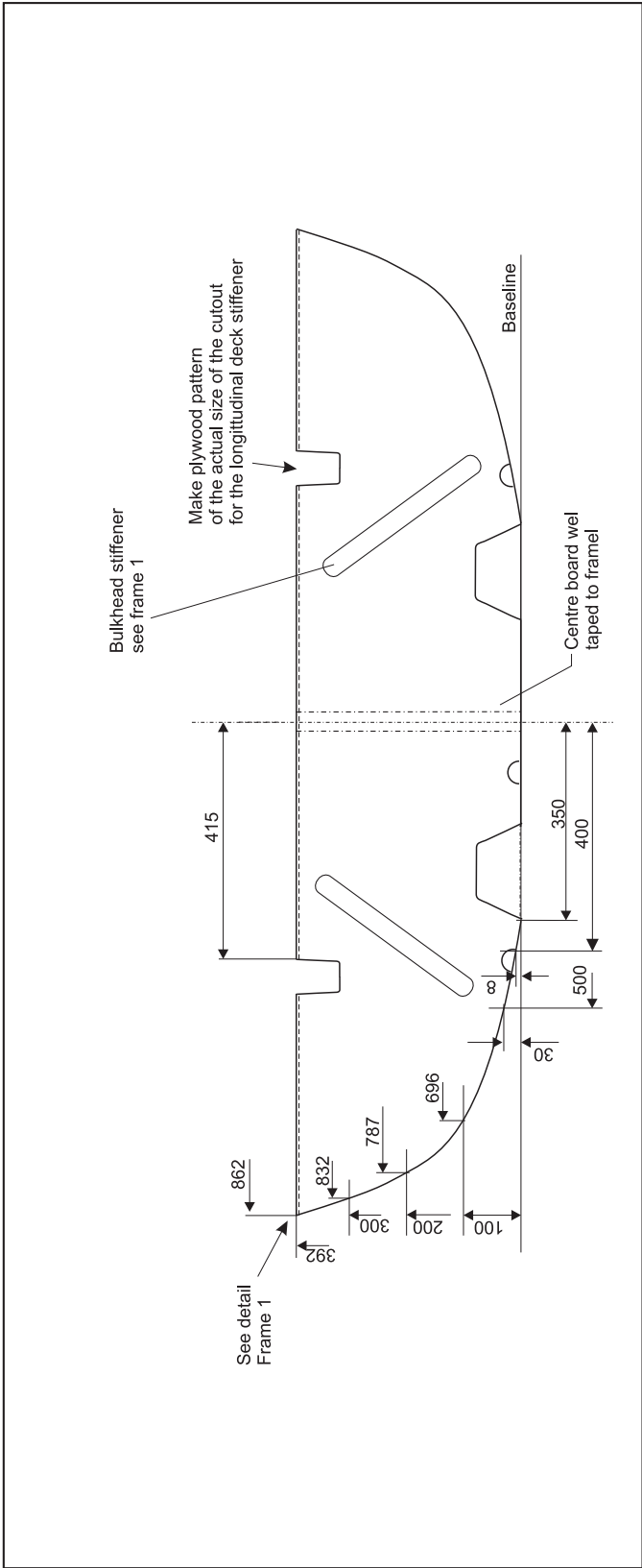
FLANGE  
1 : 1

30.07.2009	REVISION
8.0 m Beachlanding boat	
FRAME 1	
Scale = As shown	Design no.
Design: Gulbrandsen	IND-30A
22.03. 2009	Drawing no
	8

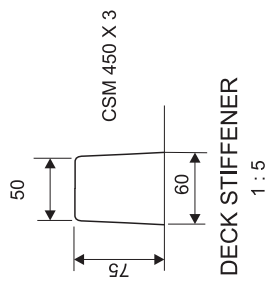
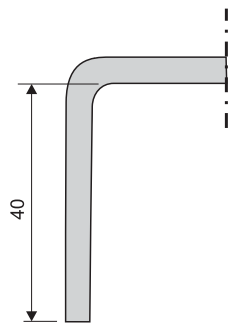
FRAME - SKIN CONNECTION  
1 : 2



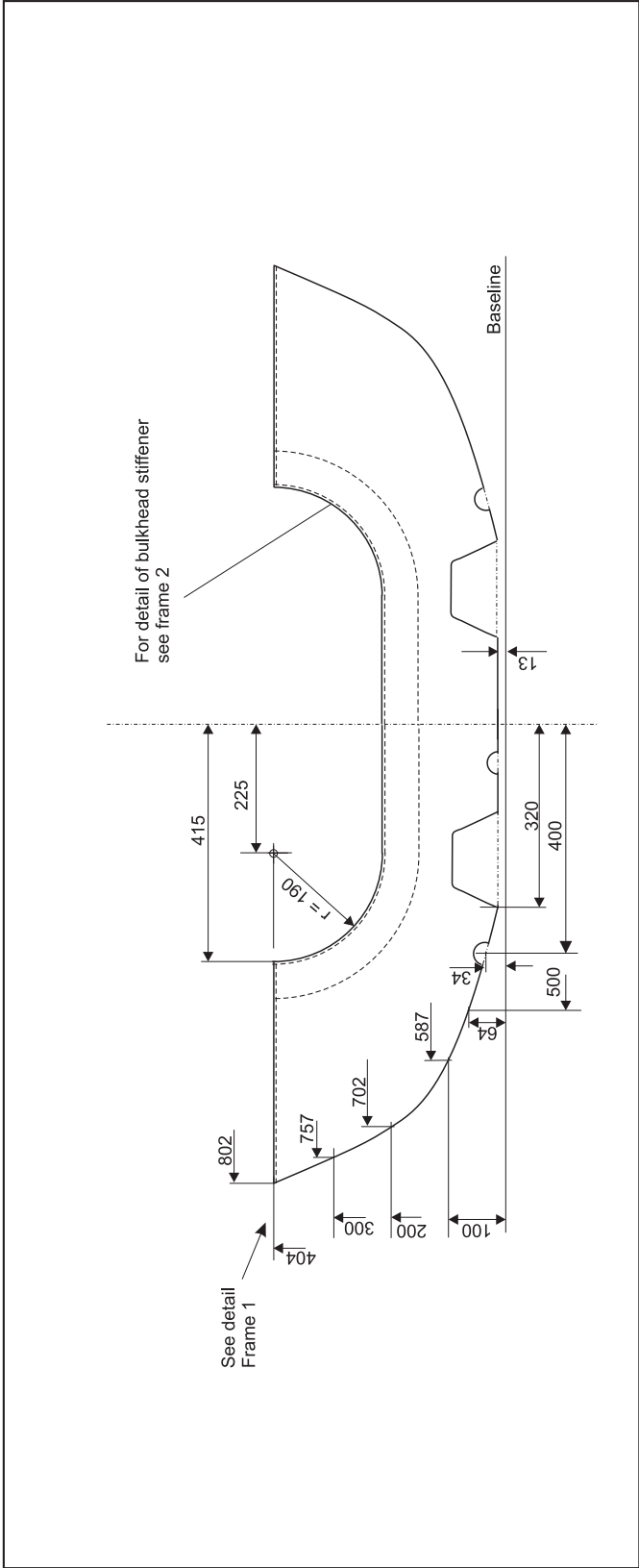
20.07.2009	REVISION
8.0 m Beachlanding boat	
FRAME 2	
Scale = As shown	Design no.
Design: Gubrandsen	IND-30A
22.03.2009	Drawing no.
	9



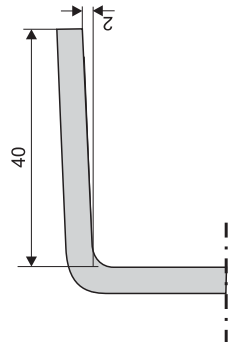
FLANGE 1 : 1  
Facing aft



30.07.2009	
30.03.2009	
REVISION	
8.0 m Beachlanding boat	
FRAME 3	
Scale = 1 : 10	Design no.
Design: Gulbrandsen	IND-30A
22.03.2009	10

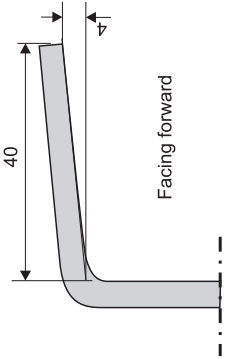
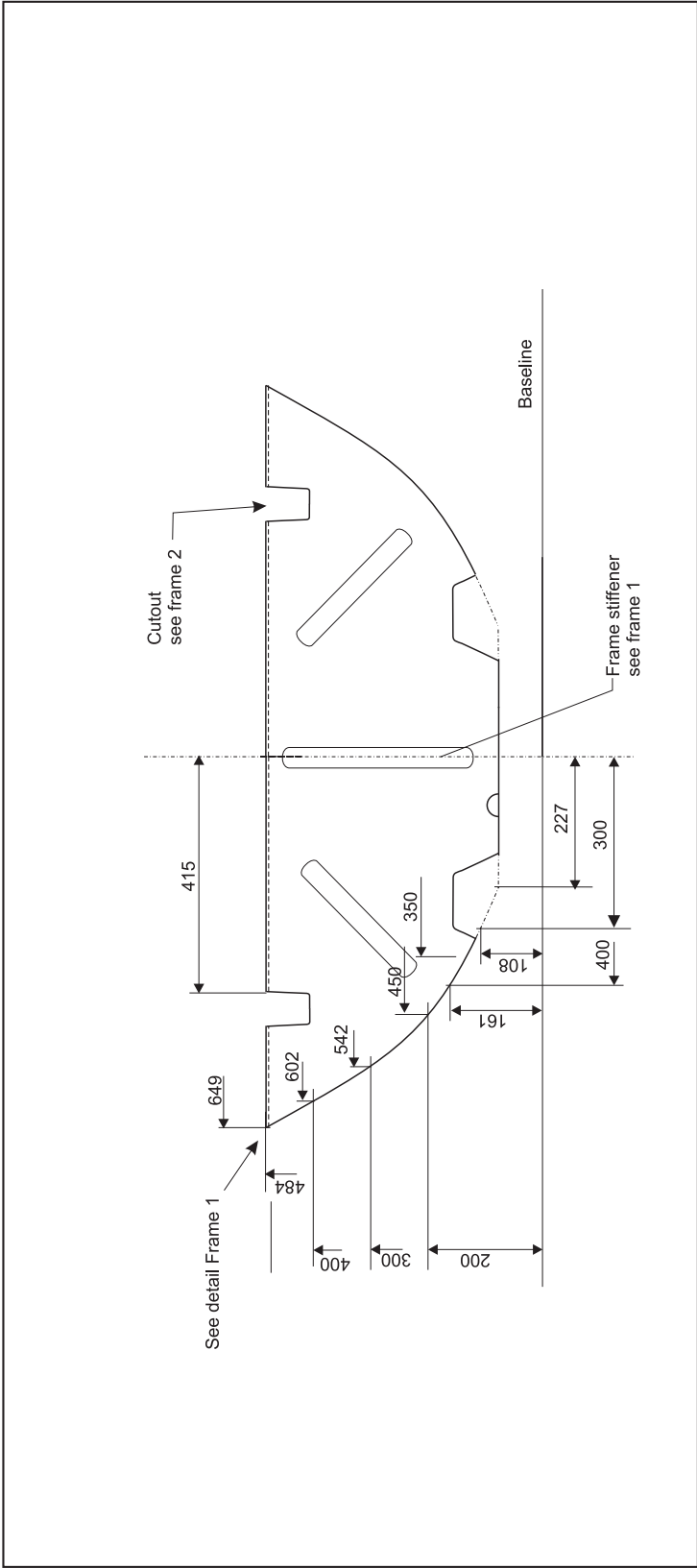


Facing forward



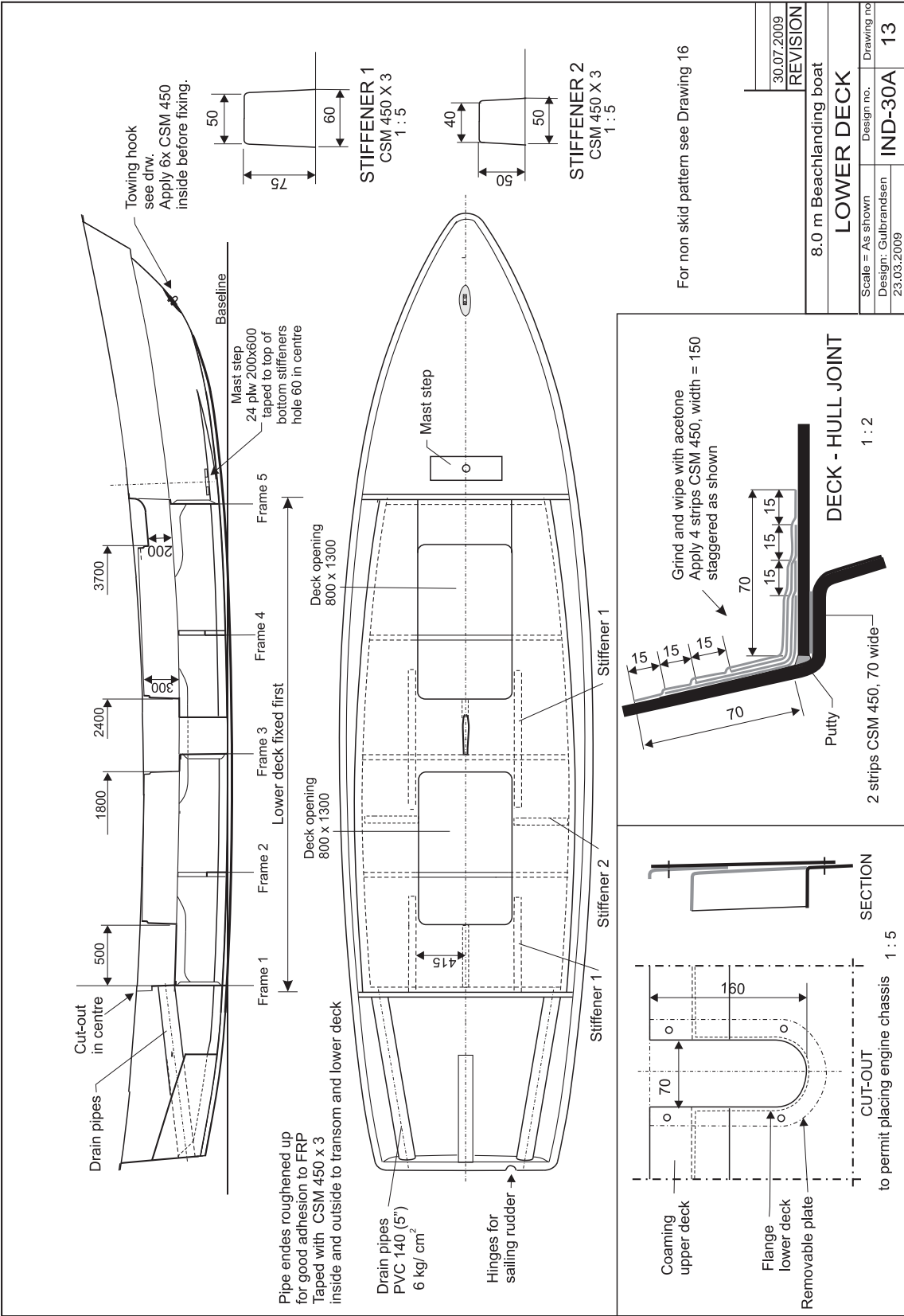
FLANGE  
1 : 1

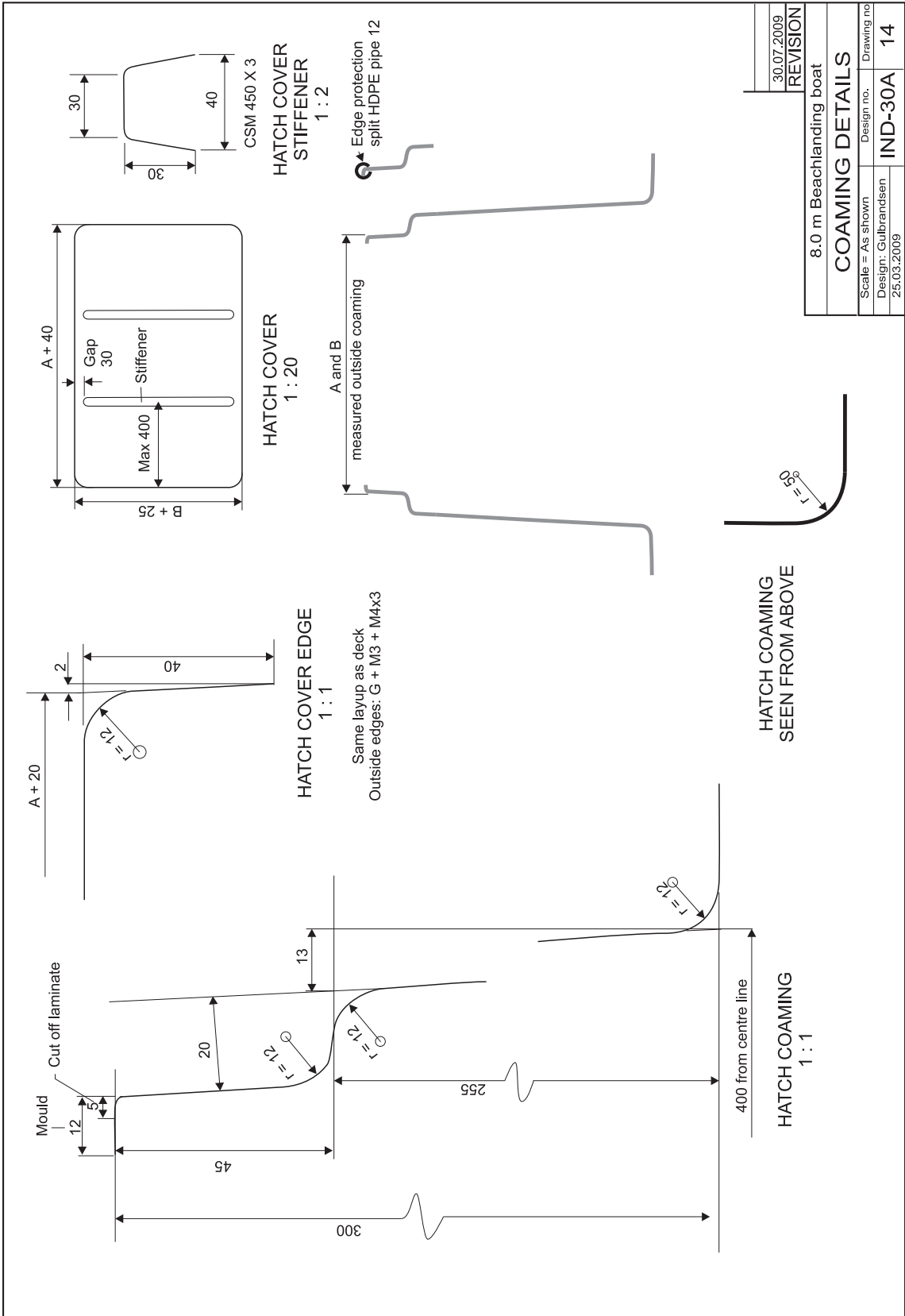
30.03.2009	REVISION
8.0 m Beachlanding boat	
FRAME 4	
Scale = 1 : 10	Design no.
Design: Gulbrandsen	IND-30A
22.03.2009	Drawing no.
	11

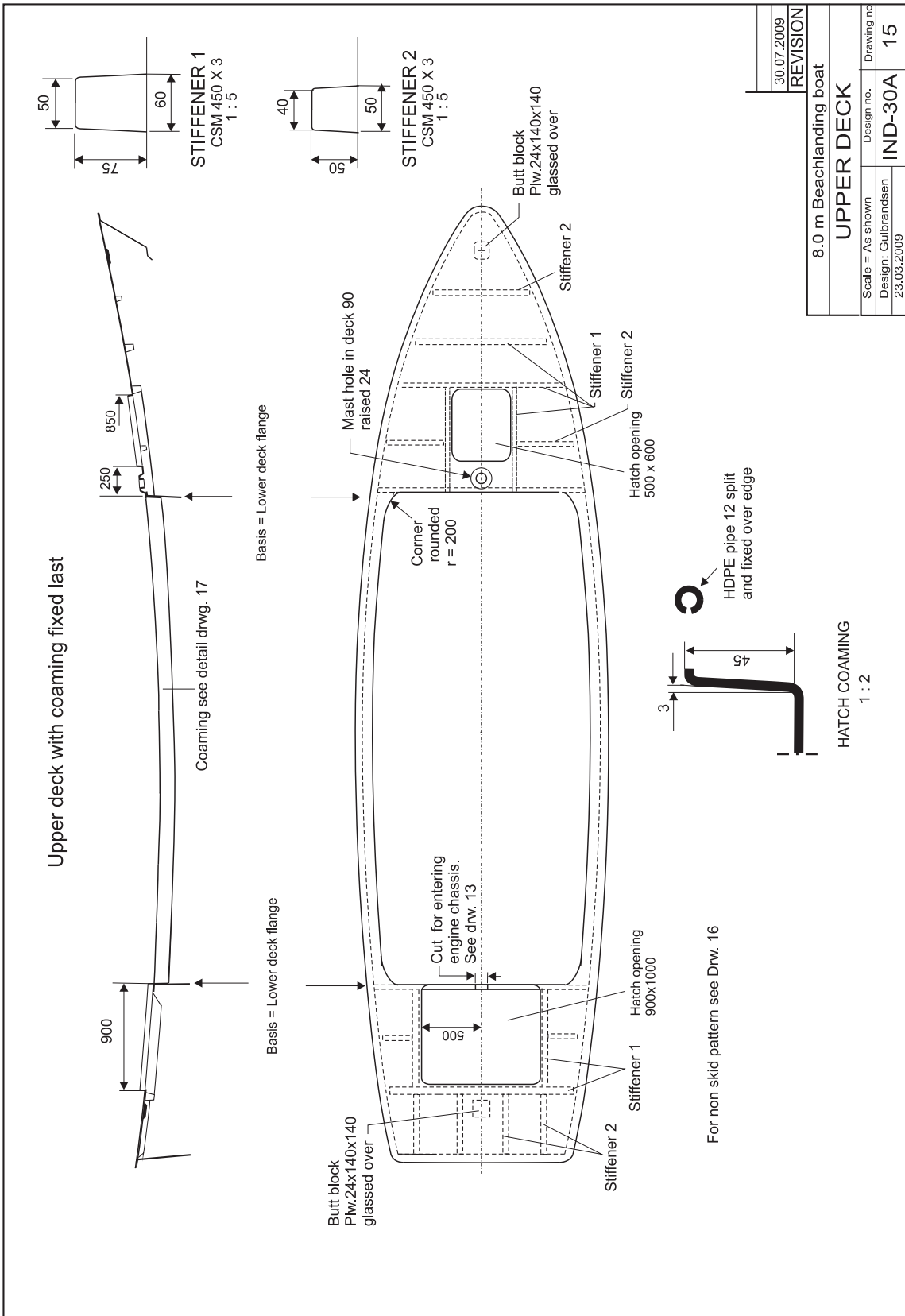


FLANGE  
1 : 1

30.07.2009	REVISION
30.03.2009	
8.0 m Beachlanding boat	
FRAME 5	
Scale = 1 : 10	Design no.
Design: Gulbrandsen	IND-30A
22.03. 2009	Drawing no.
	12

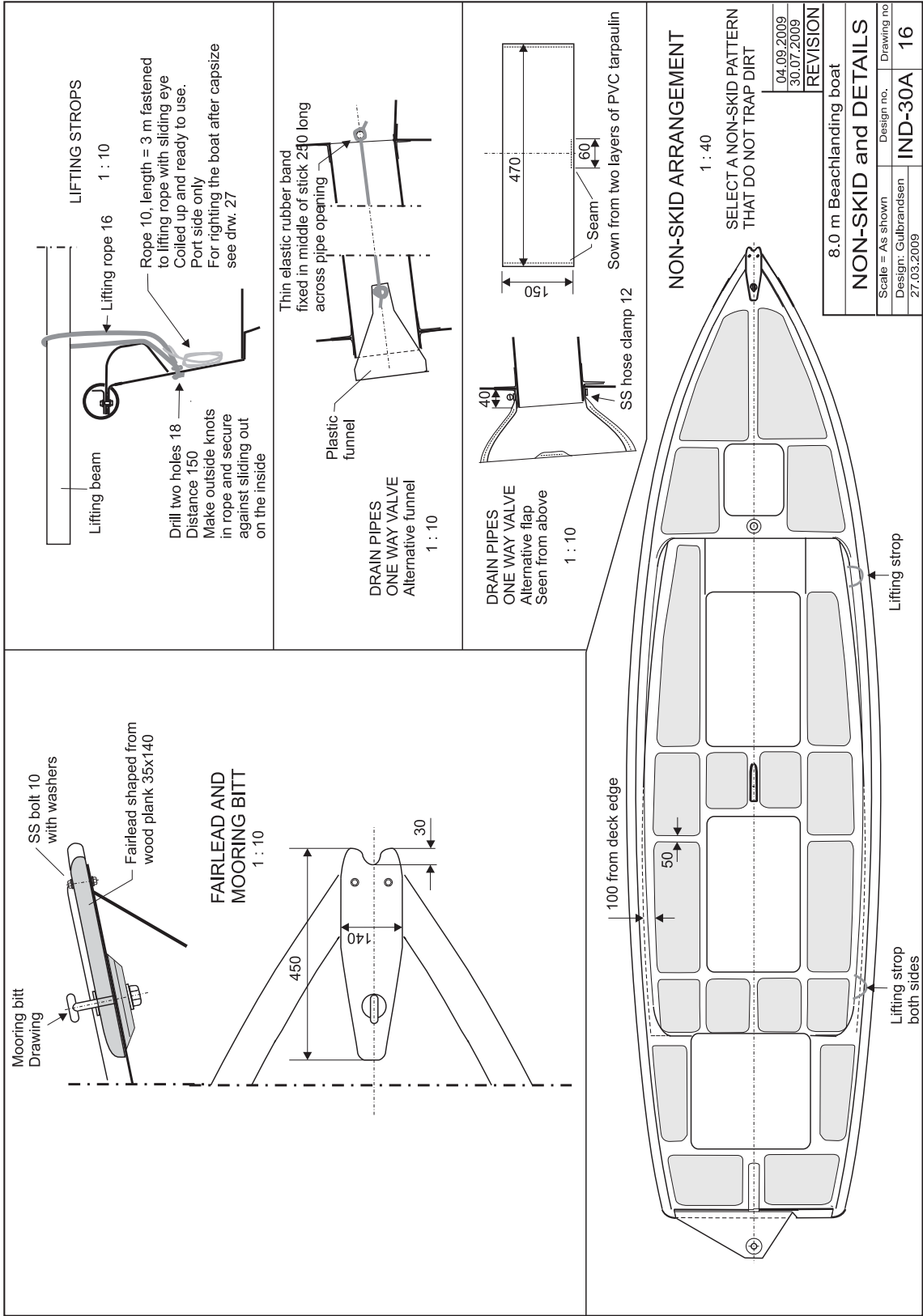


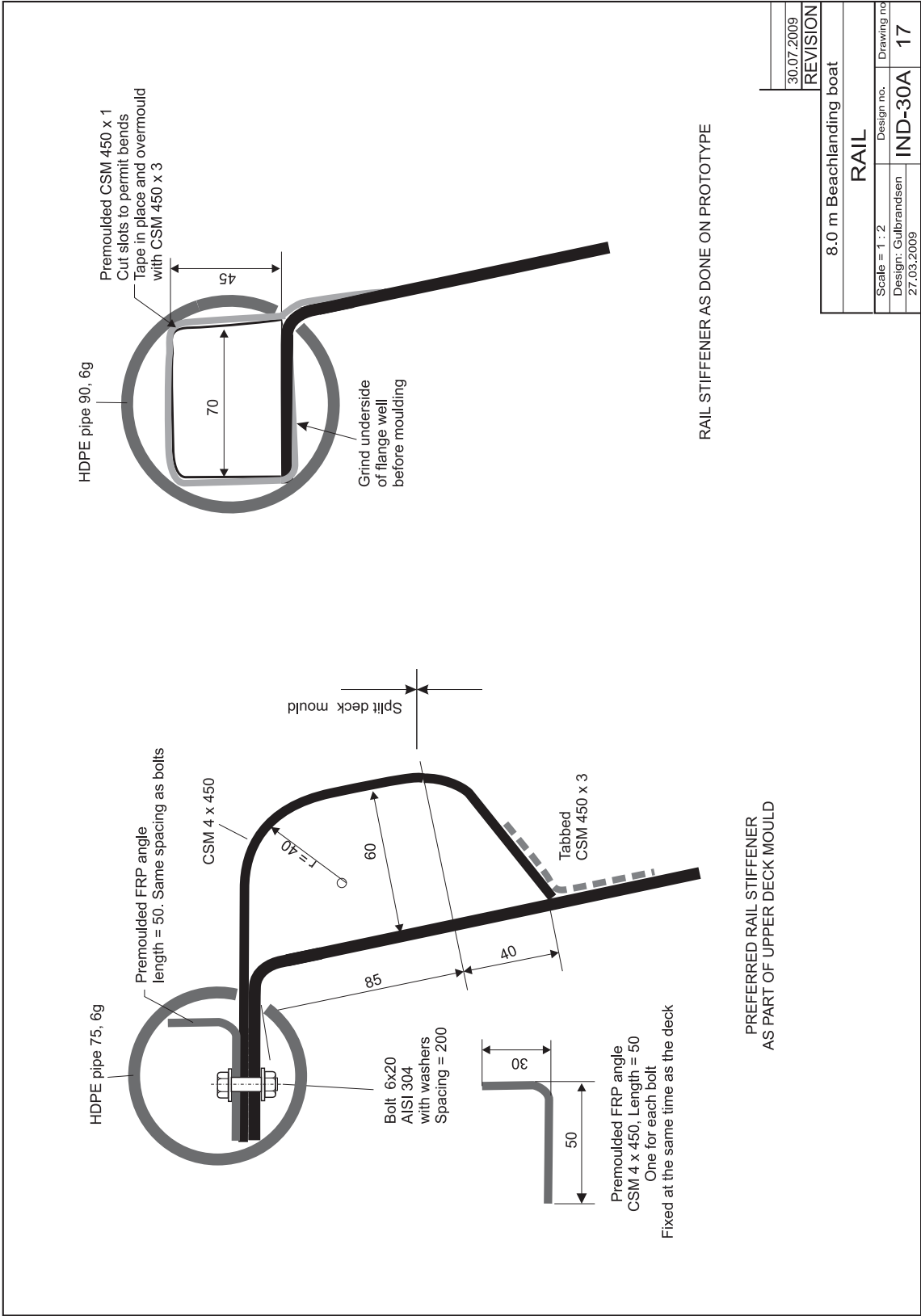




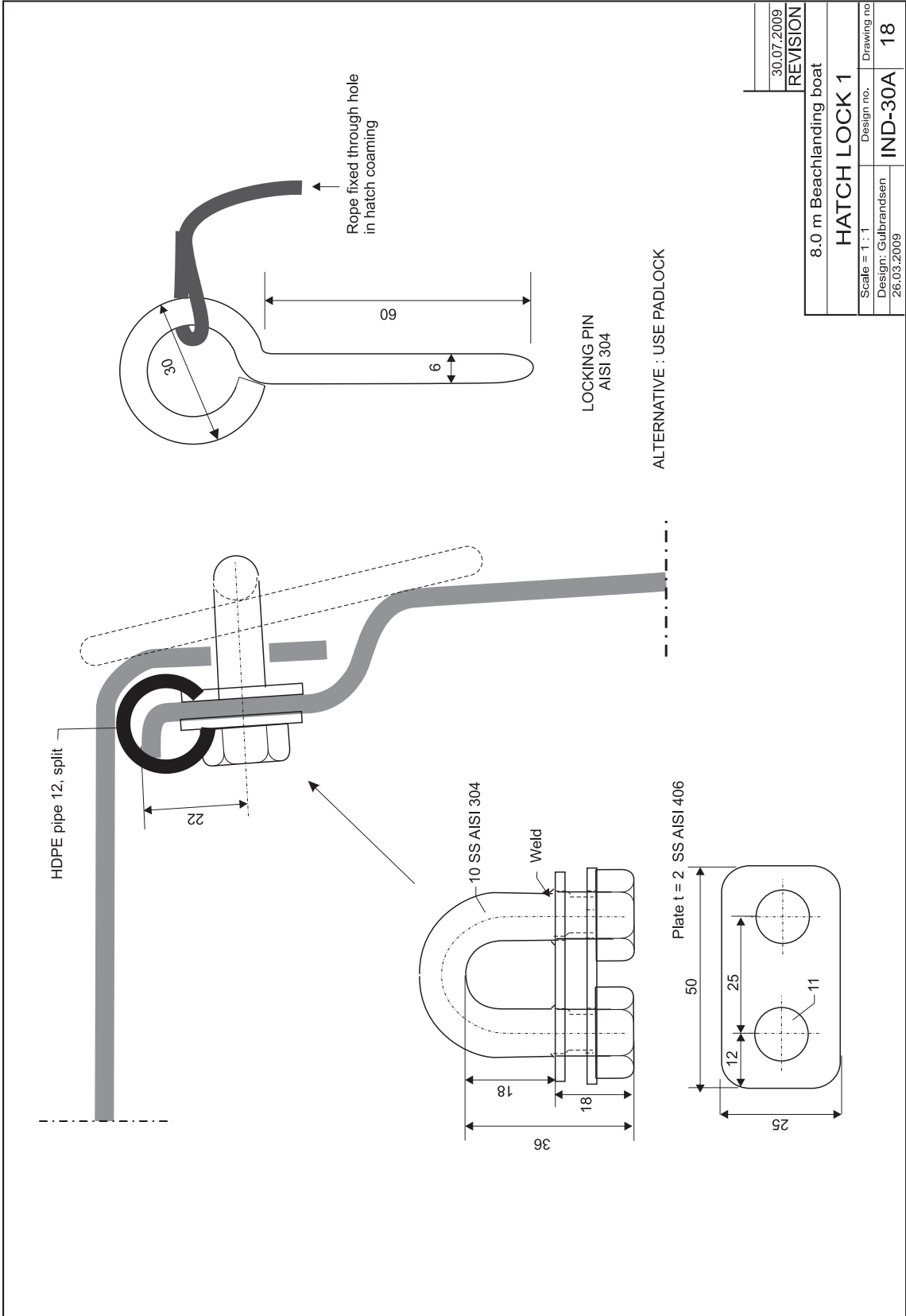
30.07.2009		REVISION
8.0 m Beachlanding boat		
UPPER DECK		
Scale = As shown	Design no.	Drawing no.
Design: Gulbrandsen	IND-30A	15
23.03.2009		

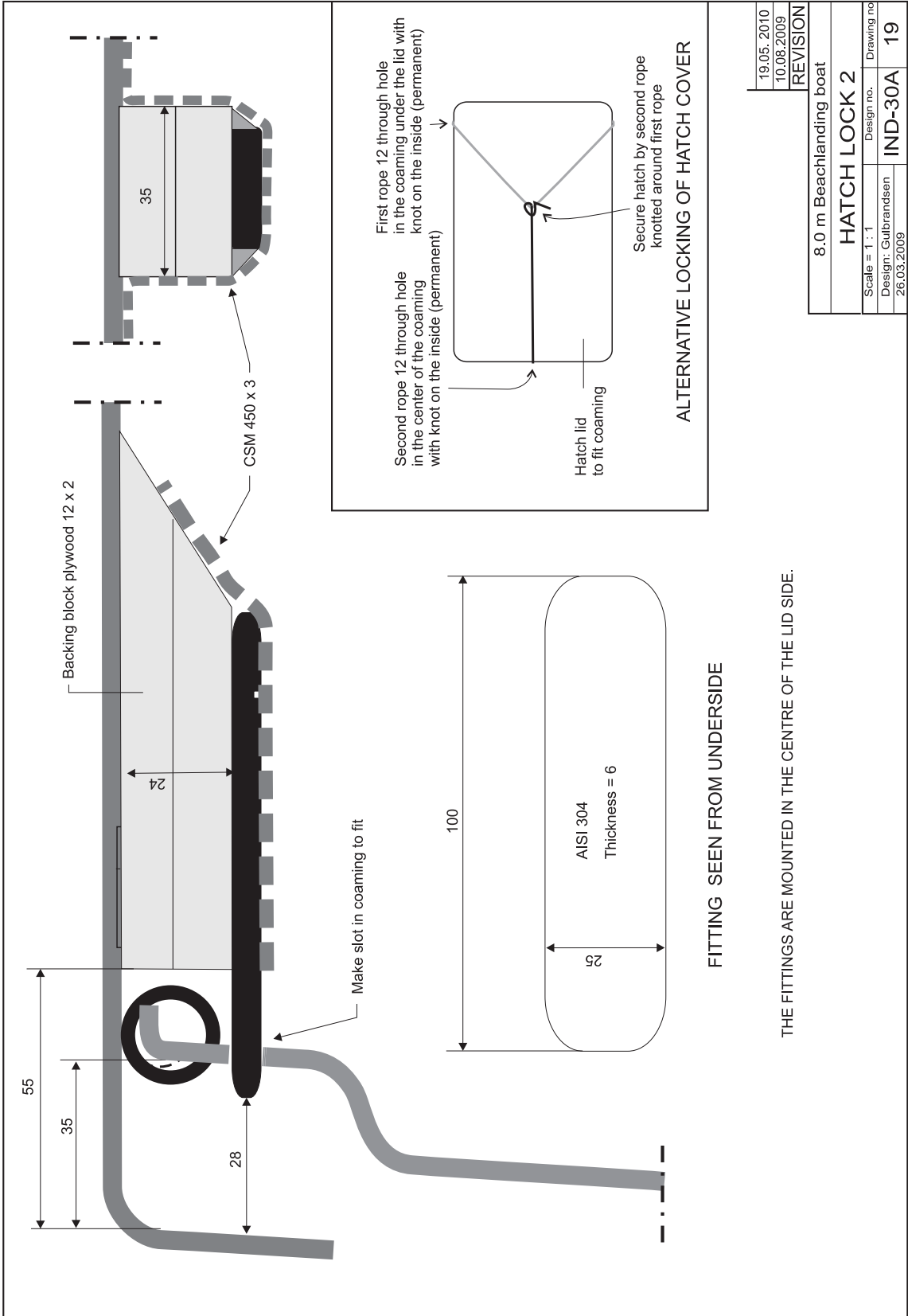


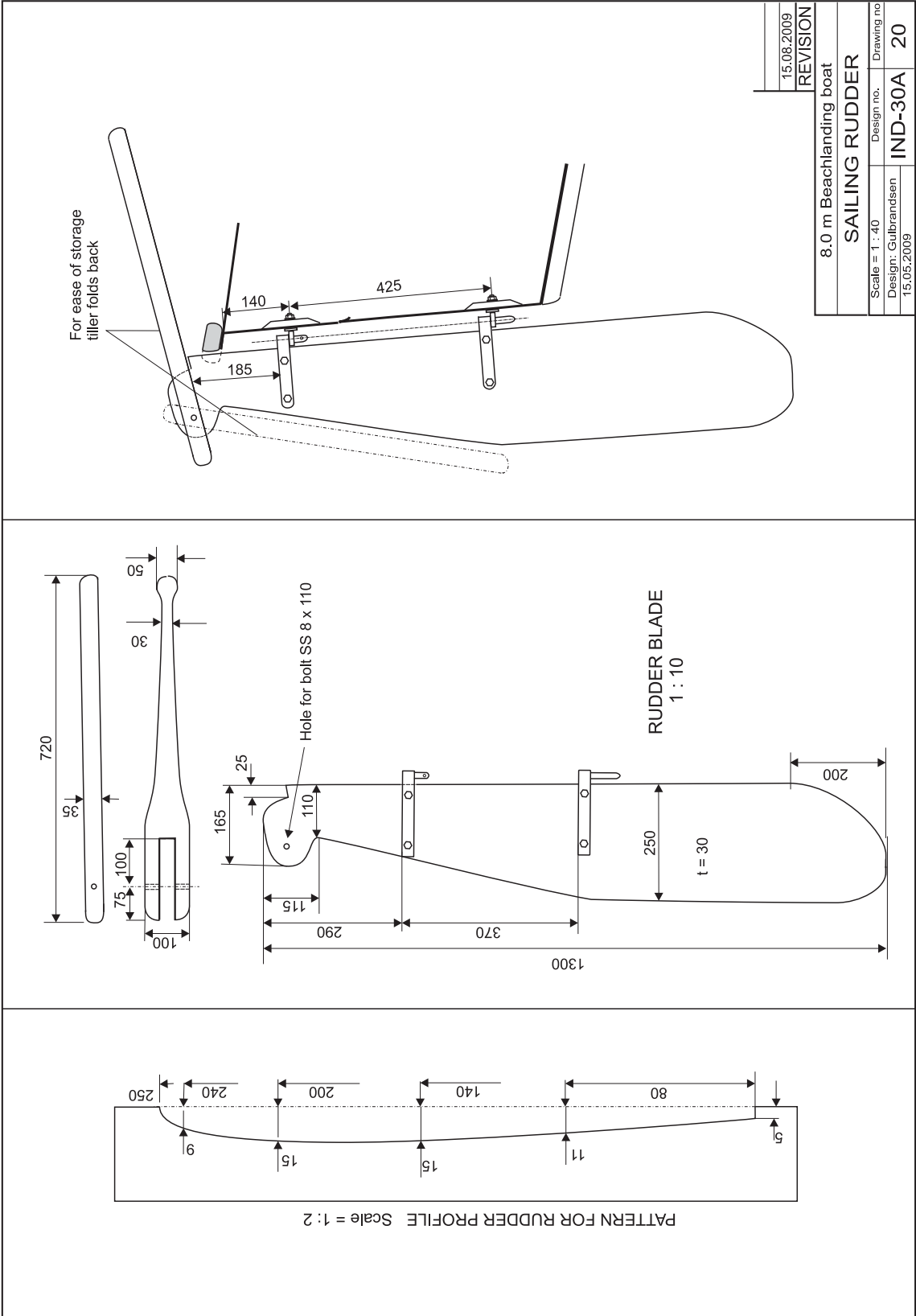


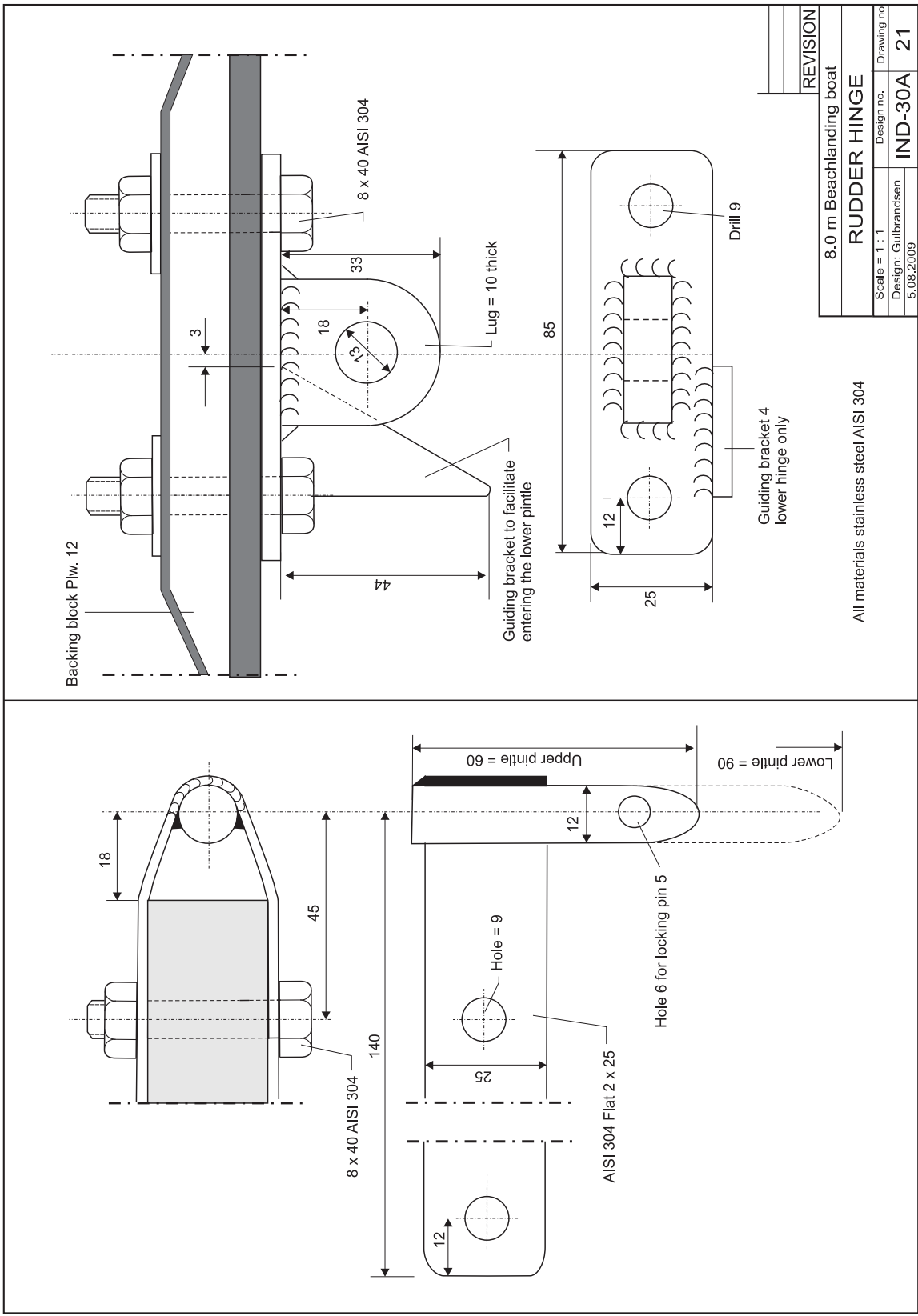


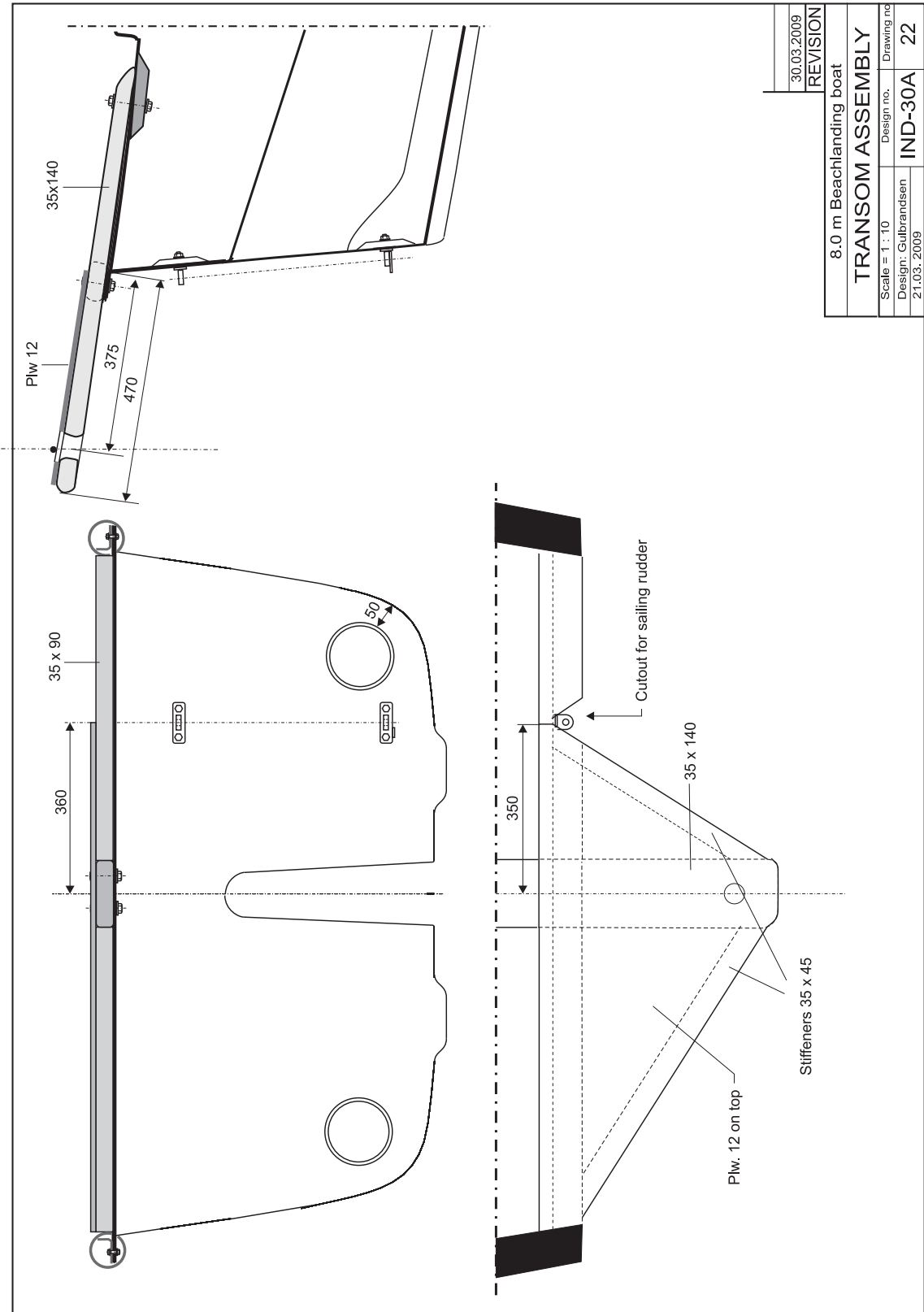
30.07.2009	REVISION
8.0 m Beachlanding boat	
RAIL	
Scale = 1 : 2	Design no.
Design: Gulbrandsen	IND-30A
27.03.2009	Drawing no.
	17

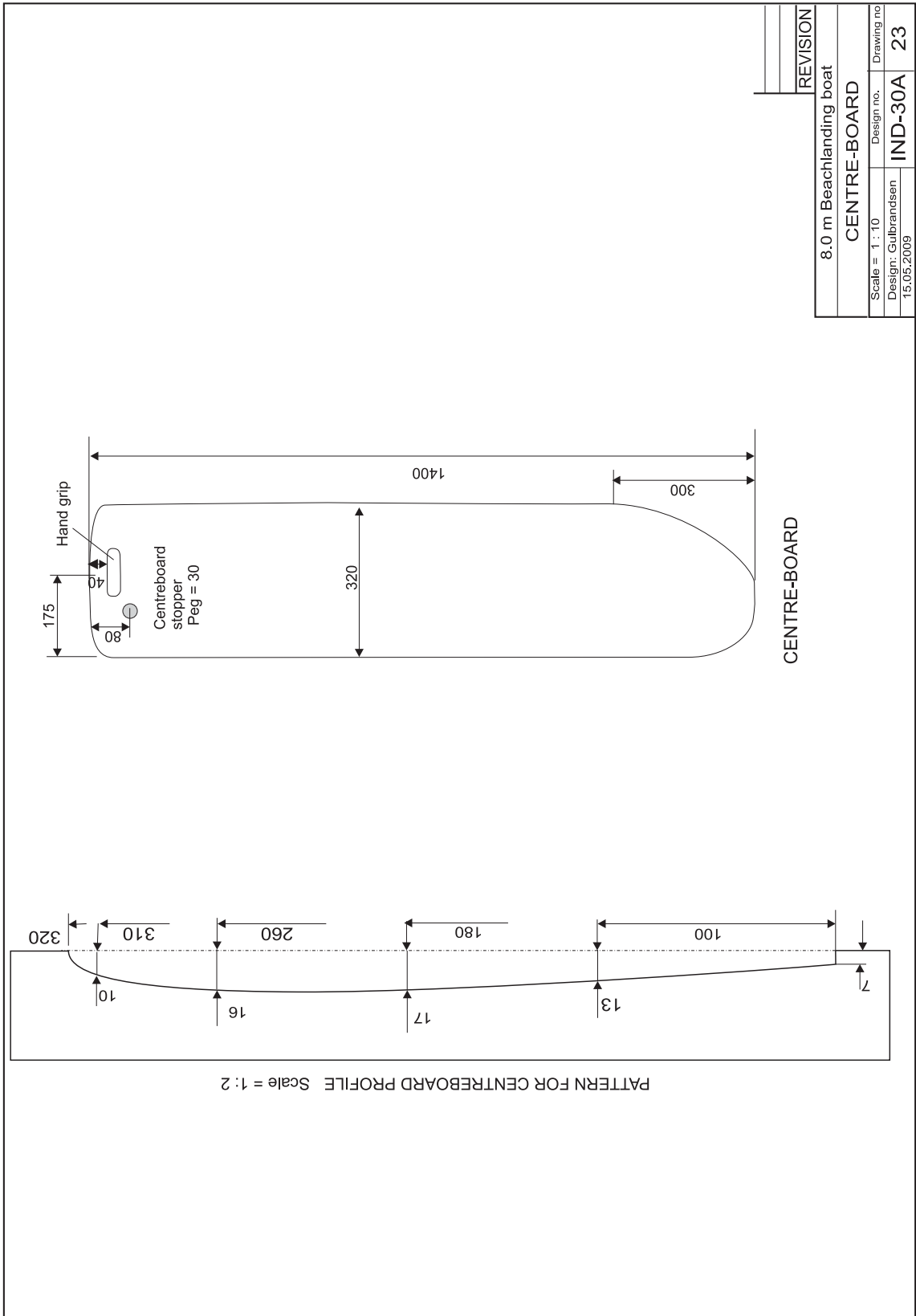




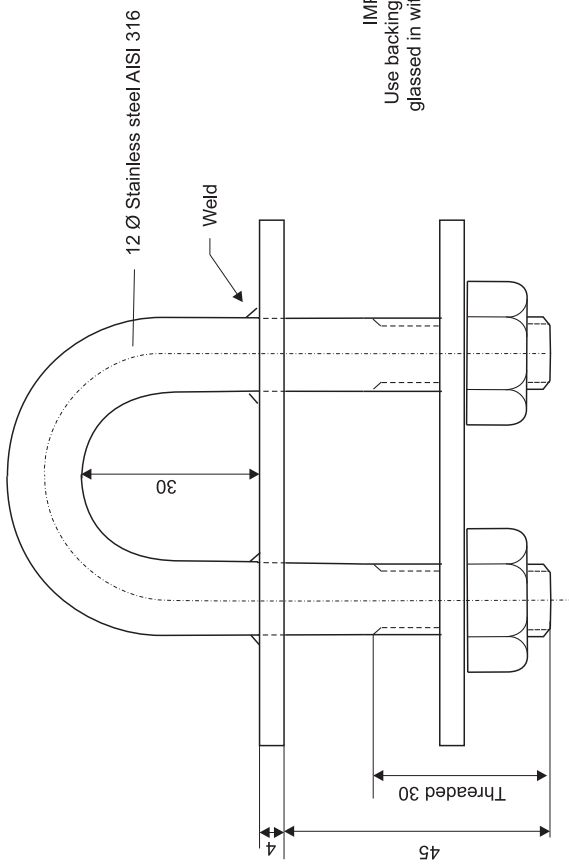




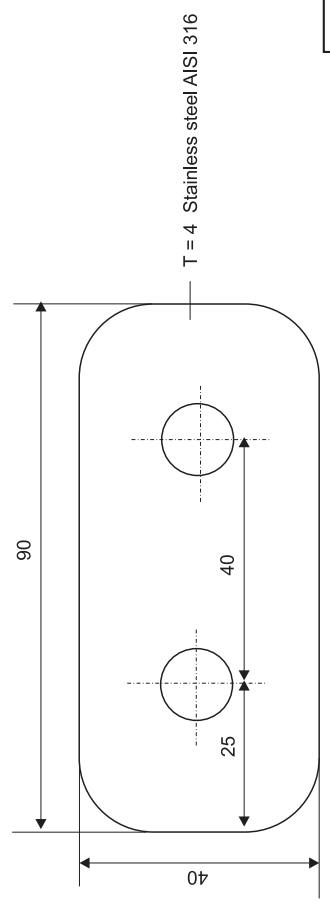




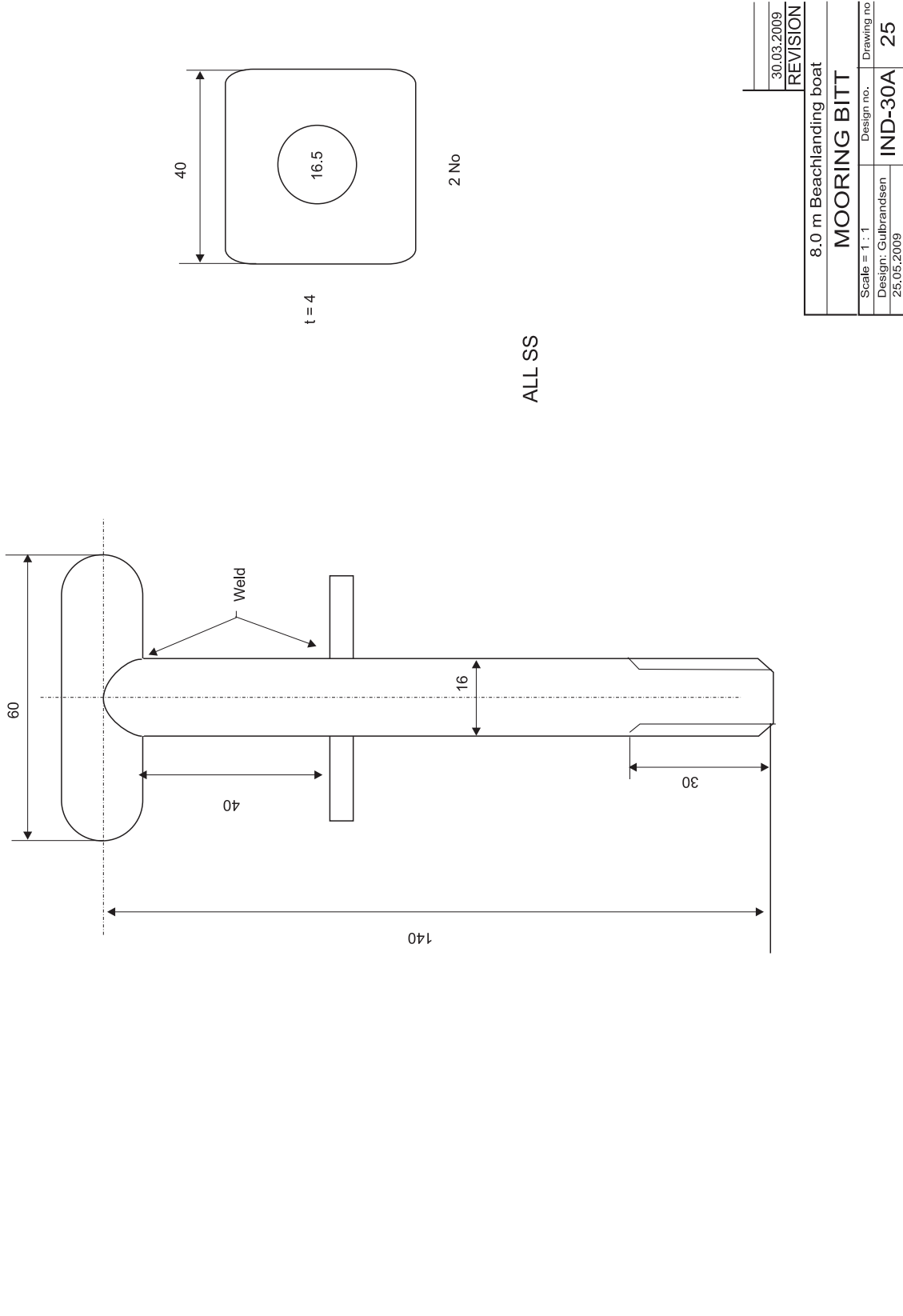




**IMPORTANT**  
 Use backing block 20 x 70 x 200  
 glassed in with CSM 450 g/m<sup>2</sup> x 4

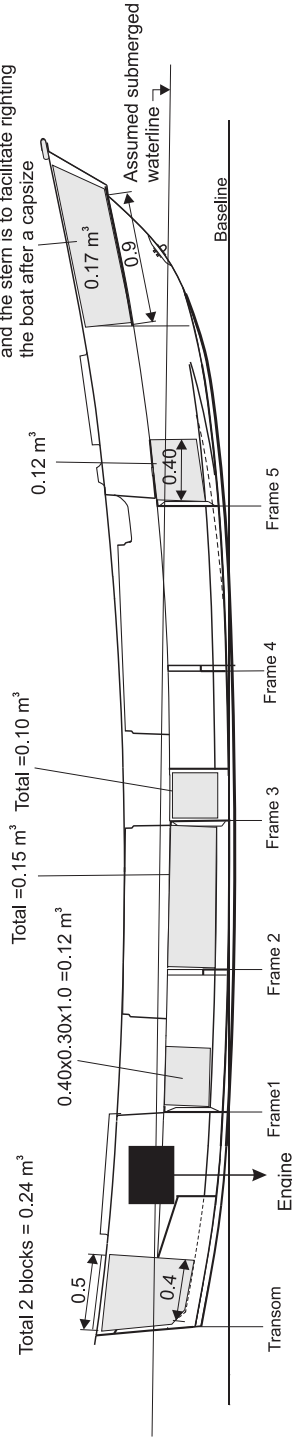


REVISION	
8.0 m Beachlanding boat	
<b>TOWING HOOK</b>	
Scale = 1 : 1	Design no.
Design: Gulbrandsen 26.03.2009	<b>IND-30A</b>
	Drawing no.
	<b>24</b>



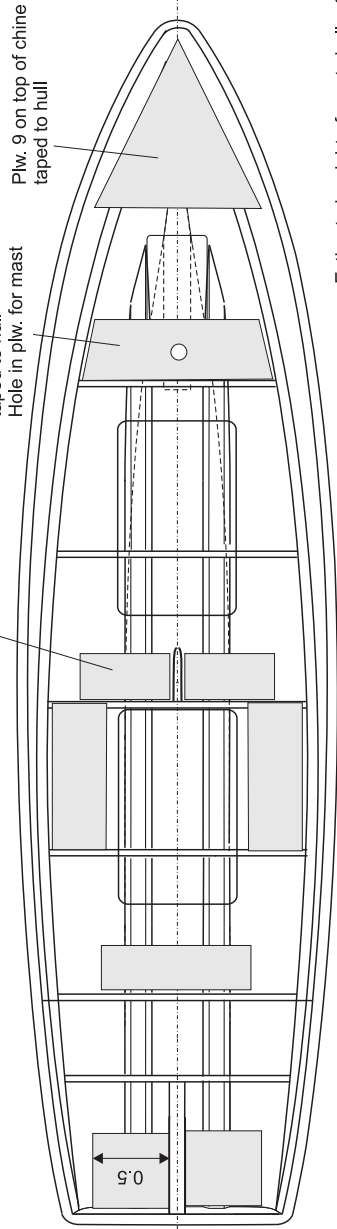
30.03.2009	REVISION
8.0 m Beachlanding boat	
<b>MOORING BITT</b>	
Scale = 1 : 1	Design no.
Design: Gulbrandsen	IND-30A
25.05.2009	25

The buoyancy blocks high up in the stern and the stern is to facilitate righting the boat after a capsizing



Plw. 9 on top of blocks taped to hull  
Hole in plw. for mast

0.3 x 0.3 x 0.6



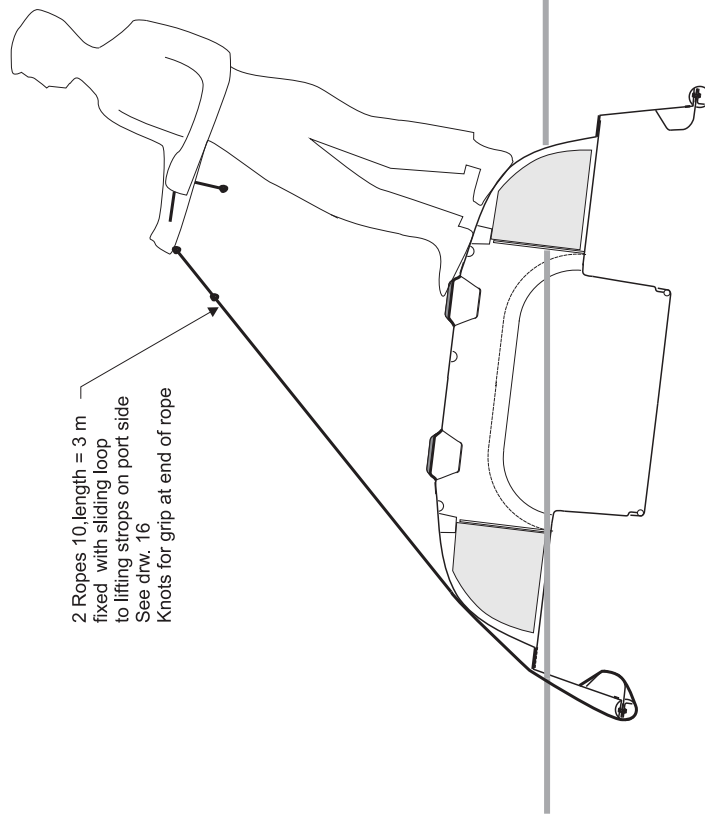
Estimated weight of empty hull = 650 kg  
Estimated weight of engine and installation = 150 kg  
Required buoyancy distributed with 20% margin:  
364 kg x 1.2 = 440 kg  
This is equivalent to 0.45 m³ in polystyrene buoyancy blocks

Required buoyancy concentrated for engine:  
113 kg x 1.2 = 135 kg  
This is equivalent to 0.14 m³ in polystyrene buoyancy blocks

Item	Weight in air kg	Buoyancy factor	Weight submerged kg
Hull above water (15%)	100		100
Hull submerged	550	0.33	182
Sinkers of fishing nets	50	0.50	25
Anchors	30	0.88	27
People - 4 x 75 kg	300	0.1	30
Total required buoyancy - distributed			364
Engine, concentrated	150	0.75	113

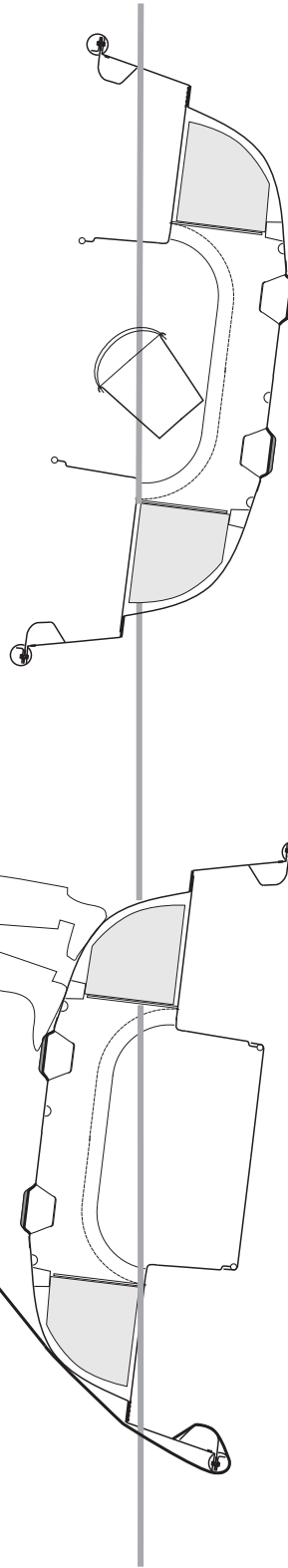
04.09.2009	REVISION
30.03.2009	

8.0 m Beachlanding boat	
<b>BUOYANCY BLOCKS</b>	
Scale = 1 : 40	Design no.
Design: Gulbrandsen	IND-30A
15.05.2009	26



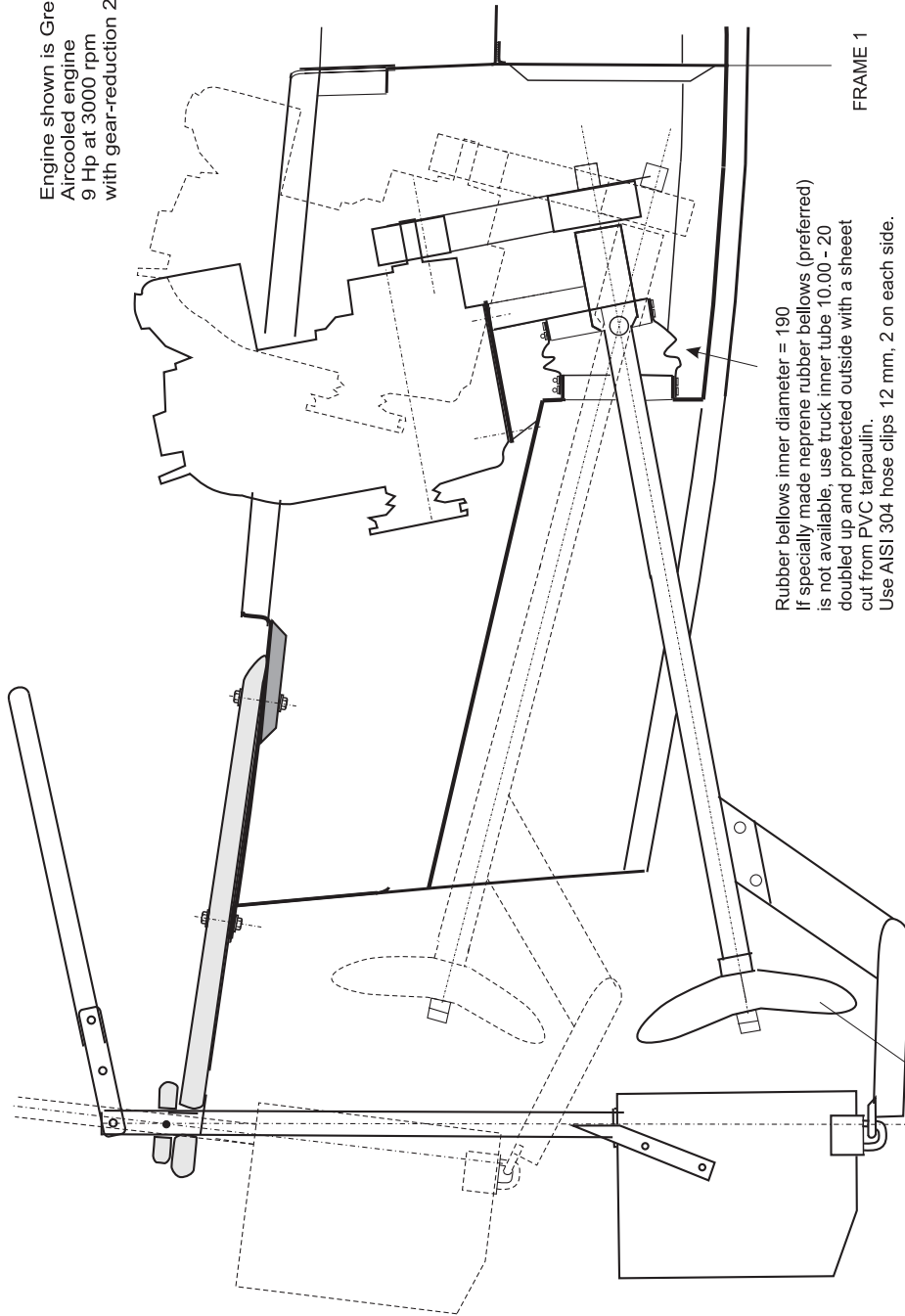
2 Ropes 10, length = 3 m  
 fixed with sliding loop  
 to lifting straps on port side  
 See drw. 16  
 Knots for grip at end of rope

With a plastic bucket  
 it is possible to bail out the water  
 on the inside of the hatches.  
 2 plastic buckets should always  
 be carried onboard



30.03.2009	REVISION
8.0 m Beachlanding boat	
<b>RIGHTING AFTER CAPSIZE</b>	
Scale = 1 : 40	Design no.
Design: Gulbrandsen 15.05.2009	<b>IND-30A</b>
	Drawing no.
	<b>27</b>

Engine shown is Greaves 510  
 Aircooled engine  
 9 Hp at 3000 rpm  
 with gear-reduction 2 : 1 built in



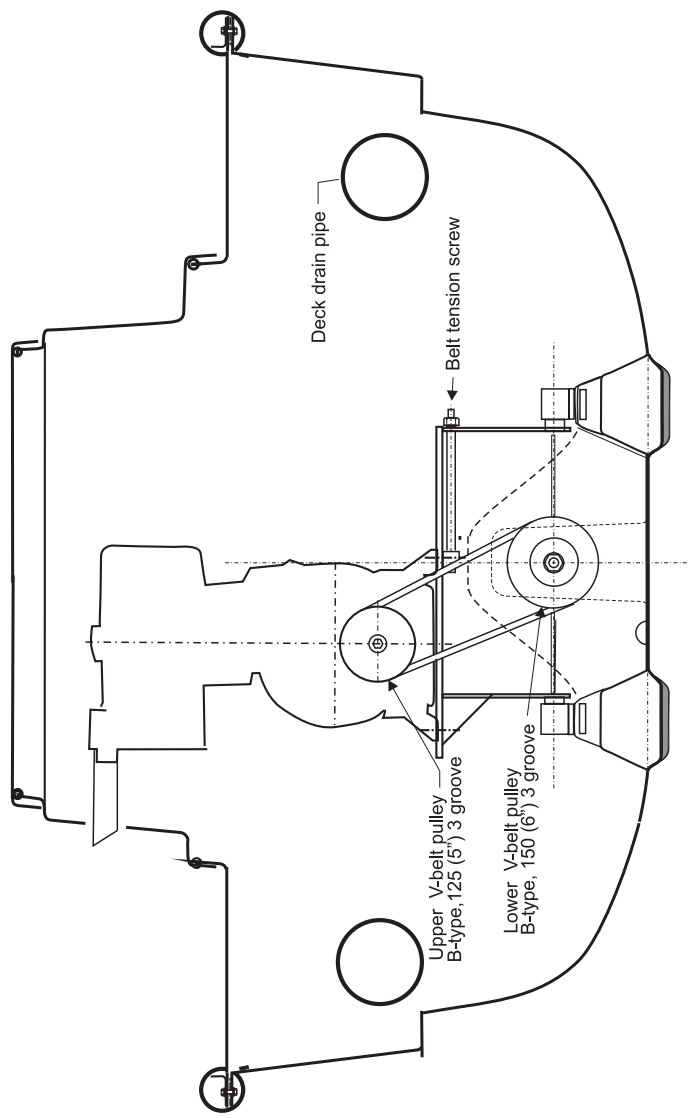
Rubber bellows inner diameter = 190  
 if specially made neprene rubber bellows (preferred)  
 is not available, use truck inner tube 10.00 - 20  
 doubled up and protected outside with a sheet  
 cut from PVC tarpaulin.  
 Use AISI 304 hose clips 12 mm, 2 on each side.

FRAME 1

Propeller bronze 3 blade, left handed  
 Diameter = 380 (15 inch)  
 Pitch = 230 (9 inch)

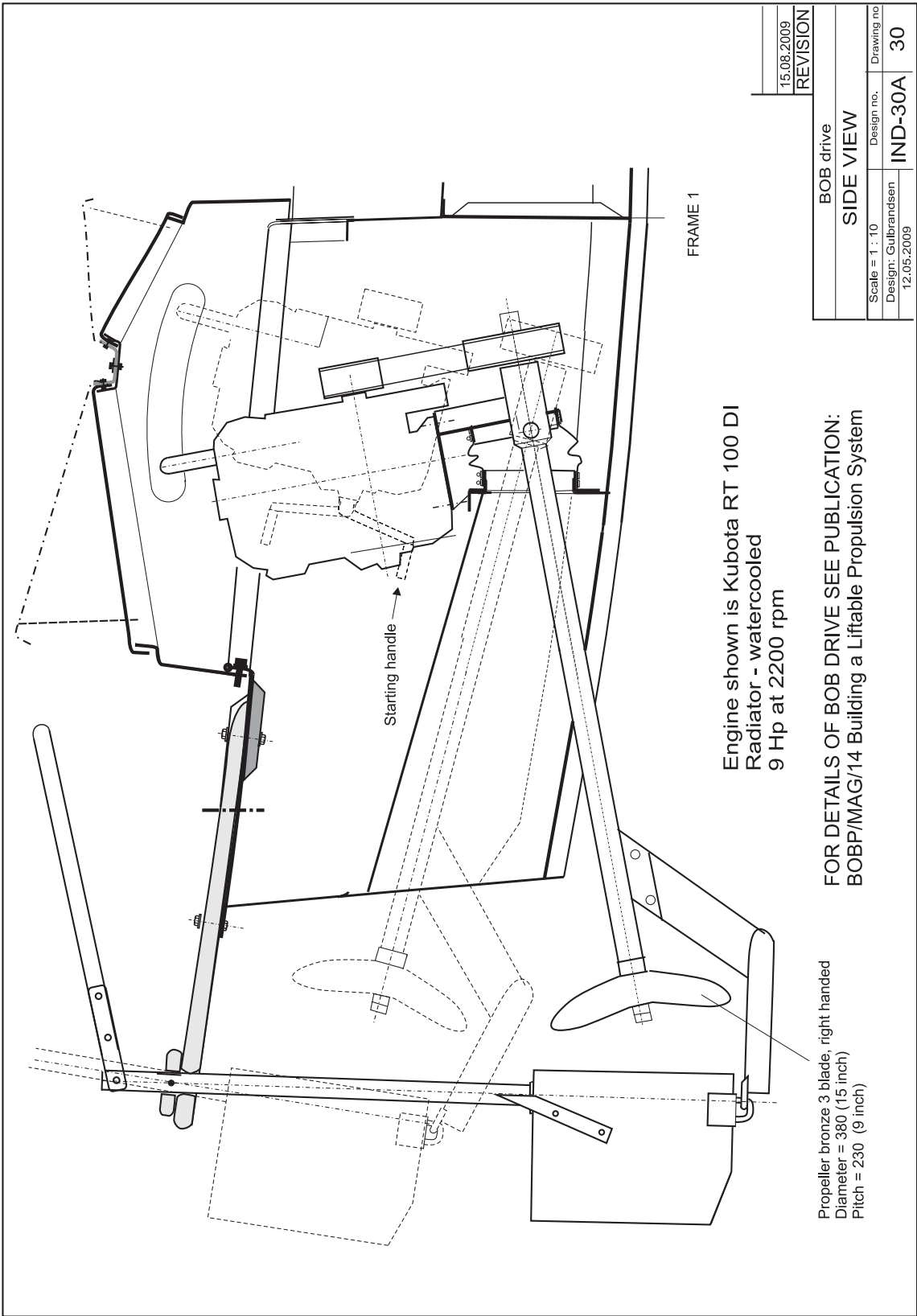
REVISION	
	BOB drive - Greaves 10 hp
<b>ENGINE INSTALLATION A</b>	
Scale = 1 : 10	Drawing no.
Design: Gulbrandsen	<b>IND-30A</b>
12.08.2009	<b>28</b>

**FOR DETAILS OF BOB DRIVE SEE PUBLICATION:  
 BOBP/MAG/14 Building a Litable Propulsion System**



Engine shown is Greaves 510  
 Aircooled engine  
 9 Hp at 3000 rpm  
 with gear-reduction 2 : 1 built in

REVISION	
8.0 m Beachlanding boat	
<b>ENGINE INSTALLATION A</b>	
Scale = 1 : 10	Drawing no.
Design: Gulbrandsen	<b>IND-30A</b>
25.08.2009	<b>29</b>



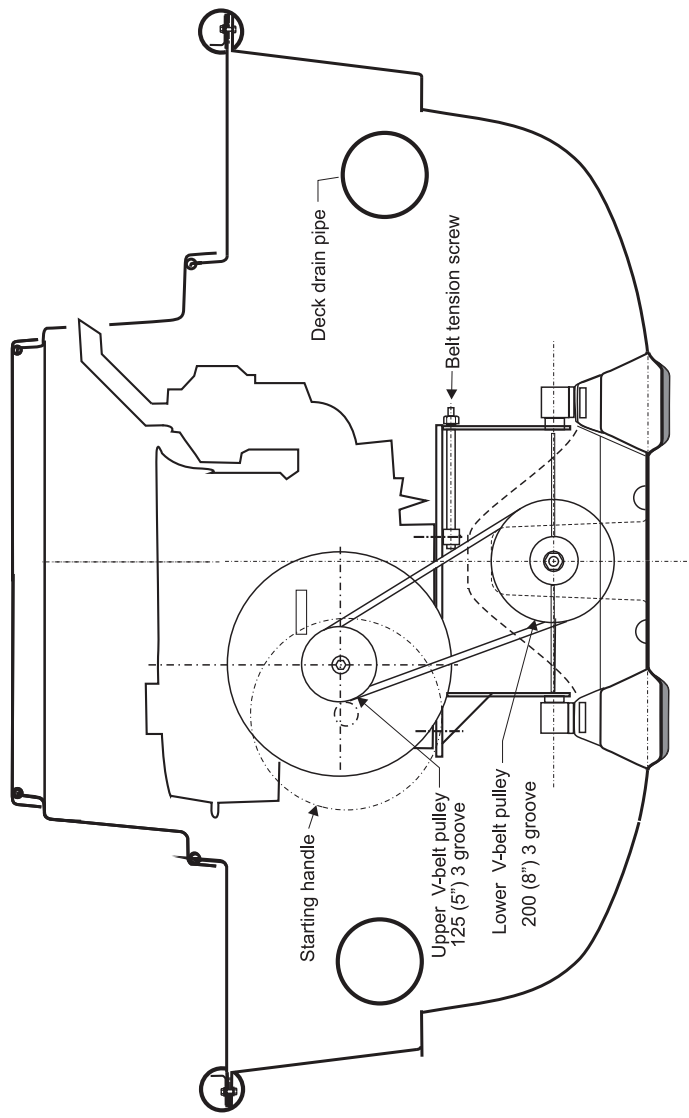
FRAME 1

Engine shown is Kubota RT 100 DI  
 Radiator - watercooled  
 9 Hp at 2200 rpm

Propeller bronze 3 blade, right handed  
 Diameter = 380 (15 inch)  
 Pitch = 230 (9 inch)

FOR DETAILS OF BOB DRIVE SEE PUBLICATION:  
 BOBP/MAG/14 Building a Liftable Propulsion System

15.08.2009	REVISION
BOB drive	
SIDE VIEW	
Scale = 1 : 10	Design no.
Design: Gulbrandsen 12.05.2009	IND-30A
	Drawing no.
	30



Engine shown is Kubota RT 100 DI  
 Radiator - watercooled engine  
 9 Hp at 2200 rpm

			REVISION
8.0 m Beachlanding boat			
<b>ENGINE INSTALLATION B</b>			
Scale = 1 : 10	Design no.	Drawing no.	
Design: Gulbrandsen 25.08.2009	<b>IND-30A</b>	<b>31</b>	





