

GENERAL NOTES:

1. THE VESSEL SHALL BE CLASSIFIED UNDER ABS MALTESE CROSS A1, CIRCLE E, UNRESTRICTED SERVICE AND ICE CLASS CO.
2. ALL MATERIAL SHALL BE ORDINARY STRENGTH STEEL, GRADE A, UNLESS OTHERWISE NOTED.
3. DEEP TANK OVERFLOW HEIGHTS ARE ASSUMED AT THREE FEET ABOVE THE WEATHER DECK ABOVE THE TANK.
4. WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE NOAA "STATEMENT OF REQUIREMENTS" AND ACCEPTABLE COMMERCIAL MARINE QUALITY.
5. ALL WELDING SHALL BE IN ACCORDANCE WITH REFERENCE NO. 2.
6. END CONNECTION DETAILS SHALL BE IN ACCORDANCE WITH HMI STANDARDS, REFERENCE NO. 8.
7. STIFFENER & GIRDER END CONNECTIONS SHALL BE DESIGNATED AS FOLLOWS:  
"EC-S": CUT MEMBER ONE INCH SHORT  
"EC-W": WEB IS CONNECTED  
"EC-F": FULL CONNECTION - WEB AND FLANGE STRENGTH MAINTAINED.  
"EC-A": EFFECTIVE BRACKET PER ABS RULES, PART 3 SECTION 2.5.3
8. UNLESS OTHERWISE NOTED, ALL END CONNECTIONS SHALL BE "EC-F".
9. COPIES, SNIPES AND DRAINS SHALL BE IN ACCORDANCE WITH HMI STANDARDS.
10. PLATES AND SHAPES ARE IN IMPERIAL UNITS. DIMENSIONS ARE IN METRIC UNITS.
11. FRAME SPACING = 600
12. GIRDERS SHALL BE FITTED WITH TRIPPING BRACKETS AT 3000 OR MAX. OF 5 FRAME SPACING.
13. OIL AND WATER STOPS MUST BE PROVIDED AT THE ENDS OF TANK BOUNDARY PLATING AND IN CONTINUOUS FRAMING EXTENDING THROUGH TANK BOUNDARIES. FOR ADJACENT TANKS, STOPS MUST BE PROVIDED ON BOTH SIDES OF THEIR COMMON BOUNDARIES.
14. CORNER RADIUS OF OPENINGS IN DECKS AND SHELL MUST BE GENERALLY 1/8 x TRANSVERSE DIMENSION OF OPENING, WITH A MINIMUM OF 150 AND A MAXIMUM OF 600. ON MAIN TRANSVERSE BULKHEADS, CORNER RADIUS MUST BE 1/20 x VERTICAL DIMENSION WITH A MINIMUM OF 150.
15. CENTERBOARD TRUNK SCANTLINGS & END CONNECTION TYPES TO MAIN HULL STRUCTURE PROVIDED IN REF # 14

FUME-TIGHT (FT) BULKHEAD DETAILS

LOCATION	ORIENTATION	STIFFENER SPACING (mm)	PLATE THICKNEES (in)	STIFFENER TYPE	END CONN. TOP	END CONN. BOTTOM
TANK TOP	TRANSVERSE	625	5/16	L4x3x1/4	S	S
TANK TOP	LONG'L	600	5/16	L4x3x1/4	S	S
2ND DECK	TRANSVERSE	625	5/16	L3x2x1/4	S	S
2ND DECK	LONG'L	600	5/16	L3x2x1/4	S	S
MAIN DECK	TRANSVERSE	625	1/4	L3x2x1/4	S	S
MAIN DECK	LONG'L	600	1/4	L3x2x1/4	S	S
STAIRWELLS	TRANSVERSE	625	1/4	L3x2x1/4	S	S
STAIRWELLS	LONG'L	600	1/4	L3x2x1/4	S	S

THIS TABLE IS APPLICABLE THROUGHOUT THE VESSEL U.N.O.

REVISIONS CONT'D

REV	ZONE	DESCRIPTION	DATE	APPROVED
10		1. SH 1, THIS REVISION REFLECTS AS-BUILT CONDITIONS FOR HULL 1956.  2. SH 5, ELEVATION 35-A; ADDED WINDOW AT FRAME 49, MAIN DECK PORT SIDE.  3. SH 6, SECTION 46-A; ADDED WINDOW AT FRAME 49, MAIN DECK PORT SIDE.  ITEM 1 PER ENGINEERING DEVELOPMENT ITEMS 2 & PER ECP 056C  THIS REVISION APPLICABLE TO M283/M284 ONLY	10/30/08 MDP	11/11/08 FH
11		1. SH 5, ELEVATION 35-A; CHANGED WINDOW AT FRAME 49 TO PORTLIGHT.  2. SH 6, SECTION 46-A; CHANGED WINDOW AT FRAME 49 TO PORTLIGHT.  ITEM 1 THRU 2 PER ENGINEERING DEVELOPMENT  THIS REVISION APPLICABLE TO M284 ONLY	6/24/09 MDP	

REVISIONS CONT'D

REV	ZONE	DESCRIPTION	DATE	APPROVED
7		1. SH 1, THIS REVISION REFLECTS AS-BUILT CONDITIONS FOR HULL 1953.  ITEM 1 PER ENGINEERING DEVELOPMENT	9/26/06 MDP	9/28/06 SM
8		1. SH 6, ELEVATION 42-A; RELOCATED DOOR CLEAR OPENING BETWEEN FR 46 & FR 47 300MM FWD OF FR 46 TO MATCH THE STRUCTURAL DOOR SCHEDULE, FH62, AND MODIFIED SCANTLING AROUND OPENING TO SUIT.  2. SH 6, SECTION 41-A; RELOCATED DOOR CLEAR OPENING TO 6614MM OCL TO MATCH DOOR SCHEDULE. CHANGED DOOR CLEAR OPENING TO 36"x72" W/ SILL HGT OF 152MM TO MATCH DOOR SCHEDULE AND MODIFIED SCANTLING AROUND OPENING TO SUIT. EXTENDED DOOR HEADER TO 5548MM OCL AND ADDED VERTICAL STIFFENER BELOW HEADER AT 6016MM OCL AND ADDED VERTICAL STIFFENER ABOVE HEADER AT 6173MM OCL.  ITEM 1 & 2 PER ADDITIONAL INFORMATION FOUND TO SUIT AS-BUILT CONDITIONS	10/23/06 MDP	11/2/06 SM
9		1. SH 2, PLAN 11-C; ADDED 3"x1/4" FLAT BAR CLIPS BETWEEN FR 46 & 47,  2. SH 2, PLAN 14-A; ADDED 3"x1/4" FLAT BAR CLIPS BETWEEN FR 46 & STAIRWELL BHD,  3. SH 6, SECTION 46-C; ADDED 3"x1/4" FLAT BAR CLIPS BETWEEN FR 46 & STAIRWELL BHD,  ITEM 1 THRU 3 PER YARD REQUEST  THIS REVISION APPLICABLE TO HULLS 1956/1957 ONLY	7/9/07 MDP	7/16/07 FH

CONT'D IN ZONE 5-B

REVISIONS

REV	ZONE	DESCRIPTION	DATE	APPROVED
1		1. SH 2, PLAN 14-C; MOVED STBD DECK OPENING FROM 6047 TO 6883 TO SUIT THE RELOCATION OF A VENT TRUNK BELOW DECKS.  2. SH. 4, SECTION 25-C; DELETED BRACKETS, EC-W CONNECTION OBTAINED BY OTHER MEANS PER PRODUCTION DESIGN MODULE DRAWINGS.  ITEM 1 PER OWNER COMMENT ITEM 2 PER ENGINEERING DEVELOPMENT	4/21/04 AGE	4/22/04 RG
2		1. EXTENDED HULL APPLICABILITY TO INCLUDE HULL 1956.  ITEM 1 PER ENGINEERING DEVELOPMENT.	3/21/05 RMW	3/21/05 FH
3		1. SH 2, PLAN 9-C; ADDED PLAN VIEW OF SEA CHEST TOP PLATE.  ITEM 1 PER ECP 0065.	6/9/05 AGE	6/15/05 FH
4		1. SH 1, DRAWING INDEX: ADDED SHEET 7 TO INDEX.  2. SH 4, PLAN 27-C; DELETED HEADERS IMO FORMER SIDE A-FRAME BASE LOCATION; ADDED 1/2" INSERT PLATE; CHANGED DECK STIFFENERS FROM L5x3x5/16 TO 14x5x3/8 FLANGE PLATE GIRDERS AT FRAMES 41 AND 42.  3. SH 5, ELEVATION 35-A; ADDED 4x1/2" COLLAR AROUND MAIN DECK PORTLIGHT OPENING AT FRAME 41; DELETED HEADER ABOVE PORTLIGHT; ADDED HEADERS AT MID-QUARTER POINT OF COLLAR RING  4. SH 5, ELEVATION 35-A; ADDED WT/FT BULKHEADS FOR VENTILATION TRUNK.  5. SH 7: ADDED SHEET TO PROVIDE STARBOARD SIDE SHEEL AND 01 LEVEL DECK DETAILS FOR FRAMES 41 AND 42.  ITEMS 1 AND 4 PER ENGINEERING DEVELOPMENT ITEMS 2, 3 AND 5 PER ECP 0090	7/21/05 AGE	7/26/05 FH
5		1. SH 2, HULL PENETRATIONS FOR SONAR SYSTEMS ADDED.  ITEMS 1 PER ECP 0093	4/19/06 MDP	4/27/06 SM
6		1. SH 4, PLAN 27-C; ADDED PLATE INSERT FOR HULL 1956 AND CLARIFIED PLATE INSERT FOR HULL 1953 AND INCLUDED HULL 1957 APPLICABILITY.  2. SH 6. ELEVATION 42-A: REVISED DOOR CUTOUT LOCATION.  3. EXTENDED HULL APPLICABILITY TO INCLUDE HULL 1957.  ITEM 1 PER ENGINEERING DEVELOPMENT ITEM 2 PER AS-BUILT CONDITION	5/3/06 MDP	5/10/06 SM

DOCUMENT DISTRIBUTION RECORD

DATE IN ROOM	9/5/03	4/23/04	4/22/03	3/22/05	6/14/05	7/22/05	4/19/06	5/3/06	9/28/06	10/23/06	7/16/07	11/11/08			
ISSUE DATE	9/8/03	4/23/04	3/24/05	6/16/05	7/26/05	4/27/06	5/10/06	9/28/06	11/2/06	7/16/07	11/11/08				
REV#	0	1	2	3	4	5	6	7	8	9	10	11			
PROJECT ENG	1	1	1	1	1	1	1								
PROJECT MGR	1	1	1	1	1	1	1								
ABS	10											E/E			
USPH															
USCG															
HMP PC	12	12	12	12	12	12	1	1	1	1	1	1			
PROD DESIGN GROUP	1(3)	(3)	(3)						1	1	1	1			
HULL MGR															
HULL LEAD	(1)	(1)	(1)	(1)	(1)	(1)	1	1	1	1	1	1			
HVAC	1	1	1												
JOINER	1	1	1												
HPG PC	3	3	3	3	3	3	1	1	1	1	1	1			
NOISE CONT															
CHAND, LLC	1									1	1	1			
ISSUED BY	AE	AE	AE	AE	AE	AE	SM	SM	SM	SM	FH	FH			

FUNCTIONAL DESIGN DRAWING  
NOT FOR CONSTRUCTION

HULL APPLICABILITY

2 <sup>1</sup>		M282 HULL 1953									
3 <sup>2</sup>		M283 HULL 1956									
6 <sup>3</sup>		M284 HULL 1957									
			4	1	1	1	6	0	9	1	REV
10	9	8	7	6	5	4	3	2	1		SH
REVISION STATUS											

NO. TITLE DRAWING NUMBER

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VT Halter Marine, Inc.

Drawn by Vision Technologies Systems

Checked by

Approved by

Owner Appv

Hull No

Applicability

Estimate No

00-104

Scale

3B213

D

VESSEL

FRV40 CLASS 63m FISHERIES RESEARCH VESSEL

Title

HULL MIDBODY SCANTLINGS

FR. 19 - FR. 49

Job No.

Item

Deliverable

Sheet

Rev

M282

110

FH03

001

11

File R:\M282\FUNCTIONALDESIGN\NWORK\HULLDWS

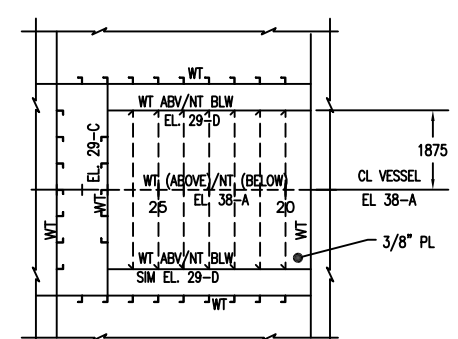
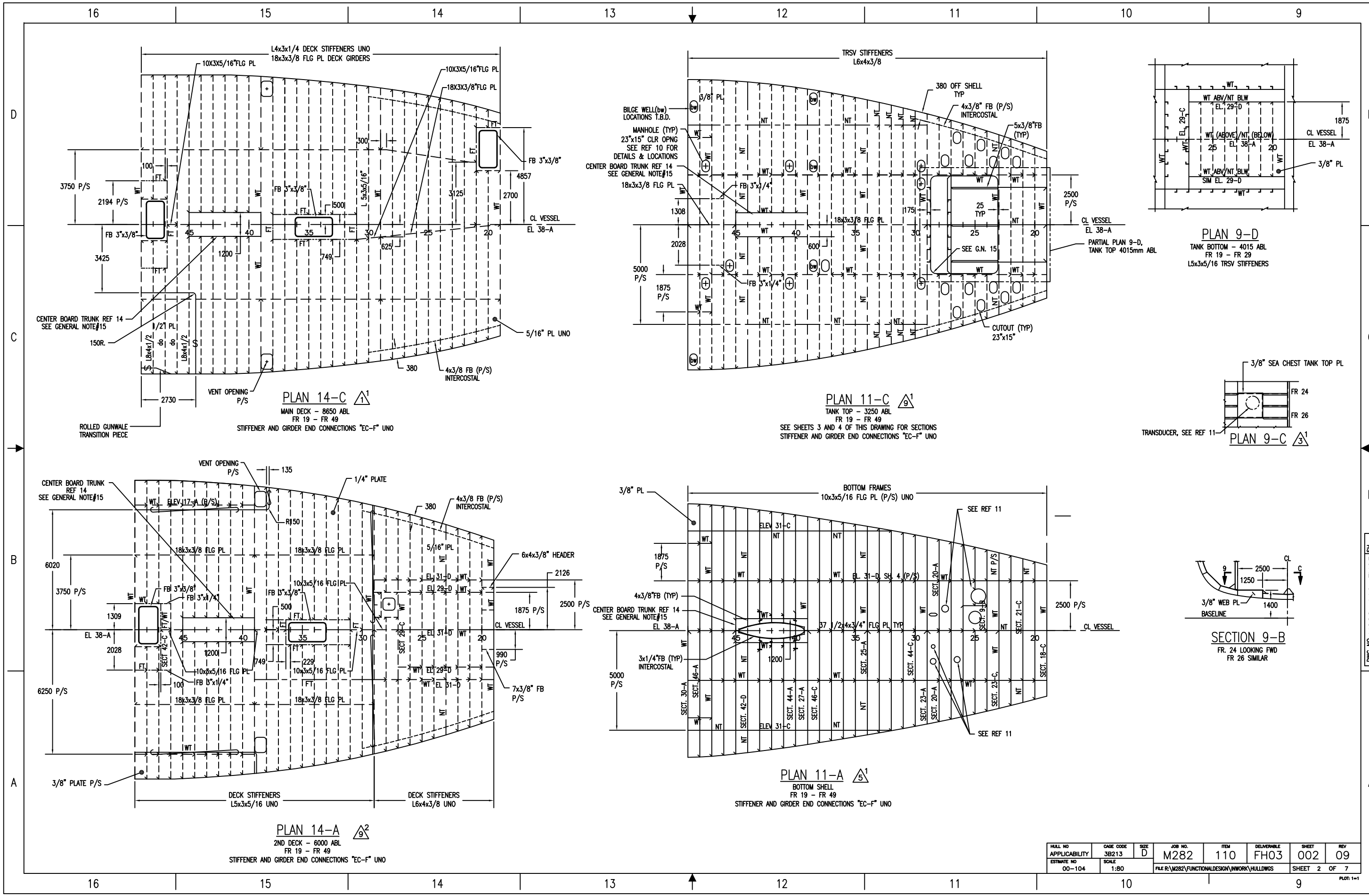
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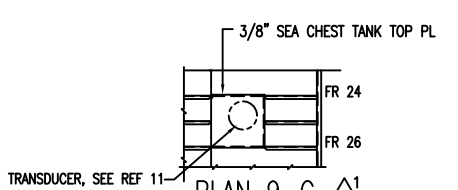
RESERVATIONS:

7	SECTIONS
6	SECTIONS
5	CENTERLINE, OUTBOARD PROFILE & DETAILS
4	ELEVATIONS
3	SECTIONS
2	PLANS
1	TITLE SHEET
SH	DESCRIPTION
DRAWING INDEX	

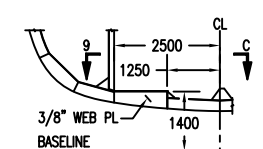
15	CATCH HANDLING EQUIPMENT, KEY PLAN & DETAILS	M282-085-FH86
14	TRUNK SCANTLING	M282-150-FH30
13	IMPRESSED CURRENT CATHODIC PROTECTION ARRANGEMENT & DETAILS	M282-624-FE70
12	WINDOWS & PORTLIGHTS KEY PLAN & SCHEDULE	M282-611-FH87
11	TRANSDUCER INSTALLATION DETAILS	M282-169-FH50
10	STRUCTURAL DOOR, HATCHES & MANHOLES - KEY PLAN AND SCHEDULE	M282-167-FH62
9	DK FITTINGS & TIEDOWN KEY PLAN & DETAILS	M282-100-FH89
8	TYPICAL STRUCTURAL DETAILS	M282-100-FH67
7	BILGE KEEL LAYOUT	M282-110-FH54
6	AFT HOUSE SCANTLINGS, 01 LVL-03 LVL FR39-AFT	M282-110-FH12
5	HULL STERNBODY SCANTLING	M282-110-FH04
4	HULL FOREBODY SCANTLING	M282-110-FH02
3	FWD HOUSE SCANTLINGS, 01 LVL-03 LVL FR39-FWD	M282-110-FH11
2	WELDING BOOKLET	M282-100-FH90
1	GENERAL ARRANGEMENT	M282-101-FA02
NO.	TITLE	DRAWING NUMBER
REFERENCES		



PLAN 9-D  
TANK BOTTOM - 4015 ABL  
FR 19 - FR 29  
L5x3x5/16 TRSV STIFFENERS



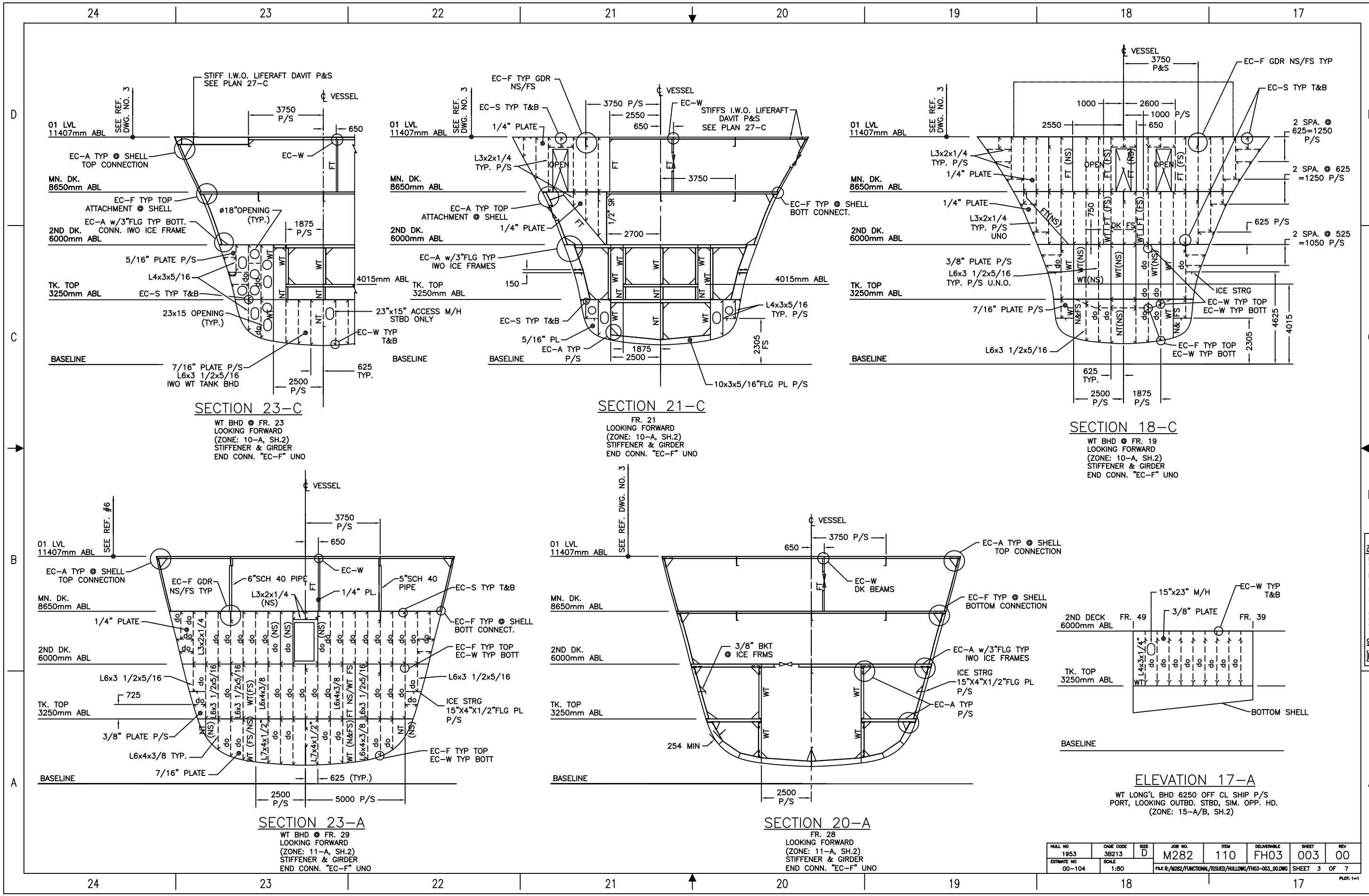
PLAN 9-C  
TRANSUCER, SEE REF 11



SECTION 9-B  
FR. 24 LOOKING FWD  
FR 26 SIMILAR

HULL NO APPLICABILITY	DATE CODE 3B213	SIZE D	JOB NO. M282	ITEM 110	DELIVERABLE FH03	SHEET 002	REV 09
ESTIMATE NO 00-104	SCALE 1:80		FILE R:\M282\FUNCTIONAL\DESIGN\WORK\HULLDWS				
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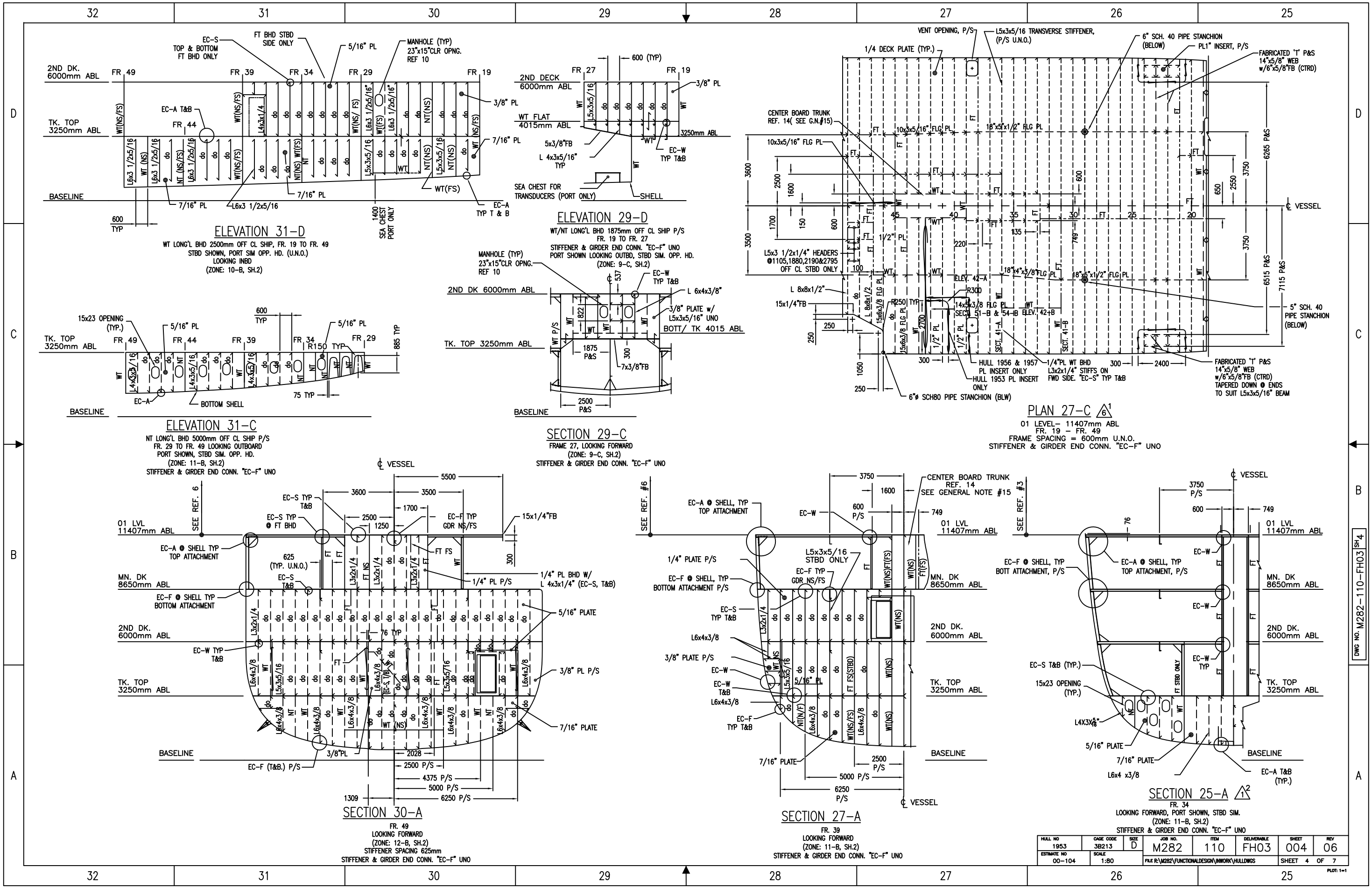
DWG NO. M282-110-FH03 Sh2



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1953	3B213	D	M282	110	FH03	003	00
ESTIMATE NO	SCALE	FILE R:/M282/FUNCTIONAL/ISSUED/HULLING/FH03-003_00.DWG					
00-104	1:80	SHEET 3 OF 7					

DWG NO. M282-110-FH03 SH.3

PLT: 1=1



HULL NO	DATE CODE	SIZE	JOB NO.	ITEM	DELIVERABLE	SHEET	REV
1953	3B213	D	M282	110	FH03	004	06
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00-104	1:80						

DWG NO. M282-110-FH03 SH.4

PLT: 1=1

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39

38

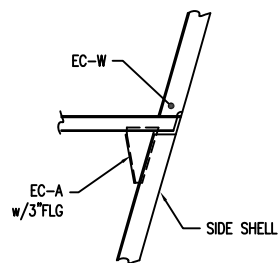
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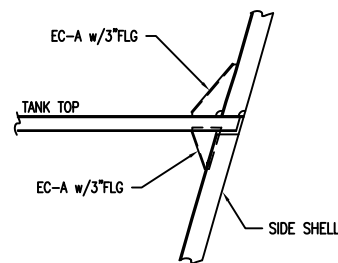
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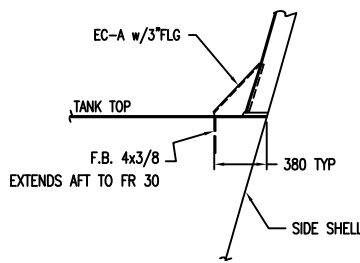
DETAIL 40-D

SCALE: 1:25  
UPPER END OF MAIN ICE FRAMES  
AND 18x4x1/2 FLG PL ICE WEBS



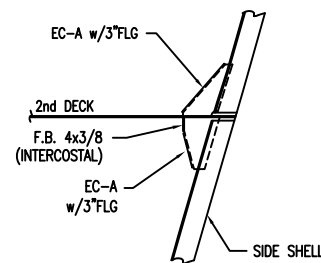
DETAIL 38-D

SCALE: 1:25  
LOWER END OF MAIN ICE FRAMES



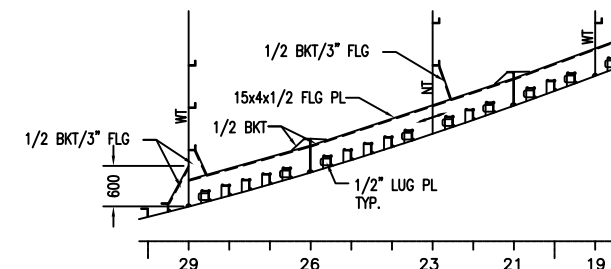
DETAIL 37-D

SCALE: 1:25  
LOWER END OF INTERMEDIATE  
ICE FRAMES



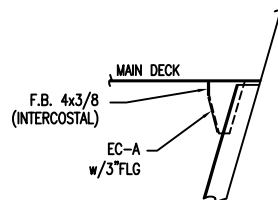
DETAIL 36-D

SCALE: 1:25  
END CONN. DETAILS  
● INTERMEDIATE DECKS



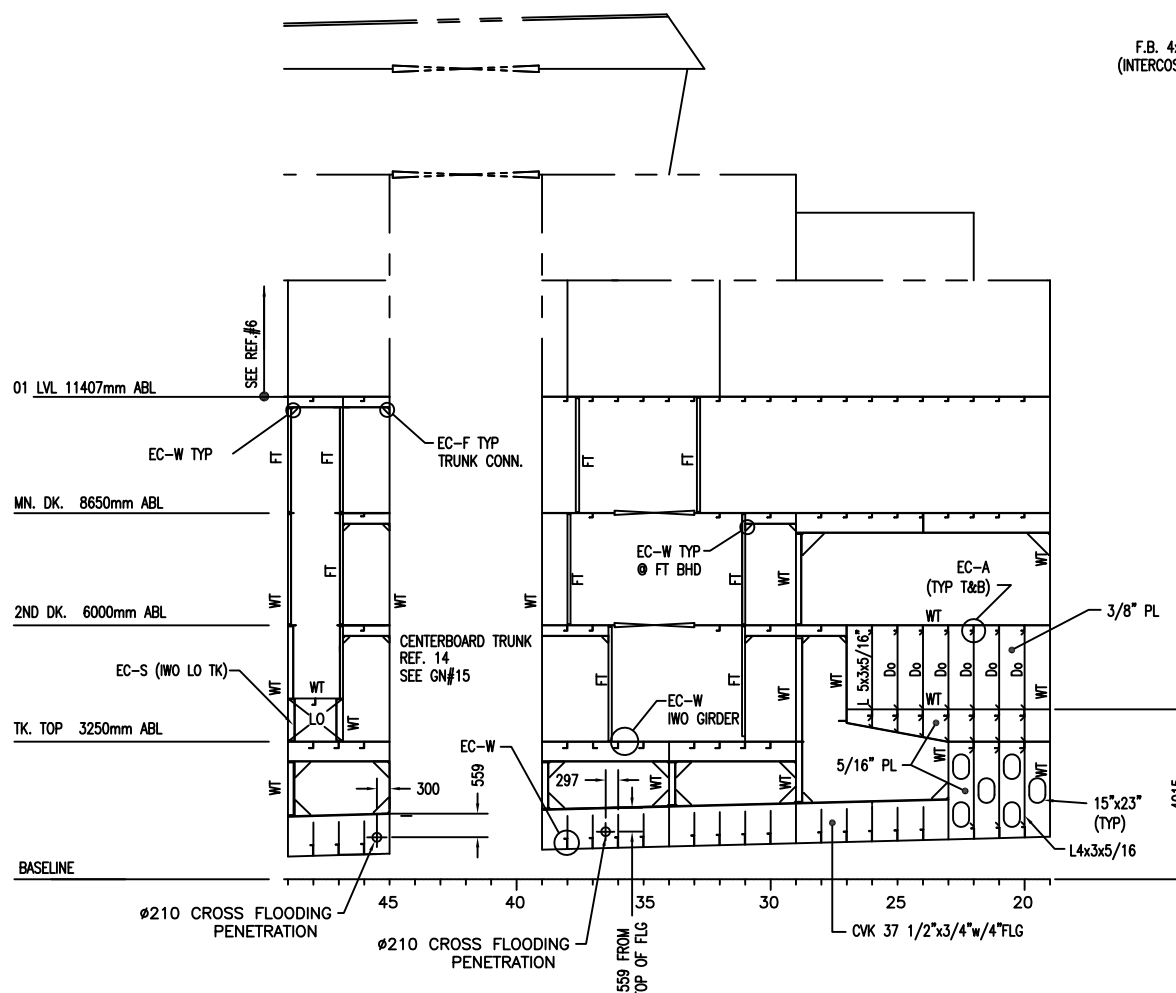
PLAN 34-C

SCALE: 1:50  
ICE STRINGER 4625mm ABL



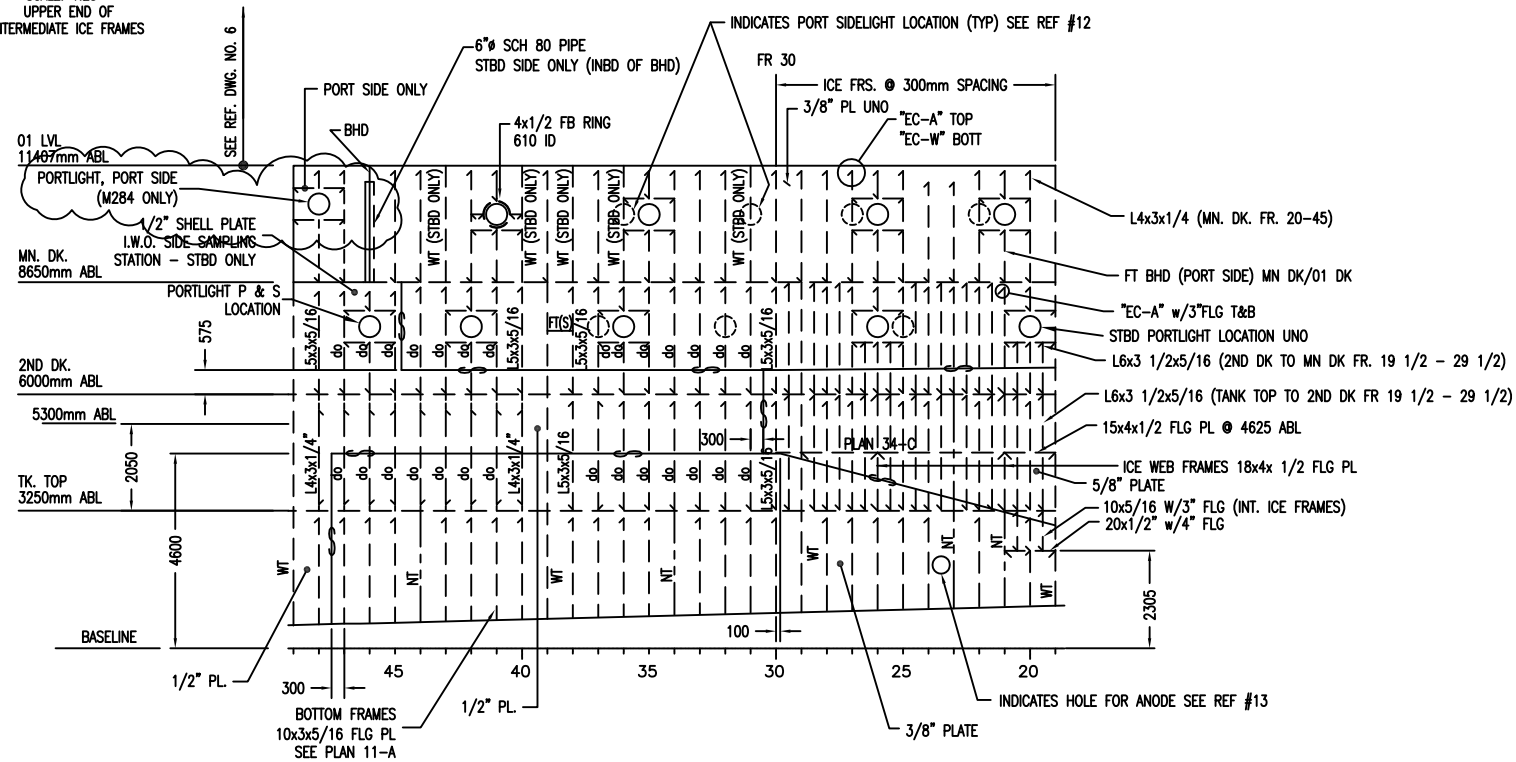
DETAIL 37-C

SCALE: 1:25  
UPPER END OF  
INTERMEDIATE ICE FRAMES



ELEVATION 38-A

SCALE: 1:80  
CENTERLINE PROFILE  
STBD LKG INBD.  
STIFFENER & GIRDER END CONN. "EC-F" UNO



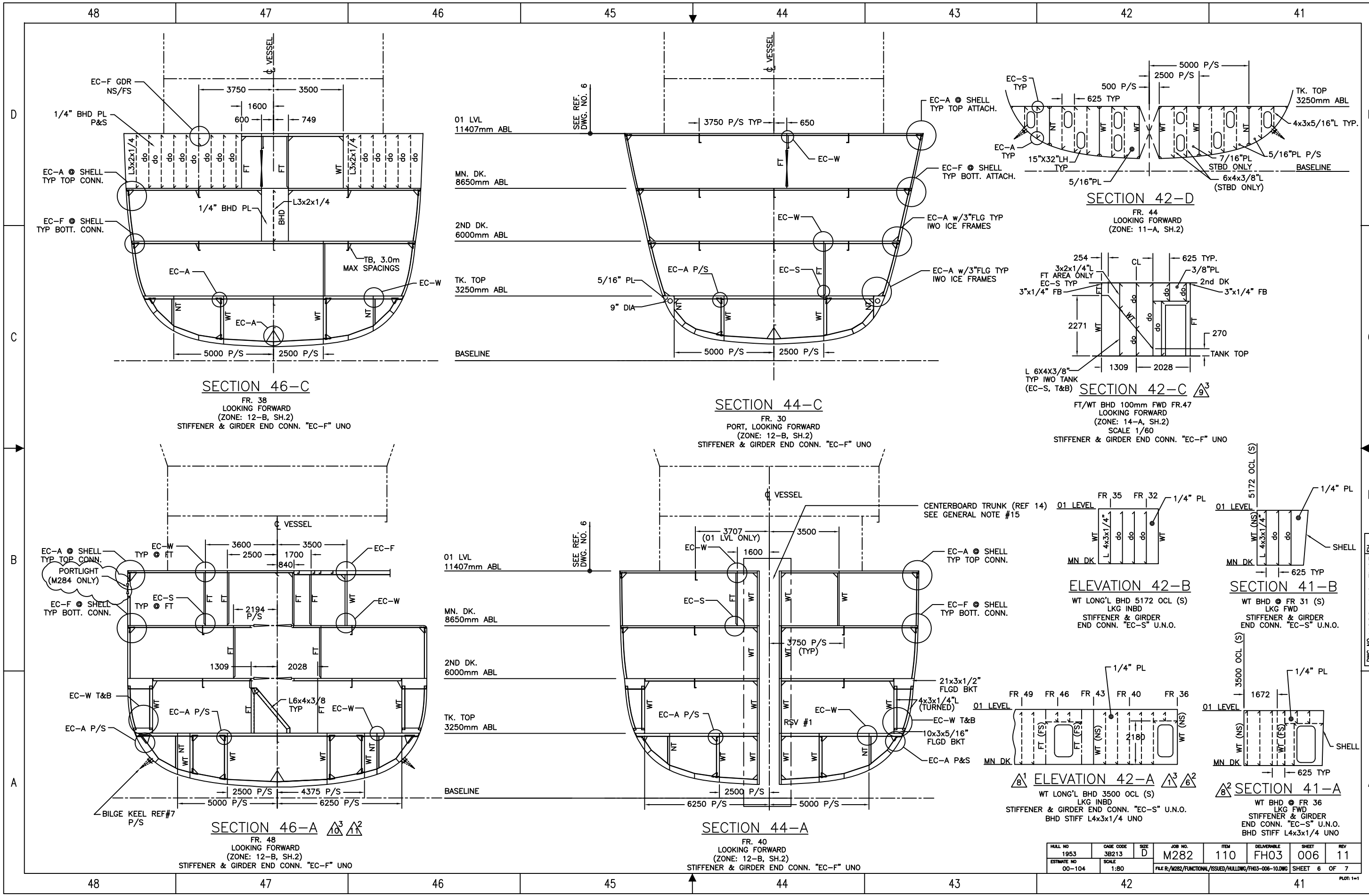
ELEVATION 35-A

SCALE: 1:80  
SHELL PROFILE  
FRS. ● 600mm SPACING  
STBD SHOWN, PORT SIM. OPP. HD.  
FOR CONNECTION DETAILS IWO ICE FRAMES  
SEE DETAIL 34-C, 36-D, 37-C, 37-D, 38-D & 40-D THIS DWG.

HULL NO	DATE CODE	SIZE	JOB NO.	ITEM	DELIVERABLE	SHEET	REV
1953	3B213	D	M282	110	FH03	005	11
ESTIMATE NO 00-104	SCALE AS NOTED		FILE R:\M282\FUNCTIONALDESIGN\INWORK\HULLDWGS				
						SHEET 5 OF 7	

PLOT: 1=1

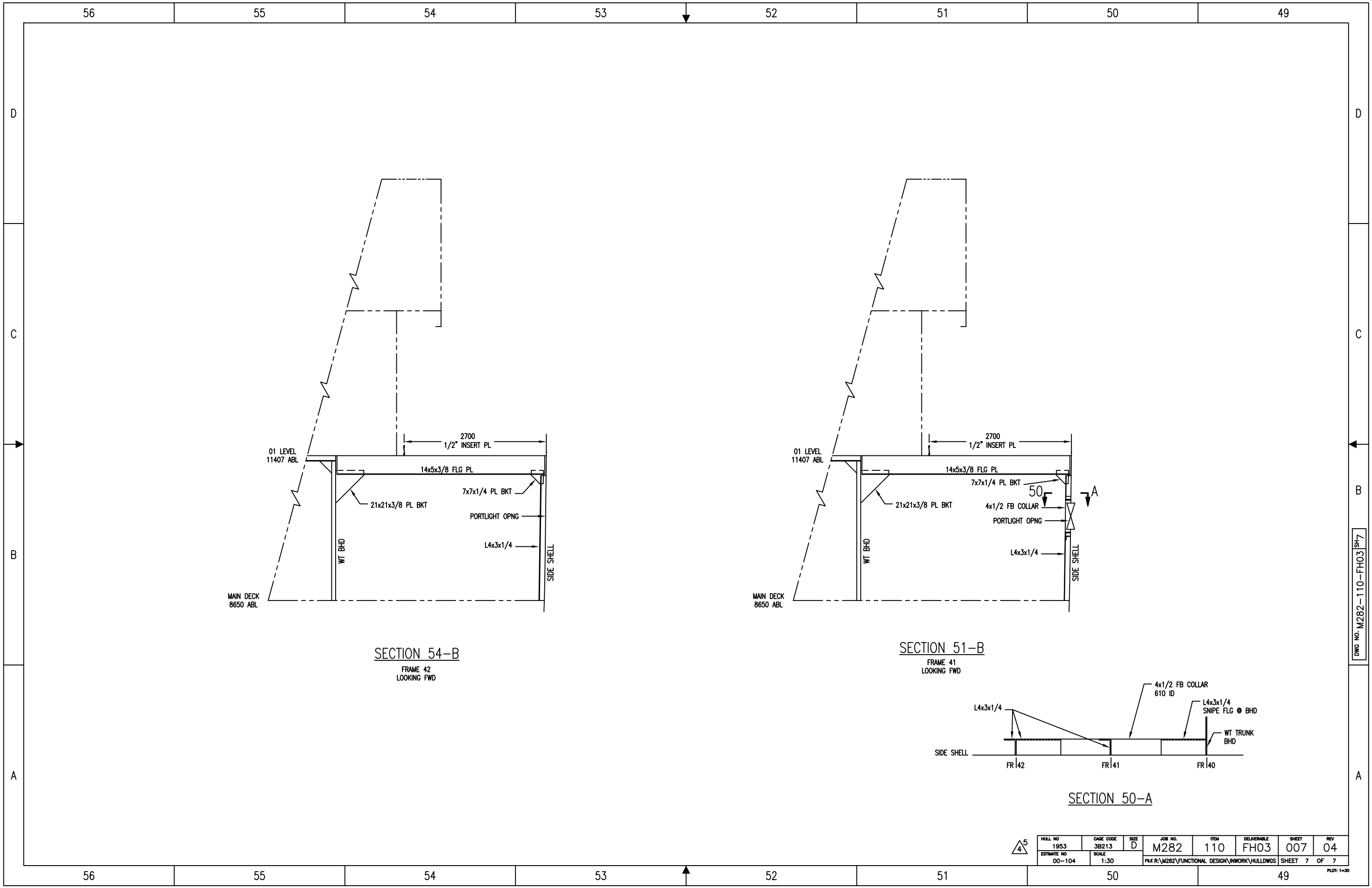
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HULL NO	1953	DATE CODE	3B213	SIZE	D	JOB NO.	M282	ITEM	110	DELIVERABLE	FH03	SHEET	006	REV	11
ESTIMATE NO	00-104	SCALE	1:80	FILE R/M282/FUNCTIONAL/ISSUED/HULLING/FH03-006-10.DWG								SHEET	6	OF	7

DWG NO. M282-110-FH03 SH.6

PLT: 1=1



SECTION 54-B  
FRAME 42  
LOOKING FWD

SECTION 51-B  
FRAME 41  
LOOKING FWD

SECTION 50-A

HULL NO	1953	DATE CODE	3B213	SIZE	D	JOB NO.	M282	ITEM	110	DELIVERABLE	FH03	SHEET	007	REV	04
ESTIMATE NO	00-104	SCALE	1:30	FILE R:\M282\FUNCTIONAL DESIGN\INWORK\HULLDWGS								SHEET	7	OF	7

DWG NO. M282-110-FH03 SH-7

PLOT: 1=30