

KEY PLAN, CL ELEVATION  
LOOKING PORT, NTS

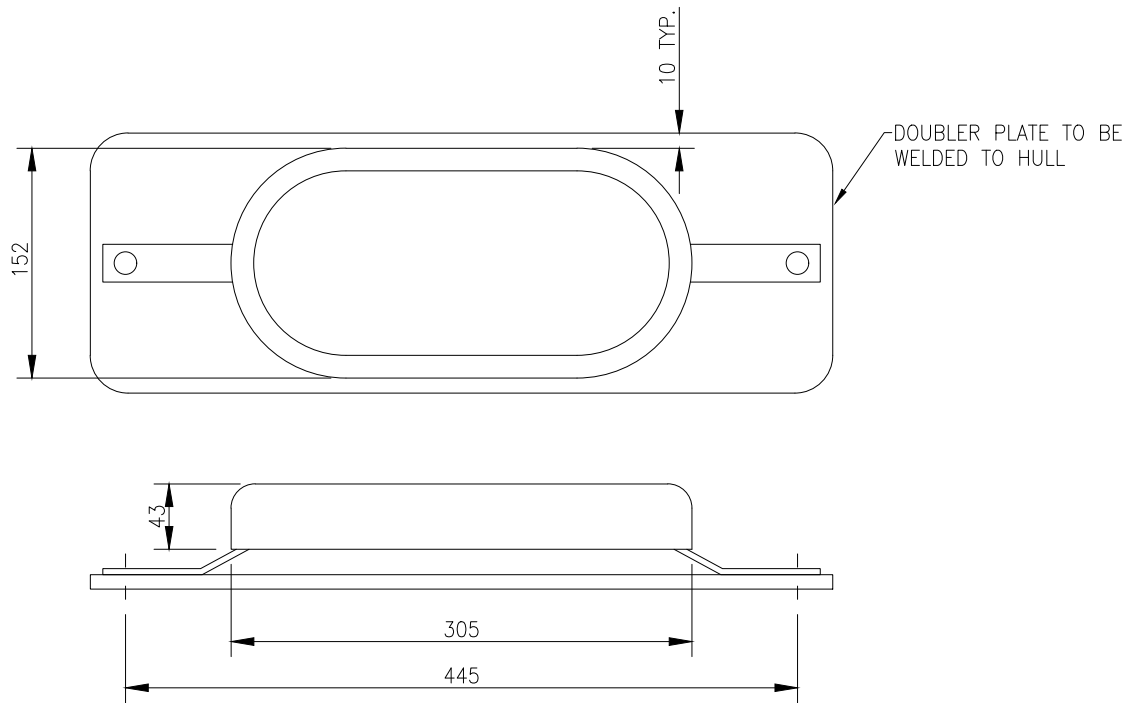
NOTES:

1. FINAL OUTFIT SELECTION IS THE RESPONSIBILITY OF THE SHIPYARD. DETAILS FOR THE INDIVIDUAL ITEMS SHOWN MAY VARY IF OTHER EQUIPMENT MAKES OR MODELS ARE SELECTED.
2. ANODES SHOULD BE BOLT-ON ZINC SACRIFICIAL ANODES. 1/2" STAINLESS STEEL STUDS AND NUTS FOR SPC00006 BY SHIPYARD. 7/16" STAINLESS STEEL STUDS AND NUTS FOR SPC00007 BY SHIPYARD.
3. ANODES SHOULD BE MOUNTED IN A PROTECTED MANNER SUCH AS BETWEEN STIFFENERS.
4. 10MM DOUBLER PLATES ARE CONTINUOUSLY WELDED TO THE HULL IN WAY OF ANODES.
5. ANODE QUANTITY WAS CONFIRMED WITH ANODE VENDOR AND BASED ON VENDOR SUPPLY OUTPUT INFORMATION ON THE EXPOSED ANODE AND SELECTED ANODE MASS.
6. DISTRIBUTION OF ANODES OVER THE STRUCTURE FOR ADEQUATE PROTECTION WAS CONFIRMED WITH ANODE VENDOR.
7. HULL, RUDDER, AND PROPELLER SHAFT IS PROTECTED VIA AN ICCP SYSTEM. PROPELLER HAS ANODES AS SPECIFIED BY PROPELLER VENDOR.
8. DETAILED LOCATIONS OF ANODES WITHIN TANKS WAS DETERMINED DURING PRODUCTION DESIGN.
9. THE PROXIMITY OF THE BILGE KEEL WAS CONSIDERED ESPECIALLY REGARDING THE ANODE SHIELDING FEATURE. SEE REF# 4, 5 & 6 FOR PRIMARY AND SECONDARY DI-ELECTRIC SHIELD AREAS.
10. SHIPYARD TO BURN ELLIPSE IN HULL PLATE TO SUIT INSIDE PROFILE OF ANODE'S COMPENSATING RING AND WELD IN POSITION. SEE REF#4.
11. ALL BURN AND WELDING WORK FOR INSTALLATION OF REFERENCE ELECTRODE TO BE CARRIED BY SHIPYARD. SEE REF#4.

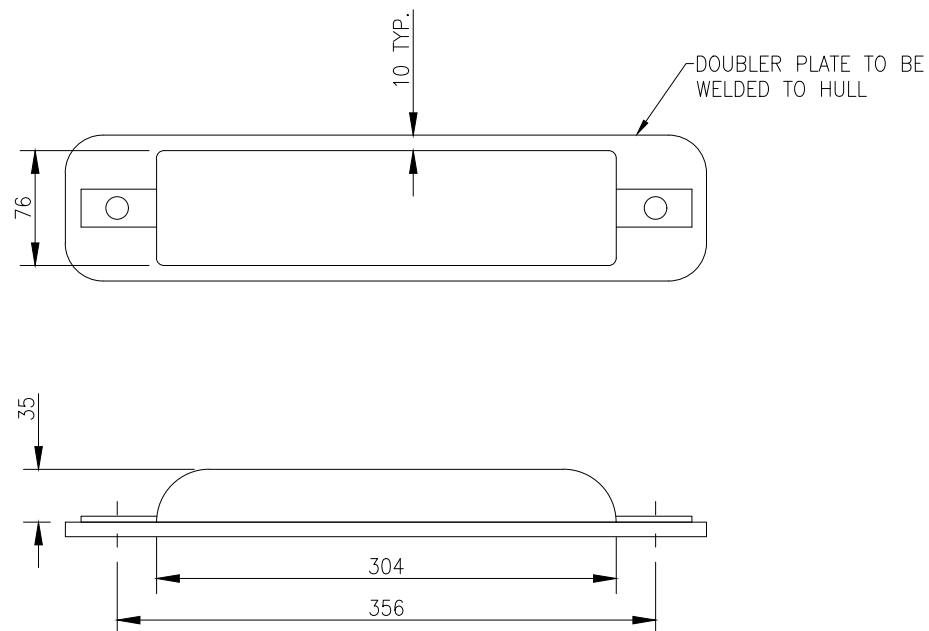
CLASSIFICATION AND NOTATIONS:

LLOYD'S REGISTER, #100A1 FISHERIES RESEARCH VESSEL, #LMC,  
UMS, NAV1 1B5, ICE CLASS PC7

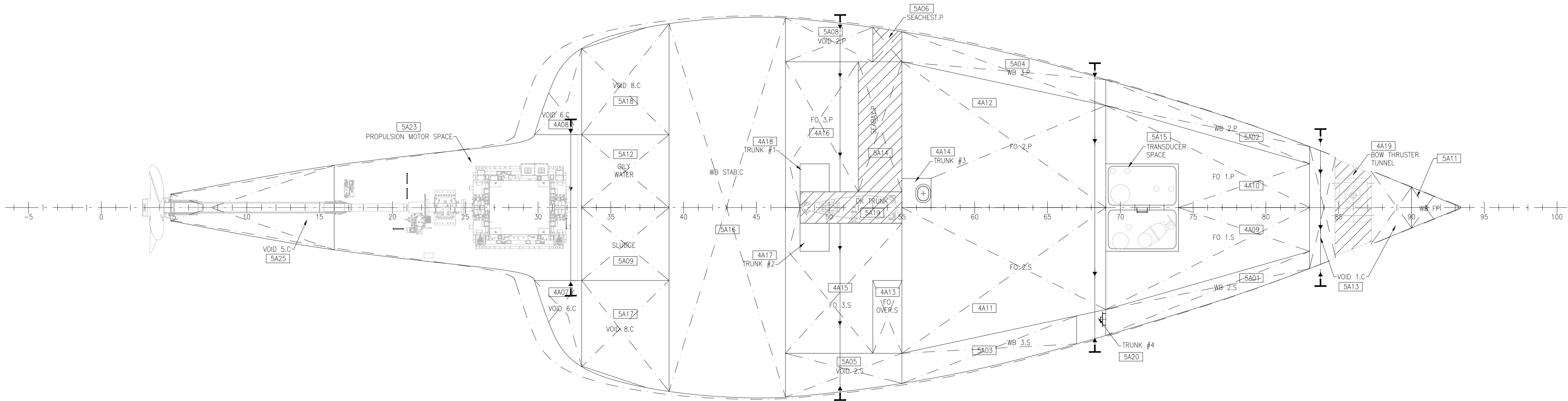
ITEM	TANK DESCRIPTION	LOCATION (FRAMES)	WETTED SURFACE AREA (m²)	SERVICE LIFE (Year)	SEA WATER IMMERSION FACTOR (%)	CAPACITY FACTOR (%)	ANODE MATERIAL	THEORETICAL CAPACITY (Ampere.Hours/kg)	CURRENT DENSITY BASED ON SERVICE (mA/m²)	ANODE TOTAL MASS REQUIRED (kg)	MASS OF EACH ANODE (kg)	QUANTITY OF ANODES	ANODE MODEL	VSY PART #
REF: SNAME T&R R-21: FUNDAMENTALS OF CATHODIC PROTECTION FOR MARINE SERVICE														
ANODE MASS REQUIRED = ( WETTED SURFACE AREA X CURRENT DENSITY X SEA WATER IMMERSION FACTOR X HOURS/YEAR (8760) X SERVICE LIFE ) / ( AMPERES PER UNIT WEIGHT X CAPACITY FACTOR X 1000 )														
WATER BALLAST TANKS CATHODIC PROTECTION														
1	DROP KEEL TRUNK (UP TO WL)		67.65	4	100	90	ZINC	780	22	74	13	8	MARTYR CM812SZ	SPC00006
2	SEACHEST		13.594	4	100	90	ZINC	780	22	15	4.5	4	MARTYR CMZ03SZ	SPC00007
3	SEABAY		42.938	4	50	90	ZINC	780	11	12	4.5	3	MARTYR CMZ03SZ	SPC00007
	TOTAL ANODE WEIGHT									101				



ANODE DETAIL  
SPC00006  
SCALE 1:5



ANODE DETAIL  
SPC00007  
SCALE 1:5



SPACES PROTECTED WITH SACRIFICIAL ANODES  
PLAN VIEW, BELOW TANK TOP  
2000 ABL  
SCALE 1:100

REFERENCE DRAWINGS		
Ref.	Dwg. No.	Title
1	190-601.00-001	GENERAL ARRANGEMENT
2	190-101.00-009	PROFILES AND DECKS (MID ZONE)
3	190-163.10-001	SEA BAYS AND SEA CHESTS
4	190-A03.18-0042	CATHELCO C-SHIELD ICCP SYSTEM INSTALLATION AND INSTRUCTION MANUAL
5	190-A06.27-0001	ICCP ANODE INSTALLATION
6	190-A06.27-0002	ICCP REFERENCE ELECTRODE INSTALLATION
7	190-HG201-OFMG-8002AA	ANODES @ SHELL
8	190-HG301-OFHB-8009AA	ANODES INSTALL

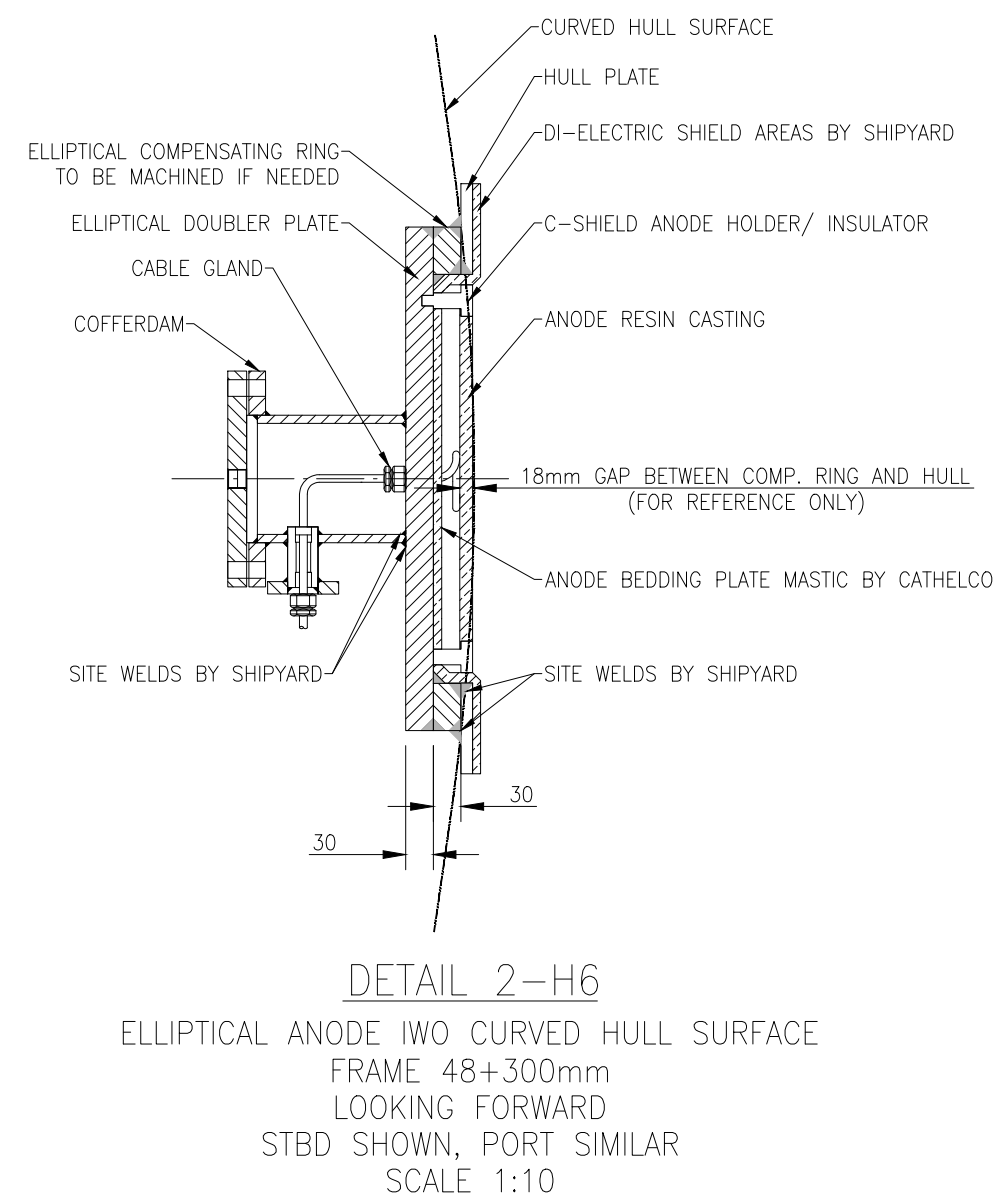
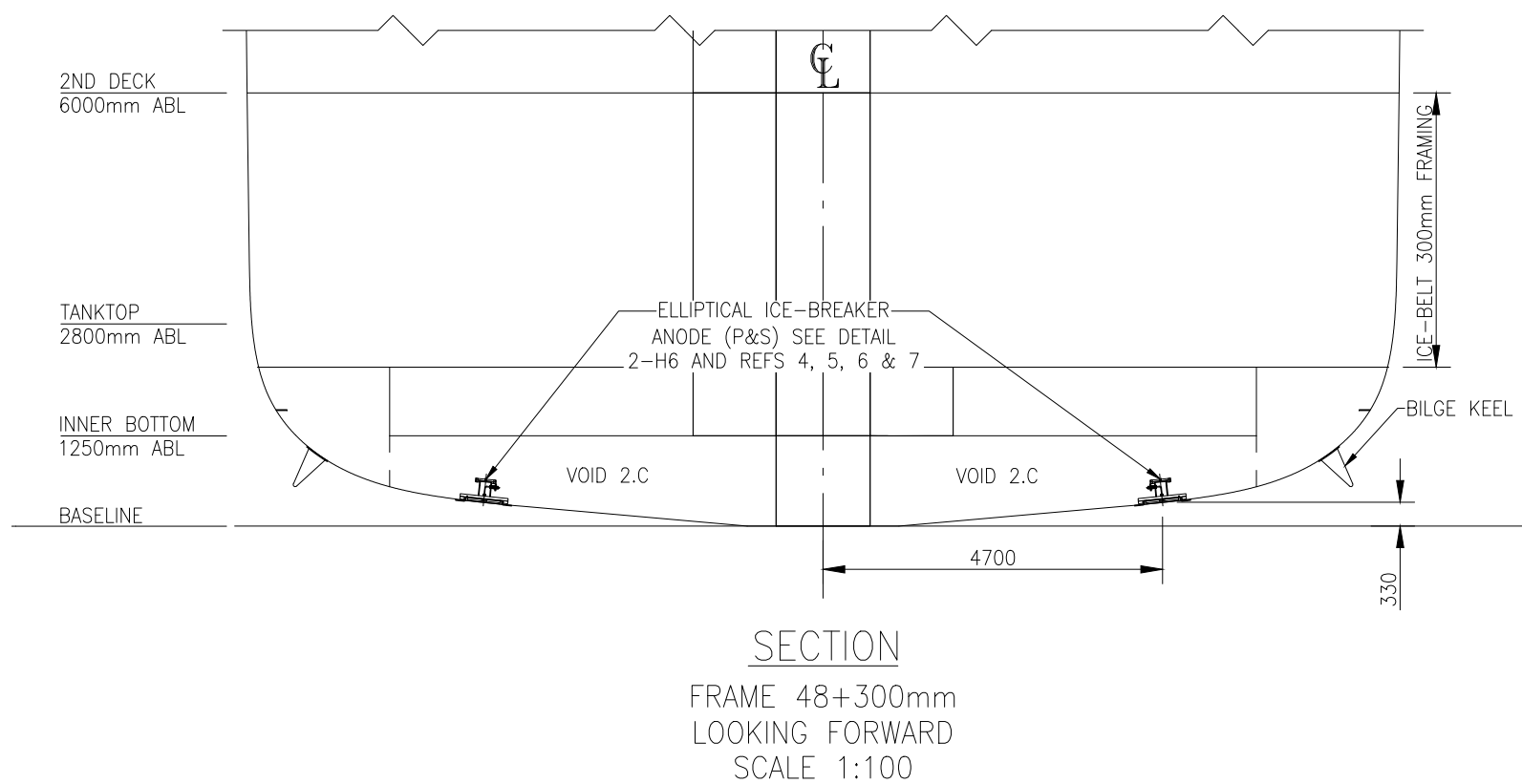
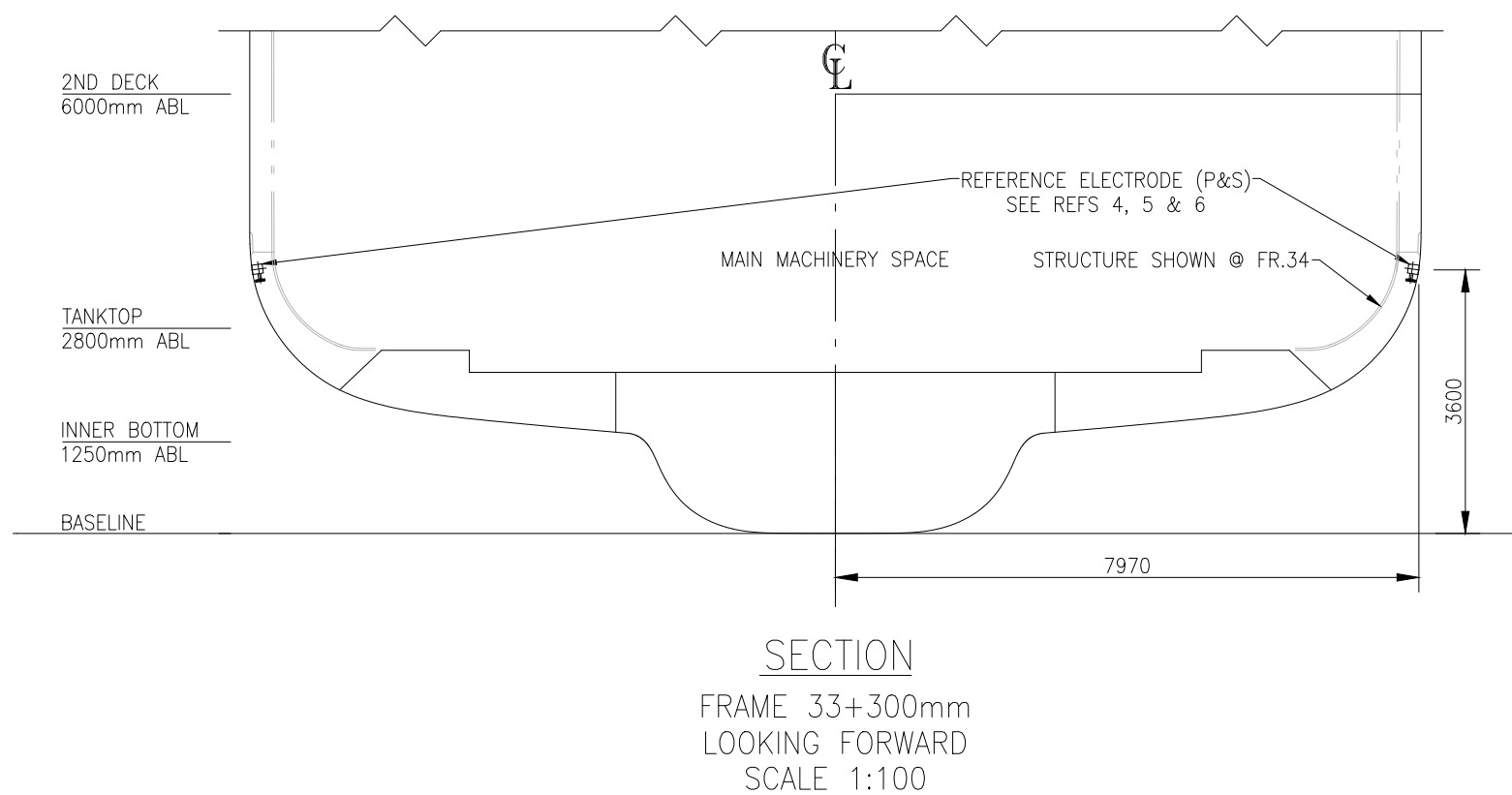
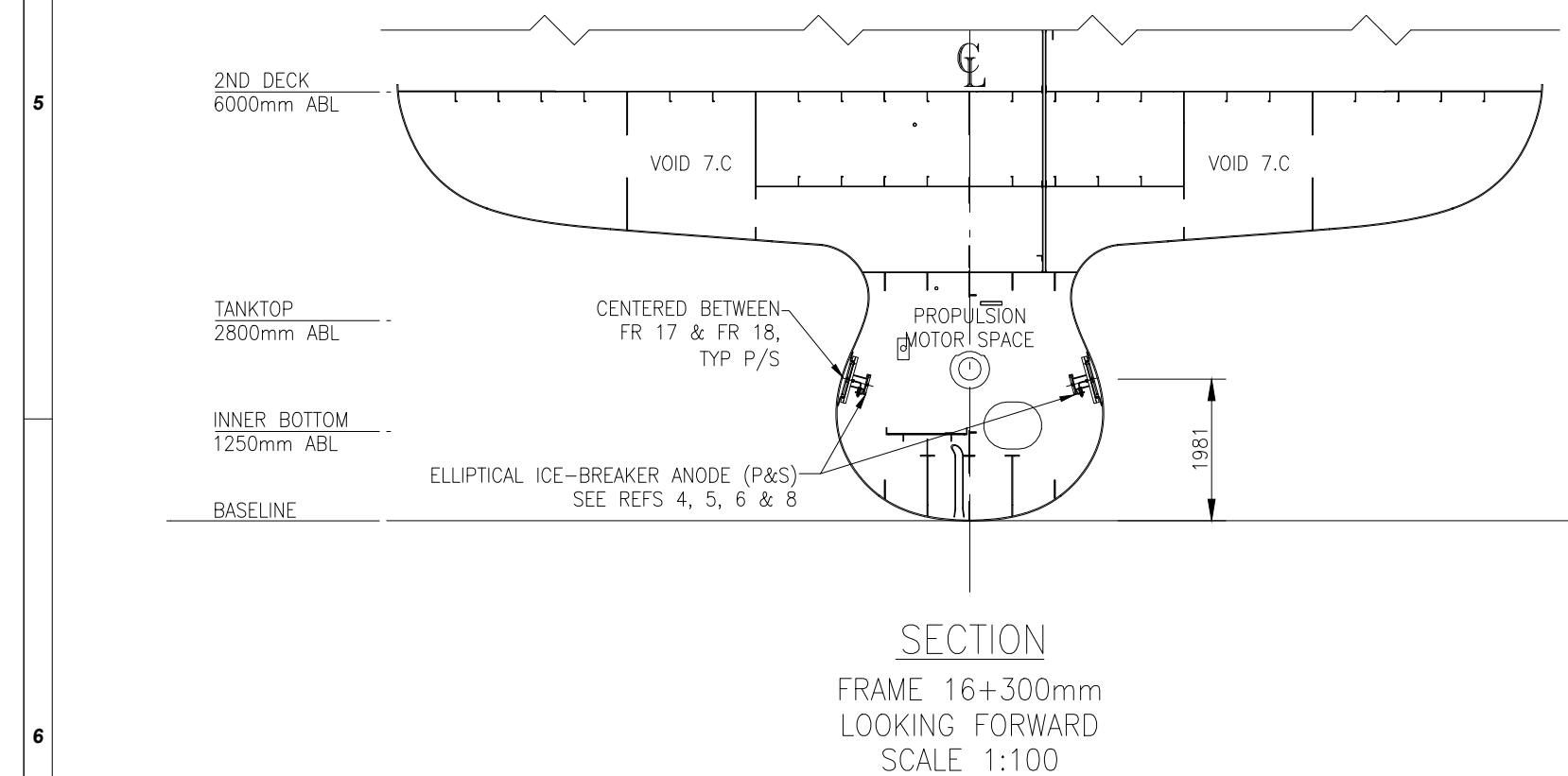
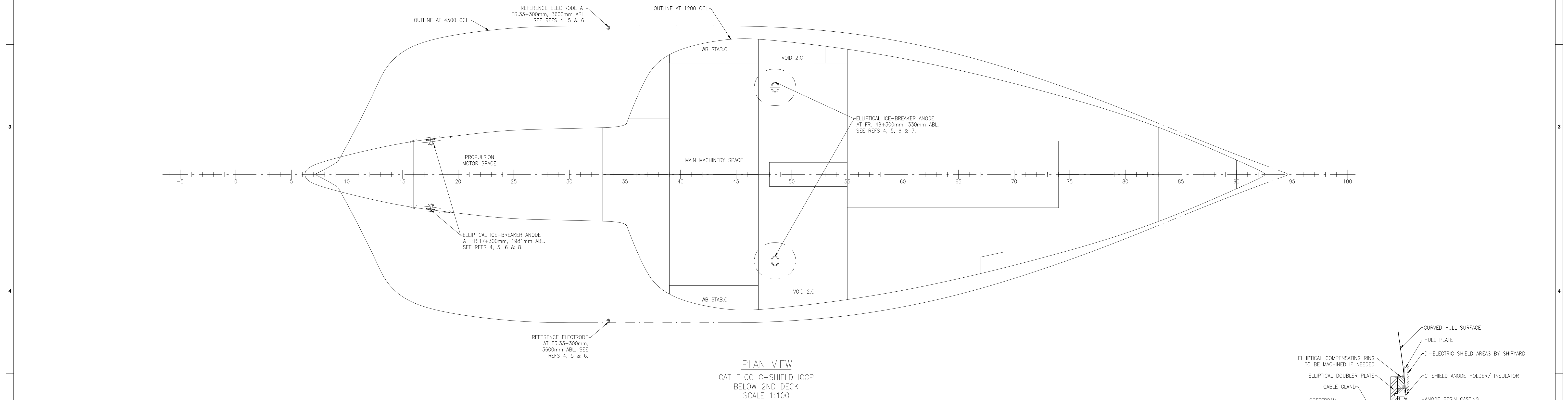
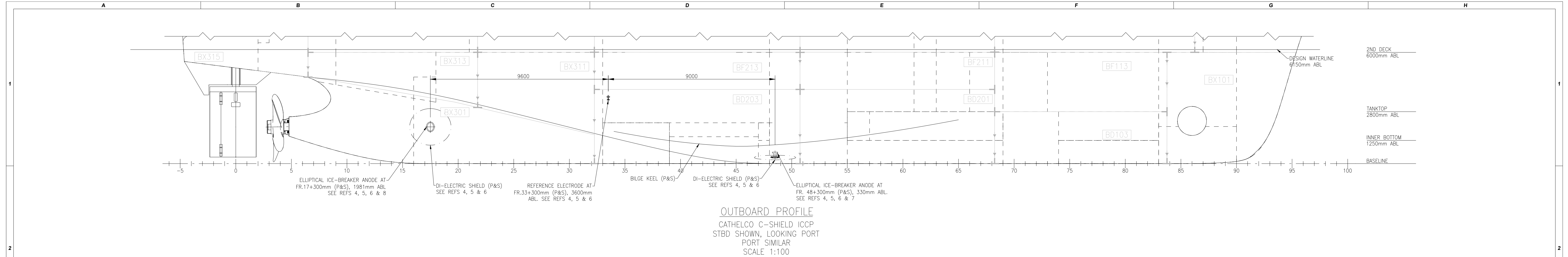
drawing file: 190-633.00-001 Cathodic Protection SH1105 As-Built.dwg Plotted: Mar 25, 2019 - 12:59pm

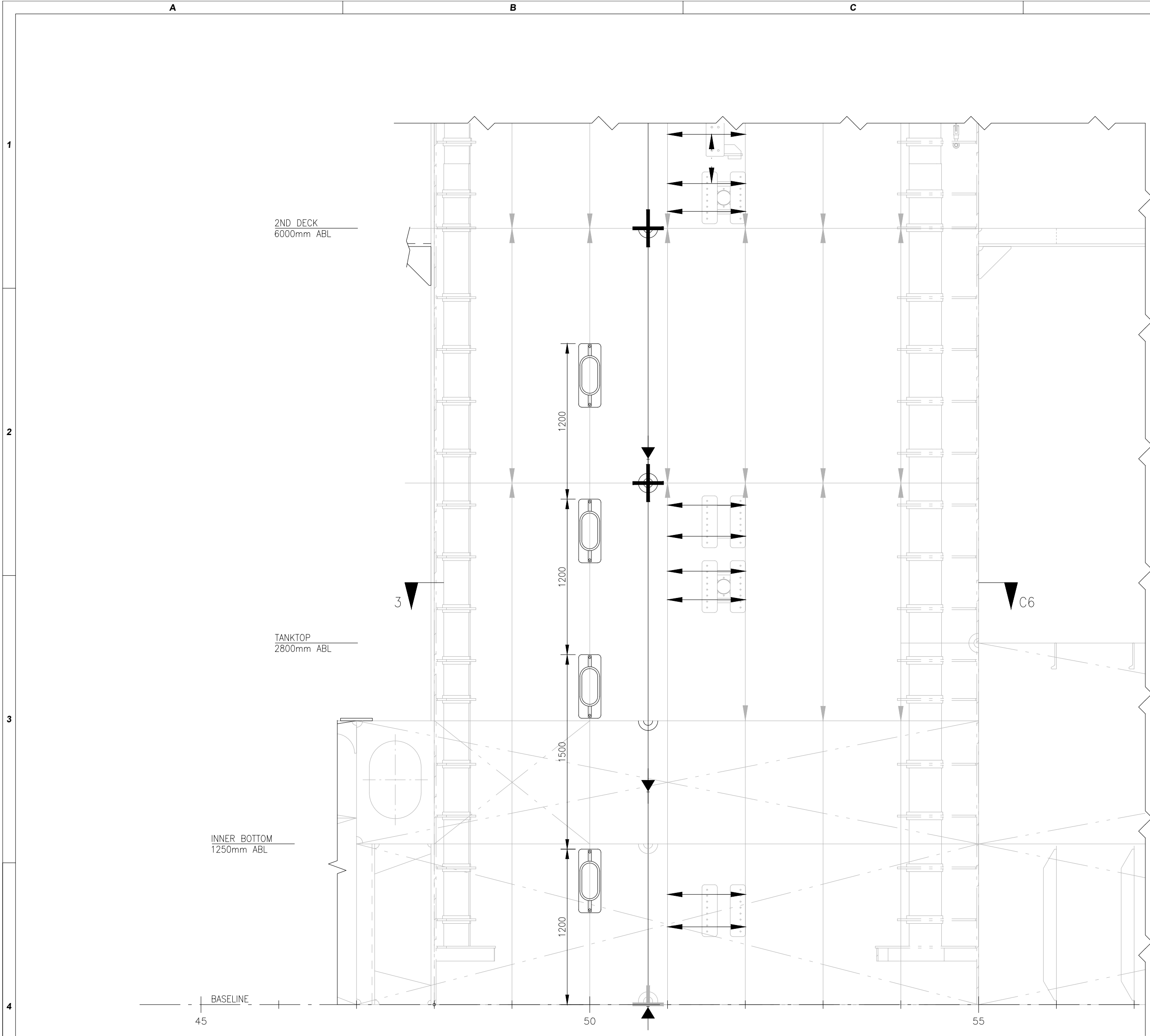
A/B	21MAR19	AS-BUILT	JW/MA	MT	MT
Rev	Date	Description	Reviser	Checked	Approved
 Vancouver Shipyards Co. Ltd. 501 Pemberton Avenue, North Vancouver, B.C. V7P 2R2 Tel: (604) 888-6361			 WARD Marine Inc. Vancouver BC Tel: +1 604 216 3300		
Project No. 190			Name Of Vessel OFSV		
Hull No. 190			Owner CCG		
Description of Project OFFSHORE FISHERIES SCIENCE VESSEL			Title CATHODIC PROTECTION		
Drawn: WHF	Date: 01AUG14	Checkd: MI	Date: 06AUG14	Approved: MT	Date: 21MAR19
Drawing #	190-633.00-001	Sheet No.	1 of 5	Rev. No.	A/B

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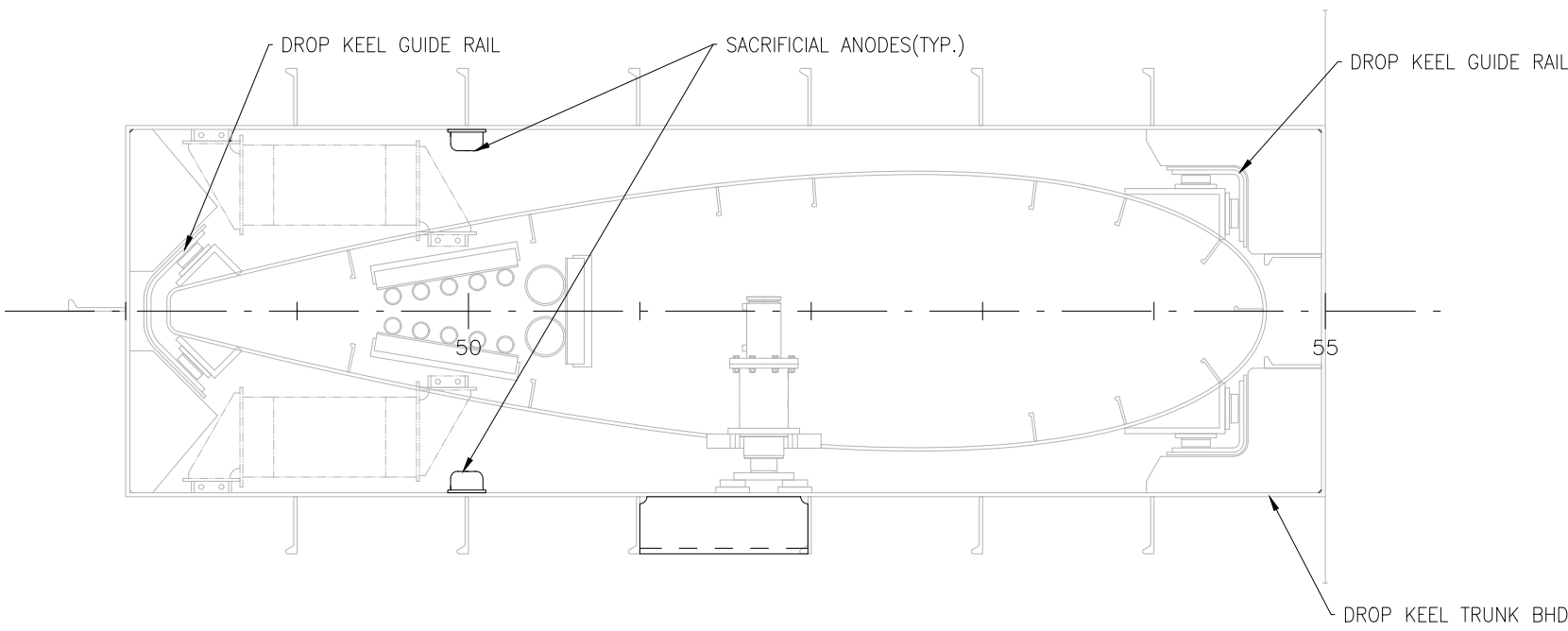
WARD Drawing # 190-633-001

D-Metric

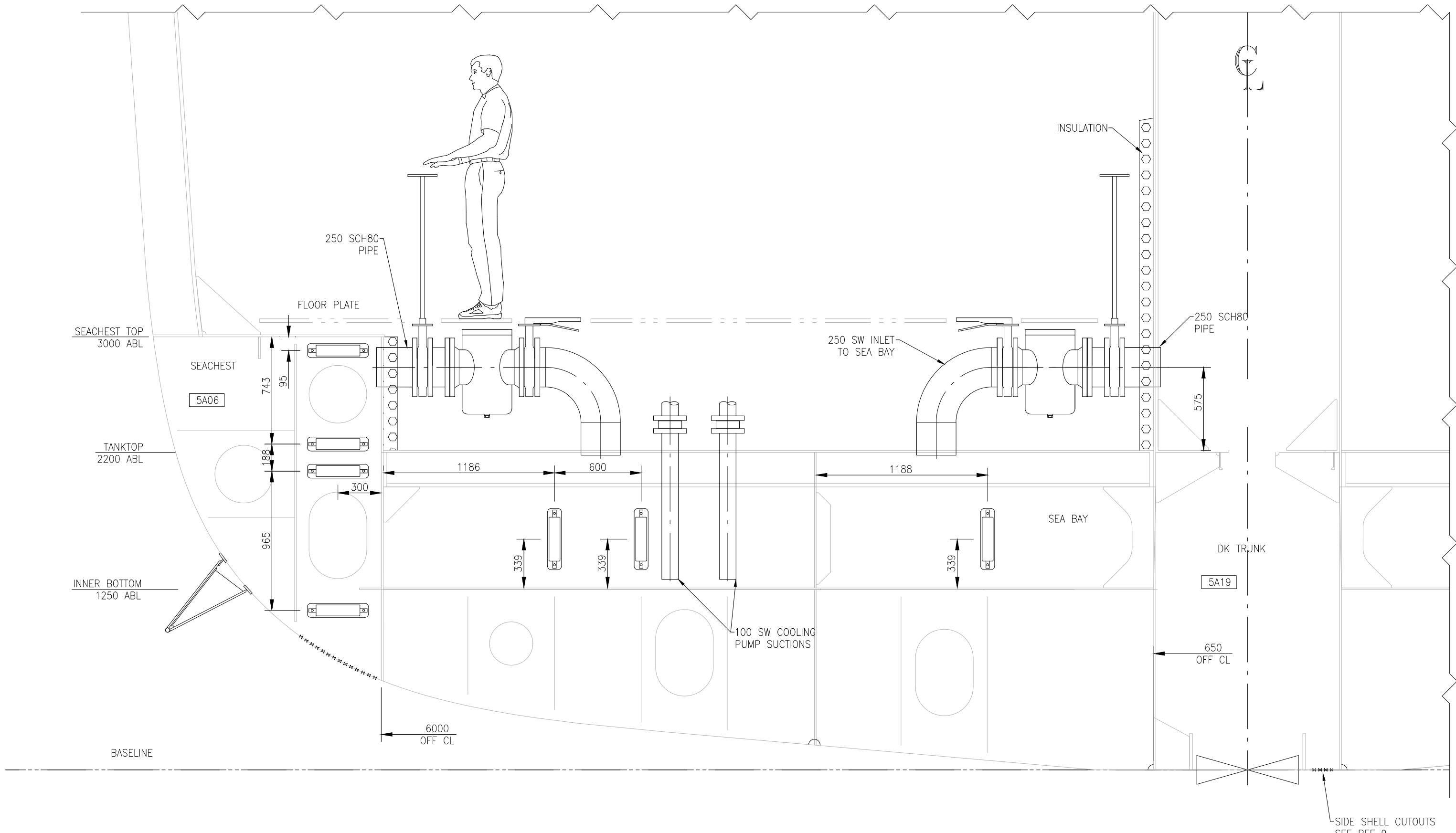




ELEVATION OF DROP KEEL SIDE BHD  
STBD SIDE SHOWN LOOKING PORT  
PORT SIDE SIMILAR  
SCALE 1:25



PLAN 3-C6  
TYPICAL DETAIL  
SCALE 1:25



FRAME 54  
LOOKING FORWARD AT FR.54  
SCALE 1:25





