

- EACH FIRE STATIONS SHALL BE FITTED WITH A 1-1/2" HOSE VALVE, 50 FEET OF 1-1/2" LINED COMMERCIAL FIRE HOSE CONFORMING TO UL19, A HOSE WRENCH, AND A USCG APPROVED COMBINATION FIRE NOZZLE WITH 5/8" ORIFICE. HOSES SHALL BE CONNECTED AND STOWED IN APPROVED ENCLOSED HOSE RACKS.
- NOTED VALVES ISOLATE EXTERIOR FIRE STATIONS PERIODICALLY EXPOSED TO FREEZING TEMPERATURES. LOCATE EACH VALVE IN AN EASILY ACCESSIBLE LOCATION AS CLOSE AS POSSIBLE TO THE WEATHER BOUNDARY. WHERE LOCATED BEHIND JOINERY, PROVIDE A HINGED ACCESS PLATE.
- BUTTERFLY VALVES IN THE FIRE SYSTEM SHALL HAVE PASSED A FIRE TEST SUCH AS API 607. THE CONTRACTOR SHALL SUBMIT DOCUMENTATION.
- APPROVED MECHANICAL FITTING SYSTEMS MAY BE SUBSTITUTED FOR WELDED FITTINGS. FITTINGS SHALL BE ABS AND USCG APPROVED, AND USED IN ACCORDANCE WITH REGULATORY REQUIREMENTS AND MANUFACTURER'S RECOMMENDATIONS.
- MATERIAL TRANSITIONS FROM STEEL TO COPPER NICKEL PIPE SHALL BE ACCOMPLISHED VIA FLANGED JOINTS. THE JOINTS SHALL BE FITTED WITH GALVANIC ISOLATION KITS TO PREVENT DIRECT METAL TO METAL CONTACT.
- EACH FIRE STATION SHALL BE EQUIPPED WITH PUSH BUTTONS AND RUNNING LIGHTS FOR REMOTE START OF FIRE PUMP NO. 1. FIRE PUMP NO. 2 SHALL BE CAPABLE OF REMOTE START FROM THE EOS AND THE PILOTHOUSE. THE PILOTHOUSE SHALL HAVE RUNNING LIGHTS AND PRESSURE GAUGES FOR BOTH PUMPS. SEE REF 1.
- WELDED FITTINGS SHALL BE TIG WELDED. SIL-BRAZING IS NOT ACCEPTABLE.
- WHERE PIPING PENETRATES BULKHEADS OR DECKS, WELDED SLEEVES OR PENETRATION SLEEVES WITH SLIPSEAL SEALING PLUGS (ABS CERT NO. 06-LD182012B/1-PDA) OR RISE/NOFIRNO SEALING (ABS CERT NO 09-LD398300B/1-PDA) MAY BE USED. INSTALL PIPING TRANSITS IN ACCORDANCE WITH REGULATORY REQUIREMENTS AND MANUFACTURER'S APPROVED INSTALLATION DETAILS.
- LOCATE DRAIN VALVES FOR COMPLETE DRAINAGE OF EXTERIOR FIRE STATIONS.
- THE "A" END MAIN DECK HOSE STATION SHALL BE EQUIPPED WITH A 48" AFFW WAND ASSEMBLY. PROVIDE TWO FIVE-GALLON CONTAINERS OF AFFW FOAM CONCENTRATE AND STOW AS DIRECTED BY OWNER.
- CONTRACTOR SHALL INSTALL PUMPS SUCH THAT FLOODED SUCTIONS ARE MAINTAINED AT OPERATIONAL LIGHTSHIP DRAFT.
- LOCATE OVERBOARD SHELL PENETRATION AS FAR ABOVE BASELINE AS POSSIBLE DIRECTLY UNDER THE GUARD.

- GENERAL NOTES
- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
 - THIS DRAWING IS DIAGRAMMATIC AND DOES NOT REPRESENT A COMPLETE DETAILED DESIGN. EQUIPMENT LAYOUT IN A GIVEN AREA IS APPROXIMATE. THE CONTRACTOR SHALL DEVELOP A DETAILED DESIGN THAT PROVIDES A FULLY FUNCTIONAL ARRANGEMENT SUITABLE FOR INSTALLATION, TAKING INTO ACCOUNT ALL NECESSARY SYSTEM INTERFACES AND INTERFERENCES. DIMENSIONS SHALL BE VERIFIED FROM THE SHIP AND MANUFACTURER'S CERTIFIED DRAWINGS AS APPROPRIATE.
 - PIPING SHALL BE RUN AS DIRECTLY AS PRACTICABLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS. PIPE SPOOLS SHALL BE SIZED AND ARRANGED TO PROVIDE FOR REMOVAL, INSPECTION, SERVICING, AND REPLACEMENT OF PIPING, VALVES, FITTINGS, AND EQUIPMENT WITHOUT CUTTING STRUCTURE OR PIPING.
 - 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.
 - 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 BASIC SHIP STRUCTURE. HANGERS SHALL NOT BE WELDED DIRECTLY TO PIPES. ALL COPPER-NICKEL PIPING SHALL BE SUPPORTED USING INSULATED HANGERS.
 - THE PIPING SYSTEM SHALL BE CLEANED AND TESTED IN ACCORDANCE WITH USCG REQUIREMENTS. SEE REF 1.
 - VALVES LOCATED BELOW THE FLOOR PLATES SHALL BE PROVIDED WITH REACH RODS. ALL VALVES SHALL BE PROVIDED WITH VISUAL POSITION INDICATION.
 - OVERBOARD SHELL PENETRATIONS SHALL BE LOCATED AS FAR ABOVE BASELINE AS POSSIBLE WHILE STILL BEING UNDER THE GUARDS.
 - TOTAL DYNAMIC HEAD OF PUMPS FOR REQUIRED FLOW ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL PROVIDE PUMPS MEETING THE REQUIRED FLOW WITH THE INSTALLED PIPING SYSTEM. PUMP MOTORS SHALL BE SELECTED TO PREVENT MOTOR OVERLOAD OVER THE ENTIRE PUMP OPERATING RANGE.
 - FIRE STATION HOSE VALVES SHALL BE COMMERCIAL THREADED ANGLE FIRE HOSE VALVES.

MATERIAL SCHEDULE

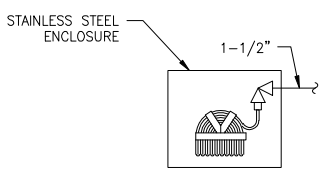
SERVICE	PIPING		TAKEDOWN JOINTS		VALVES		FITTINGS	FLEX CONNECTIONS	REMARKS	
	SIZE	MATERIAL	MATERIAL	GASKETS	BOLTING	BODY				TRIM
FIREMAIN MAWP: 120 PSIG MAX TEMP: AMBIENT	2 1/2" & ABOVE	CU-NI 90/10 ASTM B466 SEAMLESS CLASS 200	FLANGE: CU-NI 90/10 OR BRONZE ASTM B369 ANSI B16.5 SLIP-ON OR WELD NECK, 150#	INORGANIC FIBER WITH NITRILE BINDER ABS FIRE-SAFE TYPE APPROVED	BOLTS: STAINLESS STEEL ASTM A193 GRADE B8M ANSI B18.2.1 NUTS: STAINLESS STEEL ASTM A194 GRADE 8M ANSI B18.2.2	BUTTERFLY: BRONZE OR LINED DUCTILE IRON, WAFER TYPE CHECK: BRONZE, ASTM B61 OR B62, 150#, FLANGED SEE NOTE 13	BUTTERFLY: BRONZE TRIM, RENEWABLE DISK CHECK: BRONZE DISK, RENEWABLE SEATS & SEALS	CU-NI 90/10 OR BRONZE ASTM B61 OR B62, BUTT WELD	-	-
	2" & BELOW	-	CU-NI 90/10 UNION, SOCKET WELD, ASTM B369, 150#	-	-	BALL: BRONZE ASTM B61 OR B62, THREADED SEE NOTE 10	BALL: CHROME PLATED BRONZE BALL PTFE SEATS	CU-NI 90/10 UNION, SOCKET WELD	-	-
SHELL CONNECTIONS MAWP: 120 PSIG MAX TEMP: AMBIENT	ALL	CARBON STEEL ASTM A53 OR A106, GR B, ANSI B36.10 SCH 80 SEAMLESS	FLANGE CARBON STEEL ASTM A105 ANSI B16.5 SLIP-ON OR WELD NECK, 150#	INORGANIC FIBER WITH NITRILE BINDER ABS FIRE-SAFE TYPE APPROVED	BOLTS: STAINLESS STEEL ASTM A193 GRADE B8M ANSI B18.2.1 NUTS: STAINLESS STEEL ASTM A194 GRADE 8M ANSI B18.2.2	GATE: DUCTILE IRON ASTM A395 OR CARBON STEEL ASTM A216 FLANGED, 150#	GATE: STAINLESS STEEL RENEWABLE DISC AND SEAT ASTM A182	CARBON STEEL ASTM A234, GR WPB ANSI B16.9 BUTT WELD SCH 80	-	-

EQUIPMENT LIST

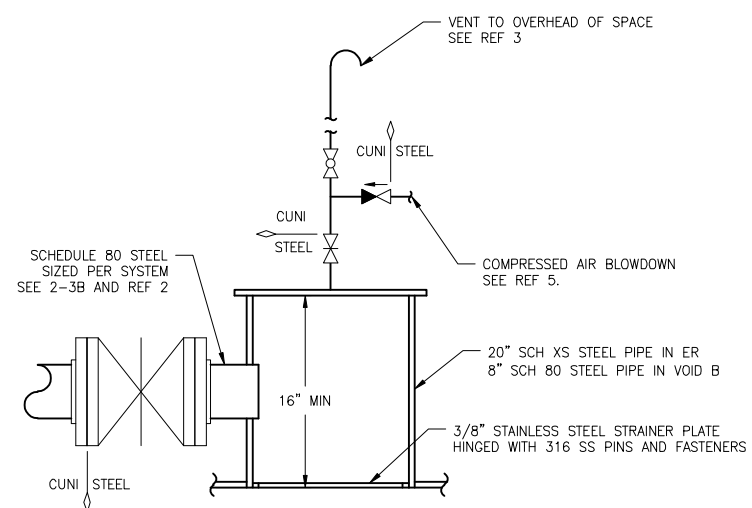
QTY.	SERVICE	TYPE	MODEL	CAPACITY	DRIVE	REMARKS
2	SEA WATER STRAINER 3" NPS	DUPLEX BASKET TYPE	-	-	-	SS BASKET BRONZE BODY
2	FIRE PUMP	HORIZONTAL CENTRIFUGAL	-	170 GPM @ 243' TDH	208V/3φ/60Hz 25 HP TEFC MOTOR 3550 RPM	SS 316 BODY

SYMBOLS LIST

	DIRECTION OF FLOW ARROW
	MATERIAL TRANSITION
	REDUCER
	DECK/BHD PENETRATION
	GATE VALVE
	BALL VALVE
	SWING CHECK VALVE
	BUTTERFLY VALVE
	CENTRIFUGAL PUMP
	PRESSURE GAUGE
	VACUUM PRESSURE GAUGE
	PRESSURE TRANSDUCER
	OVERBOARD DISCHARGE
	FIRE STATION
	DUPLEX STRAINER
	ANGLED GLOBE HOSE VALVE
	STOP CHECK VALVE
	SEA CHEST
	BILGE ROSEBOX SUCTION
	GATE VALVE WITH REACH ROD
	DRAIN PLUG
	VALVE, PRESSURE REGULATING
N.S. / N.O.	NORMALLY SHUT / NORMALLY OPEN



DETAIL 1-6B
TYP FIRE STATION
SEE NOTE 11



DETAIL 1-5A
SEA CHEST

REFERENCES

- 18026-200-832-1 TECHNICAL SPECIFICATION
- 18026-200-256-1 COOLING SYSTEM DIAGRAM
- 18026-200-506-1 FILLS, VENTS, AND SOUNDS
- 18026-200-529-1 BILGE AND BALLAST SCHEMATIC
- 18026-200-551-1 COMPRESSED AIR PIPING SCHEMATIC

North Carolina Ferry System
8500 SHIPWAY RD WAREHOUSES, NC 27683

Elliott Bay Design Group
North Carolina, PLLC

CLIENT: NORTH CAROLINA D.O.T.
RALEIGH, NORTH CAROLINA
PROJECT: DOUBLE-ENDED AZIMUTH DRIVE FERRY



FIRE MAIN SYSTEM SCHEMATIC

SIZE	DWG NO.	REV
D	18026-200-521-1	-

SCALE	FILE NAME	SHEET	OF
NONE	18026-200-521-1-	1	2

DWN	MOD	CKD	APVD	APVD DATE
NJB	JEH	CKD	MEJ	7/31/18

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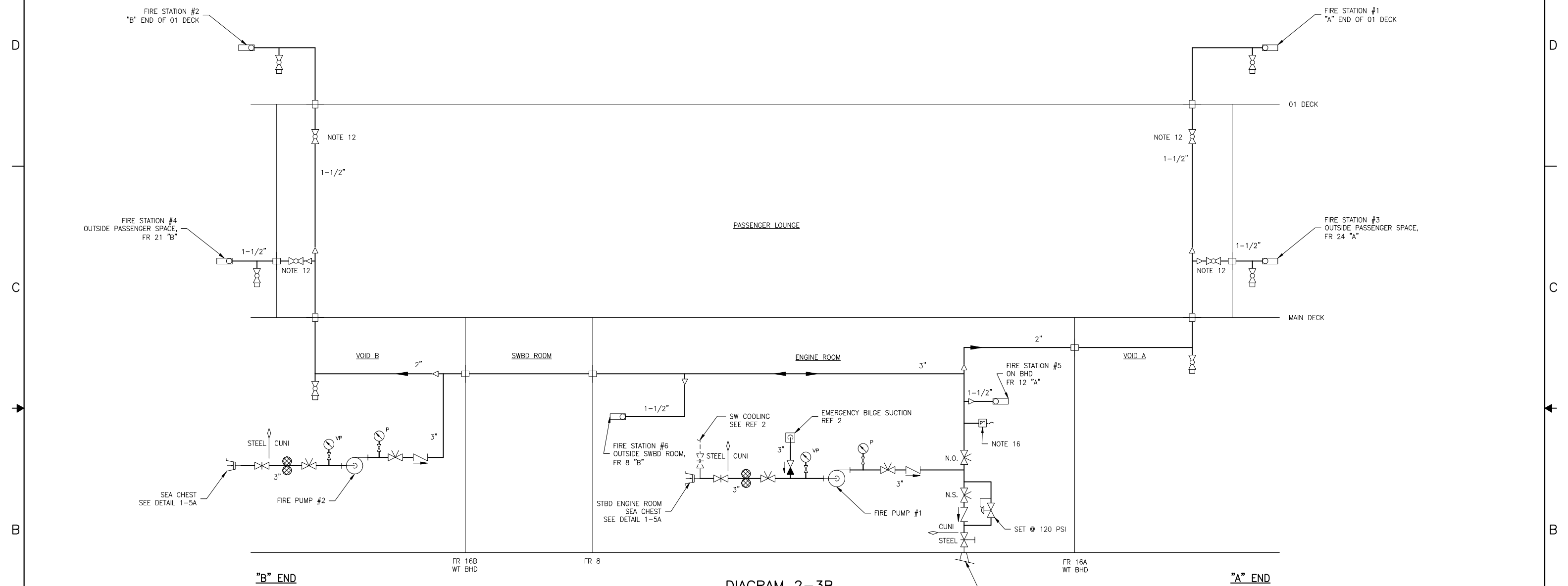
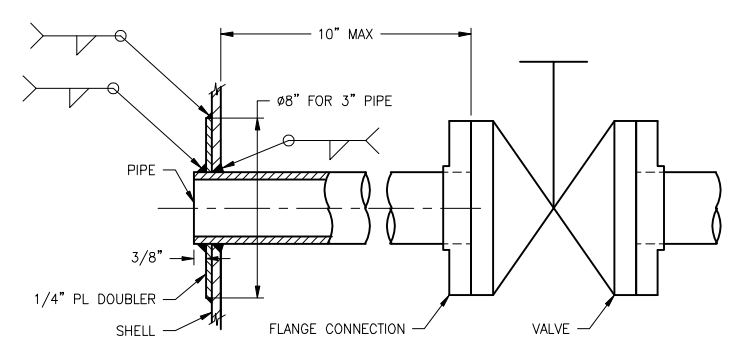
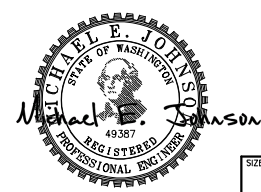


DIAGRAM 2-3B
 FIRE MAIN SYSTEM SCHEMATIC



DETAIL 2-5A
 OVERBOARD DISCHARGE



SIZE	D	OWG NO.	18026-200-521-1	REV	-
SCALE	NONE	FILE NAME	18026-200-521-1-	SHEET	2 OF 2

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