

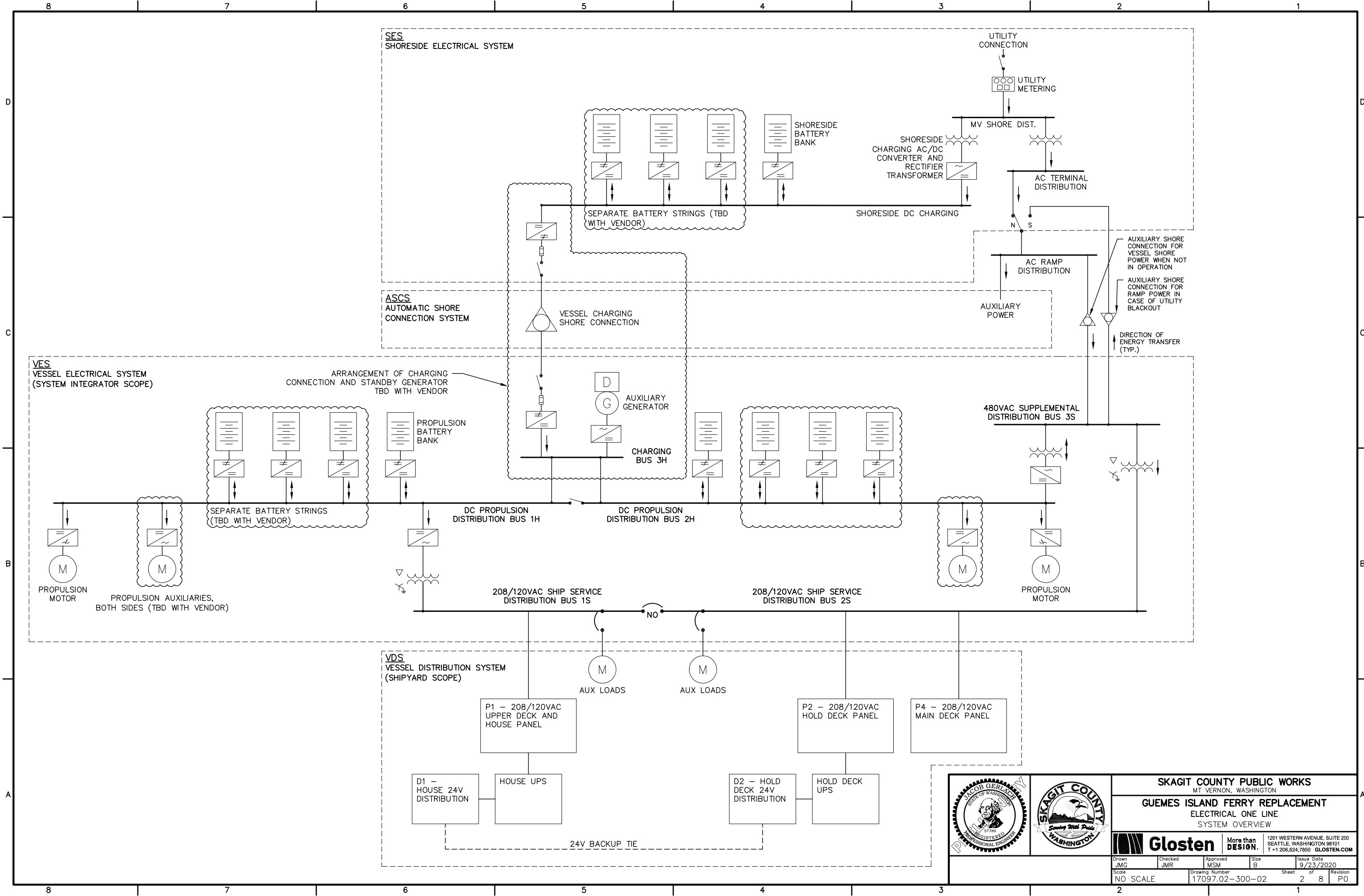
SYMBOL LIST	
SYMBOL	DESCRIPTION
	CIRCUIT BREAKER MOLDED CASE X = FRAME SIZE (AMPS) Y = TRIP SETTING (AMPS) Z = NUMBER OF POLES
	CIRCUIT BREAKER FUNCTIONS X = ST: SHUNT TRIP X = M: MOTOR ACTUATED X = UV: UNDERVOLTAGE TRIP X = RP: REVERSE POWER PROTECTION X = RO: REMOTE OPERATION & INDICATION X = R: GENERATOR PROTECTIVE RELAY
	DIESEL-GENERATOR SET
	SHORE POWER RECEPTACLE
	CONVERTER VARIABLE VOLTAGE TO CONSTANT VOLTAGE (BIDIRECTIONAL)
	VARIABLE-SPEED INVERTER DC INPUT, VARIABLE FREQUENCY OUTPUT
	INVERTER DC INPUT, FIXED FREQUENCY OUTPUT
	TRANSFORMER, DELTA-WYE OTHER WIRING OPTIONS AS INDICATED
	FUSE
	CONTACTOR
	BATTERY BANK

GENERAL NOTES				
1.	THIS ONE-LINE DIAGRAM PROVIDES THE POWER DISTRIBUTION SYSTEM FOR THE GUEMES ISLAND FERRY REPLACEMENT.			
1.1.	A CONCEPTUAL OVERVIEW OF THE BATTERY PROPULSION AND CHARGING SYSTEM IS SHOWN ON SHEET 2.			
1.2.	CONTRACTOR SHALL BE RESPONSIBLE FOR FINALIZING DESIGN BASED ON FINAL EQUIPMENT SELECTION AND DETAILS.			
2.	ALL EQUIPMENT AND DESIGNS SHALL COMPLY WITH, BUT NOT BE LIMITED TO, THE REQUIREMENTS OF THE US COAST GUARD (USCG) AND THE RECOMMENDATIONS OF THE INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE) STANDARD 45.			
3.	USCG REGULATIONS FOR STRUCTURAL FIRE PROTECTION SHALL BE FOLLOWED.			
4.	NYLON OR BRASS CABLE STUFFING TUBES SHALL BE USED WHEN PENETRATING ELECTRICAL ENCLOSURES OR JUNCTION BOXES. STEEL KICKPIPES WITH BRASS STUFFING GLANDS OR MULTI-CABLE TRANSITS SHALL BE INSTALLED AT ALL DECK AND BULKHEAD PENETRATIONS.			
5.	ALL EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH THE NEC (NFPA 70) ARTICLE 250, AS REQUIRED BY THE USCG AND IEEE 45.			
6.	ALL NEW CABLES SHALL BE TESTED FOR INSULATION RESISTANCE (MEGGERED). CABLES MUST MEET IEEE-45 (2002) SECTION 34.2.1. TEST RESULTS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE.			
7.	NO CABLE SPLICING WILL BE ALLOWED.			
8.	ALL EQUIPMENT SHOWN SHALL BE NEW.			
9.	SINGLE-PHASE LOADS ON THREE-PHASE PANELS SHALL BE BALANCED TO WITHIN 15% WHEREVER POSSIBLE.			
10.	ELECTRICAL PROTECTIVE DEVICES SHALL BE SIZED IN ACCORDANCE WITH THE REQUIREMENTS OF USCG AND THE RECOMMENDATIONS OF IEEE-45.			
11.	CABLES SHALL BE SIZED IN ACCORDANCE WITH IEEE-45. CABLE SIZES SHALL BE INCREASED TO COMPENSATE FOR VOLTAGE DROP AND/OR CABLE BANKING AS NECESSARY TO MEET REGULATORY REQUIREMENTS. CABLE SIZES SHOWN ON THIS DRAWING ARE IN ACCORDANCE WITH IEEE-45 (2002), TABLE 25 (LSX INSULATION AMPACITIES) AND THE FOLLOWING DERATING FACTORS:			
11.1.	AMBIENT TEMPERATURE: NONE (45°C)			
11.2.	20% FOR DOUBLE-BANKED INSTALLATION, FOR ALL CABLES SMALLER THAN 1/0 AWG			
12.	ELECTRICAL EQUIPMENT SHALL ADHERE TO THE FOLLOWING CONSTRUCTION STANDARDS/REGULATIONS, WITH MARINE SUPPLEMENTS AS APPLICABLE (ABS REFERS TO THE ABS RULES FOR BUILDING AND CLASSING STEEL VESSELS UNDER 90 METERS):			
	GENERATORS - NEMA MG-1			
	MOTORS - NEMA MG-1 OR IEEE-841			
	CIRCUIT BREAKERS - UL489SA			
	TRANSFORMERS - ANSI C57.12.01, UL506, IEC 60726 OR ABS			
	MOTOR CONTROLLERS/MCCS/VFDS - UL508/UL508A/UL508C			
	PANELBOARDS - UL67			
	ENCLOSURES - NEMA 250			
	CABLES - IEEE-45			
13.	GROUND FAULT DETECTION SHALL BE PROVIDED IN THE INTEGRATOR'S VES SCOPE, INCLUDING MONITORING DOWNSTREAM OF THE 3S AND 2S TRANSFORMERS.			

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPD

SHEET LIST	
SHT	TITLE
1	NOTES, REVISIONS & SYMBOL LIST
2	SYSTEM OVERVIEW
3	STBD AC SWITCHBOARDS (3S AND 1S)
4	PORT AC SWITCHBOARD (2S)
5	UPPER DECK POWER AND LIGHTING PANEL (P1)
6	HOLD DECK POWER AND LIGHTING PANEL (P2)
7	MAIN DECK POWER AND LIGHTING PANEL (P4)
8	DC PANELS

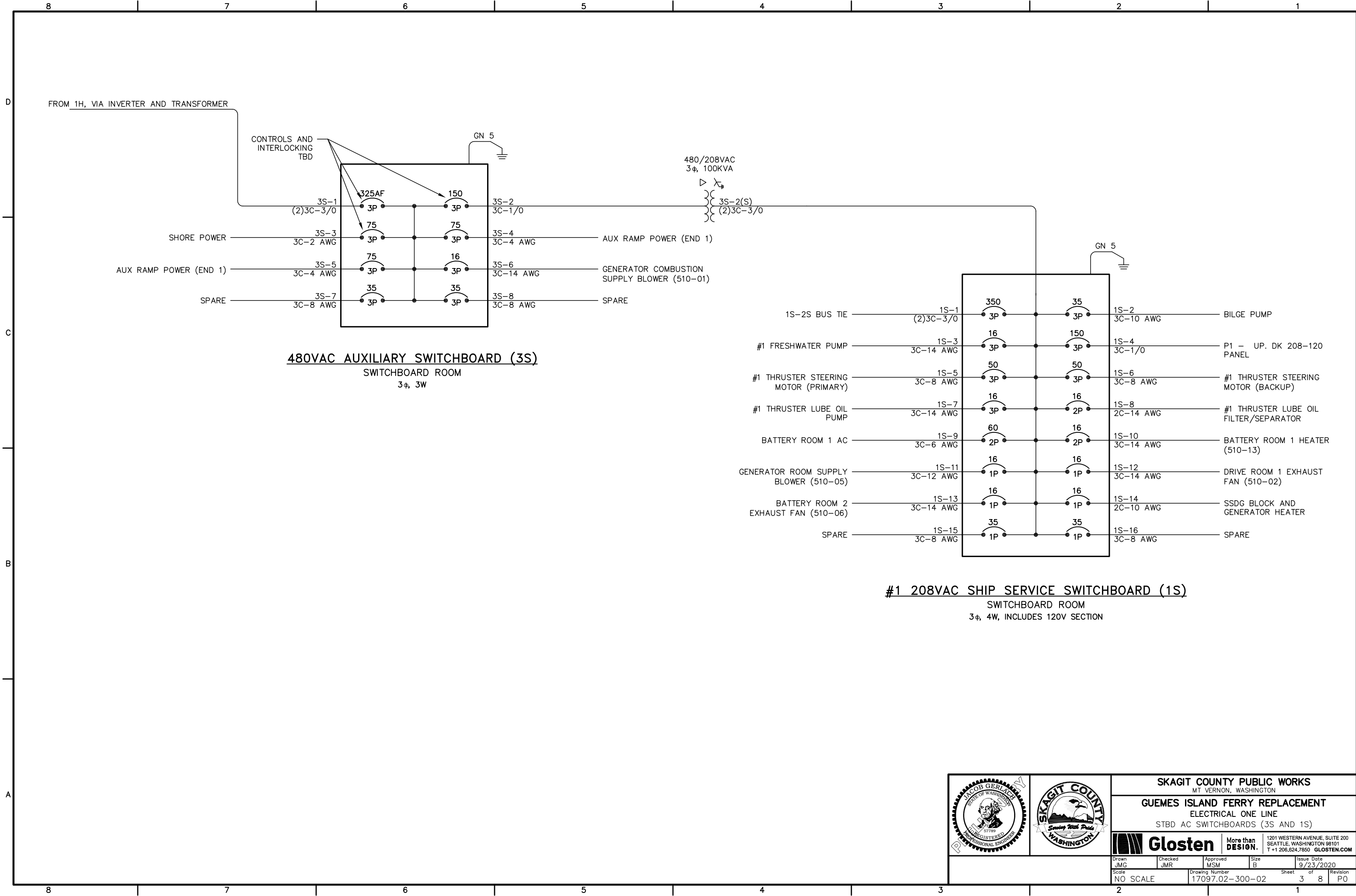
		SKAGIT COUNTY PUBLIC WORKS MT. VERNON, WASHINGTON		
		GUEMES ISLAND FERRY REPLACEMENT ELECTRICAL ONE LINE NOTES, REVISIONS & SYMBOL LIST		
		1201 WESTERN AVENUE, SUITE 200 SEATTLE, WASHINGTON 98101 T +1 206.624.7850 GLOSTEN.COM		
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			Revision P0	



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GUEMES ISLAND FERRY REPLACEMENT
 ELECTRICAL ONE LINE
 SYSTEM OVERVIEW

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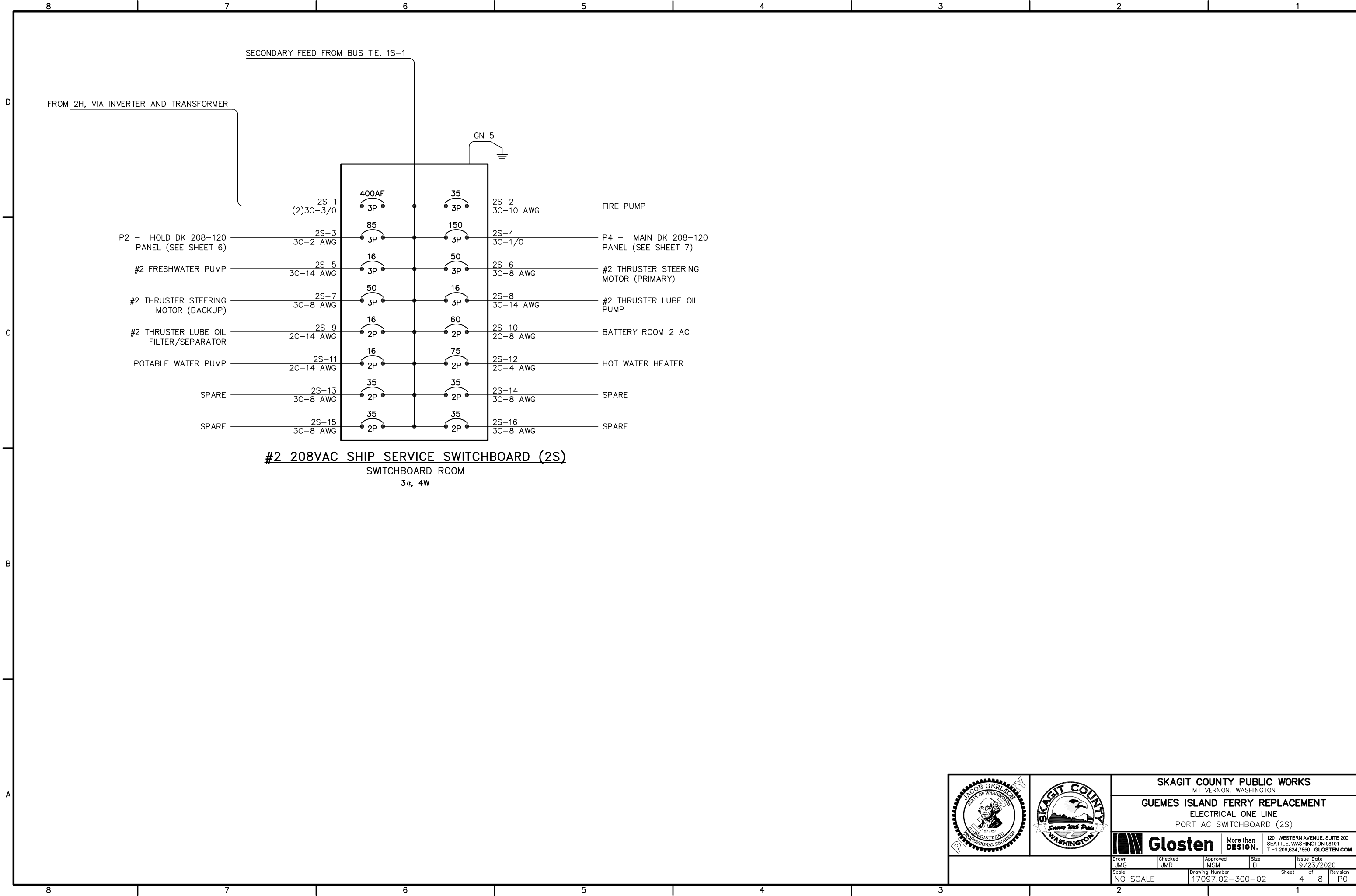
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480VAC AUXILIARY SWITCHBOARD (3S)
 SWITCHBOARD ROOM
 3 ϕ , 3W

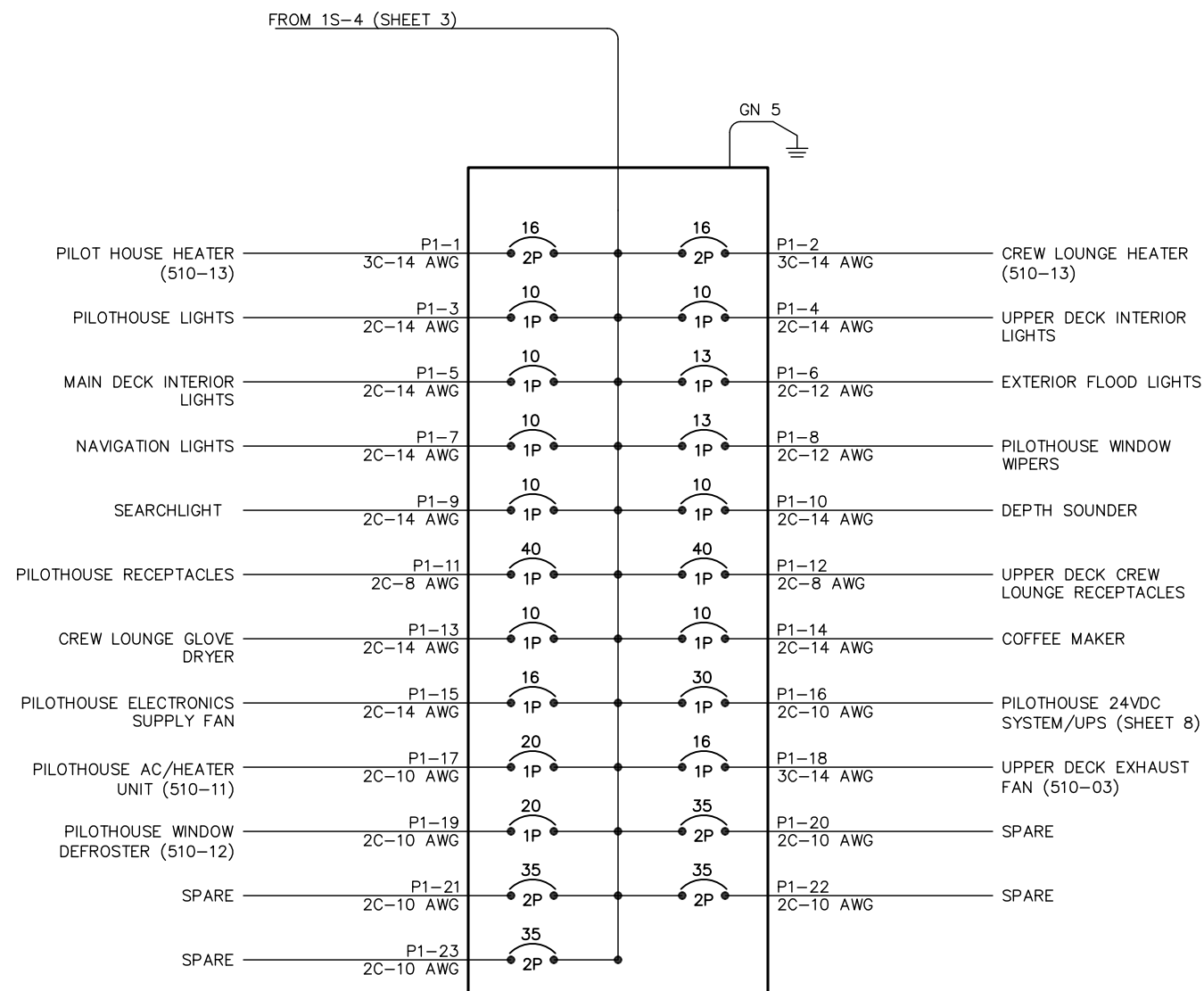
#1 208VAC SHIP SERVICE SWITCHBOARD (1S)
 SWITCHBOARD ROOM
 3 ϕ , 4W, INCLUDES 120V SECTION

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		GUEMES ISLAND FERRY REPLACEMENT ELECTRICAL ONE LINE STBD AC SWITCHBOARDS (3S AND 1S)			
		More than DESIGN.		1201 WESTERN AVENUE, SUITE 200 SEATTLE, WASHINGTON 98101 T+1 206.824.7850 GLOSTEN.COM	
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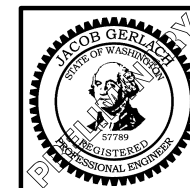
#2 208VAC SHIP SERVICE SWITCHBOARD (2S)
 SWITCHBOARD ROOM
 3φ, 4W

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		GUEMES ISLAND FERRY REPLACEMENT ELECTRICAL ONE LINE PORT AC SWITCHBOARD (2S)			
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UPPER DECK POWER AND LIGHTING PANEL (P1)

UPPER DECK ELECTRICAL ROOM
 125 AMP BUS, MLO, 30-POLE
 3 ϕ , 4W

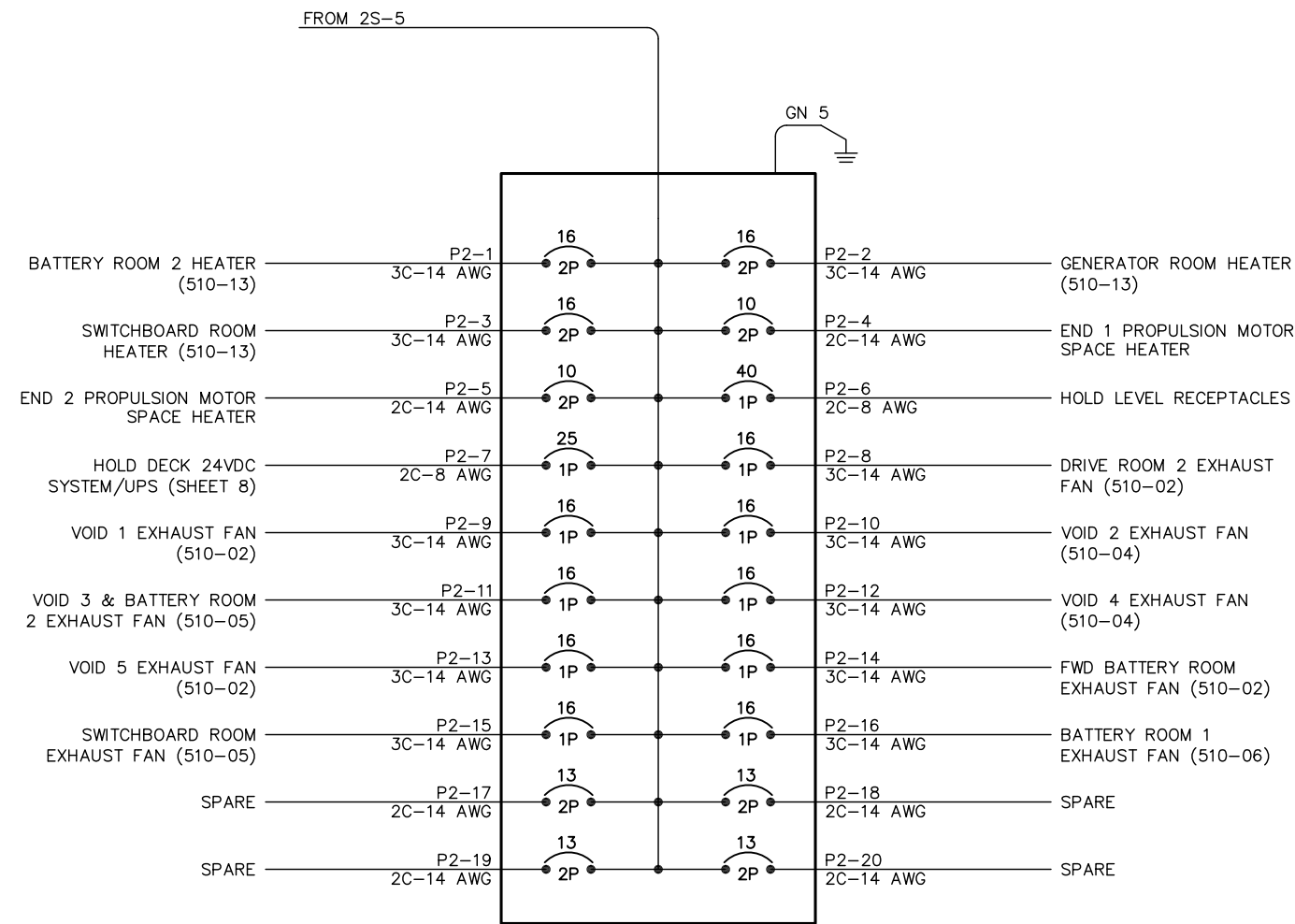


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GUEMES ISLAND FERRY REPLACEMENT
 ELECTRICAL ONE LINE
 UPPER DECK POWER AND LIGHTING PANEL (P1)

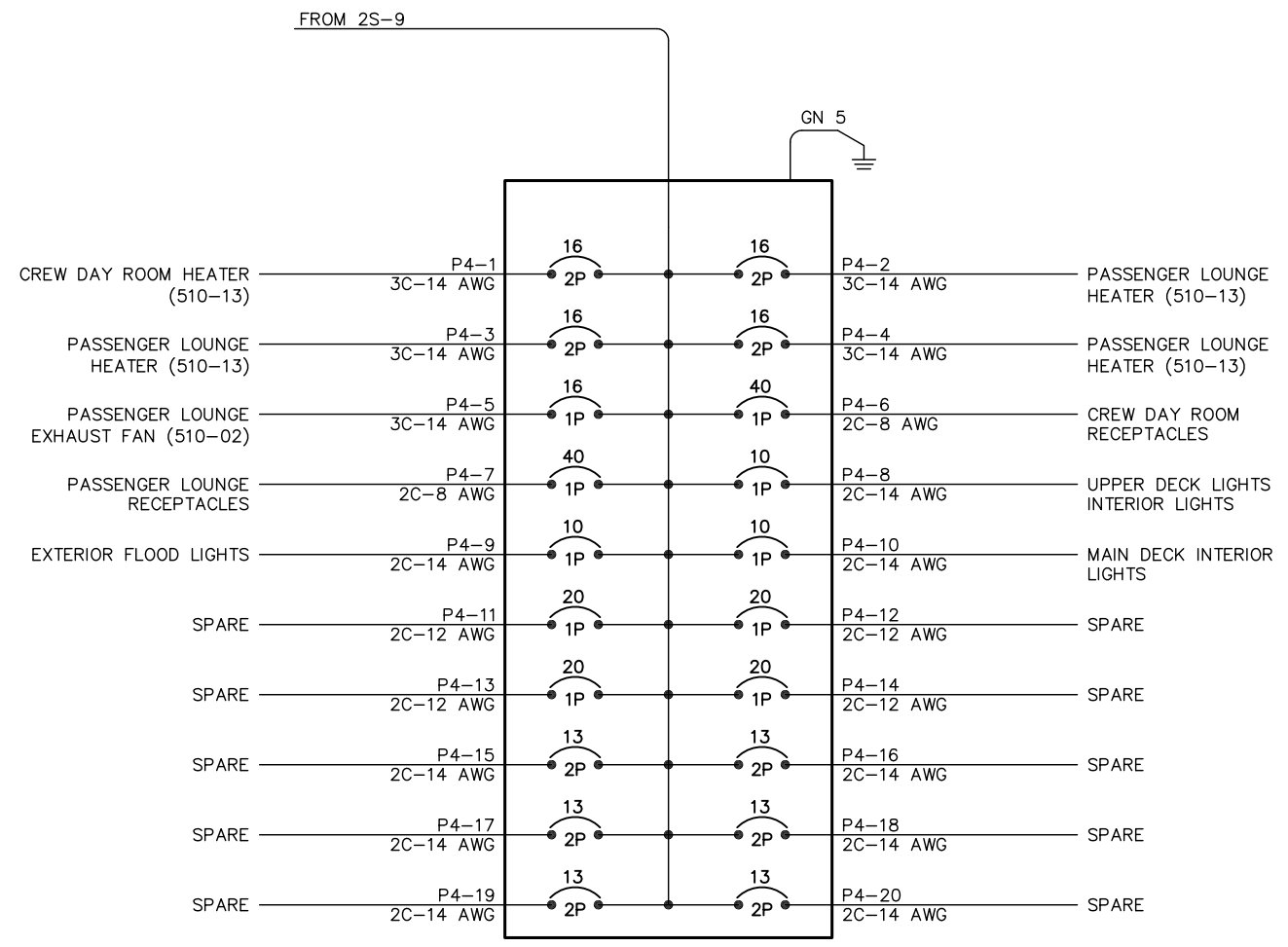
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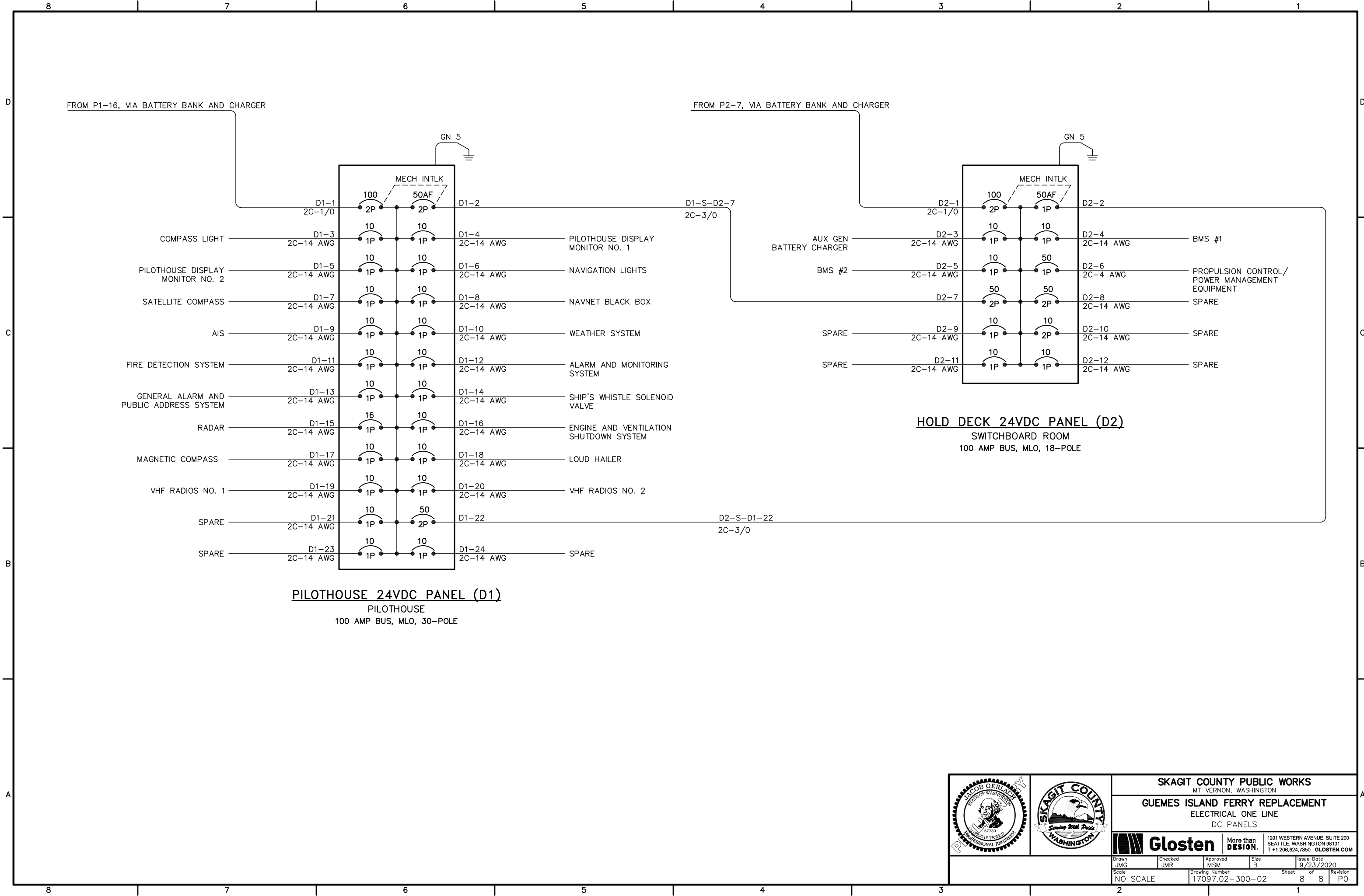
HOLD DECK POWER AND LIGHTING PANEL (P2)
 SWITCHBOARD ROOM
 125 AMP BUS, MLO, 30-POLE
 3 ϕ , 4W

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		GUEMES ISLAND FERRY REPLACEMENT ELECTRICAL ONE LINE HOLD DECK POWER AND LIGHTING PANEL (P2)			
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MAIN DECK POWER AND LIGHTING PANEL (P4)
 SWITCHBOARD ROOM
 125 AMP BUS, MLO, 30-POLE
 3 ϕ , 4W

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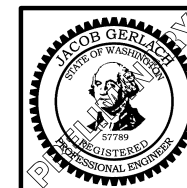


PILOTHOUSE 24VDC PANEL (D1)

PILOTHOUSE
100 AMP BUS, MLO, 30-POLE

HOLD DECK 24VDC PANEL (D2)

SWITCHBOARD ROOM
100 AMP BUS, MLO, 18-POLE



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ELECTRICAL ONE LINE
DC PANELS

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