

EQUIPMENT LIST

Table with 8 columns: ITEM #, QTY, SERVICE, TYPE, MODEL, CAPACITY, DRIVE, NOTES. Lists 15 items including hydraulic pumps, level switches, reservoirs, control valves, relief valves, cross port relief valves, suction strainers, return filters, shuttle valves, winches, capstans, pump clutches, pressure gages, and hydraulic cylinders.

SYMBOLS LIST

Table with 2 columns: Symbol, TUBING. Lists 15 symbols corresponding to the equipment list, such as variable displacement hydraulic pump, level, gate valve, manual directional control valve, relief valve, cross port relief valve, filter/strainer, hydraulic check valve, hydraulic brake, bi-directional hydraulic motor, variable flow control valve, reducer, flow direction arrow, flexible connection, pressure gauge, and hydraulic cylinder.

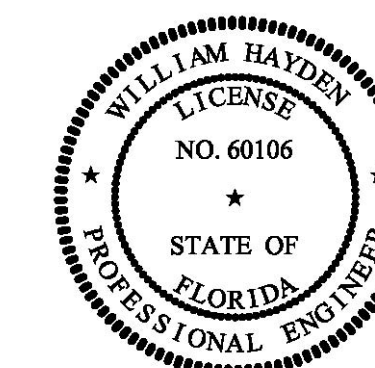
MATERIAL SCHEDULE

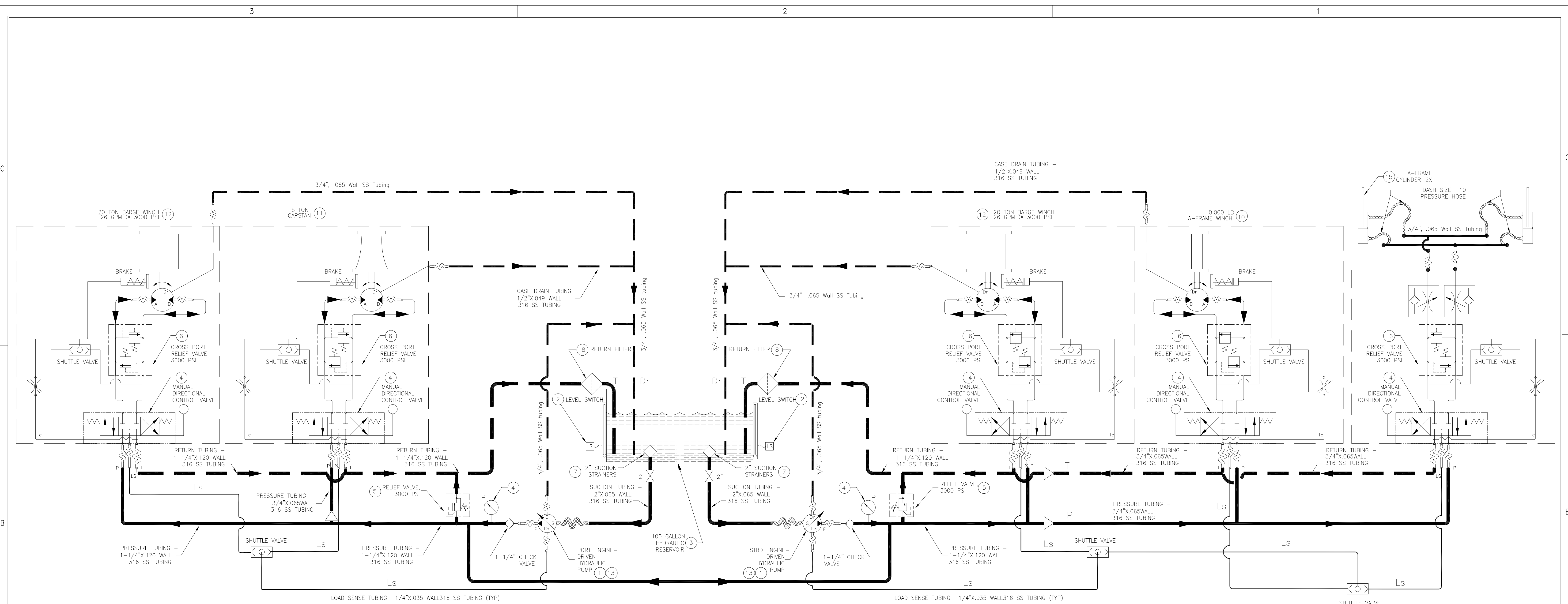
Table with columns: SERVICE, SIZE, PIPE, COMPONENTS (TAKEDOWN JOINTS, FITTINGS, FLEX CONNECT), GASKETS, VALVES (BODY, TRIM), BOLTING (BOLTS/STUDS, NUTS/WASHERS), REMARKS. Details material specifications for hydraulic oil service piping, including stainless steel tubing, fittings, valves, and bolting materials.

GENERAL NOTES

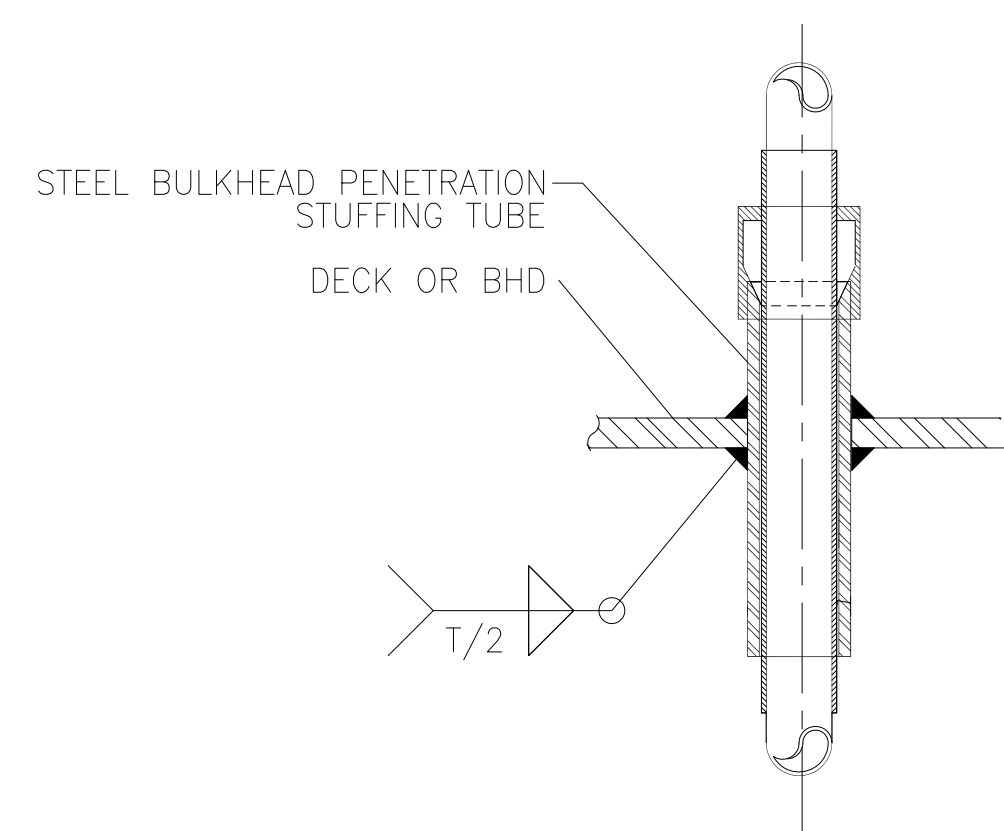
Table with 2 columns: NO., DESCRIPTION. Contains 15 numbered notes detailing installation, material, and safety requirements for the hydraulic system.

Project information block including: PROJECT NO. 17-1393-265, TITLE: 45'-6"x20'-0"x6'-6" NCDOT PUSHBOAT, HYDRAULIC SYSTEM, DeJong & Lebet, Inc. logo, and contact information for Jacksonville, Florida.





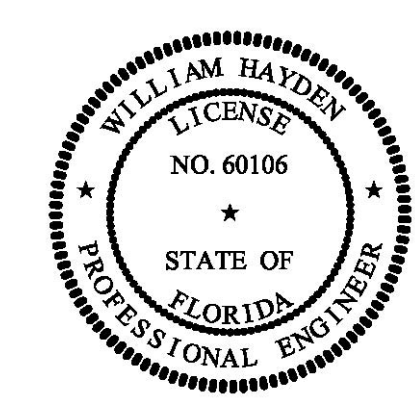
DECK MACHINERY HYDRUALIC SYSTEM DIAGRAM



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

PIPING IDENTIFICATION	
P	- PRESSURE
LS	- LOAD SENSING
T	- TANK RETURN
Tc	- BRAKE TANK RETURN LINE
Dr	- DRAIN
K	- BRAKE PRESSURE
S	- PUMP SUCTION

-- GENERAL NOTES --	
NO.	DESCRIPTION
1.	PIPING SYSTEM MATERIALS, INSTALLATION, AND WORKMANSHIP SHALL BE IN ACCORDANCE 46 CFR SUBCHAPTER M (TOWING VESSELS).
2.	THIS DRAWING IS DIAGRAMMATIC ONLY AND DOES NOT REPRESENT A COMPLETE DETAILED DESIGN. THE CONTRACTOR SHALL DEVELOP FULLY A DETAILED DESIGN THAT PROVIDES A FUNCTIONAL ARRANGEMENT SUITABLE FOR INSTALLATION.
3.	PRIOR TO FABRICATION OF MATING PIPE ASSEMBLIES, VERIFY EQUIPMENT CONNECTIONS FOR SIZE, LOCATION AND TYPE IN ACCORDANCE WITH MANUFACTURER CERTIFIED DRAWINGS, OR DIRECTLY FROM THE EQUIPMENT. TEMPLATE BOLTING PATTERNS AND CONNECTIONS AS REQUIRED.
4.	PIPING SHALL BE ROUTED AS DIRECTLY AS POSSIBLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS.
5.	DO NOT ROUTE PIPING CONTAINING HYDRAULIC OIL NEAR ANY ELECTRICAL DEVICES OR EQUIPMENT. DO NOT LOCATE TAKE-DOWN JOINTS AROUND, NEAR, OR OVER ELECTRICAL EQUIPMENT. ROUTE ALL HYDRAULIC OIL PIPING AT LEAST 18 INCHES AWAY FROM ANY SURFACE THAT NORMALLY HAS AN OPERATING TEMPERATURE OF 450°F OR GREATER EQUIPMENT.
6.	TAKE-DOWN JOINTS SHALL BE PROVIDED AT INTERVALS WHICH ALLOW DISASSEMBLY AND REMOVAL OF PIPING AND EQUIPMENT WITHOUT REQUIRING REMOVAL OR MODIFICATION OF PERMANENT STRUCTURE.
7.	PIPING SHALL BE ADEQUATELY SUPPORTED BY CLAMPS OR HANGERS IN ACCORDANCE WITH APPLICATION. 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.
8.	WHERE PIPES PENETRATE TANK BOUNDARIES, BULKHEADS, OR DECKS, STUFFING TUBES SHALL BE USED.
9.	FLEXIBLE HOSE ASSEMBLIES SHALL MEET THE REQUIREMENTS OF 46 CFR 182.720 AND BE APPROVED FOR HYDRAULIC OIL SERVICE. END FITTINGS SHALL MEET SAE J1475. HOSE ASSEMBLIES SHALL NOT BE LESS THAN 9" IN LENGTH NOR MORE THAN 24" IN LENGTH.
10.	SUPPORT HYDRAULIC TUBING WITH VIBRATION DAMPENING CLAMPS SUPPORTED WITH THE MAXIMUM SPAN INDICATED BELOW
	BETWEEN TUBING CLAMPS BETWEEN CLAMP & UNION CLAMP & 90 BEND
	TUBING SIZE TUBING CLAMPS CLAMP & UNION CLAMP & 90 BEND
	1/4" THRU 3/8" 36" 2" 4"
	1/2" THRU 1" 60" 4" 8"
	1-1/4" THRU 2" 84" 8" 12"
11.	HYDRAULIC OIL PIPING MUST BE SUITABLY INSULATED TO PREVENT INJURIES AND ALLOW ACCESS FOR PIPING INSPECTION



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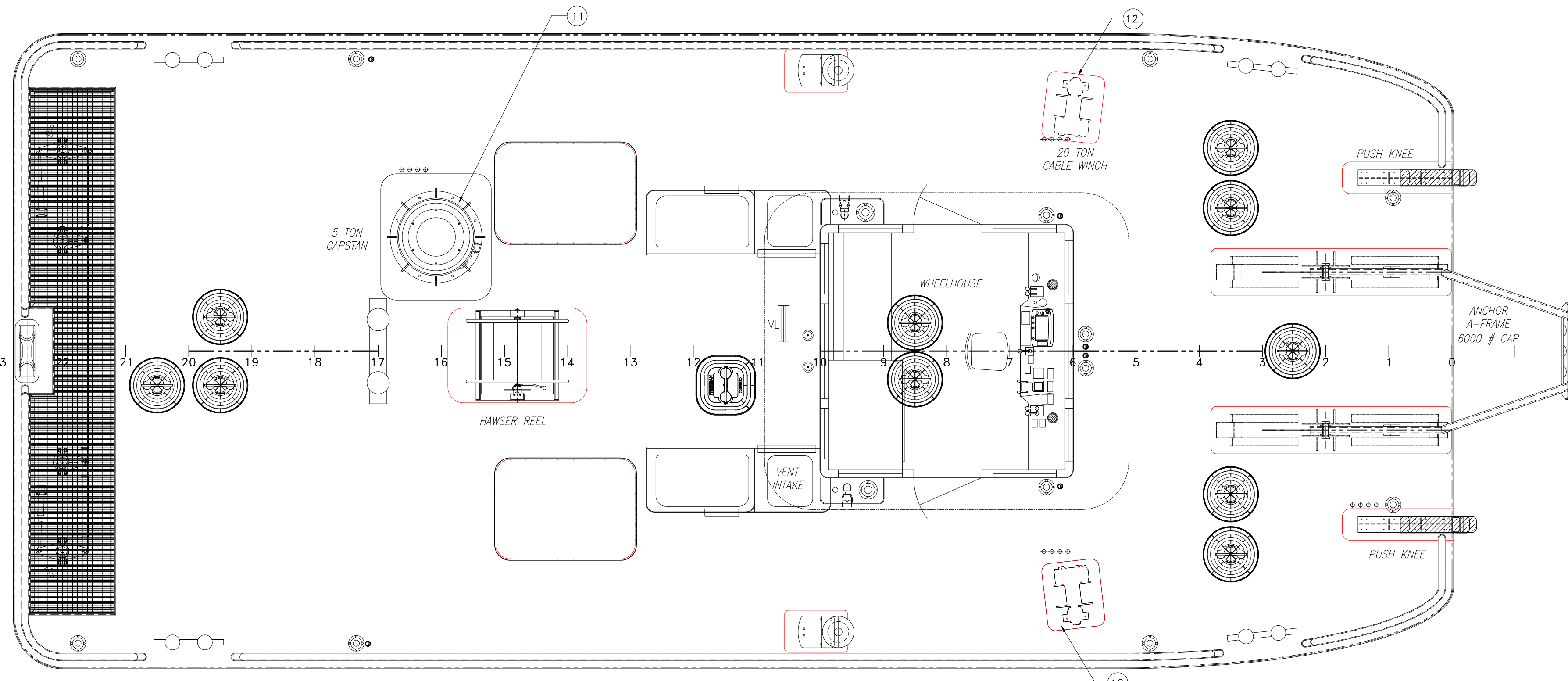
1734 Emerson Street
 Jacksonville, Florida 32207
 www.dejonglebet.com Phone: (904) 399-1673
 Fax: (904) 399-1522
 info@dejonglebet.com

Title: 45'-6"x20'-0"x6'-6" NCDOT PUSHBOAT

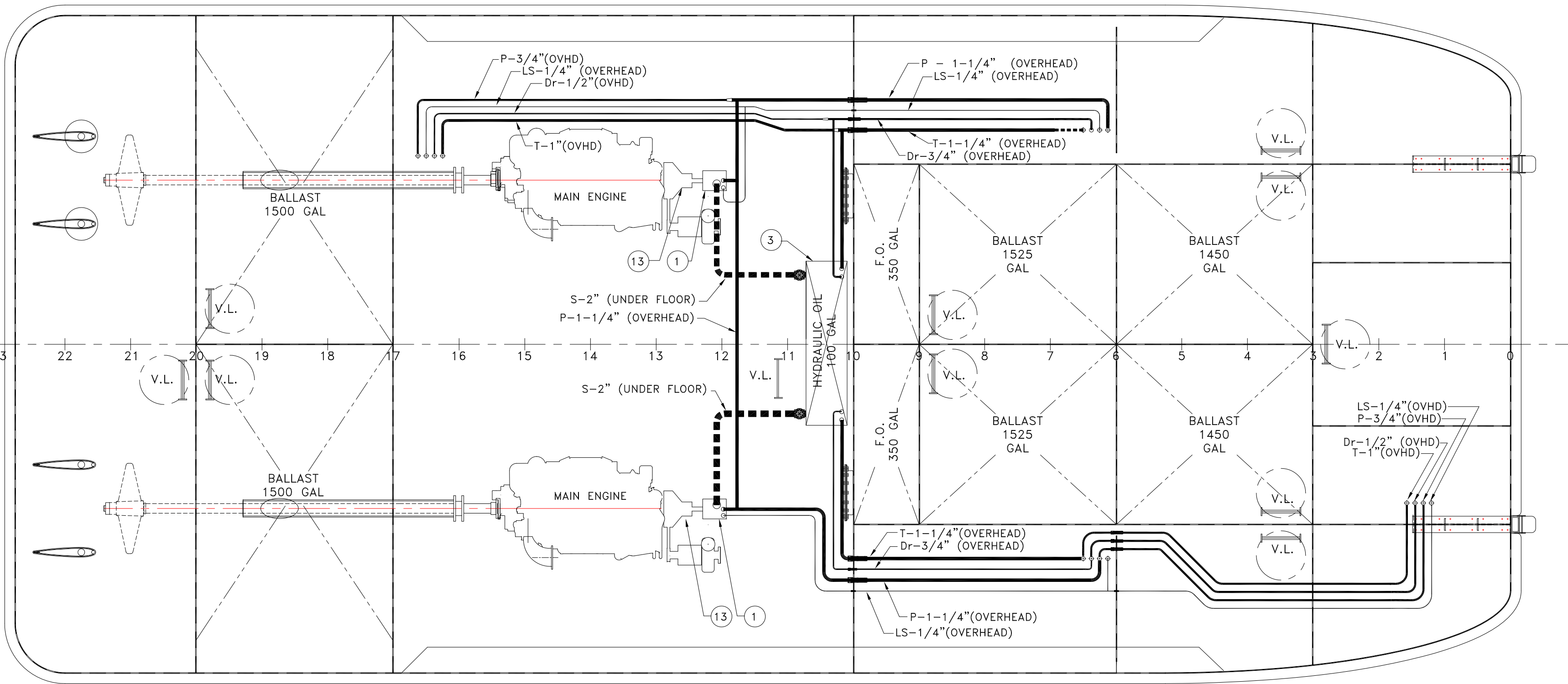
HYDRAULIC SYSTEM

Dwg. No. 17-1393-265 Alt. No. 0
 Sht. 2 of 3

Drawn By: JAH Date: NOVEMBER 21, 2018
 Checked By: _____ Date: _____
 App'd By: _____ Scale: NONE
 ABS App'l: _____ USCG App'l: _____

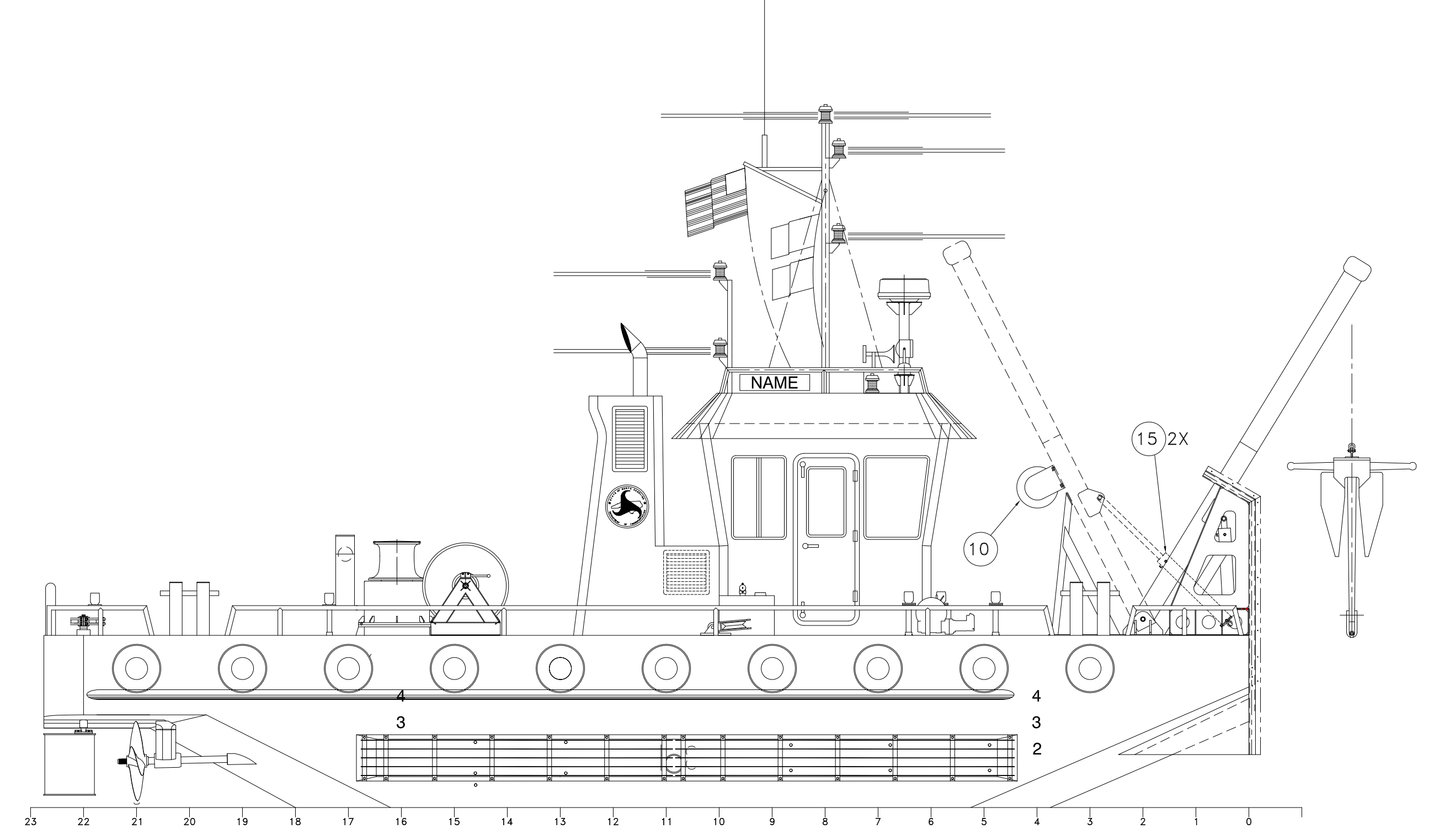


MAIN DECK PLAN

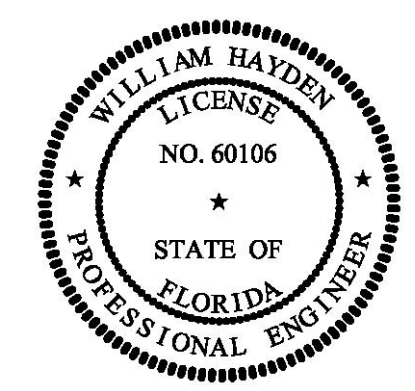


HOLD PLAN

HYDRAULIC SYSTEM ARRANGEMENT



PROFILE
SCALE : 1/4" = 1'-0"



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DeJong & Lebet, Inc.
 Naval Architects
 Marine Engineers
 Consultants
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1734 Emerson Street
 Jacksonville, Florida 32207
 www.dejongandlebet.com

Phone: (904) 399-1673
 Fax: (904) 399-1522
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Title: 45'-6"x20'-0"x6'-6" NCDOT PUSHBOAT

HYDRAULIC SYSTEM

Dwg. No. 17-1393-265 Alt. No. 0
 Sht. 3 of 3

Drawn By: JAH Date: NOVEMBER 21, 2018
 Checked By: _____ Date: _____
 App'd By: _____ Scale: 3/8" = 1'-0" OR NOTED
 ABS App'l: _____ USCG App'l: _____