

Autodesk Docs: /Santaquin WRF Phase 3 Upgrades/93-24-001_02-E.rvt

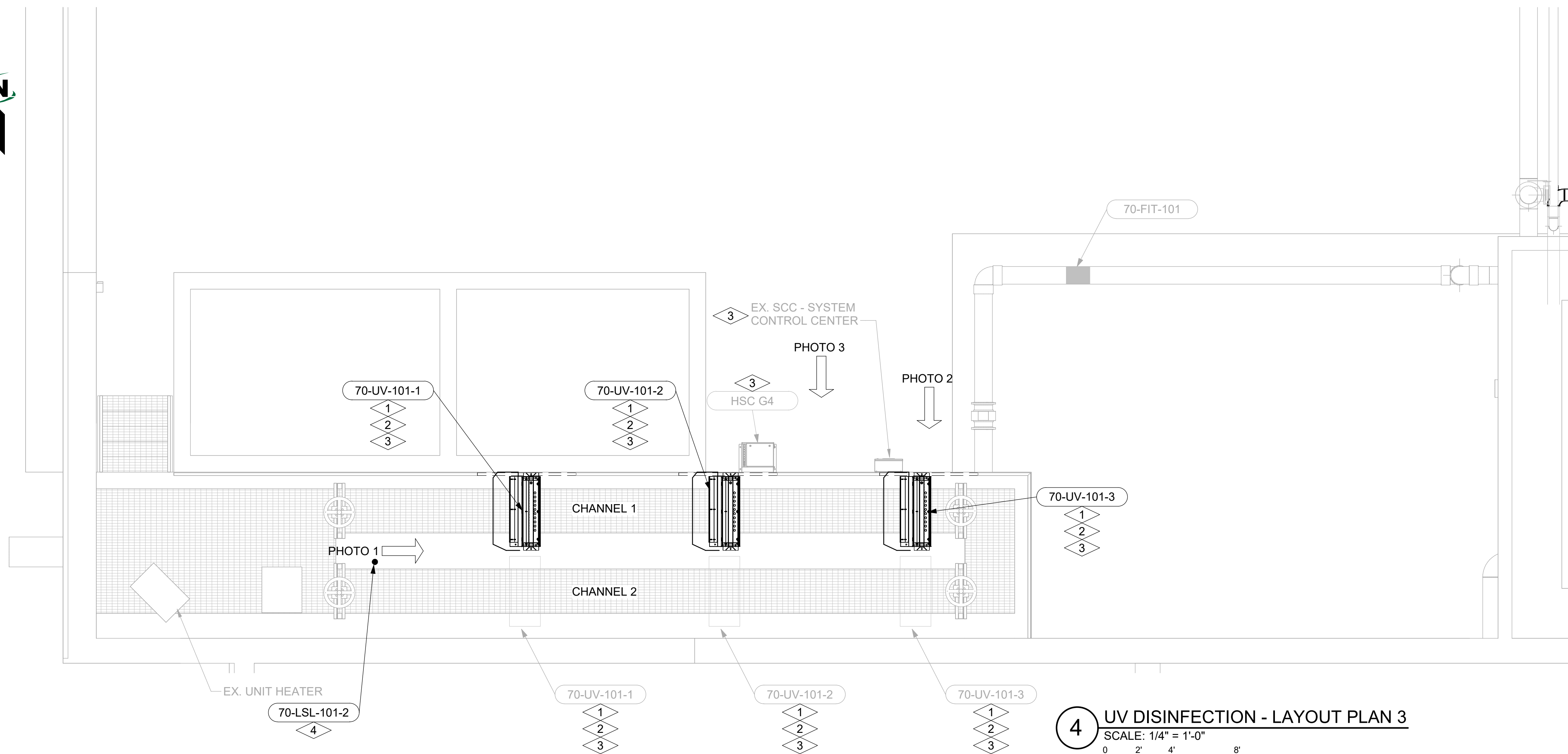


PHOTO 1

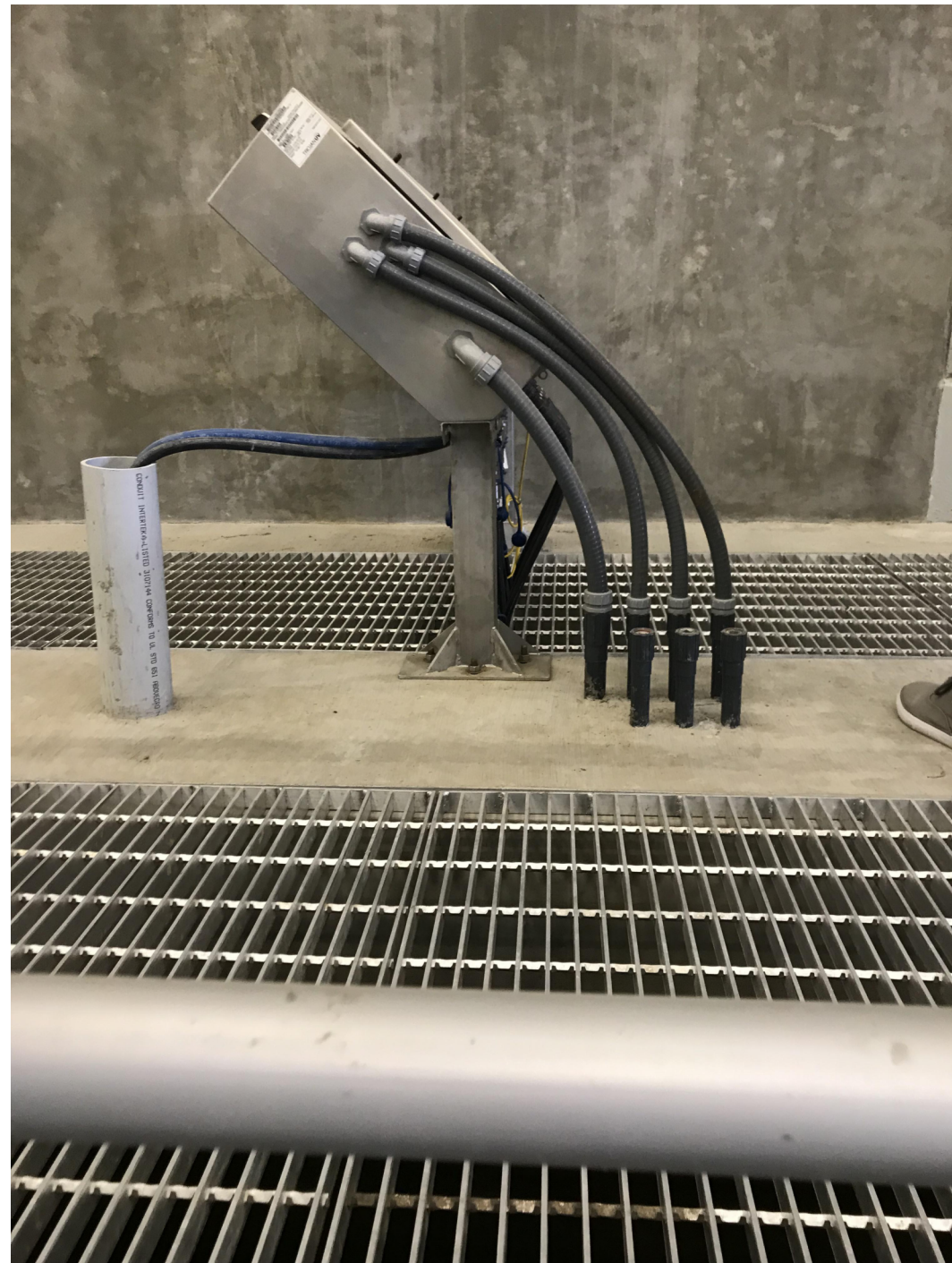


PHOTO 2



PHOTO 3

KEYNOTES:

- CONTRACTOR TO RE-USE EXISTING UV PDC MODULES 101-1, 101-2, AND 101-3, AND INSTALL THEM OVER CHANNEL 1. THE INSTALLATION REQUIRES THE CONTRACTOR TO ROTATE THE MODULES 180 DEGREES, SEE MECHANICAL SHEETS FOR DETAILS. NEW UV BANKS SHALL BE INSTALLED BY THE CONTRACTOR PER THE MECHANICAL DESIGN, SEE SHEET 70-D-401.
- EXISTING CONDUITS EXIT THE MODULES ON THE NORTHERN FACE, SEE PHOTO 2. AFTER THE MODULES ARE ROTATED 180 DEGREES THE CONDUITS WILL EXIT THE SOUTH. CONTRACTOR TO UTILIZE SAME UNDERGROUND CONDUITS, WIRE AND FLEX CONDUIT FOR THIS ROTATION. IF THE FLEX CONDUIT IS NOT LONG ENOUGH FOR THIS ROTATION, CONTRACTOR SHALL INSTALL A LONGER PIECE OF FLEX TO ACCOMMODATE.
- CONTRACTOR TO COORDINATE WITH UV EQUIPMENT MANUFACTURER FOR ADDITIONAL WIRING REQUIRED FOR THIS RELOCATION OF PDCS AND THE ADDITION OF THE NEW BANKS. CONTRACTOR TO COORDINATE ADDITIONAL COMPONENTS NECESSARY IN THE HSC AND SCC ENCLOSURES TO ACCOMMODATE THIS ROTATION.
- THE CONTRACTOR SHALL COORDINATE WITH UV EQUIPMENT SUPPLIER THE REQUIREMENTS OF THE LEVEL TRANSMITTER AND ITS CONNECTIONS TO EACH PDC.

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REGISTERED PROFESSIONAL ENGINEER
No. 5338864
MARK P. JEPSEN
04/22/2025
STATE OF UTAH

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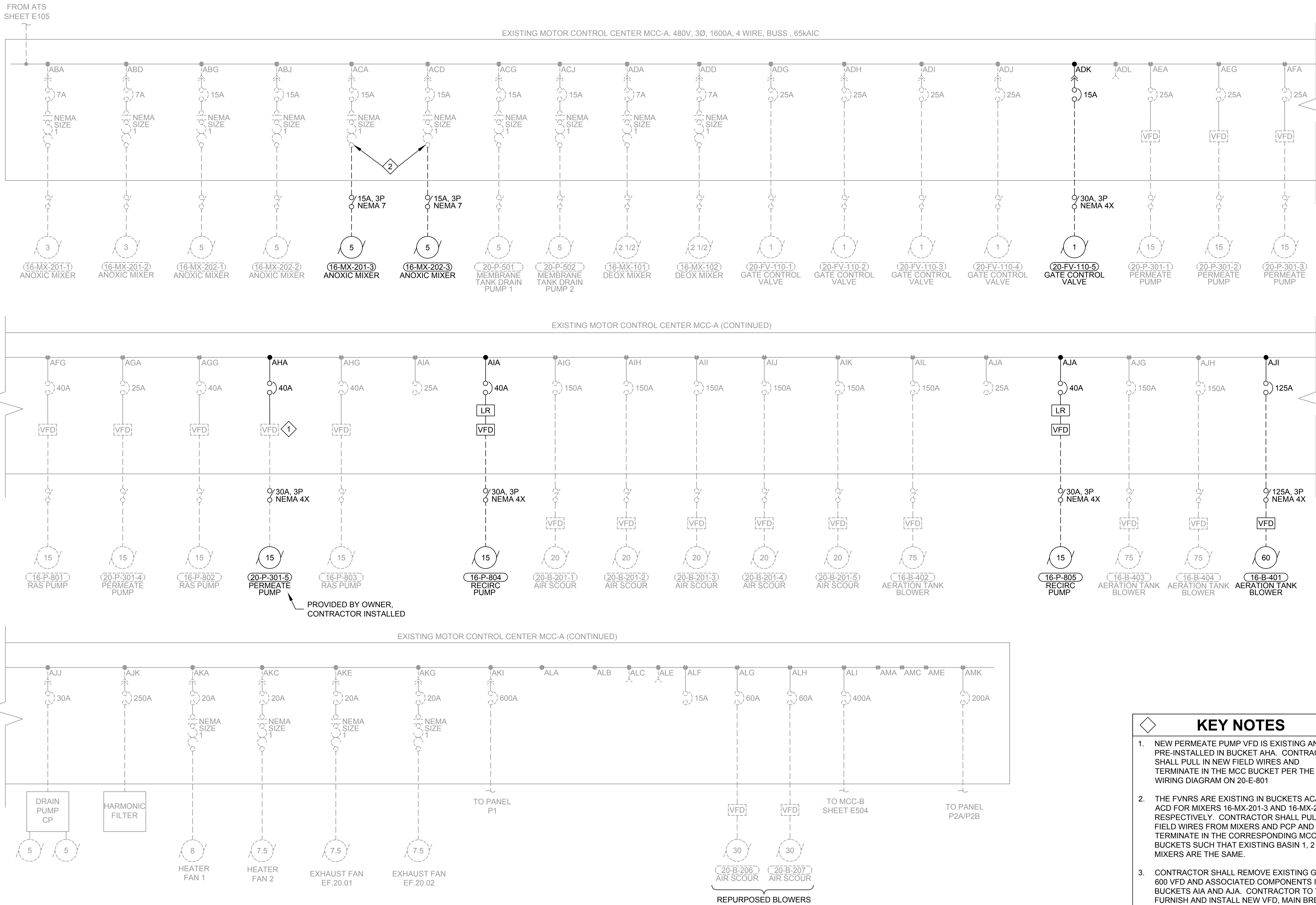
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY
ELECTRICAL - UV DISINFECTION
LAYOUT PLAN 3

FILE:
JUB PROJ. #93-24-001
DRAWN BY: DCL
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DRAWING:

20-E-104

Plot Date: 4/21/2025 5:20 AM Plotted By: Daniel Leggett
Date Created: 12/2/2024 C:\USERS\DANIEL.LEGGETT\Documents\PROJECT FILES\MODELS\ELECTRICAL\20-E-501 MEMBRANE MCC-A ONE-LINE DIAGRAM.DWG

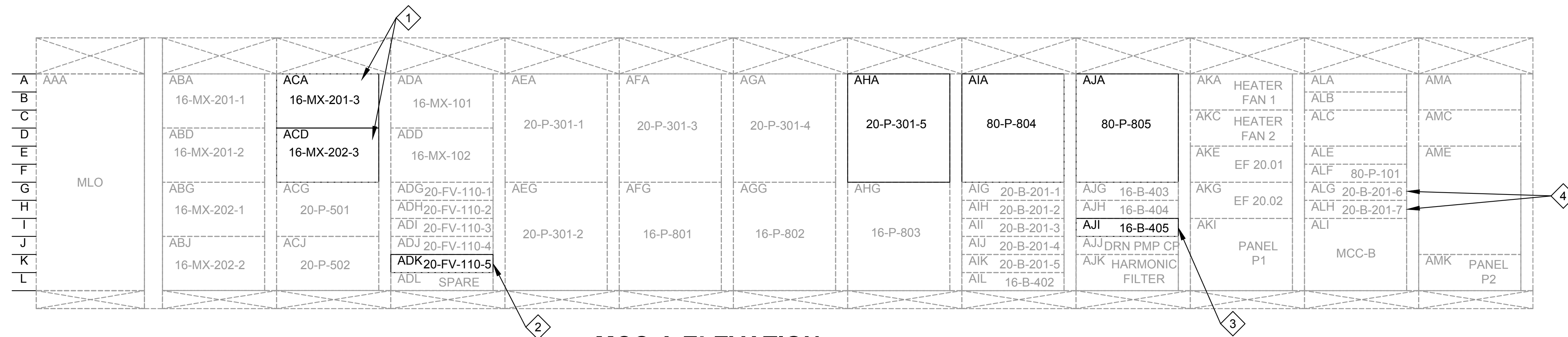


ONLINE DIAGRAM

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WRF PHASE 3 UPGRADES SANTAQUIN CITY ELECTRICAL - ANOXIC & MEMBRANE MCC-A ONE-LINE DIAGRAM



MCC-A ELEVATION

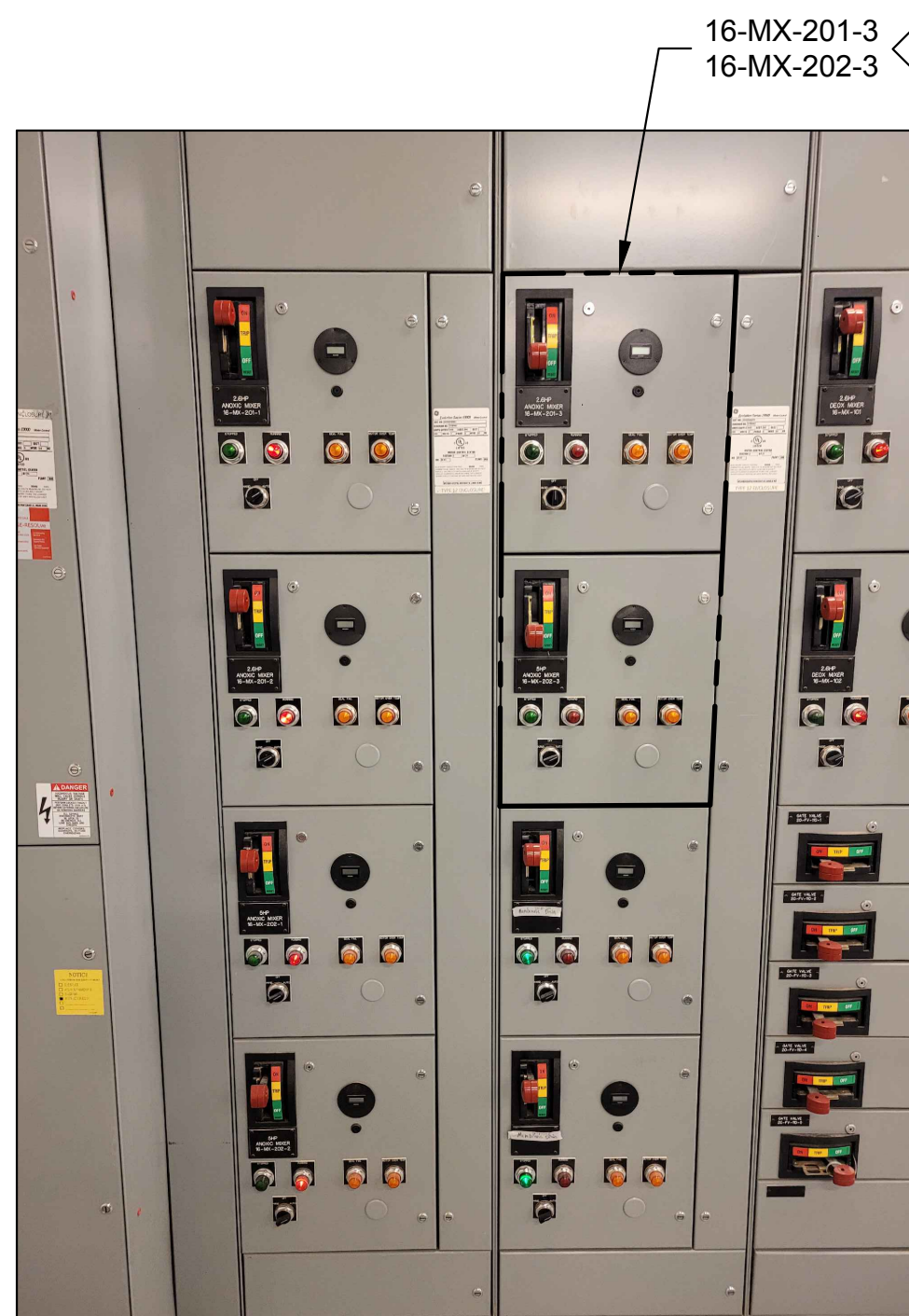


PHOTO 1



PHOTO 2

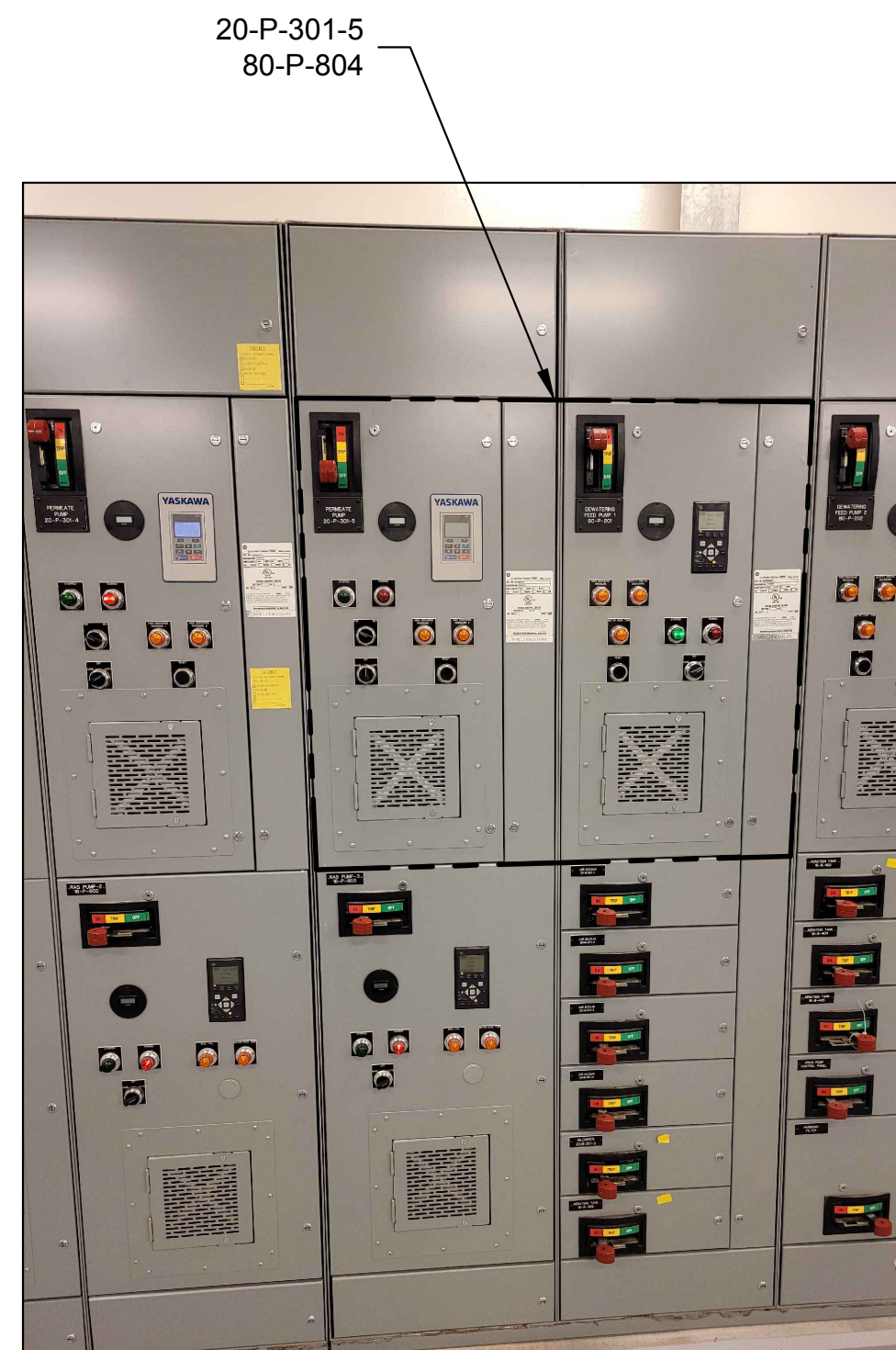


PHOTO 3

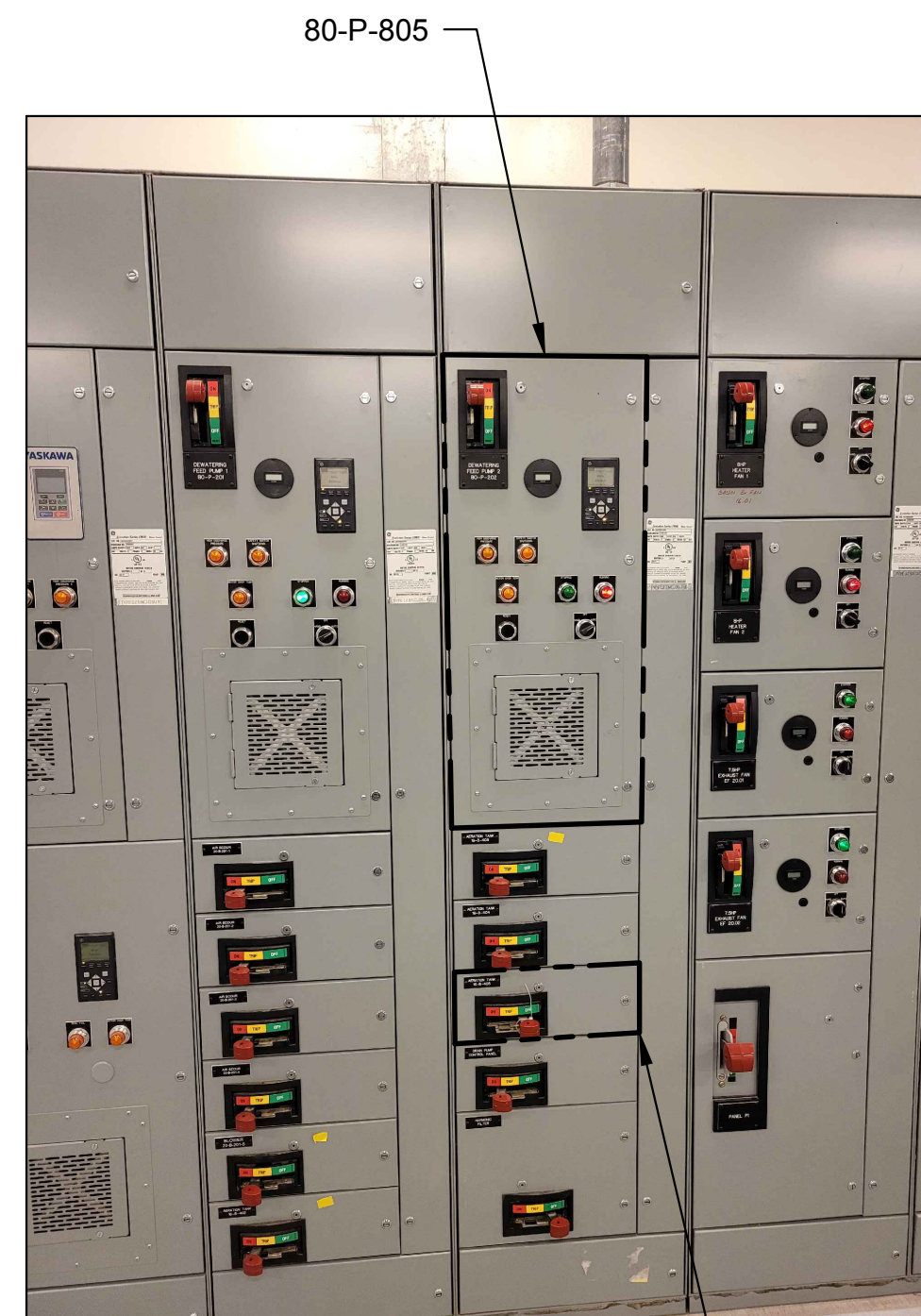


PHOTO 4

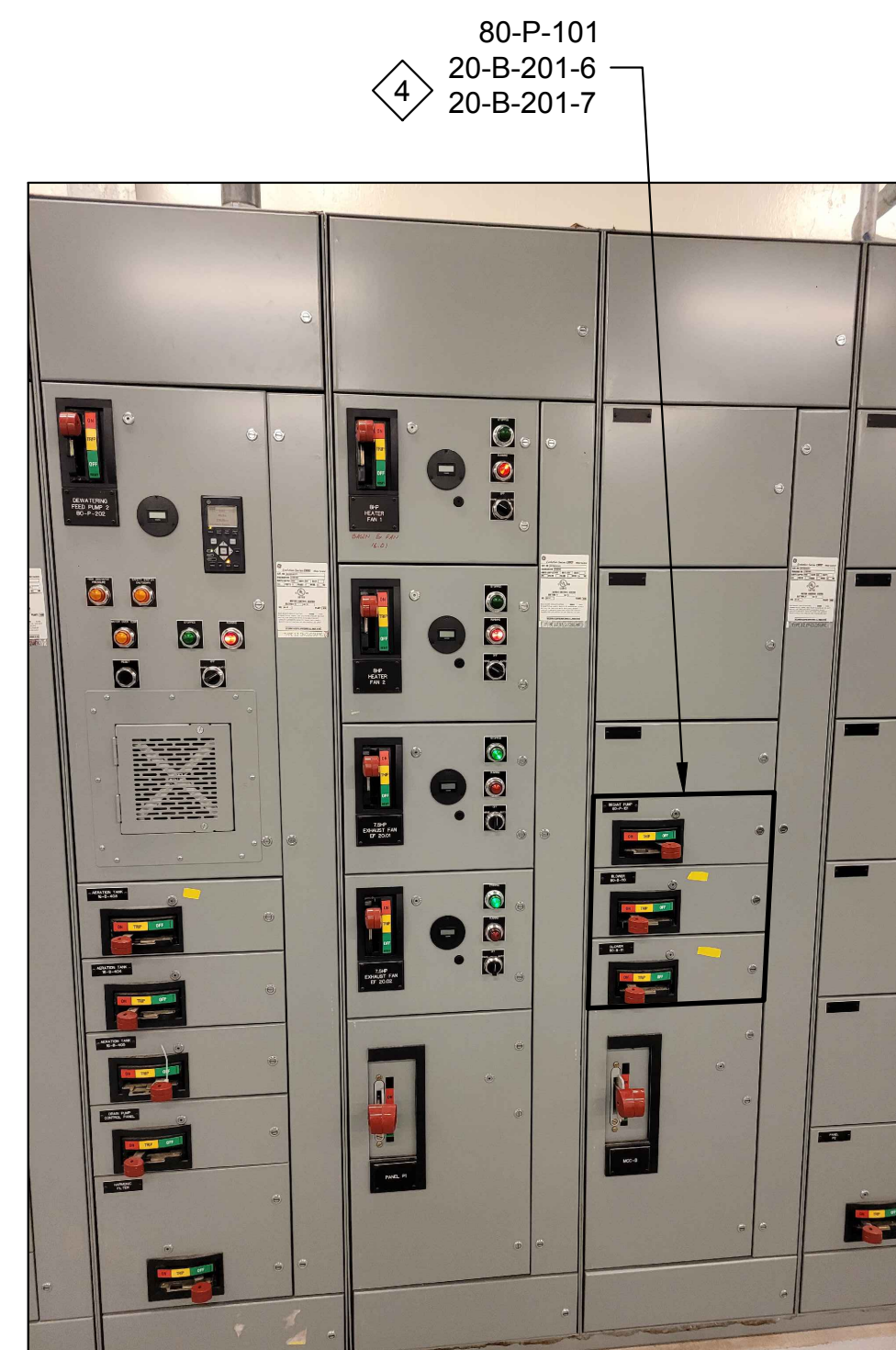
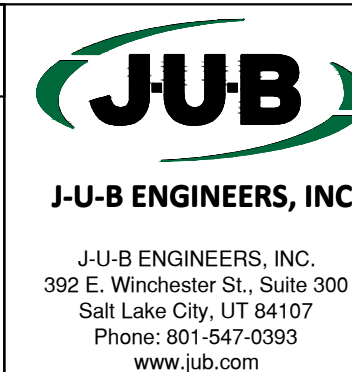


PHOTO 5

KEY NOTES

1. EXISTING STARTERS HAVE BEEN INSTALLED PROACTIVELY FOR THE MIXERS BY THE OWNER IN BUCKETS ACA AND ACD. CONTRACTOR TO PULL IN NEW WIRE AND TERMINATE INSIDE THE BUCKETS TO MATCH EXISTING WIRING TO EXISTING BASIN 1 AND 2 MIXERS.
2. BRANCH FEEDER FOR THE NEW FV-110-5 VALVE HAS BEEN PROACTIVELY INSTALLED IN THIS BUCKET BY THE OWNER. CONTRACTOR TO PULL IN NEW WIRE AND TERMINATE ACCORDING TO THE CONDUIT SCHEDULE AND DEVELOPMENTS.
3. BRANCH FEEDER FOR NEW BLOWER 16-B-401 HAS BEEN PROACTIVELY INSTALLED BY THE OWNER. CONTRACTOR TO PULL IN NEW CONDUCTORS ACCORDING TO THE CONDUIT DEVELOPMENTS AND SCHEDULES AND TERMINATE IN THIS BUCKET.
4. THE TWO BLOWERS 20-B-201-6 AND 20-B-201-7 BEING RE-PURPOSED FOR MEMBRANE AIR ARE CURRENTLY BEING FED FROM BUCKETS ALG AND ALH. THERE IS NOTHING THAT THE CONTRACTOR NEEDS TO DO WITH THIS BUCKET OR FEEDER. PLEASE NOTE THAT THE LABEL ON THE MCC IS INCORRECT, IT READS 80-B-110 AND 80-B-111 WHICH DO NOT EXIST. CONTRACTOR SHALL REPLACE THE MCC LABELS SUCH THAT THEY ARE CORRECT. LABELS TO MATCH EXISTING.

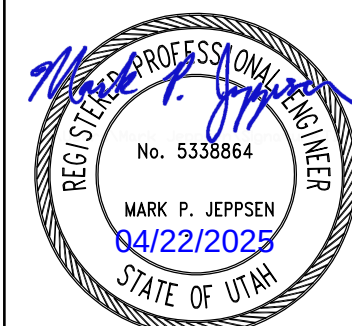


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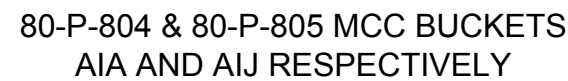
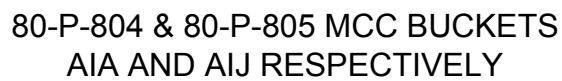
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[illegible]

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

ELECTRICAL - ANOXIC & MEMBRANE MCC-A ELEVATION

FILE :
JUB PROJ. # : 93-24-001
DRAWN BY: EGK / DCL
DESIGN BY: JCG
CHECKED BY: MPJ
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LAST UPDATED: 4/9/2025
DRAWING:
20-E-502



1. CONTRACTOR TO RE-BUILD MCC DOORS AND INTERIORS FOR THE RECIRC PUMPS. EXISTING EQUIPMENT TO BE REMOVE SALVAGED TO OWNER AND REPLACED WITH NEW PER THE DESIGN DETAILS BELOW. CONTRACTOR TO SUBMIT ON ALL NEW EQUIPMENT TO THE ENGINEER AND TRY TO MATCH EXISTING EQUIPMENT AS BEST AS POSSIBLE. THIS INCLUDES BREAKERS, PILOT DEVICES, TERMINAL BLOCKS, RELAYS, ETC. DESIGN OF NEW RECIRC VFDS BASED AROUND FC202 DANFOS AQUA, NEMA 12. PART NUMBER: FC-202P11KT4P21H1XXNXXXXXXXANBXCXXXXX



1. TYPICAL SCHEMATIC DIAGRAMS ARE INTENDED TO REFLECT THE GENERAL CONTROL STRATEGY. ACTUAL CIRCUITRY MAY VARY FOR SPECIFIC EQUIPMENT SUPPLIED. THE NUMBER AND TYPE OF DEVICES SHALL BE FURNISHED AS REQUIRED FOR PROPER OPERATION OF THE EQUIPMENT.

[illegible]

ELECTRICAL - ANOXIC & MEMBRANE MIXER SECTION AND WIRING DIAGRAM

FILE :
 SUB PROJ. # : 93-24-001
 DRAWN BY: EGK / DCL
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 AT FULL SIZE, IF NOT ONE
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 DRAWING:

Plot Date: 4/21/2025 10:53 AM Plotted By: Daniel Leavitt
Data Created: 4/21/2024 C:\USERS\DANIEL.LEAVITT\Documents\PROJECT FILES\MODEL ELECTRICAL\INSTRUMENTATION\20-E-601 MEMBRANE CALCULATION.DWG

CIRCUIT/DESCRIPTION	KVA	HP	FLA
PEAK DEMAND (PREVIOUS 12 MONTHS)	391.3		471.2
PEAK DEMAND + 25%	97.8		117.8
MOTOR LOADS			
16-MX-201-3		5.0	7.6
16-MX-202-3		5.0	7.6
20-FV-110-5		1.0	2.1
16-P-804		15.0	21.0
16-P-805		15.0	21.0
PERMEATE PUMP 20-P-301-5		15.0	21.0
AERATION TANK BLOWER 16-B-401		75.0	96.0
GATE CONTROL VALVE 20-FV-110-5		1.0	2.1
NON-MOTOR LOADS			
UV BANK 2	18.5		22.3
UV BANK 3	37.0		44.6
DP-SHB			366.1
SUBTOTAL			1200.4
+ 25% OF LARGEST MOTOR			24.0
TOTAL AMPS @ 480V/3PHASE			1224.4
SERVICE SIZE (AMPS)			1600.0

MCC-A LOAD CALCULATIONS

PANEL: P1A		VOLTAGE: 277/480 BUS A.I.C: 22KA		MAIN CB: 600 AMP BKR AIC: 22KA		BUS AMPS: 600 AMP MOUNTING: SURFACE		
CIRCUIT DESCRIPTION	BKR	CIRCUIT	LOAD	PHASE	LOAD	CIRCUIT	BKR	CIRCUIT DESCRIPTION
LCP	60/3	1	6089	A	25000	2	60/3	LP1 - TRANSFORMER
		3	7935	B	25000	4		
		5	7283	C	25000	6		
LP5 XFMR	60/3	7	8333	A	2200	8	60/3	BRIDGE CRANE
		9	8333	B	2200	10		
		11	8333	C	2200	12		
UV-A	30/3	13	5600	A	TBD	14	30/3	HSC
		15	5600	B	TBD	16		
		17	5600	C	TBD	18		
UV-B	30/3	19	5600	A	3500	20	20/3	AIR COMPRESSOR
		21	5600	B	3500	22		
		23	5600	C	3500	24		
UV-C	30/3	25	5600	A	TBD	26	30/3	20-FV-501-1 SOLENOID
		27	5600	B	TBD	28		20-FV-501-2 SOLENOID
		29	5600	C	TBD	30		
ROLL-UP DOOR - WEST	15/3	31	250	A	250	32	15/3	ROLL-UP DOOR - EAST
		33	250	B	250	34		
		35	250	C	250	36		
ELECTRIC ROOM HEATER	15/3	37	TBD	A	TBD	38	15/3	BLOWER ROOM HEATER
		39	TBD	B	TBD	40		
		41	TBD	C	TBD	42		
			PHASE A	PHASE B	PHASE C	NOTES:		
CONNECTED VA PER PHASE			62422.0	64268.0	63616.0			
CONNECTED AMPS PER PHASE			225.4	232.0	229.7			
25% OF CONTINUOUS & LIGHTING LOAD (VA)			15605.5	16067.0	15904.0			
CODE VA PER PHASE			78027.5	80335.0	79520.0			
CODE AMPS PER PHASE			281.7	290.0	287.1			

EXISTING P1A LOAD CALCULATIONS

NEW LOAD SHOWN IN RED TEXT

PANEL: P1B		VOLTAGE: 277/480		MAIN CB: 600 AMP		BUS AMPS: 600 AMP		
		BUS A.I.C: 22KA		BKR AIC: 22KA		MOUNTING: SURFACE		
CIRCUIT DESCRIPTION	BKR	CIRCUIT	LOAD	PHASE	LOAD	CIRCUIT	BKR	CIRCUIT DESCRIPTION
AERATION BASIN N.1A 16-FV-401-1	15/3	1	73	A	73	2	15/3	AERATION BASIN N. 2C 16-FV-402-2
		3	73	B	73	4		
		5	73	C	73	6		
AERATION BASIN N. 1B 16-FV-402-1	15/3	7	73	A	292	8	15/3	DEOXYGENATING BASIN N.3 16-FV-701
		9	73	B	292	10		
		11	73	C	292	12		
AERATION BASIN N.1C 16-FV-403-1	15/3	13	73	A	73	14	15/3	AERATION BASIN N.2A 16-FV-401-2
		15	73	B	73	16		
		17	73	C	73	18		
AERATION BASIN N. 2B 16-FV-403-2	15/3	19	73	A	TBD	20	15/3	STORAGE ROOM HEATER
		21	73	B	TBD	22		
		23	73	C	TBD	24		
NON-POTABLE WATER PANEL	100/3	25	TBD	A	TBD	26	15/3	20" VALVE
		27	TBD	B	TBD	28		
		29	TBD	C	TBD	30		
HEAT TRACE PANEL	100/3	31	TBD	A	TBD	32	30/3	20-FV-501-3 SOLENOID
		33	TBD	B	TBD	34		20-FV-501-4 SOLENOID
		35	TBD	C		36		
			PHASE A	PHASE B	PHASE C	NOTES:		
CONNECTED VA PER PHASE			730.0	730.0	730.0			
CONNECTED AMPS PER PHASE			2.6	2.6	2.6			
25% OF CONTINUOUS & LIGHTING LOAD (VA)			182.5	182.5	182.5			
CODE VA PER PHASE			912.5	912.5	912.5			
CODE AMPS PER PHASE			3.3	3.3	3.3			

EXISTING P1B LOAD CALCULATIONS

PANEL: LCP		VOLTAGE: 277/480		MAIN CB: 150 AMP		BUS AMPS: 225 AMP		
		BUS A.I.C: 22KA		BKR AIC: 22KA		MOUNTING: SURFACE		
CIRCUIT DESCRIPTION	BKR	CIRCUIT	LOAD	PHASE	LOAD	CIRCUIT	BKR	CIRCUIT DESCRIPTION
ELECTRICAL ROOM LIGHTS	20/1	1	788	A		2	20/1	SPARE
BIOLOGICAL AREA LIGHTS	20/1	3	2430	B		4	20/1	OUTSIDE LIGHTS
BIOLOGICAL AREA LIGHTS	20/1	5	2430	C		6	20/1	BIOLOGICAL LIGHTS
STORAGE ROOM LIGHTS	20/1	7	640	A		8	20/1	SPARE
MEMBRANE AREA LIGHTS	20/1	9	4390	B		10	20/1	SPARE
MEMBRANE AREA LIGHTS	20/1	11	4250	C		12	20/1	SPARE
MEMBRANE AREA LIGHTS	20/1	13	4250	A		14	20/1	SPARE
BLOWER ROOM LIGHTS	20/1	15	512	B		16	20/1	SPARE
LABORATORY LIGHTS	20/1	17	384	C		18	20/1	SPARE
RESTROOM LIGHTS	20/1	19	192	A	73	20	15/3	AERATION BASIN NE 16-FV-401-3
CONTROL ROOM LIGHTS	20/1	21	384	B	73	22		
LIGHT POLE	20/1	23		C	73	24		
SPARE	20/1	25		A	73	26	15/3	AERATION BASIN NE 16-FV-402-3
SPARE	20/1	27		B	73	28		
SPARE	20/1	29		C	73	30		
SPARE	20/1	31		A	73	32	15/3	AERATION BASIN NE 16-FV-403-3
SPARE	20/1	33		B	73	34		
SPARE	20/1	35		C	73	36		
			PHASE A	PHASE B	PHASE C	NOTE: CONTRACTOR TO REPLACE EXISING 20A		
CONNECTED VA PER PHASE			6089.0	7935.0	7283.0	BREAKERS IN PANEL LCP WITH NEW 480V BRANCH		
CONNECTED AMPS PER PHASE			22.0	28.6	26.3	BREAKERS TO NEW PROCESS BASIN VALVES.		
25% OF CONTINUOUS & LIGHTING LOAD (VA)			1522.3	1983.8	1820.8	CONTRACTOR TO INSTALL NEW 3-PHASE 15A		
CODE VA PER PHASE			7611.3	9918.8	9103.8	BREAKERS FOR EACH NEW VALVE SHOWN ON		
CODE AMPS PER PHASE			27.5	35.8	32.9	THE SCHEDULE.		

EXISTING LCP LOAD CALCULATIONS

NEW LOADS SHOWN IN RED TEXT



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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

ELECTRICAL - ANOXIC & MEMBRANE
CALCULATIONS 1

FILE:
JUB PROJ. #: 93-24-001
DRAWN BY: EGK / DCL
DESIGN BY: JCG
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AT FULL SIZE, IF NOT ONE
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LAST UPDATED: 4/21/2025
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20-E-601

Plot Date: 4/21/2025 9:02 AM Plotted By: Daniel Leavitt
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PANELBOARD LP1																					
LOCATION: ELECTRICAL ROOM				MFGR: GENERAL ELECTRIC				225 AMPS				VOLTS: 208Y/120									
DIMENSIONS: 20"W x 5.75"D x 43.5"H				TYPE: AQ								PHASE: 3									
MOUNTING: SURFACE				NEMA: 1				200 M.C.B.				WIRES: 4									
FEED: BOTTOM								22,000 A.I.C.				FED FROM: TRANSFORMER T-1									
BRKR				WIRE	CONT.	N-CONT.	A		B		C		N-CONT.	CONT.	WIRE			BRKR			
A	P	DESCRIPTION		SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.	CONT.	N-CONT.	NO	WATTS	WATTS	SIZE	DESCRIPTION		A	P
40	2	CONDENSING UNIT CU.02.01				2,080	1	0	2,800					2	720			ELECTRICAL ROOM OUTLETS		20	1
-	-					2,080	3			0	2,440			4	360			TELEPHONE TERMINAL BOARD		20	1
20	1	SUMP KIVA 1				1,440	5					0	3,520	6	2,080			CONDENSING UNIT CU.01.01		40	2
20	1	SUMP KIVA 2				1,440	7	0	3,520					8	2,080					-	-
20	1	KIVA FLOW METER 20-FIT-101			50		9			50	2,080			10	2,080			CONDENSING UNIT CU.01.02		40	2
20	1	CONTROL PANEL CP-11			800		11					800	2,080	12	2,080					-	-
20	1	CONTROL PANEL CP-12			800		13	800	2,080					14	2,080			CONDENSING UNIT CU.01.03		40	2
20	1	CONTROL PANEL CP-13			800		15			800	2,080			16	2,080					-	-
20	1	CONTROL PANEL CP-14			800		17					800	2,080	18	2,080			CONDENSING UNIT CU.01.04		40	2
20	1	CONTROL PANEL CP-15			800		19	800	2080					20	2,080					-	-
20	1						21			900	0			22		100		BLOWER ROOM HVAC CONTROL PANEL		20	1
40	2	CONDENSING UNIT CU.02.02				2,080	23					0	2,980	24	900			BLOWER ROOM GENERAL POWER		20	1
-	-					2,080	25	0	3,580					26	1,500			ELECTRIC UNIT HEATER EUH.01.02		25	2
40	2	ELECTRIC DUCT HEATER EDH.02.01				2,000	27			0	3,500			28	1,500					-	-
-	-					2,000	29					0	5,000	30	3,000			ELECTRIC DUCT HEATER EDH.02.02		60	2
20	1	SODIUM HYPOCHLORITE CP 23-P-201, 202				828	31	0	3,828					32	3,000					-	-
20	1	SODIUM HYPOCHLORITE TRANSFER PUMP 23-P-100				288	33				0	3,616		34	3,328			AIR COMPRESSOR		40	2
20	1	CITRIC ACID TRANSFER PUMP 23-P-300				288	35					0	3,616	36	3,328					-	-
20	1	FLOW METER 16-FIT-102			100		37	2850	0					38		2,750		LAB MUFFLE FURNACE		60	2
		SPACE					39			2,750	0			40		2,750				-	-
		SPACE					41					0	0	42				SPACE			1
		TOTAL WATTS:			4050	16,604		4450	17888	4,500	13,716	1,600	19,276		34,276	5,600					
		CONTINUOUS LOAD:			10,450																
		CONTINUOUS LOAD * 125%:			13,063																
		NON-CONTINUOUS LOAD:			50,880																
		DESIGN WATTS:			63,943																
		MIN. RATING (AMPS):			178																

LP1 LOAD CALCULATIONS
NEW LOADS SHOWN IN RED TEXT



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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

ELECTRICAL - ANOXIC & MEMBRANE
CALCULATIONS 2

FILE:
JUB PROJ. #: 93-24-001
DRAWN BY: EGK / DCL
DESIGN BY: JCG
CHECKED BY: MPJ
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 4/21/2025
DRAWING:
20-E-602

Plot Date: 4/21/2025 9:08 AM Printed By: Daniel Leavitt
Date Created: 2/12/2024 C:\USERS\ DANIEL.LEAVITT\Documents\PROJECT FILES\MODEL ELECTRICAL\INSTRUMENTATION\20-E-701 PROCESS BASINS CONDUIT SCHEDULE.DWG

POWER CONDUIT							
CONDUIT	SIZE	CONDUCTORS	SERVICE	FROM	TO	DUCTBANKS	NOTES
P-16-13	3/4"	2 #12 W/ #12 GND	120VAC	PCP	AERATION BASIN 3 AIT POWER		THROUGH JB-E2. UTILIZE EXISTING CONDUIT FROM JB-E2 TO PCP
P-16-15	1"	3 #10 W/ #12 GND	480VAC	MCC-A	ANOXIC MIXER 16-MX-201-3		MFR CABLE FROM DS TO MIXER; UTILIZE EXISTING CONDUIT
P-16-16	1"	3 #10 W/ #12 GND	480VAC	MCC-A	ANOXIC MIXER 16-MX-202-3		MFR CABLE FROM DS TO MIXER; UTILIZE EXISTING CONDUIT
P-16-17	1"	3 #10 W/ #12 GND	480VAC	LCP	AERATION VALVE 16-FV-401-3		THROUGH 16-DS-FV-401-3, P1B, AND JB-E2; EX. CONDUIT FROM JB
P-16-18	1"	3 #10 W/ #12 GND	480VAC	LCP	AERATION VALVE 16-FV-402-3		THROUGH 16-DS-FV-402-3, P1B, AND JB-E2; EX. CONDUIT FROM JB
P-16-19	1"	3 #10 W/ #12 GND	480VAC	LCP	AERATION VALVE 16-FV-403-3		THROUGH 16-DS-FV-403-3, P1B, AND JB-E2; EX. CONDUIT FROM JB
P-16-20	1"	3 #8 W/ #10 GND, 4#14	480VAC, 120VAC	MCC-A	RECIRC PUMP KIVA 2 16-P-804		THROUGH 16-DS-P-804; UTILIZE EXISTING CONDUIT
P-16-20A	1"	3 #8 W/ #10 GND, 4#14	480VAC, 120VAC	MCC-A	RECIRC PUMP KIVA 2 16-P-805		THROUGH 16-DS-P-805; UTILIZE EXISTING CONDUIT
P-16-20B	1"	2 #12 W/ #12 GND	120VAC	PANEL LP-1	16-FIT-102		THROUGH MCC-A; UTILIZE EXISTING CONDUIT
CONTROL CONDUIT							
C-16-12	3/4"	10 #14	24VDC	PCP	ANOXIC BASIN MIXER 201-3 FVNR MCC-A BUCKET		UTILIZE EXISTING CONDUIT
C-16-12A	3/4"	10 #14	24VDC	PCP	ANOXIC BASIN MIXER 202-3 FVNR MCC-A BUCKET		UTILIZE EXISTING CONDUIT
C-16-14	1"	2 #12 W/ #12 GND	24VDC	PCP	LEVEL SWITCH 16-LSH-203-1		MFR CABLE TO JB, EXISTING CONDUIT BACK THROUGH JB-E1
C-16-15	3/4"	4 #14 W	120VAC	MCC-A	16-TSH-201-3 & 16-MAH-201-3		MFR CABLE TO DS, EXISTING CONDUIT BACK THROUGH JB-E1
C-16-16	3/4"	4 #14 W	120VAC	MCC-A	16-TSH-201-3 & 16-MAH-201-3		MFR CABLE TO DS, EXISTING CONDUIT BACK THROUGH JB-E1
C-16-32A	3/4"	10 #14	120VAC	PCP	16-VFD-P-804 MCC-A BUCKET		UTILIZE EXISTING CONDUIT
C-16-32B	1"	2 #12 W/ #12 GND	120VAC	16-PSL-804	16-VFD-P-804 MCC-A BUCKET		UTILIZE EXISTING CONDUIT
C-16-33A	3/4"	10 #14	120VAC	PCP	16-VFD-P-805 MCC-A BUCKET		UTILIZE EXISTING CONDUIT
C-16-33B	1"	2 #12 W/ #12 GND	120VAC	16-PSL-805	16-VFD-P-805 MCC-A BUCKET		UTILIZE EXISTING CONDUIT
SIGNAL CONDUIT							
S-16-10	3/4"	MFR CABLE	4-20mA	PCP	ANOXIC BASIN LEVEL 16-PT-203-1		THROUGH JB-E1; UTILIZE EXISTING CONDUIT FROM JB-E1 TO PCP
S-16-11	3/4"	2 # 18 TSP, 4#14	4-20mA / 24VDC	PCP	AERATION BASIN 3 VALVE CONTROL 16-FV-401-3		THROUGH JB-E1; UTILIZE EXISTING CONDUIT FROM JB-E1 TO PCP
S-16-11A	3/4"	2 # 18 TSP, 4#14	4-20mA / 24VDC	PCP	AERATION BASIN 3 VALVE CONTROL 16-FV-402-3		THROUGH JB-E1; UTILIZE EXISTING CONDUIT FROM JB-E1 TO PCP
S-16-11B	3/4"	2 # 18 TSP, 4#14	4-20mA / 24VDC	PCP	AERATION BASIN 3 VALVE CONTROL 16-FV-403-3		THROUGH JB-E1; UTILIZE EXISTING CONDUIT FROM JB-E1 TO PCP
S-16-20	3/4"	4 #18 TSP	4-20mA	PCP	MCC-A RECIRC VFDS SPEED CONTROL - BUCKETS AIA AJA		UTILIZE EXISTING CONDUIT
S-16-20B	1"	2 #18 TSP	4-20mA	PCP	16-FIT-102		UTILIZE EXISTING CONDUIT
S-16-21	3/4"	MFR CABLE	SIGNAL	16-FE-102	16-FIT-102		
COMBINED CONDUIT							
P-16-15+	1"	P-16-15, C-16-15	120/480VAC	JB-E2	16-DS-MX-201-3		
P-16-16+	1"	P-16-16, C-16-16	120/480VAC	JB-E2	16-DS-MX-202-3		
P-16-17+	1"	P-16-17, P-16-18, P-16-19	480VAC	LCP	16-DS-FV-401-3, 402-3, 403-3		EXISTING CONDUIT FROM LCP TO JB-E2
P-16-20B+	1"	P-16-20B, C-16-32B, C-16-33B	120VAC	MCC-A	16-PSL-804, 16-PSL-805, 16-FIT-102		CONNECT TO EXISTING CONDUIT TO MCC-A
C-16-15+	1"	C-16-15, C-16-16	120VAC	MCC-A	JB-E2		EXISTING CONDUIT
S-16-11+	1"	S-16-11, S-16-11A, S-16-11B	4-20mA / 24VDC	PCP	16-FV-401-3, 16-FV-402-3, 16-FV-403-3		EXISTING CONDUIT FROM PCP TO JB-E1
S-16-20+	1"	S-16-20, S-16-20B	4-20mA	PCP	MCC-A		EXISTING CONDUIT

PROCESS BASIN CONDUIT SCHEDULE



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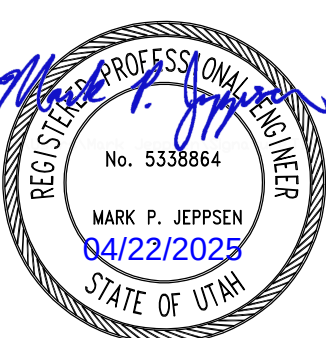
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ELECTRICAL - ANOXIC & MEMBRANE
PROCESS BASINS CONDUIT SCHEDULE

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INSTRUMENT SCHEDULE						
TAG	DESCRIPTION	MAKE	MODEL	SUPPLY	RANGE	COMMENTS
16-PT-203-1	ANOXIC BASIN 3 LEVEL TRANSMITTER	DWYER	SBLT2	LOOP-24VDC	0-23.1 FT	OR APPROVED EQUAL
16-LSH-203-1	ANOXIC BASIN 3 HIGH LEVEL SWITCH	DWYER	FSW2-DNPN-40	NO/NC DRY CONTACT	NC CONTACT	OR APPROVED EQUAL
16-AIT-401-3	AERATION BASIN 3 DO TRANSMITTER	HACH	SC1000	120VAC		
16-AE-401-3	AERATION DO PROBE 1	HACH	LDO SC MODEL 2	FROM TRANSMITTER	0-10PPM	
16-AE-402-3	AERATION DO PROBE 2	HACH	LDO SC MODEL 2	FROM TRANSMITTER	0-10PPM	
16-AE-403-3	AERATION DO PROBE 3	HACH	LDO SC MODEL 2	FROM TRANSMITTER	0-10PPM	
16-PSL-804	RECIRC PUMP 804 LOW PRESSURE SWITCH	ASHCROFT	B SERIES	NO/NC DRY CONTACT	0 PSI	OR APPROVED EQUAL
16-PI-804	RECIRC PUMP 804 PRESSURE GAUGE	ASHCROFT	1279 SERIES		-30"Hg - 60PSI	OR APPROVED EQUAL
16-PSL-805	RECIRC PUMP 805 LOW PRESSURE SWITCH	ASHCROFT	B SERIES	NO/NC DRY CONTACT	0 PSI	OR APPROVED EQUAL
16-PI-805	RECIRC PUMP 805 PRESSURE GAUGE	ASHCROFT	1279 SERIES		-30"Hg - 60PSI	OR APPROVED EQUAL
16-PI-814	RECIRC PUMP 804 PRESSURE GAUGE	ASHCROFT	1279 SERIES		0-60 PSI	OR APPROVED EQUAL
16-PI-815	RECIRC PUMP 805 PRESSURE GAUGE	ASHCROFT	1279 SERIES		0-60 PSI	OR APPROVED EQUAL
16-FE-102	RECIRC PUMP FLOW ELEMENT	SIEMENS	MAG5100W	FROM FIT	0-2000GPM	14"; OR APPROVED EQUAL
16-FIT-102	RECIRC PUMP FLOW TRANSMITTER	SIEMENS	MAG6000	120VAC		OR APPROVED EQUAL

PROCESS BASIN INSTRUMENT SCHEDULE

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ELECTRICAL - ANOXIC & MEMBRANE PROCESS BASINS INSTRUMENT SCHEDULE

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POWER CONDUIT							
CONDUIT	SIZE	CONDUCTORS	SERVICE	FROM	TO	DUCTBANKS	NOTES
P-20-14	3/4"	3 #12 W/ #12 GND	480V	MCC-A	GATE CONTROL VALVE 5 20-FV-110-5		UTILIZE EXISTING CONDUIT
P-20-35	1.5"	3 1/0 W/ #6 GND	480VAC	16-VFD-B-401		MCC-A	UTILIZE EXISTING CONDUIT
P-20-40	1"	3 #12 W/ #12 GND	480VAC	NEW AIR COMPRESSOR	PANEL P1A		UTILIZE EXISTING CONDUIT
P-20-41	1"	2 #12 W/ #12 GND	120VAC	PANEL LP-1	CP-15		UTILIZE EXISTING CONDUIT
P-20-44	1"	2 #8 W/ #10 GND	480VAC	20-P-301-5	MCC-A		THROUGH 20-DS-P-301-5
P-20-45	1"	2 #12 W/ #12 GND	120VAC	CP-15	20-AIT-320-5		UTILIZE EXISTING CONDUIT
P-20-46	1"	2 #12 W/ #12 GND	120VAC	CP-15	20-FIT-301-5		UTILIZE EXISTING CONDUIT
P-70-47	1"	PER TROJAN	480VAC	PER TROJAN	70-UV-101-1	EXISTING	
P-70-47A	1"	PER TROJAN	480VAC	PER TROJAN	70-UV-101-2	EXISTING	
P-70-47B	1"	PER TROJAN	480VAC	PER TROJAN	70-UV-101-3	EXISTING	
P-70-48	1"	2 #12 W/ #12 GND					
CONTROL CONDUIT							
C-20-40	1"	6 #14 W/ #14 GND	24VDC	AIR COMPRESSOR	GE CP-01		
C-20-43	1"	2 #14 W/ #14 GND	24VDC	20-PSH-301-5	CP-15		
C-20-44	1"	2 #14 W/ #14 GND	24VDC	20-PSH-302-5	CP-15		
C-20-46	1"	6 #14 W/ #14 GND	120VAC	20-FV-210-5	CP-15		
C-20-47	1"	2 #14 W/ #14 GND	120VAC	20-FV-301-5	CP-15		
C-20-48	1"	8 #14	24VDC	20-FV-110-5	CP-15		UTILIZE EXISTING CONDUIT
C-20-49	1"	2 #14 W/ #14 GND	120VAC	20-FV-801-5	CP-15		
C-20-52	C	2 #14	120VAC	20-LSLL-201-5	CP-15	C-20-52+	
C-20-52A	C	2 #14	120VAC	20-LSL-201-5	CP-15	C-20-52+	
C-20-52B	C	2 #14	120VAC	20-LSHH-201-5	CP-15	C-20-52+	
C-20-53	1"	2 #14 W/ #14 GND	24VDC	20-PSH-601-5	CP-15		
C-20-53A	1"	2 #14 W/ #14 GND	24VDC	20-PSH-602-5	CP-15		
C-20-55	1"	18 #14	24VDC	16-VFD-B-401	PCP		UTILIZE EXISTING CONDUIT
C-20-20A	1"	6 #14	24VDC	20-VFD-B-201-6	GE CP-01		THROUGH MCC-A, AND PCP; EXISTING CONDUIT
C-20-21A	1"	6 #14	24VDC	20-VFD-B-201-7	GE CP-01		THROUGH MCC-A, AND PCP; EXISTING CONDUIT
C-20-56	1"	2 #14	24VDC	20-VFD-B-201-6	20-FSL-206		
C-20-57	1"	2 #14	24VDC	20-VFD-B-201-7	20-FSL-207		
C-20-58	1"	PER TROJAN	24VDC	UV SCC	70-LSL-101-2		
SIGNAL CONDUIT							
S-20-20	1"	2 #18 TSP	4-20mA	GE-CP-01	20-VFD-201-6		THROUGH MCC-A, AND PCP; EXISTING CONDUIT
S-20-21	1"	2 #18 TSP	4-20mA	GE-CP-01	20-VFD-201-7		THROUGH MCC-A, AND PCP; EXISTING CONDUIT
S-20-45	1"	1 #18 TSP	4-20mA	CP-15	20-AIT-320-5		
S-20-46	1"	1 #18 TSP	4-20mA	CP-15	20-FIT-301-5		
S-20-55	1"	2 #18 TSP	4-20mA	PLANT CONTROL PANEL PCP	16-VFD-B-401		
S-20-56	1"	1 #18 TSP	4-20mA	CP-15	20-PIT-301-5		
S-20-57	1"	1 #18 TSP	4-20mA	CP-15	20-LIT-201-5		
COMMUNICATION CONDUIT							
F-20-01	1"	1 CAT 6 SHIELDED ETHERNET CABLE	COMMS	GE CP-01	CP-15		UTILIZE EXISTING CONDUIT
SPARE CONDUIT							
COMBINED CONDUIT							
C-20-52+	3/4"	C-20-52, C-20-52A, C-20-52B	120VAC	CP-15	MEMBRANE LID FLANGE		

MEMBRANE CONDUIT SCHEDULE

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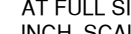


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ELECTRICAL - ANOXIC & MEMBRANE MEMBRANE CONDUIT SCHEDULE

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Plo Date:4/22/2025 10:11 AM Plotted By: Daniel Leavitt
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INSTRUMENT SCHEDULE						
TAG	DESCRIPTION	MAKE	MODEL	SUPPLY	RANGE	COMMENTS
16-PT-404	BLOWER B-405 INFLUENT PRESSURE TRANS	SIEMENS	P320 SERIES	LOOP-24VDC		OR APPROVED EQUAL, MATCH EXISTING
16-PI-404	BLOWER B-405 INFLUENT PRESSURE GAUGE	ASHCROFT	1279 SERIES			OR APPROVED EQUAL, MATCH EXISTING
16-TT-404	BLOWER B-405 EFFLUENT TEMP TRANS	DWYER	SERIES BTO	LOOP-24VDC		OR APPROVED EQUAL, MATCH EXISTING
16-PSH-404	BLOWER B-405 EFFLUENT HIGH PRESS SWITCH	ASHCROFT	B SERIES	LOOP-24VDC		OR APPROVED EQUAL, MATCH EXISTING
16-PI-404	BLOWER B-405 EFFLUENT PRESSURE GAUGE	ASHCROFT	1279 SERIES			OR APPROVED EQUAL, MATCH EXISTING

MEMBRANE INSTRUMENT SCHEDULE



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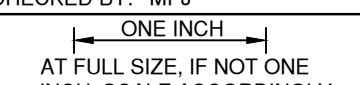
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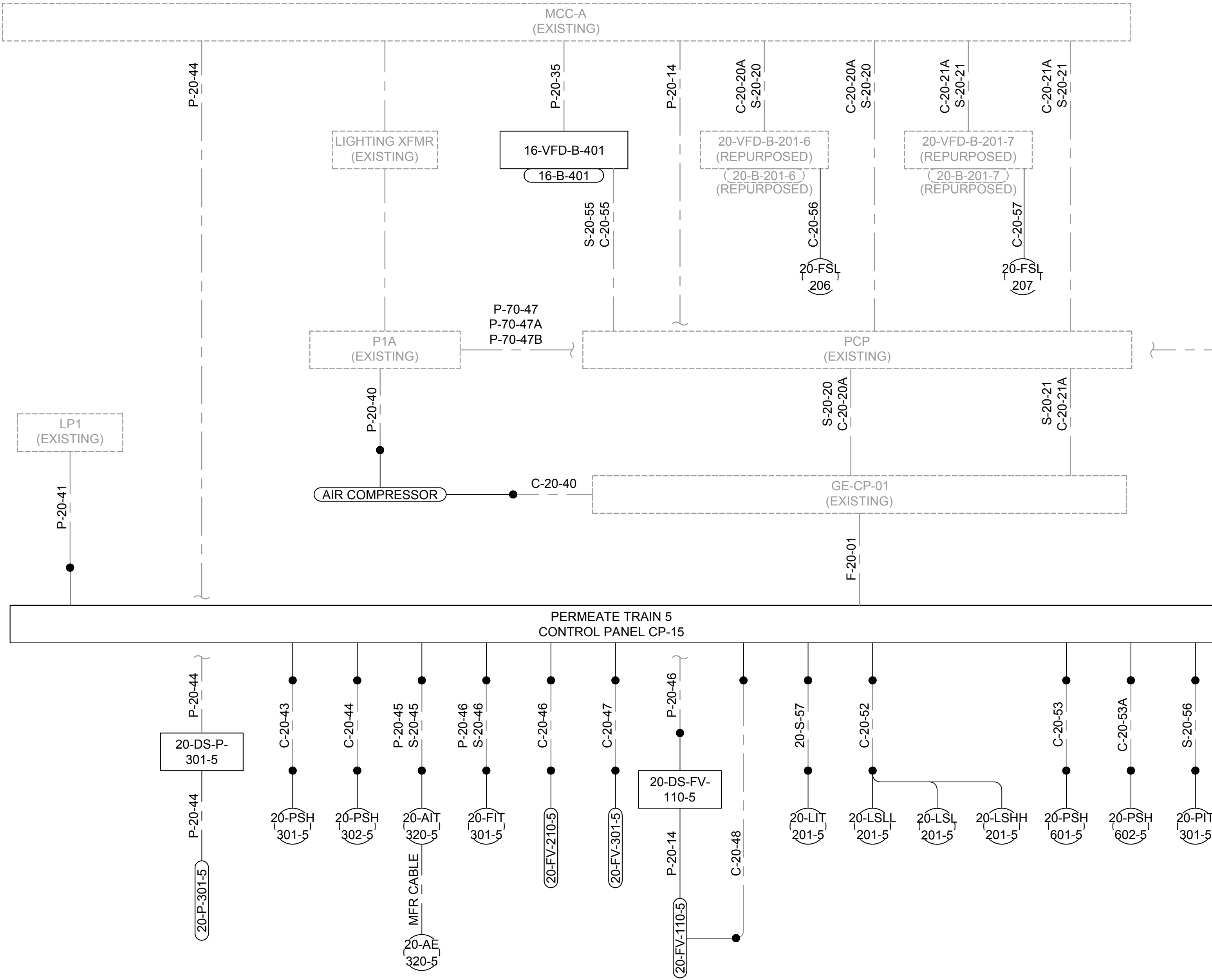
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Plot Date: 4/22/2025 9:52 AM Plotted By: Daniel Leavitt
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NOTES

- CONTRACTOR TO USE EXISTING CONDUITS WHEN POSSIBLE. SEE SITE PLAN FOR PICTURES AND LOCATIONS OF EXISTING CONDUITS IN MEMBRANE BUILDING. CONTRACTOR TO CONFIRM CONDUITS BETWEEN MCC-A, GE-CP-01, CP-15 AND PCP. USE EXISTING BEFORE RUNNING NEW CONDUITS OVERHEAD IN ELECTRICAL ROOM.

MEMBRANE CONDUIT DEVELOPMENT



UV DISINFECTION CONDUIT DEVELOPMENT

NOTES

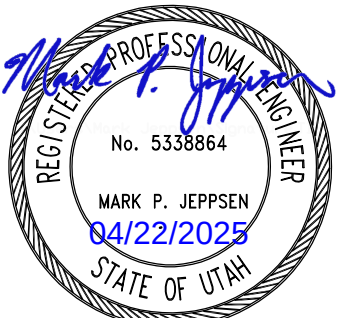
- CONTRACTOR TO VERIFY TYPE AND QUANTITY OF NEW CONDUCTORS NEEDED FOR UV MODULE ROTATION, AND BANK ADDITION IF ANY. CONTRACTOR SHALL UTILIZE EXISTING CONDUITS PRIOR TO RUNNING NEW CONDUIT. IF NEW CONDUIT IS REQUIRED, COORDINATE WITH CITY AND ENGINEER FOR NEW CONDUIT PATHS.

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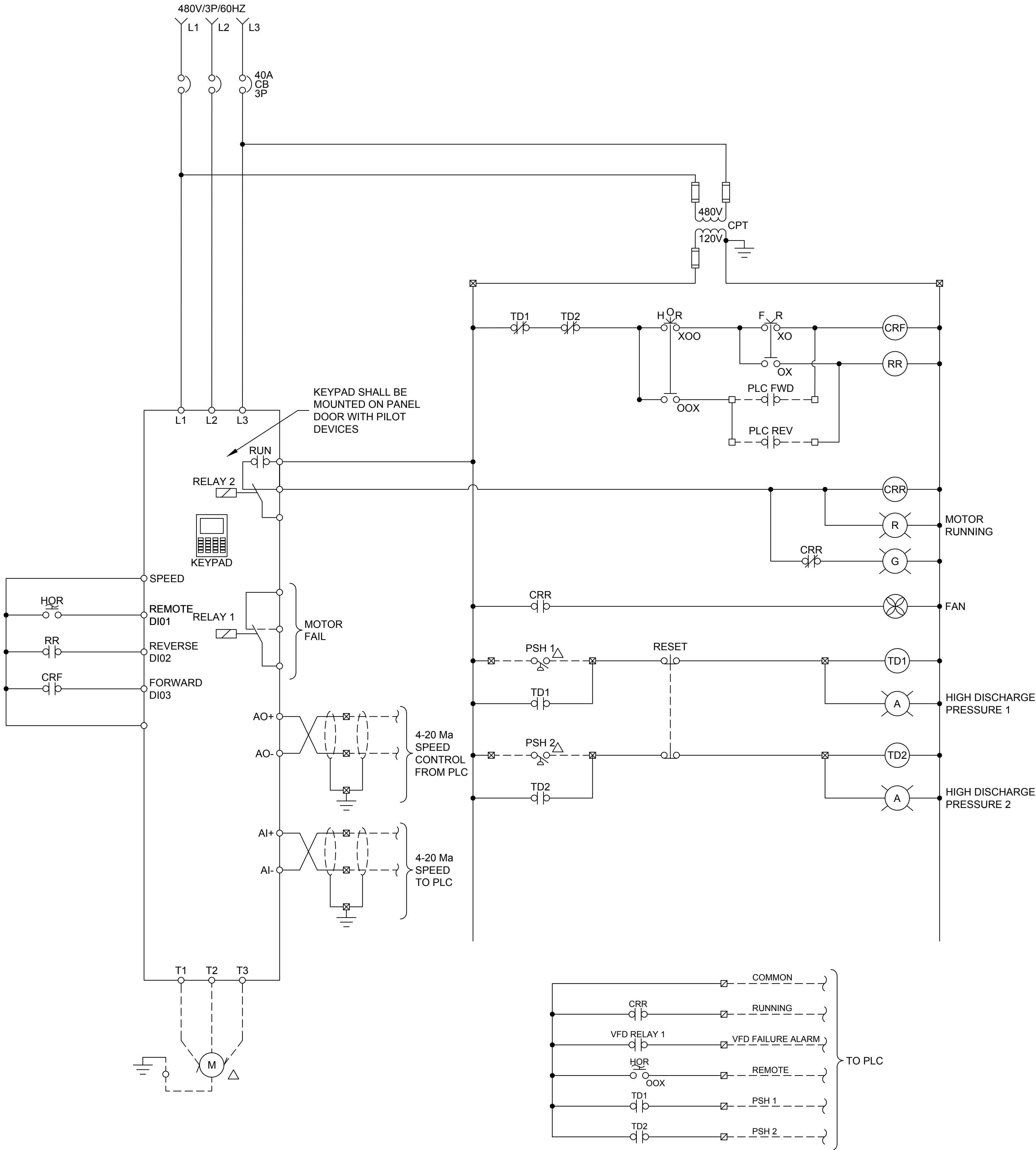
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MEMBRANE CONDUIT DEVELOPMENT

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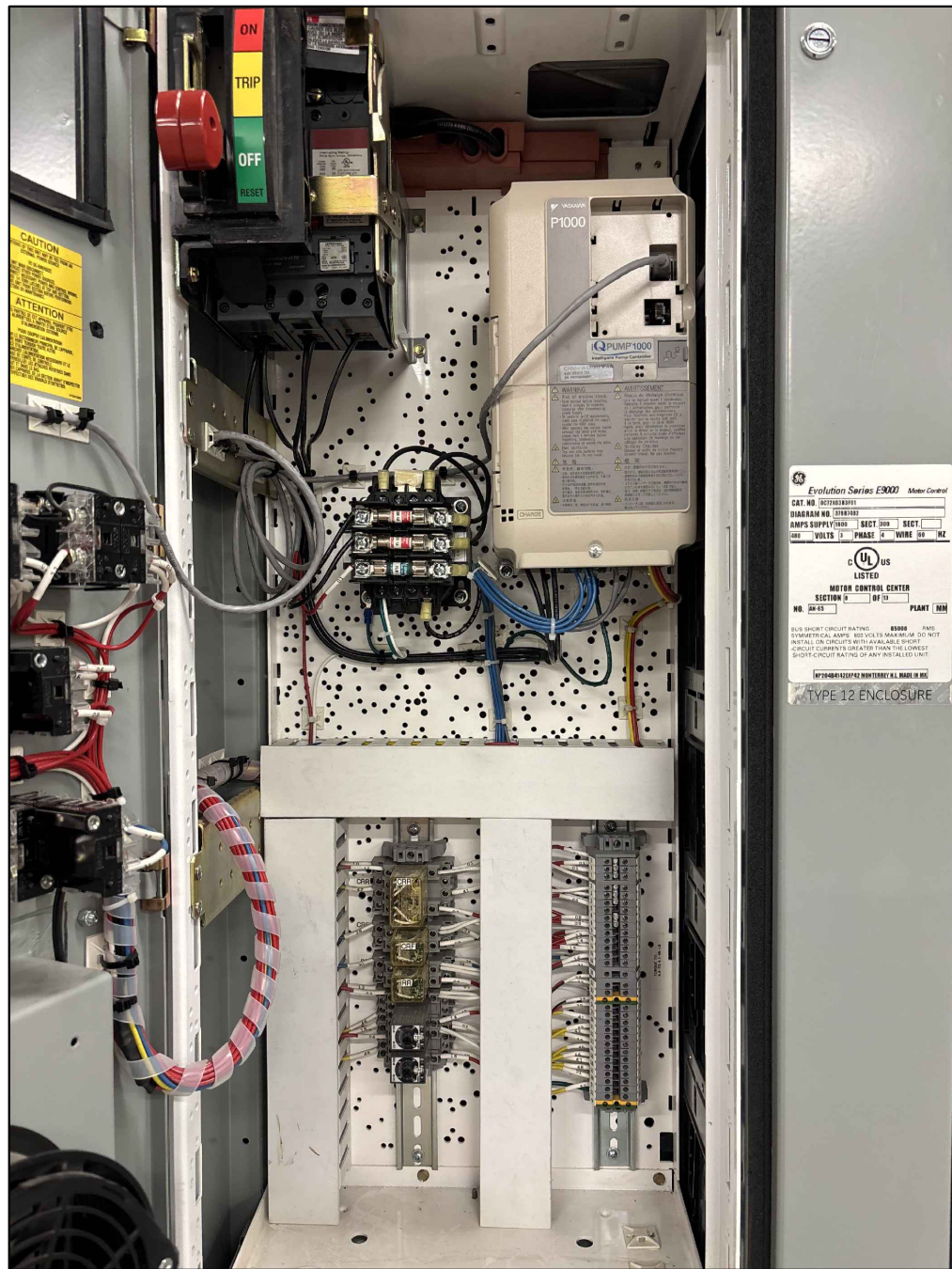
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Plot Date: 4/15/2025 9:32 AM Plotted By: Daniel Leavitt
Date Created: 2/12/2024 C:\USERS\ DANIEL.LEAVITT\Documents\PROJECT FILES\MODEL ELECTRICAL\INSTRUMENTATION\20-E-801 MEMBRANE VFD CONTROL SCHEMATIC.DWG



VFD CONTROL SCHEMATIC

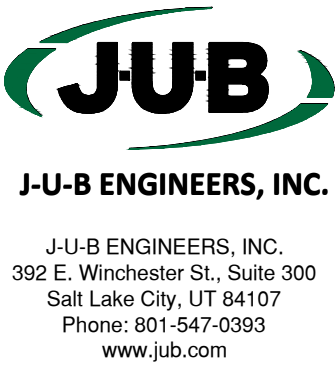
TYPICAL FOR: PERMEATE PUMP 5



EXISTING VFD EXAMPLE

GENERAL NOTES

- THE MCC BUCKET AND THE ASSOCIATED EQUIPMENT ARE EXISTING. CONTRACTOR SHALL INSTALL WIRE TO THIS BUCKET FROM FIELD DEVICES AND FIELD CONTROL PANELS FOR MOTOR POWER, INSTRUMENT SIGNALS AND CONTROL. THIS IS A TYPICAL SCHEMATIC DIAGRAM AND IS INTENDED TO REFLECT THE GENERAL CONTROL STRATEGY, CONTRACTOR TO FIELD VERIFY EXISTING BUCKET WIRING.

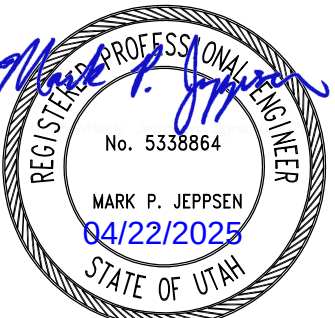


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KEY NOTES

- ADJUST TIME DELAY RELAYS PRIOR TO STARTUP. STAGGER TIMER SETTINGS FOR POWER ON-DELAY RELAYS.
- CONTROL POWER TRANSFORMERS (CPT) SHALL BE ADEQUATELY SIZED AND SHALL BE PROVIDED WITH PROPERLY SIZED FUSES FOR BOTH THE PRIMARY AND SECONDARY WINDINGS.

VFD CONTROL DESCRIPTION

WHEN THE HOR SWITCH IS IN THE HAND POSITION, AND THE FWD/REV SELECTOR IS IN THE FWD POSITION THE MOTOR WILL RUN FWD. WHEN THE HOR IS IN THE HAND POSITION AND THE FWD/REV SELECTOR IS IN THE REV POSITION THE MOTOR WILL RUN REV. IF THE HOR IS IN THE REMOTE POSITION THE MOTOR IS CONTROLLED BY THE PLC WHICH WILL ENERGIZE EITHER THE FWD OR REV RELAYS RUNNING THE MOTOR IN THE CORRESPONDING DIRECTION. THE PLC WILL BE ABLE TO MONITOR WHEN THE HOR IS IN THE REMOTE POSITION OR IS RUNNING.

WHEN THE HOR IS IN THE HAND POSITION THE SPEED COMMAND COMES FROM THE KEYPAD OR PRESET VALUES. WHEN IN THE REMOTE POSITION, THE SPEED COMMAND COMES FROM THE PLC THROUGH A HARD WIRED ANALOG OUTPUT.

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PERMEATE VFD CONTROL SCHEMATIC

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JUB PROJ. #: 93-24-001
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DRAWING:

20-E-801



TYPICAL FOR: RECIRCULATION PUMP 1 & 2



1. TYPICAL SCHEMATIC DIAGRAMS ARE INTENDED TO REFLECT THE GENERAL CONTROL STRATEGY. ACTUAL CIRCUITRY MAY VARY FOR SPECIFIC EQUIPMENT SUPPLIED. THE NUMBER AND TYPE OF DEVICES SHALL BE FURNISHED AS REQUIRED FOR PROPER OPERATION OF THE EQUIPMENT.
2. FUSES SHALL BE ADEQUATELY SIZED PER THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.
3. CONTROL SWITCHES SHALL BE DOOR MOUNTED ON THEIR RESPECTIVE PANELS. DEVICES SHALL BE RATED FOR LINE VOLTAGE AND 125% OF LOAD CURRENT.

1. LOCAL CONTROLS SHALL BE INSTALLED ACCORDING TO P&ID'S AND NOT NECESSARILY AS SHOWN ON SCHEMATICS. SEE CONDUIT SCHEDULE FOR EXACT WIRING.
2. CONTROL POWER TRANSFORMERS (CPT) SHALL BE ADEQUATELY SIZED AND SHALL BE PROVIDED WITH PROPERLY SIZED FUSES FOR BOTH THE PRIMARY AND SECONDARY WINDINGS.
3. ADJUST TIME DELAY RELAYS PRIOR TO STARTUP. STAGGER TIMER SETTINGS FOR POWER ON-DELAY RELAYS.

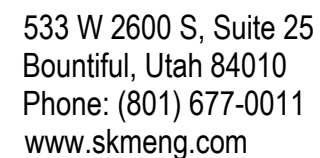
WHEN THE HOR SWITCH IS IN THE HAND POSITION, THE MOTOR SHOULD RUN, WHEN THE HOR SWITCH IS IN THE OFF POSITION, THE MOTOR SHOULD STOP AND WHEN THE HOR SWITCH IS IN THE REMOTE POSITION, THE MOTOR IS CONTROLLED BY THE PLC. THE PLC WILL BE ABLE TO MONITOR WHETHER THE HOR IS IN THE HAND OR REMOTE POSITION.

WHEN THE HOR SWITCH IS IN THE HAND POSITION, THE SPEED COMMAND COMES FROM THE VFD KEYPAD. WHEN IN THE REMOTE POSITION, THE SPEED COMMAND COMES FROM THE PLC.



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Salt Lake City, UT 84107
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Subconsultant:



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SANTAQUIN CITY

ELECTRICAL - ANOXIC & MEMBRANE VFD AND GATE SCHEMATICS

FILE :

JUB PROJ. # : 93-24-001

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CHECKED BY: MP

CHECKED BY: MFS

AT FULL SIZE. IF NOT ONE

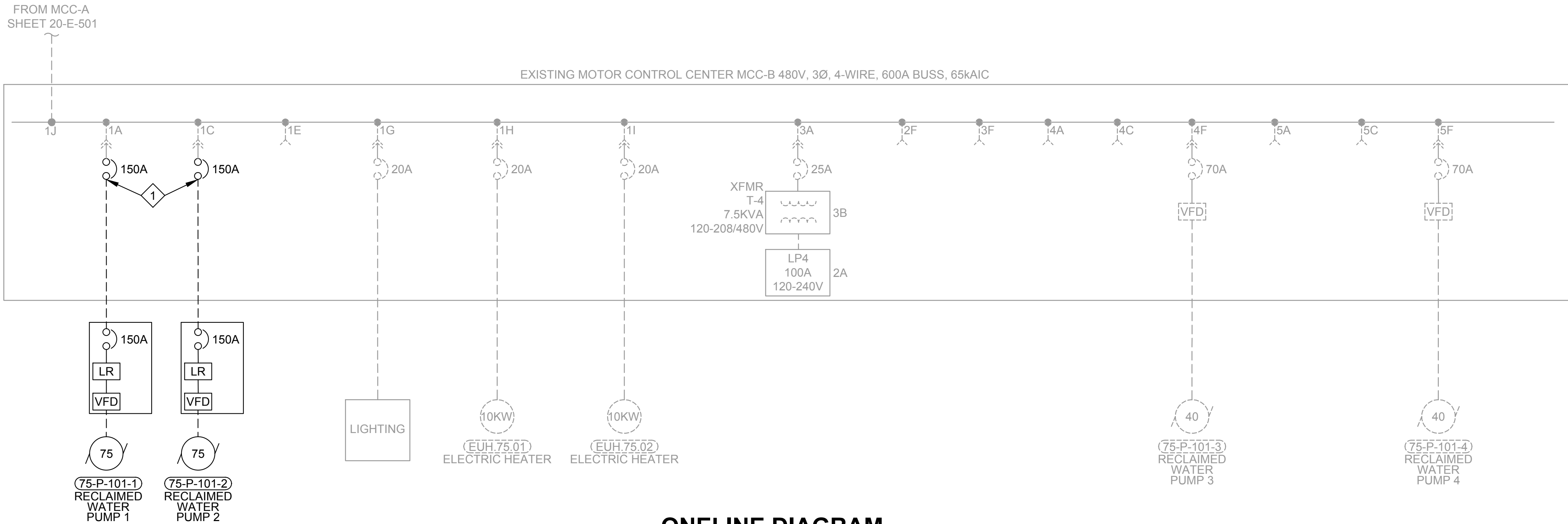
INCH, SCALE ACCORDING

LAST UPDATED: 4/14/2025

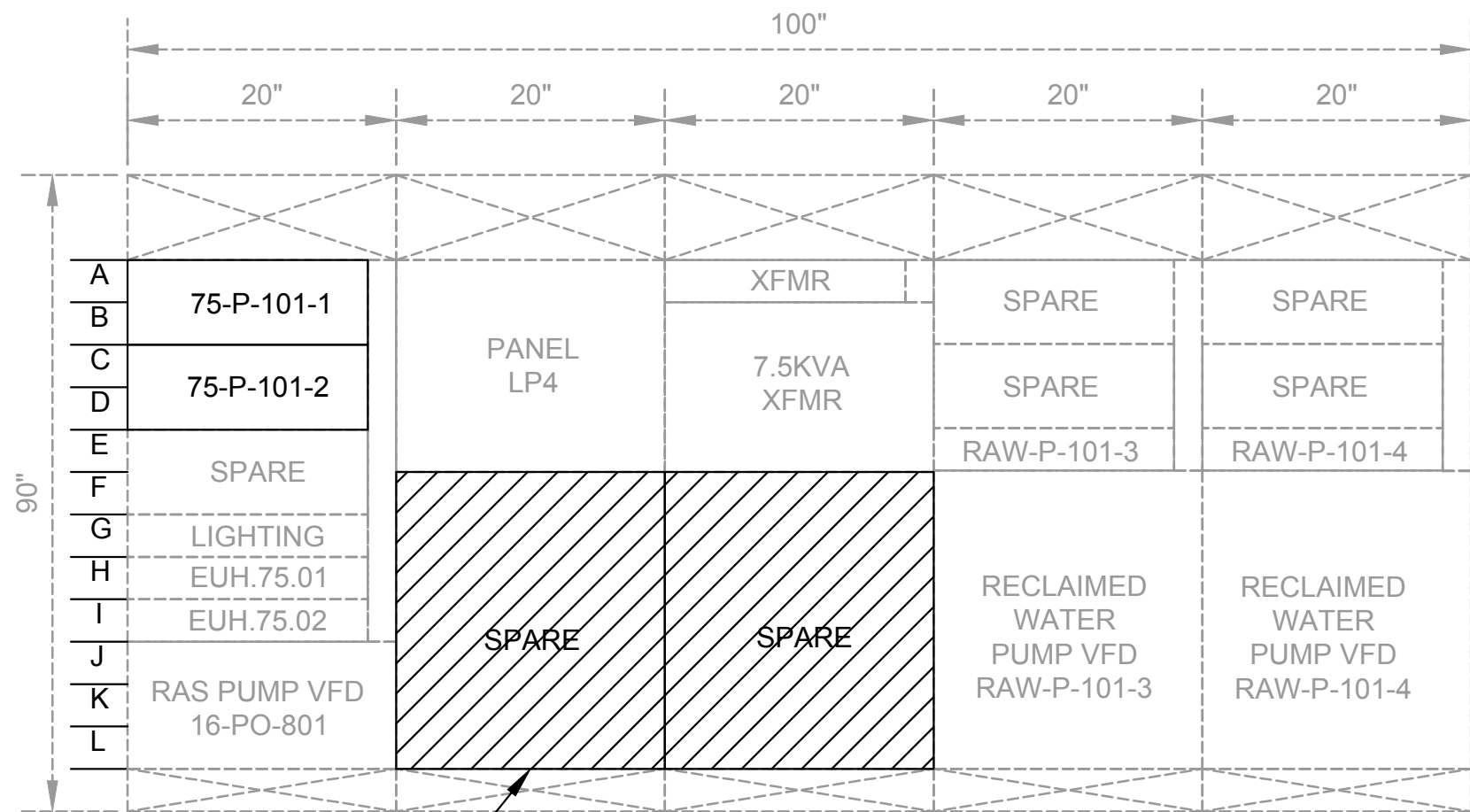
DRAWING

20-E-802

Plot Date: 4/21/2025 1:51 PM Plotted By: Daniel Leavitt
Date Created: 2/12/2024 C:\USERS\ DANIEL.LEAVITT\Documents\PROJECT FILES\MODELS\ELECTRICAL\INSTRUMENTATION\75-E-501 RECLAIMED WATER ONLINE DIAGRAM.DWG



ONLINE DIAGRAM



MCC-B ELEVATION

CIRCUIT/DESCRIPTION	KW	KVA	HP	FLA
EXISTING MOTOR LOADS				
EUH.75.01	10.0	11.1		13.4
EUH.75.02	10.0	11.1		13.4
75-P-101-3			40.0	52.0
75-P-101-4			40.0	52.0
NEW MOTOR LOADS				
75-P-101-2			75.0	96.0
75-P-101-1			75.0	96.0
EXISTING NON-MOTOR LOADS				
XFMR T-4		7.5		9.0
SUBTOTAL				331.8
+ 25% OF LARGEST MOTOR				24.0
TOTAL AMPS @ 480V/3PHASE				355.8
EXISTING SERVICE SIZE (AMPS)				400.0

MCC-B LOAD CALCULATIONS

KEY NOTE

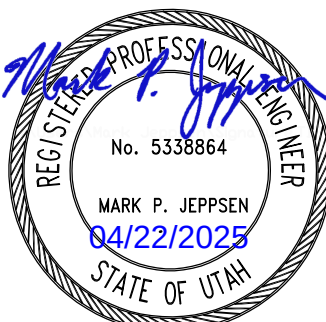
- EXISTING PUMP 1 AND PUMP 2 BUCKETS IN LOCATIONS 2F AND 3F SHALL BE ABANDONED. ALL EQUIPMENT IN THESE LOCATIONS SHALL REMAIN IN PLACE AND ALL FIELD WIRING SHALL BE REMOVED. NEW 150A BREAKERS SHALL BE PROVIDED IN BUCKET LOCATIONS 1A AND 1C TO FEED NEW VFD ASSEMBLIES FOR PUMPS 1 AND 2.

Subconsultant:

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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

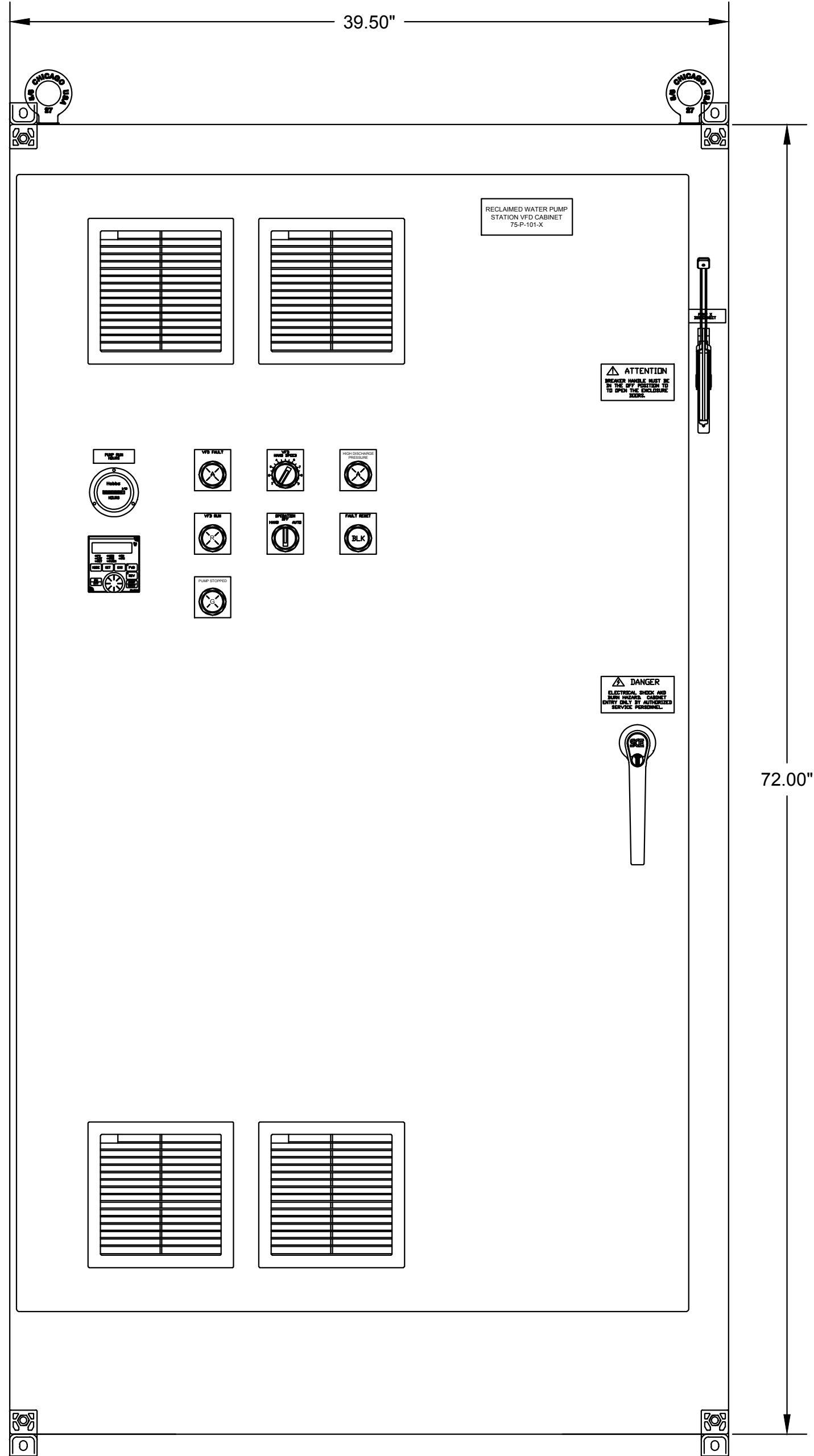
ELECTRICAL - RECLAIMED WATER PUMP STATION
ONLINE DIAGRAM

FILE:
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75-E-501

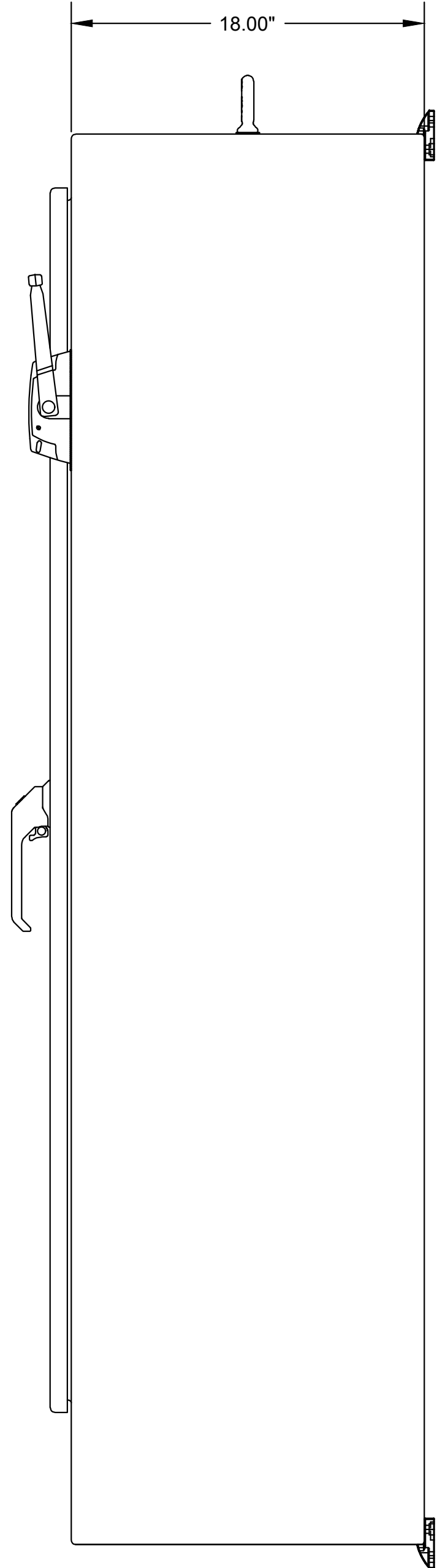
Plot Date: 4/15/2025 9:39 AM Plotted By: Daniel Leavitt
Data Created: 4/11/2025 C:\USERS\DANIEL.LEAVITT\Documents\JUB ENGINEERS INC\PROJECTS\WRF PHASE 3 UPGRADES\PROJECT FILES\MODEL ELECTRICAL\INSTRUMENTATION\E-502 RECLAIMED WATER PUMP VFD CABINET.DWG



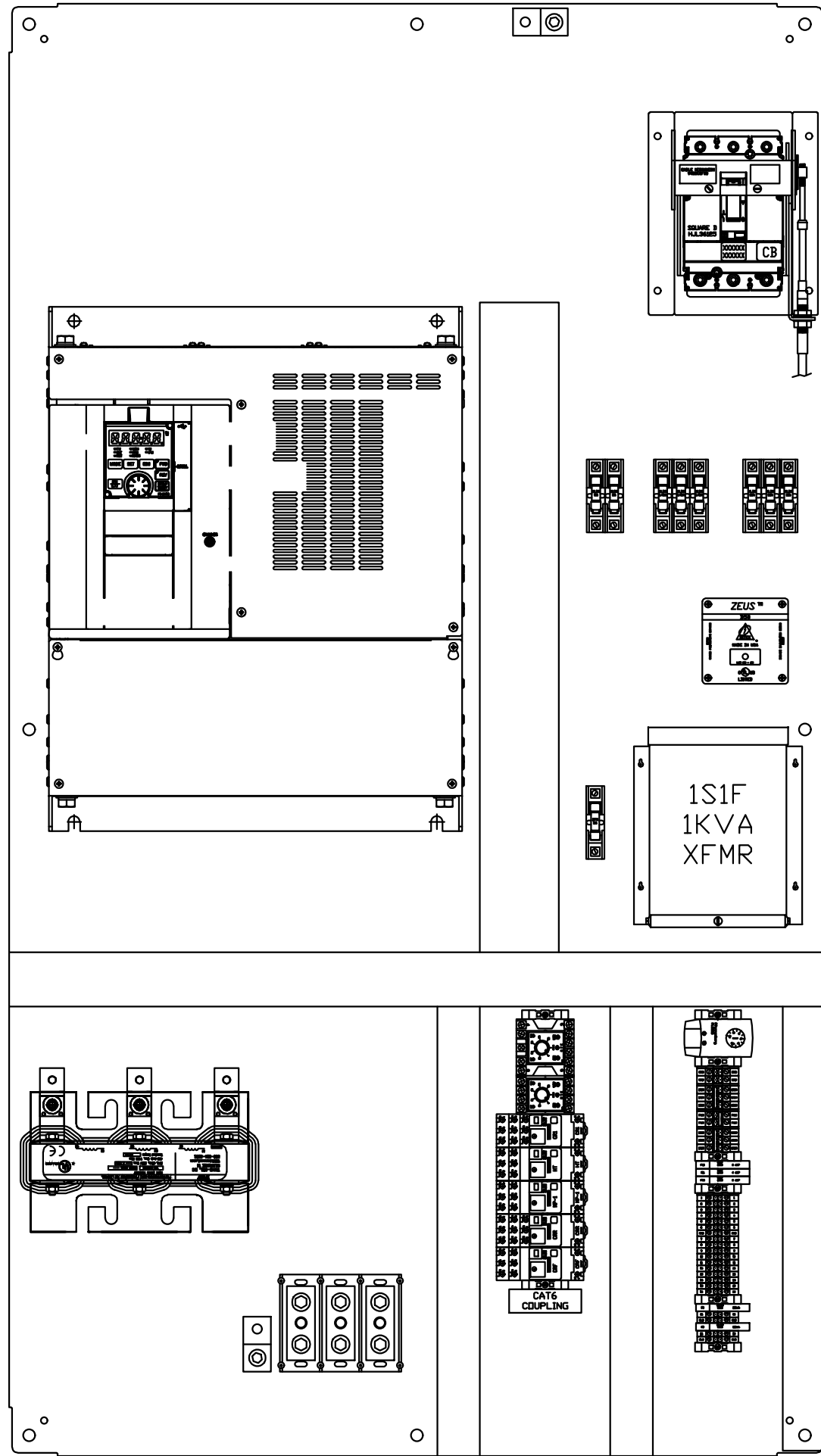
FRONT VIEW



TOP VIEW



SIDE VIEW



BACKPANEL LAYOUT VIEW

RECLAIMED WATER PUMP
STATION VFD CABINET
75-P-101-X



DANGER

ELECTRICAL SHOCK AND
BURN HAZARD. CABINET
ENTRY ONLY BY AUTHORIZED
SERVICE PERSONNEL.



WARNING

MULTIPLE VOLTAGE SOURCES
THIS PANEL CONTAINS ELECTRICAL
POWER FROM SEVERAL EXTERNAL
AND INTERNAL SOURCES.
ONLY AUTHORIZED AND QUALIFIED
PERSONNEL SHOULD ENTER THIS
PANEL.

NOTE

1. TYPICAL EQUIPMENT AND LAYOUTS HERE ARE INTENDED TO REFLECT A GENERAL BASIS OF DEISGN. ACTUAL EQUIPMENT MAY VARY BASED UPON THE CONTRACTORS SUBMITTAL, WHICH MUST ADHERE TO THE SPECIFICATIONS AND DESIGN ELEMENTS. CONTRACTOR SHALL SUBMIT ON ALL EQUIPMENT AS A PART OF THIS DESIGN TO THE ENGINEER PRIOR TO PURCHASE.



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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

ELECTRICAL - RECLAIMED WATER PUMP STATION
TYPICAL RECLAIM PUMP 75HP VFD CABINET LAYOUT

FILE:
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LAST UPDATED: 4/14/2025

DRAWING:

75-E-502



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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

ELECTRICAL - RECLAIMED WATER PUMP STATION CONDUIT & INSTRUMENT SCHEDULES

FILE :

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DESIGN BY: JCG

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A horizontal scale bar with arrows at both ends, labeled "ONE INCH" in the center.

AT FULL SIZE, IF NOT ONE
INCH SCALE ACCORDING

LAST UPDATED: 4/22/2025

DRAWING:

75-E-701

POWER CONDUIT							
CONDUIT	SIZE	CONDUCTORS	SERVICE	FROM	TO	DUCTBANKS	NOTES
P-75-01	2"	3 #1 W/ #6 GND, 2#12	480VAC	RECLAIMED PUMP 1 VFD 75-VFD-101-1	RECLAIMED PUMP 1 75-P-101-1		UTILIZE EXISTING CONDUIT FROM MCC-B TO PUMP
P-75-02	2"	3 #1 W/ #6 GND, 2#12	480VAC	RECLAIMED PUMP 2 VFD 75-VFD-101-2	RECLAIMED PUMP 2 75-P-101-2		UTILIZE EXISTING CONDUIT FROM MCC-B TO PUMP
P-75-01A	2"	3 1/0 W/ #4 GND	480VAC	MCC-B 1A	RECLAIMED PUMP 1 VFD 75-VFD-101-1		
P-75-01B	2"	3 1/0 W/ #4 GND	480VAC	MCC-B 1C	RECLAIMED PUMP 2 VFD 75-VFD-101-2		
CONTROL CONDUIT							
C-75-01	1"	10 #14 W #14 GND	120VAC	PCP-RIO	75-VFD-101-1		
C-75-02	1"	10 #14 W #14 GND	120VAC	PCP-RIO	75-VFD-101-2		
C-75-04	3/4"	2 #14 W #14 GND	120VAC	75-VFD-101-1	PUMP 1 DISCHARGE HIGH PRESS 75-PSH-101-1		UTILIZE EXISTING CONDUIT FROM MCC-B TO PSH
C-75-03	3/4"	2 #14 W #14 GND	120VAC	75-VFD-101-2	PUMP 2 DISCHARGE HIGH PRESS 75-PSH-101-2		UTILIZE EXISTING CONDUIT FROM MCC-B TO PSH
SIGNAL CONDUIT							
S-75-01	3/4"	2 #18 TSP	4-20mA	PCP-RIO	75-VFD-101-1		
S-75-02	3/4"	2 #18 TSP	4-20mA	PCP-RIO	75-VFD-101-2		

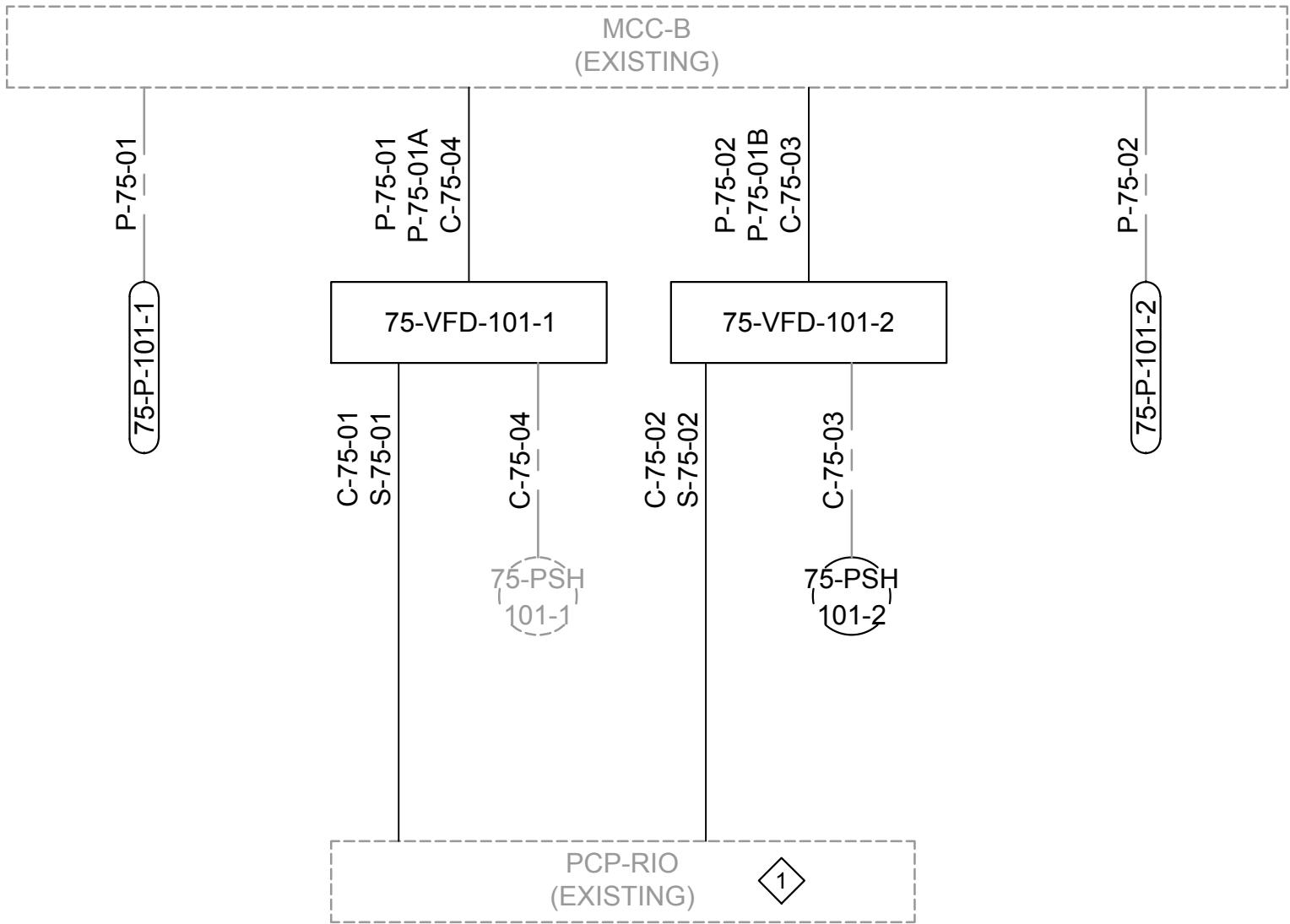
CONDUIT SCHEDULE

INSTRUMENT SCHEDULE						
TAG	DESCRIPTION	MAKE	MODEL	SUPPLY	RANGE	COMMENTS
75-PSH-101-2	HIGH PRESSURE SWITCH FOR PUMP P-101-2	ASHCROFT	B SERIES	LOOP POWERED - 24VDC	175 PSI	
75-PI-101-2	PRESSURE GAUGE FOR PUMP P-101-2	ASHCROFT	1279 SERIES		0-250 PSI	

INSTRUMENT SCHEDULE

Plot Date: 4/21/2025 2:04 PM Plotted By: Daniel Leavitt
Data Created: 2/12/2024 C:\USERS\ DANIEL.LEAVITT\Documents\JUB ENGINEERS INC\BPT\SANT AQUIN WRF PHASE 3 UPGRADES\PROJECT FILES\MODEL\ELECTRICAL\75-E-702 RECLAIMED WATER CONDUIT DEVELOPMENT.DWG

CONDUIT DEVELOPMENT



◆

KEY NOTES

1. CONTRACTOR TO DE-DETERMINE ALL CONTROL WIRE FROM EXISTING RIO PANEL AND PULL CONDUCTORS BACK TO VFD MCC-B BUCKET.

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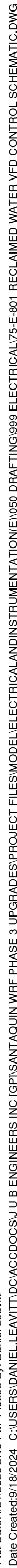
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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

ELECTRICAL - RECLAIMED WATER PUMP STATION
CONDUIT DEVELOPMENT



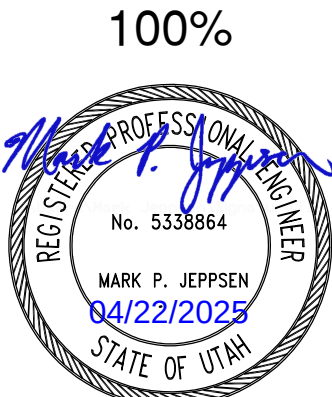
TYPICAL FOR: RECLAIMED WATER PUMPS

1. TYPICAL SCHEMATIC DIAGRAMS ARE INTENDED TO REFLECT THE GENERAL CONTROL STRATEGY. ACTUAL CIRCUITRY MAY VARY FOR SPECIFIC EQUIPMENT SUPPLIED. THE NUMBER AND TYPE OF DEVICES SHALL BE FURNISHED AS REQUIRED FOR PROPER OPERATION OF THE EQUIPMENT.
2. FUSES SHALL BE ADEQUATELY SIZED PER THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.
3. CONTROL SWITCHES SHALL BE DOOR MOUNTED ON THEIR RESPECTIVE PANELS. DEVICES SHALL BE RATED FOR LINE VOLTAGE AND 125% OF LOAD CURRENT.

1. CONTROL POWER TRANSFORMERS (CPT) SHALL BE ADEQUATELY SIZED AND SHALL BE PROVIDED WITH PROPERLY SIZED FUSES FOR BOTH THE PRIMARY AND SECONDARY WINDINGS.
2. ADJUST TIME DELAY RELAYS PRIOR TO STARTUP. STAGGER TIMER SETTINGS FOR POWER ON-DELAY RELAYS.

WHEN THE HOA SWITCH IS IN THE HAND POSITION, THE MOTOR SHOULD RUN. WHEN THE HOA SWITCH IS IN THE OFF POSITION, THE MOTOR SHOULD STOP AND WHEN THE HOA SWITCH IS IN THE AUTO POSITION, THE MOTOR IS CONTROLLED BY THE PLC. THE PLC WILL BE ABLE TO MONITOR WHEN THE HOA IS IN THE AUTO POSITION.

WHEN THE HOA SWITCH IS IN THE HAND POSITION, THE SPEED COMMAND COMES FROM THE POTENTIOMETER. WHEN IN THE AUTO POSITION, THE SPEED COMMAND COMES FROM THE PLC.



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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

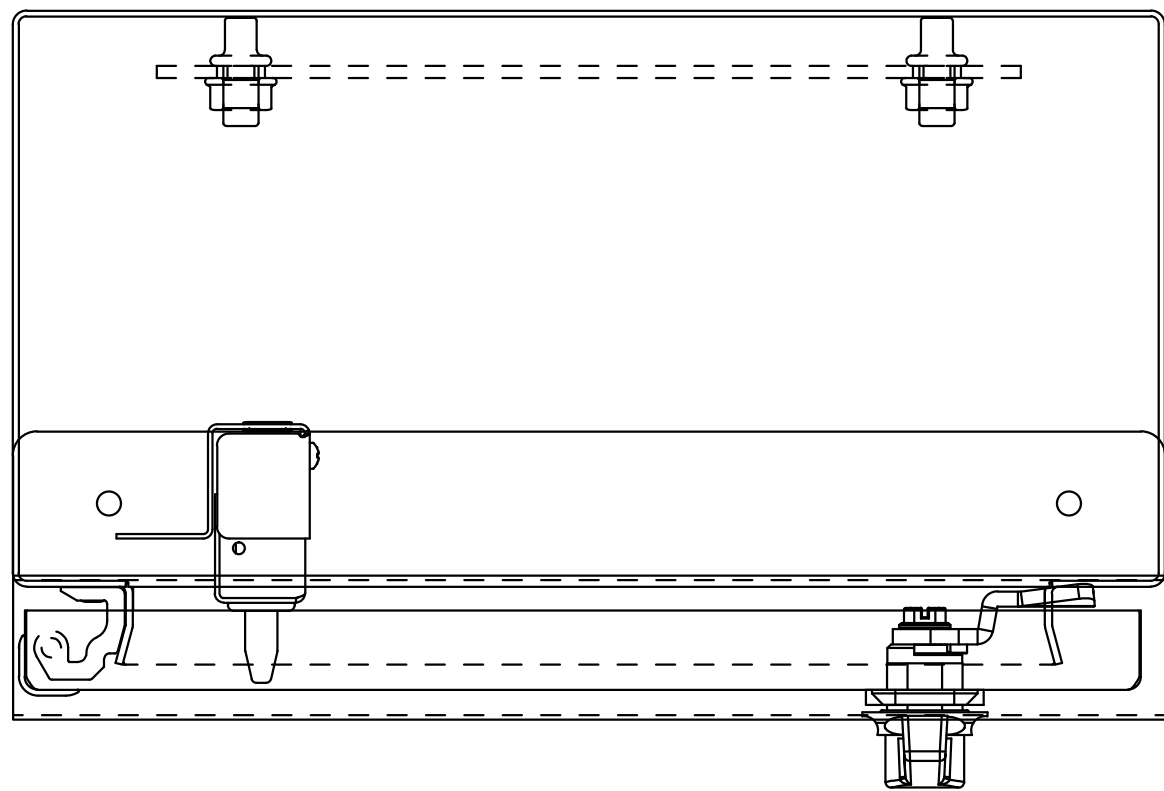
ELECTRICAL - RECLAIMED WATER PUMP
VFD CONTROL SCHEMATIC

FILE :
SUB PROJ. # : 93-24-001
DRAWN BY: EGK / DCL
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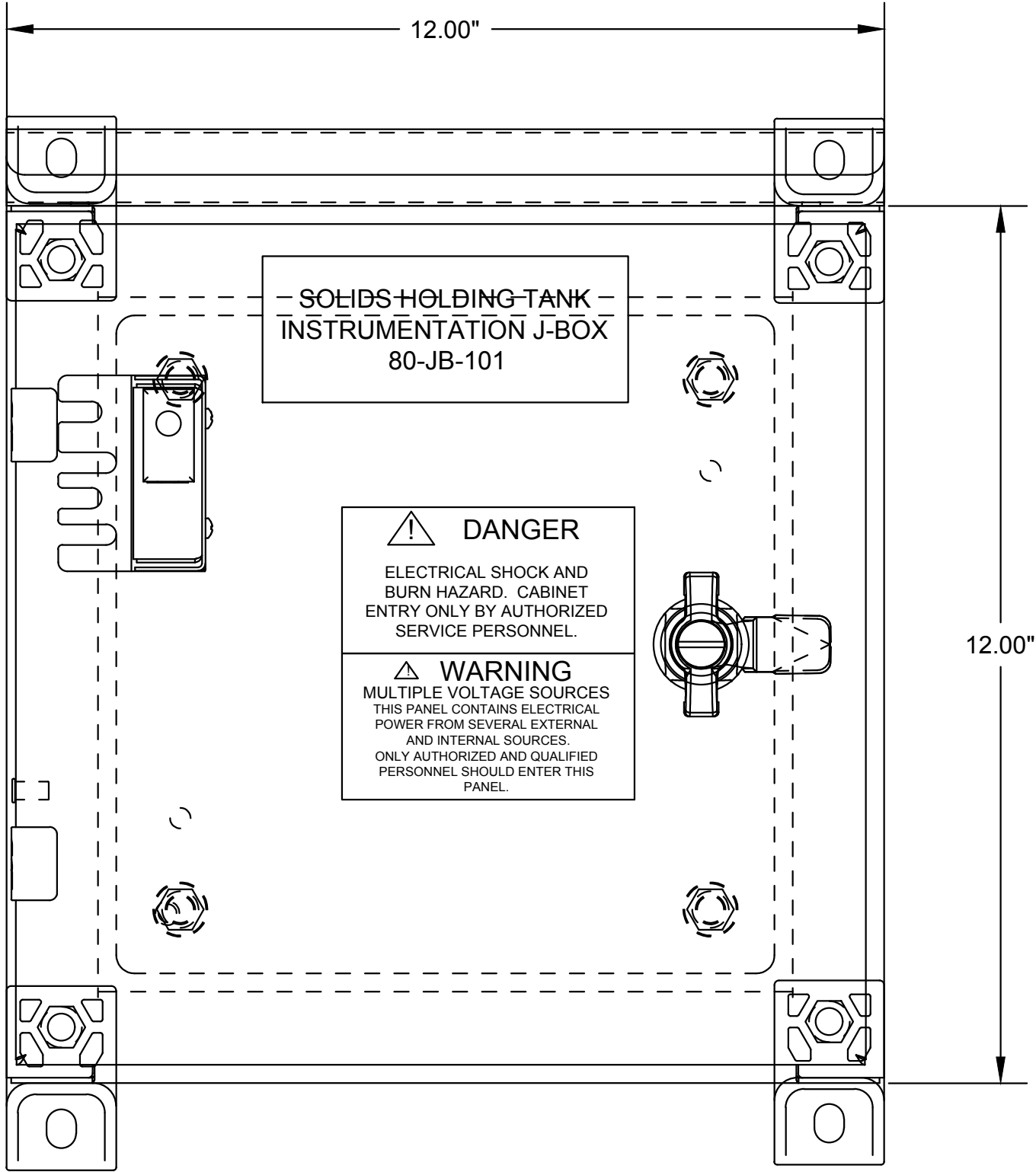
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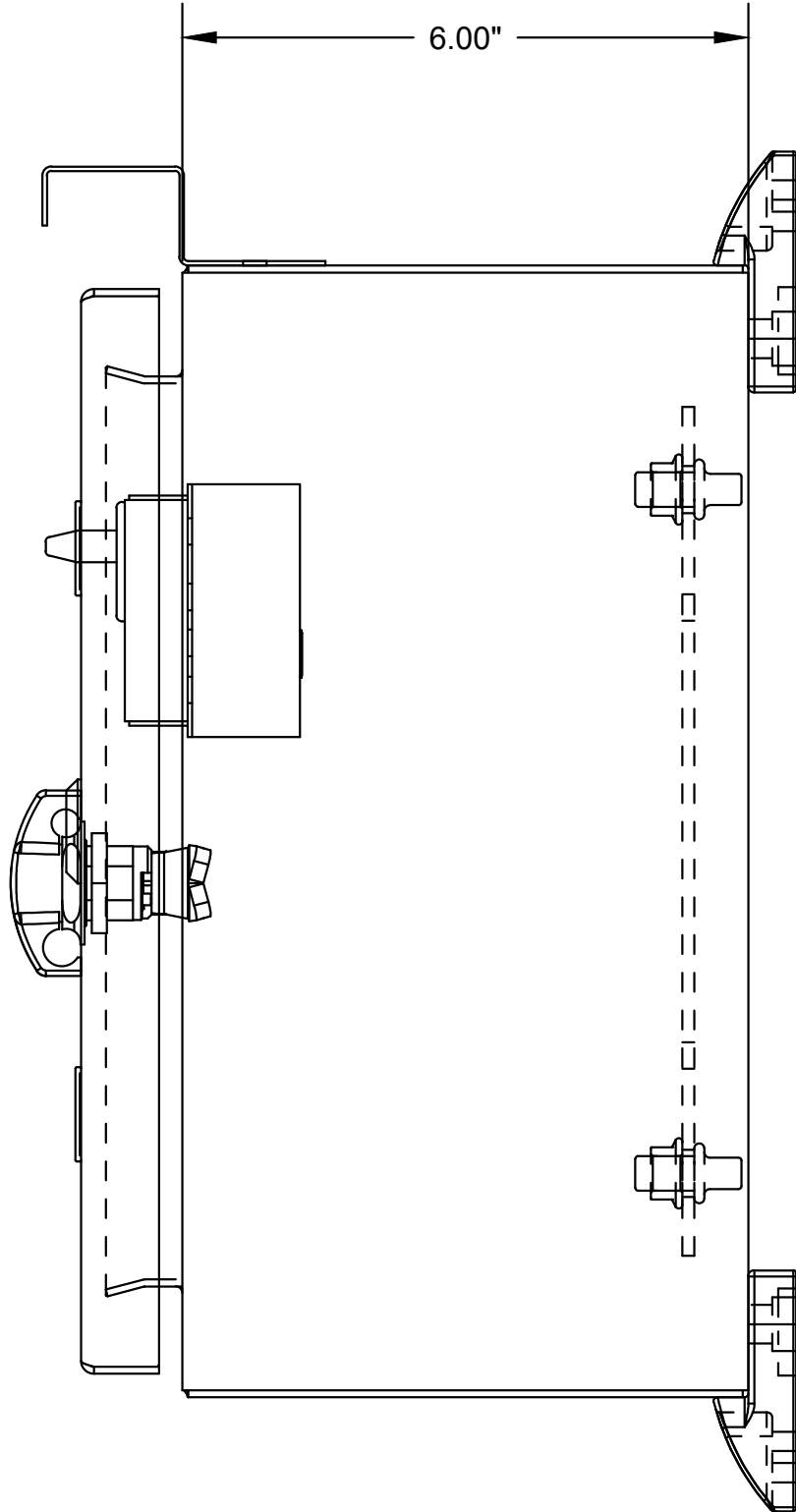
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Data Created: 1/11/2025 C:\USERS\ DANIEL.LEAVITT\DDC\DCDCSS\JUB ENGINEERS INC\OPT\SANT AQUIN WRF PHASE 3 UPGRADES\PROJECT FILES\MODEL\ELECTRICAL\INSTRUMENTATION\82-E-201 SOLIDS HOLDING TANK J-BOX LAYOUT.DWG



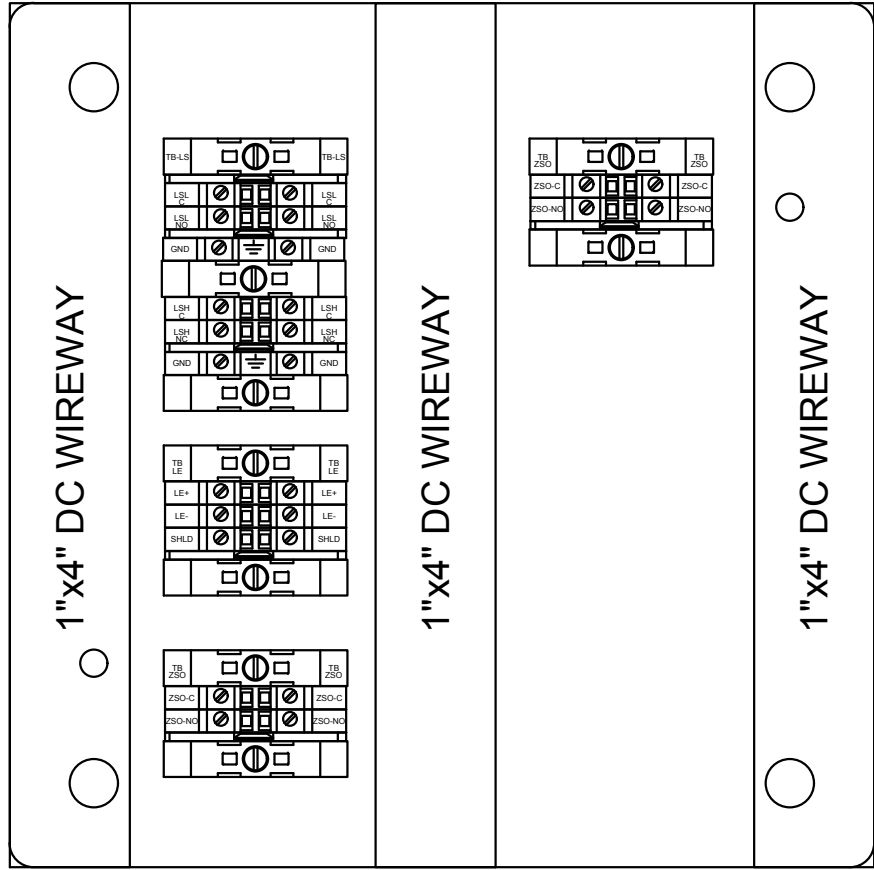
TOP VIEW



FRONT VIEW



SIDE VIEW



BACKPANEL LAYOUT

SOLIDS HOLDING TANK
INSTRUMENTATION J-BOX
80-JB-101



DANGER

ELECTRICAL SHOCK AND
BURN HAZARD. CABINET
ENTRY ONLY BY AUTHORIZED
SERVICE PERSONNEL.

WARNING
MULTIPLE VOLTAGE SOURCES
THIS PANEL CONTAINS ELECTRICAL
POWER FROM SEVERAL EXTERNAL
AND INTERNAL SOURCES.
ONLY AUTHORIZED AND QUALIFIED
PERSONNEL SHOULD ENTER THIS
PANEL.

PANEL LABELS



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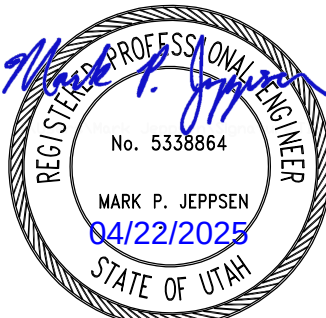
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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

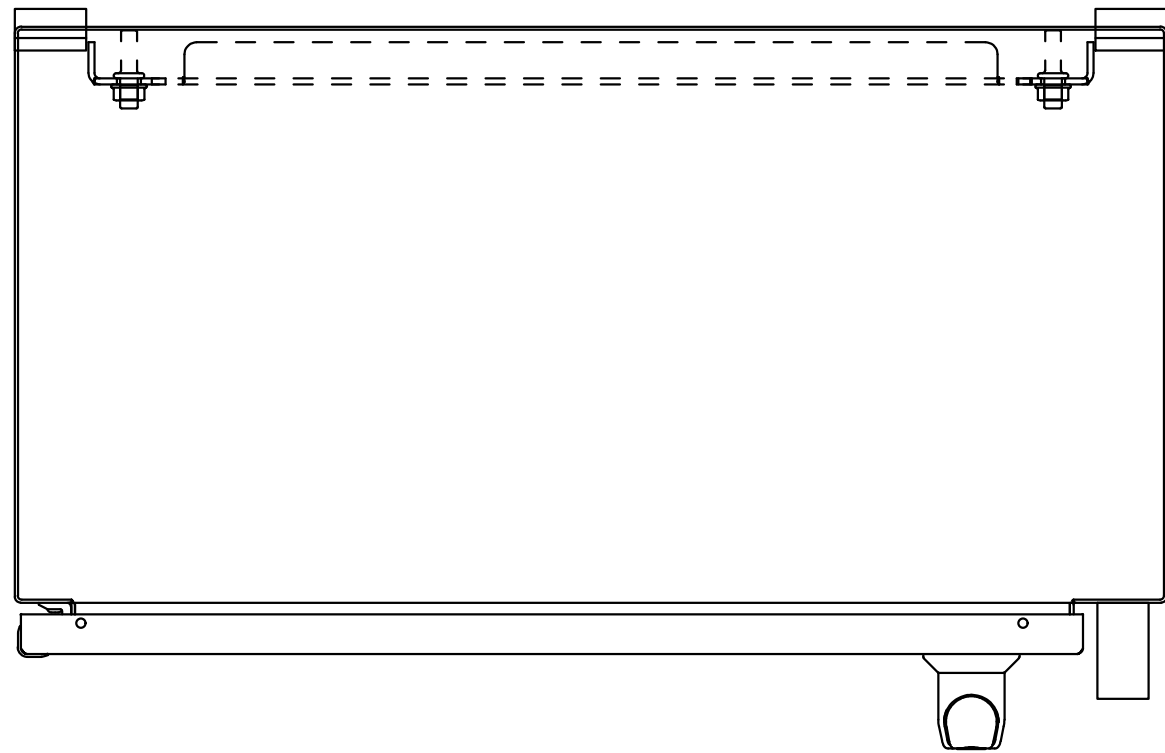
ELECTRICAL - SOLIDS HOLDING
SOLIDS HOLDING TANK J-BOX LAYOUT

FILE :
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DESIGN BY: JCG
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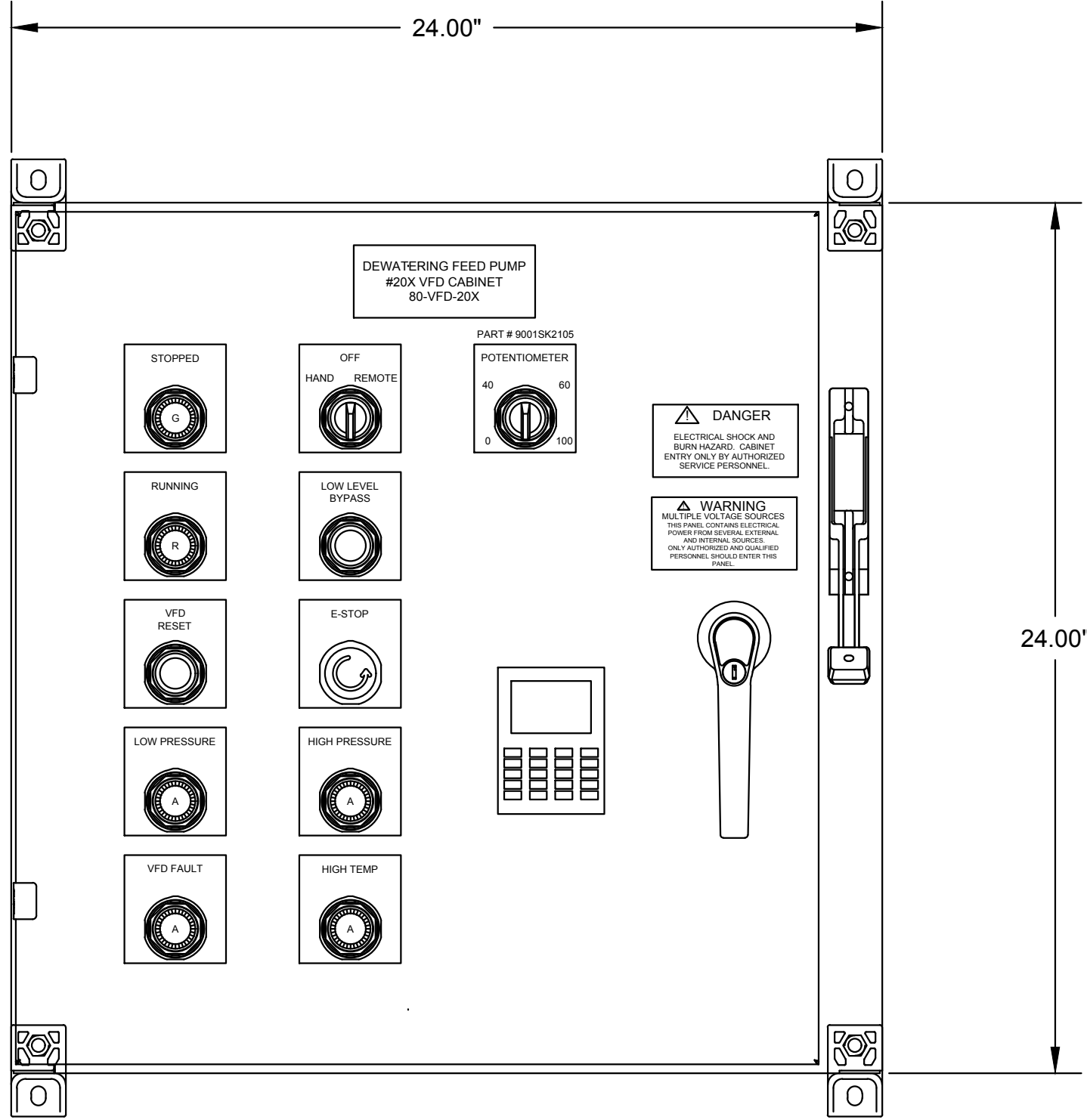
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82-E-201

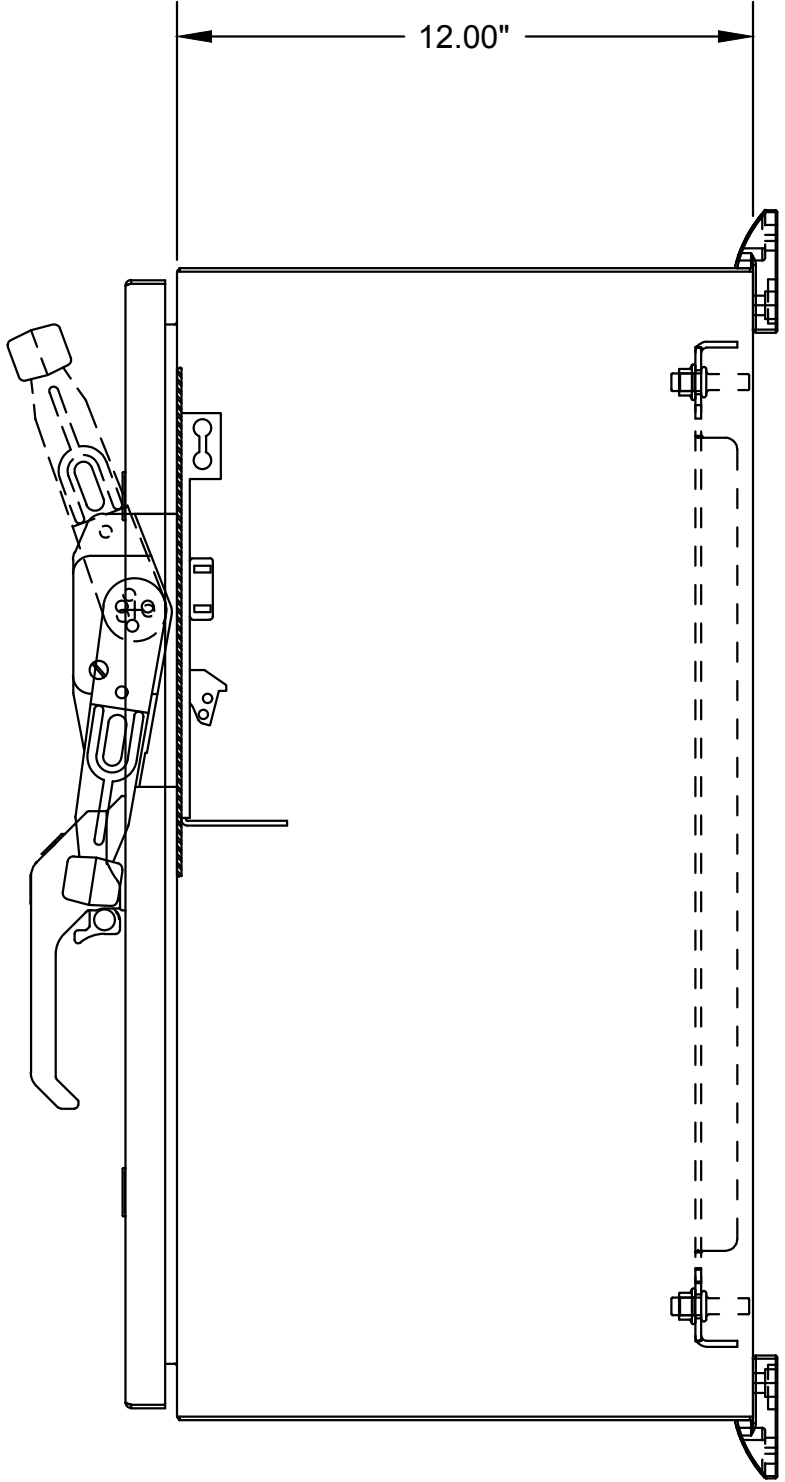
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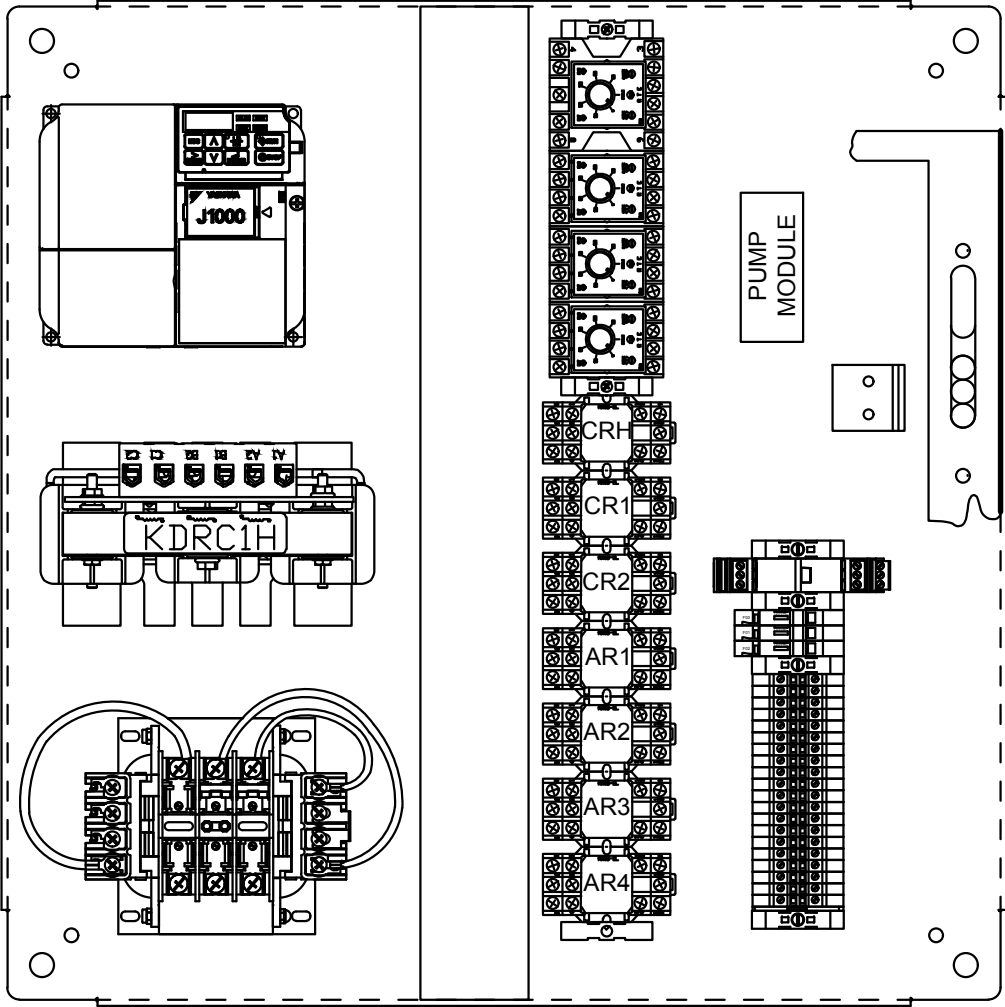
TOP VIEW



FRONT VIEW



SIDE VIEW



BACKPANEL LAYOUT VIEW

DEWATERING FEED PUMP
#20X VFD CABINET
80-VFD-20X

⚠ DANGER

ELECTRICAL SHOCK AND
BURN HAZARD. CABINET
ENTRY ONLY BY AUTHORIZED
SERVICE PERSONNEL.

⚠ WARNING

MULTIPLE VOLTAGE SOURCES
THIS PANEL CONTAINS ELECTRICAL
POWER FROM SEVERAL EXTERNAL
AND INTERNAL SOURCES.
ONLY AUTHORIZED AND QUALIFIED
PERSONNEL SHOULD ENTER THIS
PANEL.

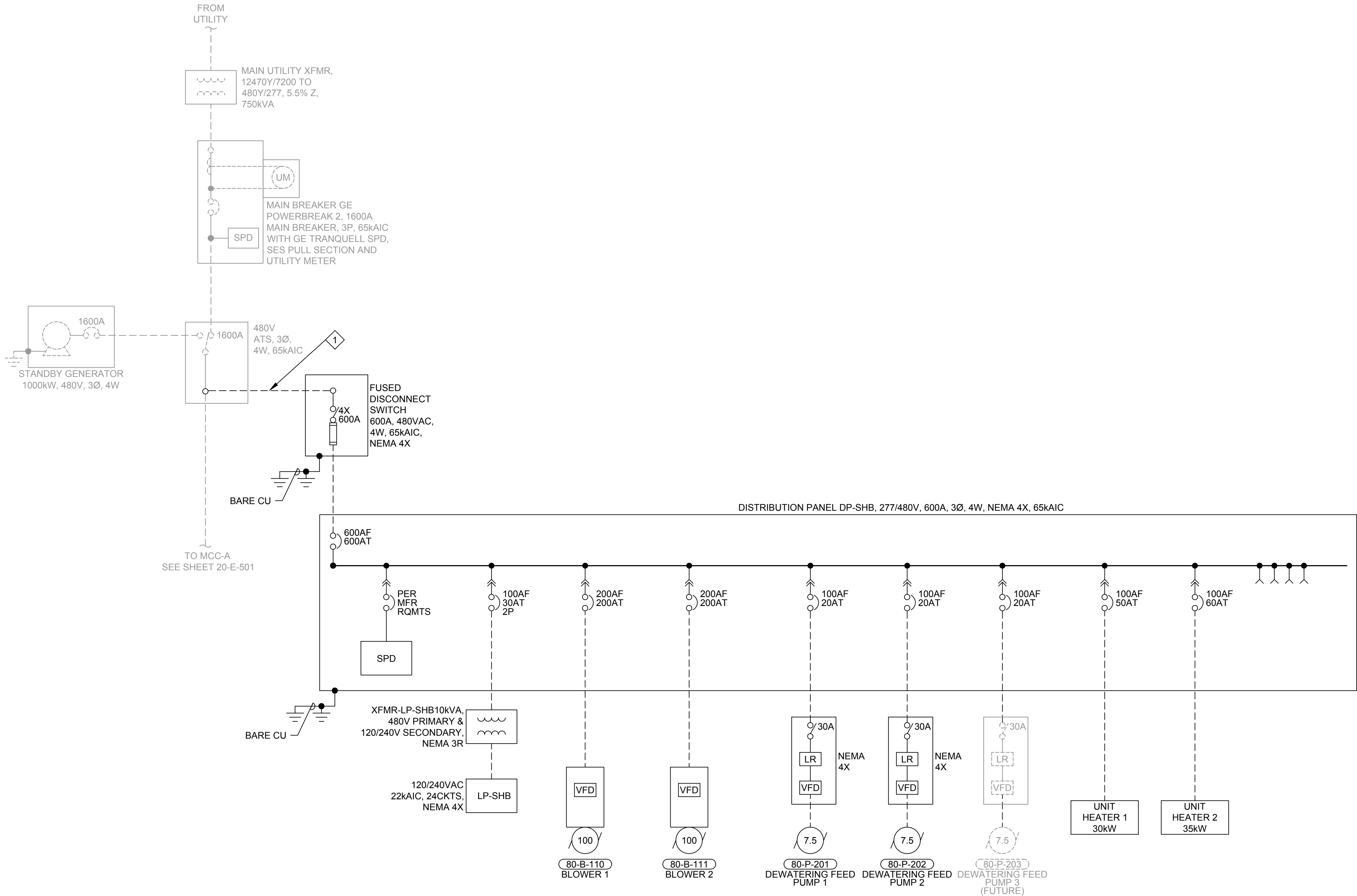
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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

ELECTRICAL - SOLIDS HOLDING
TYPICAL DEWATERING FEED PUMP VFD PANEL LAYOUT

Plot Date: 4/22/2025 5:32 AM Plotted By: Daniel Leavitt
Date Created: 12/2/2024 C:\USERS\ DANIEL.LEAVITT\Documents\PROJECT FILES\MODELELECTRICAL\INSTRUMENTATION\82-E-501 SOLIDS HOLDING ONELINE DIAGRAM.DWG



ONELINE DIAGRAM



KEY NOTES

- CONTRACTOR SHALL ESTABLISH A NEW TAP ON THE LOAD SIDE OF THE ATS FOR THE POWER SUPPLY TO THE NEW SOLIDS HANDLING BUILDING. THE TAP SHALL FEED A NEW NEMA 4X 600A FUSED DISCONNECT SWITCH. CONTRACTOR SHALL FOLLOW NEC 240.21 FOR THE NEW FEEDER TAP CONDUCTORS, ENSURING LENGTHS AND AMPACITIES ARE CORRECT. SEE CONDUIT SCHEDULE AND DEVELOPMENT FOR MORE INFORMATION.



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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

ELECTRICAL - SOLIDS HOLDING
ONELINE DIAGRAM

FILE:
JUB PROJ. #: 93-24-001
DRAWN BY: EGK / DCL
DESIGN BY: JCG
CHECKED BY: MPJ
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 4/22/2025

DRAWING:

82-E-501

Plot Date: 4/22/2025 5:35 AM Plotted By: Daniel Leavitt
Data Created: 7/3/2025 C:\USERS\ DANIEL.LEAVITT\Documents\PROJECT FILES\MODELELECTRICAL\INSTRUMENTATION\82-E-502 SOLIDS HOLDING CALCULATIONS.DWG

PANEL: DP-SHB		VOLTAGE: 277/480		MAIN CB: 600 AMP		BUS AMPS: 600 AMP		
		BUS A.I.C: 65KA		BKR AIC: 65KA		MOUNTING: SURFACE		
CIRCUIT DESCRIPTION	BKR	CIRCUIT	LOAD	PHASE	LOAD	CIRCUIT	BKR	CIRCUIT DESCRIPTION
80-B-110	200/3	1	34323	A	5000	2	30/2	XFMR-LP-SHB
		3	34323	B	5000	4		
		5	34323	C		6		
80-B-111	200/3	7	34323	A		8	20/3	SPARE
		9	34323	B		10		
		11	34323	C		12		
80-P-201	20/3	13	3050	A		14	20/3	SPARE
		15	3050	B		16		
		17	3050	C		18		
80-P-202	20/3	19	3050	A		20		SPACE
		21	3050	B		22		
		23	3050	C		24		
80-P-203 (FUTURE)	20/3	25		A		26		SPACE
		27		B		28		
		29		C		30		
SOLIDS HVAC UNIT HEATER 1	50/3	31	10000	A		32		SPACE
		33	10000	B		34		
		35	10000	C		36		
SOLIDS HVAC UNIT HEATER 2	60/3	37	11667	A		38		SPACE
		39	11667	B		40		
		41	11667	C		42		
			PHASE A	PHASE B	PHASE C	NOTES:		
CONNECTED VA PER PHASE			101413.0	101413.0	96413.0			
CONNECTED AMPS PER PHASE			366.1	366.1	348.1			
25% OF CONTINUOUS LOAD (VA)			25353.3	25353.3	24103.3			
CODE VA PER PHASE			126766.3	126766.3	120516.3			
CODE AMPS PER PHASE			457.6	457.6	435.1			

DP-SHB CALCULATIONS

PANEL:LP-SHB		VOLTAGE: 120/240		MAIN CB: 50 AMP		BUS AMPS: 100 AMP		
		BUS A.I.C: 22KA		BKR AIC: 22KA		MOUNTING: SURFACE		
CIRCUIT DESCRIPTION	BKR	CIRCUIT	LOAD	PHASE	LOAD	CIRCUIT	BKR	CIRCUIT DESCRIPTION
HEAT TRACING FOR GUTTERS	20/1	1	250	A		2	20/1	SPARE
INTERIOR LIGHTING	20/1	3	500	B		4	20/1	SPARE
INTERIOR LIGHTING WALL	20/1	5	150	A		6	20/1	SPARE
PLC-SHB	20/1	7	750	B		8	20/1	SPARE
SUMP PUMP	20/1	9	1200	A		10	20/1	SPARE
FLOOD LIGHT	20/1	11	168	B		12	20/1	SPARE
EXTERIOR LIGHTING	20/1	13	100	A		14	20/1	SPARE
EXHAUST FAN EF-1	20/1	15	1200	B		16	20/1	SPARE
SPARE	20/1	17		A		18	20/1	SPARE
SPARE	20/1	19		B		20	20/1	SPARE
SPARE	20/1	21		A		22	20/1	SPARE
SPARE	20/1	23		B		24	20/1	SPARE
			PHASE A		PHASE B	NOTES:		
CONNECTED VA PER PHASE			1700.0		2618.0			
CONNECTED AMPS PER PHASE			14.2		21.8			
25% OF CONTINUOUS & LIGHTING LOAD (VA)			425.0		654.5			
CODE VA PER PHASE			2125.0		3272.5			
CODE AMPS PER PHASE			17.7		27.3			

LP-SHB CALCULATIONS



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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

ELECTRICAL - SOLIDS HOLDING
CALCULATIONS

FILE :
JUB PROJ. # : 93-24-001
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DESIGN BY: JCG
CHECKED BY: MPJ
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 4/22/2025

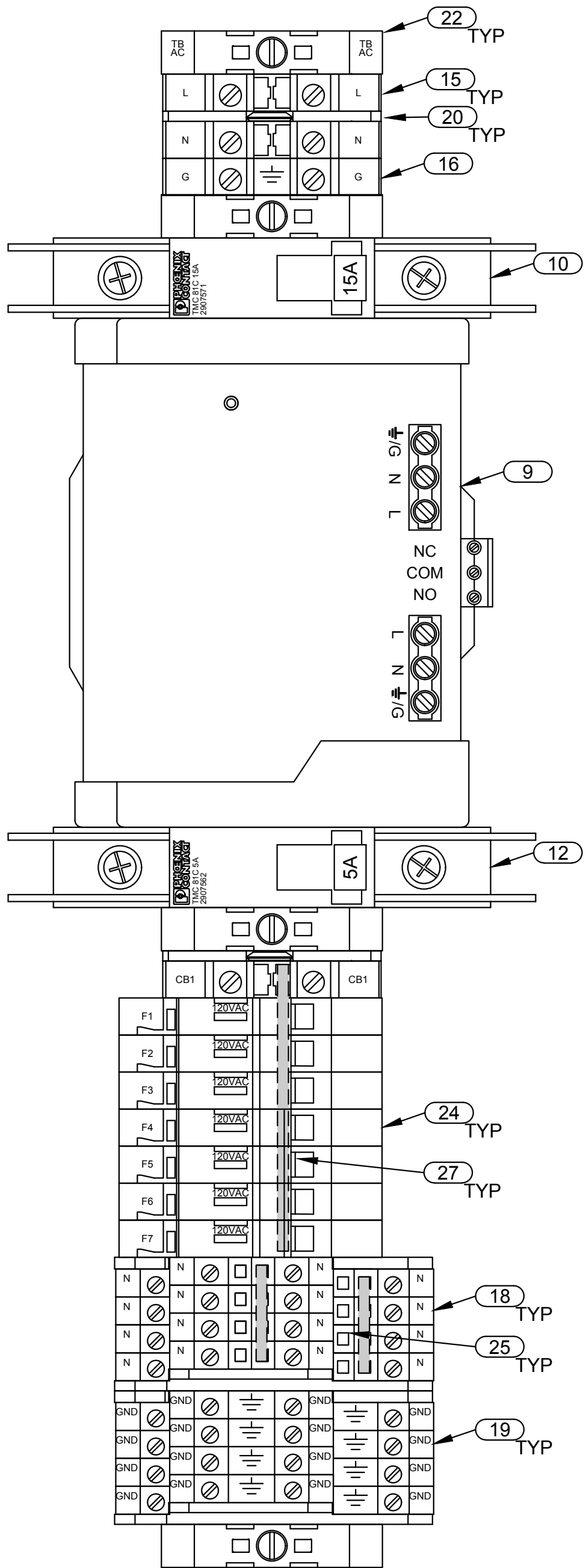
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82-E-502

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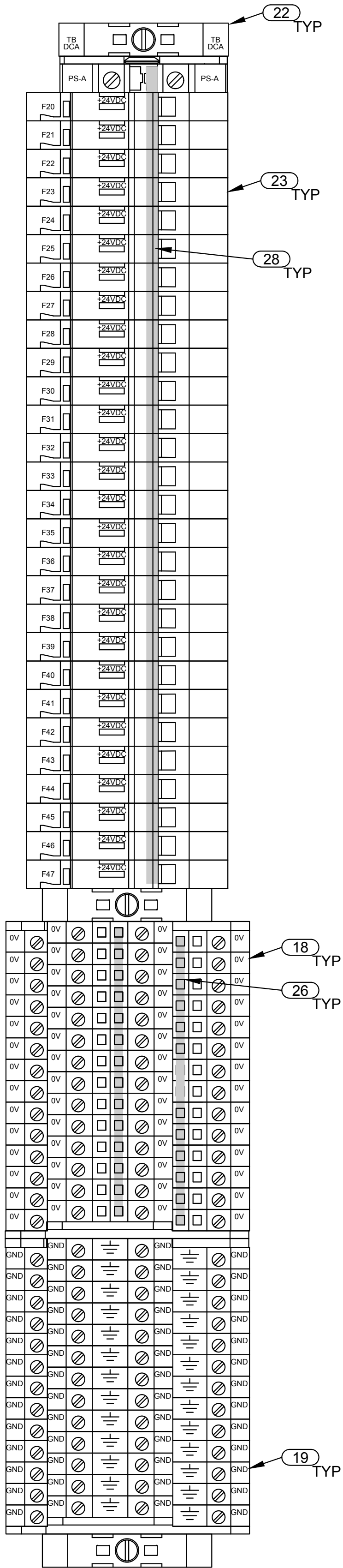
NOTES:

- THESE DETAILS REFLECT THE GENERAL STRATEGY IN LAYING OUT THE TERMINAL BLOCKS. THE ACTUAL LAYOUTS WILL VARY BASED ON THE NUMBER OF COMPONENTS REQUIRED FOR EACH GROUP. PROVIDE A MINIMUM OF 100% SPARE NEUTRAL AND GROUND TERMINALS.
- USE JUMPER BARS TO BUS TOGETHER THE FUSE TERMINALS, NEUTRAL TERMINALS, AND 0V TERMINALS.
- REFER TO SHEET I-01 FOR BILL OF MATERIALS



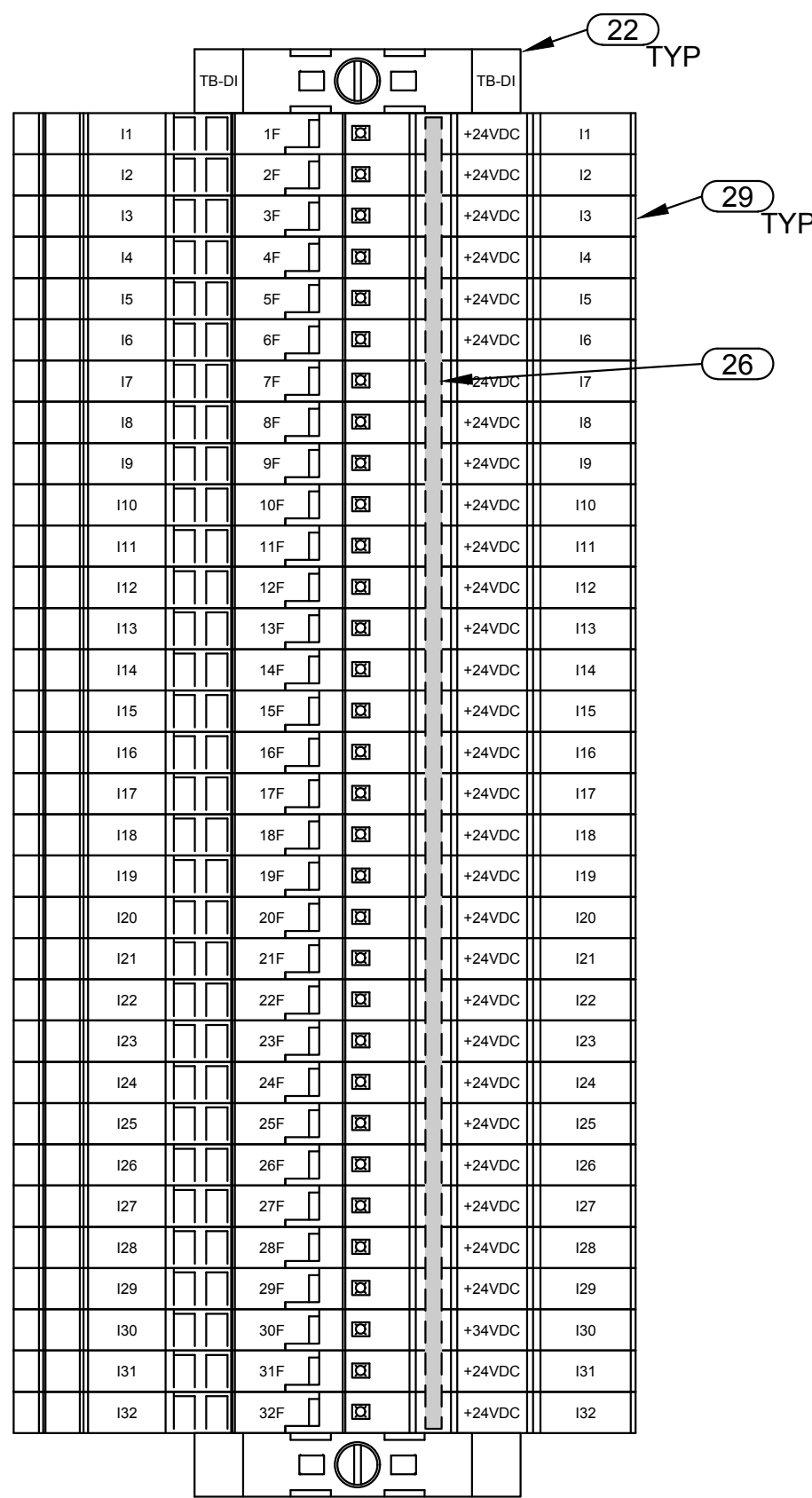
**TYPICAL TB-AC
TERMINAL BLOCK LAYOUT**

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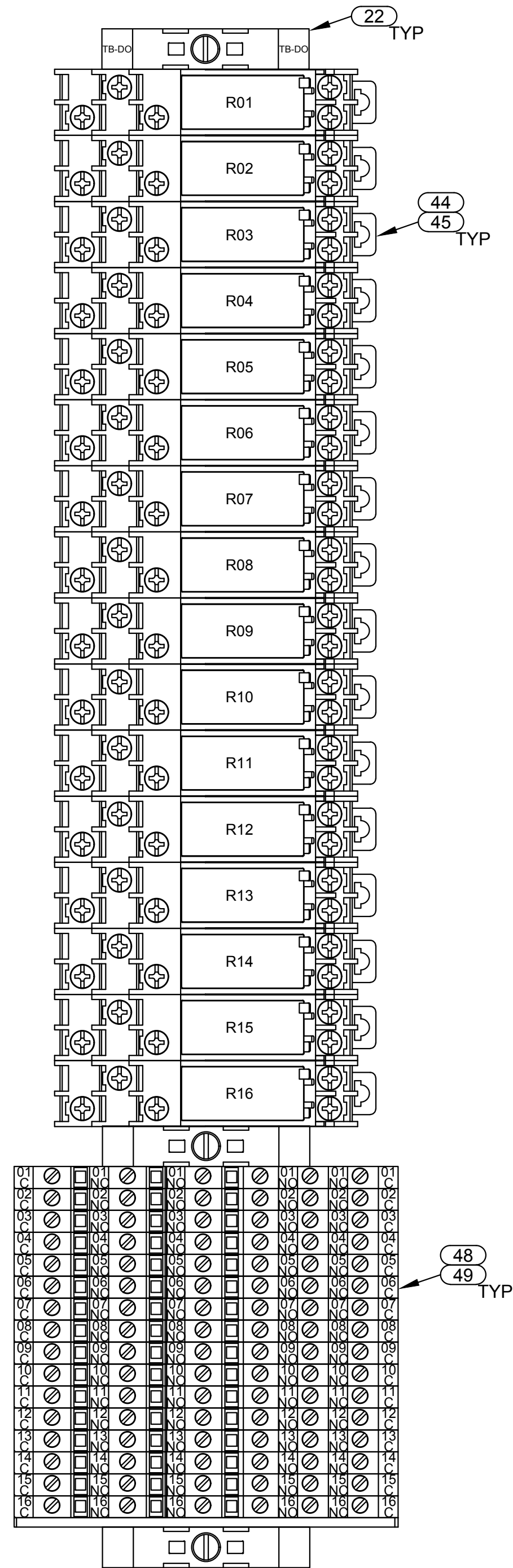
**TYPICAL TB-DC
TERMINAL BLOCK LAYOUT**

102
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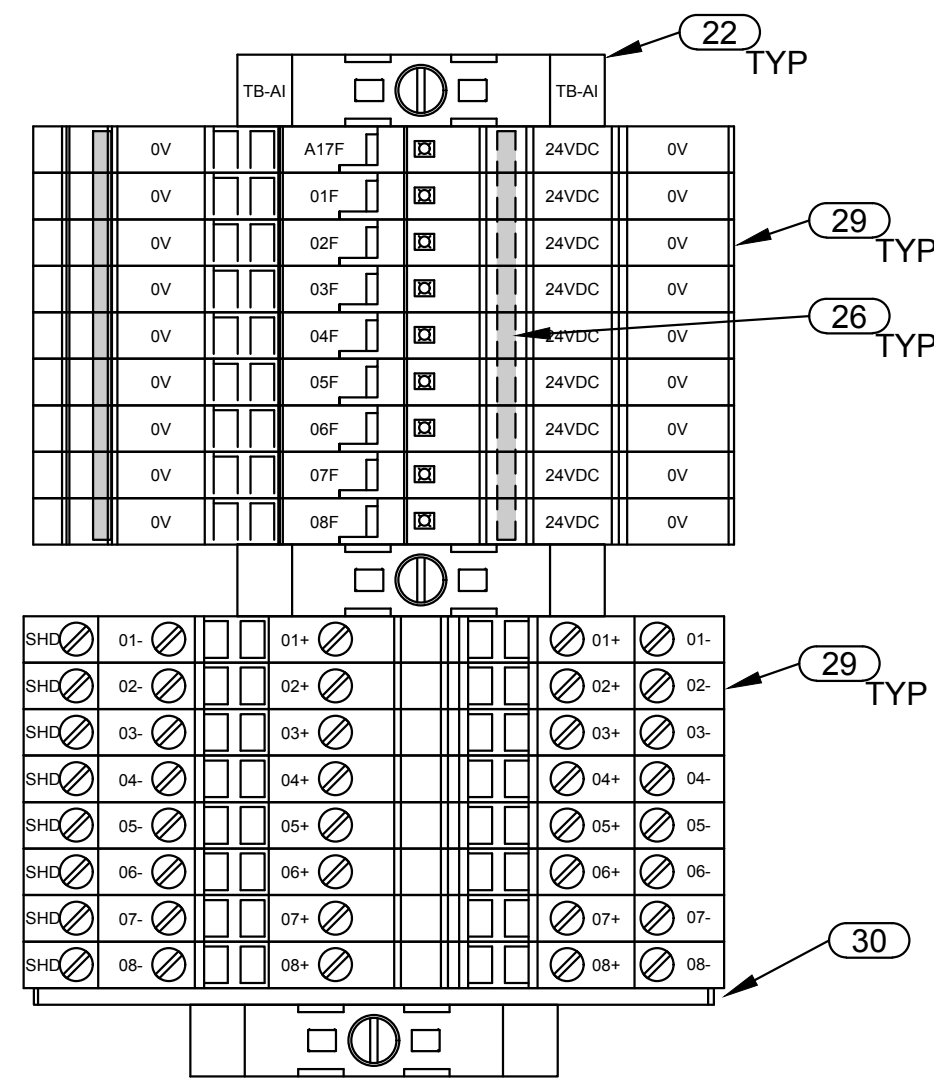
**TYPICAL 32PT TB-DI
TERMINAL BLOCK LAYOUT**

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**TYPICAL 16PT TB-RO
TERMINAL BLOCK LAYOUT**

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**TYPICAL 8PT TB-AI
TERMINAL BLOCK LAYOUT**

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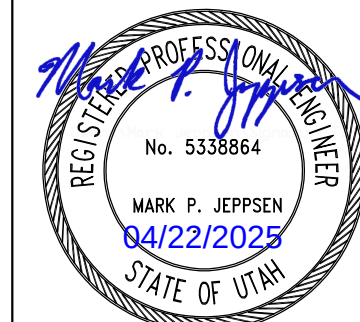
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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

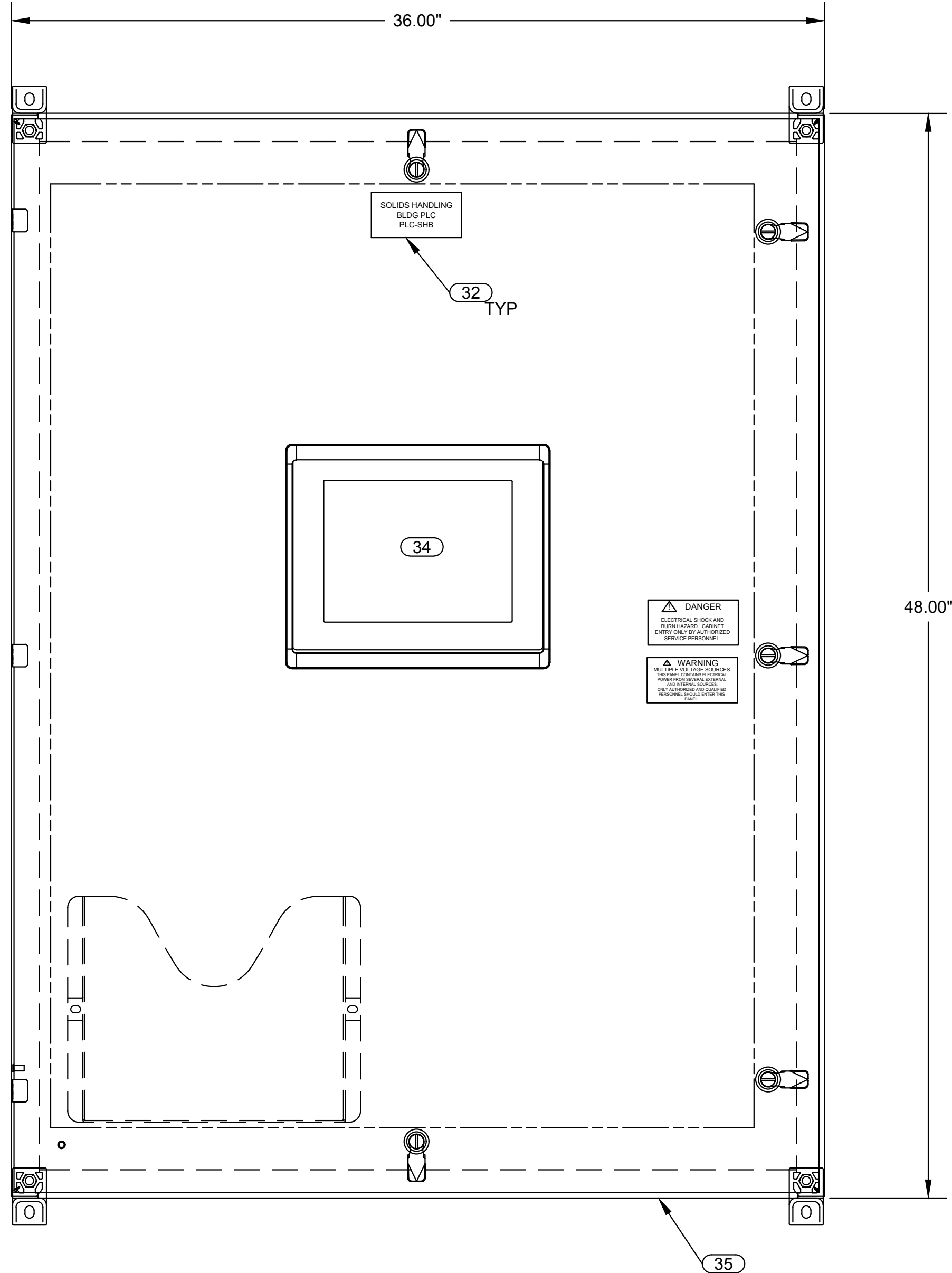
ELECTRICAL - SOLIDS HOLDING
PLC-SHB TYPICAL TERMINAL BLOCK LAYOUTS

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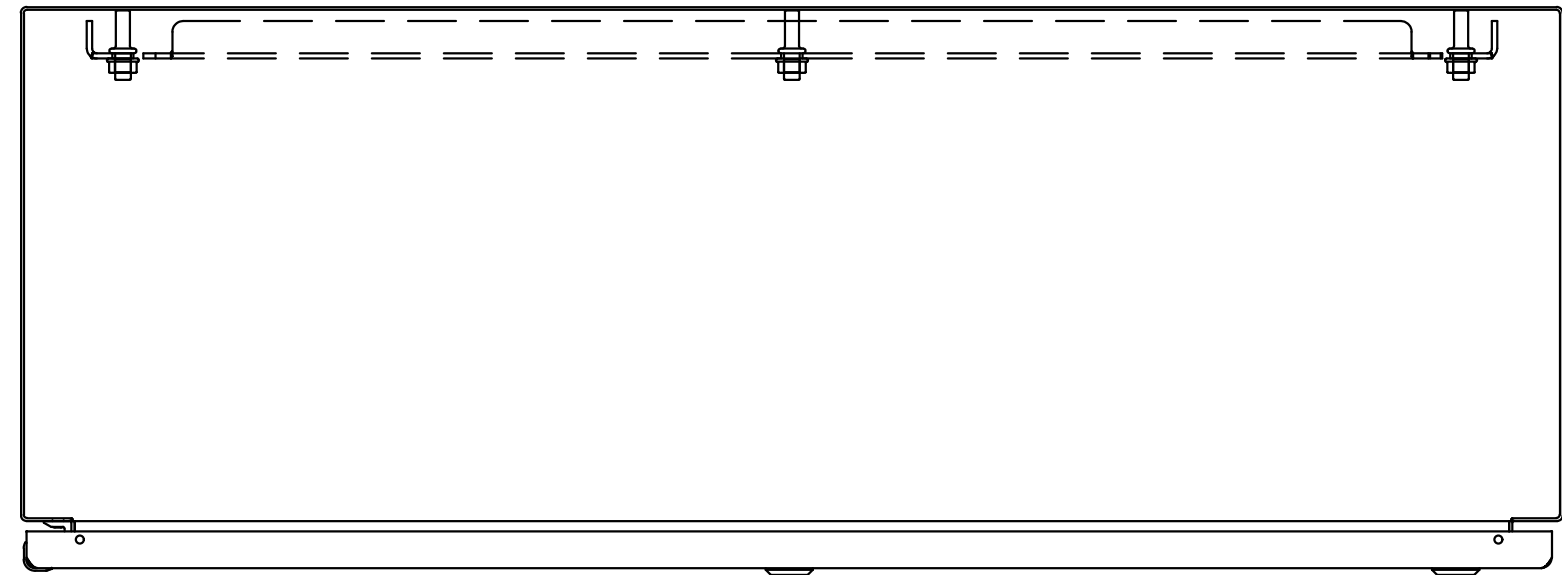
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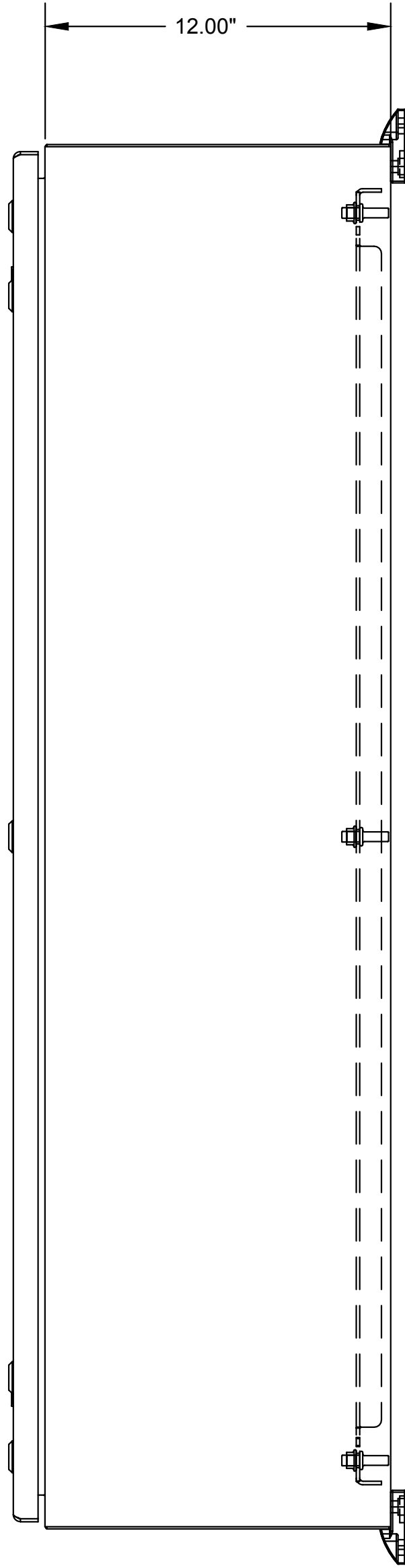
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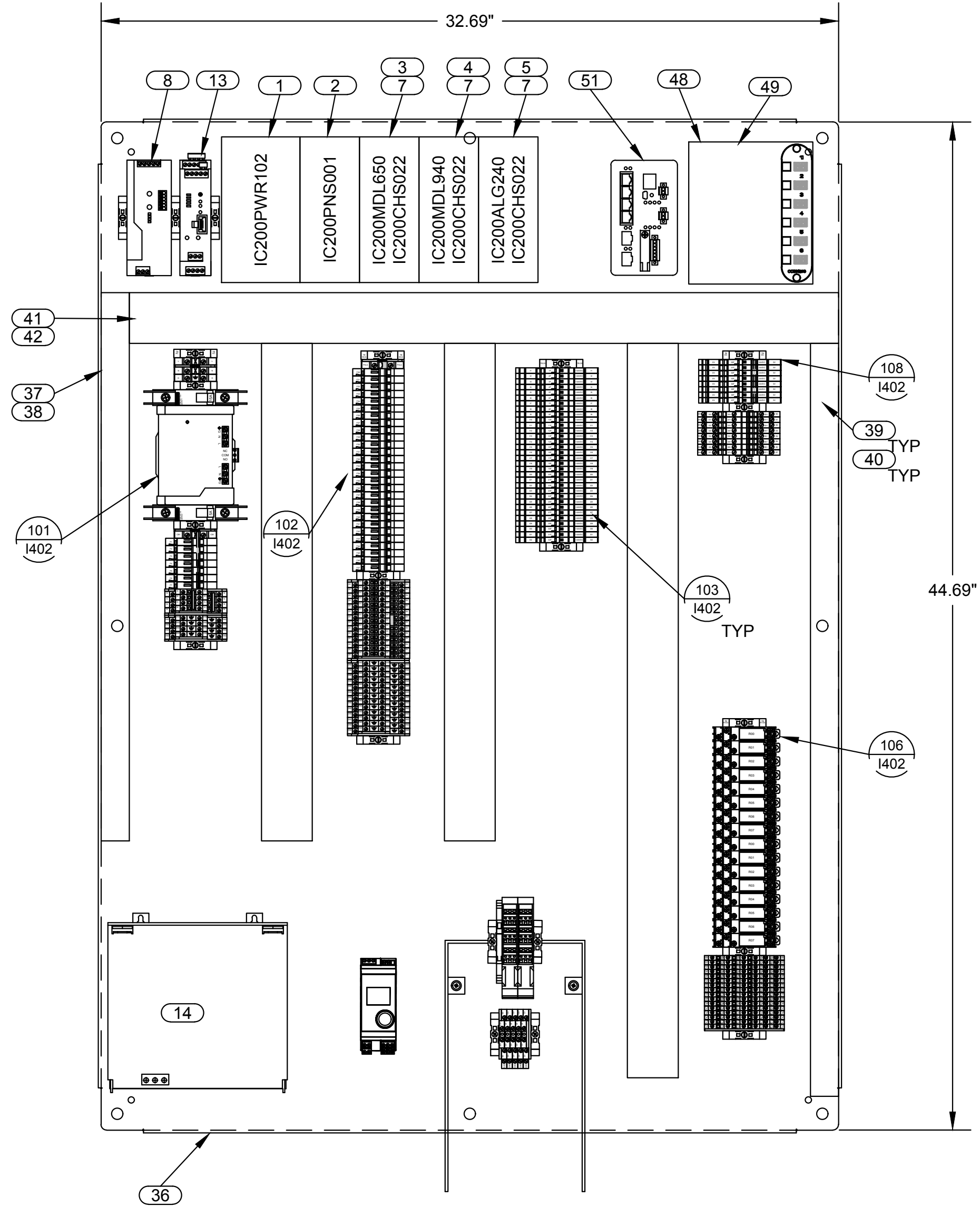
PANEL FRONT VIEW



PANEL TOP VIEW



PANEL SIDE VIEW



BACKPANEL LAYOUT VIEW

SOLIDS HANDLING
BLDG PLC
PLC-SHB



DANGER

ELECTRICAL SHOCK AND
BURN HAZARD. CABINET
ENTRY ONLY BY AUTHORIZED
SERVICE PERSONNEL.



WARNING

MULTIPLE VOLTAGE SOURCES
THIS PANEL CONTAINS ELECTRICAL
POWER FROM SEVERAL EXTERNAL
AND INTERNAL SOURCES.
ONLY AUTHORIZED AND QUALIFIED
PERSONNEL SHOULD ENTER THIS
PANEL.

PANEL LABELS



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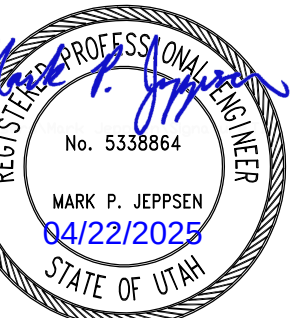
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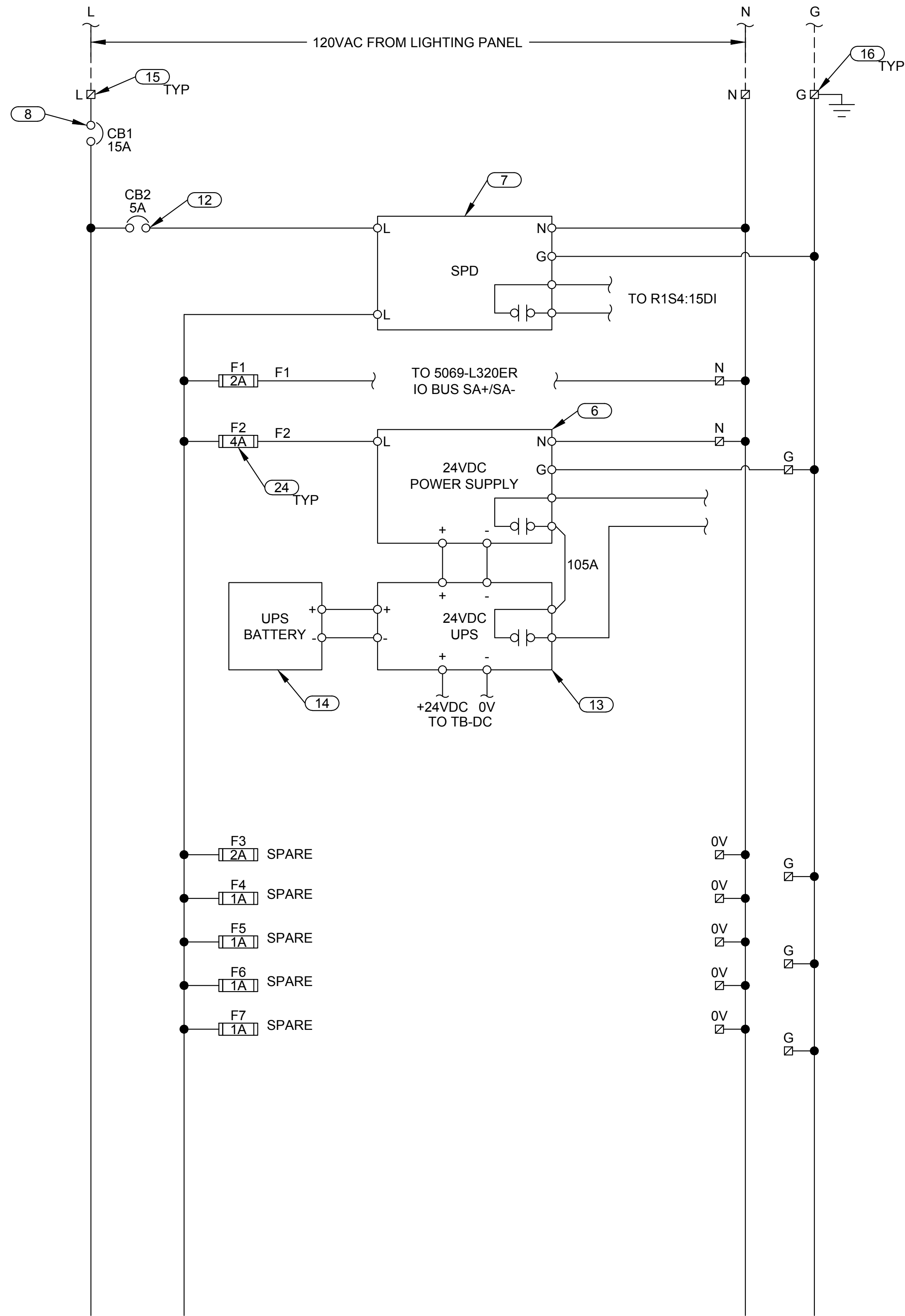
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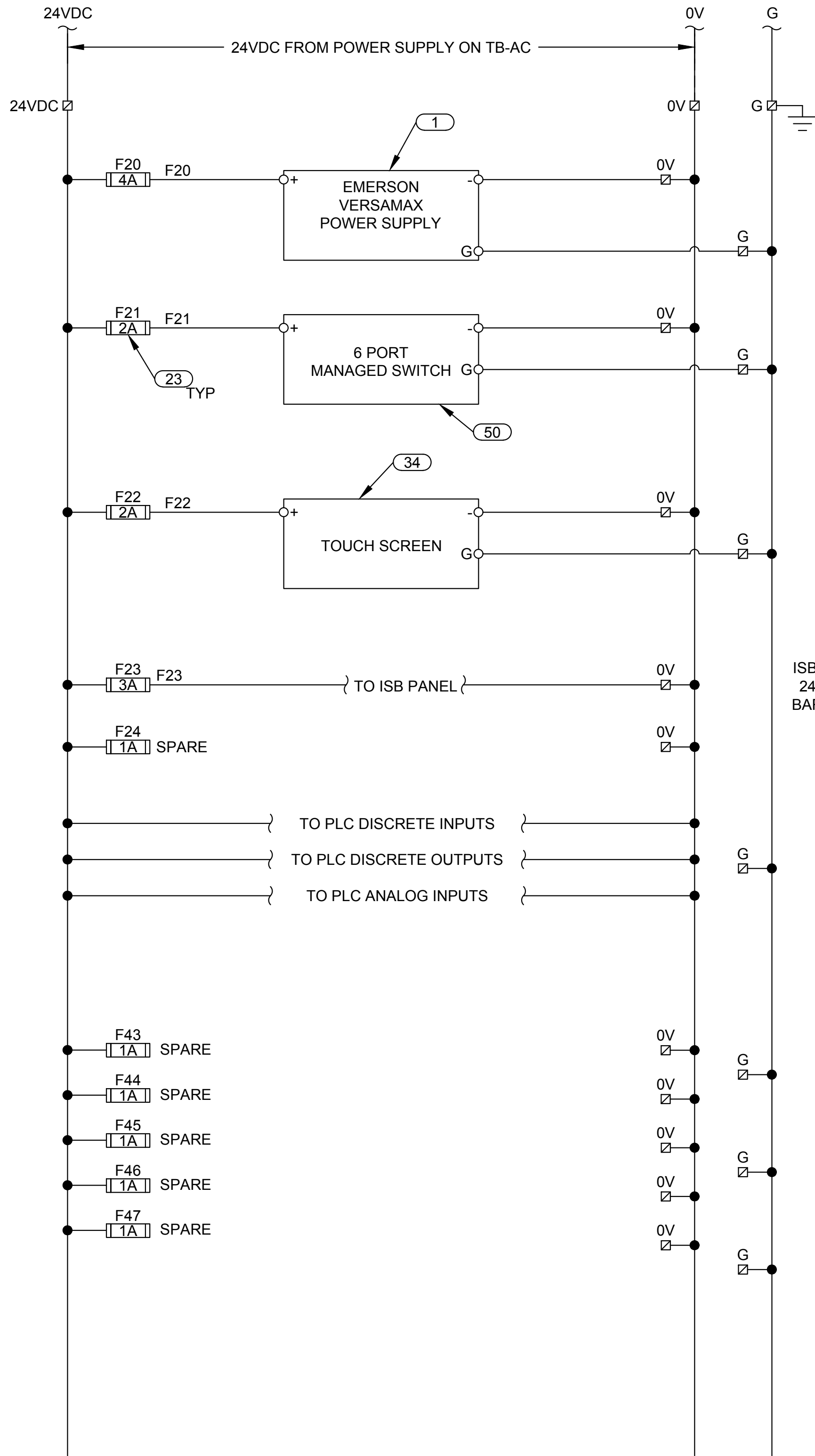
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AC POWER WIRING DIAGRAM



DC POWER WIRING DIAGRAM

NOTE:
ISB PANEL SHALL CONTAIN
24VDC POWER INTRINSIC
BARRIER FOR THE FLOATS.



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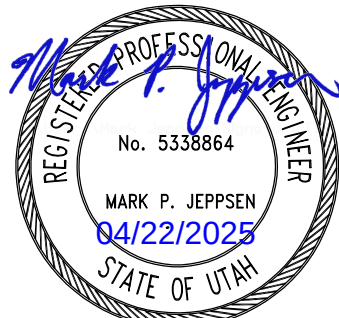
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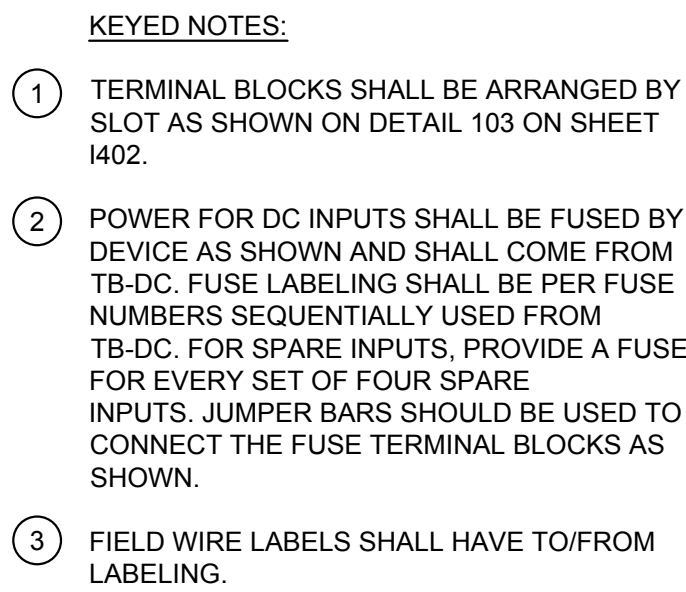
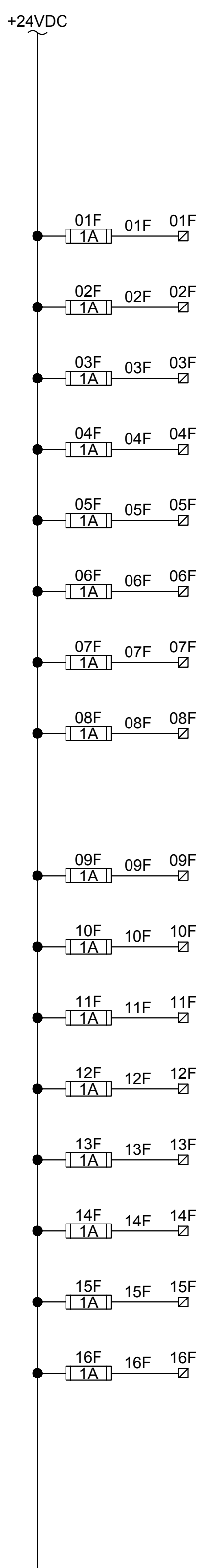
WRF PHASE 3 UPGRADES
SANTOQUIN CITY

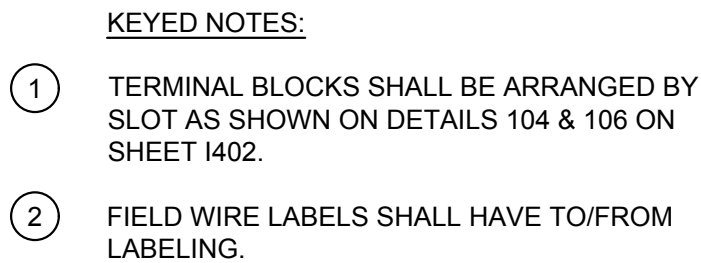
ELECTRICAL - SOLIDS HOLDING
PLC-SHB TYPICAL AC-DC POWER WIRING DIAGRAMS

FILE:
JUB PROJ. #: 93-24-001
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DESIGN BY: JCG
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DRAWING:

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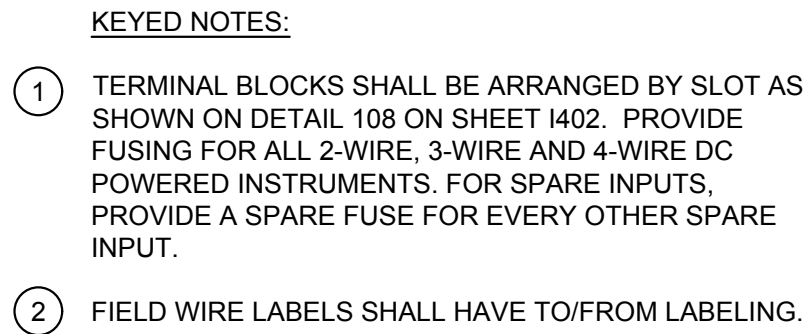
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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

ELECTRICAL - SOLIDS HOLDING PLC-SHB TYPICAL DISCRETE OUTPUTS WIRING DIAGRAM

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LAST UPDATED: 4/21/2025	
DRAWING:	

82-E-606



Plot Date: 4/21/2025 3:55 PM Plotted By: Daniel Leavitt
Data Created: 12/2/2024 C:\USERS\ DANIEL.LEAVITT\Documents\PROJECT FILES\MODEL ELECTRICAL\INSTRUMENTATION\82-E-701 SOLIDS HOLDING CONDUIT SCHEDULE.DWG

POWER CONDUIT							
CONDUIT	SIZE	CONDUCTORS	SERVICE	FROM	TO	DUCTBANKS	NOTES
P-80-16	2"	3 #4 W/ #8 GND VFD CABLE	480VAC	SHB BLOWER 1 VFD 80-VFD-110	BLOWER 80-B-110		
P-80-16A	2"	3 3/0 W/ #6 GND	480VAC	DP-SHB	SHB BLOWER 1 VFD 80-VFD-110		
P-80-17	2"	3 #4 W/ #8 GND VFD CABLE	480VAC	SHB BLOWER 2 VFD 80-VFD-111	BLOWER 80-B-111		
P-80-17A	2"	3 3/0 W/ #6 GND	480VAC	DP-SHB	SHB BLOWER 2 VFD 80-VFD-111		
P-80-18	1.5"	3 #12 W/ #12 GND, 2#14 VFD CABLE	480VAC	DEWATERING FEED VFD 80-VFD-201	DEWATERING FEED PUMP 1 80-P-201		
P-80-18A	1"	3 #12 W/ #12 GND	480VAC	DP-SHB	DEWATERING FEED VFD 80-VFD-201		
P-80-19	1.5"	3 #12 W/ #12 GND, 2#14 VFD CABLE	480VAC	DEWATERING FEED VFD 80-VFD-202	DEWATERING FEED PUMP 2 80-P-202		
P-80-19A	1"	3 #12 W/ #12 GND	480VAC	DP-SHB	DEWATERING FEED VFD 80-VFD-202		
P-80-20	1"	FUTURE	480VAC	DEWATERING FEED VFD 80-VFD-203	DEWATERING FEED PUMP 3 80-P-203		
P-80-20A	1.5"	FUTURE	480VAC	DP-SHB	DEWATERING FEED VFD 80-VFD-203		
P-80-21	1"	2 #10 W/ #12 GND	480VAC	DP-SHB	XFMR - LP - SHB		
P-80-21A	1"	3 #8 W/ #10 GND	480VAC	XFMR - LP - SHB	LP-SHB		
P-80-23	2-3"	2 PARALLEL 4-350 W/ #1 GND	480VAC	DP-SHB	NEW DISCONNECT SWITCH	DB-1, DB-3, DB-4	THROUGH HH-103, HH-101
P-80-23A	2-3"	2 PARALLEL 4-350 W/ #1 GND	480VAC	NEW DISCONNECT SWITCH	ATS		
P-80-24	3/4"	2 #12 W/ #12 GND	120VAC	LP-SHB	HVAC EXHAUST FAN		THROUGH EF-1 CONTROL BOX
P-80-24A	1.5"	3 #8 W/ #10 GND	480VAC	DP-SHB	HVAC UNIT HEATER 1		
P-80-24B	1.5"	3 #6 W/ #10 GND	480VAC	DP-SHB	HVAC UNIT HEATER 2		
P-80-30	3/4"	2 #12 W/ #12 GND	120VAC	LP-SHB	INTERIOR LIGHTING		
P-80-31	3/4"	2 #12 W/ #12 GND	120VAC	LP-SHB	FLOOD LIGHT		
P-80-32	3/4"	2 #12 W/ #12 GND	120VAC	LP-SHB	INTERIOR LIGHTING B		
P-80-33	3/4"	2 #12 W/ #12 GND	120VAC	LP-SHB	EXTERIOR LIGHTING		
P-80-34	3/4"	2 #12 W/ #12 GND	120VAC	LP-SHB	SUMP PUMP 80-P-110		SPLICED TO MFG CABLE
P-80-35	3/4"	2 #12 W/ #12 GND	120VAC	LP-SHB	PLC-SHB		
P-80-36	3/4"	2 #12 W/ #12 GND	120VAC	LP-SHB	HEAT TRACE		
P-80-37	3/4"	2 #12 W/ #12 GND	120VAC	LP-SHB	RECEPTACLES		
CONTROL CONDUIT							
C-80-10	1"	2 #14 W/ #14 GND	120VAC	DEWATERING FEED VFD 80-VFD-201	LOW INTAKE PRESS 80-PSL-201A		
C-80-11	1"	2 #14 W/ #14 GND	120VAC	DEWATERING FEED VFD 80-VFD-202	LOW INTAKE PRESS 80-PSL-202A		
C-80-12	1"	FUTURE	120VAC	DEWATERING FEED VFD 80-VFD-203	LOW INTAKE PRESS 80-PSL-203A		
C-80-13	1"	2 #14 W/ #14 GND	120VAC	DEWATERING FEED VFD 80-VFD-201	HIGH DISCHARGE PRESS 80-PSH-201B		
C-80-14	1"	2 #14 W/ #14 GND	120VAC	DEWATERING FEED VFD 80-VFD-202	HIGH DISCHARGE PRESS 80-PSH-202B		
C-80-15	1"	FUTURE	120VAC	DEWATERING FEED VFD 80-VFD-203	HIGH DISCHARGE PRESS 80-PSH-203B		
C-80-19	1"	4#14 W/#14 GND	24VDC	PLC-SHB	SH TANK HIGH LEVEL FLOAT 80-LSH-101		THROUGH INTRINSICALLY SAFE BARRIERS, AND JB-101
C-80-21	1"	2 #14 W/ #14 GND	24VDC	PLC-SHB	SH TANK LOW LEVEL FLOAT 80-LSL-101		
C-80-22	1"	2 #14 W/ #14 GND	120VAC	BLOWER 80-B-110	FLOOD SWITCH 80-LSH-110		SPLICED TO MFG CABLE
C-80-23	1"	2 #14 W/ #14 GND	120VAC	BLOWER 80-B-111	80-PSH-110		
C-80-24	1"	8 #14	24VDC	DEWATERING FEED VFD 80-VFD-201	80-PSH-111		
C-80-25	1"	8 #14	24VDC	DEWATERING FEED VFD 80-VFD-202	PLC-SHB		
C-80-26	1"	8 #14	24VDC	DEWATERING FEED VFD 80-VFD-203	PLC-SHB		
C-80-27	1"	2 #12 W/ #12 GND	24VDC	80-ZS-101A (TANK HATCH)	PLC-SHB		THROUGH INTRINSICALLY SAFE BARRIERS, AND JB-101
C-80-28	1"	2 #12 W/ #12 GND	LOOP - 24VDC	80-ZS-101B	PLC-SHB		THROUGH JB-101
C-80-29	1"	6 #14 W	LOOP - 24VDC	EF-1 CONTROL BOX	PLC-SH		
C-80-30	1"	18 #14	LOOP - 24VDC	PLC-SHB	BLOWER VFD 80-VFD-110		
C-80-31	1"	18 #14	LOOP - 24VDC	PLC-SHB	BLOWER VFD 80-VFD-111		
CONDUIT	SIZE	CONDUCTORS	SERVICE	FROM	TO	DUCTBANKS	NOTES
S-80-06	3/4"	1 #18 TSP, #12 GND FOR J-BOX	4-20mA	RADAR LEVEL SENSOR 80-LT-101	PLC-SHB		THROUGH INTRINSICALLY SAFE BARRIERS, AND JB-101
S-80-07	3/4"	1 #18 TSP	4-20mA	TEMPERATURE TRANSMITTER 80-TT-101	PLC-SHB		
COMMUNICATION CONDUIT							
F-80-01	1"	1 CAT 6 SHIELDED ETHERNET CABLE	COMMS	PLC-SHB	DEWATERING FEED VFD 80-VFD-201		
F-80-02	1"	1 CAT 6 SHIELDED ETHERNET CABLE	COMMS	PLC-SHB	DEWATERING FEED VFD 80-VFD-202		
F-80-03	1"	FUTURE	COMMS	PLC-SHB	DEWATERING FEED VFD 80-VFD-203		
F-80-23	2"	12-STRAND SINGLE MODE FIBER	COMMS	PLC-SHB	PCP	DB-1, DB-3, DB-4	THROUGH DP-SHB, HH-103, HH-101, AND EXISTING COMM GROUNDBOX
SPARE CONDUIT							
SP-80-01	1"	PULL STRING	TBD	PLC-SHB	DEWATERING FEED VFD 80-VFD-201		
SP-80-02	1"	PULL STRING	TBD	PLC-SHB	DEWATERING FEED VFD 80-VFD-202		
SP-80-03	1"	PULL STRING	TBD	PLC-SHB	DEWATERING FEED VFD 80-VFD-203		
SP-80-04	1"	PULL STRING	TBD	PLC-SHB	BLOWER VFD 80-VFD-110		
SP-80-05	1"	PULL STRING	TBD	PLC-SHB	BLOWER VFD 80-VFD-111		
80-SP-23	2-3" & 2-2" & 1-1"	PULL STRING	TBD	DP-SHB	ATS		
80-SP-24	2-2" & 2-1"	PULL STRING	TBD	HH-101	JB-102		FUTURE GATE AND SECURITY
80-SP-25	2-1"	PULL STRING	TBD	JB-102	JB-103		FUTURE KEYPAD ACCESS CONTROL

SOLIDS HANDLING CONDUIT SCHEDULE



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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

ELECTRICAL - SOLIDS HOLDING
SOLIDS HANDLING CONDUIT SCHEDULE

FILE:

JUB PROJ. #: 93-24-001

DRAWN BY: EGK / DCL

DESIGN BY: JCG

CHECKED BY: MPJ

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82-E-701

Plot Date: 4/22/2025 10:14 AM Plotted By: Daniel Leavitt
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INSTRUMENT SCHEDULE						
TAG	DESCRIPTION	MAKE	MODEL	SUPPLY	RANGE	COMMENTS
80-PI-110-1	SUCTION BLOWER 1 GAUGE	ASHCROFT	1279 SERIES	LOOP-24VDC	PER MFR	CONSULT BLOWER SUPPLIER FOR OR EQUAL
80-PSH-110	BLOWER 1 HIGH PRES SWITCH	ASHCROFT	B SERIES		PER MFR	CONSULT BLOWER SUPPLIER FOR OR EQUAL
80-PI-110-2	DISCHARGE BLOWER 1 GAUGE	ASHCROFT	1279 SERIES		PER MFR	CONSULT BLOWER SUPPLIER FOR OR EQUAL
80-PI-111-1	SUCTION BLOWER 2 GAUGE	ASHCROFT	1279 SERIES	LOOP-24VDC	PER MFR	CONSULT BLOWER SUPPLIER FOR OR EQUAL
80-PSH-111	BLOWER 2 HIGH PRES SWITCH	ASHCROFT	B SERIES		PER MFR	CONSULT BLOWER SUPPLIER FOR OR EQUAL
80-PI-111-2	DISCHARGE BLOWER 2 GAUGE	ASHCROFT	1279 SERIES		PER MFR	CONSULT BLOWER SUPPLIER FOR OR EQUAL
80-LT-1101	HOLDING TANK LEVEL TRANSMITTER	VEGA	C21	LOOP-24VDC		
80-LSH-101	HOLDING TANK HIGH LEVEL SWITCH	DWYER	CFS2-CGDSN-20	LOOP-24VDC	NC CONTACT	
80-LSL-101	HOLDING TANK LOW LEVEL SWITCH	DWYER	CFS2-OGDSN-30	LOOP-24VDC	NO CONTACT	
80-PSL-201A	SUCTION PUMP 1 LOW PRES SWITCH	ASHCROFT	B SERIES	LOOP-24VDC	-5 PSI	
80-PI-201A	SUCTION PUMP 1 GAUGE	ASHCROFT	1279 SERIES	LOOP-24VDC	-30"Hg - 30PSI	
80-PSL-202A	SUCTION PUMP 2 LOW PRES SWITCH	ASHCROFT	B SERIES		-5 PSI	
80-PI-202A	SUCTION PUMP 2 GAUGE	ASHCROFT	1279 SERIES		-30"Hg - 30PSI	
80-PSH-201B	DISCHARGE PUMP 1 HIGH PRES SWITCH	ASHCROFT	B SERIES	LOOP-24VDC	50 PSI	
80-PI-201B	DISCHARGE PUMP 1 GAUGE	ASHCROFT	1279 SERIES	LOOP-24VDC	0-60 PSI	
80-PSH-202B	DISCHARGE PUMP 2 HIGH PRES SWITCH	ASHCROFT	B SERIES		50 PSI	
80-PI-202B	DISCHARGE PUMP 2 GAUGE	ASHCROFT	1279 SERIES		0-60 PSI	
80-TT-201	BUILDING TEMP TRANS	DWYER	BTT-N00-3	LOOP-24VDC	0 TO 122 F	
80-LSH-110	SUMP FLOOD SWITCH	VARIOUS	GROUND - PUCK TYPE	LOOP-24VDC	NO CONTACT	
80-ZS-101A	TANK HATCH INTRUSION SWITCH	VARIOUS	ROLLER TYPE	LOOP-24VDC	NO CONTACT	
80-ZS-101B	JB-101 INTRUSION SWITCH	VARIOUS	PLUNGER TYPE	LOOP-24VDC	NO CONTACT	

SOLIDS HANDLING INSTRUMENT SCHEDULE



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ELECTRICAL - SOLIDS HOLDING
SOLIDS HANDLING INSTRUMENT SCHEDULE

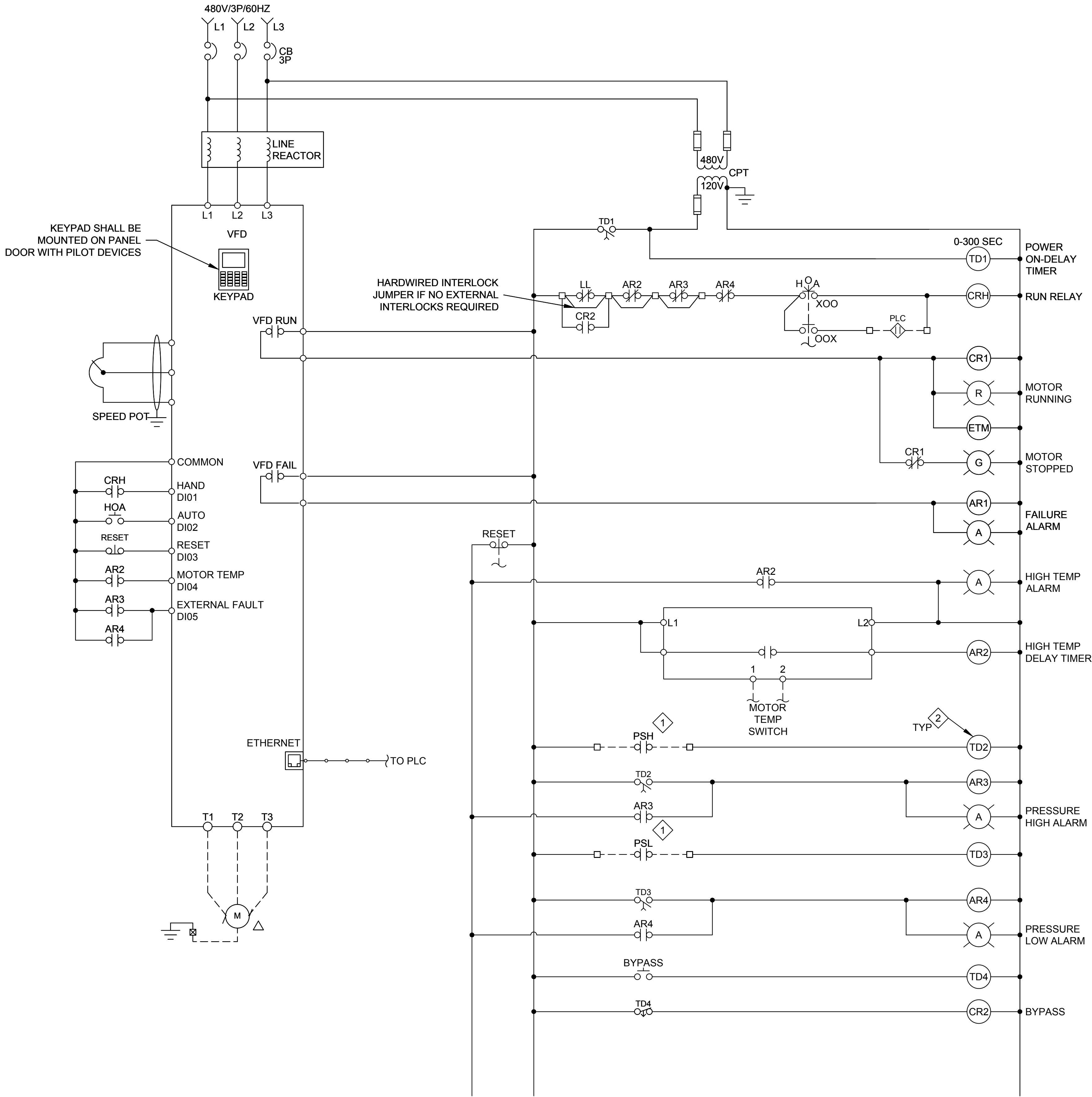
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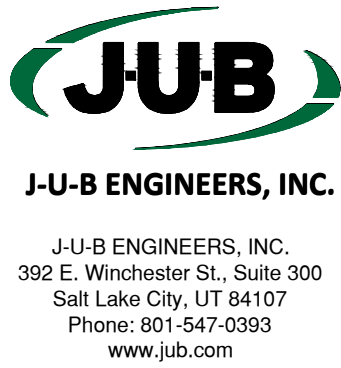


VFD CONTROL SCHEMATIC

TYPICAL FOR: DEWATERING FEED PUMPS

GENERAL NOTES

1. TYPICAL SCHEMATIC DIAGRAMS ARE INTENDED TO REFLECT THE GENERAL CONTROL STRATEGY. ACTUAL CIRCUITRY MAY VARY FOR SPECIFIC EQUIPMENT SUPPLIED. THE NUMBER AND TYPE OF DEVICES SHALL BE FURNISHED AS REQUIRED FOR PROPER OPERATION OF THE EQUIPMENT.
2. CONTROL POWER TRANSFORMERS (CPT) SHALL BE ADEQUATELY SIZED AND SHALL BE PROVIDED WITH PROPERLY SIZED FUSES FOR BOTH THE PRIMARY AND SECONDARY WINDINGS.
3. CONTROL SWITCHES SHALL BE DOOR MOUNTED ON THEIR RESPECTIVE PANELS. DEVICES SHALL BE RATED FOR LINE VOLTAGE AND 125% OF LOAD CURRENT.
4. THE VFD WILL HAVE ETHERNET CAPABILITIES AND ITS PRIMARY CONTROL WILL BE THROUGH ITS UTILIZATION.

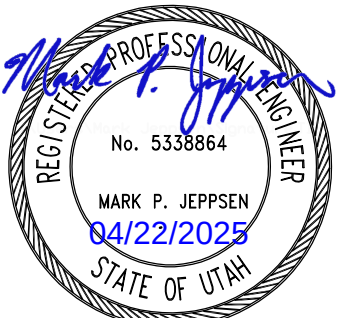


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KEY NOTES

1. LOCAL CONTROLS SHALL BE INSTALLED ACCORDING TO P&ID'S AND NOT NECESSARILY AS SHOWN ON SCHEMATICS.
2. ADJUST TIME DELAY RELAYS PRIOR TO STARTUP. STAGGER TIMER SETTINGS FOR POWER ON-DELAY RELAYS.

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VFD CONTROL DESCRIPTION

WHEN THE HOA SWITCH IS IN THE HAND POSITION, THE MOTOR SHOULD RUN, AS LONG AS THE INTERLOCK CONDITIONS HAVE BEEN MET. WHEN THE HOA SWITCH IS IN THE OFF POSITION, THE MOTOR SHOULD STOP AND WHEN THE HOA SWITCH IS IN THE AUTO POSITION, THE MOTOR IS CONTROLLED BY THE PLC OVER ETHERNET. THE PLC WILL BE ABLE TO MONITOR WHETHER THE HOA IS IN THE AUTO POSITION.

WHEN THE HOA SWITCH IS IN THE HAND POSITION, THE SPEED COMMAND COMES FROM THE POTENTIOMETER. WHEN IN THE AUTO POSITION, THE SPEED COMMAND COMES FROM THE PLC OVER ETHERNET.

WHEN THE SOLIDS HOLDING TANK NEEDS TO BE DRAINED BELOW THE LOW LEVEL FLOAT THE BYPASS CONTROL SYSTEM IS TO BE USED. THE BYPASS PUSHBUTTON WILL ALLOW THE PUMP TO RUN EVEN BENEATH THE LOW LEVEL. THE RUN TIME OF THAT PUMP SHALL BE DETERMINED BY THE TIMER TD4 WHICH IS OPERATOR SET DURING COMMISSIONING. THE BYPASS PUSHBUTTON SHALL ONLY BE USED WHEN THE HOA SWITCH IS IN THE HAND POSITION AS THE PLC WILL NOT CALL TO RUN SEEING A LOW LEVEL CONDITION.

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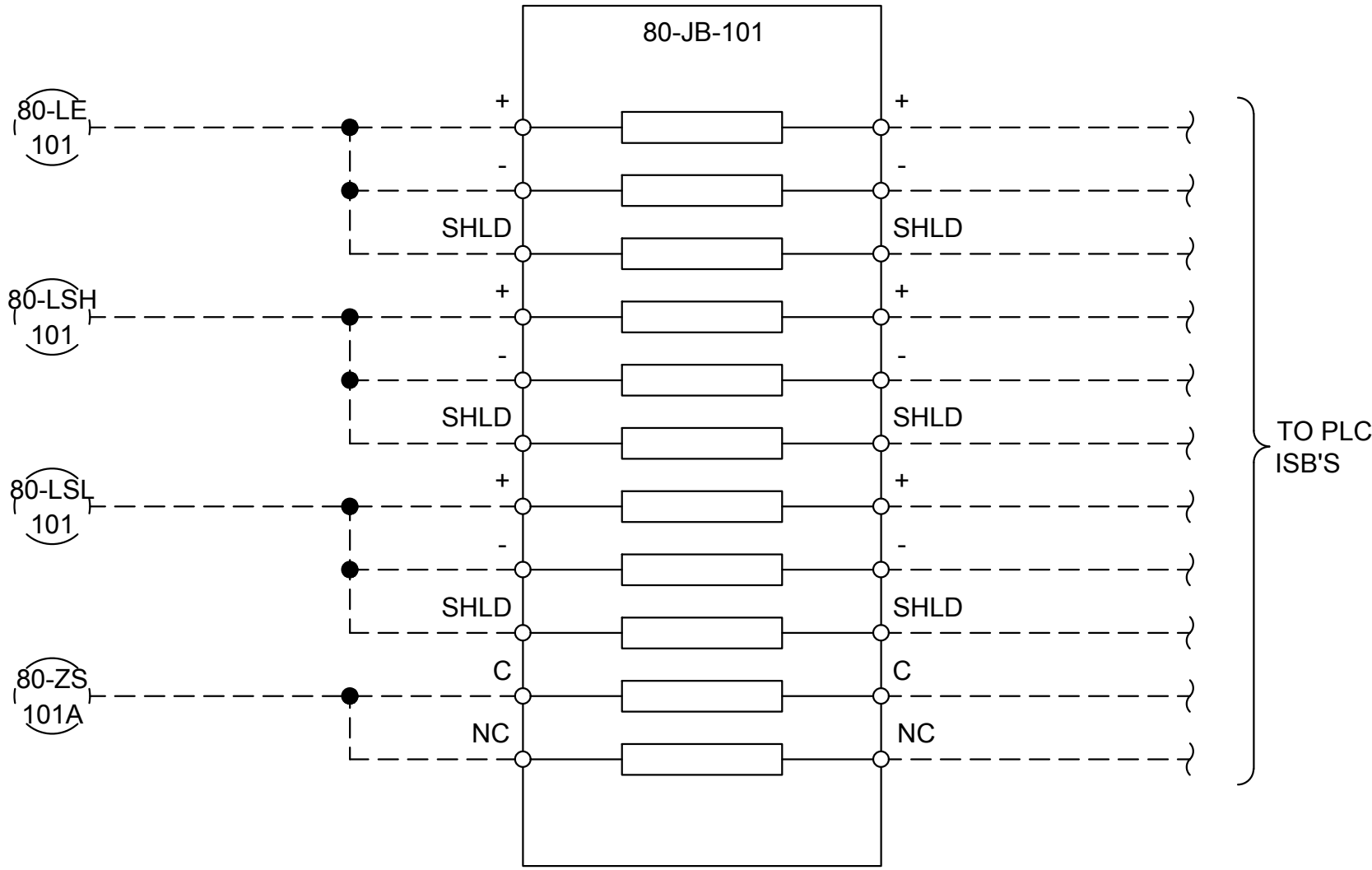
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VFD CONTROL SCHEMATIC

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82-JB-101 WIRING SCHEMATIC



GENERAL NOTES

1. TYPICAL SCHEMATIC DIAGRAMS ARE INTENDED TO REFLECT THE GENERAL CONTROL STRATEGY. ACTUAL CIRCUITRY MAY VARY FOR SPECIFIC EQUIPMENT SUPPLIED. THE NUMBER AND TYPE OF DEVICES SHALL BE FURNISHED AS REQUIRED FOR PROPER OPERATION OF THE EQUIPMENT.
2. FUSES SHALL BE ADEQUATELY SIZED PER THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS AND SHOULD BE SLOW DELAY FUSES TO HANDLE STARTING CURRENTS.
3. CONTROL SWITCHES SHALL BE DOOR MOUNTED ON THEIR RESPECTIVE PANELS. DEVICES SHALL BE RATED FOR LINE VOLTAGE, 125% OF LOAD CURRENT AND HORSEPOWER OF MOTOR.



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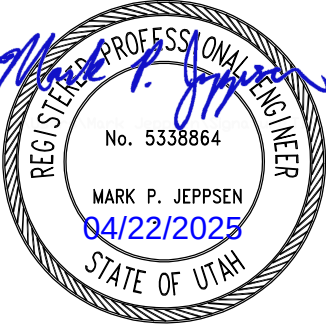
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04/22/2025
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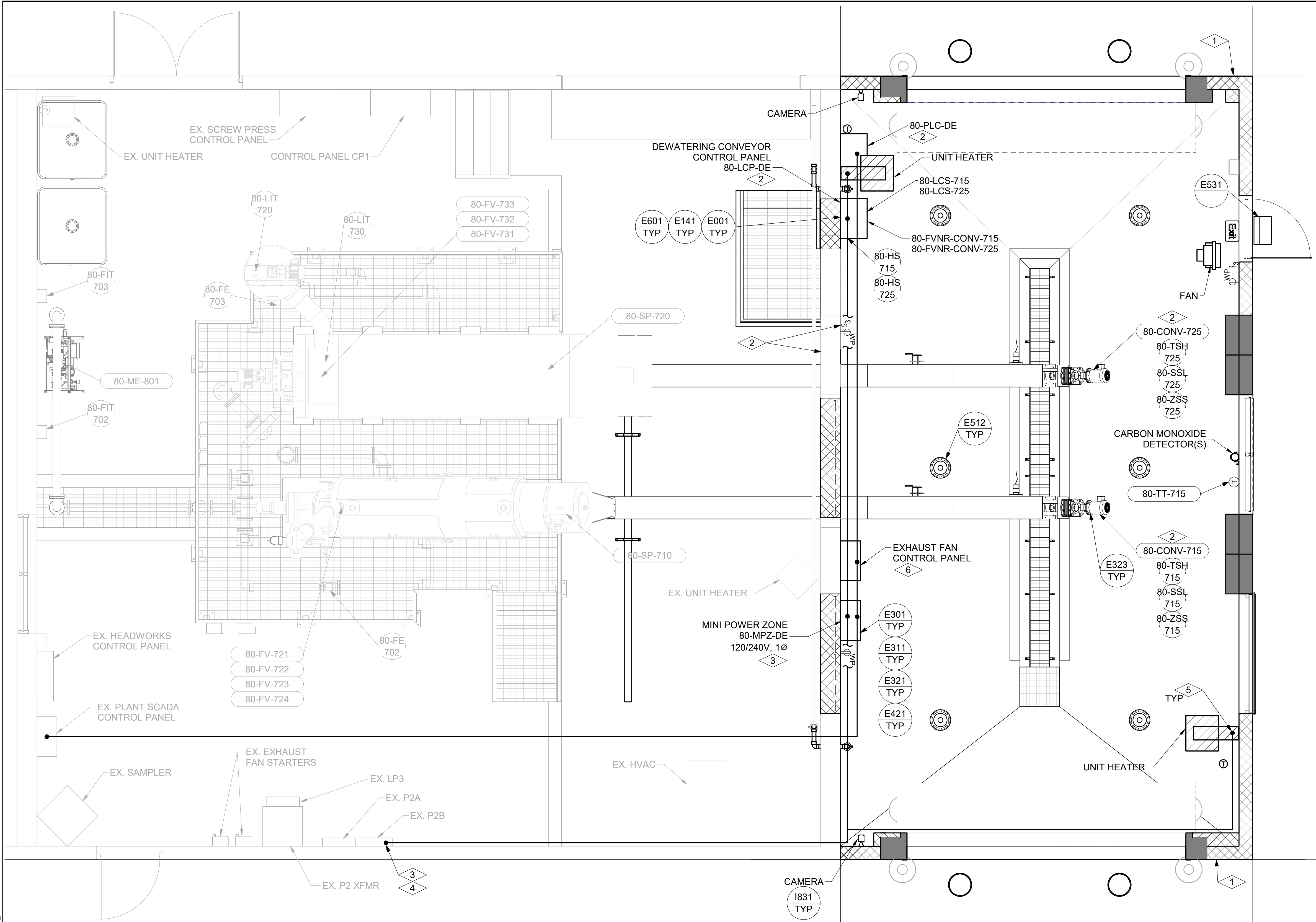
ELECTRICAL - SOLIDS HOLDING
82-JB-101 WIRING DIAGRAM

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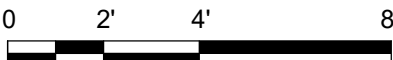
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82-E-802

Autodesk Docs://Santquin WRF Phase 3 Upgrades/93-24-001_01-E.rvt



DEWATERING BUILDING LAYOUT PLAN

SCALE: 3/8" = 1'-0"



NOTES:

- CONDUIT SHALL ONLY RUN EXPOSED WHERE NECESSARY. ALL EXPOSED CONDUIT SHALL BE PVC COATED GRS. PANELS SHALL BE STAINLESS STEEL NEMA 4X.
- CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING CONDUIT DETAILS AND A CONDUIT ROUTING PLAN TO THE ELECTRICAL ENGINEER FOR APPROVAL.
- LIMIT EXPOSED CONDUITS, 90° BENDS AND WALL PENETRATIONS. MAINTAIN SEPARATION BETWEEN SIGNAL AND POWER-CARRYING CONDUITS PER SPECIFICATIONS.
- ALL EQUIPMENT IN THIS BUILDING ADDITION MUST BE CAPABLE OF BEING WASHED DOWN AND/OR OUTDOOR RATED. THIS BUILDING EXTENSION WILL BE SUSCEPTIBLE TO CORROSIVE SEWAGE CONTAMINANTS, AND THE ELEMENTS AS THE GARAGE DOORS WILL LIKELY BE KEPT OPEN. ALL EQUIPMENT MUST BE RATED FOR SUCH CONDITIONS, THIS APPLIES TO WIRING DEVICES, PANELS, MPZ, LIGHTING, CAMERAS, ETC.

KEYNOTES:

- CONTRACTOR TO PROVIDE POWER TO HEAT TAPE IN GUTTERS ON THE NORTH AND SOUTH SIDES OF THE BUILDING WITH A DEDICATED, WEATHER-PROOF OUTLET.
- CONTRACTOR SHALL ENSURE NEC GROUNDING CODE IS FOLLOWED AT THIS LOCATION FOR THE NEW EQUIPMENT AND APPURTANACNES. MOTOR CASINGS, CONVEYORS, AND INSTRUMENTS MUST BE GROUNDED AND TIED INTO EXISTING BUILDING GROUND GRID. STARTERS AND CABINETS MUST BE GROUNDED AND TIED INTO EXISTING BUILDING GROUND GRID. NEC GROUNDING CODES SHALL BE FOLLOWED TO ENSURE SAFETY AT THIS PUMP STATION.
- CONTRATOR SHALL INSTALL A NEW 50A BREAKER IN PANEL P2B IN THE DEWATERING BUILDING. THIS NEW BREAKER WILL FEED NEW MPZ-DE, LOCATED IN THE NEW DEWATERING EXTENSION BUILDING.
- CONTRACTOR SHALL UTILIZE PANEL P2B FOR 480V EQUIPMENT IN THE NEW DEWATERING EXTENSION, SEE ONLINE, AND CALCULATIONS.
- CONDUITS ARE PERMITTED TO RUN OVERHEAD FROM P2B BRANCH FEEDERS TO NEW 480V EQUIPMENT IN THE NEW DEWATERING EXTENSION. ALL NEW SINGLE PHASE EQUIPMENT SHALL UTILIZE CONDUITS FROM MPZ-DE AND BE INSTALLED UNDERGROUND IN THE FOUNDATION AND STUBBED UP TO NEW EQUIPMENT. CONTRATOR TO MINIMIZE EXPOSED CONDUITS AND PROVIDE ROUTING PLAN TO ENGINEER FOR REVIEW.
- SEE HVAC DRAWINGS FOR EQUIPMENT AND MOUNTING INSTRUCTIONS FOR THE HVAC EXHAUST FAN CONTROL PANEL. CONTRACTOR SHALL COORDINATE THE INSTALLATION LOCATIONS, PANEL WIRING AND CONTROLS WITH THE HVAC SUPPLIER. CONTRACTOR SHALL ENSURE THE INSTALLATION OF THE HVAC CONTROL PANEL AND MPZ ARE MOUNTED WITH SUFFICIENT SPACE TO OPEN, CLOSE, MAINTAIN AND OPERATOR THE SYSTEMS INDEPENDENTLY.

ELECTRICAL LEGEND

- DIALIGHT LOW BAY LED 79W LIGHT WITH DIMMING AND BATTERY BACKUP. MOUNT AT 17'-0" AFF. MODEL LE-U-4-U-N-2-9-D-N-W-N-G-G.
- CURRENT EVOLVE LED 36W WALL LIGHT (WALL PACK) WITH BATTERY BACKUP AND DARK SKY COMPLIANCE. MODEL EWAS-01-0-B3-AW-7-40-D-1-FM-DKBZ-EMBR OR APPROVED EQUAL.
- CURRENT BEACON LED 29W RECESSED LIGHT WITH DIMMING DRIVER. MODEL CLO-18L-25-4K7-4F-UNV-RD-DBT-LS OR APPROVED EQUAL.
- CHLORIDE VE SERIES EXIT SIGN. MODEL VEGW OR APPROVED EQUAL.
- WEATHER-PROOF DUPLEX OUTLET GFCI PROTECTED
- THERMOSTAT
- 3-WAY LIGHT SWITCH

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SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY
ELECTRICAL - DEWATERING
LAYOUT PLAN

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DRAWING:
80-E-101



 **DANGER**

ELECTRICAL SHOCK AND
BURN HAZARD. CABINET
ENTRY ONLY BY AUTHORIZED
SERVICE PERSONNEL.

PANEL LABELS



1. TYPICAL SCHEMATIC DIAGRAMS ARE INTENDED TO REFLECT THE GENERAL CONTROL STRATEGY. ACTUAL CIRCUITRY MAY VARY FOR SPECIFIC EQUIPMENT SUPPLIED. THE NUMBER AND TYPE OF DEVICES SHALL BE FURNISHED AS REQUIRED FOR PROPER OPERATION OF THE EQUIPMENT.
2. FUSES, RELAYS, PILOT DEVICES, TIMERS AND OTHER EQUIPMENT SHOWN HERE SHALL BE ADEQUATELY RATED AND SIZED PER THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.
3. CONTROL SWITCHES SHALL BE DOOR MOUNTED ON THEIR RESPECTIVE PANELS. DEVICES SHALL BE RATED FOR LINE VOLTAGE AND 125% OF LOAD CURRENT.
4. OWNER SYSTEM INTEGRATOR TO AID IN THE COMMISSIONING OF THE CONVEYORS SUCH THAT THEY ARE INTEGRATED INTO THE PRESS RUN AND STOP COMMANDS. WHEN THE PRESSES RECEIVE A CALL TO START, THEY WILL CHECK TO MAKE SURE THE CONVEYORS ARE RUNNING, IF THE CONVEYORS ARE RUNNING THE PRESSES WILL START. IF THE CONVEYORS ARE NOT RUNNING, THE PRESSES WILL SEND A START COMMAND TO THE CORRESPONDING CONVEYORS TO START, AND AFTER A GIVEN TIME SET BY THE OPERATORS IN THE PLC, THE CONVEYOR PLC WILL GIVE A OK/ENABLE TO THE PRESS CONTROL PANEL ALLOWING IT TO RUN. THIS SAME CONTROL HAPPENS DURING SHUTDOWN, WHERE IF THE PRESSES HAVE BEEN CALLED TO STOP, THE CONVEYORS WILL SEE A STOPPED SIGNAL FROM THE PRESSES AND CONTINUE TO RUN FOR A GIVEN PERIOD OF TIME SET BY THE OPERATORS IN THE PLC, THEN STOP.

1. CONTROL POWER TRANSFORMERS (CPT) SHALL BE ADEQUATELY SIZED AND SHALL BE PROVIDED WITH PROPERLY SIZED FUSES FOR BOTH THE PRIMARY AND SECONDARY WINDINGS.

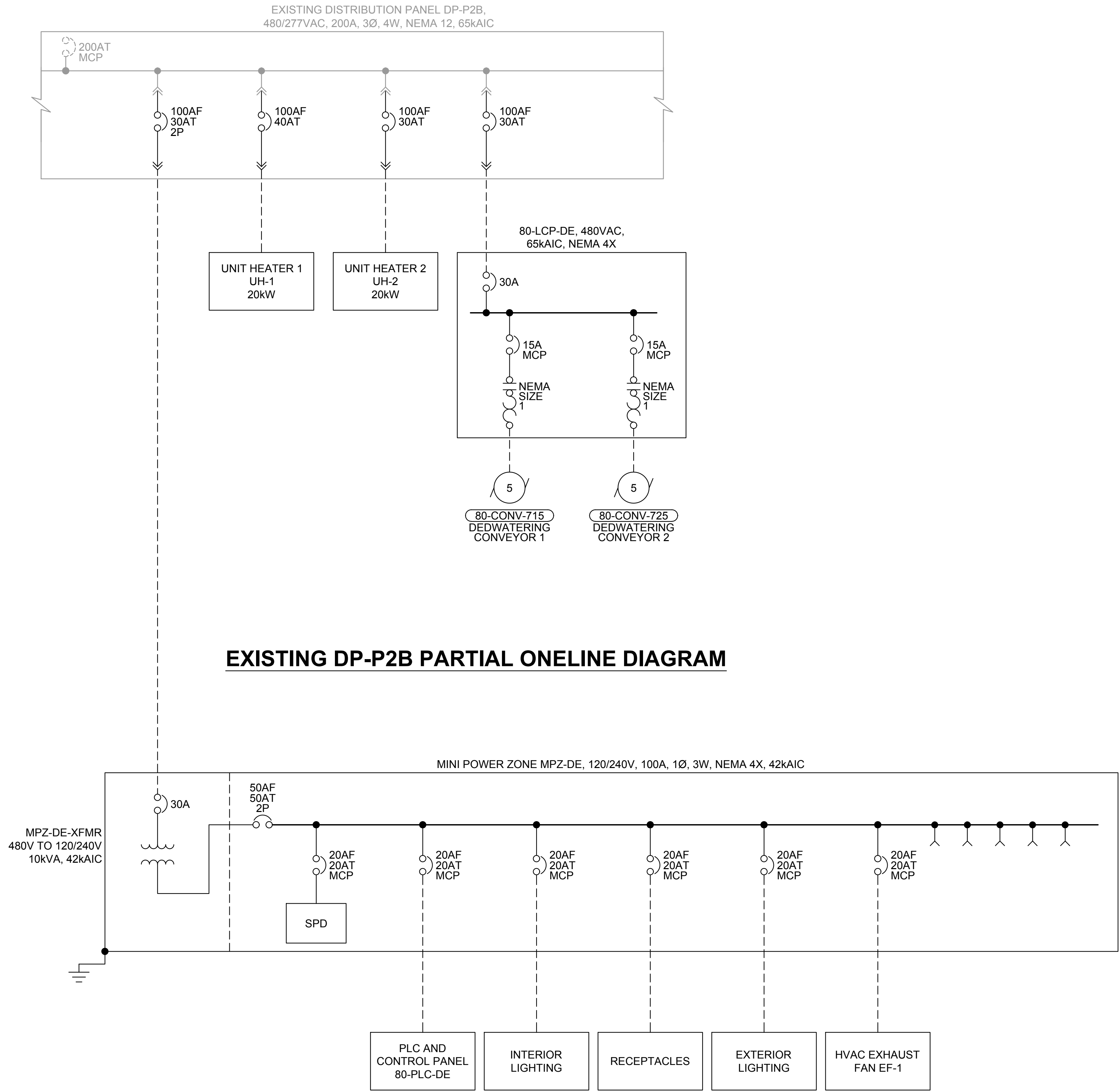
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CONVEYOR PANEL LAYOUT

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EXISTING DP-P2B PARTIAL ONELINE DIAGRAM

MPZ-DE ONELINE DIAGRAM



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ELECTRICAL - DEWATERING
DEWATERING BUILDING ONELINE DIAGRAM

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Date Created: 2/12/2024 C:\USERS\ DANIEL.LEAVITT\Documents\PROJECT FILES\MODEL ELECTRICAL\80-E-502 DEWATERING CALCULATIONS.DWG

PANEL: P2A		VOLTAGE: 277/480		MAIN CB: 200 AMP		BUS AMPS: 225 AMP		
		BUS A.I.C: 22KA		BKR AIC: 22KA		MOUNTING: SURFACE		
CIRCUIT DESCRIPTION	BKR	CIRCUIT	LOAD	PHASE	LOAD	CIRCUIT	BKR	CIRCUIT DESCRIPTION
XFMR T-3/PANEL LP3	30/3	1	5000	A	5580	2	20/3	WASHER/COMPACTOR CP
		3	5000	B	5580	4		
		5	5000	C	5650	6		
80-SP-710 SCREW PRESS	15/3	7	652	A	73	8	15/3	05-SG-202, VALVE ACTUATOR
		9	652	B	73	10		
		11	652	C	73	12		
80-SP-711 SCREW PRESS	30/3	13	3626	A	73	14	15/3	05-SG-201, VALVE ACTUATOR
		15	3626	B	73	16		
		17	3626	C	73	18		
UH.05.01 (HEADWORKS RM)	15/3	19	621	A	6666	20	15/3	UH.80.02, UNIT HEATER
		21	621	B	6666	22		
		23	621	C	6666	24		
UH.05.03 (HEADWORKS RM)	15/3	25	621	A	3333	26	15/3	EF.80.01 EXHAUST FAN
		27	621	B	3333	28		
		29	621	C	3333	30		
UH.80.01 (DEWATERING RM)	15/3	31	621	A	3333	32	15/3	EF.05.01 EXHAUST FAN
		33	621	B	3333	34		
		35	621	C	3333	36		
			PHASE A	PHASE B	PHASE C	NOTES:		
CONNECTED VA PER PHASE			30199.0	30199.0	30269.0			
CONNECTED AMPS PER PHASE			109.0	109.0	109.3			
25% OF CONTINUOUS & LIGHTING LOAD (VA)			7549.8	7549.8	7567.3			
CODE VA PER PHASE			37748.8	37748.8	37836.3			
CODE AMPS PER PHASE			136.3	136.3	136.6			

EXISTING PANEL P2A CALCULATIONS

PANEL: P2B		VOLTAGE: 277/480		MAIN CB: 200 AMP		BUS AMPS: 225 AMP		
		BUS A.I.C: 22KA		BKR AIC: 22KA		MOUNTING: SURFACE		
CIRCUIT DESCRIPTION	BKR	CIRCUIT	LOAD	PHASE	LOAD	CIRCUIT	BKR	CIRCUIT DESCRIPTION
DEWATERING ROLL-UP DOOR	15/3	1	500	A	971	2	15/3	80-FV-701-702
		3	500	B	971	4		
		5	500	C	971	6		
HEADWORKS ROLL-UP DOOR	15/3	7	500	A		8	20/3	SPARE
		9	500	B		10		
		11	500	C		12		
CONVEYOR 80-LC-DE	30/3	13	4200	A		14		SPACE
		15	4200	B		16		
		17	4200	C		18		
SPARE	40/2	19		A	1000	20	20/1	LIGHTING - DEWATERING
		21		B		22	20/1	SPARE
LIGHTING - HEADWORKS	20/1	23	1000	C		24	20/1	SPARE
HEAT TRACING	20/1	25	2000	A	1000	26	20/1	LIGHTING - OUTSIDE
HEAT TRACING	15/1	27	2000	B	6666	28	40/3	UNIT HEATER 1 (CONV ROOM)
MPZ	30/2	29	5000	C	6666	30		
		31	5000	A	6666	32		
SPARE		33		B	6666	34	40/3	UNIT HEATER 2 (CONV ROOM)
		35		C	6666	36		
SPARE		37		A	6666	38		
		39		B		40		
		41		C		42		
			PHASE A	PHASE B	PHASE C	NOTES:		
CONNECTED VA PER PHASE			28503.0	21503.0	25503.0			
CONNECTED AMPS PER PHASE			102.9	77.6	92.1			
25% OF CONTINUOUS & LIGHTING LOAD (VA)			7125.8	5375.8	6375.8			
CODE VA PER PHASE			35628.8	26878.8	31878.8			
CODE AMPS PER PHASE			128.6	97.0	115.1			

EXISTING PANEL P2B CALCULATIONS

PANEL:MPZ		VOLTAGE: 120/240		MAIN CB: 50 AMP		BUS AMPS: 100 AMP		
		BUS A.I.C: 22KA		BKR AIC: 22KA		MOUNTING: SURFACE		
CIRCUIT DESCRIPTION	BKR	CIRCUIT	LOAD	PHASE	LOAD	CIRCUIT	BKR	CIRCUIT DESCRIPTION
EXHAUST FAN EF-1	20/1	1	1176	A		2	20/1	SPARE
INTERIOR LIGHTING	20/1	3	500	B		4	20/1	SPARE
EXTERIOR LIGHTING	20/1	5	200	A		6	20/1	SPARE
INSTRUMENT AND CONTROL PLC-DE	20/1	7	500	B		8	20/1	SPARE
SPARE	20/1	9		A		10	20/1	SPARE
RECEPTACLES	20/1	11	540	B		12	20/1	SPARE
			PHASE A		PHASE B	NOTES:		
CONNECTED VA PER PHASE			1376.0		1540.0			
CONNECTED AMPS PER PHASE			11.5		12.8			
25% OF CONTINUOUS & LIGHTING LOAD (VA)			344.0		385.0			
CODE VA PER PHASE			1720.0		1925.0			
CODE AMPS PER PHASE			14.3		16.0			

PANEL 80-MPZ-DE CALCULATIONS



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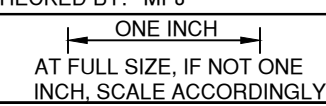
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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

ELECTRICAL - DEWATERING
CALCULATIONS

FILE:
JUB PROJ. #: 93-24-001
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DESIGN BY: JCG
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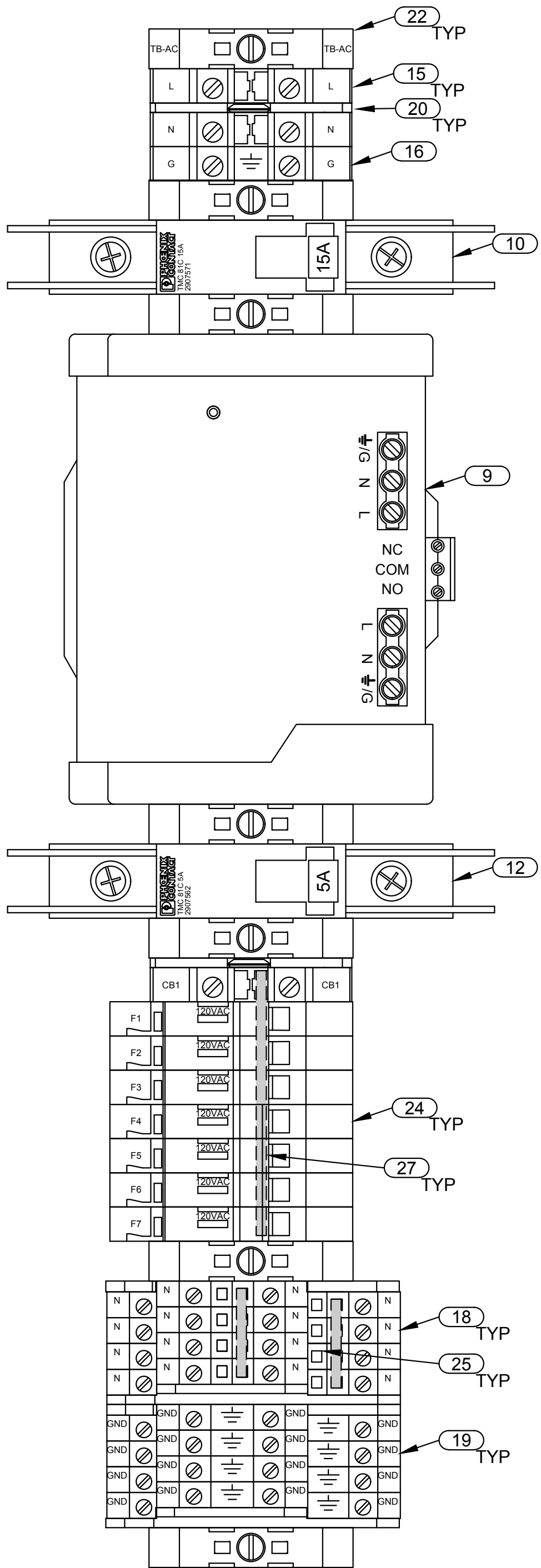
LAST UPDATED: 4/22/2025

DRAWING:
80-E-502

Plot Date: 4/21/2025 5:17 PM Plotted By: Daniel Leavitt
Data Created: 7/3/2025 C:\USERS\DANIEL.LEAVITT\Documents\PROJECT FILES\MODEL ELECTRICAL\INSTRUMENTATION\80-E-602 PLC-DE TYPICAL TERMINAL BLOCK LAYOUTS.DWG

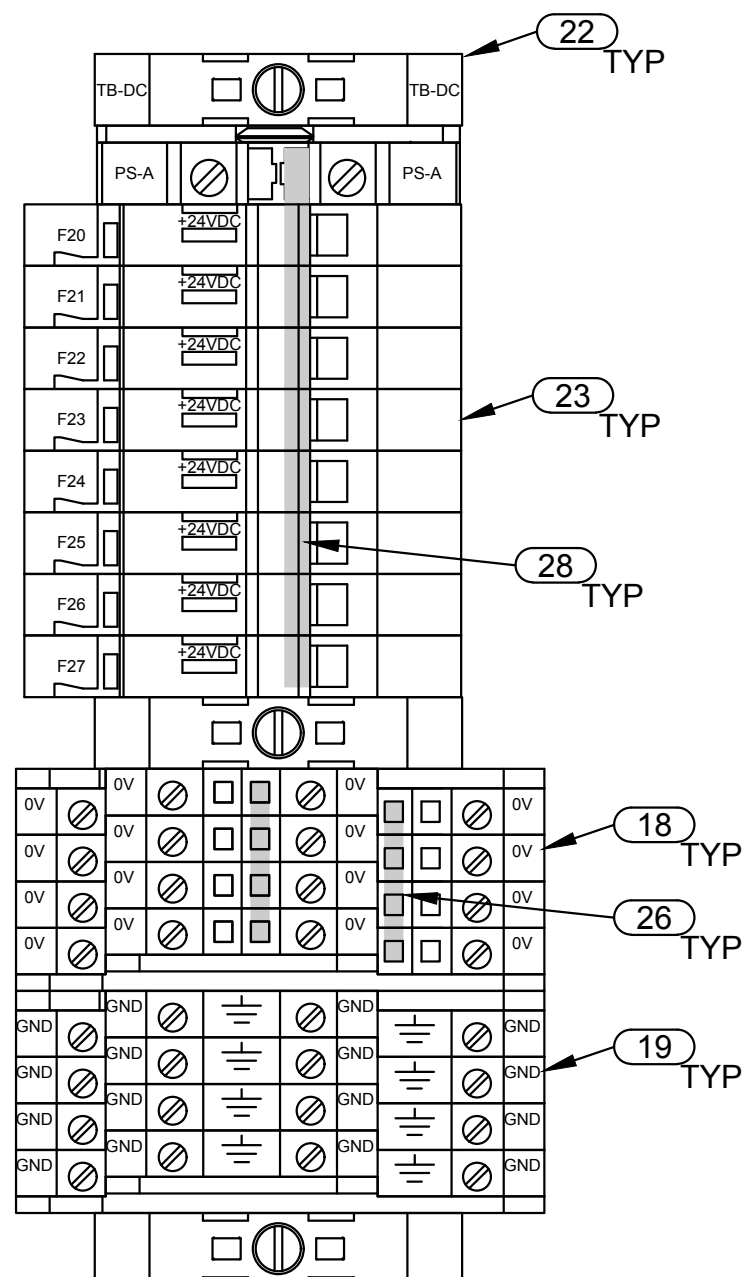
NOTES:

- THESE DETAILS REFLECT THE GENERAL STRATEGY IN LAYING OUT THE TERMINAL BLOCKS. THE ACTUAL LAYOUTS WILL VARY BASED ON THE NUMBER OF COMPONENTS REQUIRED FOR EACH GROUP. PROVIDE A MINIMUM OF 100% SPARE NEUTRAL AND GROUND TERMINALS.
- USE JUMPER BARS TO BUS TOGETHER THE FUSE TERMINALS, NEUTRAL TERMINALS, AND 0V TERMINALS.
- REFER TO SHEET I-01 FOR BILL OF MATERIALS



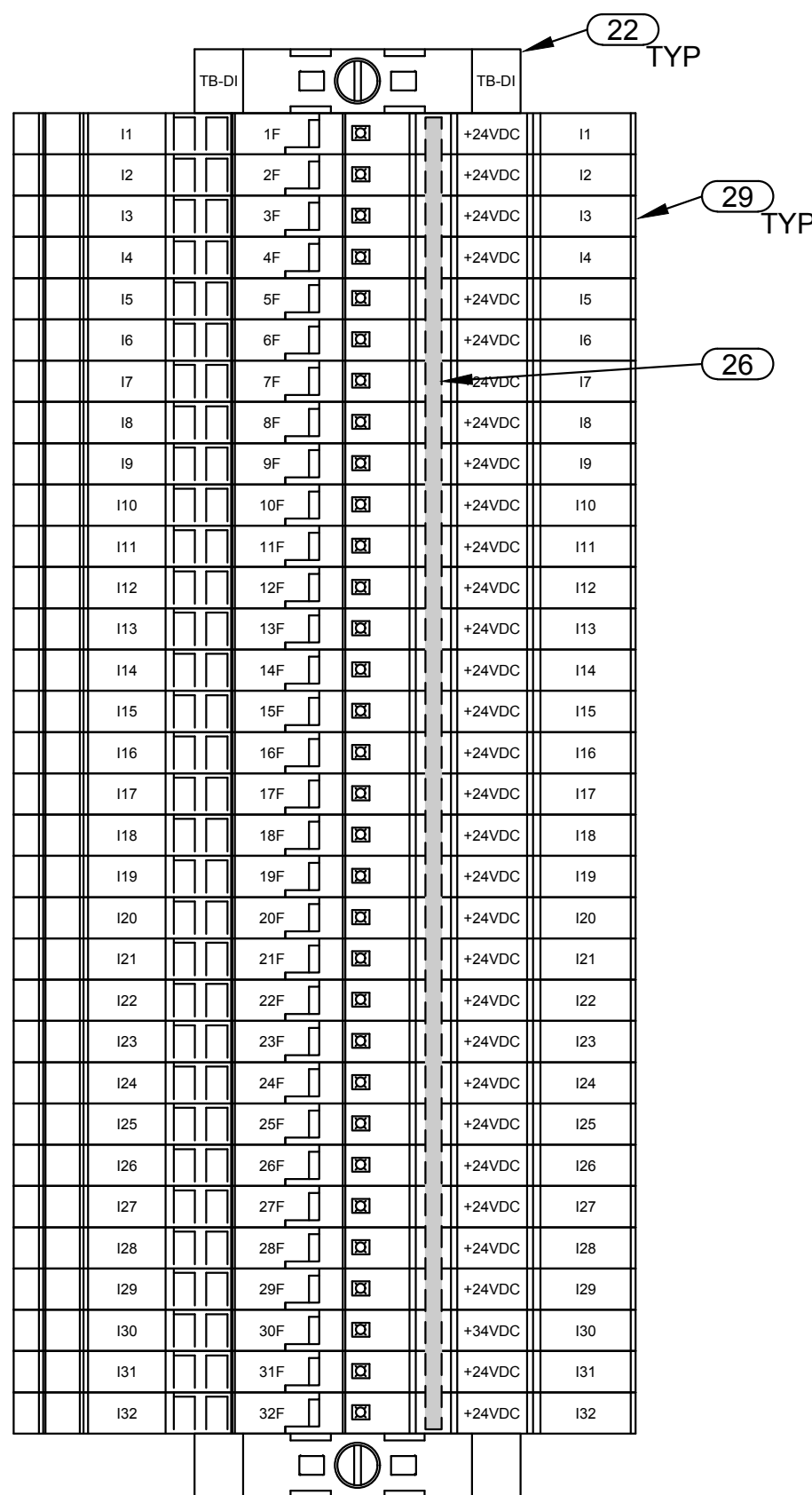
TYPICAL TB-AC
TERMINAL BLOCK LAYOUT

101
TYP



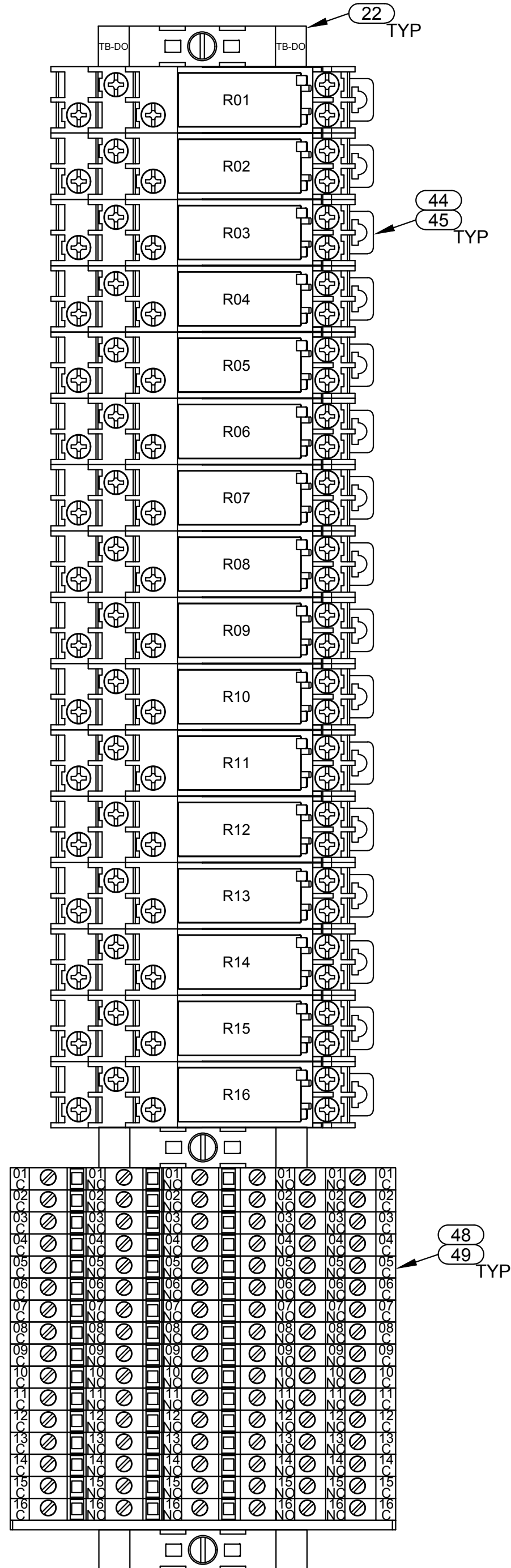
TYPICAL TB-DC
TERMINAL BLOCK LAYOUT

102
TYP



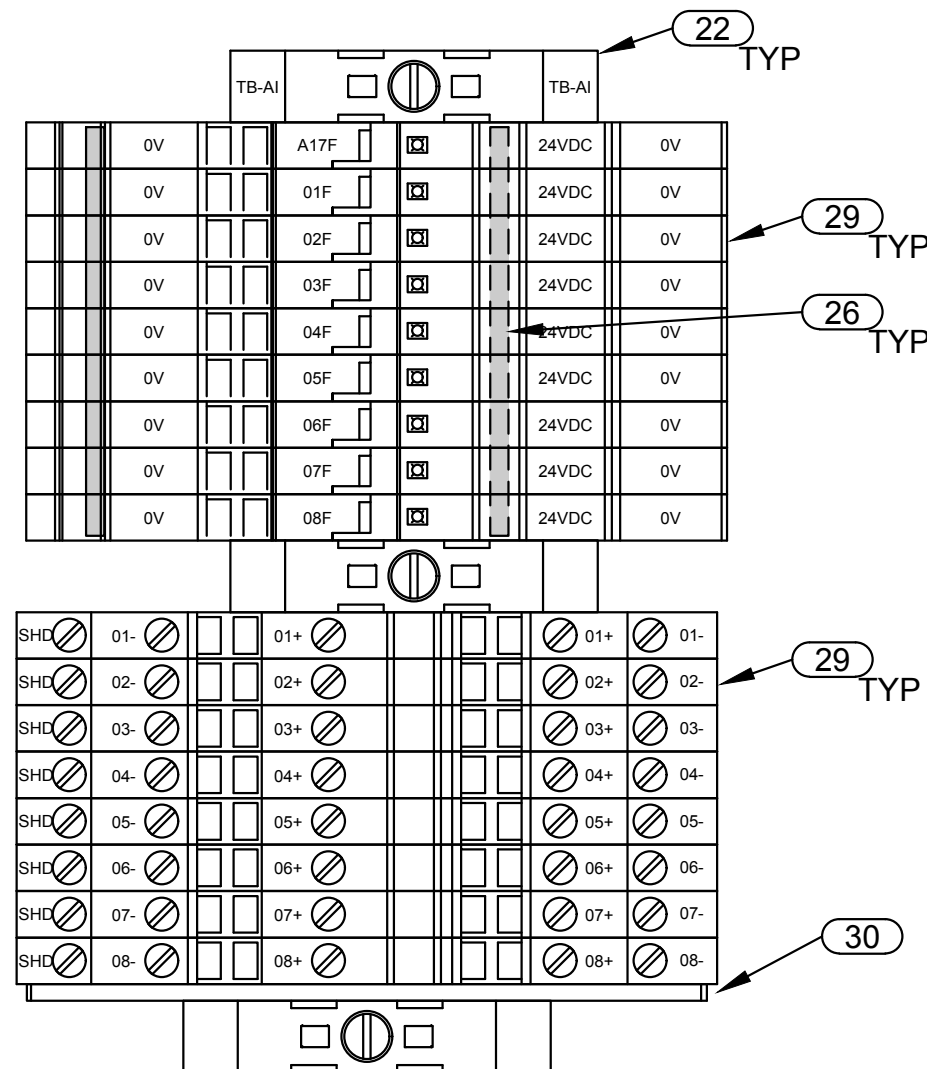
TYPICAL 32PT TB-DI
TERMINAL BLOCK LAYOUT

103
TYP



TYPICAL 16PT TB-RO
TERMINAL BLOCK LAYOUT

106
TYP



TYPICAL 8PT TB-AI
TERMINAL BLOCK LAYOUT

107
TYP



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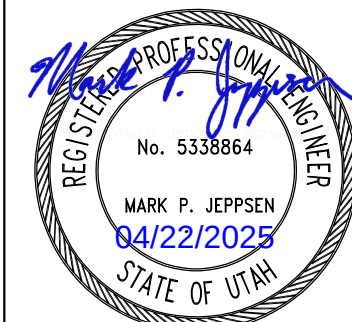
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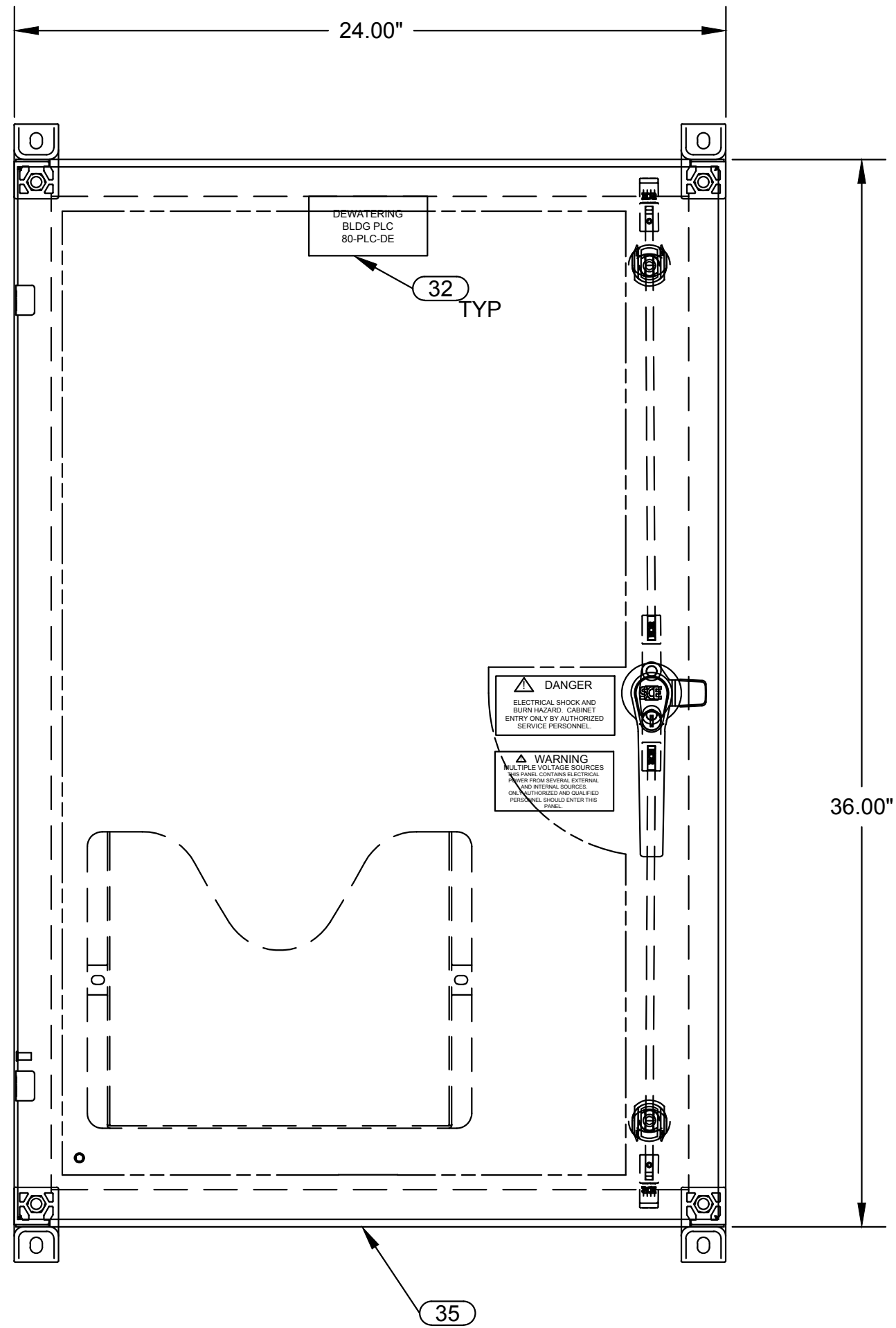
ELECTRICAL - DEWATERING
80-PLC-DE TYPICAL TERMINAL BLOCK LAYOUTS

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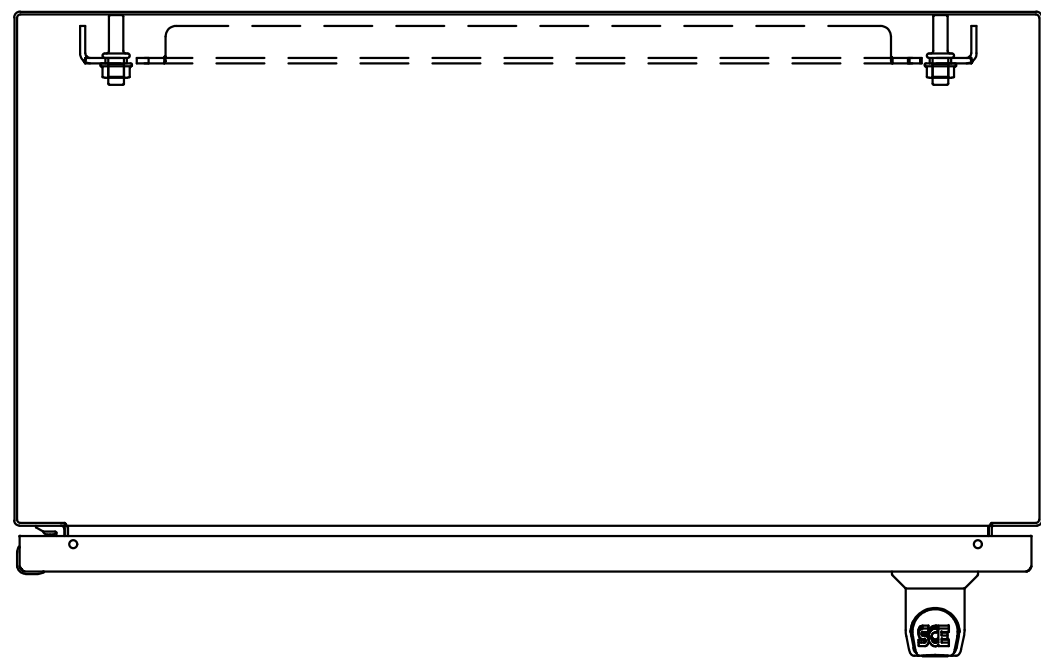
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80-E-602

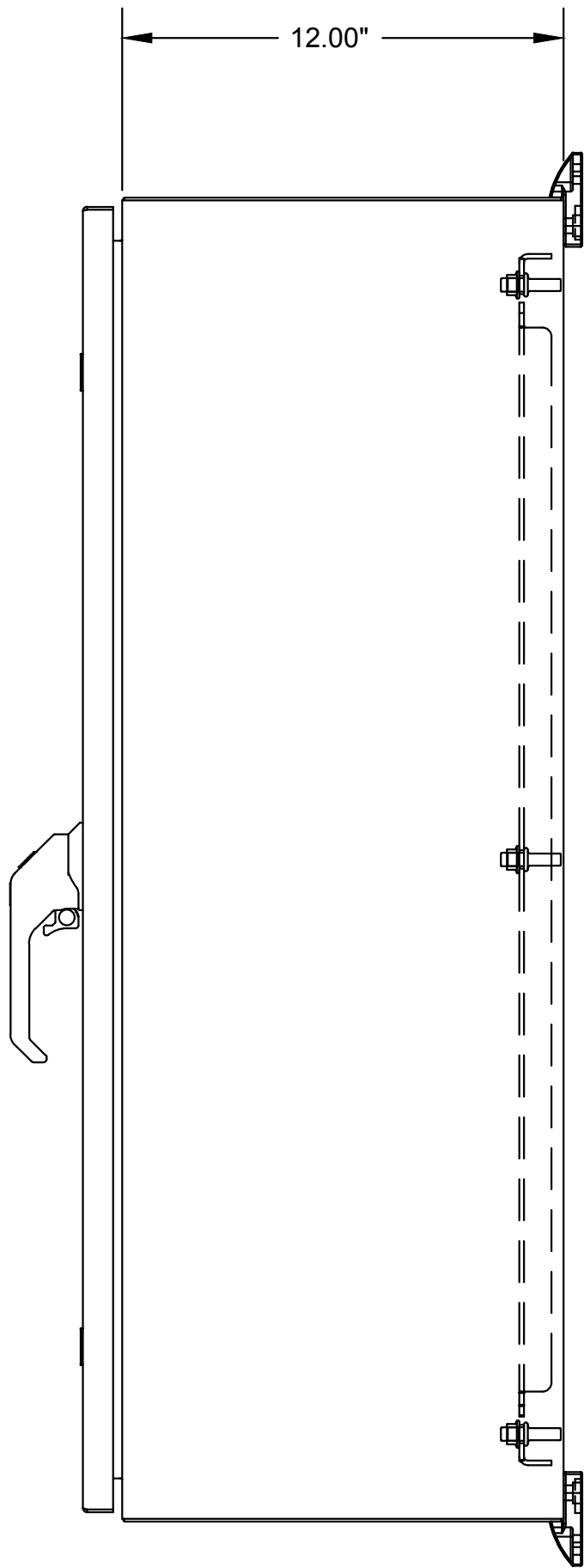
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Date Created:7/3/2025 C:\USERS\DANIEL.LEAVITT\Documents\JUB ENGINEERS INC\PROJECTS\WRF PHASE 3 UPGRADES\PROJECT FILES\MODEL\ELECTRICAL\80-E-603 PLC-DE PLC PANEL LAYOUT.DWG



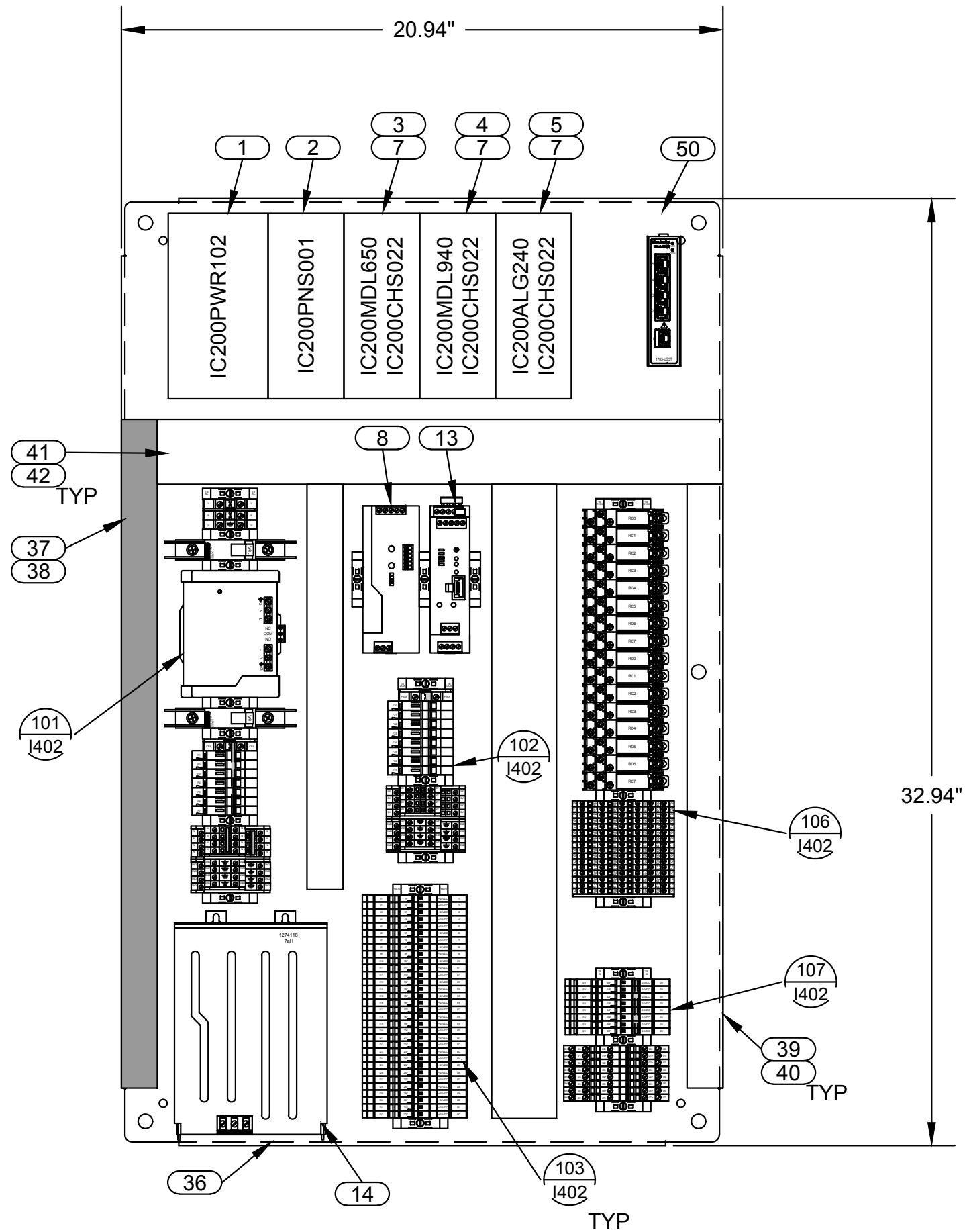
PANEL FRONT VIEW



PANEL TOP VIEW



PANEL SIDE VIEW



BACKPANEL LAYOUT VIEW

DEWATERING
BLDG PLC
80-PLC-DE



DANGER

ELECTRICAL SHOCK AND
BURN HAZARD. CABINET
ENTRY ONLY BY AUTHORIZED
SERVICE PERSONNEL.



WARNING

MULTIPLE VOLTAGE SOURCES
THIS PANEL CONTAINS ELECTRICAL
POWER FROM SEVERAL EXTERNAL
AND INTERNAL SOURCES.
ONLY AUTHORIZED AND QUALIFIED
PERSONNEL SHOULD ENTER THIS
PANEL.

PANEL LABELS



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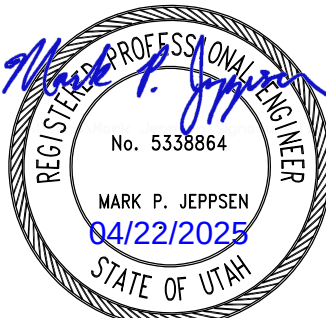
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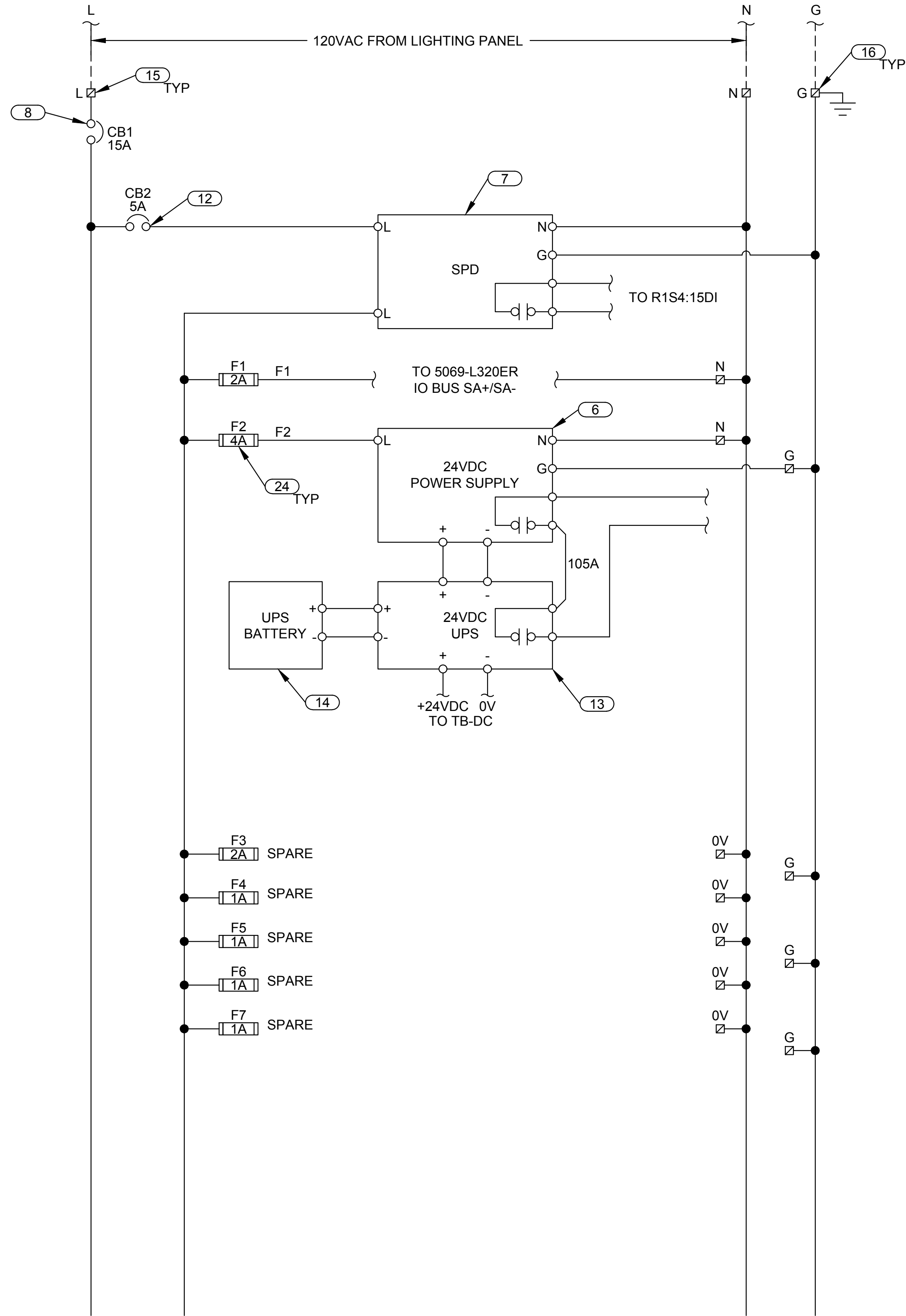
ELECTRICAL - DEWATERING
80-PLC-DE PLC PANEL LAYOUT

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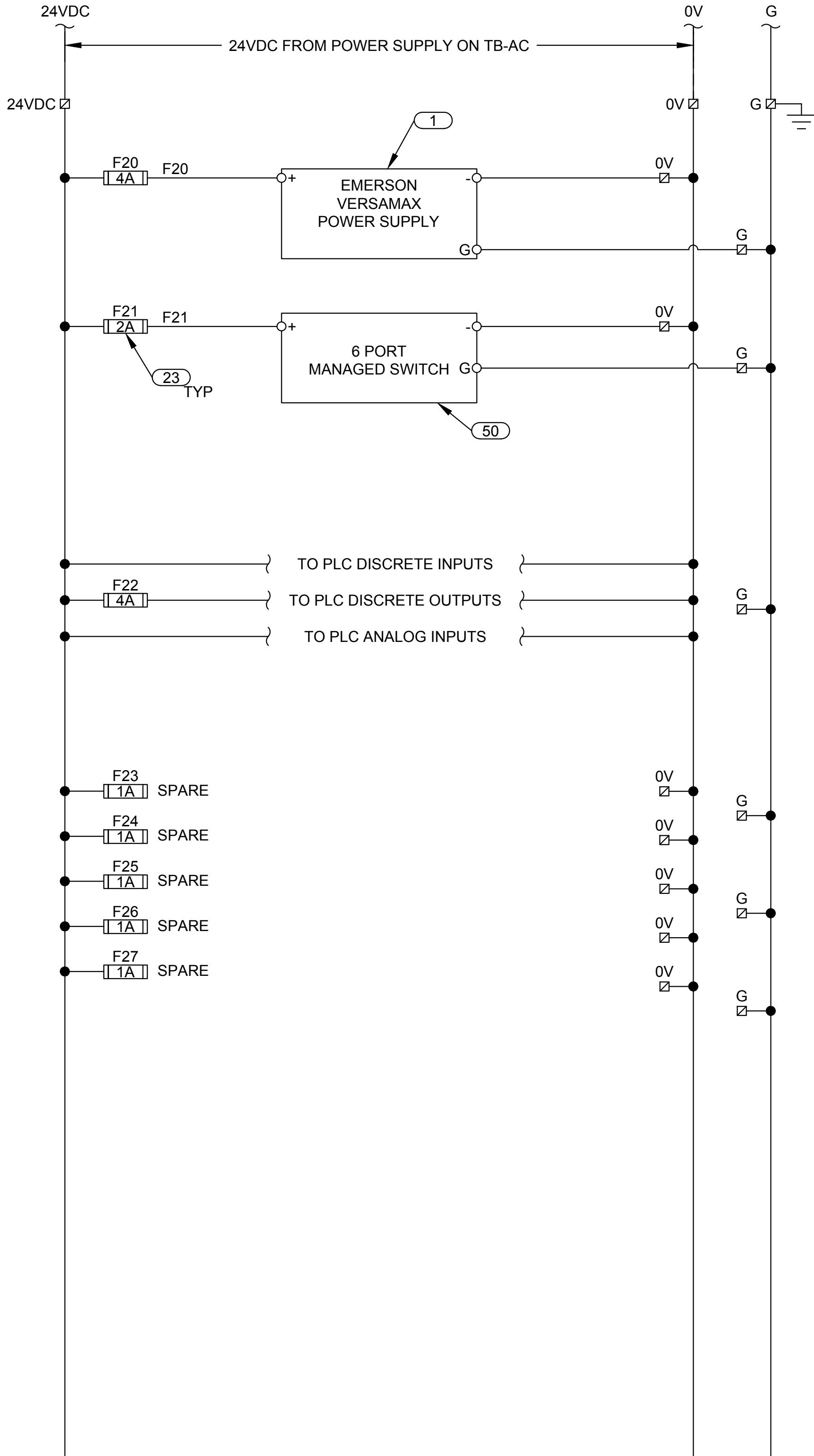
DRAWING:

80-E-603

Plot Date: 4/21/2025 5:17 PM Plotted By: Daniel Leavitt
Date Created: 7/30/2025 C:\USERS\ DANIEL.LEAVITT\DC\ACDC\DCSS\JUB ENGINEERS INC\OPT\SANT AQUIN WRF PHASE 3 UPGRADES\PROJECT FILES\MODEL\ELECTRICAL\80-E-604-PLC-DE TYPICAL AC-DC WIRING DIAGRAMS.DWG



AC POWER WIRING DIAGRAM



DC POWER WIRING DIAGRAM



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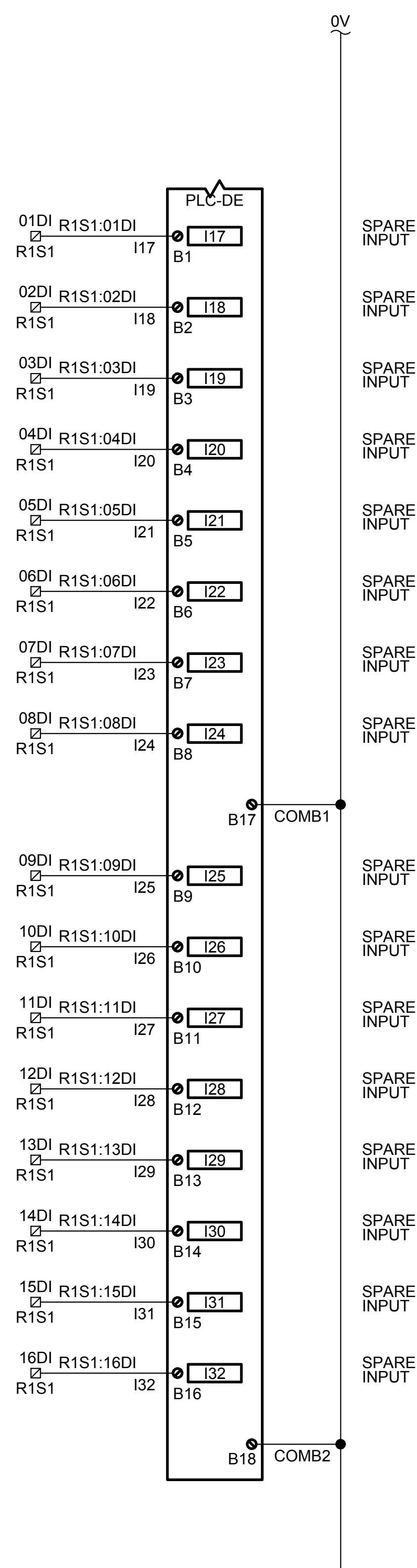
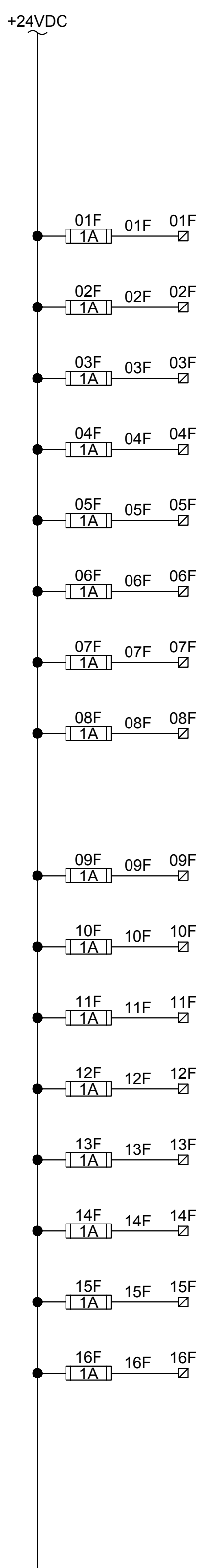
WRF PHASE 3 UPGRADES
SANTAQUIN CITY

ELECTRICAL - DEWATERING
80-PLC-DE TYPICAL AC-DC WIRING DIAGRAMS

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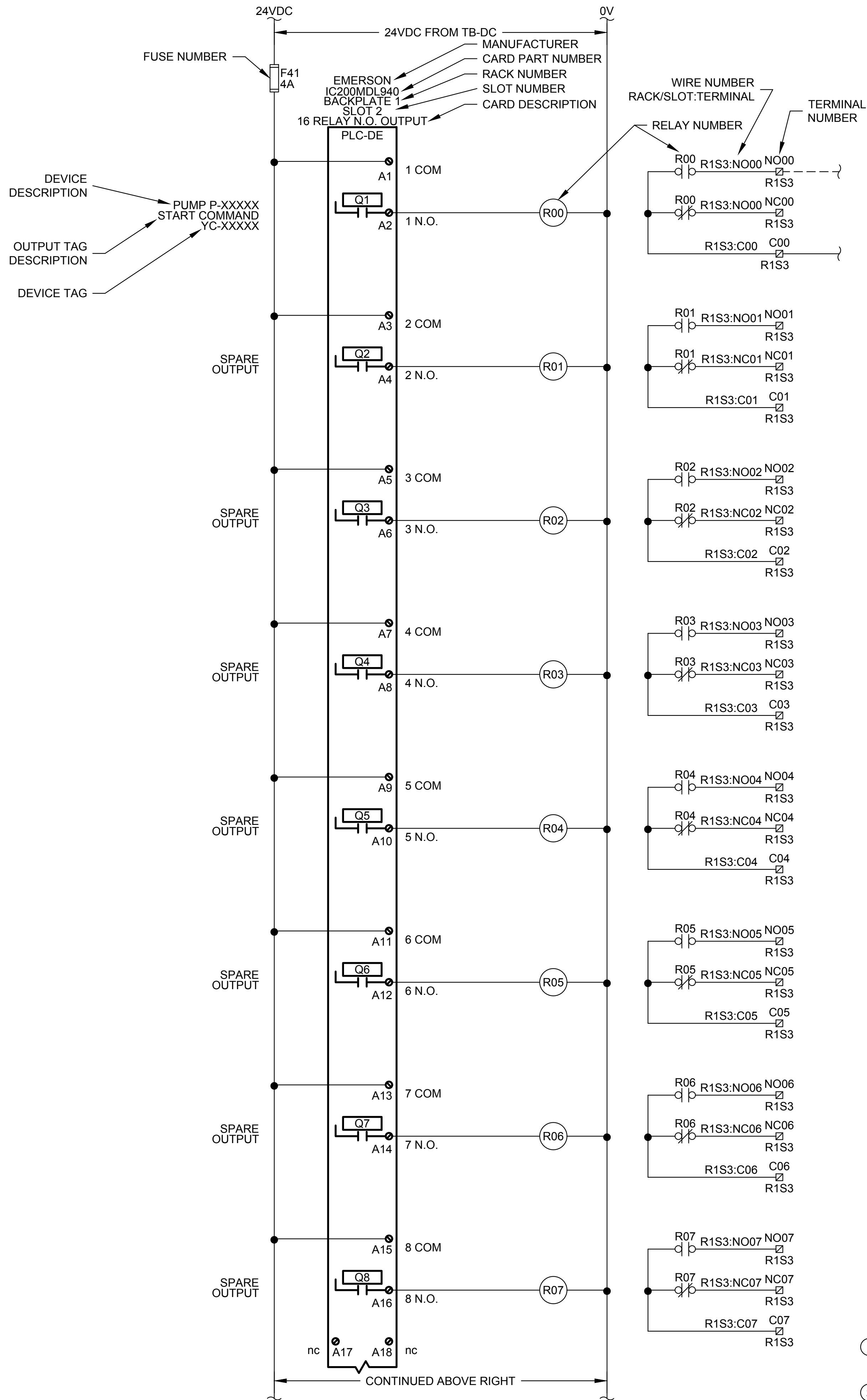
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80-E-604



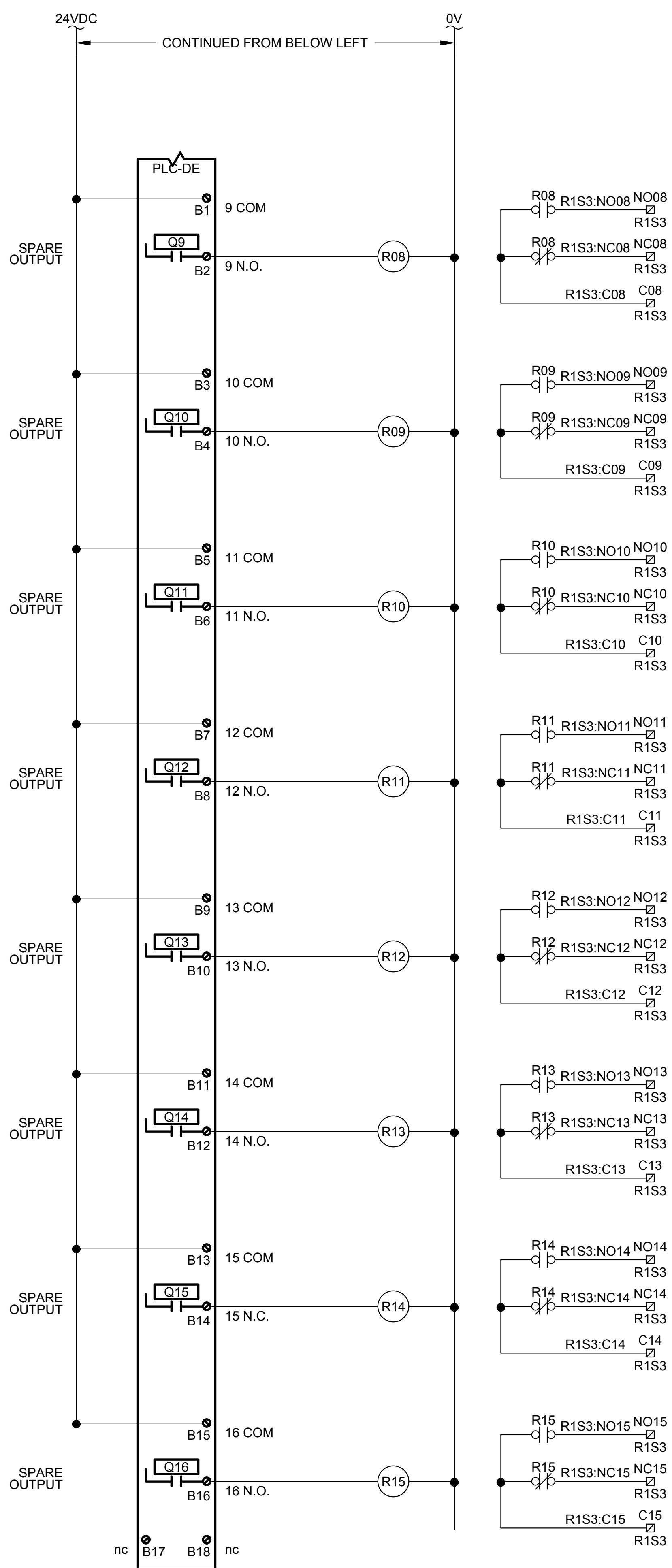
- KEYED NOTES:**
1. TERMINAL BLOCKS SHALL BE ARRANGED BY SLOT AS SHOWN ON DETAIL 103 ON SHEET I402.
 2. POWER FOR DC INPUTS SHALL BE FUSED BY DEVICE AS SHOWN AND SHALL COME FROM TB-DC. FUSE LABELING SHALL BE PER FUSE NUMBERS SEQUENTIALLY USED FROM TB-DC. FOR SPARE INPUTS, PROVIDE A FUSE FOR EVERY SET OF FOUR SPARE INPUTS. JUMPER BARS SHOULD BE USED TO CONNECT THE FUSE TERMINAL BLOCKS AS SHOWN.
 3. FIELD WIRE LABELS SHALL HAVE TO/FROM LABELING.

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KEYED NOTES:

- 1 TERMINAL BLOCKS SHALL BE ARRANGED BY SLOT AS SHOWN ON DETAILS 104 & 106 ON SHEET 1402.
- 2 FIELD WIRE LABELS SHALL HAVE TO/FROM LABELING.



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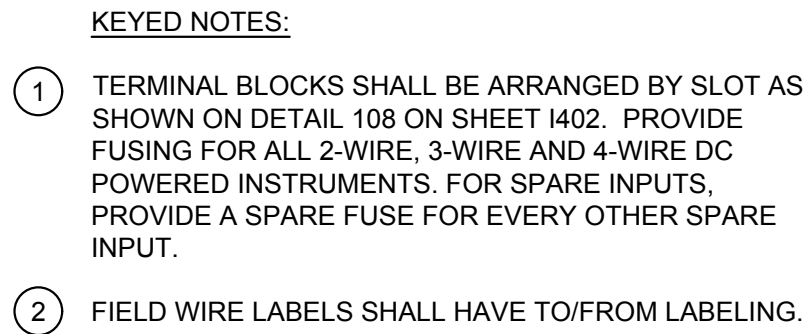
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WRF PHASE 3 UPGRADES
SANTOQUIN CITY

ELECTRICAL - DEWATERING
80-PLC-DE TYPICAL DISCRETE OUTPUTS WIRING DIAGRAM

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LAST UPDATED: 4/21/2025
DRAWING:

80-E-606



Plot Date: 4/22/2025 10:16 AM Plotted By: Daniel Leavitt
Date Created: 2/12/2024 C:\USERS\ DANIEL.LEAVITT\Documents\PROJECT FILES\MODELELECTRICAL\INSTRUMENTATION\80-E-701 DEWATERING CONDUIT SCHEDULE.DWG

POWER CONDUIT							
CONDUIT	SIZE	CONDUCTORS	SERVICE	FROM	TO	DUCTBANKS	NOTES
P-80-50	3/4"	2 #10 W/ #12 GND	480VAC	PANEL P2B	80-MPZ-DE		
P-80-51	3/4"	3 #10 W/ #12 GND	480VAC	PANEL P2B	80-LCP-DE		
P-80-54	1"	3 #8 W/ #12 GND	480VAC	PANEL P2B	UNIT HEATER 1		
P-80-55	1"	3 #8 W/ #12 GND	480VAC	PANEL P2B	UNIT HEATER 2		
P-80-56A	3/4"	3 #12 W/ #12 GND	480VAC	80-LCP-DE	80-CONV-712		
P-80-56B	3/4"	3 #12 W/ #12 GND	480VAC	80-LCP-DE	80-CONV-725		
P-80-57	3/4"	2 #12 W/ #12 GND	120VAC	80-MPZ-DE	80-PLC-DE		
P-80-58	3/4"	2 #12 W/ #12 GND	120VAC	80-MPZ-DE	EF-1		THROUGH EF-1 CONTROL BOX
P-80-59	3/4"	2 #12 W/ #12 GND	120VAC	80-MPZ-DE	INTERIOR LIGHTING		
P-80-60	3/4"	2 #12 W/ #12 GND	120VAC	80-MPZ-DE	EXTERIOR LIGHTING		
P-80-61	3/4"	2 #12 W/ #12 GND	120VAC	80-MPZ-DE	RECEPTACLES AND CO MONITOR		
P-80-62	3/4"	2 #12 W/ #12 GND	120VAC	80-PLC-DE	CAMERA NORTH		
P-80-63	3/4"	2 #12 W/ #12 GND	120VAC	80-PLC-DE	CAMERA SOUTH		
CONTROL CONDUIT							
C-80-50	3/4"	4 #14 W/ #14 GND	LOOP - 24VDC	80-LCP-DE	CONVEYOR 1 80-TSH-715 & 80-SSL-715		
C-80-51	3/4"	4 #14 W/ #14 GND	LOOP - 24VDC	80-LCP-DE	CONVEYOR 2 80-TSH-725 & 80-SSL-725		
C-80-57	3/4"	2 #14 W/ #14 GND	LOOP - 24VDC	80-LCP-DE	CONVEYOR 1 80-HS-715		
C-80-58	3/4"	2 #14 W/ #14 GND	LOOP - 24VDC	80-LCP-DE	CONVEYOR 2 80-HS-725		
C-80-60	1.5"	22 #14 W/ #12 GND	LOOP - 24VDC	80-LCP-DE	80-PLC-DE		
C-80-61	1"	8 #14 W/ #14 GND	LOOP - 24VDC	80-LCP-DE	HUBER PRESS CONTROL PANEL		
C-80-62	1"	8 #14 W/ #14 GND	LOOP - 24VDC	80-LCP-DE	FKC PRESS CONTROL PANEL		
C-80-63	1"	6 #14 W/ #14 GND	LOOP - 24VDC	EF-1 CONTROL BOX	80-PLC-DE		
SIGNAL CONDUIT							
S-80-50	3/4"	1 #18 TSP	4-20mA	80-PLC-DE	80-TT-DE		
COMMUNICATION CONDUIT							
F-80-50	3/4"	1 CAT 6 SHIELDED ETHERNET CABLE	COMMS	80-PLC-DE	DEWATERING REMOTE IO PANEL 80-RIO		
F-80-51	3/4"	1 CAT 6 SHIELDED ETHERNET CABLE	COMMS	80-PLC-DE	CAMERA NORTH		
F-80-52	3/4"	1 CAT 6 SHIELDED ETHERNET CABLE	COMMS	80-PLC-DE	CAMERA SOUTH		

CONDUIT SCHEDULE

INSTRUMENT SCHEDULE						
TAG	DESCRIPTION	MAKE	MODEL	SUPPLY	RANGE	COMMENTS
TBD	CARBON MONOXIDE DETECTORS	KIDDIE	HARDWIRED, WIRELESS INTERCONNECT	120VAC		OR APPROVED EQUAL
TBD	NORTH AND SOUTH CAMERAS	NEST	GOOGLE	120VAC OR 24VDC		WIFI ENABLED, OR APPROVED EQUAL
80-HS-715	CONVEYOR 1 PULL CORD	MFG	BY MANUFACTURER	24VDC - LOOP		
80-HS-725	CONVEYOR 2 PULL CORD	MFG	BY MANUFACTURER	24VDC - LOOP		
80-TSH-715	CONVEYOR 1 TEMP HIGH SWITCH	MFG	BY MANUFACTURER	24VDC - LOOP		
80-TSH-725	CONVEYOR 2 TEMP HIGH SWITCH	MFG	BY MANUFACTURER	24VDC - LOOP		
80-SSL-715	CONVEYOR 1 SPEED LOW SWITCH	MFG	BY MANUFACTURER	24VDC - LOOP		
80-SSL-725	CONVEYOR 2 SPEED LOW SWITCH	MFG	BY MANUFACTURER	24VDC - LOOP		
80-TT-715	BUILDING TEMPEARTURE TRANS	DWYER	BTT-N00-3	24VDC - LOOP	0 - 122 F	

INSTRUMENTATION SCHEDULE



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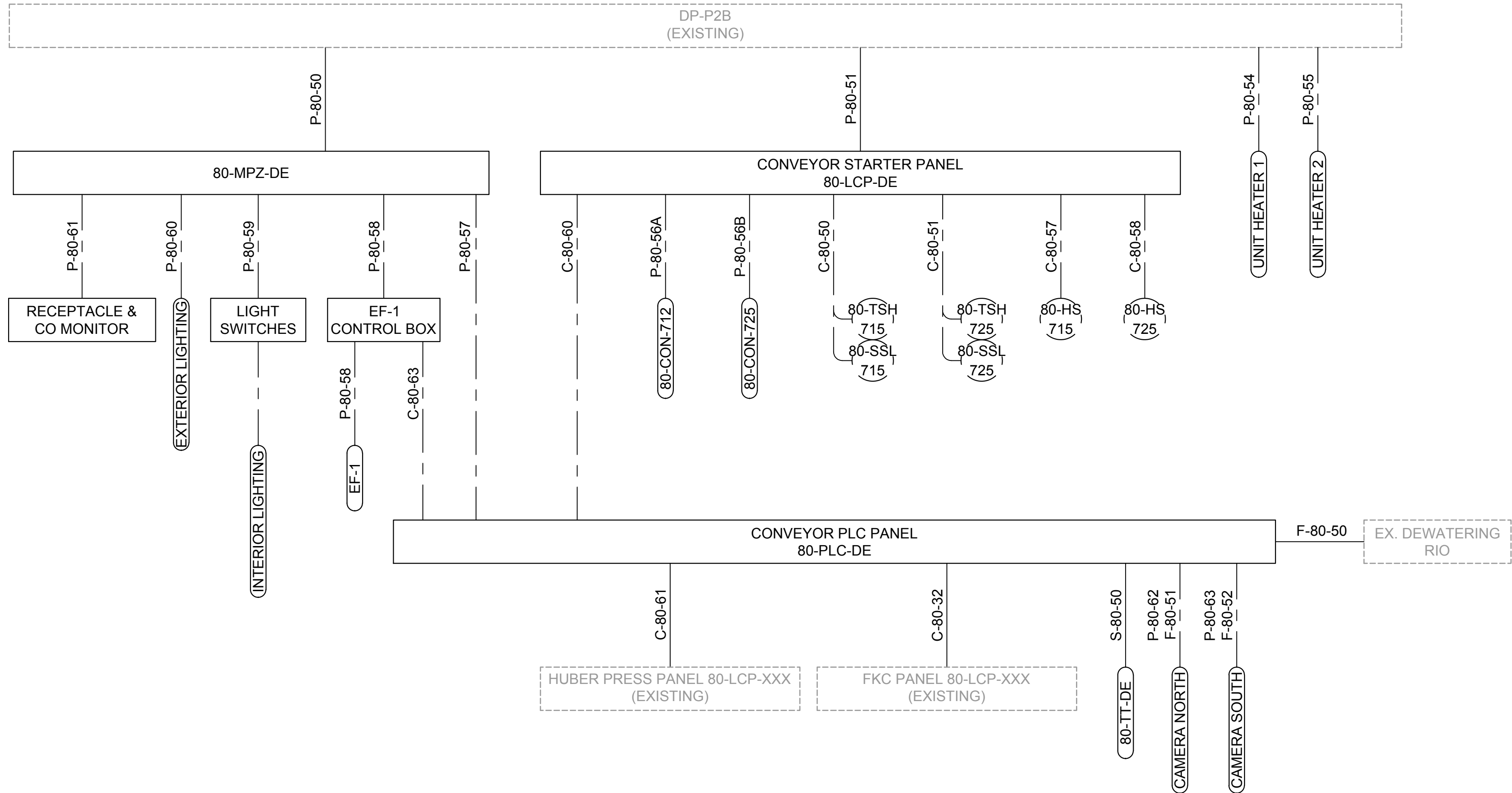
ELECTRICAL - DEWATERING
CONDUIT AND INSTRUMENT SCHEDULES

FILE :
JUB PROJ. # : 93-24-001
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DESIGN BY: JCG
CHECKED BY: MPJ
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DRAWING:

80-E-701

Plot Date: 4/22/2025 5:22 AM Plotted By: Daniel Leavitt
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CONDUIT DEVELOPMENT



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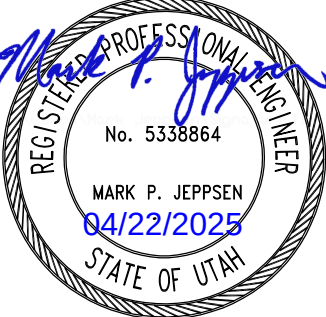
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SANTAQUIN CITY**

**ELECTRICAL - DEWATERING
CONDUIT DEVELOPMENT**

FILE :
JUB PROJ. # : 93-24-001
DRAWN BY: EGK / DCL
DESIGN BY: JCG
CHECKED BY: MPJ

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 4/22/2025

DRAWING:
80-E-702