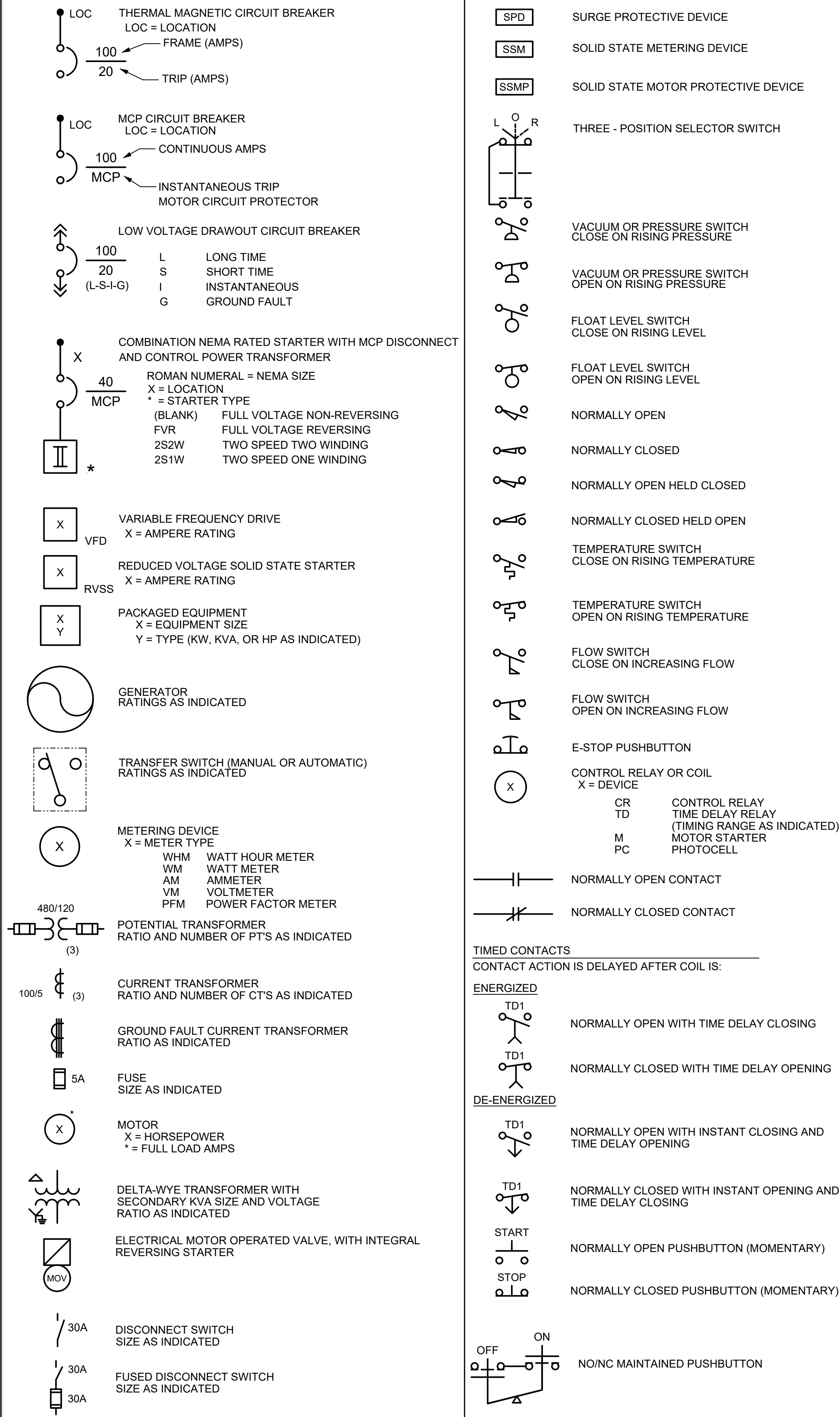
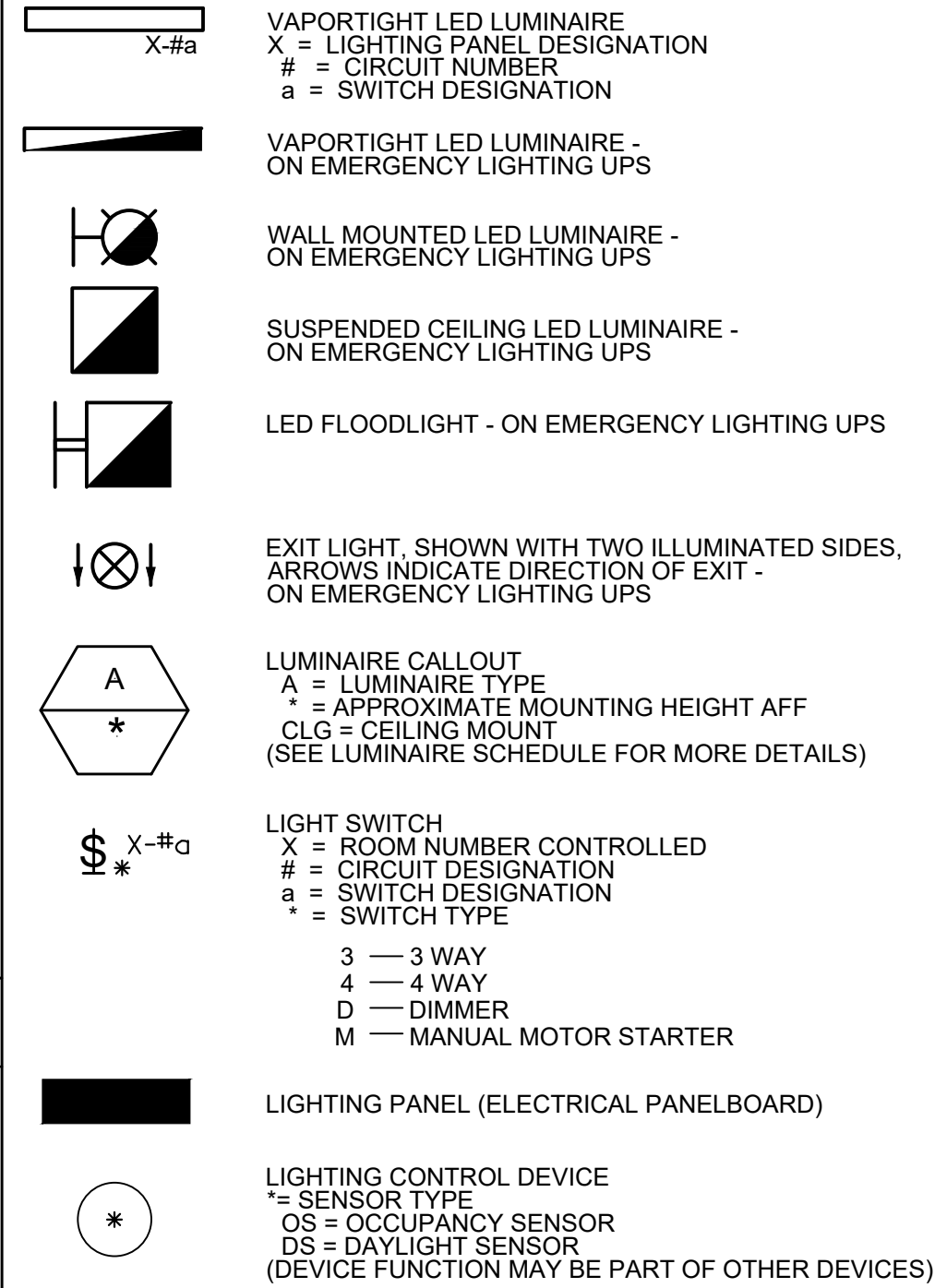


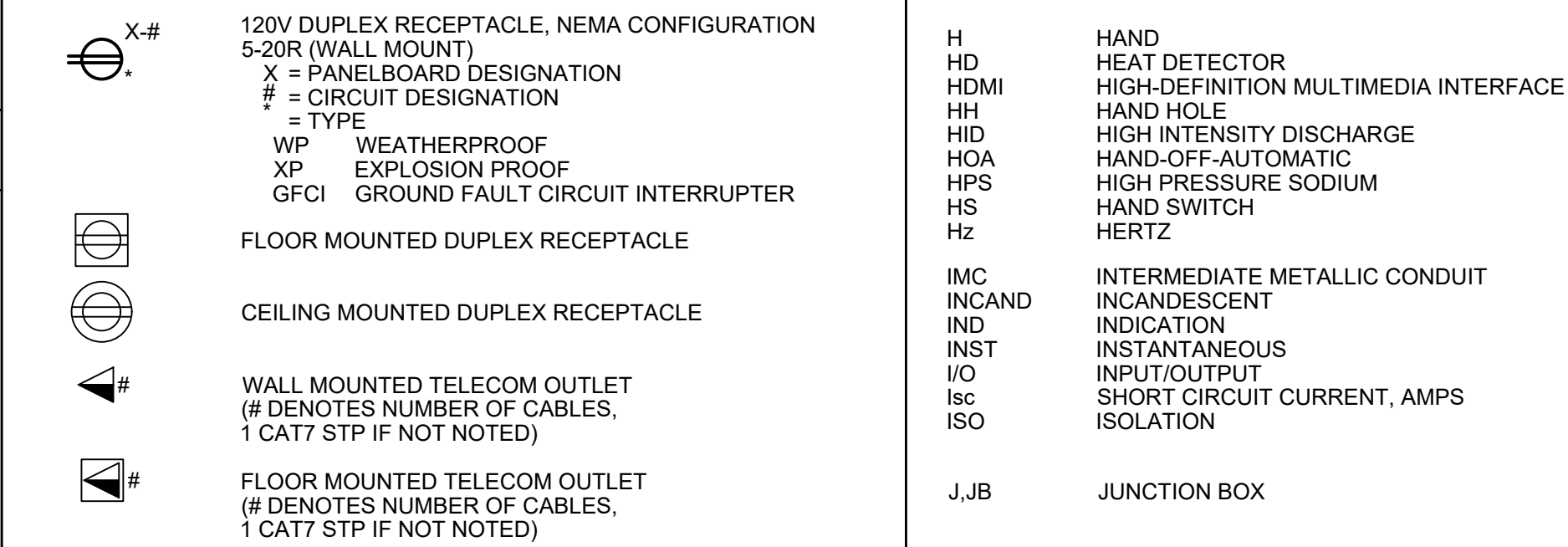
SINGLE LINE DIAGRAM, SCHEMATIC DIAGRAM SYMBOLOGY AND PLAN SYMBOLOGY



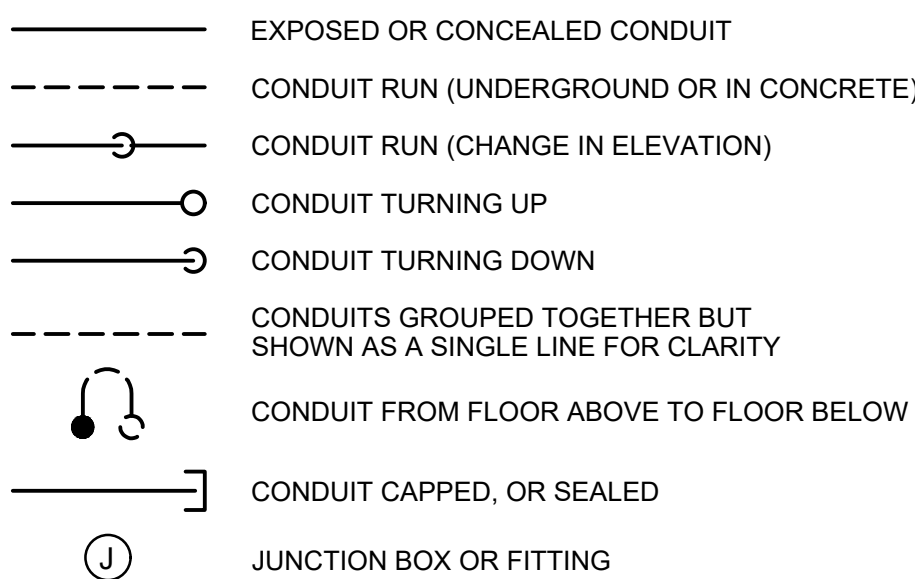
LIGHTING SYMBOLOGY



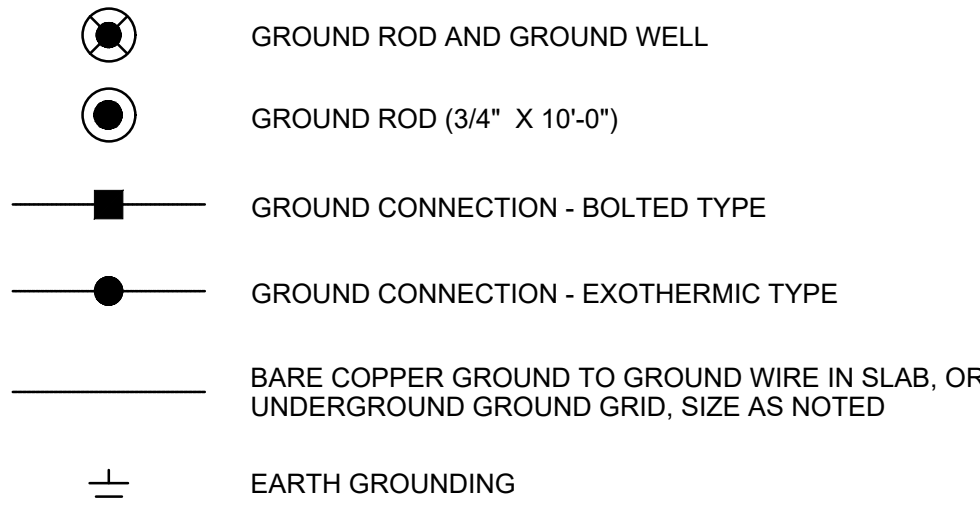
RECEPTACLES



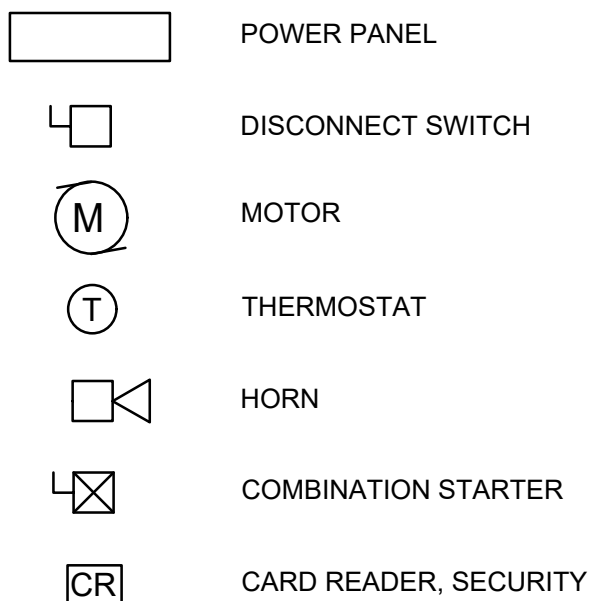
CONDUIT AND RACEWAY SYMBOLOGY



GROUNDING SYMBOLOGY



MISCELLANEOUS ELECTRICAL SYMBOLS



ELECTRICAL ABBREVIATIONS

AC	AMPERE, AUTOMATIC	M	MOTOR CONTACTOR COIL
AF	ALTERNATING CURRENT	mA	MILLIAMPERE
AM	CIRCUIT BREAKER FRAME SIZE	MCP	MOTOR CIRCUIT PROTECTOR
AN	ANNUNCIATOR	MFR	MANUFACTURER
AS	ADJUSTABLE SPEED	MIN	MINIMUM
AT	AMPERE TRIP	MINS	MINUTES
ATS	AUTOMATIC TRANSFER SWITCH	MLO	MAIN LUGS ONLY
AUTO	AUTOMATIC	MOV	MOTOR OPERATED VALVE
AV	AUDIOVISUAL	MS	MANUAL MOTOR STARTER
AWG	AMERICAN WIRE GAUGE	MTS	MANUAL TRANSFER SWITCH
BATT	BATTERY	SHC	SODIUM HYPOCHLORITE
BC	BARE COPPER	NEUT	NEUTRAL
BKR	BREAKER	NP	NAMEPLATE
C	CONDUIT, CLOSED	O	OPEN, OFF
CAP	CAPACITOR	OL	OVERLOAD
CAT7	CATEGORY 6A STP ETHERNET CABLE		
CB	CIRCUIT BREAKER	PA	PUBLIC ADDRESS
CKT	CIRCUIT	PB	PUSHBUTTON, PULLBOX
CLF	CURRENT LIMITING FUSE	PC	PHOTOCELL
COM	COMMON	PCM	PROCESS CONTROL MODULE
COMM	COMMUNICATIONS	PF	POWER FACTOR
COMP	COMPARTMENT	PFM	POWER FACTOR METER
CP	CONTROL PANEL	PH	PHASE
CPT	CONTROL POWER TRANSFORMER	PL	PILOT LIGHT
CR	CONTROL RELAY, CARD READER	PLN	PANELBOARD
CT	CURRENT TRANSFORMER	PANLBD	PANELBOARD
		PP	POWER PANELBOARD
DCS	DISTRIBUTED CONTROL SYSTEM	POS	POSITION
DISC	DISCONNECT	POT	POTENTIOMETER
DISTR	DISTRIBUTION	PRI	PRIMARY
DPDT	DOUBLE POLE DOUBLE THROW	PTZ	POTENTIAL TRANSFORMER
DPST	DOUBLE POLE SINGLE THROW	PWR	PAN-TILT-ZOOM POWER
E	EMERGENCY	R	REMOTE
EMT	ELECTRICAL METALLIC TUBING	RECPT	RECEPTACLE
EN	ETHERNET	RGS	RIGID GALVANIZED STEEL
ENCL	ENCLOSURE	RMS	ROOT MEAN SQUARE
ETM	ELAPSED TIME METER	RVSS	REDUCE TERMINAL UNIT REDUCED VOLTAGE SOLID STATE
F	FREQUENCY, FUSE, FIXED		
FDR	FEEDER	SEL SW	SELECTOR SWITCH
FLA	FULL LOAD AMPS	SEQ	SEQUENCE
FLUOR	FLUORESCENT	SHLD	SHIELD
FM	FREQUENCY METER	SIG	SIGNAL
FO	FIBER OPTIC	SP	SPARE
FVR	FULL VOLTAGE REVERSING	SP HTR	SPACE HEATER
FVNR	FULL VOLTAGE NON-REVERSING	SPDT	SINGLE POLE DOUBLE THROW
		SPST	SINGLE POLE SINGLE THROW
GEN	GENERATOR	SSM	SOLID STATE METER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	SSMP	SOLID STATE MOTOR PROTECTOR
GND	GROUND	ST, SH	SHUNT TRIP
		STR	SHIELDED TWISTED PAIR
H	HAND	STP	STARTER
HD	HEAT DETECTOR	STTU	SOLID STATE TRIP UNIT
HDMI	HIGH-DEFINITION MULTIMEDIA INTERFACE	SW	SWITCH
HH	HAND HOLE	SWBD	SWITCHBOARD
HID	HIGH INTENSITY DISCHARGE	SWGR	SWITCHGEAR
HOA	HAND-OFF-AUTOMATIC		
HPS	HIGH PRESSURE SODIUM	TACH	TACHOMETER
HS	HAND SWITCH	TB	TERMINAL BOX
HZ	HERTZ	TEL	TELEPHONE
		TERM	TERMINAL
IMC	INTERMEDIATE METALLIC CONDUIT	TM	REPEAT CYCLE TIMER
INCAND	INCANDESCENT	TD	TIME DELAY RELAY
IND	INDICATION	TS	TEMPERATURE SWITCH
INST	INSTANTANEOUS		
I/O	INPUT/OUTPUT	UPS	UNINTERRUPTIBLE POWER SUPPLY
Isc	SHORT CIRCUIT CURRENT, AMPS		
ISO	ISOLATION	V	VOLTAGE, VOLTS
		VA	VOLT AMPERE
J,B	JUNCTION BOX	VAR	VOLT AMPERE REACTIVE
		VCP	VENDOR CONTROL PANEL
		VFD	VARIABLE FREQUENCY DRIVE
KA	KILO AMPERES	VM	VOLTMETER
KCMIL	KILO AMP INTERRUPTING CURRENT	VP	VAPOR PROOF
KVA	KILOVOLT AMPERE		
		W	WATTS, WIRE
L	LOCAL	WM	WATT METER
LCP	LOCAL CONTROL PANEL	WP	WEATHERPROOF
LCS	LOCAL CONTROL STATION	WTP	WATER TREATMENT PLANT
LOC	LOCAL		
LOR	LOCAL-OFF-REMOTE	XFMR	TRANSFORMER
LOS	LOCKOUT STOP PUSHBUTTON	XMTR	TRANSMITTER
LP	LIGHTING PANEL	XP	EXPLOSION PROOF
LRA	LOCKED ROTOR AMPS		
LS	LEVEL, SWITCH		
LSIG	LONG SWEEP (CONDUIT FITTING)		
LTS	LONG, SHORT, INSTANTANEOUS, GROUND		
LTG	LIGHTING		
LTS	LIGHTS		

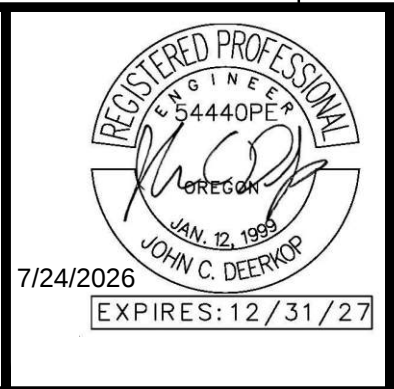
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NOTICE



IF THIS BAR DOES
NOT MEASURE 1"
THEN DRAWING IS
NOT TO SCALE

JCD
DESIGNED
JCD
DRAWN
EWM
CHECKED



BID SET

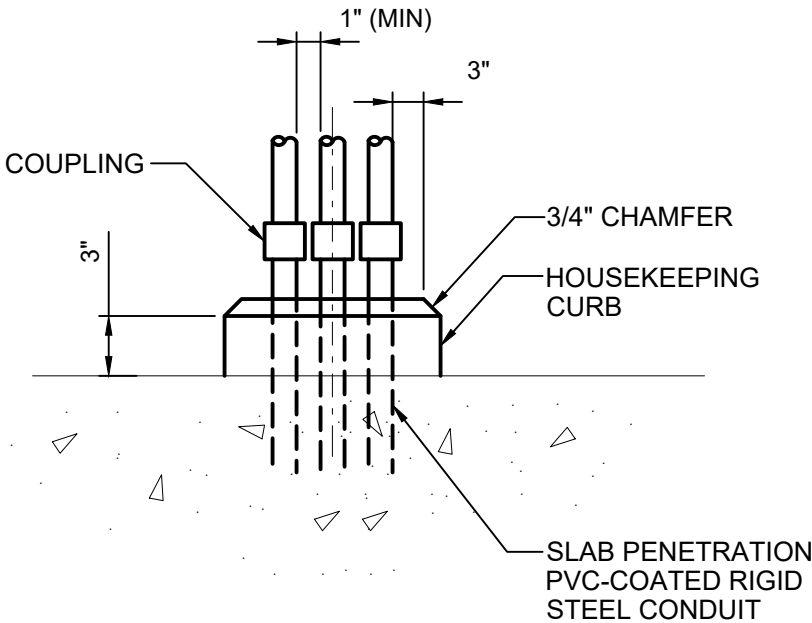


South Fork
WATER
PURE WATER SINCE 1915

WATER QUALITY SYSTEMS BUILDING

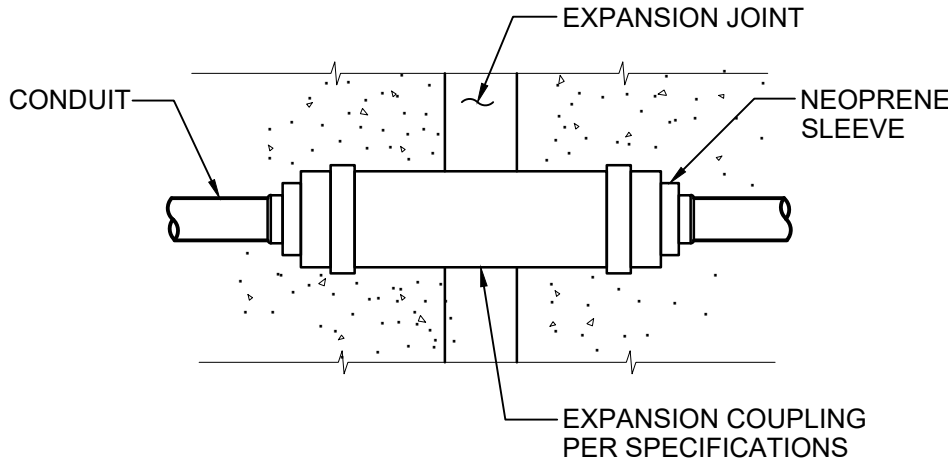
ELECTRICAL			
SYMBOLS AND ABBREVIATIONS			
PROJECT NO.:	21-3045	SCALE:	NONE
		DATE:	AUGUST 2026

C:\Projects\STWB New Chemical Building\2025 Revise\Working\0609600E-001.dwg GE-2 7/24/2026 2:36 PM JDEERKOP 24.2s (LMS Tech)



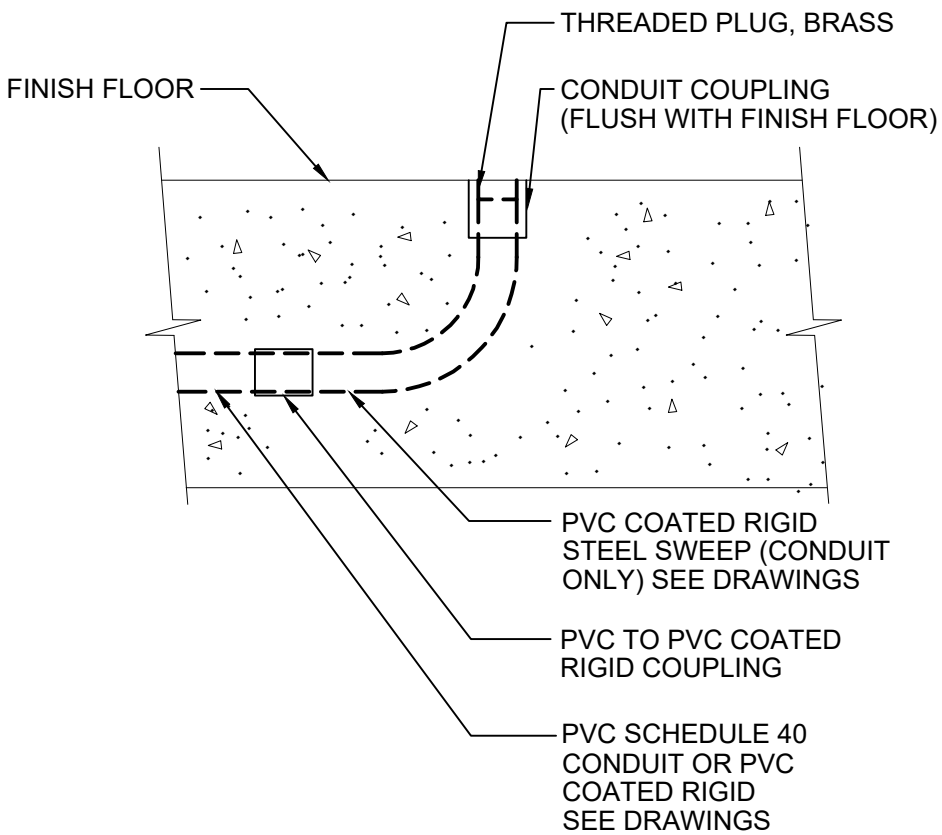
NOTE:
HOUSEKEEPING CURB REQUIRED AT ALL LOCATIONS FOR SINGLE AND MULTIPLE RISERS.

E203 CONCRETE HOUSEKEEPING CURB
NON-HAZARDOUS LOCATIONS

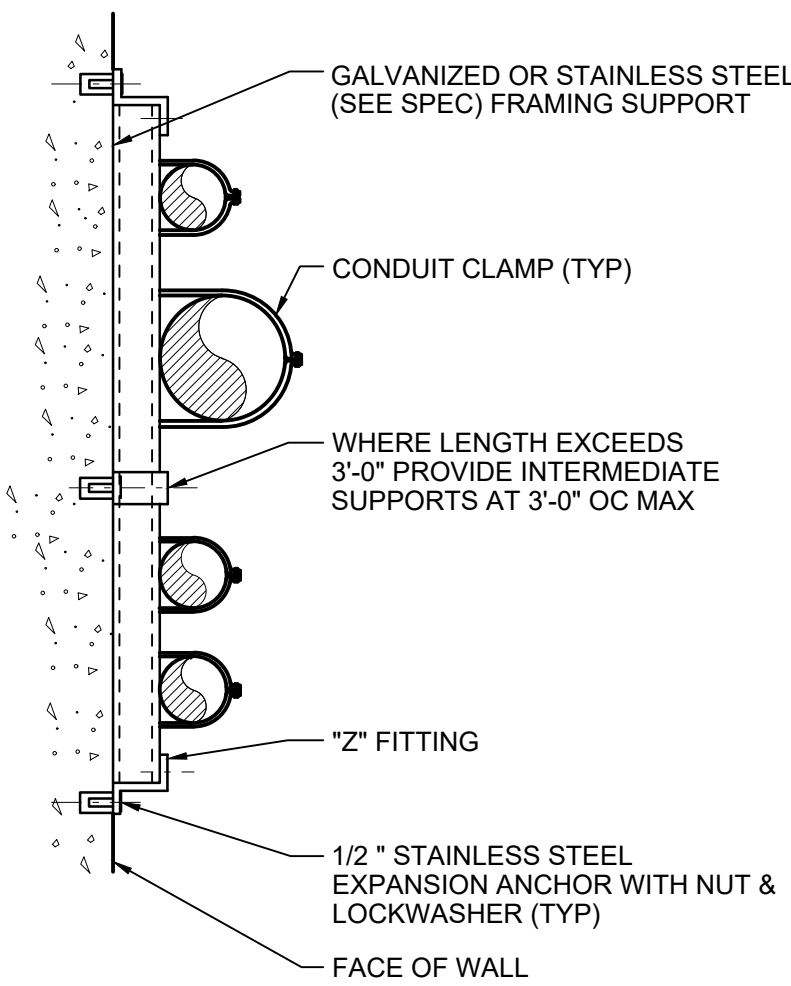


NOTE:
PROVIDE EXTERNAL BONDING JUMPER WITH METALLIC CONDUIT AND WHEN COUPLING HAS NO INTERNAL JUMPER.

E204 EXPANSION COUPLING
NO SCALE



E206 CONDUIT TERMINATION FOR
FUTURE EQUIPMENT



E212 CONDUIT SUPPORT, FLUSH MOUNT
NO SCALE

GENERAL ELECTRICAL NOTES

- ALL RACEWAYS AND EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND APPLICABLE LOCAL CODES.
- THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF TERMINAL BOXES AND CONDUIT ENTRANCES OF ALL EQUIPMENT AGAINST APPROVED SHOP DRAWINGS BEFORE STUBBING UP CONDUITS.
- REFER TO SPECIFICATION SECTION 26 05 33 FOR REQUIREMENTS RELATED TO FLEXIBLE CONDUIT INSTALLATION.
- CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT OR STRUCTURAL CONDITIONS. EXPOSED CONDUIT SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO BEAMS AND WALLS.
- ALL SURFACE MOUNTED PANELS AND PANELBOARDS ON WALLS OR IN OTHER LOCATIONS CONSIDERED DAMP OR WET SHALL BE MOUNTED SO AS TO MAINTAIN A 1/4" INCH (MINIMUM) AIR SPACE BETWEEN THE ENCLOSURE AND THE WALL.
- LOCATION OF PULLBOXES ARE APPROXIMATE. THE CONTRACTOR SHALL COORDINATE EXACT LOCATION WITH PIPING AND OTHER UTILITIES. PULLBOXES SHALL BE 6 INCHES (MINIMUM) AWAY FROM PIPING, ETC.
- THE CONTRACTOR SHALL PROVIDE ADDITIONAL PULLBOXES WHERE REQUIRED TO MAKE A WORKABLE INSTALLATION.
- THE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE DETAILS WHETHER OR NOT THEY ARE REFERENCED ON THE DRAWINGS.
- CONNECTIONS BETWEEN RIGID CONDUIT AND EQUIPMENT SUBJECT TO VIBRATION SHALL BE FLEXIBLE LIQUID-TIGHT CONDUIT.
- CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTION TO EQUIPMENT.
- ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING THE PROJECT TO VERIFY THE SCOPE OF WORK WITH FIELD CONDITIONS. PARTICULAR ATTENTION SHOULD BE GIVEN TO NEW CONDUIT RUNS AT EXISTING SITES.
- EQUIPMENT LOCKOUTS SHALL BE IN STRICT ACCORDANCE WITH OWNER'S REQUIREMENTS AND PERFORMED BY THE CONTRACTOR.
- CONTRACTOR SHALL PROVIDE ALL NECESSARY CONDUITS, WIRES, FITTINGS, JUNCTION BOXES AND ALL NECESSARY COMPONENTS SHOWN OR NOT SHOWN ON THE DRAWINGS, TO MAKE THE ELECTRICAL INSTALLATION COMPLETE AND OPERATIONAL. ALL CONDUIT RUNS SHALL BE CONCEALED UNLESS INDICATED OTHERWISE.
- FOR LIGHTING AND RECEPTACLE SYSTEMS, ONLY CIRCUIT NUMBERS ARE SHOWN. CONTRACTOR SHALL PROVIDE ALL NECESSARY CONDUITS, WIRES, FITTINGS, JUNCTION BOXES AND ALL NECESSARY COMPONENTS SHOWN OR NOT SHOWN ON THE DRAWINGS, TO MAKE THE ELECTRICAL INSTALLATION COMPLETE AND OPERATIONAL. CIRCUIT LOADING SHALL BE AS INDICATED IN THE PANEL SCHEDULES. ALL LIGHTING AND RECEPTACLE CIRCUITS SHALL INCLUDE A GROUND WIRE.
- RACEWAYS ARE SHOWN AS INDIVIDUAL RUNS FOR CLARITY. CONDUCTORS MAY BE COMBINED IN ACCORDANCE WITH CODES, REGULATIONS AND SPECIFICATIONS.
- POWER SOURCES, RACEWAYS AND CONDUCTORS FOR VENDOR SUPPLIED AND HVAC EQUIPMENT IS BASED ON A SINGLE VENDOR'S INFORMATION. PROVIDE POWER, RACEWAYS, CONDUCTORS AND APPURTENANCES AS REQUIRED OR RECOMMENDED BY THE EQUIPMENT PROVIDED.

SHEET KEYNOTES

- A. ALL BUILDING LIGHT FIXTURES ARE POWERED FROM LIGHTING PANELBOARD LP-433 WHICH IS POWERED BY THE EMERGENCY LIGHTING UNINTERRUPTIBLE POWER SUPPLIES (UPS-432) WITH 90 MINUTES RUNTIME. INDIVIDUAL FIXTURE BATTERIES ARE NOT REQUIRED. THE PARKING LOT LIGHTS ARE NOT UPS BACKED.

ELECTRICAL LUMINAIRE SCHEDULE (A)

SYMBOL	TYPE	LAMPS	LUMENS	POWER (WATTS)	MANUFACT-URER	CATALOG NO. / VOLTAGE	DESCRIPTION
	A	LED	6,033	51 WATTS TOTAL	EATON/ METALUX	4VT3-LD5-6-W-UNV-L840-CD1-SSL-U / 120VAC	VAPORTIGHT LENSED FIXTURE, FRP HOUSING, 4FT LED, CLEAR LENS. 5,000K COLOR. DIMMING DRIVER.
	B	LED	N/A	1.3 WATTS TOTAL	EATON/ SURE-LITES	APC7R / 120VAC	EXIT LIGHT FIXTURE, SINGLE FACED, NEMA 4X POLYCARBONATE BODY, WITH BATTERY BACKUP AND TEST FEATURE.
	D	LED	2,445	17 WATTS TOTAL	EATON/ METALUX	2VT3-LD5-2-W-UNV-L850-CD1-U / 120-277VC	VAPORTIGHT LENSED FIXTURE, FRP HOUSING, 2FT LED, WIDE DIST, 5,000K COLOR. DIMMING DRIVER.
	F	LED	2,494	21.5 WATTS TOTAL	EATON/ METALUX	22FPX-21-EL14W-L840-HCD / 120-277VAC	FLAT PANEL FIXTURE, 2 X 2 FT LED, STANDARD EFFICACY, 4,000K COLOR. DIMMING DRIVER. PROVIDE MOUNTING ACCESSORIES FOR SUSPENDED CEILING AND SEPARATE SEISMIC BRACING.
	H	LED	15,400	120.2 WATTS TOTAL	EATON	PFME15LY-UNV1-66 / 120VAC	LED FLOODLIGHT, 5,000K COLOR, 120 DEGREE DISTRIBUTION. DIMMING DRIVER. CAN BE AIMED UPWARD. WET LOCATION LABEL.
	I	LED	3,351	29 WATTS TOTAL	EATON	VMV 3LJ/UNV1 / 120-277VAC	LED FLOODLIGHT, 5,000K COLOR, ANGLED STANTION MOUNT.
	P	LED	9,267	71 WATTS TOTAL	LITHONIA	KAD LED-40C-530-40K-R5-MVOLT-SPD04-PIRH1FC3V-DBBXD, 20FT POLE / 120-277VAC	POLE MOUNTED AREA LUMINAIRE, DARK BRONZE HOUSING, 40 LEDS, 4,000K COLOR, TYPE V DISTRIBUTION, DIMMING DRIVER, PHOTOCELL, MOTION SENSOR CONTROL FOR 50% REDUCTION. 20 FT SQUARE NON-TAPERED ALUMINUM POLE WITH HANDHOLE, 4" ARM. FIXTURES SHOWN ON CIVIL DRAWINGS C-106 AND C-109.
	U	LED	2,189	20.1 WATTS TOTAL	COOPER/ INVUE	ENT-SA1A-727-U-T4FT-BK-MS/DIM-L20 / 120-277VAC	LOW PROFILE WALL PACK, BLACK ALUMINUM HOUSING, LED, 2,700K COLOR, PHOTOCELL, TYPE IV FORWARD THROW DISTRIBUTION, DIMMING DRIVER, PHOTOCELL, MOTION SENSOR CONTROL FOR 50% REDUCTION. PROVIDE MOUNTING ACCESSORIES. PROVIDE ONE CONFIGURATION TOOL FOR PROJECT.
	V	LED	2,867	25.4 WATTS TOTAL	COOPER/ INVUE	ENT-SA1B-727-U-T4W-BK-MS/DIM-L20 / 120-277VAC	LOW PROFILE WALL PACK, BLACK ALUMINUM HOUSING, LED, 2,700K COLOR, PHOTOCELL, TYPE IV WIDE DISTRIBUTION, DIMMING DRIVER, PHOTOCELL, MOTION SENSOR CONTROL FOR 50% REDUCTION. PROVIDE MOUNTING ACCESSORIES.

NO.	DATE	BY	REVISION

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

JCD
DESIGNED
JCD
DRAWN
EWM
CHECKED



BID SET



WATER QUALITY SYSTEMS BUILDING

ELECTRICAL

STANDARD DETAILS, NOTES
AND SCHEDULES

SHEET

GE-2

PROJECT NO.: 21-3045 SCALE: NONE DATE: AUGUST 2026

208/120 VOLTS			Ph: 3			SURGE PROTECTIVE DEVICE: NO												FED FROM UPS-432		
60 A MAIN BREAKER			W: 4			PANELBOARD: LP-433, LIGHTING, UPS												FEED: BOTTOM		
10 kAIC SHORT CIRCUIT			A: 100			LOCATION: RM 201, STORAGE												MOUNTING: SURFACE		
LOAD DESCRIPTION	kVA			L.TG.	REC.	MIS.	CIR.	BKR.			BKR.	CIR.	MIS.	L.TG.	kVA			LOAD DESCRIPTION		
	Ph.A	Ph.B	Ph.C												Ph.A	Ph.B	Ph.C			
RM 101 MEETING, LIGHTS	0.39			X			1	15	→			15	2		X	1.05		RM 107 CHEMICAL, LIGHTS		
RM 102 ENTRY, LIGHTS		0.04		X			3	15	→			15	4		X		0.81	RM 107 CHEMICAL, LIGHTS		
RM 103 & 4 UNISEX A & B, LIGHTS			0.03	X			5	15	→			15	6		X			RM 107 CHEMICAL, LIGHTS		
RM 105 JANITOR, LIGHTS	0.02			X			7	15	→			15	8		X	0.10		RM 108 ELECTRICAL, LIGHTS		
RM 106 KITCHEN, LIGHTS		0.09		X			9	15	→			15	10		X		0.10	RM 109 MECHANICAL, LIGHTS		
SPARE								11	15	→			15	12				SPARE		
SPARE								13	15	→			15	14		X	0.51	RM 201 STORAGE, LIGHTS		
SPARE								15	15	→			15	16				SPARE		
SPARE								17	15	→			15	18		X		0.22	EXTERIOR, LIGHTS	
SPARE								19	15	→			15	20				SPARE		
SPARE								21	15	→			15	22				SPARE		
SPARE								23	15	→			15	24				SPARE		
	0.40	0.13	0.03					TOTAL					TOTAL			1.66	0.91	1.24		
	PHASE LOAD			TOTAL LOAD																
	2.06	1.03	1.27				4.4			kVA						(CONNECTED LOAD, NOT DEMAND LOAD)				

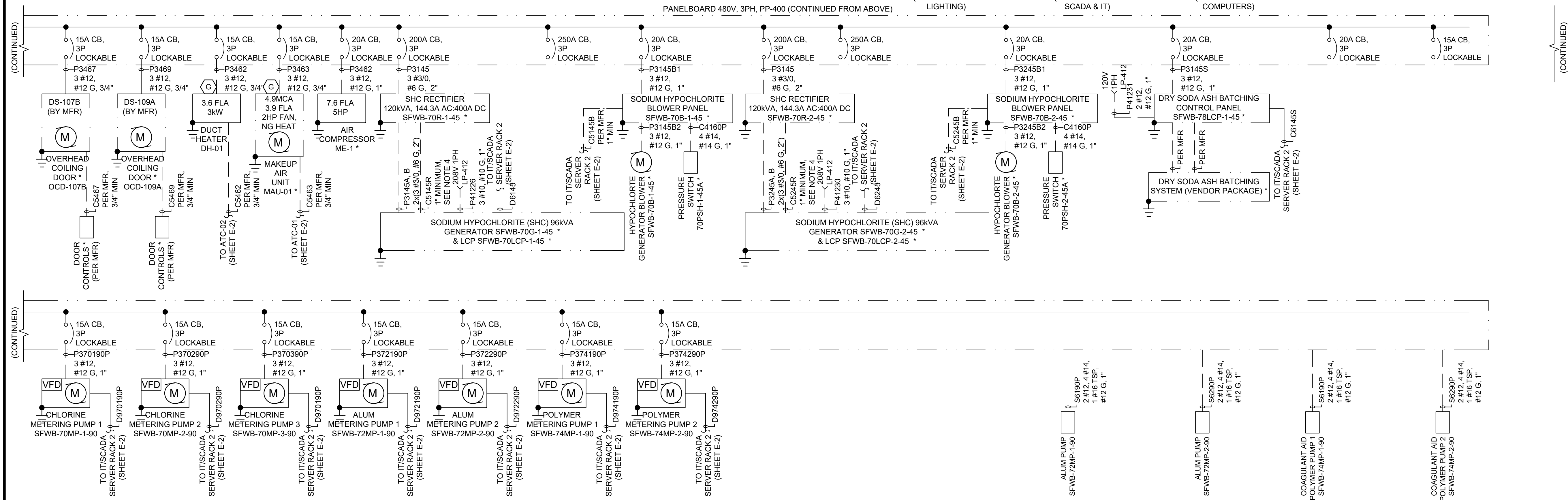
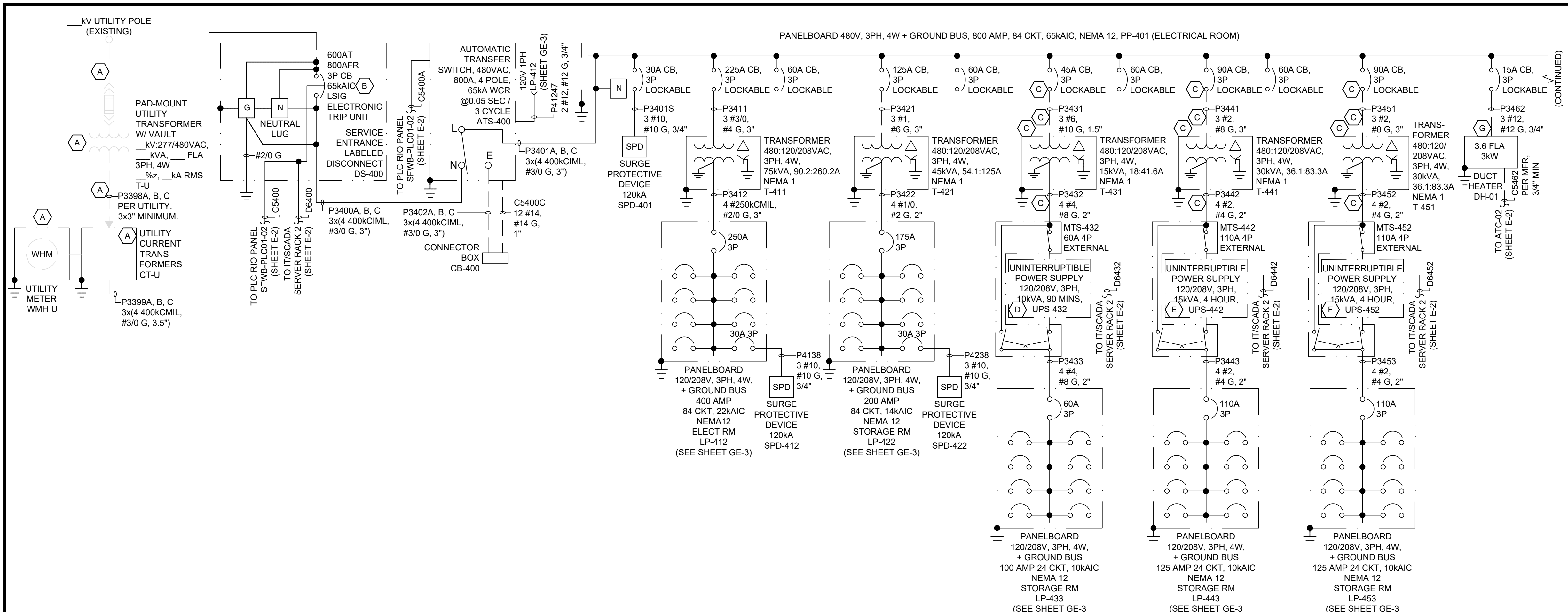
208/120 VOLTS				Ph: 3				SURGE PROTECTIVE DEVICE: NO										FED FROM UPS-442						
110 A MAIN BREAKER				W: 4				PANELBOARD: LP-443, SCADA/IT LOADS, UPS										FEED: BOTTOM						
10 KAIC SHORT CIRCUIT				A: 125				LOCATION: RM 201, STORAGE										MOUNTING: SURFACE						
LOAD DESCRIPTION				kVA			L.TG.	REC.	MIS.	CIR.	BKR.		BKR.	CIR.	MIS.	REC.	L.TG.	kVA			LOAD DESCRIPTION			
				Ph.A	Ph.B	Ph.C												Ph.A	Ph.B	Ph.C				
SFWB-PLC01B-00 CONTROL POWER				1.44					X	1	20	•		20	2									SPARE
ACCESS CONTROL PANEL, VCP-AC					0.50				X	3	15	•		20	4									SPARE
BLDG MNGMT PANEL, VCP-BMS						0.20			X	5	15	•		20	6	X						1.44		IT SERVER RACK, 1 UPPER
SFWB-PLC01-02 CONTROL POWER				1.44					X	7	20	•		20	8	X		1.44						IT SERVER RACK, 1 LOWER
SPARE										9	15	•		20	10	X			1.44					IT SERVER RACK, 2 UPPER
SPARE										11	15	•		20	12	X					1.44			IT SERVER RACK, 2 LOWER
SPARE										13	20	•		20	14									SPARE
SPARE										15	20	•		20	16									SPARE
SPARE										17	15	•		30	18									SPARE
SPARE										19	15	•		30	20									SPARE
SPARE										21	15	•		30	22									SPARE
SPARE										23	15	•		30	24									SPARE
				2.88	0.50	0.20					TOTAL			TOTAL					1.44	1.44	2.88			
				PHASE LOAD			TOTAL LOAD																	
				4.32	1.94	3.08							9.3	kVA							(CONNECTED LOAD, NOT DEMAND LOAD)			

GENERAL SHEET NOTES

1. SEE THE GENERAL NOTES ON SHEET GE-2.
2. SEE THE ONE-LINE DIAGRAM AND PANEL SCHEDULES FOR ADDITIONAL INFORMATION.
3. FOR LIGHTING AND RECEPTACLE SYSTEMS, ONLY CIRCUIT NUMBERS ARE SHOWN. CONTRACTOR SHALL PROVIDE ALL NECESSARY CONDUITS, WIRES, FITTINGS, JUNCTION BOXES AND ALL NECESSARY COMPONENTS SHOWN OR NOT SHOWN ON THE DRAWINGS, TO MAKE THE ELECTRICAL INSTALLATION COMPLETE AND OPERATIONAL. CIRCUIT LOADING SHALL BE AS INDICATED IN THE PANEL SCHEDULES. ALL LIGHTING AND RECEPTACLE CIRCUITS SHALL INCLUDE A GROUND WIRE.
4. CIRCUITS FOR PANELBOARDS NOT SHOWN EXPLICITLY ON THE DRAWINGS SHALL BE NUMBERED AS "PAAAB" WHERE "AA" IS THE PANELBOARD NUMBER AND "B" IS THE CIRCUIT/POLE NUMBER. USE THE LOWEST CIRCUIT/POLE NUMBER FOR MULTI-POLE BREAKERS.
5. OUTDOOR AREA LIGHTING AND WATER FEATURE ARE SHOWN ON THE CIVIL DRAWINGS.

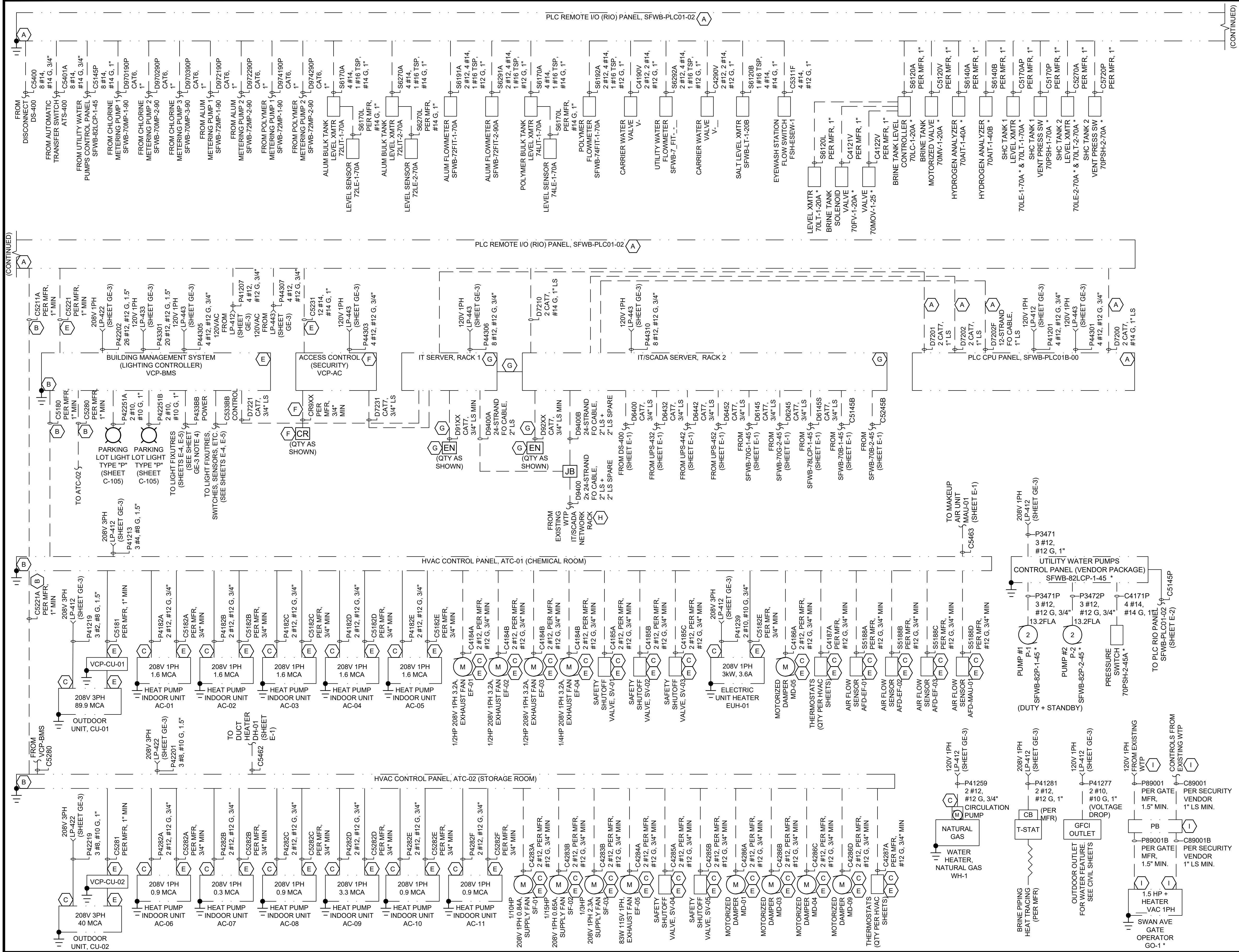
SHEET

GE-3



GENERAL SHEET NOTES	
1. SEE THE GENERAL NOTES ON SHEET GE-2. CONDUIT AND WIRING FOR LIGHTS AND RECEPTACLES ARE NOT SHOWN ON THIS SHEET. SEE THE CIVIL AND ELECTRICAL SITE PLANS FOR ADDITIONAL WORK INCLUDING CONNECTING EXISTING EQUIPMENT. 2. SEE THE SITE PLAN, PANEL SCHEDULES AND CONDUIT DEVELOPMENT DIAGRAM FOR ADDITIONAL INFORMATION. 3. PROVIDE RACEWAYS, CONDUCTORS, APPURTENANCES, ETC. FOR VENDOR PACKAGE EQUIPMENT PER THE MANUFACTURER'S RECOMMENDATIONS, CODE, AND CONTRACT DOCUMENTS AND TO CONNECT ALL ACCESSORIES AND INSTRUMENTS. 4. * = VENDOR PROVIDED EQUIPMENT. CONTRACTOR SHALL PROVIDE CONDUIT, WIRE AND APPURTENANCES PER THE MANUFACTURERS RECOMMENDATIONS TO MOUNT AND CONNECT THE EQUIPMENT FOR A COMPLETE AND OPERABLE SYSTEM.	
	SHEET KEYNOTES
A. PROVIDE NEW 480/277VAC UTILITY ELECTRICAL SERVICE WITH CENTER GROUNDED WYE. CONTRACTOR SHALL PROVIDE ALL COMPONENTS NOT PROVIDED BY THE UTILITY, MOUNTING HARDWARE, ETC. TO PROVIDE A COMPLETE AND OPERABLE SYSTEM. PROVIDE ACCESSIBLE GROUNDING POINT. PROVIDE A SPARE PRIMARY CONDUIT FROM THE UTILITY POLE TO THE TRANSFORMER VAULT. CONDUITS FROM THE TRANSFORMER SECONDARY SHALL BE THE MINIMUM SHOWN OR MORE/LARGER AS REQUIRED BY THE UTILITY. B. PROVIDE DS-400 ADJUSTABLE TRIP CIRCUIT BREAKER WITH LSIG FUNCTIONS AND ETHERNET COMMUNICATIONS WITH STATUS, ALARM AND POWER METERING DATA TO THE PLANT PLC. PROVIDE AUXILIARY CONTACTS TO INDICATE OPEN, CLOSED AND TRIPPED POSITIONS TO THE PLANT PLC. SIZE GROUNDING OF SERVICE ENTRANCE EQUIPMENT FOR MAXIMUM FRAME RATING OF EQUIPMENT. C. PROVIDE UPS FEEDER CIRCUIT BREAKER, CONDUIT, WIRE AND TRANSFORMER TO MEET OR EXCEED UPS MANUFACTURERS RECOMMENDATIONS. D. EMERGENCY LIGHTING UNINTERRUPTIBLE POWER SUPPLIES (UPS-432) SHALL BE 120/208V 3PH 10kVA WITH 90 MINUTES RUNTIME AT FULL LOAD, INTERNAL INPUT AND OUTPUT CIRCUIT BREAKERS, EXTERNAL MAINTENANCE BYPASS SWITCH, AND UL 924 LISTED. PROVIDE ETHERNET STATUS/ALARM DATA TO PLANT PLC. E. SCADA/IT UNINTERRUPTIBLE POWER SUPPLIES (UPS-442) SHALL BE 120/208V 3PH 15kVA WITH 4 HOURS RUNTIME AT 12kVA LOAD, INTERNAL INPUT AND OUTPUT CIRCUIT BREAKERS, EXTERNAL MAINTENANCE BYPASS SWITCH. PROVIDE ETHERNET STATUS/ALARM DATA TO PLANT PLC. F. CRITICAL OPERATIONS UNINTERRUPTIBLE POWER SUPPLIES (UPS-452) SHALL BE 120/208V 3PH 15kVA WITH 4 HOURS RUNTIME AT 12kVA LOAD, INTERNAL INPUT AND OUTPUT CIRCUIT BREAKERS, EXTERNAL MAINTENANCE BYPASS SWITCH. PROVIDE ETHERNET STATUS/ALARM DATA TO PLANT PLC. G. PROVIDE POWER DISCONNECT SWITCH FOR HVAC EQUIPMENT WHERE NOT PROVIDED BY THE MANUFACTURER/SUPPLIER AND REQUIRED BY CODE. SEE THE HVAC DRAWINGS FOR ADDITIONAL INFORMATION.	

ELECTRIC LOADS				
NAME	HP	kVA	FLA	PEAKING FACTOR
T-411	-	75.0	90.2	0.752
T-421	-	45.0	54.1	0.822
T-431	-	15.0	18.0	0.293
T-441	-	30.0	36.1	0.310
T-451	-	30.0	36.1	0.290
SWFB-70R-145	-	120.0	144.3	1.0
SWFB-70R-245	-	120.0	144.3	0.0
SWFB-70B-145	5.1	6.1	7.9	1.0
SWFB-70B-245	5.1	6.1	7.9	0.0
SWFB-78LCP-145	5	6.1	7.6	1.0
SWFB-70MP-1-90	0.5	0.9	1.1	1.0
SWFB-70MP-2-90	0.5	0.9	1.1	0.0
SWFB-70MP-3-90	0.5	0.9	1.1	0.0
SWFB-72MP-1-90	0.5	0.9	1.1	1.0
SWFB-72MP-2-90	0.5	0.9	1.1	0.0
SWFB-74MP-1-90	0.5	0.9	1.1	1.0
SWFB-74MP-2-90	0.5	0.9	1.1	0.0
ODC-107B	0.5	0.9	1.1	1.0
ODC-109A	0.5	0.9	1.1	1.0
DH-01	-	3.0	3.6	1.0
MAU-01	24.1	4.9	1.0	
ME-1	56.1	7.6	1.0	
25% OF LARGEST MOTOR	1.25	1.5	1.9	1.0
CONNECTED LOAD		475.9	574.5	
PEAK LOAD		267.1	322.6	



- GENERAL SHEET NOTES
1. SEE THE GENERAL NOTES ON SHEET GE-1. CONDUIT AND WIRING FOR LIGHTS AND RECEPTACLES ARE NOT SHOWN ON THIS SHEET. SEE THE CIVIL AND ELECTRICAL SITE PLANS FOR ADDITIONAL WORK INCLUDING CONNECTING EXISTING EQUIPMENT. CAT7 CABLES SHALL BE SHIELDED TWISTED PAIR TYPE PER SHEET GE-1.

2. SEE THE CIVIL SITE PLAN, BUILDING PLANS, PANEL SCHEDULES AND SINGLE-LINE DIAGRAM FOR ADDITIONAL INFORMATION. SEE SHEETS E-4 GENERAL SHEET NOTE 8, AND SHEET E-5 GENERAL SHEET NOTE 6 REGARDING WIRING METHODS IN THE WEST ADMINISTRATIVE AREA.

3. PROVIDE RACEWAYS, CONDUCTORS, APPURTENANCES, ETC. FOR VENDOR PACKAGE EQUIPMENT PER THE MANUFACTURER'S RECOMMENDATIONS, CODE, AND CONTRACT DOCUMENTS.

4. * = VENDOR PROVIDED EQUIPMENT. CONTRACTOR SHALL PROVIDE CONDUIT, WIRE AND APPURTENANCES PER THE MANUFACTURERS RECOMMENDATIONS TO MOUNT AND CONNECT THE EQUIPMENT FOR A COMPLETE AND OPERABLE SYSTEM.
- SHEET KEYNOTES
- A. PLC PANELS SHALL WILL BE DESIGNED AND BUILT BY OWNER'S SYSTEM INTEGRATOR AND INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE WIRE, CONDUIT, MOUNTING HARDWARE, ETC. TO PROVIDE A COMPLETE AND OPERABLE SYSTEM. THE CONTRACTOR SHALL PROVIDE AND TERMINATE FIELD WIRES AS DIRECTED BY THE OWNER'S SYSTEM INTEGRATOR. PROVIDE CONDUIT, WIRES, AND APPURTENANCES TO CONNECT EXISTING PLANT PLC PANEL TO THE NEW PLC PANEL AS DIRECTED BY THE OWNER'S SYSTEM INTEGRATOR. POWER TO INSTRUMENTS IS FED FROM THE PLC PANEL.

B. PROVIDE CONDUIT, WIRE, POWER FOR HVAC EQUIPMENT AS REQUIRED/RECOMMENDED BY THE MANUFACTURER. NOT ALL SENSORS AND APPURTENANCES MAY BE SHOWN. THE CONDUIT, WIRE AND APPURTENANCES SHOWN ARE FOR ONE MANUFACTURER'S INFORMATION.

C. PROVIDE POWER DISCONNECT SWITCH FOR HVAC EQUIPMENT WHERE NOT PROVIDED BY THE MANUFACTURER/SUPPLIER AND REQUIRED BY CODE. SEE THE HVAC DRAWINGS FOR ADDITIONAL INFORMATION.

D. PROVIDE RACEWAYS FOR FUTURE EQUIPMENT. CAP CONDUITS AT LEAST 18" ABOVE FINISHED FLOOR OR GRADE.

E. PROVIDE CONDUIT, WIRE, POWER, AND APPURTENANCE FOR BUILDING MANAGEMENT SYSTEM EQUIPMENT AS REQUIRED/RECOMMENDED BY THE MANUFACTURER. THE SENSORS, APPURTENANCES, CONNECTIONS TO HVAC, CONTROLLED RECEPTACLES, INTERIOR AND EXTERIOR LIGHTING ARE NOT SHOWN. PROVIDE A RELAY OUTPUT TO EACH HVAC CONTROL PANEL FOR EACH ROOM INDICATING OCCUPANCY STATUS. SEE THE HVAC DRAWINGS FOR ADDITIONAL INFORMATION.

F. PROVIDE CONDUIT, WIRE, POWER, LOW VOLTAGE POWER SUPPLIES, AND APPURTENANCES FOR BUILDING ACCESS CONTROL EQUIPMENT AS REQUIRED/RECOMMENDED BY THE OWNER'S EXISTING SECURITY SYSTEM MANUFACTURER. THE SENSORS, APPURTENANCES, CONNECTIONS TO DOOR LOCKS ARE NOT SHOWN. ASSIGN UNIQUE CONDUIT NUMBERS FOR EACH RACEWAY IN LIEU OF THE "XX" SHOWN. COORDINATE WITH SECURITY SYSTEM VENDOR. CARD READERS (CR) SHALL BE HID SIGNO READER, MODEL 40K TO MATCH OWNER'S EXISTING INSTALLATIONS.

G. PROVIDE CONDUIT, CABLE, POWER AND APPURTENANCES FOR IT SERVER RACKS AND ETHERNET JACKS AS REQUIRED OR RECOMMENDED BY THE MANUFACTURER. SEE THE PLAN SHEETS FOR THE QUANTITY AND LOCATION OF THE RACKS AND JACKS. EACH SERVER RACK SHALL BE AT A MINIMUM: 42U CAPACITY 19" RACK, SOUNDPROOF (28DB REDUCTION) FLOOR MOUNTED ENCLOSURE WITH A MINIMUM USEABLE DEPTH OF 32", 115V FANS, PDU'S, MOUNTING AND OTHER APPURTENANCES REQUIRED FOR A COMPLETE INSTALLATION. COORDINATE POWER AND CONDUIT LOCATIONS WITH THE ENCLOSURE PROVIDED. PROVIDE RACEWAYS FOR ALL CABLES IN FLOORS AND WALLS. ASSIGN UNIQUE CONDUIT NUMBERS FOR EACH RACEWAY IN LIEU OF THE "XX" SHOWN.
- INSTALL IN RACK 1: THREE 48-PORT CAT7 PATCH PANEL; ONE 1U IT NETWORK SWITCH (FURNISHED BY OTHERS); ONE 1U FIBER PATCH PANEL, LEVITON 5R1UL-F03 CHASSIS, 5R1UX-CMT CABLE MANAGEMENT TRAY, 5R100-14R CABLE MANAGEMENT SPOOL, 5F100-4LL ADAPTER PLATE FOR FIBERS TO WTP (QUAD LC, OS1/2 SINGLE-MODE, 24 FIBERS PER ADAPTER).
- INSTALL IN RACK 2: ONE 48-PORT CAT7 PATCH PANEL; ONE 1U SCADA NETWORK SWITCH (FURNISHED BY OGD); ONE 1U FIBER PATCH PANEL, LEVITON 5R1UL-F03 CHASSIS, 5R1UX-CMT CABLE MANAGEMENT TRAY, 5R100-14R CABLE MANAGEMENT SPOOL; 5F100-4LL ADAPTER PLATE FOR FIBERS TO WTP (QUAD LC, OS1/2 SINGLE-MODE, 24 FIBERS PER ADAPTER); 5F100-2LL ADAPTER PLATE FOR FIBERS TO PLC CPU PANEL; ONE RELOCATED EXISTING SCADA SERVER (TOWER UNIT, NOT RACK-MOUNTED).

H. PROVIDE TWO LEVITON 5F100-4LL ADAPTER PLATES TO BE INSTALLED IN THE EXISTING WTP NETWORK RACK.

I. PROVIDE CONDUIT, WIRE, POWER FOR GATE OPERATOR AS REQUIRED/RECOMMENDED BY THE MANUFACTURER AND SECURITY VENDOR. NOT ALL SENSORS AND APPURTENANCES ARE SHOWN. THE CONDUIT, WIRE AND APPURTENANCES SHOWN ARE FOR ONE MANUFACTURER'S INFORMATION. COORDINATE POWER SOURCE, CONTROL CONNECTION AND ROUTING INSIDE EXISTING WATER TREATMENT PLANT (WTP) WITH OWNER. PROVIDE GROUND ROD AT GATE OPERATOR AND BOND TO GATE OPERATOR AND GATE POSTS ON BOTH SIDES OF DRIVEWAY.

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NOTICE

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REGISTERED PROFESSIONAL

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JOHN C. DEERKOP

7/24/2026

EXPIRES: 12/31/27

BID SET

consor

Stantec

South Fork

WATER

PURE WATER SINCE 1915

WATER QUALITY SYSTEMS BUILDING

ELECTRICAL

ONE-LINE DIAGRAM - 2

PROJECT NO.:

21-3045

SCALE:

NONE

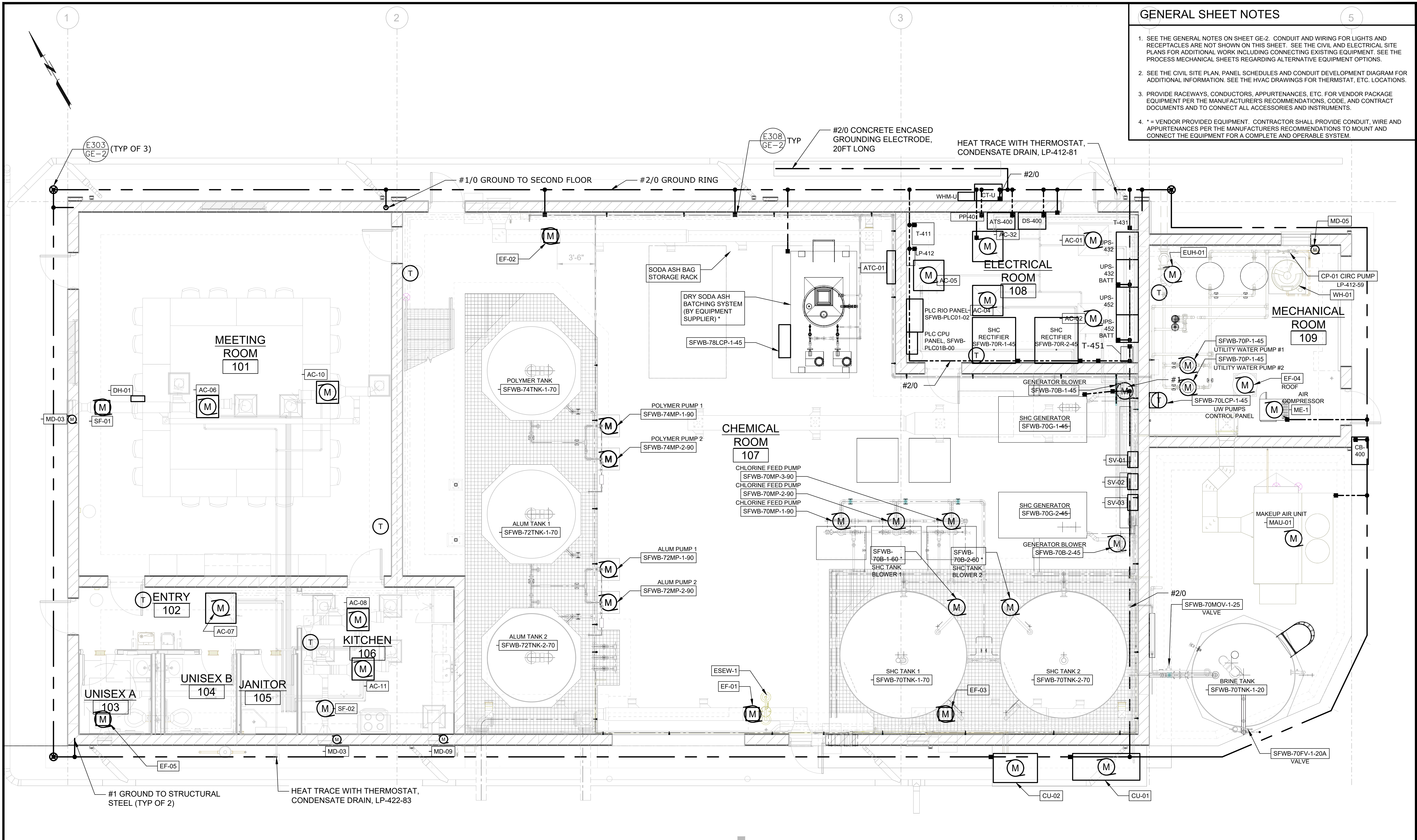
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SHEET

E-2

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- GENERAL SHEET NOTES
- SEE THE GENERAL NOTES ON SHEET GE-2. CONDUIT AND WIRING FOR LIGHTS AND RECEPTACLES ARE NOT SHOWN ON THIS SHEET. SEE THE CIVIL AND ELECTRICAL SITE PLANS FOR ADDITIONAL WORK INCLUDING CONNECTING EXISTING EQUIPMENT. SEE THE PROCESS MECHANICAL SHEETS REGARDING ALTERNATIVE EQUIPMENT OPTIONS.
 - SEE THE CIVIL SITE PLAN, PANEL SCHEDULES AND CONDUIT DEVELOPMENT DIAGRAM FOR ADDITIONAL INFORMATION. SEE THE HVAC DRAWINGS FOR THERMISTAT, ETC. LOCATIONS.
 - PROVIDE RACEWAYS, CONDUCTORS, APPURTENANCES, ETC. FOR VENDOR PACKAGE EQUIPMENT PER THE MANUFACTURER'S RECOMMENDATIONS, CODE, AND CONTRACT DOCUMENTS AND TO CONNECT ALL ACCESSORIES AND INSTRUMENTS.
 - * = VENDOR PROVIDED EQUIPMENT. CONTRACTOR SHALL PROVIDE CONDUIT, WIRE AND APPURTENANCES PER THE MANUFACTURER'S RECOMMENDATIONS TO MOUNT AND CONNECT THE EQUIPMENT FOR A COMPLETE AND OPERABLE SYSTEM.

<table><tr><td>NO.</td><td>DATE</td><td>BY</td><td>REVISION</td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr></table>				NO.	DATE	BY	REVISION																	NOTICE 0 1/2 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	JCD DESIGNED JCD DRAWN EWM CHECKED	REGISTERED PROFESSIONAL 54440PE JOHN C. DEERKOP 7/24/2026 EXPIRES: 12/31/27	BID SET	consor Stantec	South Fork WATER PURE WATER SINCE 1915 WATER QUALITY SYSTEMS BUILDING	ELECTRICAL FIRST FLOOR PLAN - GROUNDING	SHEET E-3
NO.	DATE	BY	REVISION																												
PROJECT NO.: 21-3045 SCALE: NONE DATE: AUGUST 2026																															

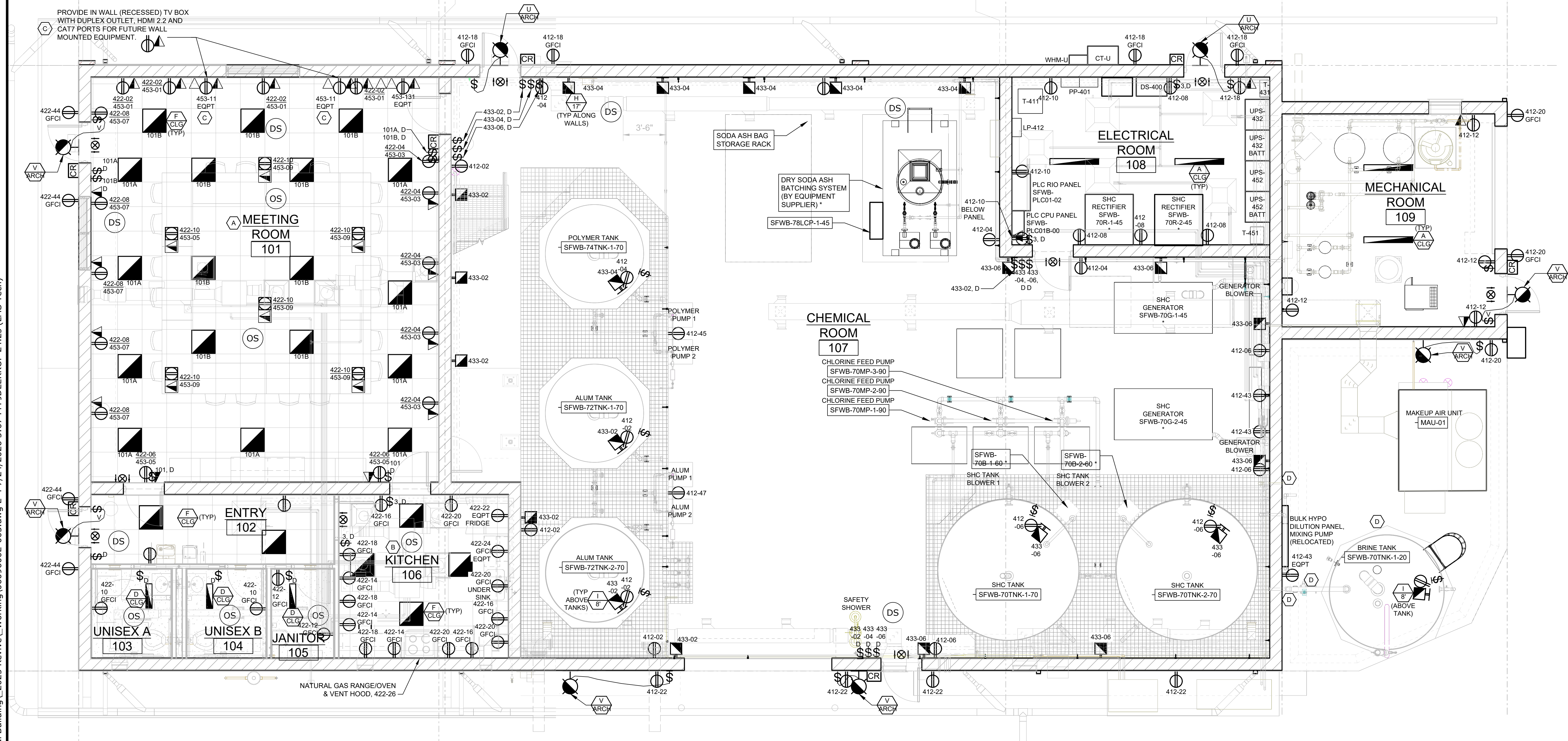
1. SEE THE GENERAL NOTES ON SHEET GE-2.
2. SEE THE ONE-LINE DIAGRAM AND PANEL SCHEDULES FOR ADDITIONAL INFORMATION. SEE THE PROCESS MECHANICAL SHEETS REGARDING ALTERNATIVE EQUIPMENT OPTIONS.
3. LIGHTING OCCUPANCY SENSORS ARE SHOWN TO INDICATE SPACES THAT SHALL BE PROVIDED WITH THEM. LOCATIONS AND QUANTITIES SHALL BE DETERMINED BY THE LIGHTING SUPPLIER PER THE MANUFACTURERS RECOMMENDATIONS AND CODES. SEE SECTION 26 50 00 - LIGHTING.
4. SEE SHEET E-5 FOR LIGHTING DESIGN CRITERIA. LIGHTING SUPPLIER SHALL DESIGN FINAL QUANTITIES, LOCATIONS AND CONTROLS FOR ALL INTERIOR AND EXTERIOR LIGHTING BASED ON THE EQUIPMENT TO BE SUPPLIED, LIGHTING DESIGN CRITERIA, STATE AND LOCAL CODES.

4. SEE THE CIVIL DRAWINGS C-105 AND C-106 FOR THE LOCATIONS OF THE AREA LIGHT FIXTURES.
5. SEE ARCHITECTURAL DRAWINGS FOR EXTERIOR LIGHT LOCATIONS.
6. SEE SHEET E-2 SHEET KEYNOTES REGARDING THE BUILDING MANAGEMENT SYSTEM (BMS), ACCESS CONTROL SYSTEM, AND IT (ETHERNET), DOOR LOCK HARDWARE IS NOT SHOWN.
7. IN THE WEST SIDE ADMINISTRATIVE AREAS NORMAL COMMERCIAL WIRING METHODS ARE ALLOWED, INCLUDING THE USE OF EMT RACEWAYS IN ACCORDANCE WITH THE NEC, STATE AND LOCAL CODES.

A. MOST RECEPTACLES IN MEETING ROOM, 101, ARE SPLIT DUPLEX TYPE. THE UPPER OUTLET OF EACH NON-EQUIPMENT RECEPTACLE SHALL BE CONTROLLED BASED ON ROOM OCCUPANCY AND POWERED BY PANELBOARD LP-422. THE LOWER OUTLETS AND UPPER EQUIPMENT OUTLETS SHALL BE UNCONTROLLED AND POWERED BY UPS BACKED PANELBOARD LP-453.

B. IN KITCHEN, ROOM 106, COORDINATE LOCATIONS OF RECEPTACLES FOR EQUIPMENT, UNDER SINK, ETC. WITH OTHER TRADES.

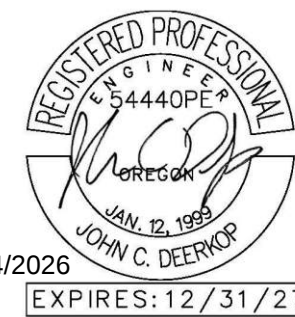
- C. CONTRACTOR SHALL COORDINATE MOUNTING HEIGHT OF OUTLETS AND JACKS BEHIND EQUIPMENT WITH THE ARCHITECTURAL DRAWINGS AND EQUIPMENT SUBMITTALS.
- D. PROVIDE HEAT TRACING AND THERMOSTAT FOR BRINE PIPING PER INSTRUMENTATION AND MECHANICAL SHEETS.
- E. IN CHEMICAL ROOM 107 ADJUST THE AIM OF THE TYPE "H" LIGHT FIXTURES, INCLUDING AIMING UPWARD TO ILLUMINATE ALL THE ROOM, AND HIGHLIGHTING WORK AREAS AROUND THE CHEMICAL EQUIPMENT.



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WATER QUALITY SYSTEMS BUILDING

ELECTRICAL

FIRST FLOOR PLAN - LIGHTING

SHEET

E-4

PROJECT NO.:	21-3045	SCALE:	NONE	DATE:	JULY 2026
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LIGHTING DESIGN CRITERIA

2025 OREGON ZERO ENERGY READY COMMERCIAL CODE
(CHAPTER 13 OF THE 2025 OREGON STRUCTURAL SPECIALTY CODE)
LIGHTING POWER DENSITY (LPD) METHOD

[illegible]

LEGEND:
REQ = REQUIRED
ADD1 = REQUIRED ADDITIONAL CONTROLS
ADD2 = REQUIRED ADDITIONAL CONTROLS
N/A = NOT APPLICABLE
[OR] = OWNER REQUIREMENT, BEYOND CODE

a. WHERE BOTH A COMMON SPACE TYPE AND A BUILDING-SPECIFIC SPACE TYPE ARE LISTED, THE BUILDING SPECIFIC SPACE TYPE SHALL APPLY (SEE TABLE 9.5.2.1-2 FOR BUILDING-SPECIFIC SPACE TYPES).

b. AUTOMATIC DAYLIGHT RESPONSIVE CONTROLS ARE MANDATORY ONLY IF THE SPACE MEETS THE REQUIREMENTS OF THE SPECIFIED SECTIONS.

EXTERIOR AREAS	
EXTERIOR LIGHTING BUDGET 1,450 WATTS MAXIMUM = 200W BASE ALLOWANCE + (14W / LINEAR FT OF ENTRY WAYS * 40 FT) + (0.1 W / SQFT WALKWAYS X 2,400 SQFT) + (0.05 W / SQFT PARKING LOTS AND DRIVES X 8,990 SQFT).	
INSTALLED 309 WATTS = (2 TYPE P X 71.0 W / FIXTURE) + (2 TYPE U X 20.1 W / FIXTURE) + (5 TYPE V X 25.4 W / FIXTURE)	
FACADE LIGHTING AND SPECIAL FEATURE AREAS, WALKWAYS, PLAZAS	LUMINAIRES SHALL BE TURNED OFF OR THE POWER REDUCED BY A MINIMUM OF 75% DURING NONOPERATING HOURS.
LANDSCAPE	LUMINAIRES SHALL BE TURNED OFF OR THE POWER REDUCED BY A MINIMUM OF 75% DURING NONOPERATING HOURS.
ENTRY DOORS [DIMLY LIT]	LUMINAIRES SHALL BE TURNED OFF OR THE POWER REDUCED BY A MINIMUM OF 75% DURING NONOPERATING HOURS.
ENTRY DOORS	LUMINAIRES SHALL BE TURNED OFF OR THE POWER REDUCED BY A MINIMUM OF 75% DURING NONOPERATING HOURS.
STAIRS AND RAMPS	NO ADDITIONAL CONTROLS REQUIRED.
PARKING LOTS AND DRIVES	LUMINAIRES SHALL BE TURNED OFF OR THE POWER REDUCED BY A MINIMUM OF 75% DURING NONOPERATING HOURS.
ALL OTHER AREAS NOT LISTED	LUMINAIRES SHALL BE TURNED OFF OR THE POWER REDUCED BY A MINIMUM OF 75% DURING NONOPERATING HOURS.

NOTICE

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WATER QUALITY SYSTEMS BUILDING

ELECTRICAL

SECOND FLOOR PLAN

SHEET

E-5