

SYMBOLS LIST

Table with 2 columns: Symbol and Description. Includes FIREMAIN PIPING, BILGE SYSTEM PIPING, MATERIAL TRANSITION, REDUCER, BHD PENETRATION, GATE VALVE, SWING CHECK VALVE, BUTTERFLY VALVE, BALL VALVE, HYDRANT VALVE, PRESSURE GAUGE, VACUUM/PRESSURE GAUGE, FIRE STATION, CENTRIFUGAL PUMP, OVERBOARD DISCHARGE, SEA CHEST, SIMPLEX STRAINER, BILGE SUCTION STRAINER BOX.

MATERIAL SCHEDULE

Table with 10 columns: SYSTEM, SIZE, PIPE, TAKEDOWN JOINTS, VALVE BODY, VALVE TRIM, FITTINGS, BOLTS/BOLT STUDS, NUTS, GASKETS. Details specifications for Bilge, Fire, Ballast MAWP: 125 PSIG and SEACHEST MAWP: 15 PSIG.

EQUIPMENT LIST

Table with 7 columns: QTY., SERVICE, TYPE, MAKE/MODEL, CAPACITYwcb, DRIVE, REMARKS. Lists 2 Fire/Bilge Pumps, 2 Strainers, and 2 Fire Stations.

CALCULATIONS:

1.) REFERENCE ONLY: THE INTERNAL DIAMETER OF BILGE SUCTION PIPES INCLUDING STRAINERS SHALL BE DETERMINED BY 46 CFR SUBCHAPTER F, SUBPART 56.50-50 PARAGRAPH D(1): FORMULA FOR SUCTION TO EACH MAIN BILGE PUMP:

d = 1 + sqrt((L(B+D))/2500) = 1.7" USE 2" SCH. 40 PIPE

46 CFR 56.50-55 (c) BILGE PUMPS "...suction velocity of not less than 400 feet per minute..." A 2" SCH. 40 PIPE @ 6.67 FT PER SECOND HAS 65 G.P.M. FLOW.

d = 1 + sqrt((c(B+D))/1500) = 1.49" LARGEST COMPARTMENT USE 1-1/2" SCH. 40 PIPE

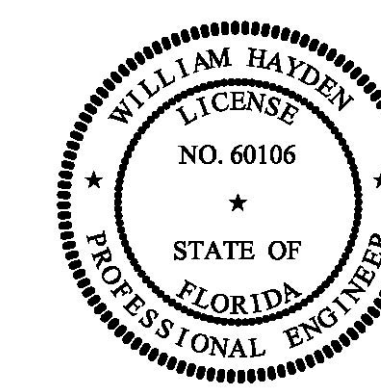
WHERE: L = LENGTH OF VESSEL ON LOADWATER LINE, IN FEET. = 45'-6" B = BREADTH OF VESSEL, IN FEET. = 20 D = MOLDED DEPTH OF BULKHEAD DECK, IN FEET. = 6.5' c = LENGTH OF COMPARTMENT, IN FEET. = 24' "LARGEST COMP." d = REQUIRED INTERNAL DIAMETER OF SUCTION PIPE, IN INCHES.

GENERAL NOTES

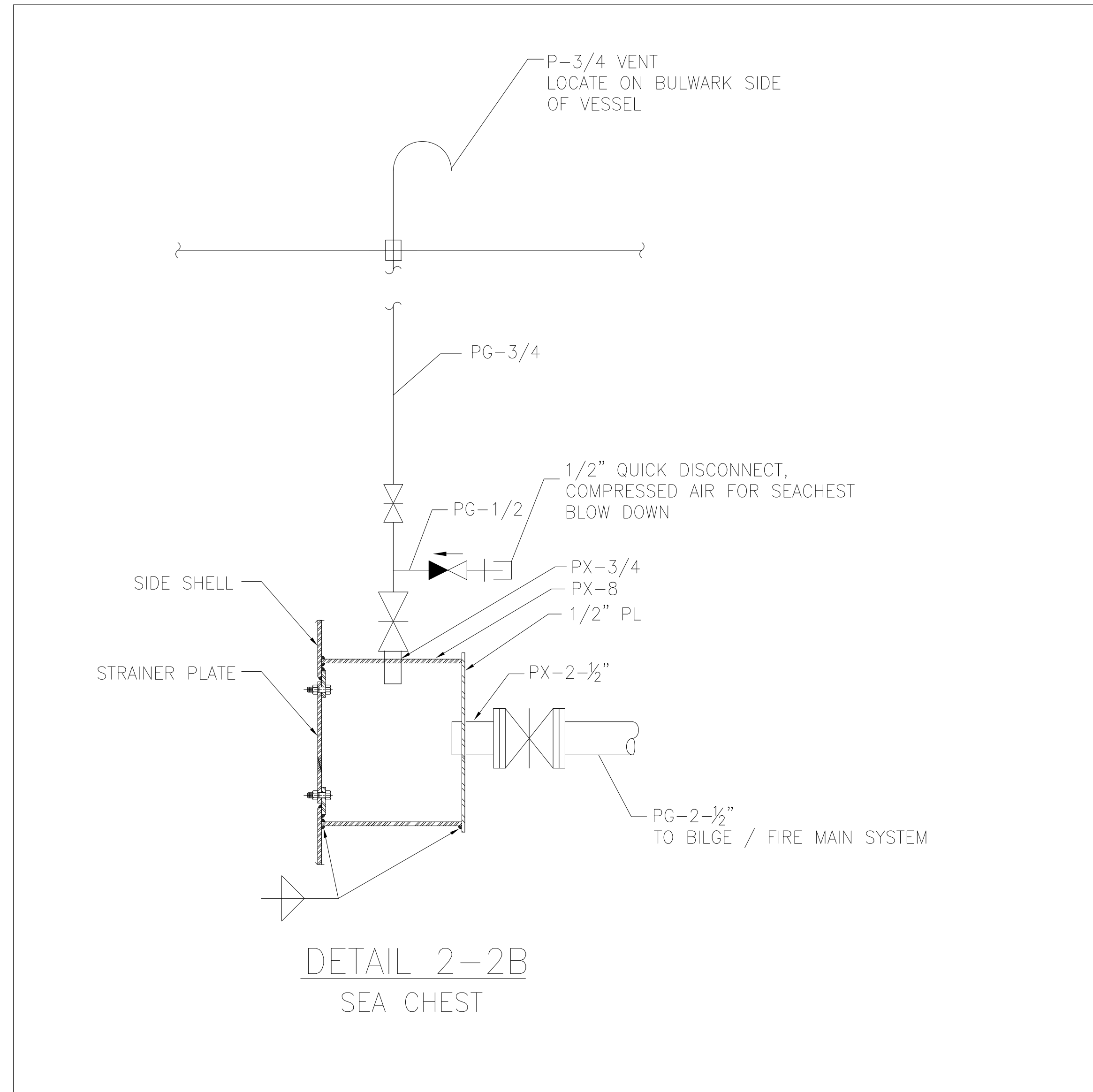
Table with 2 columns: NO. and DESCRIPTION. Contains 8 general notes regarding piping standards, design, and installation.

GENERAL NOTES

Table with 2 columns: NO. and DESCRIPTION. Contains 16 general notes regarding fire station equipment, hose, valves, and piping.



Project information block including DeJong & Lebet, Inc. logo, address (1734 Emerson Street, Jacksonville, Florida), phone/fax numbers, and drawing details (Dwg. No. 17-1393-263, Date: OCTOBER 19, 2018).



DETAIL 2-2B
SEA CHEST

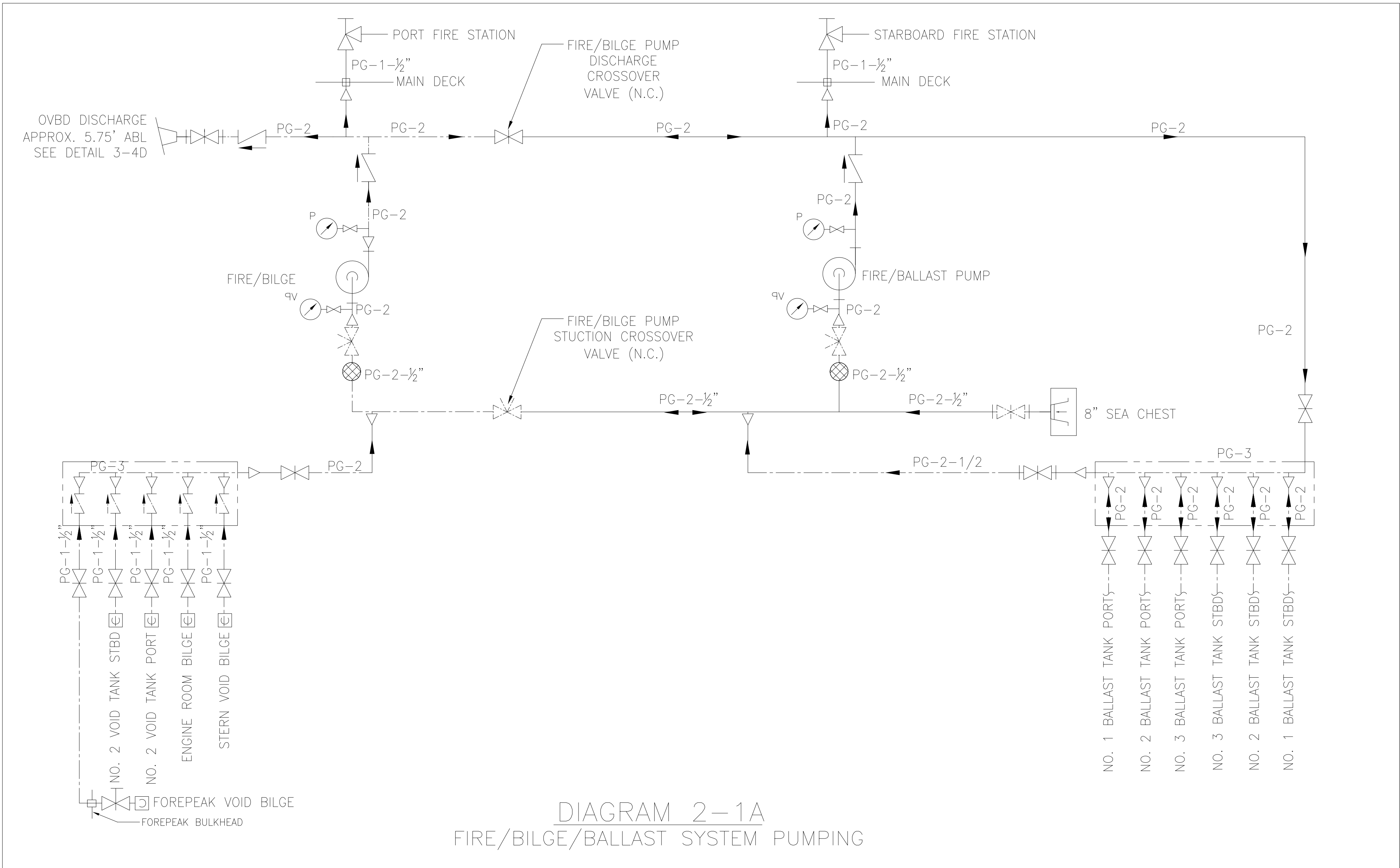
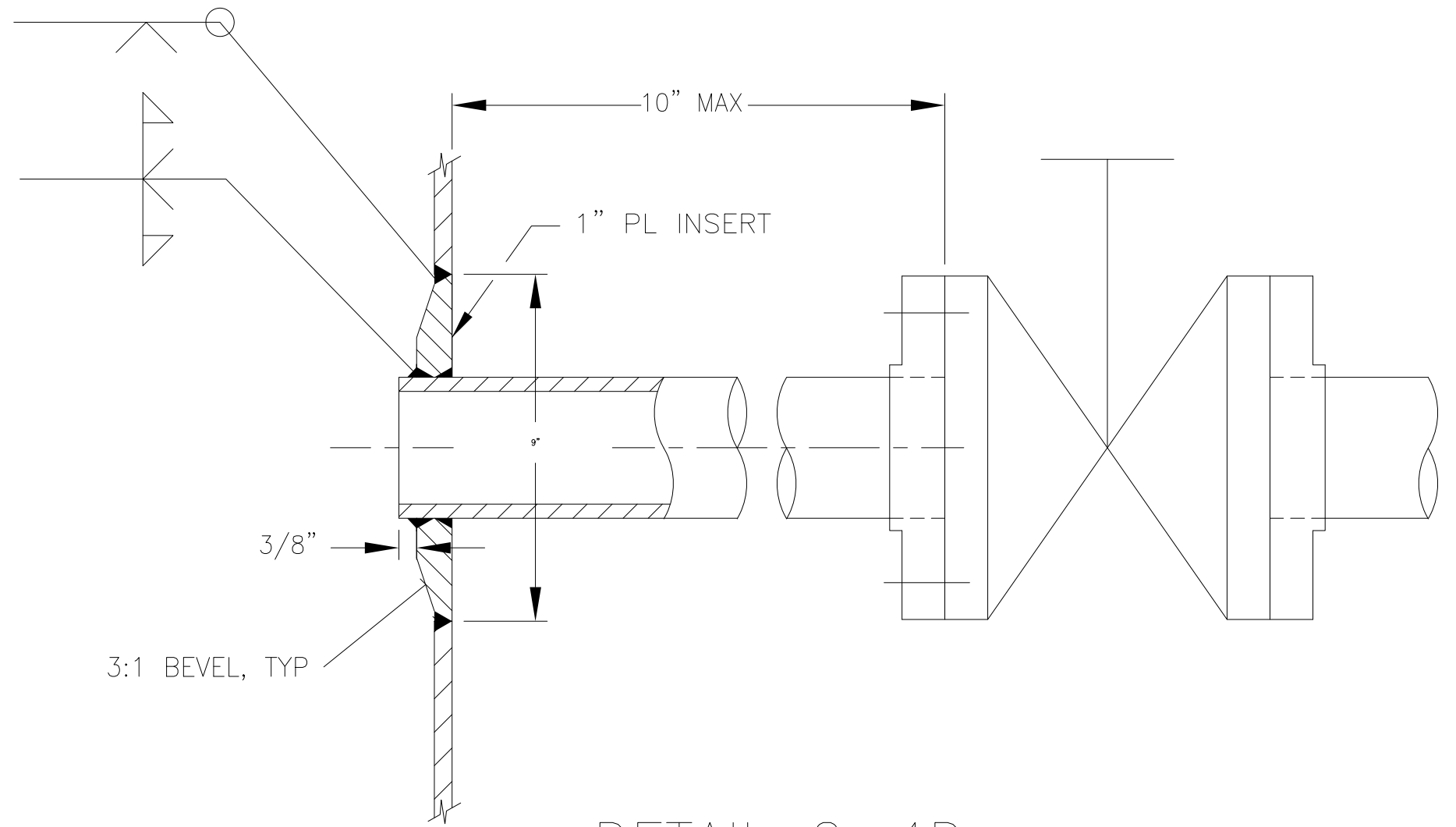
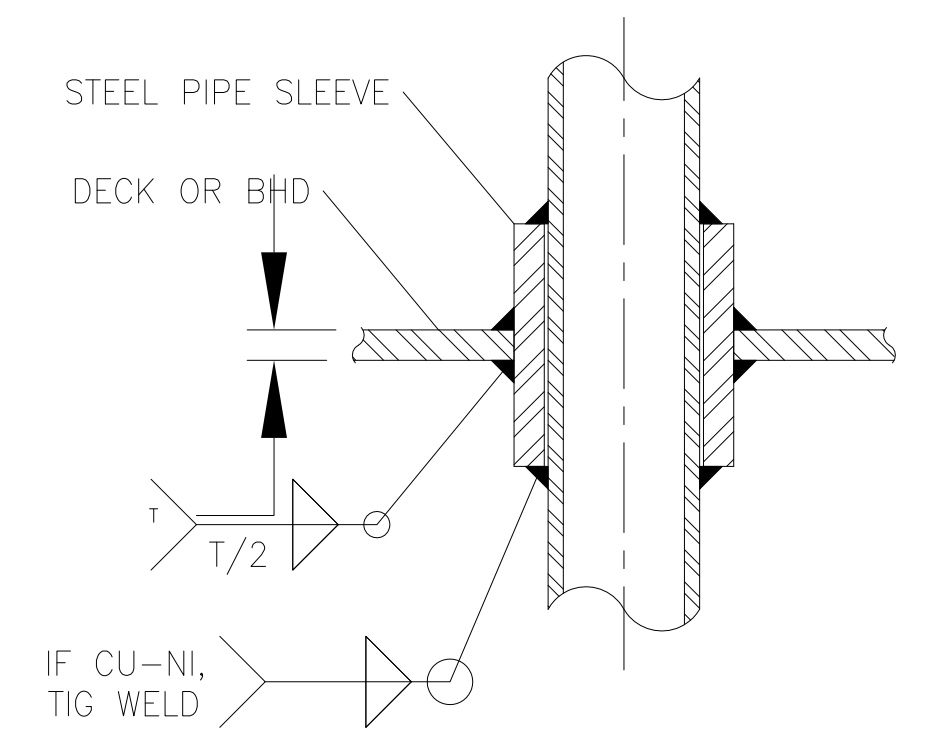


DIAGRAM 2-1A
FIRE/BILGE/BALLAST SYSTEM PUMPING

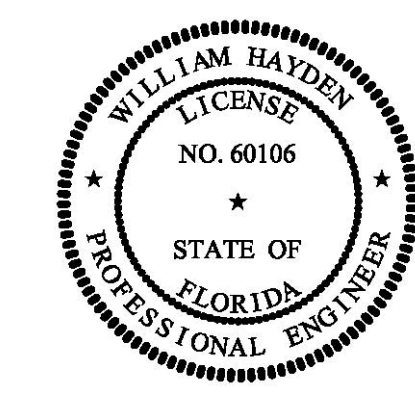


DETAIL 2-4D
OVERBOARD DISCHARGE
NO SCALE



DETAIL 2-1C
TYP. DECK OR BULKHEAD PENETRATION
NO SCALE

- GENERAL NOTES -		- GENERAL NOTES -	
NO.	DESCRIPTION	NO.	DESCRIPTION
1.	MATERIAL AND WORKMANSHIP SHALL CONFORM TO U.S. COAST GUARD REQUIREMENTS FOR SUBCHAPTER "M" VESSELS.	9.	EACH FIRE STATION SHALL HAVE A 1 1/2" HYDRANT VALVE, 50 FEET OF 1 1/2" LINED COMMERCIAL FIRE HOSE CONFORMING TO UL19, A HOSE WRENCH, AND A USCG APPROVED COMBINATION FIRE NOZZLE. THE HOSE SHALL BE CONNECTED AND STOWED IN AN APPROVED STAINLESS STEEL HOSE RACK.
2.	THIS DRAWING IS DIAGRAMMATIC AND DOES NOT REPRESENT A COMPLETE DETAILED DESIGN. THE CONTRACTOR SHALL DEVELOP A DETAILED DESIGN THAT PROVIDES A FULLY FUNCTIONAL ARRANGEMENT SUITABLE FOR INSTALLATION, TAKING INTO ACCOUNT ALL FROM THE SHIP AND NECESSARY SYSTEM INTERFACES AND INTERFERENCES. DIMENSIONS SHALL BE VERIFIED MANUFACTURERS' CERTIFIED DRAWINGS AS APPROPRIATE.	10.	THE FIRE/BILGE PUMP IS SIZED TO EXCEED THE MINIMUM REQUIREMENTS OF ABS. THE PUMP CAPACITY SHALL MEET THE FLOW DEMANDS OF AT LEAST 80 GPM FROM THE HIGHEST TWO FIRE STATIONS OPERATING SIMULTANEOUSLY.
3.	PIPING SHALL BE RUN AS DIRECTLY AS PRACTICABLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS AND WITH SUFFICIENT TAKE DOWN JOINTS TO PROVIDE FOR REMOVAL, INSPECTION, SERVICING AND REPLACEMENT OF EQUIPMENT.	11.	VALVE HANDWHEELS AND CONTROLS TO BE FITTED WITH LABEL PLATES INDICATING FUNCTION.
4.	PROVIDE GAUGE ASSEMBLIES TO BE IN ACCORDANCE WITH ASTM F721. VALVES, TUBING, AND FITTINGS SHALL BE 316 STAINLESS STEEL.	12.	BILGE SUCTION STRAINER BOXES SHALL BE IN ACCORDANCE WITH ASTM F886, TYPE J, HOT DIP GALVANIZED AFTER FABRICATION. STRAINER OPEN AREA SHALL BE GREATER THAN THREE TIMES THE AREA OF THE BILGE PIPE.
5.	AVOID POCKETS IN THE PIPE LINES, BOSSES AND VALVES OR SCREWED PLUGS SHALL BE FITTED TO ENABLE COMPLETE DRAINING OF PIPES WHERE POCKETS DO OCCUR.	13.	A REMOTE PRESSURE GAUGE FOR THE FIREMAIN SHALL BE LOCATED IN THE PILOT HOUSE.
6.	PIPING SHALL BE ADEQUATELY SUPPORTED BY HANGERS IN ACCORDANCE WITH ASTM F708. HANGERS SHALL BE ATTACHED TO THE PIPE WITH BOLTED CLAMPS AND WELDED TO THE BASIC SHIP STRUCTURE. HANGERS SHALL NOT BE ATTACHED BY WELDING DIRECTLY TO PIPES. HANGERS SUPPORTING CU-NI TUBING SHALL UTILIZE A RESILIENT NONMETALLIC LINER BETWEEN THE TUBING AND STEEL HANGER.	14.	PIPING SHALL BE THOROUGHLY CLEANED BEFORE TESTING.
7.	WHERE PIPING PENETRATES BULKHEADS OR DECKS, THE PENETRATION SHALL MAINTAIN THE WATERTIGHT INTEGRITY OF THE SPACE. PIPE PENETRATIONS SHALL BE IN ACCORDANCE WITH DETAIL 2-1C.	15.	PIPING 2-1/2" AND LARGER SHALL BE BUTT WELDED.
8.	BOTH PUMPS SHALL BE CAPABLE OF REMOTE STARTING FROM THE BRIDGE.	16.	VALVES 1-1/2" AND SMALLER SHALL BE THREADED.



DeJong & Lebet, Inc.
 Naval Architects
 Marine Engineers
 Consultants
 Surveyors

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 www.dejongandlebet.com

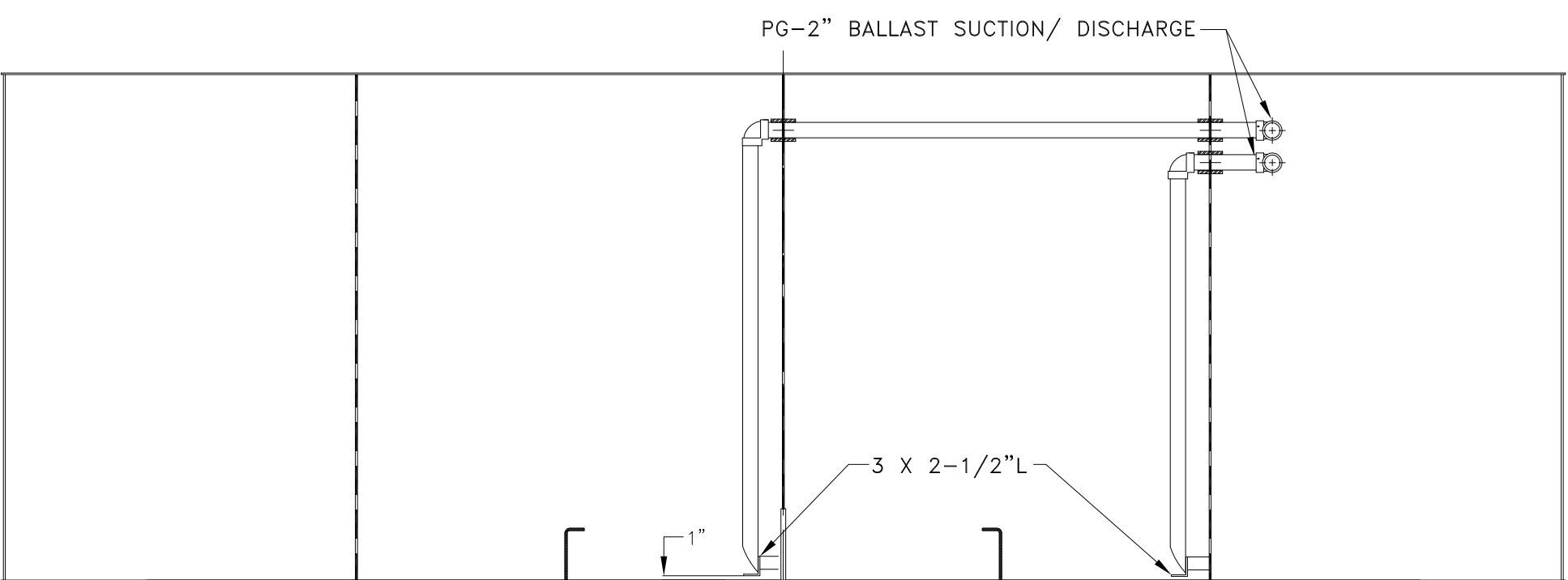
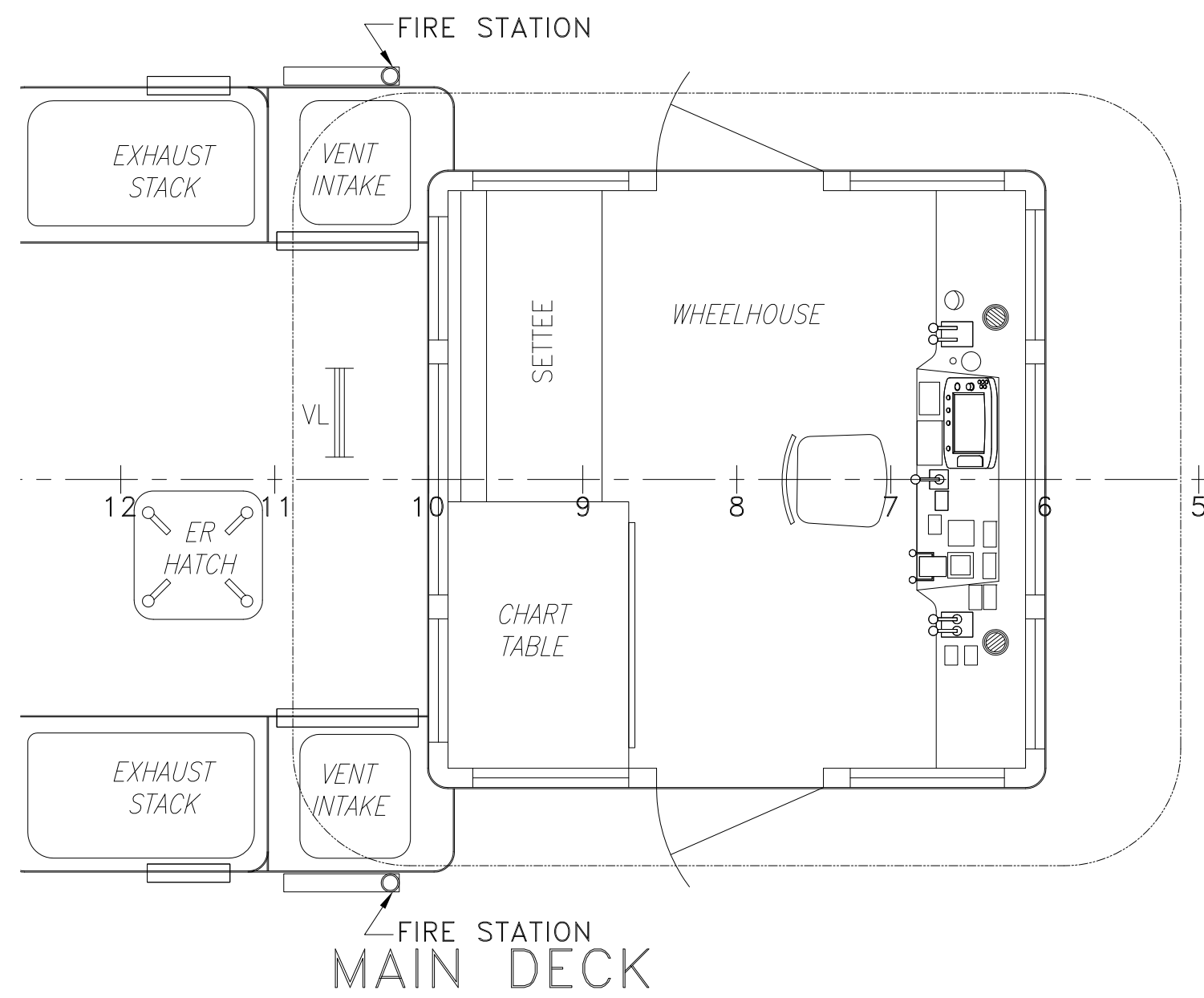
Phone: (904) 399-3673
 Fax: (904) 399-1522
 info@dejongandlebet.com

Title: 45'x20'x6.5' NCDOT PUSHBOAT

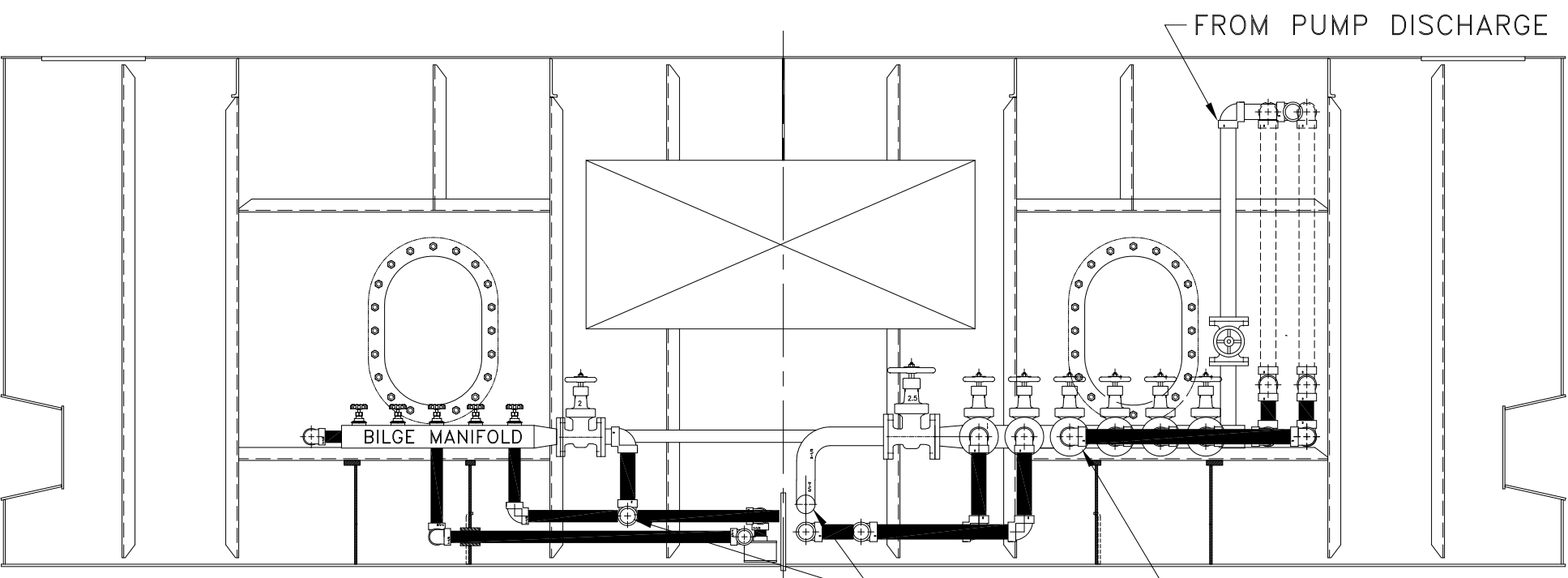
BILGE, BALLAST & FIREMAIN SYSTEM

Dwg. No. 17-1393-263 Alt. No. 0
 Sh: 2 of 3

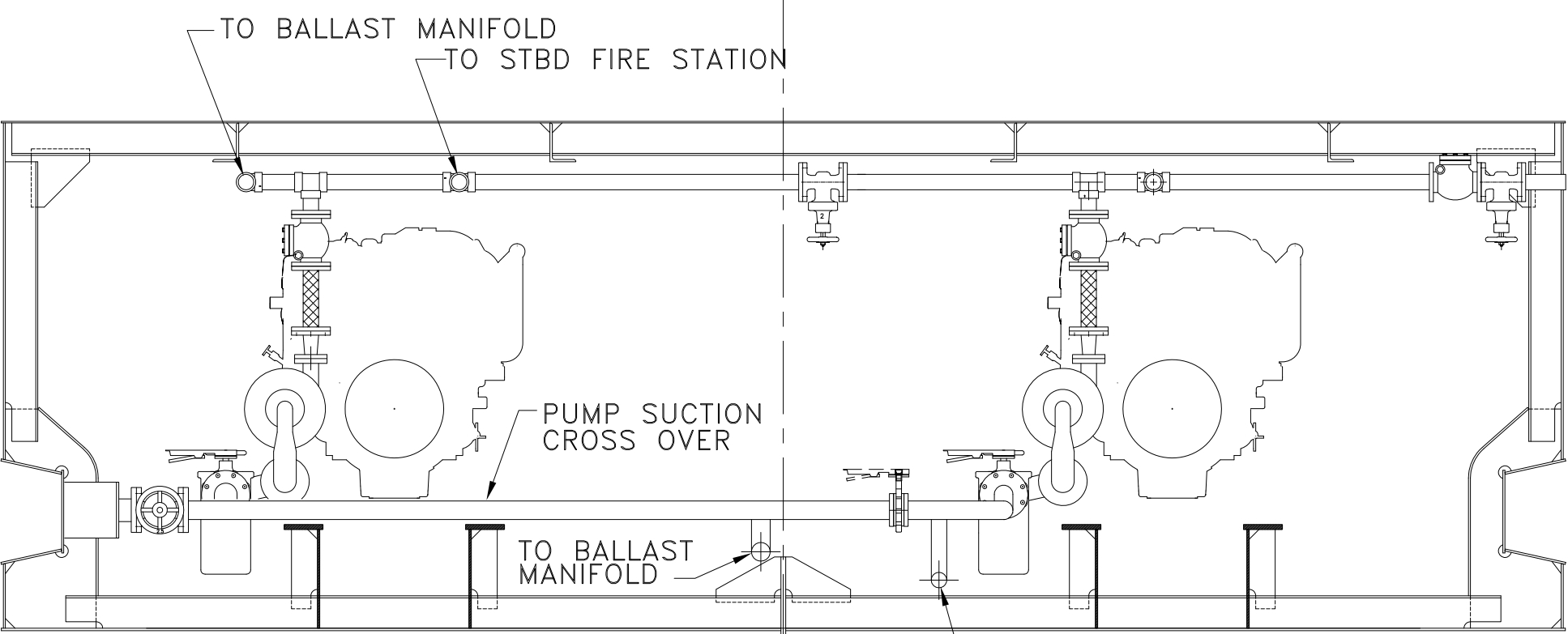
Drawn By: JAH Date: OCTOBER 19, 2018
 Checked By: _____ Date: _____
 App'd By: _____ Scale: NONE
 ABS App'l: _____ USCG App'l: _____



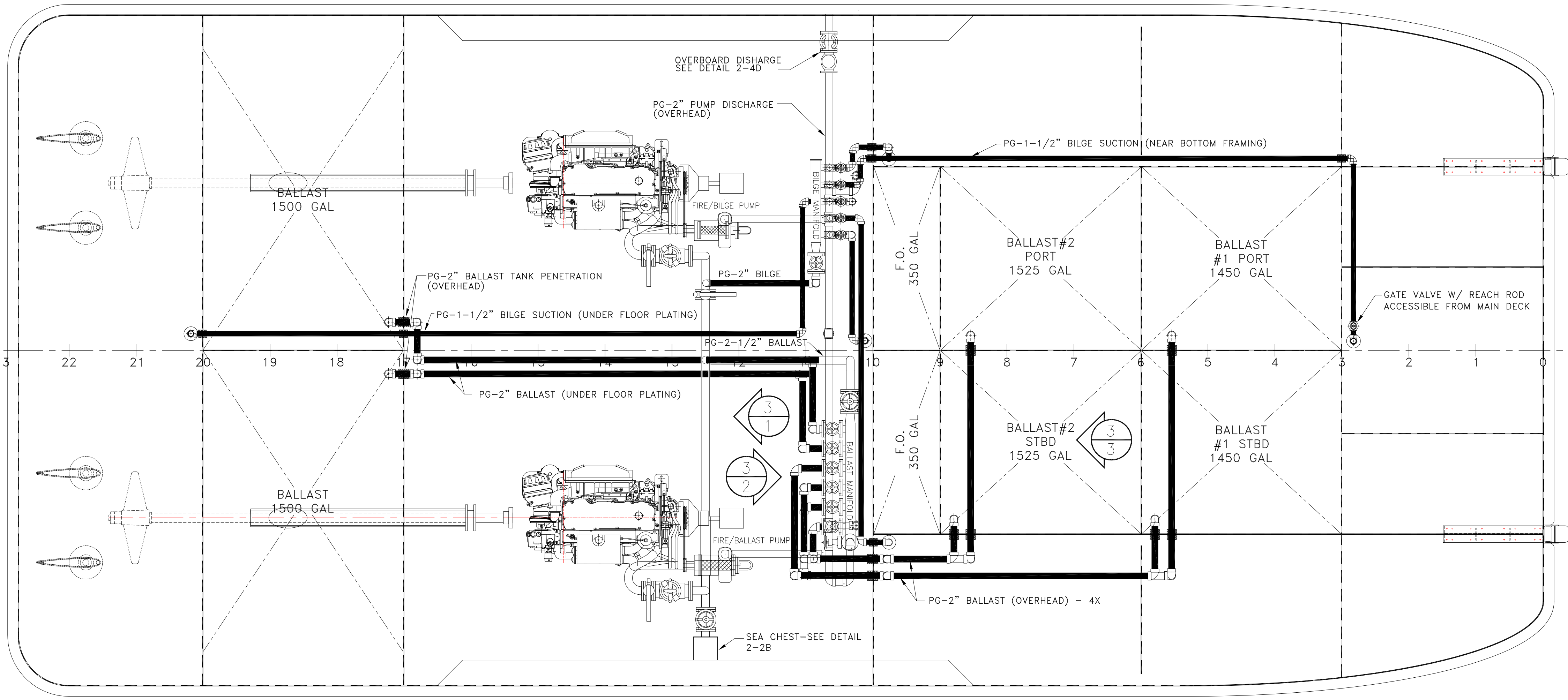
3 BALLAST #2 TANKS PIPING
SCALE: 1/2" = 1'-0"



2 BILGE & BALLAST MANIFOLD PIPING
SCALE: 1/2" = 1'-0"

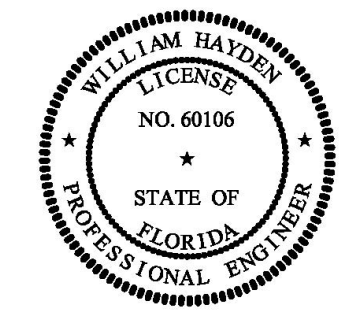


1 PUMP SUCTION AND DISCHARGE PIPING
SCALE: 1/2" = 1'-0"



HOLD FIRE, BALLAST & BILGE PIPING ARRANGEMENT

- GENERAL NOTES -		- GENERAL NOTES -		- ALTERATIONS -		- RESERVATIONS -		- REFERENCES -	
NO.	DESCRIPTION	NO.	DESCRIPTION	NO.	DESCRIPTION	DATE	BY NO.	DESCRIPTION	DESCRIPTION
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4.	PROVIDE GAUGE ASSEMBLIES TO BE IN ACCORDANCE WITH ASTM F721. VALVES, TUBING, AND FITTINGS SHALL BE 316 STAINLESS STEEL.	12.	BILGE SUCTION STRAINER BOXES SHALL BE IN ACCORDANCE WITH ASTM F986, TYPE 1, HOT DIP GALVANIZED AFTER FABRICATION. STRAINER OPEN AREA SHALL BE GREATER THAN THREE TIMES THE AREA OF THE BILGE PIPE.						
5.	AVOID POCKETS IN THE PIPE LINES, BOSSES AND VALVES OR SCREWED PLUGS SHALL BE FITTED TO ENABLE COMPLETE DRAINING OF PIPES WHERE POCKETS DO OCCUR.	13.	A REMOTE PRESSURE GAUGE FOR THE FIREMAIN SHALL BE LOCATED IN THE PILOT HOUSE.						
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BILGE, BALLAST & FIREMAIN SYSTEM
Dwg. No. 17-1393-263
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Sh. 3 of 3
Date: OCTOBER 19, 2018
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Checked By:
App'd By:
ABS App'l:
USCG App'l: