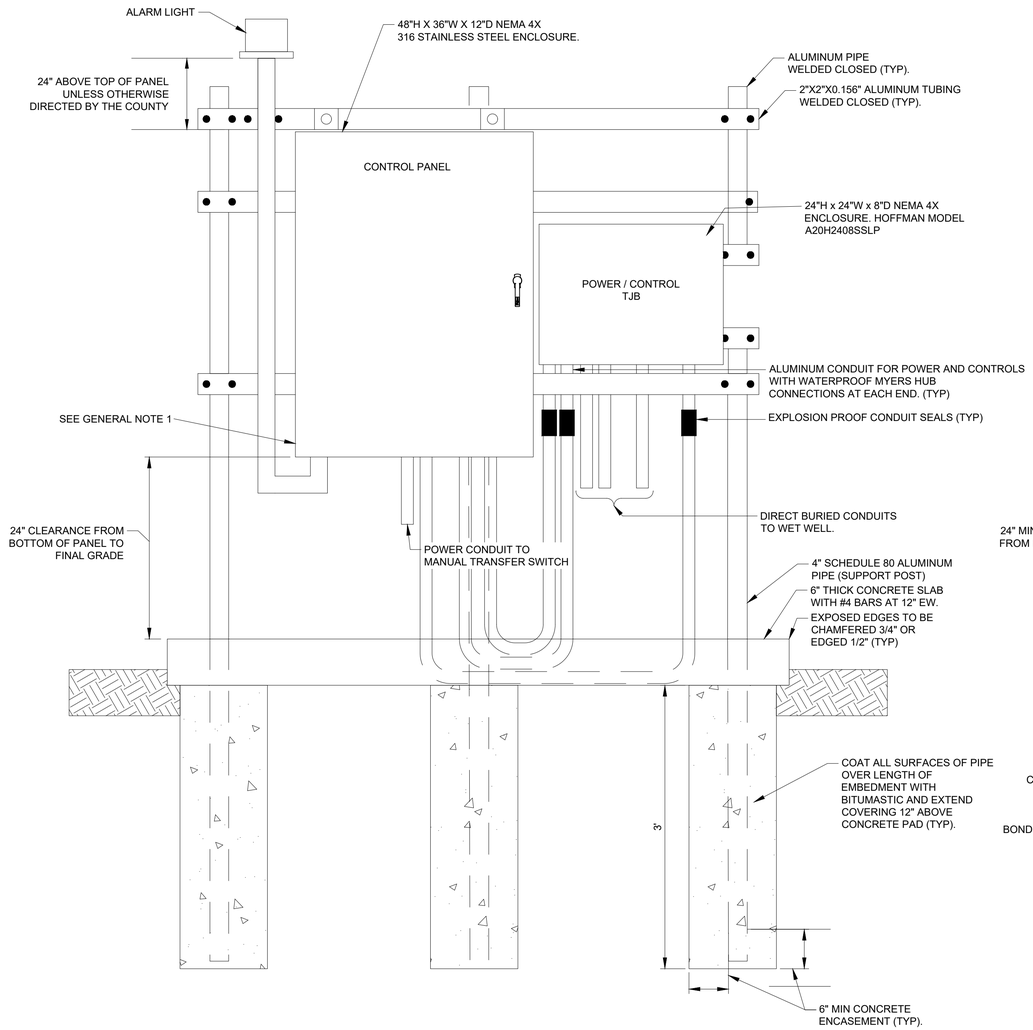
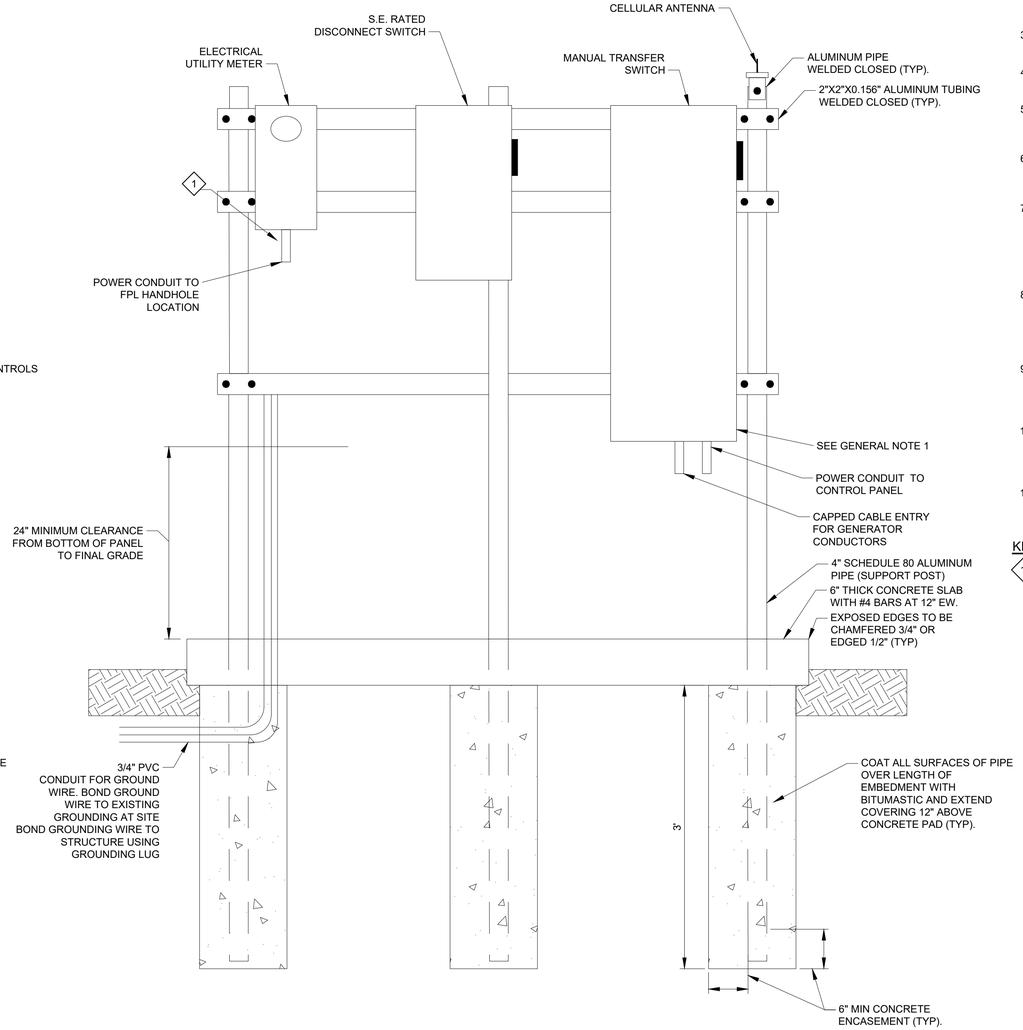


CONTROL PANEL RACK INSTALLATION LAYOUT - FRONT ELEVATION



CONTROL PANEL RACK INSTALLATION LAYOUT - BACK ELEVATION

GENERAL NOTES:

1. ALL CONDUIT PENETRATIONS SHALL BE LOCATED AT THE BOTTOM OF THE ENCLOSURE. NO TOP, SIDE, FRONT OR REAR PENETRATIONS ALLOWED.
2. WITHOUT EXCEPTION ALL CONDUIT CONNECTIONS TO ENCLOSURES SHALL USE MYER HUBS. SILCONE SEALANT FOR CONDUIT CONNECTIONS TO PANELS IS NOT ACCEPTABLE.
3. ANY UNUSED HOLES IN PANELS SHALL BE SEALED USING MYER HUBS WITH A THREADED CONDUIT PLUG.
4. PACK ALL CONDUIT ENDS INSIDE OF PANELS USING DUCT SEAL.
5. THE INSIDE DIAMETER (I.D.) OF THE SLEEVE SHALL BE NO MORE THAN 1/16" LARGER THAN THE OUTSIDE DIAMETER (O.D.) OF THE 4" SCHEDULE 80 ALUMINUM PIPE.
6. THE U-BOLTS SHALL BE SLEEVED. THE SLEEVE BOLTS SHALL BE 1/2" DIAMETER WITH LOCKNUTS. THE BOLTS SHALL BE STAINLESS STEEL (316SS).
7. FOR STATIONS LOCATED IN VEHICULAR CLEAR ZONES, BOLLARDS SHALL BE BREAK-AWAY. THE BASE BOLTS, NUTS AND WASHERS SHALL BE HIGH STRENGTH ASTM A-325 AND SHALL HAVE AN ELECTROPLATED ZINC COATING SC3 TYPE II APPLIED IN ACCORDANCE WITH ASTM -633.
8. USE ALUMINUM SHIMS TO OBTAIN TIGHT FIT BETWEEN THE 4" SCHEDULE 80 PIPE FACE AND THE SLEEVE. PLACE SHIMS IN ALL QUADRANTS BETWEEN THE 1/2" DIAMETER SLEEVE BOLTS. THE SHIM LENGTH SHALL BE 1" SHORTER THAN THE HEIGHT OF THE SLEEVE.
9. PROVIDE ALUMINUM CONDUIT FOR ALL ABOVE GRADE OR EXPOSED INSTALLATIONS. PROVIDE BITUMASTIC COATED ALUMINUM CONDUIT FOR ALL ABOVE GRADE TO BELOW GRADE TRANSITIONS AND ALL BELOW GRADE ELBOWS.
10. CONTRACTOR SHALL ENSURE CONTROL PANEL IS SUPPLIED AND INSTALLED IN ACCORDANCE WITH SARASOTA COUNTY SPECIFICATIONS, INCLUDING BUT NOT LIMITED TO SECTION 16050, 16075, 17050, 17722 AND 17950.
11. ALL CABINETS SHALL BE 316SS, INCLUDING MAIN DISCONNECT. THIS DOES NOT INCLUDE MANUAL TRANSFER SWITCH.

KEY NOTES:

1. TERMINATE GROUND CONDUCTOR TO ELECTRICAL UTILITY METER AND CONNECT FACILITY GROUND TO ALL ELECTRICAL ENCLOSURES AND ASSOCIATED ELECTRICAL EQUIPMENT GROUND BUS. GROUND ELECTRICAL UTILITY METER AND SERVICE IN ACCORDANCE WITH LOCAL UTILITY REQUIREMENTS. VERIFY GROUND RESISTANCE OF ALL CONNECTIONS TO GROUND IS LESS THAN 5 OHMS.

REV	DATE	BY	DESCRIPTION

DESIGNED RD
DRAWN KMM
CHECKED RD
DATE JANUARY 2025

RICHARD DeFREITAS LICENSE No 69196 STATE OF FLORIDA PROFESSIONAL ENGINEER

Richard DeFreitas
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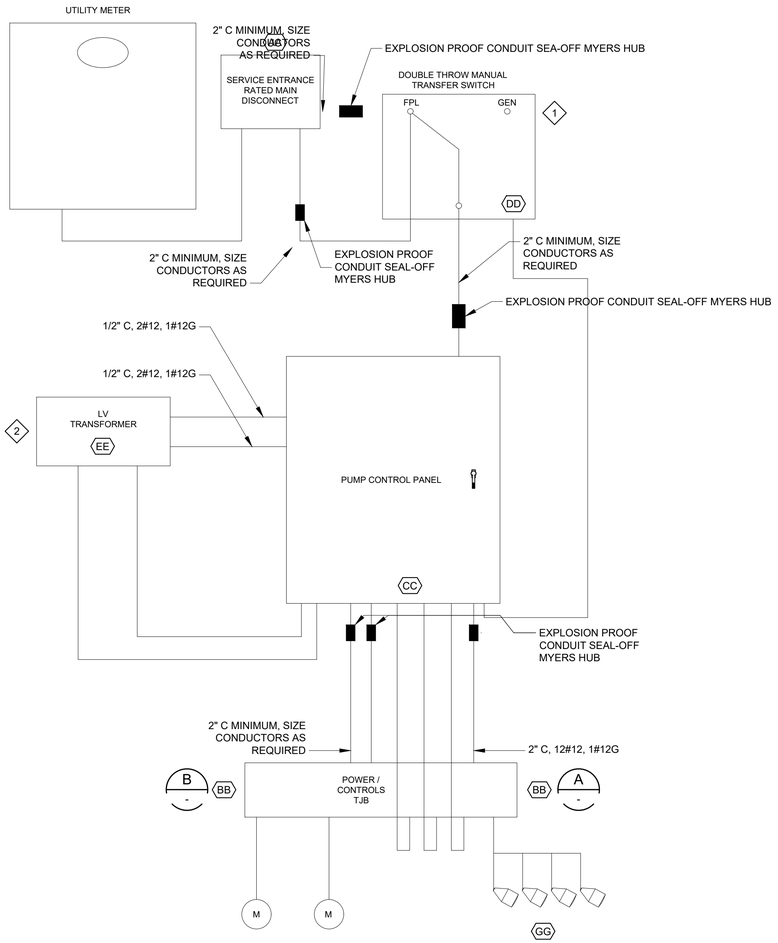
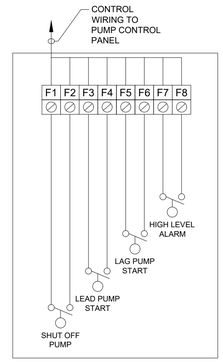
SARASOTA COUNTY
SCADA STANDARDS
ELECTRICAL
DEVELOPER LS - LIFT STATION CONTROL
PANEL RACK MOUNTING DETAIL

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

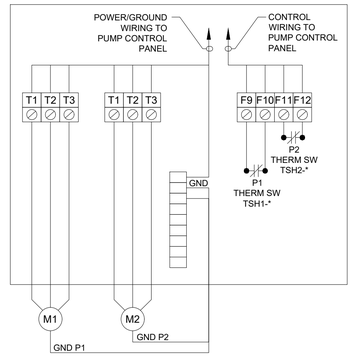
JOB NO. 11572A10
DRAWING NO. 18E01
SHEET NO. 1 OF 16



LIFT STATION RISER DIAGRAM



A - CONTROLS TERMINAL LAYOUT



B - POWER TERMINAL LAYOUT

GENERAL NOTES:

1. SIZE ALL EQUIPMENT, WIRE, AND CONDUIT BASED ON ACTUAL LIFT STATION EQUIPMENT LOADS.
2. COORDINATE ELECTRIC UTILITY SERVICE WITH LOCAL ELECTRICAL SERVICE PROVIDER.
3. PROVIDE EXPLOSION PROOF CONDUIT SEALS BETWEEN JUNCTION BOXES AND THE CONTROL PANEL.

KEY NOTES:

1. PROVIDE ENTRY FOR PORTABLE GENERATOR CONDUCTORS AND CAP ENTRY WITH THREADED WATER TIGHT MYERS HUB WITH THREADED NIPPLE AND CAP MATCHING THE MATERIAL OF THE DOUBLE THROW SWITCH.
2. PROVIDE EXTERNALLY MOUNTED 480V/120V SINGLE PHASE TRANSFORMER FOR ALL 480VAC SYSTEMS. SIZE TRANSFORMER AS REQUIRED MINIMUM 750 VA. SIZE CONDUIT AND CONDUCTORS AS REQUIRED.

BILL OF MATERIALS

ITEM	QUANTITY	DESCRIPTION
AA	1	ELECTRICAL SERVICE - PROVIDE SERVICE METER WITH 100 AMPERE (MINIMUM) SLOW-BLOW FUSED MAIN DISCONNECT, PADLOCKABLE IN BOTH THE "ON" AND "OFF" POSITION. METER SHALL MEET LOCAL CODE AND POWER UTILITY REQUIREMENTS AND SHALL HAVE A MANUAL BY-PASS SWITCH. SURGE ARRESTORS APPROPRIATE TO THE SERVICE VOLTAGE AND PHASE CONFIGURATION SHALL ALSO BE PROVIDED ON THE MAIN DISCONNECT. MAIN DISCONNECT SWITCHES SHALL BE AS FOLLOWS WITHOUT EXCEPTION: 240 VOLTS, 3PH — SQUARE D NEMA 4X, 316SS 240 VOLTS, 3PH (GREATER THAN 100 AMPS) — SQUARE D NEMA 4X, 316SS 208 VOLTS, 3PH — SQUARE D NEMA 4X, 316SS 208 VOLTS, 3PH (GREATER THAN 100 AMPS) — SQUARE D NEMA 4X, 316SS 480 VOLTS, 3PH (100 AMPS) — SQUARE D NEMA 4X, 316SS 480VOLTS, 3PH (GREATER THAN 100 AMPS) — SQUARE D NEMA 4X, 316SS
BB	1	316 STAINLESS STEEL JUNCTION BOX HINGED, PADLOCKABLE 24"H X 24"W X 8"D WITH BACK PLATE AND COMPRESSION TYPE TERMINAL STRIP FOR CONNECTION OF LEVEL CONTROLS AND INSTRUMENTS TO THE RTU PANEL AND PUMP POWER CORDS FROM THE MOTOR CONTROL PANEL. HOFFMAN MODEL A20H2408SS6LP, WITH A-PLKJIC PADLOCK KIT. OR EQUAL. JUNCTION BOX SHALL HAVE A GROUND BUS BAR WITH 9 TERMINALS AT MINIMUM. BOX SHALL BE PROVIDED WITH METALLIC, GROUNDED VOLTAGE BARRIER. A LAMINATED WIRING DIAGRAM OF JUNCTION BOX TERMINAL CONNECTIONS SHALL BE PROVIDED IN A PERMANENT SLEEVE ATTACHED TO COVER. SEE DETAIL A AND B THIS SHEET.
CC	1	PUMP CONTROL PANEL 48" HIGH, 36"WIDE, AND 12"DEEP (EXCLUDING DOOR DEPTH). WALL MOUNTED CABINET SHALL BE CONSTRUCTED EXCLUSIVELY OF 316 STAINLESS STEEL, 14 GAUGE (MINIMUM) WITH CONTINUOUS WELDS THROUGHOUT. REFER PUMP CONTROL PANEL DRAWINGS FOR DETAILS.
DD	1	DOUBLE THROW SWITCH, NON-FUSIBLE FOR MOTOR CONTROL PANEL NEMA 4X, 316SS, 3 POLE, UL LISTED, PADLOCKABLE. 240V OR 480V, 100AMPS MINIMUM: SQUARE D NO. DTU323RB WITH NEUTRAL / GROUNDING KIT
EE	1 AS REQUIRED	LOW VOLTAGE TRANSFORMER, 480V PRIMARY AND 240/120V SECONDARY SINGLE PHASE, SEALED, GENERAL PURPOSE, DRY TYPE. PROVIDE NEMA 4X, 316SS AND UL 1561 LISTED TRANSFORMER WITH SQUARE D, CLASS 7400.
GG	4	BALL FLOAT SWITCHES - ANCHOR SCIENTIFIC ROTO-FLOAT. ENCAPSULATED BODY WITH A SWITCH TO DETERMINE POSITION OF FLOAT. PROVIDE SWITCHES WITH HERMETICALLY SEALED CONTACTS SUITABLE FOR CLASSIFIED LOCATIONS. INSTALL ON WETWELL CABLE RACK.

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SCADA STANDARDS
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LIFT STATION RISER DIAGRAM-1

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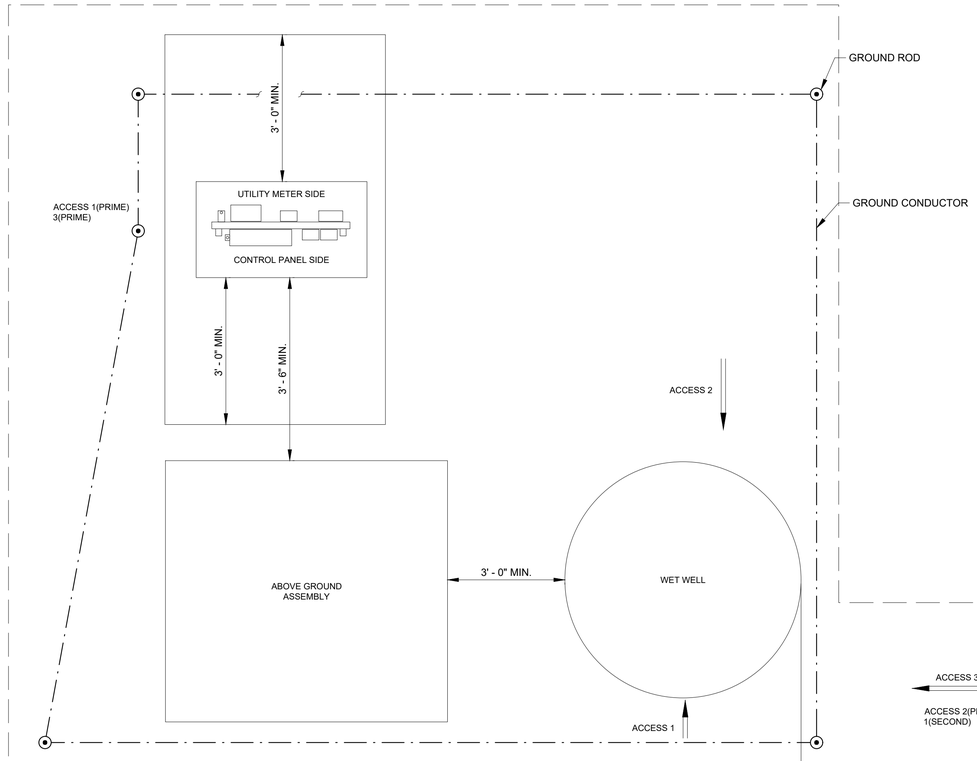
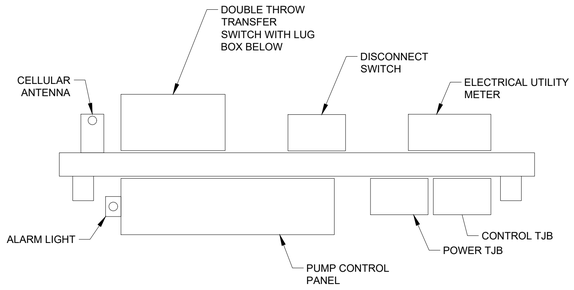
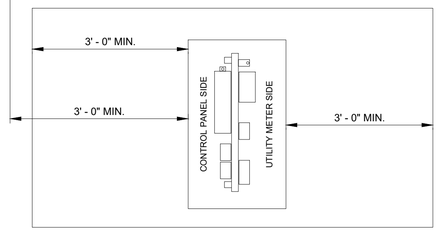
DRAWING NO. 18E02
SHEET NO. 2 OF 16





CONTROL PANEL RACK PLAN VIEW



MOUNTING PREFERENCES

NO SCALE
NOTES:

1. PRIME: PREFERRED INSTALLATION LOCATION.
   SECOND: ALTERNATE INSTALLATION LOCATION.
2. ACCESS DIRECTION IS FROM STREET.
3. GROUNDING IS SHOWN FOR THE PREFERRED INSTALLATION LOCATION. ADJUST GROUNDING AS REQUIRED TO ACCOMODATE ALTERNATE INSTALLATIONS.

GENERAL NOTES:

1. ANY MODIFICATION TO OR DEVIATION FROM THE DESIGN DOCUMENTS INCLUDING BUT NOT LIMITED TO THE PLANS AND SPECIFICATIONS IS STRICTLY PROHIBITED WITHOUT PRIOR APPROVAL BY COUNTY UTILITIES GENERAL MANAGER.
2. INSTALLATION DETAILS INTENDED FOR LIFT STATIONS WHERE EXISTING CONTROL PANEL AND MOUNTING STRUCTURE FOR CONTROL PANEL, METER, AND DISCONNECT SWITCH SHALL BE COMPLETELY REPLACED.
3. ALL CONNECTION HARDWARE SHALL BE SERIES 316 STAINLESS STEEL. BOLTS SHALL BE SLEEVED WITH 1/8" THICK NON-CONDUCTIVE, NON-POROUS, ULTRAVIOLET RESISTANT INSULATING MATERIAL.
4. ALL EXPOSED CONDUITS SHALL BE ALUMINUM AND HAVE A WATERPROOF CONNECTION AT EACH PANEL OR ENCLOSURE UTILIZING MYERS HUBS, NO EXCEPTIONS. WATER LEAKAGE AT THE PANELS AND RUSTING CONDUIT CLOSURE PIECES ARE NOT ACCEPTABLE. THE USE OF SILICONE TO SEAL THESE JOINTS IS NOT AN ACCEPTABLE METHOD OF SEALING THE PANEL INTERFACES.
5. ELECTRICAL SERVICE CHARACTERISTICS SHALL BE VERIFIED BEFORE INSTALLATION OF THE CONTROL PANEL. VERIFY ALL NEW SERVICE AND METERING REQUIREMENTS WITH THE LOCAL ELECTRIC UTILITY.
6. ISOLATE ALL DISSIMILAR METALS WITH 1/8" NON-CONDUCTIVE, NON-POROUS, ULTRAVIOLET RESISTANT INSULATING MATERIAL.
7. CONTRACTOR SHALL INSTALL A MINIMUM OF 5 GROUND RODS AND CONNECT ALL GROUND RODS TOGETHER USING A MINIMUM #2/0 BARE STRANDED COPPER GROUND CONDUCTOR TO CREATE A GROUND RING SYSTEM AROUND THE EQUIPMENT TO PROVIDE A GROUND RESISTANCE NOT GREATER THAN 3 OHMS. GROUND RODS SHALL BE 3/4" X 10' MINIMUM COPPER CLAD STEEL AND DRIVEN FLUSH WITH GRADE WITH A MINIMUM OF ONE ROD INSTALLED IN AN INSPECTION WELL. CONTRACTOR SHALL PROPERLY MEASURE GROUNDING RESISTANCE IN THE PRESENCE OF THE OWNER OR THE OWNER'S REPRESENTATIVE - SEE GROUNDING DETAIL. THE GROUND RODS SHALL NOT BE DRIVEN NTO THE GROUND UNTIL ACCEPTED IN WRITING BY A COUNTY REPRESENTATIVE. THE GROUND WIRE SHALL BE ATTACHED TO THE GROUND RODS BY EXOTHERMIC WELD. THE GROUND RODS SHALL BE LOCATED 12" OFF THE CORNERS OF THE STRUCTURES AND THE FIFTH GROUND ROD SHALL BE LOCATED 12" FROM THE CONTROL PANEL SUPPORT POST. ALL APPROPRIATE FACILITIES SHALL BE GROUNDED INCLUDING BUT NOT LIMITED TO: CONTROL PANEL, ELECTRICAL SERVICE, ELECTRICAL METER CANS, TERMINAL JUNCTION BOXES, SAFETY SWITCHES, SUPPORT RACKS, WETWELL CABLE RACKS, WETWELL LIDS, BARE METAL FENCES, AND VALVE VAULT LIDS.
8. CONTRACTOR SHALL CONTACT THE APPROPRIATE AGENCY FOR THE EXACT LOCATION FOR ALL WATER SEWER, ELECTRIC, TELEPHONE, AND ANY OTHER UNDERGROUND OR OVERHEAD UTILITY BEFORE STARTING CONSTRUCTION. THE OMISSION FROM OR THE INCLUSION OF UTILITY LOCATIONS ON THE CONTRACT DRAWINGS IS NOT TO BE CONSIDERED AS THE NONEXISTENCE OF OR A DEFINITE LOCATION OF EXISTING UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES.
9. LOCATIONS, ELEVATIONS, AND DIMENSIONS OF EXISTING EQUIPMENT, STRUCTURES, AND OTHER FEATURES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE AT THE TIME OF THE PREPARATION OF THESE DRAWINGS, BUT DO NOT ASSUME THEM TO BE ABSOLUTELY CORRECT. THE CONTRACTOR SHALL VERIFY THE LOCATIONS, ELEVATIONS AND OTHER FEATURES AFFECTING THE WORK PRIOR TO CONSTRUCTION. SHOULD UTILITIES BE ENCOUNTERED WHICH ARE NOT INDICATED ON THE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE COUNTY IMMEDIATELY.
10. WHEN THE NEW CONCRETE PAD IS POURED NEXT TO AN EXISTING CONCRETE PAD STRUCTURE THE TWO SHALL BE SEPARATED WITH 1/2" THICK, FULL DEPTH EXPANSION BOARD (EXPANSION JOINT MATERIAL).
11. ALL BOXES AND PANELS SHALL BE LOCATED TO ALLOW ALL DOORS AND FRONTS TO FULLY OPEN.
12. LIGHTNING ARRESTERS SHALL BE ATTACHED TO THE SERVICE ENTRANCE DISCONNECT SWITCH, LOAD SIDE ONLY.
13. SPLICING OF THE PUMP CABLE, FLOAT CABLES, OR OTHER WIRING TO THE WETWELL FROM THE JUNCTION BOX IS NOT ACCEPTABLE.
14. THE CONTROL WIRING SHALL BE IN A SEPARATE CONDUIT. THE WIRING FOR EACH PUMP SHALL ALSO BE IN SEPARATE CONDUITS. NOTE FOR WIRES BETWEEN JUNCTION BOX AND CONTROL PANEL 12 GAUGE STRANDED BLOCK FOR FLOATS. CORRECT GAUGE FOR PUMP BLACK THHN. FLOAT WIRES SHOULD BE CUT TO LENGTH. PUMP WIRES SHOULD BE CUT TO LENGTH AND RAN BEHIND THE RAILS. COILED OR ROLLED UP EXTRA WIRE IS NOT ACCEPTABLE.
15. CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PROTECT EQUIPMENT AND MATERIALS FROM HYDROGEN SULFIDE GAS DAMAGE.
16. ALL CONDUIT PENETRATING A NEW OR EXISTING CONCRETE PAD OR SLAB SHALL BE LOCATED A MINIMUM OF 3 INCHES FROM THE EDGE OF THE CONCRETE PAD OR SLAB. CONSEQUENTLY ALL CONDUIT WILL HAVE A MINIMUM OF 3 INCHES OF CONCRETE COVER.
17. THE NEMA 4X. 316 STAINLESS STEEL JUNCTION BOX FOR A DUPLEX CONTROL PANEL SHALL BE 24" HIGH X 24" WIDE X 8" DEEP AND SHALL MEET NEC REQUIREMENTS. TWO INCH DIAMETER CONDUITS AND TWO INCH DIAMETER SEALOFFS, AS A MINIMUM SIZE, SHALL BE USED AT ALL DUPLEX CONTROL PANEL INSTALLATIONS.
18. SEALOFFS SHALL BE PROVIDED BETWEEN JUNCTION BOX AND CONTROL PANEL AS SHOWN. SEALOFFS SHALL BE SEALED WITH CROUSE-HINDS "CHICO" COMPOUND. ALL THREADS ON SEAL OFFS SHALL BE ZINC COATED OR COLD GALVANIZED TO PREVENT RUSTING. RUSTING FACILITIES ARE NOT ACCEPTABLE TO THE COUNTY AND THE CONTRACTOR WILL PROVIDE ACCEPTABLE REMEDIES TO RUSTING FACILITIES INCLUDING REPLACING ALL RUSTING FACILITIES AT NO COST TO THE COUNTY.
19. TRIM EXCESS THREAD FROM U-BOLTS FLUSH WITH NUTS.

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LIFT STATION RISER DIAGRAM-2

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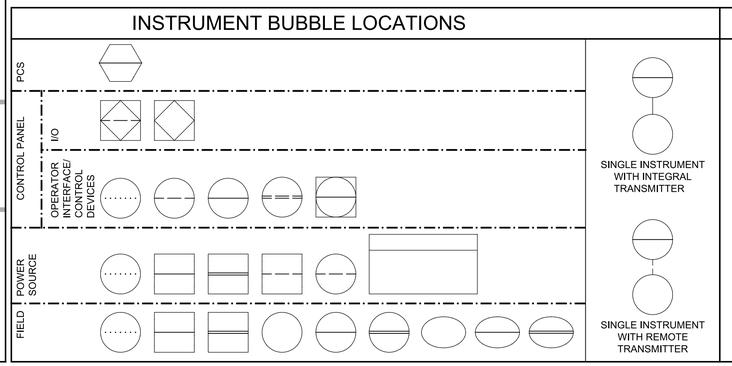
DRAWING NO. 18E03
SHEET NO. 3 OF 16

SYMBOL	DRAWING VISIBLE FIELDS	FIELD - 1	FIELD - 2	FIELD - 3	FIELD - 4	FIELD - 5	FIELD - 6
HMI/SCADA SYSTEM OPERATOR INTERFACE TERMINAL 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - DESCRIPTION 5 - DESCRIPTION 6 - EXISTING/FUTURE	REFER 	REFER 	ACTION ALARM NUM - NUMERIC SP - SET POINT STATUS TREND	DESCRIPTION	DESCRIPTION	E - EXISTING F - FUTURE
HARDWIRED I/O POINT 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - DESCRIPTION 5 - LOCATION 6 - EXISTING/FUTURE	REFER 	REFER 	AI - ANALOG INPUT AO - ANALOG OUTPUT DI - DISCRETE INPUT DO - DISCRETE OUTPUT HSC - HIGH SPEED COUNTER INPUT RTD - RTD INPUT	DESCRIPTION	PAC - PROGRAMMABLE AUTOMATION CONTROLLER NO. PLC - PROGRAMMABLE LOGIC CONTROLLER NO. RIO - REMOTE I/O VCP - VENDOR CONTROL PANEL NO.	E - EXISTING F - FUTURE
NETWORK / SOFTI/O 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - DESCRIPTION 5 - LOCATION 6 - EXISTING/FUTURE 7 - DIGITAL NETWORK TABLE	REFER	REFER 	BUS ID CNET - CONTROLNET DNET - DEVICENET ENET - ETHERNET/IP FF - FOUNDATION FIELDBUS MB - MODBUS RTU MB+ - MODBUS PLUS MBTCP - MODBUS TCP DP - PROFIBUS DP PA - PROFIBUS PA PNET - PROFINET SERIAL - PROPRIETARY PROTOCOL	DESCRIPTION	PAC - PROGRAMMABLE AUTOMATION CONTROLLER NO. PLC - PROGRAMMABLE LOGIC CONTROLLER NO. RIO - REMOTE I/O VCP - VENDOR CONTROL PANEL NO.	E - EXISTING F - FUTURE
LOCAL OPERATOR INTERFACE 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - DESCRIPTION 5 - LOCATION 6 - EXISTING/FUTURE	REFER	REFER 	ACTION ALARM NUM - NUMERIC SP - SET POINT STATUS	DESCRIPTION	LOI - LOCAL OPERATOR INTERFACE NO. LCP - LOCAL CONTROL PANEL NO. PCM - PROCESS CONTROL MODULE NO. VCP - VENDOR CONTROL PANEL NO.	E - EXISTING F - FUTURE
PILOT DEVICE OPERATOR INTERFACE 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - DESCRIPTION 5 - LOCATION 6 - EXISTING/FUTURE	REFER 	REFER 	AM - AUTO/MANUAL BYPASS - BYPASS CL - CLOSE E-STOP - EMERGENCY STOP FRLR - FIXED RATE/LEVEL RATE HOA - HAND /OFF/AUTO JOHC - JOG OPEN/HOLD/CLOSE JOJC - JOG OPEN/JOG CLOSE LH - LOW/HIGH LOR - LOCAL/OFF/REMOTE LOS - LOCK OUT STOP LS - LEAD/STANDBY LSR - LOCAL/STOP/REMOTE NOOT - NO OFFLINE/OFFLINE TRANSITION OC - OPEN/CLOSE OLOL - ON LINE/OFF LINE OO - OFF/ON OP - OPEN OSC - OPEN/STOP/CLOSE RST - RESET SAAM - SEMI AUTO/AUTO/MANUAL SEL - SELECT SP - STOP SPD - SPEED SS - START/STOP ST - START	DESCRIPTION	LCP - LOCAL CONTROL PANEL NO. MCC - MOTOR CONTROL CENTER NO. PCM - PROCESS CONTROL MODULE NO. RVSS - REDUCED VOLTAGE SOLID STARTER NO. VCP - VENDOR CONTROL PANEL NO. VFD - VARIABLE FREQUENCY DRIVE NO.	E - EXISTING F - FUTURE
POWER DEVICE PRIMARY FUNCTION OPERATOR ACCESSIBLE 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - VOLTAGE-POLE 5 - LOCATION 6 - EXISTING/FUTURE	CB - CIRCUIT BREAKER DISC - DISCONNECT FU - FUSE	REFER	TM - THERMAL MAGNETIC CIRCUIT BREAKER	24VDC - 1P 120VAC - 1P 208VAC - 2P 208VAC - 3P 240VAC - 3P 240VAC - 2P 480VAC - 3P 2400VAC - 3P 4160VAC - 3P	DP - DISTRIBUTION PANEL NO. LCP - LOCAL CONTROL PANEL NO. LP - LIGHTING PANEL NO. MCC - MOTOR CONTROL CENTER NO. PCM - PROCESS CONTROL MODULE NO. PP - POWER PANEL NO. VCP - VENDOR CONTROL PANEL NO.	E - EXISTING F - FUTURE
POWER DEVICE AUXILIARY FUNCTION FOR OPERATOR ACCESSIBLE DEVICES 	1 - TAG 2 - LOOP NUMBER 3 - DESCRIPTION 4 - DESCRIPTION 5 - DESCRIPTION 6 - EXISTING/FUTURE	DISC - DISCONNECT	REFER 	DESCRIPTION	DESCRIPTION	DESCRIPTION	E - EXISTING F - FUTURE
POWER DEVICE PRIMARY FUNCTION OPERATOR INACCESSIBLE 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - VOLTAGE-POLE 5 - LOCATION 6 - EXISTING/FUTURE	CB - CIRCUIT BREAKER FU - FUSE	REFER	MCP - MOTOR CIRCUIT PROTECTOR SS - SOLID STATE CIRCUIT BREAKER TM - THERMAL MAGNETIC CIRCUIT BREAKER	24VDC - 1P 120VAC - 1P 208VAC - 2P 208VAC - 3P 240VAC - 2P 240VAC - 3P 480VAC - 3P 2400VAC - 3P 4160VAC - 3P	DP - DISTRIBUTION PANEL NO. LCP - LOCAL CONTROL PANEL NO. LP - LIGHTING PANEL NO. MCC - MOTOR CONTROL CENTER NO. PCM - PROCESS CONTROL MODULE NO. PP - POWER PANEL NO. VCP - VENDOR CONTROL PANEL NO.	E - EXISTING F - FUTURE

SYMBOL	DRAWING VISIBLE FIELDS	FIELD - 1	FIELD - 2	FIELD - 3	FIELD - 4	FIELD - 5	FIELD - 6
INSTRUMENT PRIMARY ELEMENT 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - FURNISHED BY 5 - LOCATION 6 - EXISTING/FUTURE	REFER 	REFER 	DESCRIPTION 	DESCRIPTION 	AREA NO. BUILDING NO. ROOM NO.	E - EXISTING F - FUTURE
INSTRUMENT/CONTROL ELEMENT PRIMARY FUNCTION OPERATOR ACCESSIBLE 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - FURNISHED BY 5 - DESCRIPTION 6 - EXISTING/FUTURE	REFER 	REFER	DESCRIPTION	DESCRIPTION	DESCRIPTION	E - EXISTING F - FUTURE
INSTRUMENT/CONTROL ELEMENT AUXILIARY FUNCTION OPERATOR ACCESSIBLE 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - FURNISHED BY 5 - DESCRIPTION 6 - EXISTING/FUTURE	REFER 	REFER 	DESCRIPTION 	DESCRIPTION 	DESCRIPTION	E - EXISTING F - FUTURE
INSTRUMENT/CONTROL ELEMENT PRIMARY FUNCTION OPERATOR INACCESSIBLE 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - FURNISHED BY 5 - LOCATION 6 - EXISTING/FUTURE	REFER  XR - PROTECTION RELAY CR - CONTROL RELAY IR - INTERPOSING RELAY	REFER 	DESCRIPTION 	DESCRIPTION 	LCP - LOCAL CONTROL PANEL NO. MCC - MOTOR CONTROL CENTER NO. PCM - PROCESS CONTROL MODULE NO. VCP - VENDOR CONTROL PANEL NO.	E - EXISTING F - FUTURE
INSTRUMENT/CONTROL ELEMENT AUXILIARY FUNCTION OPERATOR INACCESSIBLE 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - FURNISHED BY 5 - LOCATION 6 - EXISTING/FUTURE	REFER  XR - PROTECTION RELAY CR - CONTROL RELAY IR - INTERPOSING RELAY	REFER 	DESCRIPTION 	DESCRIPTION 	LCP - LOCAL CONTROL PANEL NO. MCC - MOTOR CONTROL CENTER NO. PCM - PROCESS CONTROL MODULE NO. VCP - VENDOR CONTROL PANEL NO.	E - EXISTING F - FUTURE
FIELD EQUIPMENT NON-POWERED 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION/SIZE 4 - FURNISHED BY 5 - LOCATION 6 - EXISTING/FUTURE	REFER 	REFER 	DESCRIPTION	DESCRIPTION 	AREA NO. BUILDING NO. ROOM NO.	E - EXISTING F - FUTURE
FIELD EQUIPMENT PRIMARY FUNCTION POWERED 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - FURNISHED BY 5 - LOCATION 6 - EXISTING/FUTURE	REFER 	REFER 	DESCRIPTION	DESCRIPTION 	AREA NO. BUILDING NO. ROOM NO.	E - EXISTING F - FUTURE
FIELD EQUIPMENT AUXILIARY FUNCTION POWERED	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - FURNISHED BY 5 - DESCRIPTION 6 - EXISTING/FUTURE	MWH - MOTOR WINDING HEATER TSH - TEMPERATURE SWITCH XSH - TORQUE SWITCH	REFER	DESCRIPTION	DESCRIPTION 	DESCRIPTION	E - EXISTING F - FUTURE
FIELD EQUIPMENT STARTER/DRIVE CUBICLE/CABINET	1 - TAG 2 - LOOP NUMBER 3 - TYPE 4 - VOLTAGE-POLE 5 - POWER SOURCE 6 - EXISTING/FUTURE	MS - MOTOR STARTER RVAT - REDUCED VOLTAGE AUTO TRANSFORMER STARTER RVSS - REDUCED VOLTAGE SOLID STATE STARTER VFD - VARIABLE FREQUENCY DRIVE	REFER	FVNR - FULL VOLTAGE NON-REVERSING STARTER FVR - FULL VOLTAGE REVERSING STARTER PWS - PART-WINDING STARTER RVAT - REDUCED VOLTAGE AUTO TRANSFORMER STARTER RVSS - REDUCED VOLTAGE SOLID STATE STARTER TS1W - TWO SPEED SINGLE WINDING TS2W - TWO SPEED TWO WINDINGS VFD - VARIABLE FREQUENCY DRIVE	120VAC - 1P 208VAC - 2P 208VAC - 3P 240VAC - 2P 240VAC - 3P 480VAC - 3P 2400VAC - 3P 4160VAC - 3P	LCP - LOCAL CONTROL PANEL NO. MCC - MOTOR CONTROL CENTER NO. PCM - PROCESS CONTROL MODULE NO. VCP - VENDOR CONTROL PANEL NO.	E - EXISTING F - FUTURE

INSTRUMENT BUBBLE LOCATIONS



NOTES

1. INSTRUMENT TAG IDENTIFICATION LETTERS TABLE
2. OPERATOR PILOT DEVICE LEGEND
3. EQUIPMENT TAGGING TABLE
4. I/O TYPE DESIGNATIONS TABLE
5. INSTRUMENT TYPE DESIGNATIONS TABLE
6. FURNISHED BY: FBO FURNISHED BY OWNER; FBV FURNISHED BY VENDOR

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JOB NO. 11572A10
DRAWING NO. 18GN01
SHEET NO. 4 OF 16

PROJECT NO. 11572A10 FILE NAME: 11572A1018GN01.dgn

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INSTRUMENT TAG IDENTIFICATION LETTERS

	MEASURED VARIABLE / INSTRUMENT FUNCTION	ELEMENT	TRANSMITTER	INDICATING TRANSMITTER	CONVERTER TRANSDUCER, RELAY SPECIAL DEVICES	INDICATOR	RECORDER	CONTROLLER	INDICATING CONTROLLER	RECORDING CONTROLLER	SWITCH	SWITCH LOW LOW	SWITCH LOW	SWITCH HIGH	SWITCH HIGH HIGH	SWITCH COMBINATION HIGH LOW	ACTION	ALARM LOW LOW	ALARM LOW	ALARM HIGH	ALARM HIGH HIGH	TOTALIZE INDICATOR TRANSMITTER	VALVE	GAUGE	LIGHT	SPEED SETTING
A	ANALYSIS	AE	AT	AIT	AY	AI	AR	AC	AIC	ARC	AS	ASLL	ASL	ASH	ASHH	ASHL		AALL	AAL	AAH	AAHH				AL	
B	BURNER FLAME	BE	BT	BIT	BY	BI	BR	BC	BIC	BRC	BS	BSLL	BSL	BSH	BSHH			BALL	BAL	BAH	BAHH				BL	
C	CONDUCTIVITY	CE	CT	CIT	CY	CI	CR	CC	CIC	CRC	CS	CSLL	CSL	CSH	CSHH	CSHL		CALL	CAL	CAH	CAHH				CL	
D	DENSITY	DE	DT	DIT	DY	DI	DR	DC	DIC	DRC	DS	DSLL	DSL	DSH	DSHH	DSHL		DALL	DAL	DAH	DAHH				DL	
E																										
F	FLOW	FE	FT	FIT	FY	FI	FR	FC	FIC	FRC	FS	FSLL	FSL	FSH	FSHH	FSHL		FALL	FAL	FAH	FAHH	FQI	FCV	FG	FL	
FF	FLOW RATIO				FFY	FFI		FFC	FFIC		FFS														FFL	
G	GAUGING (DIMENSION)																									
H	HAND (MANUAL)*							HC			HS*						HA*						HV		HL	HSS
I	CURRENT		IT	IIT	IY	II	IR	IC	IIC	IRC	IS	ISLL	ISL	ISH	ISHH			IALL	IAL	IAH	IAHH				IL	
J	POWER																									
K	TIME				KY	KI	KR	KC	KIC	KRC	KS	KSLL	KSL	KSH	KSHH			KALL	KAL	KAH	KAHH		KV		KL	
L	LEVEL	LE	LT	LIT	LY	LI	LR	LC	LIC	LRC	LS	LSLL	LSL	LSH	LSHH	LSHL		LALL	LAL	LAH	LAHH		LCV	LG	LL	
M	MOISTURE OR HUMIDITY	ME	MT	MIT	MY	MI	MR	MC	MIC	MRC	MS	MSLL	MSL	MSH	MSHH			MALL	MAL	MAH	MAHH				ML	
N	EMERGENCY SHUTDOWN																									
O																										
P	PRESSURE OR VACUUM	PE	PT	PIT	PY	PI***	PR	PC	PIC	PRC	PS****	PSLL	PSL	PSH	PSHH	PSHL		PALL	PAL	PAH	PAHH		PCV		PL	
PD	DIFFERENTIAL PRESSURE		PDT	PDIT	PDY	PDI	PDR	PDC	PDIC	PDRC	PDS	PDSLL	PDSL	PDSH	PDSHH			PDALL	PDAL	PDAH	PDAHH		PDCV		PDL	
Q	QUANTITY	QE	QT	QIT	QY	QI	QR				QS	QSLL	QSL	QSH	QSHH			QALL	QAL	QAH	QAHH					
R	RADIOACTIVITY																									
S	SPEED	SE	ST	SIT	SY	SI	SR	SC	SIC	SRC	SS	SSLL	SSL	SSH	SSHH			SALL	SAL	SAH	SAHH					
T	TEMPERATURE	TE	TT	TIT	TY	TI	TR	TC	TIC	TRC	TS	TSLL	TSL	TSH	TSHH	TSHL		TALL	TAL	TAH	TAHH		TCV		TL	
TD	DIFFERENTIAL TEMPERATURE		TDT	TDIT	TDY	TDI	TDR	TDC	TDIC	TDRC	TDS	TDSLL	TDSL	TDSH	TDSHH			TDALL	TDAL	TDAH	TDAHH		TDCV		TDL	
U	MULTIVARIABLE					UI	UR	UC	UIC	URC	US														UL	
V	VISCOSITY	VE	VT	VIT	VY	VI	VR	VC	VIC	VRC	VS	VSLL	VSL	VSH	VSHH			VALL	VAL	VAH	VAHH				VL	
W	WEIGHT	WE	WT	WIT	WY	WI	WR				WS	WSLL	WSL	WSH	WSHH			WALL	WAL	WAH	WAHH					
X	UNCLASSIFIED	XE	XT	XIT	XY	XI	XR	XC	XIC	XRC	XS	XSLL	XSL	XSH	XSHH			XALL	XAL	XAH	XAHH		XCV	XG	XL	
XV	VIBRATION	XVE	XVT		XVY	XVI	XVR				XVS			XVSH	XVSHH					XVAH	XVAHH				XVL	
Y	STATUS***					YI***																			YL	
Z	POSITION	ZE	ZT	ZIT	ZY	ZI					ZS**												ZV		ZL**	

* REFER TO OPERATOR PILOT DEVICE LEGEND
** LETTER INDICATES POSITION (O=OPEN, C=CLOSED, R=RAISE, L=LOWER, ETC)
*** PI# # = 1,2,3 ETC. AND REPRESENTS A UNIQUE IDENTIFIER AND IS APPLICABLE TO ALL ITEMS IN THE TABLE ABOVE
**** COULD ALSO BE PIS - FOR PRESSURE INDICATING SWITCH

OPERATOR PILOT DEVICE LEGEND

PILOT DEVICE FUNCTION / DEVICE TYPE	LOCAL-OFF-REMOTE (LOR) OR LOCAL-STOP-REMOTE (LSR)	STOP (SP)	START (ST)	HAND-OFF-AUTO (HOA)	OFF-ON (OO)	SELECT (SEL)	OPEN-STOP-CLOSE (OSC)	JOG OPEN-HOLD-CLOSE (JOHC)	SEMIAUTO-AUTO-MANUAL (SAAM)	LEAD-LAG-STANDBY (LLGS)	JOG OPEN-JOG CLOSE (JOJC)	ONLINE-OFFLINE (OLOF)	AUTO-MANUAL (AM)	FIXED RATE-LEVEL RATE (FRLR)	OPEN-CLOSE (OC)	NO OFFLINE-OFFLINE TRANSITION (NOOT)	LOW-HIGH (LH)	RESET (RST)	SPEED (SPD)	START-STOP (STSP)	E-STOP (E-SP)	BYPASS (BYP)			SILENCE	POSITION (POS)
PILOT DEVICE TAG (HAND SWITCHES)	HSA*	HSB	HSC	HSD*	HSE	HSF	HSG*	HSH*	HSI	HSJ*	HSK*	HSL*	HSM*	HSN	HSO*	HSP	HSQ*	HSR	HSS	HST*	HSU	HSV	HSW	HSX	HSY	HSZ
SCADA/HMI TAG (HAND ACTION)	HAA	HAB	HAC	HAD	HAE	HAF	HAG	HAH	HAI	HAJ	HAK	HAL	HAM	HAN	HAO	HAP	HAQ	HAR	HAS	HAT	HAU	HAV	HAW	HAX	HAY	HAZ

HSA* SELECTOR SWITCH POSITION EG: HSA(R) R = REMOTE, HSD(A) A = AUTO, ETC

I/O TYPE DESIGNATIONS

AUX1	RUNNING	MSL	MOTOR START LOW
AUX2	FAILED/FAULT	MSM	VALVE MODULATE
AUXF1	RUNNING FORWARD	MSP	MOTOR STOP
AUXH1	RUNNING HIGH	MSR	MOTOR START REVERSE
AUXL1	RUNNING LOW	MST	MOTOR START
AUXR1	RUNNING REVERSE	SS	SPEED SIGNAL
SVC	SOLENOID VALVE CLOSE	ZC	POSITION COMMAND
SVO	SOLENOID VALVE OPEN	ZCC	POSITION COMMAND CLOSE
MS	RUN	ZCO	POSITION COMMAND OPEN
MSF	MOTOR START FORWARD		
MSH	MOTOR START HIGH		

INSTRUMENT TYPE DESIGNATIONS

AM	AMMONIA	O3	OZONE	SH	SODIUM HYPOCHLORITE
CAP	CAPACITANCE	ORP	OXIDATION REDUCTION POTENTIAL	TDR	TIME DOMAIN REFLECTOMETRY
CGD	COMBUSTIBLE GAS DETECTOR	P	PRESSURE	TH	THERMAL
CL	CHLORINE	P-SUB	PRESSURE SUBMERSIBLE	TSS	TOTAL SUSPENDED SOLIDS
COND	CONDUCTIVITY	PC	PARTICLE COUNTER	TURB	TURBIDITY
DO	DISSOLVED OXYGEN	PO	PHOSPHOROUS	US	ULTRASONIC
FMCW	FREQ. MODULATED CONT. WAVE	PTOF	PULSE TIME OF FLIGHT	UVI	UV INTENSITY
HSF	FLUORIDE	R/I	RESISTANCE TO CURRENT	UVT	UV TRANSMITTANCE
IS	INTRINSIC SAFETY BARRIER	ROT	ROTAMETER	VAC	VACUUM
LEL	LOWER EXPLOSIVE LIMIT	RTD	RESISTANCE TEMP DETECTOR		
MAG	MAGNETIC	SC	STREAMING CURRENT		

SPECIFIC ABBREVIATIONS

APH	A PHASE	MWH	MOTOR WINDING HEATER
BPH	B PHASE	SSG	SECONDARY SWITCHGEAR
BRB	BEARING BOTTOM	SV*	SOLENOID VALVE
BRT	BEARING TOP	SPD	SURGE PROTECTIVE DEVICE
BTFLY	BUTTERFLY	UPS	UNINTERRUPTIBLE POWER SUPPLY
CPH	C PHASE	YA	STATUS AUTO
CC*	CALIBRATION COLUMN	YR	STATUS REMOTE
HTR	HEATER	Y1	STATUS RUNNING
HTU	HEAT TRACE UNIT	Y2	ALARM FAILED/FAULT

* CC# AND SV# # = 1, 2, 3 ETC. AND REPRESENTS A UNIQUE IDENTIFIER

INSTRUMENT LINE SYMBOLS

INSTRUMENT OR CONNECTION TO PROCESS
PNEUMATIC SIGNAL
ELECTRIC SIGNAL
HYDRAULIC SIGNAL — L
CAPILLARY TUBE — X
ELECTROMAGNETIC OR SONIC SIGNAL (GUIDED)
ELECTROMAGNETIC OR SONIC SIGNAL (NOT GUIDED)
INTERNAL SYSTEM LINK (SOFTWARE OR DATA LINK) — o
COPPER ETHERNET — C
FIBER OPTIC ETHERNET — F
WIRELESS ETHERNET — W
PROFIBUS DP — PBD
PROFIBUS PA — PBA
DEVICENET — DN
FOUNDATION FIELDBUS — FF

PROCESS LINE SYMBOLS

PRIMARY PROCESS FLOW IN PIPE
SECONDARY PROCESS FLOW IN PIPE
PRIMARY PROCESS FLOW IN CHANNEL
SECONDARY PROCESS FLOW IN CHANNEL

DESIGNATIONS

EQUIPMENT ENCLOSURE
EXISTING
FUTURE

MISCELLANEOUS P&ID SYMBOLS

CONTINUATION TAG — DESC 2, DESC 1, #, A, B, CONTINUATION FROM SHEET, CONTINUATION TO SHEET, UNIQUE IDENTIFIER
PIPE CALLOUT — PIPE SIZE
SIGNAL CONTINUATION — TO DRAWING — FROM DRAWING

REV	DATE	BY	DESCRIPTION

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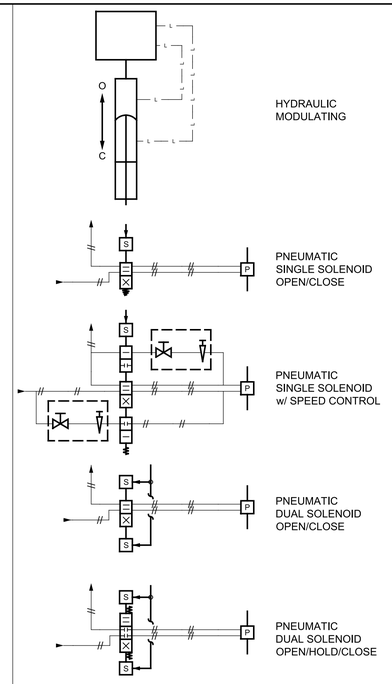
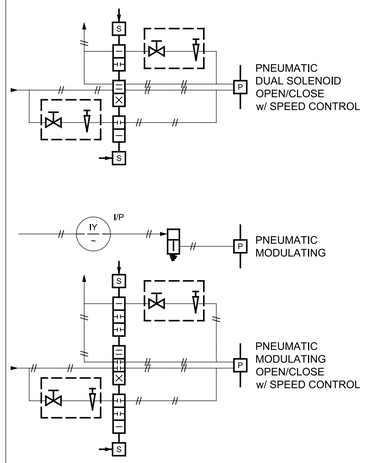
DRAWING NO. 18GN02
SHEET NO. 5 OF 16

PROJECT NO. 11572A10 FILE NAME: 11572A1018GN02.dgn

ACTUATORS

- DIAPHRAGM
- ELECTRIC DISCRETE
- ELECTRIC MODULATING
- ELECTRIC HYDRAULIC
- HAND
- HYDRAULIC
- PNEUMATIC
- SOLENOID





PIPING

- AIR GAP
- BLIND FLANGE
- CAPPED OR PLUGGED
- CONCENTRIC INCREASER
- CONCENTRIC REDUCER
- DRAIN
- ECCENTRIC INCREASER
- TEE
- UNION
- ECCENTRIC REDUCER
- EXPANSION COUPLING
- EXPANSION JOINT VIBRATION CENTER
- FLEXIBLE CONNECTION
- QUICK DISCONNECT

PUMPS

- AIR DRIVEN
- CENTRIFUGAL
- CHEMICAL FEED DIAPHRAGM
- DIAPHRAGM
- GEAR
- PERISTALTIC OR HOSE
- PISTON
- PROGRESSIVE CAVITY
- OR SUBMERSIBLE
- VERTICAL TURBINE
- VERTICAL CHOPPER
- WATER CHAMP

BLOWERS/ COMPRESSORS

- CENTRIFUGAL SINGLE STAGE BLOWER
- CENTRIFUGAL MULTI STAGE BLOWER
- RECIPROCATING COMPRESSOR
- SCREW COMPRESSOR
- FAN
- LIQUID RING COMPRESSOR
- ROTARY LOBE BLOWER

CHECK VALVES

- BACK FLOW PREVENTER
- BALL
- DIAPHRAGM CHECK
- DOUBLE FLAP
- FLAPPER
- SPRING LOADED GENERAL
- SPRING LOADED SWING
- SWING

PRESSURE VALVES

- BACKPRESSURE REGULATING SELF CONTAINED
- BACKPRESSURE REGULATING EXTERNAL TAP
- PRESSURE REDUCING SELF CONTAINED
- PRESSURE REDUCING EXTERNAL PRESSURE TAP
- REGULATING
- PRESSURE RELIEF
- VACUUM RELIEF

VALVES

- 3-WAY
- 3-WAY PLUG
- 4-WAY
- AIR-RELIEF
- ANGLE
- BALL
- BALL V-NOTCH
- BUTTERFLY
- BUTTERFLY-BURIED VALVE BOX
- CONE
- DIAPHRAGM
- GATE
- GATE-BURIED VALVE BOX
- GLOBE
- HOSE
- MUD
- NEEDLE
- PINCH
- PLUG ECCENTRIC
- PLUG ECCENTRIC w-VALVE BOX
- PLUG ECCENTRIC LUBRICATED
- PLUG ECCENTRIC LUBRICATED BURIED VALVE BOX
- PLUG CONCENTRIC
- PLUG CONCENTRIC -BURIED VALVE BOX
- PLUG CONCENTRIC LUBRICATED
- PLUG CONCENTRIC LUBRICATED BURIED VALVE BOX
- PUMP DISCHARGE
- TELESCOPING

VALVE DESIGNATIONS	
NO	NORMALLY OPEN
NC	NORMALLY CLOSED
FO	FAIL OPEN
FC	FAIL CLOSE
FLP	FAIL LAST POSITION

MISC

- AIR DAMPER
- AIR / CHEMICAL DIFFUSER
- BASKET STRAINER
- BLOW-OFF SILENCER
- CALIBRATION COLUMN
- COALESCER
- DESICCANT DRYER
- EDUCTOR/EJECTOR
- EQUIPMENT/INSTRUMENT LOCATOR
- EXHAUST FAN
- EYEWASH
- FILTER
- FILTER SEPARATOR
- FINE FILTER
- FIRE ALARM/SENSOR
- FLAME ARRESTER
- FLAME ARRESTER w/THERMALLY OPERATED VALVE
- FLOW CONDITIONER
- GAS CANNON
- GRINDER
- HEAT EXCHANGER
- HOIST
- HORIZONTAL MIXER
- HOSE CONNECTION
- INLET STRAINER
- INLINE STATIC MIXER
- MATERIAL CHANGE
- MIXER
- MOTOR
- NOZZLE
- ORIFICE RESTRICTION
- PERISTALTIC COMPOSITE SAMPLER
- OR PULSATION DAMPENER
- REFRIGERATED DRYER
- RUPTURE DISK
- SAMPLE PORT
- SIGHT TUBE
- SMOKE DETECTOR
- STRAINER - MECHANICALLY CLEANED
- STRAINER WITH BLOW OFF
- STRAINER WYE TYPE
- VAPOR HEATER
- VAPORIZER
- VENT
- VENT TO ATMOSPHERE

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FLOW

- BATCH
- CORIOLIS
- MAGNETIC (MM)
- ORIFICE
- PADDLE WHEEL
- PISTON
- ANNUBAR
- PITOT TUBE
- POSITIVE-DISPLACEMENT
- PROPELLER-TURBINE
- ROTAMETER
- THERMAL
- ULTRASONIC
- ULTRASONIC BIOGAS
- V-CONE
- VENTURI TUBE OR FLOW NOZZLE
- VORTEX

FLUMES

- LEOPOLD-LAGCO
- PALMER-BOWLUS
- PARSHALL
- REGULAR CUTTHROAT
- TRAPEZOIDAL

GATES

SIDE VIEW	PLAN VIEW
	FLAP
	KNIFE
SLIDE	SLIDE
SLUICE	SLUICE
STOP	STOP
	WEIR

LEVEL

- BUBBLER
- CAPACITANCE
- DIFFERENTIAL PRESSURE (TANK, PDE, LDIT)
- ELECTRODE
- FLOAT
- INVERTED COLUMN
- PROBE
- RADAR PTOF
- RADAR (FREQUENCY MODULATED CONTINUOUS WAVE)
- RADAR TDR
- SUSPENDED/ SUBMERSIBLE
- TUNING FORK
- ULTRASONIC

PRESSURE/VACUUM

PRESSURE

- GAUGE (PI)
- MANOMETER
- PRESSURE SWITCH (PSH, PE)
- PRESSURE TRANSMITTER (PIT, PE)

DIFFERENTIAL PRESSURE

- GAUGE DIFFERENTIAL INDICATOR (PDI)
- DIFFERENTIAL PRESSURE SWITCH (PDSL, PDE)
- DIFFERENTIAL PRESSURE TRANSMITTER (PDIT, PDE)

PRESSURE SEALS

- SEAL ANNULAR
- SEAL DIAPHRAGM
- SEAL SANITARY

EXAMPLE

- PRESSURE SWITCH (PSH, PE)

TEMPERATURE

- TEMPERATURE w/THERMOWELL
- TEMPERATURE GAUGE
- THERMOMETER (T)

WEIGHT

- HYDRAULIC
- STRAIN GAUGE

WEIRS

SIDE VIEW	PLAN VIEW
RECTANGULAR w/o END CONTRACTIONS	RECTANGULAR w/o END CONTRACTIONS
RECTANGULAR w/ END CONTRACTIONS	RECTANGULAR w/ END CONTRACTIONS
V-NOTCH (TRIANGULAR)	V-NOTCH (TRIANGULAR)
TRAPEZOIDAL (CIPOLLETTI)	TRAPEZOIDAL (CIPOLLETTI)

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PROCESS SWITCHES

- FLOAT SWITCH CLOSE ON RISING LEVEL
- FLOAT SWITCH OPEN ON RISING LEVEL
- PRESSURE SWITCH CLOSE ON RISING PRESSURE
- PRESSURE SWITCH OPEN ON RISING PRESSURE
- TEMPERATURE SWITCH CLOSE ON RISING TEMPERATURE
- TEMPERATURE SWITCH OPEN ON RISING TEMPERATURE
- FLOW SWITCH CLOSE ON INCREASE IN FLOW
- FLOW SWITCH OPEN ON INCREASE IN FLOW
- VIBRATION SWITCH OPEN ON RISING VIBRATION
- VIBRATION SWITCH CLOSE ON RISING VIBRATION
- TORQUE SWITCH OPEN ON HIGH TORQUE
- TORQUE SWITCH CLOSE ON HIGH TORQUE
- NORMALLY CLOSED LIMIT SWITCH
- NORMALLY CLOSED HELD OPEN LIMIT SWITCH
- NORMALLY OPEN LIMIT SWITCH
- NORMALLY OPEN HELD CLOSED LIMIT SWITCH

HAND SWITCHES

- NORMALLY OPEN MOMENTARY PUSHBUTTON
- NORMALLY CLOSED MOMENTARY PUSHBUTTON
- THREE POSITION SELECTOR SWITCH (xoo)
  x - DENOTES POSITION CONTACTS CLOSED IN
- TWO POSITION SELECTOR SWITCH (xo)
  x - DENOTES POSITION CONTACTS CLOSED IN
- MUSHROOM HEAD PUSHBUTTON
- PUSH-PULL PUSHBUTTON MAINTAINED CONTACT
- PADLOCK SWITCH (xox)
  x - DENOTES POSITION CONTACTS CLOSED IN
- PULL CORD SWITCH
- STOP-LOCKOUT PUSHBUTTON
- SPRING-RETURN (xoo)
  x - DENOTES POSITION CONTACTS CLOSED IN

INDICATORS

- PILOT LIGHT (a)
  a = LENS COLOR
  R = RED
  G = GREEN
  W = WHITE
  A = AMBER
  B = BLUE
  Y = YELLOW
  C = CLEAR
- BEACON (a)
  a = LENS COLOR
  R = RED
  G = GREEN
  W = WHITE
  A = AMBER
  B = BLUE
  M = MAGENTA
  C = CLEAR
- HORN (H)

RELAYS

- RELAY COIL (a, b, c, d)
  a = TYPE
  CR - CONTROL RELAY
  TD - TIME DELAY RELAY
  M - MOTOR STARTER COIL
  L - MOTOR STARTER COIL - LOW SPEED
  H - MOTOR STARTER COIL - HIGH SPEED
  F - MOTOR STARTER COIL - FORWARD
  R - MOTOR STARTER COIL - REVERSE
  b = TDON - TIME DELAY ON ENERGIZATION
  TDOFF - TIME DELAY ON DEENERGIZATION
  c = TIMING RANGE/SETTING
  d = DESCRIPTION
- NORMALLY OPEN CONTROL CONTACT
- NORMALLY CLOSED CONTROL CONTACT
- NOTC — TIME DELAY CONTACT NORMALLY OPEN TIMED CLOSING
- NCTO — TIME DELAY CONTACT NORMALLY CLOSED TIMED OPENING
- NOTO — TIME DELAY CONTACT NORMALLY OPEN TIMED OPENING
- NCTC — TIME DELAY CONTACT NORMALLY CLOSED TIMED CLOSING

TERMINAL BLOCKS

- TERMINAL IN PLC/PCM PANEL
- TERMINAL IN MOTOR CONTROL CENTER
- TERMINAL IN LOCAL STARTER CONTROL PANEL
- TERMINAL AT FIELD DEVICE
- TERMINAL IN RTU
- TERMINAL IN FIELD PANEL
- TERMINAL IN (USER CHOICE)
- DIGITAL BUS CONNECTOR
  * = D - DEVICENET
  * = PA - PROFIBUS PA
  * = DP - PROFIBUS DP
  * = H1 - FOUNDATION FIELDBUS H1
  * = H2 - FOUNDATION FIELDBUS H2
  * = E - ETHERNET

I/O

- PLC DISCRETE (a)
  a = INPUT OR OUTPUT AS INDICATED
- PLC ANALOG (ANALOG / a)
  a = INPUT OR OUTPUT AS INDICATED
- DIGITAL BUS (DIGITAL / BUS)

MISC

- SOLENOID
- METER UNIT (M)
  M = TYPE
- MOTOR (HP)
- CIRCUIT BREAKER
- DISCONNECT
- FUSE
- TRANSIENT SURGE PROTECTION
- MOTOR WINDING HEATER (MWH-*)
  * - MOTOR TAG I.D.
- SPACE HEATER
- VARISTOR
- CAPACITOR
- RESISTOR
- BATTERY
- DIODE
- MOTOR OVERLOAD HEATERS
- OVERLOAD CONTACT
- DRAWOUT CONNECTION
- GROUND
- LIGHTNING ARRESTOR
- CONTROL POWER TRANSFORMER (H1, H3, H2, H4, X1, X2)
- ELAPSED TIME METER (KI-* / ETM)

REV	DATE	BY	DESCRIPTION

DESIGNED RD
DRAWN KMM
CHECKED RD
DATE JUNE 2021

RICHARD DeFREITAS LICENSE No 69198 STATE OF FLORIDA PROFESSIONAL ENGINEER

Richard DeFreitas
I attest to the accuracy and integrity of this document
2025.01.31 14:14:47-05'00'

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CA 00008571

Sarasota County
scgov.net | 941.861.5000

SARASOTA COUNTY
SCADA STANDARDS
INSTRUMENTATION
DEVELOPER LS SCHEMATIC SYMBOLS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 11572A10
DRAWING NO. 18GN05
SHEET NO. 8 OF 16

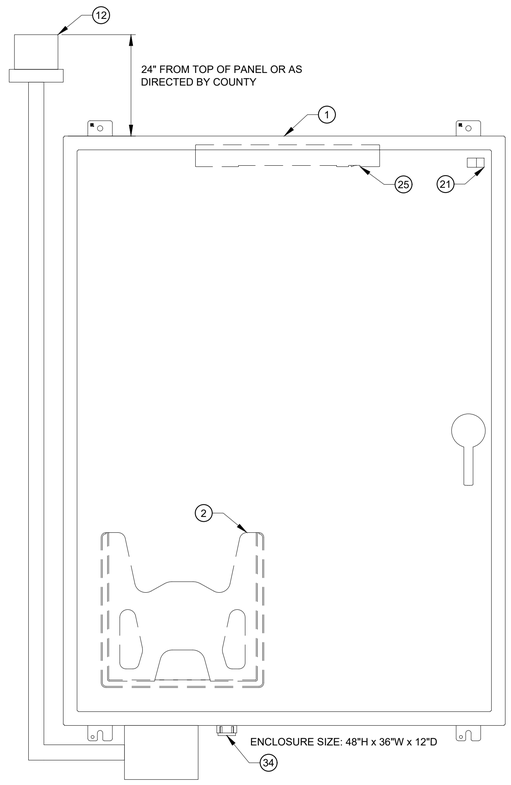
NAMEPLATE SCHEDULE	
NP 1	CCB
NP 2	GFI
NP 3	PUMP NO.1
NP 4	PUMP NO.2
NP 5	MAIN
NP 6	PUMP NO.1 RUN
NP 7	PUMP NO.2 RUN
NP 8	ALARM SILENCE
NP 9	MISSION RTU

GENERAL NOTES:

1. CONTRACTOR SHALL ENSURE CONTROL PANEL IS SUPPLIED AND INSTALLED IN ACCORDANCE WITH SARASOTA COUNTY SPECIFICATIONS, INCLUDING BUT NOT LIMITED TO SECTION 16050, 16075, 17050, 17722 AND 17950.

KEY NOTES:

(1) CENTER OVER OVERLOAD RESETS.



A EXTERNAL ELEVATION
SCALE: NO SCALE
FILE: 11572A1002N603.2dm

MAJOR EQUIPMENT SCHEDULE		
ITEM	QTY	DESCRIPTION
1	1	NEMA 4X 316 STAINLESS STEEL ENCLOSURE 48"H x 36"W — NVENT HOFFMAN MODEL A48H3612SS6LP3PT, CONTROL CABINET - 48" HIGH, 36" WIDE , AND 12" DEEP (EXCLUDING DOOR DEPTH), CABINET SHALL BE CONSTRUCTED EXCLUSIVELY OF 316 STAINLESS STEEL, 14 GAUGE (MINIMUM) WITH CONTINUOUS WELDS THROUGHOUT. WEEP HOLES OR OTHER OPENINGS IN ENCLOSURE WHICH ARE NOT SPECIFIED IN THESE DRAWINGS SHALL NOT BE ACCEPTABLE. PANEL SHALL HAVE AN OUTER DOOR GASKET SEAL WHICH SHALL BE CLOSE-CELL NEOPRENE OR OTHER MATERIAL AS APPROVED BY COUNTY. DOOR GASKET SHALL PROVIDE A CONTINUOUS SEAL AGAINST EXTERIOR DOOR SEALING FACE WHICH SHALL BE A CONTINUOUS ROLLED LIP. A DRIP SHIELD SHALL BE PROVIDED AND TACK WELDED IN PLACE AT NOT LESS THAN 5 LOCATIONS. A THREE POINT 90 DEGREE TURN LATCHING MECHANISM CONSTRUCTED OF 304 STAINLESS STEEL SHALL BE PROVIDED. LATCHING MECHANISM SHALL BE OPERATED BY A SINGLE EXTERIOR STAINLESS STEEL HANDLE WITH ROLLERS AND SHALL BE PAD-LOCKABLE TO PREVENT UNAUTHORIZED OPERATION. DOOR SHALL BE FULL HEIGHT WITH 304 STAINLESS STEEL CONTINUOUS PIANO HINGE, DOOR LOCK OPEN STAINLESS STEEL ROD, AND SHALL MINIMALLY HAVE 120 SWING. PANEL SHALL HAVE PROVISIONS FOR MOUNTING BACKPANEL AND DEADFRONT INSIDE AS A SINGLE UNITIZED ASSEMBLY. A LAMINATED WIRING DIAGRAM OF ALL WIRING CONNECTIONS SHALL BE PROVIDED IN A PERMANENT SLEEVE ATTACHED TO PANEL DOOR. PANEL SHALL BE INSTALLED PERPENDICULAR TO WETWELL AND VALVE VAULT AND DOOR HINGED TO OPEN AWAY FROM THE WETWELL AND VALVE VAULT.
2	1	DATA POCKET
3	1	BACK PANEL 33" X 45" — NVENT HOFFMAN MODEL A36P48SS6, BACK PLATE - 33" WIDE BY 45" HIGH, 10 GAUGE (MINIMUM), PRIMED AND FINISH PAINTED STEEL BACK PLATE WITH 3/4" ROLLED OR BROKEN EDGES FOR SUPPORT. FINISH PAINT COATS SHALL HAVE A DRY FILM THICKNESS OF AT LEAST 4 MILS. HOFFMAN OR APPROVED EQUAL. ALL EQUIPMENT MOUNTED TO BACK PLATE SHALL BE ATTACHED WITH MACHINE SCREWS THROUGH DRILLED AND TAPPED HOLES.
4	4	INTRINSICALLY SAFE RELAYS — DIVERSIFIED ELECTRICAL MODEL ISO-120-AFA , SINGLE CHANNEL, 120 VAC POWER SUPPLY, 16 VOLT DC SENSING VOLTAGE, 200 MICROAMP SENSING AMPERAGE, 8-PIN PLUG-IN CONNECTION.
5	1	DEAD FRONT — 32-1/2"" WIDE BY 43" HIGH, 10 GAUGE (MINIMUM), BRUSHED ALUMINUM DEAD-FRONT PANEL WITH 304 STAINLESS STEEL OR ALUMINUM CONTINUOUS PIANO HINGE AND TWO QUARTER-TURN L- KNOB HANDLES FOR HOLDING THE PANEL CLOSED TO THE BACK OF THE PLATE AND INTERNAL FRAME OF THE CONTROL PANEL. ISOLATE CONTACT BETWEEN DISSIMILAR METALS W/ 1/8" NON-CONDUCTIVE INSULATING MATERIAL. PANEL SHALL BE PROVIDED WITH DOOR HOLD (OPEN) WITH STAINLESS STEEL ROD. DOOR SWING SHALL MINIMALLY BE 90-DEGREE OPEN. PANEL SHALL INCLUDE MOUNTED DEVICES AND CUT-OUTS AS INDICATED ON THE DRAWINGS. PANEL EDGES SHALL BE DEBURRED AND ROUNDED.
6	1	ALTERNATOR — DUPLEX PANEL: MPE MODEL 008-120-12 OR DIVERSIFIED ELECTRIC MODEL ARA-120-ADA, 11-PIN PLUG-IN CONNECTION, DOUBLE POLE- DOUBLE THROW, 120 VAC CONTROL VOLTAGE, TRIPLEX PANEL: DIVERSIFIED MODEL ARA-120-AME, PANEL MOUNT, SINGLE POLE-SINGLE THROW, 120VAC CONTROL VOLTAGE
7	AS REQ'D	ANALOG TERMINAL BLOCKS — SQUARE D TYPE GME 6, PROVIDE SQUARE D TYPE GH10 END CLAMPS AT EACH END OF THE TERMINAL STRIP. PROVIDE END BARRIER AT BOTTOM OF EACH TERMINAL STRIP, SQUARE D TYPE GME6B WITHOUT EXCEPTION.
8	AS REQ'D	24 VDC FUSED TERMINAL BLOCKS — SQUARE D TYPE GME 6, PROVIDE SQUARE D TYPE GH10 END CLAMPS AT EACH END OF THE TERMINAL STRIP. PROVIDE END BARRIER AT BOTTOM OF EACH TERMINAL STRIP, SQUARE D TYPE GME6B WITHOUT EXCEPTION.
9	AS REQ'D	DISCRETE TERMINAL BLOCKS — SQUARE D TYPE GME 6, 120 CONTROL TERMINAL BLOCKS FOR UP TO #10 AWG, 30 AMP, 600V. PROVIDE SQUARE D TYPE GH10 END CLAMPS AT EACH END OF THE TERMINAL STRIP. PROVIDE END BARRIER AT BOTTOM OF EACH TERMINAL STRIP, SQUARE D TYPE GME6B WITHOUT EXCEPTION.
10	AS REQ'D	DIN RAIL — SQUARE D 9080MH339
11	1	STROBE/BEACON — FEDERAL SIGNAL CORP., LP3P-120R. 120 VAC ALARM LIGHT INCLUDING RED LENS COVERING STROBE LAMP HOLDER WITH FLASHER. GASKET SHALL BE PROVIDED BETWEEN LENS AND ENCLOSURE FOR WEATHERTIGHT SEAL. ALARM LIGHT MOUNTING SHALL BE STAINLESS STEEL RIGID PIPE PREWIRED WITH LIGHT ATTACHED , AND PACKAGED SEPARATELY FOR TRANSPORT READY FOR FIELD ASSEMBLY. 1/4" DISCONNECTS SHALL BE PROVIDED INSIDE ENCLOSURE TO FACILITATE FIELD ASSEMBLY.
12	AS REQ'D	GREY WIRE DUCT — PANDUIT GREY WIRING DUCT, 1" WIDE BY 3" HIGH, SHALL BE ATTACHED TO BACKPLATE WITH SCREWS.
13	1	GROUND BAR — SQUARE D PK12GTA, GROUND COMPRESSION TYPE TERMINAL BLOCK MOUNTED DIRECTLY TO PANEL. GROUND BAR SHALL CONSIST OF MIN. 12 GROUND TERMINALS FOR UP TO #4 AWG WIRE.
14	1	ISOLATED GROUND BAR — SQUARE D PK12GTA W/ PKGTAB
15	10	CONTROL RELAYS W/ OCTAL BASE AND PILOT LIGHT OPTION — SQUARE D CLASS 8501 KPR12P14V20
16	AS REQ'D	BREAKER CUTOUT
17	2	SELECTOR SWITCH - THREE POSITION — SQUARE D CLASS 9001, MODEL KS43BH2, 30MM INDUSTRIAL, MAINTAINED, LEVER OPERATOR, OIL-TIGHT, SELECTOR SWITCH WITH CONTACTS AS INDICATED ON THE DRAWINGS AND AN "MANUAL-OFF-AUTO" LEGEND PLATE.
18	2	PILOT LIGHTS — SQUARE D CLASS 9001 TYPE SKP-38 LIGHT, TYPE G31 LENS AND TYPE KN-224 LEGEND PLATE. 120 VAC, RESISTOR TYPE, OIL-TIGHT, WATERTIGHT, PILOT LIGHT WITH COLORED GREEN, AMBER, OR RED PLASTIC LENS AS SHOWN ON DRAWINGS.
19	2	ELAPSED TIME METERS — REDINGTON MODEL 710-0002, 120 VAC, 6-1/2 DIGIT, NONRESETABLE, PANEL- MOUNTED.
20	1	INTRUSION SWITCH — INTRUSION SWITCH: THE SWITCH CONTACT SHALL BE NORMALLY CLOSED (OPEN WHEN THE PANEL DOOR IS CLOSED). INTRUSION SWITCH SHALL BE SQUARE-D 9007MS01IS0300 WITHOUT EXCEPTION.
21	1	TRANSFORMER — SQUARE D 9070T750D1 W/ LEXAN FINGERSAFE COVER

MAJOR EQUIPMENT SCHEDULE			
ITEM	QTY	DESCRIPTION	
22	3	120 VAC CIRCUIT BREAKERS	SQUARE D TYPE QOU, CIRCUIT BREAKERS (CONTROL, GFI, RTU) - SINGLE POLE, 10 & 15 AMPERE, 120/240VAC, THERMAL MAGNETIC WITH MOUNTING FEET FOR BASE MOUNTING.
23	1	GFCI OUTLET	120 VAC, 20 AMPERE, DUPLEX, INDUSTRIAL-GRADE, IVORY. LEVITON MODEL 6598-I, OR EQUAL MOUNTED IN STANDARD OUTLET BOX.
24	1	LIGHT	NVENT HOFFMAN LEDA1S35, LED PANEL LIGHT WITH INTEGRAL SWITCH
25	2	LATCHES	QUARTER TURN L-KNOB
26	2	FVNR MAGNETIC STARTERS	SQUARE D CLASS 8536 WITHOUT EXCEPTION MAGNETIC STARTERS - 3 POLE, 600 VAC MAXIMUM, OPEN CONSTRUCTION, CLOSE COUPLED, WITH OVERLOAD RELAY ASSEMBLIES. STARTER SHALL HAVE 120 VAC, 60 HZ MAGNETIC COIL AND SHALL MINIMALLY HAVE ONE AUXILIARY COIL STATUS CONTACT. STARTERS SHALL BE SIZED ACCORDING TO THE MOTOR HORSEPOWER AS FOLLOWS: NEMA SIZE 1: 230 VOLTS - 7-1/2 HP AND LESS 460 VOLTS - 10 HP AND LESS NEMA SIZE 2: 230 VOLTS - GREATER THAN 7-1/2 HP, LESS THAN OR EQUAL TO 15 HP 460 VOLTS - GREATER THAN 10 HP, LESS THAN OR EQUAL TO 25 HP NEMA SIZE 3: 230 VOLTS - GREATER THAN 15 HP 460 VOLTS - GREATER THAN 25 HP OVERLOAD ELEMENTS SHALL BE PROVIDED AND SHALL BE AS RECOMMENDED BY THE PUMP SUPPLIER. ELECTRONIC/ADJUSTABLE OVERLOADS ARE NOT ACCEPTABLE. PROVIDE WITH EXTERNAL RESET COVER OPERATOR ACCESSIBLE THROUGH THE DEAD FRONT.
27	1	MAIN CIRCUIT BREAKER	CIRCUIT BREAKER (MAIN) - 3 POLE, 240 OR 480VAC, THERMAL MAGNETIC, "MAIN", WITH MOUNTING FEET FOR BASE MOUNTING. AMPERE RATING SHALL BE BASED ON THE SIZE OF THE PUMP STATION, BUT SHALL NOT BE RATED LESS THAN 100 AMPERES. SQUARE D TYPE QOU (230 VOLTS, 125 AMPS OR LESS), TYPE Q2L (230 VOLTS, 150 TO 225 AMPS), TYPE HDL (480 VOLTS, 100 AMPS OR LESS), OR POWERPACT J FRAME (480 VOLTS, 150 TO 250 AMPS), WITHOUT EXCEPTION.
28	2	PUMP MOTOR CIRCUIT BREAKER	CIRCUIT BREAKERS (PUMP MOTORS) - 3 POLE, THERMAL MAGNETIC, SUITABLE BASE MOUNTING. AMPERE RATING SHALL BE BASED ON THE STARTING CURRENT OF THE MOTOR PER NEC AND SHALL BE RATED NOT LESS THAN 125% NOR GREATER THAN 250% OF MOTOR FLA. SQUARE D TYPE QOU (230 VOLTS, 125 AMPS OR LESS), TYPE Q2L (230 VOLTS, 150 TO 225 AMPS), TYPE HDL (480 VOLTS, 100 AMPS OR LESS), OR POWERPACT J FRAME (480 VOLTS, 110 TO 250 AMPS), WITHOUT EXCEPTION.
29	1	POWER DISTRIBUTION BLOCK	SQUARE D TYPE LBA363206 FOR PANELS 3 POLE 600 VAC, WITH LINE LUGS FOR TWO #14 TO 2/0 AWG CABLE PER PHASE. SQUARE D TYPE LBA365208 FOR PANELS REQUIRING #2 AWG BRANCH CIRCUITS. PROVIDE WITH PLEXIGLASS COVERS.
30	1	NEUTRAL DISTRIBUTION BLOCK	SQUARE D TYPE LBA163206, SINGLE POLE, 600VAC, WITH LINE LUGS FOR TWO (2) #14 TO 2/0 AWG CABLES AND LOAD LUGS FOR SIX (6) #14 TO #4 AWG CABLES PER PHASE. PROVIDE WITH PLEXIGLASS COVERS.
31	2	ELAPSED TIME METERS	REDINGTON MODEL 710-0002
32	2	PUSH BUTTON PILOT DEVICE - SILENCE	SQUARE D CLASS 9001 KR1R, , FLUSH, MOMENTARY (SPRING-RETURN), OIL-TIGHT, NEMA 4 PUSH-BUTTON WITH 1-N.O. CONTACT WITH RED LEGEND PLATE ENGRAVED "ALARM SILENCE" AND ''TEST ALARM" RESPECTIVELY.
33	2	VFD (BELOW 50 HP) VFD (50 HP AND ABOVE)	HITACHI WJ200 SERIES (230V) HITACHI WJ400 SERIES (480V) ALLEN BRADLEY 753 POWERFLEX SARASOTA COUNTY RETAINS THE OPTION TO APPROVE SOFT STARTS.
34	1	PHASE MONITOR/RELAY	208-230 VAC THREE PHASE DIVERSIFIED MODEL SLA-230-ALA, 230 VAC SINGLE PHASE DIVERSIFIED MODEL UOA-240-AKA, AND 480 VAC SYSTEMS 12 PIN SOCKET MPE MODEL 001-DVM-1212 W / SD12 SOCKET. AUTOMATIC RESET, FUSED, SURFACE-MOUNT, OCTAL SOCKET PLUG-IN CONNECTION, ADJUSTABLE RANGE VOLTAGE FOR 3 PHASE POWER SYSTEMS WITHOUT EXCEPTION. PROVIDE MATCHING SOCKET TO MAINTAIN UL LISTING
35	1	FUSE BLOCK	SQUARE D MODEL FB2211 (250 VOLT SYSTEMS) OR MODEL 2611 (600 VOLT SYSTEMS)
36	1	CELLULAR DIALER	MISSION MYDRO 850, FLATPAK, W/ P/N OP653 (8DI MODULE)

REV	DATE	BY	DESCRIPTION

DESIGNED RD
DRAWN KMM
CHECKED RD
DATE JANUARY 2025

RICHARD DeFREITAS LICENSE No 69198 STATE OF FLORIDA PROFESSIONAL ENGINEER

Richard DeFreitas
I attest to the accuracy and integrity of this document
2025.01.31 14:15:09-00'00'

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CA 00008571

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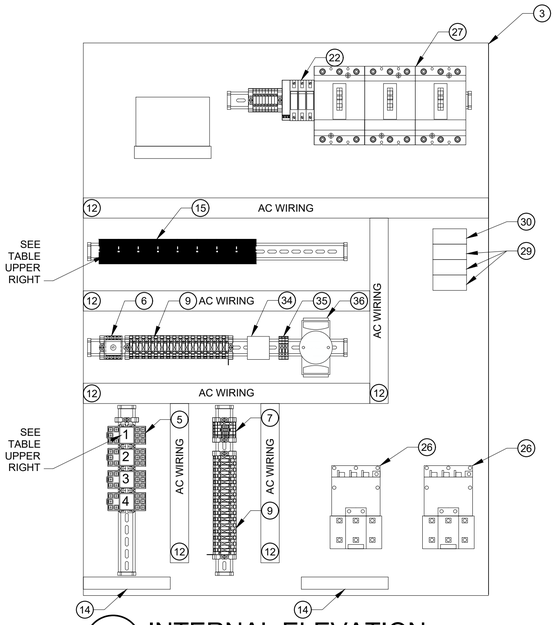
scgov.net | 941.861.5000

SARASOTA COUNTY
SCADA STANDARDS
INSTRUMENTATION
DEVELOPER LS - DUPLEX PUMP CONTROL PANEL EXTERNAL ELEVATION

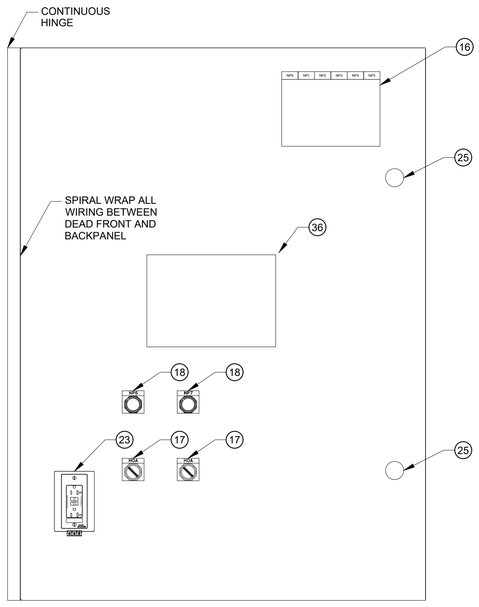
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 11572A10
DRAWING NO. 18N01
SHEET NO. 9 OF 16



B INTERNAL ELEVATION

SCALE: NO SCALE
FILE: 11572A1002N603.2dm



C DEAD FRONT ELEVATION

SCALE: NO SCALE
FILE: 11572A1002N603.2dm

(15) CONTROL RELAY SCHEDULE

1	FLT1A
2	FLT1B
3	FLT2A
4	FLT2B
5	HWL
6	AR1
7	AR2
8	AHR

(4) INTRINSICALLY SAFE RELAY SCHEDULE

1	POWER
2	LEAD
3	LAG
4	HIGH WATER

MAJOR EQUIPMENT SCHEDULE

ITEM	QTY	DESCRIPTION	
1	1	NEMA 4X 316 STAINLESS STEEL ENCLOSURE 48"H x 36"W	NVENT HOFFMAN MODEL A48H3612SS6LP3PT, CONTROL CABINET - 48" HIGH, 36" WIDE , AND 12" DEEP (EXCLUDING DOOR DEPTH), CABINET SHALL BE CONSTRUCTED EXCLUSIVELY OF 316 STAINLESS STEEL, 14 GAUGE (MINIMUM) WITH CONTINUOUS WELDS THROUGHOUT. WEEP HOLES OR OTHER OPENINGS IN ENCLOSURE WHICH ARE NOT SPECIFIED IN THESE DRAWINGS SHALL NOT BE ACCEPTABLE. PANEL SHALL HAVE AN OUTER DOOR GASKET SEAL WHICH SHALL BE CLOSE-CELL NEOPRENE OR OTHER MATERIAL AS APPROVED BY COUNTY. DOOR GASKET SHALL PROVIDE A CONTINUOUS SEAL AGAINST EXTERIOR DOOR SEALING FACE WHICH SHALL BE A CONTINUOUS ROLLED LIP. A DRIP SHIELD SHALL BE PROVIDED AND TACK WELDED IN PLACE AT NOT LESS THAN 5 LOCATIONS. A THREE POINT 90 DEGREE TURN LATCHING MECHANISM CONSTRUCTED OF 304 STAINLESS STEEL SHALL BE PROVIDED. LATCHING MECHANISM SHALL BE OPERATED BY A SINGLE EXTERIOR STAINLESS STEEL HANDLE WITH ROLLERS AND SHALL BE PAD-LOCKABLE TO PREVENT UNAUTHORIZED OPERATION. DOOR SHALL BE FULL HEIGHT WITH 304 STAINLESS STEEL CONTINUOUS PIANO HINGE, DOOR LOCK OPEN STAINLESS STEEL ROD, AND SHALL MINIMALLY HAVE 120 SWING. PANEL SHALL HAVE PROVISIONS FOR MOUNTING BACKPANEL AND DEADFRONT INSIDE AS A SINGLE UNITIZED ASSEMBLY. A LAMINATED WIRING DIAGRAM OF ALL WIRING CONNECTIONS SHALL BE PROVIDED IN A PERMANENT SLEEVE ATTACHED TO PANEL DOOR. PANEL SHALL BE INSTALLED PERPENDICULAR TO WETWELL AND VALVE VAULT AND DOOR HINGED TO OPEN AWAY FROM THE WETWELL AND VALVE VAULT.
2	1	DATA POCKET	
3	1	BACK PANEL 33" X 45"	NVENT HOFFMAN MODEL A36P48SS6, BACK PLATE - 33" WIDE BY 45" HIGH, 10 GAUGE (MINIMUM), PRIMED AND FINISH PAINTED STEEL BACK PLATE WITH 3/4" ROLLED OR BROKEN EDGES FOR SUPPORT. FINISH PAINT COATS SHALL HAVE A DRY FILM THICKNESS OF AT LEAST 4 MILS. HOFFMAN OR APPROVED EQUAL. ALL EQUIPMENT MOUNTED TO BACK PLATE SHALL BE ATTACHED WITH MACHINE SCREWS THROUGH DRILLED AND TAPPED HOLES.
4	4	INTRINSICALLY SAFE RELAYS	DIVERSIFIED ELECTRICAL MODEL ISO-120-AFA , SINGLE CHANNEL, 120 VAC POWER SUPPLY, 16 VOLT DC SENSING VOLTAGE, 200 MICROAMP SENSING AMPERAGE, 8-PIN PLUG-IN CONNECTION.
5	1	DEAD FRONT	32-1/2"" WIDE BY 43" HIGH, 10 GAUGE (MINIMUM), BRUSHED ALUMINUM DEAD-FRONT PANEL WITH 304 STAINLESS STEEL OR ALUMINUM CONTINUOUS PIANO HINGE AND TWO QUARTER-TURN L- KNOB HANDLES FOR HOLDING THE PANEL CLOSED TO THE BACK OF THE PLATE AND INTERNAL FRAME OF THE CONTROL PANEL. ISOLATE CONTACT BETWEEN DISSIMILAR METALS W/ 1/8" NON-CONDUCTIVE INSULATING MATERIAL. PANEL SHALL BE PROVIDED WITH DOOR HOLD (OPEN) WITH STAINLESS STEEL ROD. DOOR SWING SHALL MINIMALLY BE 90-DEGREE OPEN. PANEL SHALL INCLUDE MOUNTED DEVICES AND CUT-OUTS AS INDICATED ON THE DRAWINGS. PANEL EDGES SHALL BE DEBURRED AND ROUNDED.
6	1	ALTERNATOR	DUPLEX PANEL: MPE MODEL 008-120-12 OR DIVERSIFIED ELECTRIC MODEL ARA-120-ADA, 11-PIN PLUG-IN CONNECTION, DOUBLE POLE- DOUBLE THROW, 120 VAC CONTROL VOLTAGE, TRIPLEX PANEL: DIVERSIFIED MODEL ARA-120-AME, PANEL MOUNT, SINGLE POLE-SINGLE THROW, 120VAC CONTROL VOLTAGE
7	AS REQ'D	ANALOG TERMINAL BLOCKS	SQUARE D TYPE GME 6, PROVIDE SQUARE D TYPE GH10 END CLAMPS AT EACH END OF THE TERMINAL STRIP. PROVIDE END BARRIER AT BOTTOM OF EACH TERMINAL STRIP, SQUARE D TYPE GME6B WITHOUT EXCEPTION.
8	AS REQ'D	24 VDC FUSED TERMINAL BLOCKS	SQUARE D TYPE GME 6, PROVIDE SQUARE D TYPE GH10 END CLAMPS AT EACH END OF THE TERMINAL STRIP. PROVIDE END BARRIER AT BOTTOM OF EACH TERMINAL STRIP, SQUARE D TYPE GME6B WITHOUT EXCEPTION.
9	AS REQ'D	DISCRETE TERMINAL BLOCKS	SQUARE D TYPE GME 6, 120 CONTROL TERMINAL BLOCKS FOR UP TO #10 AWG, 30 AMP, 600V. PROVIDE SQUARE D TYPE GH10 END CLAMPS AT EACH END OF THE TERMINAL STRIP. PROVIDE END BARRIER AT BOTTOM OF EACH TERMINAL STRIP, SQUARE D TYPE GME6B WITHOUT EXCEPTION.
10	AS REQ'D	DIN RAIL	SQUARE D 9080MH339
11	1	STROBE/BEACON	FEDERAL SIGNAL CORP., LP3P-120R. 120 VAC ALARM LIGHT INCLUDING RED LENS COVERING STROBE LAMP HOLDER WITH FLASHER. GASKET SHALL BE PROVIDED BETWEEN LENS AND ENCLOSURE FOR WEATHERTIGHT SEAL. ALARM LIGHT MOUNTING SHALL BE STAINLESS STEEL RIGID PIPE PREWIRED WITH LIGHT ATTACHED , AND PACKAGED SEPARATELY FOR TRANSPORT READY FOR FIELD ASSEMBLY. 1/4" DISCONNECTS SHALL BE PROVIDED INSIDE ENCLOSURE TO FACILITATE FIELD ASSEMBLY.
12	AS REQ'D	GREY WIRE DUCT	PANDUIT GREY WIRING DUCT, 1" WIDE BY 3" HIGH, SHALL BE ATTACHED TO BACKPLATE WITH SCREWS.
13	1	GROUND BAR	SQUARE D PK12GTA, GROUND COMPRESSION TYPE TERMINAL BLOCK MOUNTED DIRECTLY TO PANEL. GROUND BAR SHALL CONSIST OF MIN. 12 GROUND TERMINALS FOR UP TO #4 AWG WIRE.
14	1	ISOLATED GROUND BAR	SQUARE D PK12GTA W/ PKGTAB
15	10	CONTROL RELAYS W/ OCTAL BASE AND PILOT LIGHT OPTION	SQUARE D CLASS 8501 KPR12P14V20
16	AS REQ'D	BREAKER CUTOUT	
17	2	SELECTOR SWITCH - THREE POSITION	SQUARE D CLASS 9001, MODEL KS43BH2, 30MM INDUSTRIAL, MAINTAINED, LEVER OPERATOR, OIL-TIGHT, SELECTOR SWITCH WITH CONTACTS AS INDICATED ON THE DRAWINGS AND AN "MANUAL-OFF-AUTO" LEGEND PLATE.
18	2	PILOT LIGHTS	SQUARE D CLASS 9001 TYPE SKP-38 LIGHT, TYPE G31 LENS AND TYPE KN-224 LEGEND PLATE. 120 VAC, RESISTOR TYPE, OIL-TIGHT, WATERTIGHT, PILOT LIGHT WITH COLORED GREEN, AMBER, OR RED PLASTIC LENS AS SHOWN ON DRAWINGS.
19	2	ELAPSED TIME METERS	REDINGTON MODEL 710-0002, 120 VAC, 6-1/2 DIGIT, NONRESETABLE, PANEL- MOUNTED.
20	1	INTRUSION SWITCH	INTRUSION SWITCH: THE SWITCH CONTACT SHALL BE NORMALLY CLOSED (OPEN WHEN THE PANEL DOOR IS CLOSED). INTRUSION SWITCH SHALL BE SQUARE-D 9007MS01IS0300 WITHOUT EXCEPTION.
21	1	TRANSFORMER	SQUARE D 9070T750D1 W/ LEXAN FINGERSAFE COVER

MAJOR EQUIPMENT SCHEDULE

ITEM	QTY	DESCRIPTION	
22	3	120 VAC CIRCUIT BREAKERS	SQUARE D TYPE QOU, CIRCUIT BREAKERS (CONTROL, GFI, RTU) - SINGLE POLE, 10 & 15 AMPERE, 120/240VAC, THERMAL MAGNETIC WITH MOUNTING FEET FOR BASE MOUNTING.
23	1	GFCI OUTLET	120 VAC, 20 AMPERE, DUPLEX, INDUSTRIAL-GRADE, IVORY. LEVITON MODEL 6598-I, OR EQUAL MOUNTED IN STANDARD OUTLET BOX.
24	1	LIGHT	NVENT HOFFMAN LEDA1S35, LED PANEL LIGHT WITH INTEGRAL SWITCH
25	2	LATCHES	QUARTER TURN L-KNOB
26	2	FVNR MAGNETIC STARTERS	SQUARE D CLASS 8536 WITHOUT EXCEPTION MAGNETIC STARTERS - 3 POLE, 600 VAC MAXIMUM, OPEN CONSTRUCTION, CLOSE COUPLED, WITH OVERLOAD RELAY ASSEMBLIES. STARTER SHALL HAVE 120 VAC, 60 HZ MAGNETIC COIL AND SHALL MINIMALLY HAVE ONE AUXILIARY COIL STATUS CONTACT; STARTERS SHALL BE SIZED ACCORDING TO THE MOTOR HORSEPOWER AS FOLLOWS: NEMA SIZE 1: 230 VOLTS - 7-1/2 HP AND LESS 460 VOLTS - 10 HP AND LESS NEMA SIZE 2: 230 VOLTS - GREATER THAN 7-1/2 HP, LESS THAN OR EQUAL TO 15 HP 460 VOLTS - GREATER THAN 10 HP, LESS THAN OR EQUAL TO 25 HP NEMA SIZE 3: 230 VOLTS - GREATER THAN 15 HP 460 VOLTS - GREATER THAN 25 HP OVERLOAD ELEMENTS SHALL BE PROVIDED AND SHALL BE AS RECOMMENDED BY THE PUMP SUPPLIER. ELECTRONIC/ADJUSTABLE OVERLOADS ARE NOT ACCEPTABLE. PROVIDE WITH EXTERNAL RESET COVER OPERATOR ACCESSIBLE THROUGH THE DEAD FRONT.
27	1	MAIN CIRCUIT BREAKER	CIRCUIT BREAKER (MAIN) - 3 POLE, 240 OR 480VAC, THERMAL MAGNETIC, "MAIN", WITH MOUNTING FEET FOR BASE MOUNTING. AMPERE RATING SHALL BE BASED ON THE SIZE OF THE PUMP STATION, BUT SHALL NOT BE RATED LESS THAN 100 AMPERES. SQUARE D TYPE QOU (230 VOLTS, 125 AMPS OR LESS), TYPE Q2L (230 VOLTS, 150 TO 225 AMPS), TYPE HDL (480 VOLTS, 100 AMPS OR LESS), OR POWERPACT J FRAME (480 VOLTS, 150 TO 250 AMPS), WITHOUT EXCEPTION.
28	2	PUMP MOTOR CIRCUIT BREAKER	CIRCUIT BREAKERS (PUMP MOTORS) - 3 POLE, THERMAL MAGNETIC, SUITABLE BASE MOUNTING. AMPERE RATING SHALL BE BASED ON THE STARTING CURRENT OF THE MOTOR PER NEC AND SHALL BE RATED NOT LESS THAN 125% NOR GREATER THAN 250% OF MOTOR FLA. SQUARE D TYPE QOU (230 VOLTS, 125 AMPS OR LESS), TYPE Q2L (230 VOLTS, 150 TO 225 AMPS), TYPE HDL (480 VOLTS, 100 AMPS OR LESS), OR POWERPACT J FRAME (480 VOLTS, 110 TO 250 AMPS), WITHOUT EXCEPTION.
29	1	POWER DISTRIBUTION BLOCK	SQUARE D TYPE LBA363206 FOR PANELS 3 POLE 600 VAC, WITH LINE LUGS FOR TWO #14 TO 2/0 AWG CABLE PER PHASE. SQUARE D TYPE LBA365208 FOR PANELS REQUIRING #2 AWG BRANCH CIRCUITS. PROVIDE WITH PLEXIGLASS COVERS.
30	1	NEUTRAL DISTRIBUTION BLOCK	SQUARE D TYPE LBA163206, SINGLE POLE, 600VAC, WITH LINE LUGS FOR TWO (2) #14 TO 2/0 AWG CABLES AND LOAD LUGS FOR SIX (6) #14 TO #4 AWG CABLES PER PHASE. PROVIDE WITH PLEXIGLASS COVERS.
31	2	ELAPSED TIME METERS	REDINGTON MODEL 710-0002
32	2	PUSH BUTTON PILOT DEVICE - SILENCE	SQUARE D CLASS 9001 KR1R, , FLUSH, MOMENTARY (SPRING-RETURN), OIL-TIGHT, NEMA 4 PUSH-BUTTON WITH 1-N.O. CONTACT WITH RED LEGEND PLATE ENGRAVED "ALARM SILENCE" AND ''TEST ALARM" RESPECTIVELY.
33	2	VFD (BELOW 50 HP) VFD (50 HP AND ABOVE)	HITACHI WJ200 SERIES (230V) HITACHI WJ400 SERIES (480V) ALLEN BRADLEY 753 POWERFLEX SARASOTA COUNTY RETAINS THE OPTION TO APPROVE SOFT STARTS.
34	1	PHASE MONITOR/RELAY	208-230 VAC THREE PHASE DIVERSIFIED MODEL SLA-230-ALA, 230 VAC SINGLE PHASE DIVERSIFIED MODEL UOA-240-AKA, AND 480 VAC SYSTEMS 12 PIN SOCKET MPE MODEL 001-DVM-1212 W / SD12 SOCKET. AUTOMATIC RESET, FUSED, SURFACE-MOUNT, OCTAL SOCKET PLUG-IN CONNECTION, ADJUSTABLE RANGE VOLTAGE FOR 3 PHASE POWER SYSTEMS WITHOUT EXCEPTION. PROVIDE MATCHING SOCKET TO MAINTAIN UL LISTING
35	1	FUSE BLOCK	SQUARE D MODEL FB2211 (250 VOLT SYSTEMS) OR MODEL 2611 (600 VOLT SYSTEMS)
36	1	CELLULAR DIALER	MISSION MYDRO 850, FLATPAK, W/ P/N OP653 (8DI MODULE)

REV	DATE	BY	DESCRIPTION

DESIGNED RD
DRAWN KMM
CHECKED RD
DATE JANUARY 2025

RICHARD DeFREITAS LICENSE No 69198 STATE OF FLORIDA PROFESSIONAL ENGINEER

Richard DeFreitas
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SARASOTA COUNTY
SCADA STANDARDS
INSTRUMENTATION
DEVELOPER LS - DUPLEX PUMP CONTROL PANEL
480V/240V/208V 3PH INTERNAL ELEVATION

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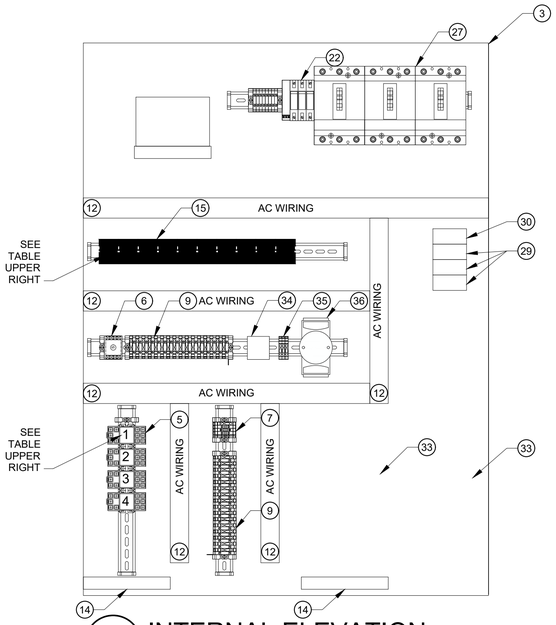
SHEET NO. 10 OF 16



B INTERNAL ELEVATION

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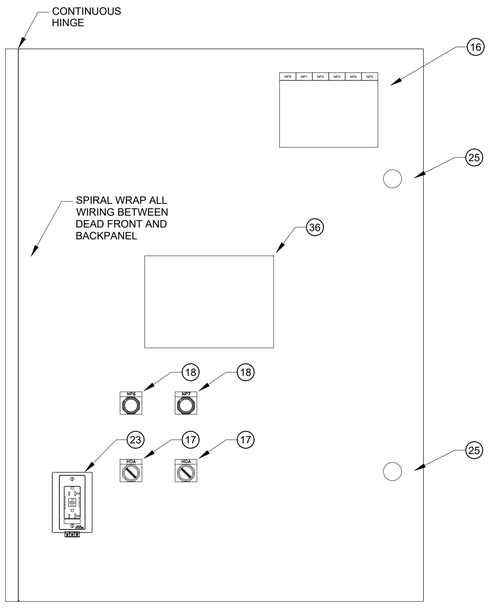

C DEAD FRONT ELEVATION

SCALE: NO SCALE
FILE: 11572A1002N603.2dm

(16) CONTROL RELAY SCHEDULE

1	FLT1A
2	FLT1B
3	FLT2A
4	FLT2B
5	HWL
6	AR1
7	AR2
8	AHR
9	VFD1
10	VFD2

(5) INTRINSICALLY SAFE RELAY SCHEDULE

1	POWER
2	LEAD
3	LAG
4	HIGH WATER

MAJOR EQUIPMENT SCHEDULE

ITEM	QTY	DESCRIPTION	
1	1	NEMA 4X 316 STAINLESS STEEL ENCLOSURE 48"H x 36"W	NVENT HOFFMAN MODEL A48H3612SS6LP3PT, CONTROL CABINET - 48" HIGH, 36" WIDE , AND 12" DEEP (EXCLUDING DOOR DEPTH), CABINET SHALL BE CONSTRUCTED EXCLUSIVELY OF 316 STAINLESS STEEL, 14 GAUGE (MINIMUM) WITH CONTINUOUS WELDS THROUGHOUT. WEEP HOLES OR OTHER OPENINGS IN ENCLOSURE WHICH ARE NOT SPECIFIED IN THESE DRAWINGS SHALL NOT BE ACCEPTABLE. PANEL SHALL HAVE AN OUTER DOOR GASKET SEAL WHICH SHALL BE CLOSE-CELL NEOPRENE OR OTHER MATERIAL AS APPROVED BY COUNTY. DOOR GASKET SHALL PROVIDE A CONTINUOUS SEAL AGAINST EXTERIOR DOOR SEALING FACE WHICH SHALL BE A CONTINUOUS ROLLED LIP. A DRIP SHIELD SHALL BE PROVIDED AND TACK WELDED IN PLACE AT NOT LESS THAN 5 LOCATIONS. A THREE POINT 90 DEGREE TURN LATCHING MECHANISM CONSTRUCTED OF 304 STAINLESS STEEL SHALL BE PROVIDED. LATCHING MECHANISM SHALL BE OPERATED BY A SINGLE EXTERIOR STAINLESS STEEL HANDLE WITH ROLLERS AND SHALL BE PAD-LOCKABLE TO PREVENT UNAUTHORIZED OPERATION. DOOR SHALL BE FULL HEIGHT WITH 304 STAINLESS STEEL CONTINUOUS PIANO HINGE, DOOR LOCK OPEN STAINLESS STEEL ROD, AND SHALL MINIMALLY HAVE 120 SWING. PANEL SHALL HAVE PROVISIONS FOR MOUNTING BACKPANEL AND DEADFRONT INSIDE AS A SINGLE UNITIZED ASSEMBLY. A LAMINATED WIRING DIAGRAM OF ALL WIRING CONNECTIONS SHALL BE PROVIDED IN A PERMANENT SLEEVE ATTACHED TO PANEL DOOR. PANEL SHALL BE INSTALLED PERPENDICULAR TO WETWELL AND VALVE VAULT AND DOOR HINGED TO OPEN AWAY FROM THE WETWELL AND VALVE VAULT.
2	1	DATA POCKET	
3	1	BACK PANEL 33" X 45"	NVENT HOFFMAN MODEL A36P48SS6, BACK PLATE - 33" WIDE BY 45" HIGH, 10 GAUGE (MINIMUM), PRIMED AND FINISH PAINTED STEEL BACK PLATE WITH 3/4" ROLLED OR BROKEN EDGES FOR SUPPORT. FINISH PAINT COATS SHALL HAVE A DRY FILM THICKNESS OF AT LEAST 4 MILS. HOFFMAN OR APPROVED EQUAL. ALL EQUIPMENT MOUNTED TO BACK PLATE SHALL BE ATTACHED WITH MACHINE SCREWS THROUGH DRILLED AND TAPPED HOLES.
4	4	INTRINSICALLY SAFE RELAYS	DIVERSIFIED ELECTRICAL MODEL ISO-120-AFA , SINGLE CHANNEL, 120 VAC POWER SUPPLY, 16 VOLT DC SENSING VOLTAGE, 200 MICROAMP SENSING AMPERAGE, 8-PIN PLUG-IN CONNECTION.
5	1	DEAD FRONT	32-1/2"" WIDE BY 43" HIGH, 10 GAUGE (MINIMUM), BRUSHED ALUMINUM DEAD-FRONT PANEL WITH 304 STAINLESS STEEL OR ALUMINUM CONTINUOUS PIANO HINGE AND TWO QUARTER-TURN L- KNOB HANDLES FOR HOLDING THE PANEL CLOSED TO THE BACK OF THE PLATE AND INTERNAL FRAME OF THE CONTROL PANEL. ISOLATE CONTACT BETWEEN DISSIMILAR METALS W/ 1/8" NON-CONDUCTIVE INSULATING MATERIAL. PANEL SHALL BE PROVIDED WITH DOOR HOLD (OPEN) WITH STAINLESS STEEL ROD. DOOR SWING SHALL MINIMALLY BE 90-DEGREE OPEN. PANEL SHALL INCLUDE MOUNTED DEVICES AND CUT-OUTS AS INDICATED ON THE DRAWINGS. PANEL EDGES SHALL BE DEBURRED AND ROUNDED.
6	1	ALTERNATOR	DUPLEX PANEL: MPE MODEL 008-120-12 OR DIVERSIFIED ELECTRIC MODEL ARA-120-ADA, 11-PIN PLUG-IN CONNECTION, DOUBLE POLE- DOUBLE THROW, 120 VAC CONTROL VOLTAGE, TRIPLEX PANEL: DIVERSIFIED MODEL ARA-120-AME, PANEL MOUNT, SINGLE POLE-SINGLE THROW, 120VAC CONTROL VOLTAGE
7	AS REQ'D	ANALOG TERMINAL BLOCKS	SQUARE D TYPE GME 6, PROVIDE SQUARE D TYPE GH10 END CLAMPS AT EACH END OF THE TERMINAL STRIP. PROVIDE END BARRIER AT BOTTOM OF EACH TERMINAL STRIP, SQUARE D TYPE GME6B WITHOUT EXCEPTION.
8	AS REQ'D	24 VDC FUSED TERMINAL BLOCKS	SQUARE D TYPE GME 6, PROVIDE SQUARE D TYPE GH10 END CLAMPS AT EACH END OF THE TERMINAL STRIP. PROVIDE END BARRIER AT BOTTOM OF EACH TERMINAL STRIP, SQUARE D TYPE GME6B WITHOUT EXCEPTION.
9	AS REQ'D	DISCRETE TERMINAL BLOCKS	SQUARE D TYPE GME 6, 120 CONTROL TERMINAL BLOCKS FOR UP TO #10 AWG, 30 AMP, 600V. PROVIDE SQUARE D TYPE GH10 END CLAMPS AT EACH END OF THE TERMINAL STRIP. PROVIDE END BARRIER AT BOTTOM OF EACH TERMINAL STRIP, SQUARE D TYPE GME6B WITHOUT EXCEPTION.
10	AS REQ'D	DIN RAIL	SQUARE D 9080MH339
11	1	STROBE/BEACON	FEDERAL SIGNAL CORP., LP3P-120R. 120 VAC ALARM LIGHT INCLUDING RED LENS COVERING STROBE LAMP HOLDER WITH FLASHER. GASKET SHALL BE PROVIDED BETWEEN LENS AND ENCLOSURE FOR WEATHERTIGHT SEAL. ALARM LIGHT MOUNTING SHALL BE STAINLESS STEEL RIGID PIPE PREWIRED WITH LIGHT ATTACHED , AND PACKAGED SEPARATELY FOR TRANSPORT READY FOR FIELD ASSEMBLY. 1/4" DISCONNECTS SHALL BE PROVIDED INSIDE ENCLOSURE TO FACILITATE FIELD ASSEMBLY.
12	AS REQ'D	GREY WIRE DUCT	PANDUIT GREY WIRING DUCT, 1" WIDE BY 3" HIGH, SHALL BE ATTACHED TO BACKPLATE WITH SCREWS.
13	1	GROUND BAR	SQUARE D PK12GTA, GROUND COMPRESSION TYPE TERMINAL BLOCK MOUNTED DIRECTLY TO PANEL. GROUND BAR SHALL CONSIST OF MIN. 12 GROUND TERMINALS FOR UP TO #4 AWG WIRE.
14	1	ISOLATED GROUND BAR	SQUARE D PK12GTA W/ PKGTAB
15	10	CONTROL RELAYS W/ OCTAL BASE AND PILOT LIGHT OPTION	SQUARE D CLASS 8501 KPR12P14V20
16	AS REQ'D	BREAKER CUTOUT	
17	2	SELECTOR SWITCH - THREE POSITION	SQUARE D CLASS 9001, MODEL KS43BH2, 30MM INDUSTRIAL, MAINTAINED, LEVER OPERATOR, OIL-TIGHT, SELECTOR SWITCH WITH CONTACTS AS INDICATED ON THE DRAWINGS AND AN "MANUAL-OFF-AUTO" LEGEND PLATE.
18	2	PILOT LIGHTS	SQUARE D CLASS 9001 TYPE SKP-38 LIGHT, TYPE G31 LENS AND TYPE KN-224 LEGEND PLATE. 120 VAC, RESISTOR TYPE, OIL-TIGHT, WATERTIGHT, PILOT LIGHT WITH COLORED GREEN, AMBER, OR RED PLASTIC LENS AS SHOWN ON DRAWINGS.
19	2	ELAPSED TIME METERS	REDINGTON MODEL 710-0002, 120 VAC, 6-1/2 DIGIT, NONRESETABLE, PANEL- MOUNTED.
20	1	INTRUSION SWITCH	INTRUSION SWITCH: THE SWITCH CONTACT SHALL BE NORMALLY CLOSED (OPEN WHEN THE PANEL DOOR IS CLOSED). INTRUSION SWITCH SHALL BE SQUARE-D 9007MS01IS0300 WITHOUT EXCEPTION.
21	1	TRANSFORMER	SQUARE D 9070T750D1 W/ LEXAN FINGERSAFE COVER

MAJOR EQUIPMENT SCHEDULE

ITEM	QTY	DESCRIPTION	
22	3	120 VAC CIRCUIT BREAKERS	SQUARE D TYPE QOU, CIRCUIT BREAKERS (CONTROL, GFI, RTU) - SINGLE POLE, 10 & 15 AMPERE, 120/240VAC, THERMAL MAGNETIC WITH MOUNTING FEET FOR BASE MOUNTING.
23	1	GFCI OUTLET	120 VAC, 20 AMPERE, DUPLEX, INDUSTRIAL-GRADE, IVORY. LEVITON MODEL 6598-I, OR EQUAL MOUNTED IN STANDARD OUTLET BOX.
24	1	LIGHT	NVENT HOFFMAN LEDA1S35, LED PANEL LIGHT WITH INTEGRAL SWITCH
25	2	LATCHES	QUARTER TURN L-KNOB
26	2	FVNR MAGNETIC STARTERS	SQUARE D CLASS 8536 WITHOUT EXCEPTION MAGNETIC STARTERS - 3 POLE, 600 VAC MAXIMUM, OPEN CONSTRUCTION, CLOSE COUPLED, WITH OVERLOAD RELAY ASSEMBLIES. STARTER SHALL HAVE 120 VAC, 60 HZ MAGNETIC COIL AND SHALL MINIMALLY HAVE ONE AUXILIARY COIL STATUS CONTACT. STARTERS SHALL BE SIZED ACCORDING TO THE MOTOR HORSEPOWER AS FOLLOWS: NEMA SIZE 1: 230 VOLTS - 7-1/2 HP AND LESS 460 VOLTS - 10 HP AND LESS NEMA SIZE 2: 230 VOLTS - GREATER THAN 7-1/2 HP, LESS THAN OR EQUAL TO 15 HP 460 VOLTS - GREATER THAN 10 HP, LESS THAN OR EQUAL TO 25 HP NEMA SIZE 3: 230 VOLTS - GREATER THAN 15 HP 460 VOLTS - GREATER THAN 25 HP OVERLOAD ELEMENTS SHALL BE PROVIDED AND SHALL BE AS RECOMMENDED BY THE PUMP SUPPLIER. ELECTRONIC/ADJUSTABLE OVERLOADS ARE NOT ACCEPTABLE. PROVIDE WITH EXTERNAL RESET COVER OPERATOR ACCESSIBLE THROUGH THE DEAD FRONT.
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31	2	ELAPSED TIME METERS	REDINGTON MODEL 710-0002
32	2	PUSH BUTTON PILOT DEVICE - SILENCE	SQUARE D CLASS 9001 KR1R, , FLUSH, MOMENTARY (SPRING-RETURN), OIL-TIGHT, NEMA 4 PUSH-BUTTON WITH 1-N.O. CONTACT WITH RED LEGEND PLATE ENGRAVED "ALARM SILENCE" AND ''TEST ALARM" RESPECTIVELY.
33	2	VFD (BELOW 50 HP) VFD (50 HP AND ABOVE)	HITACHI WJ200 SERIES (230V) HITACHI WJ400 SERIES (480V) ALLEN BRADLEY 753 POWERFLEX SARASOTA COUNTY RETAINS THE OPTION TO APPROVE SOFT STARTS.
34	1	PHASE MONITOR/RELAY	208-230 VAC THREE PHASE DIVERSIFIED MODEL SLA-230-ALA, 230 VAC SINGLE PHASE DIVERSIFIED MODEL UOA-240-AKA, AND 480 VAC SYSTEMS 12 PIN SOCKET MPE MODEL 001-DVM-1212 W / SD12 SOCKET. AUTOMATIC RESET, FUSED, SURFACE-MOUNT, OCTAL SOCKET PLUG-IN CONNECTION, ADJUSTABLE RANGE VOLTAGE FOR 3 PHASE POWER SYSTEMS WITHOUT EXCEPTION. PROVIDE MATCHING SOCKET TO MAINTAIN UL LISTING
35	1	FUSE BLOCK	SQUARE D MODEL FB2211 (250 VOLT SYSTEMS) OR MODEL 2611 (600 VOLT SYSTEMS)
36	1	CELLULAR DIALER	MISSION MYDRO 850, FLATPAK, W/ P/N OP653 (8DI MODULE)

REV	DATE	BY	DESCRIPTION

DESIGNED RD
DRAWN KMM
CHECKED RD
DATE JANUARY 2025

RICHARD DeFREITAS LICENSE No 69198 STATE OF FLORIDA PROFESSIONAL ENGINEER

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SARASOTA COUNTY
SCADA STANDARDS
INSTRUMENTATION
DEVELOPER LS - DUPLEX PUMP CONTROL PANEL
480V 3PH AND 1PH SYSTEMS INTERNAL ELEVATION

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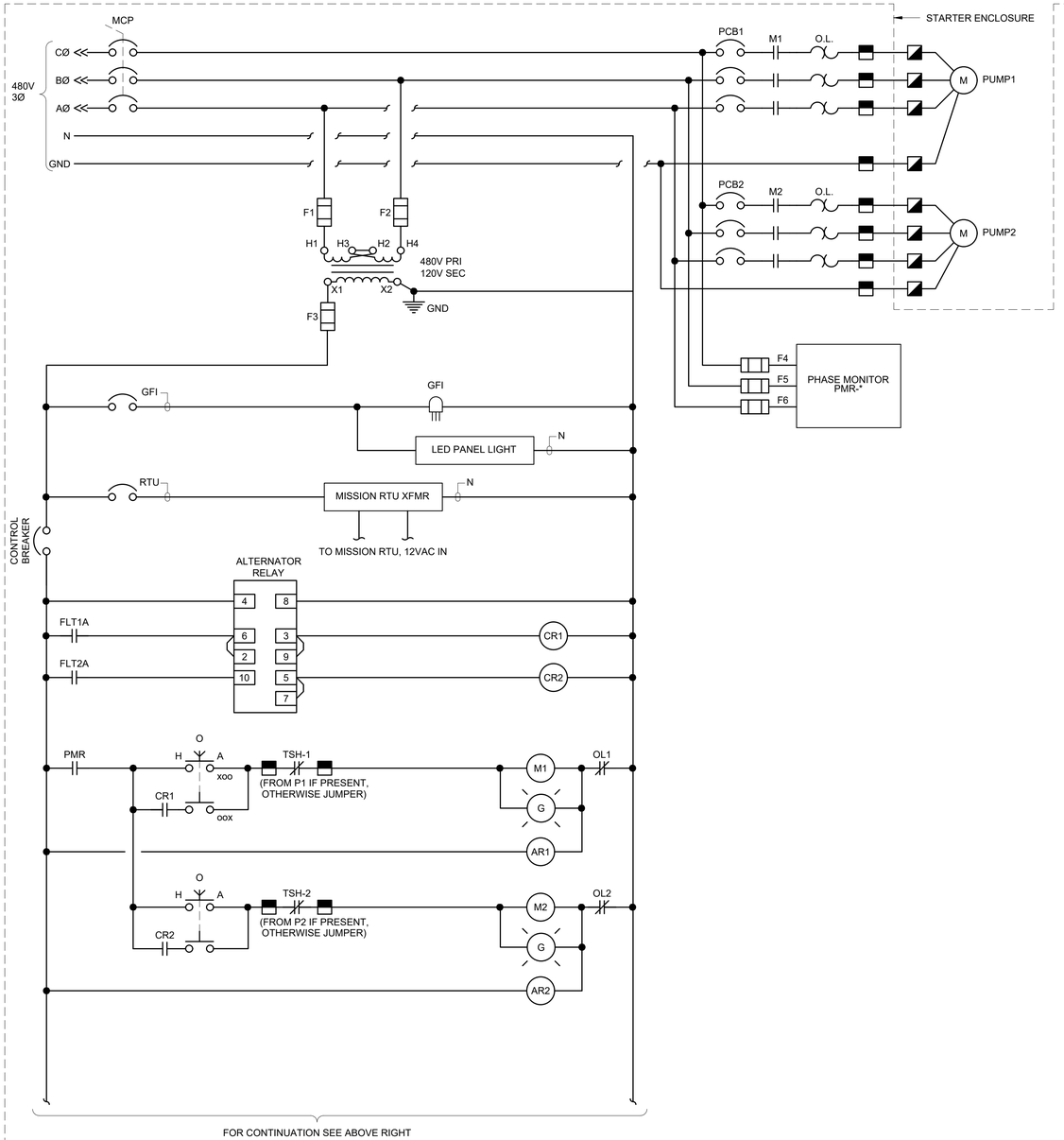
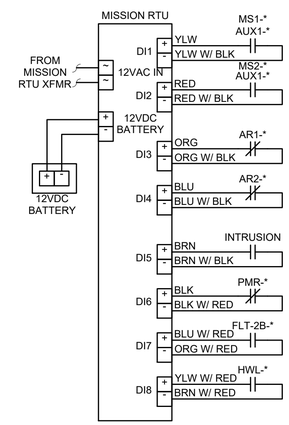
SHEET NO. 11 OF 16





KEY NOTES:

1. I/O SHALL BE TERMINATED IN THE MISSION RTU FOR COMMUNICATION TO COUNTY SCADA SYSTEM.
2. I/O SHALL BE A REMOTE COMMAND FROM MISSION RTU.

4 480V THREE PHASE LIFT STATION PUMP CONTROL PANEL DUPLEX

10N05

REV	DATE	BY	DESCRIPTION

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DATE JANUARY 2025

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SARASOTA COUNTY
SCADA STANDARDS
INSTRUMENTATION
DEVELOPER LS - CONTROL SCHEMATIC
480V THREE PHASE DUPLEX

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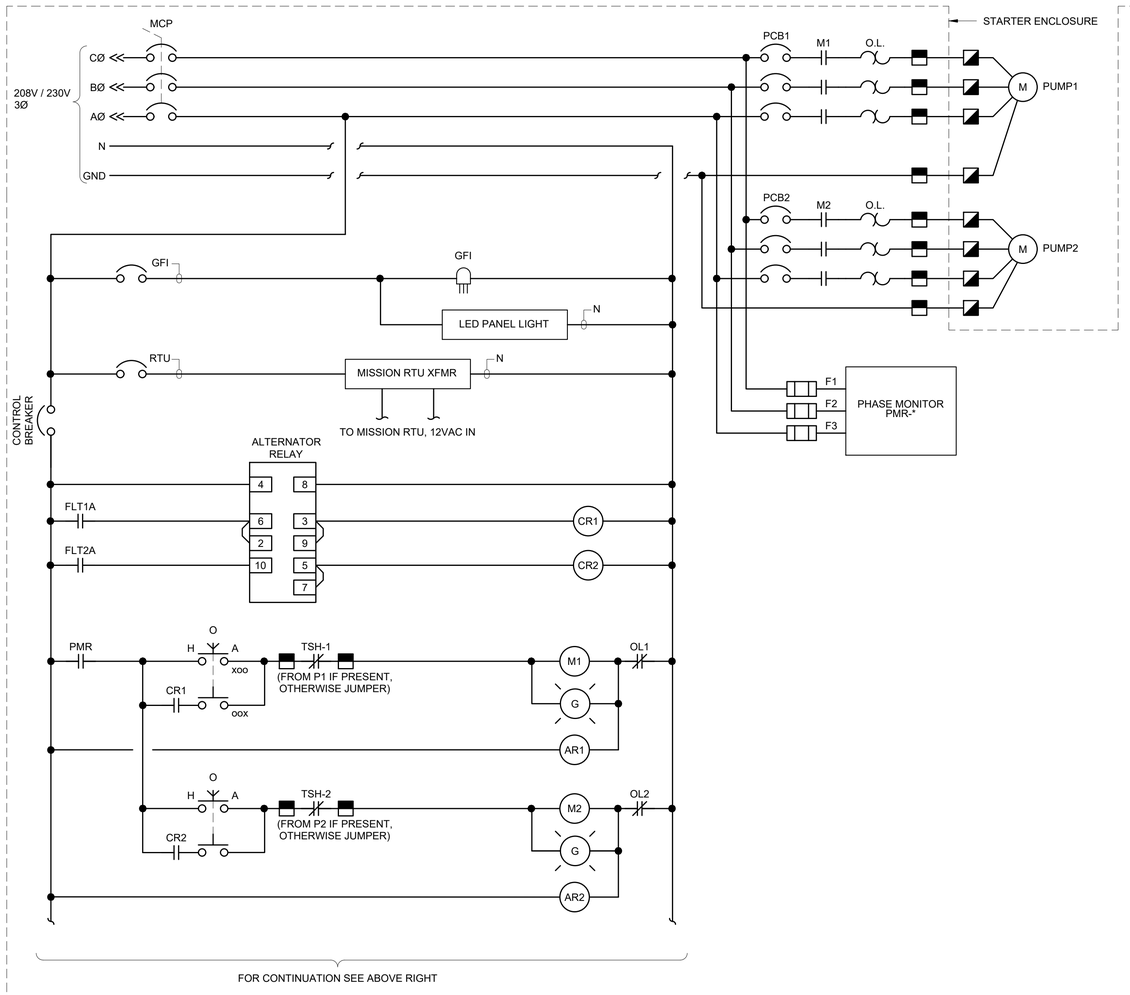

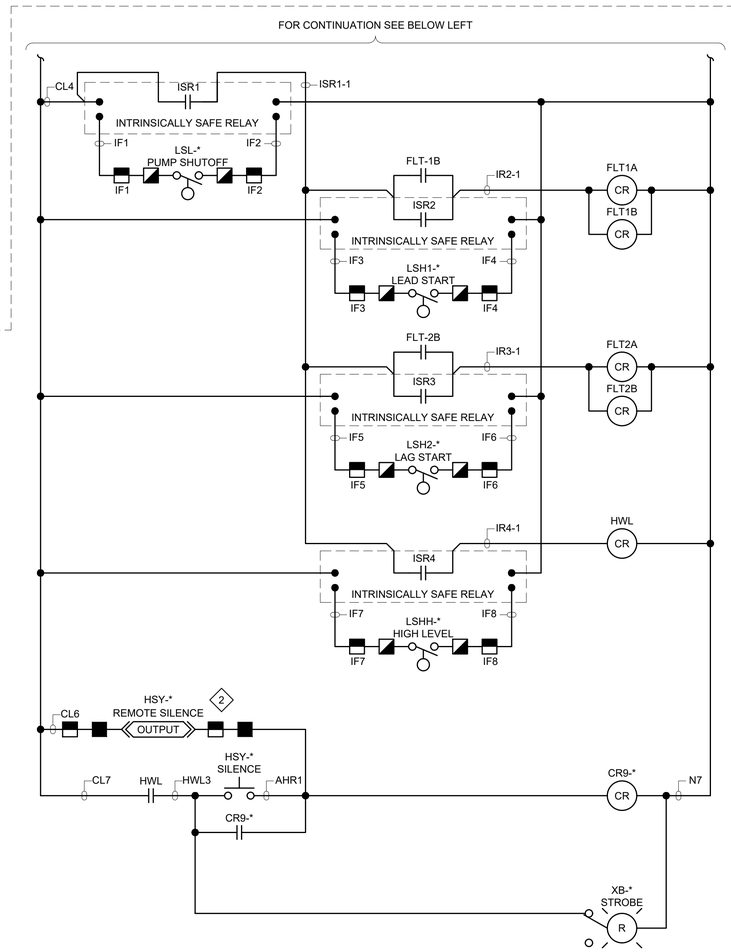

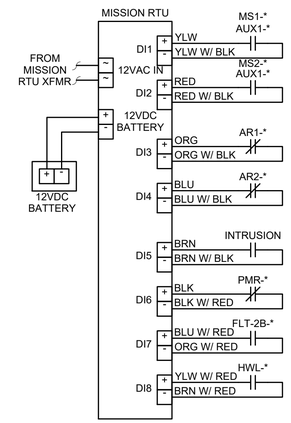

KEY NOTES:

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2. I/O SHALL BE A REMOTE COMMAND FROM MISSION RTU.

5 208V / 230V THREE PHASE LIFT STATION PUMP CONTROL PANEL DUPLEX

REV	DATE	BY	DESCRIPTION

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CHECKED RD
DATE JANUARY 2025

RICHARD DeFREITAS LICENSE No 69196 STATE OF FLORIDA PROFESSIONAL ENGINEER

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SARASOTA COUNTY
SCADA STANDARDS
INSTRUMENTATION
DEVELOPER LS - CONTROL SCHEMATIC
230V / 208V THREE PHASE DUPLEX

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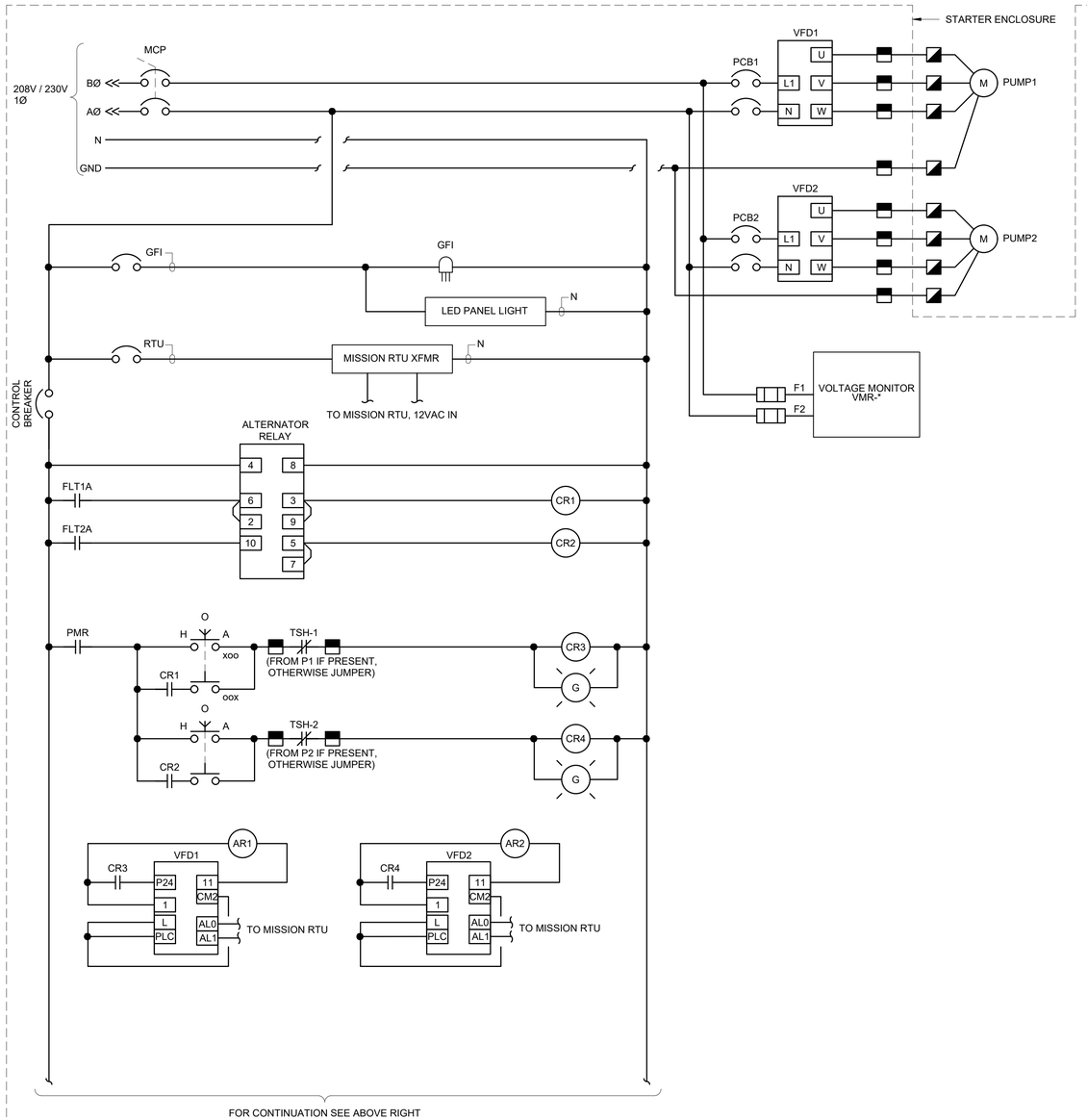
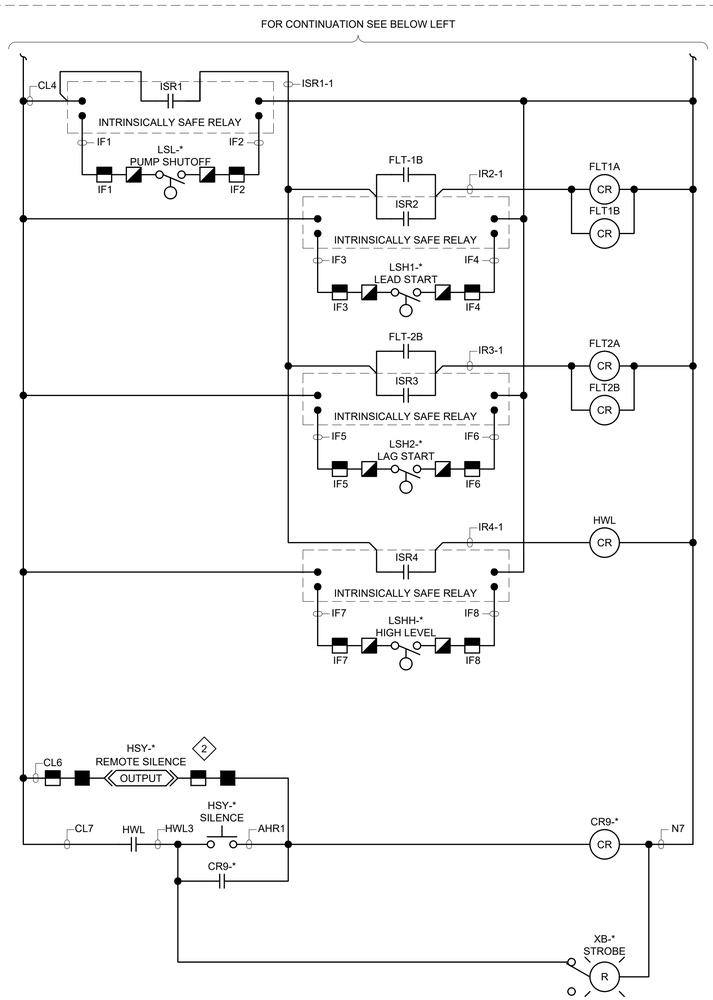
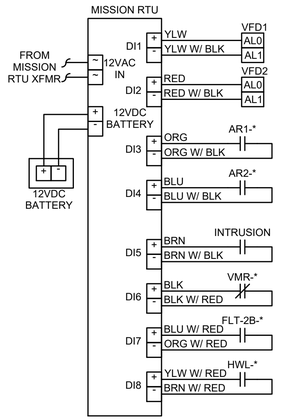
SHEET NO. 13 OF 16







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6 208V / 230V THREE PHASE LIFT STATION PUMP CONTROL PANEL DUPLEX

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CHECKED RD
DATE JANUARY 2025

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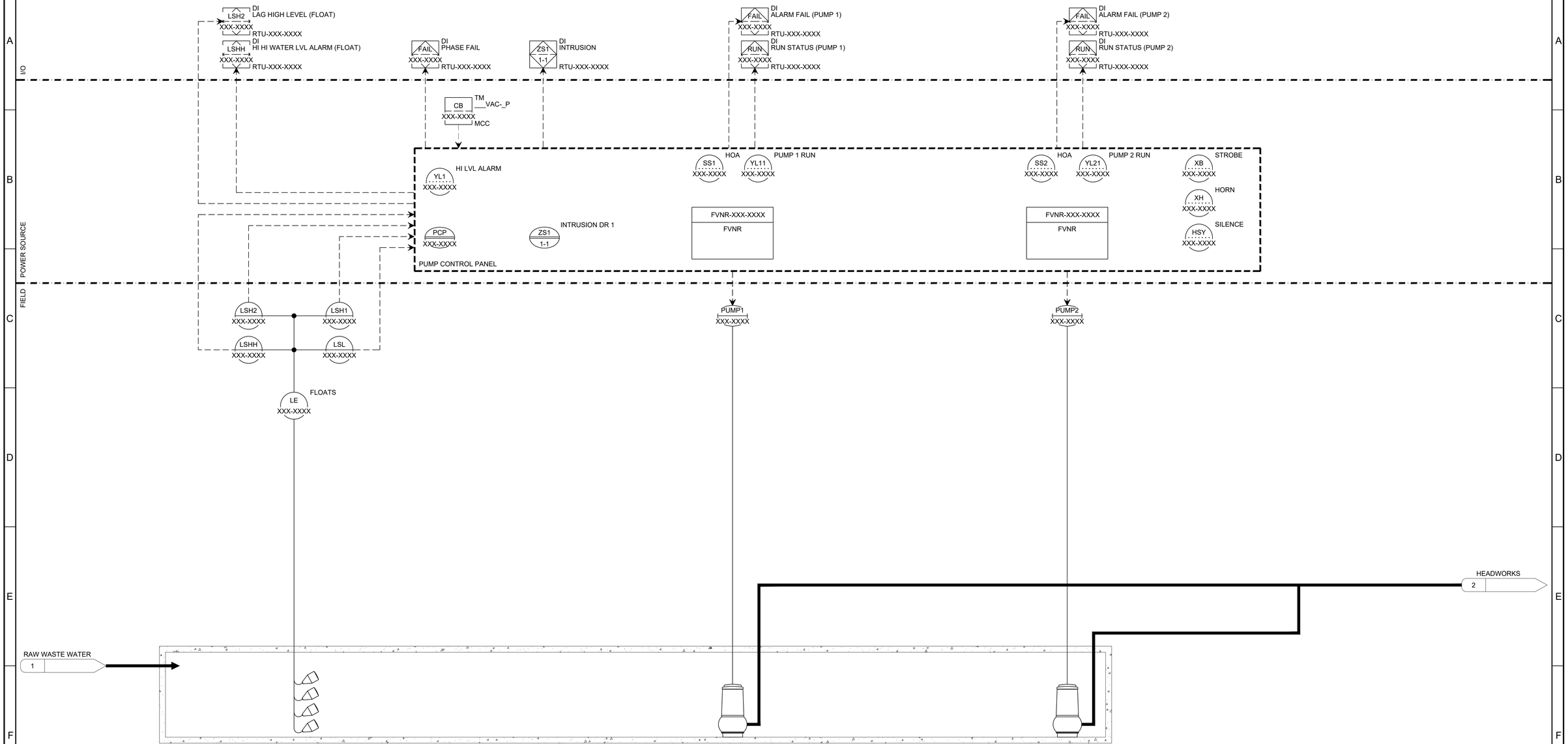

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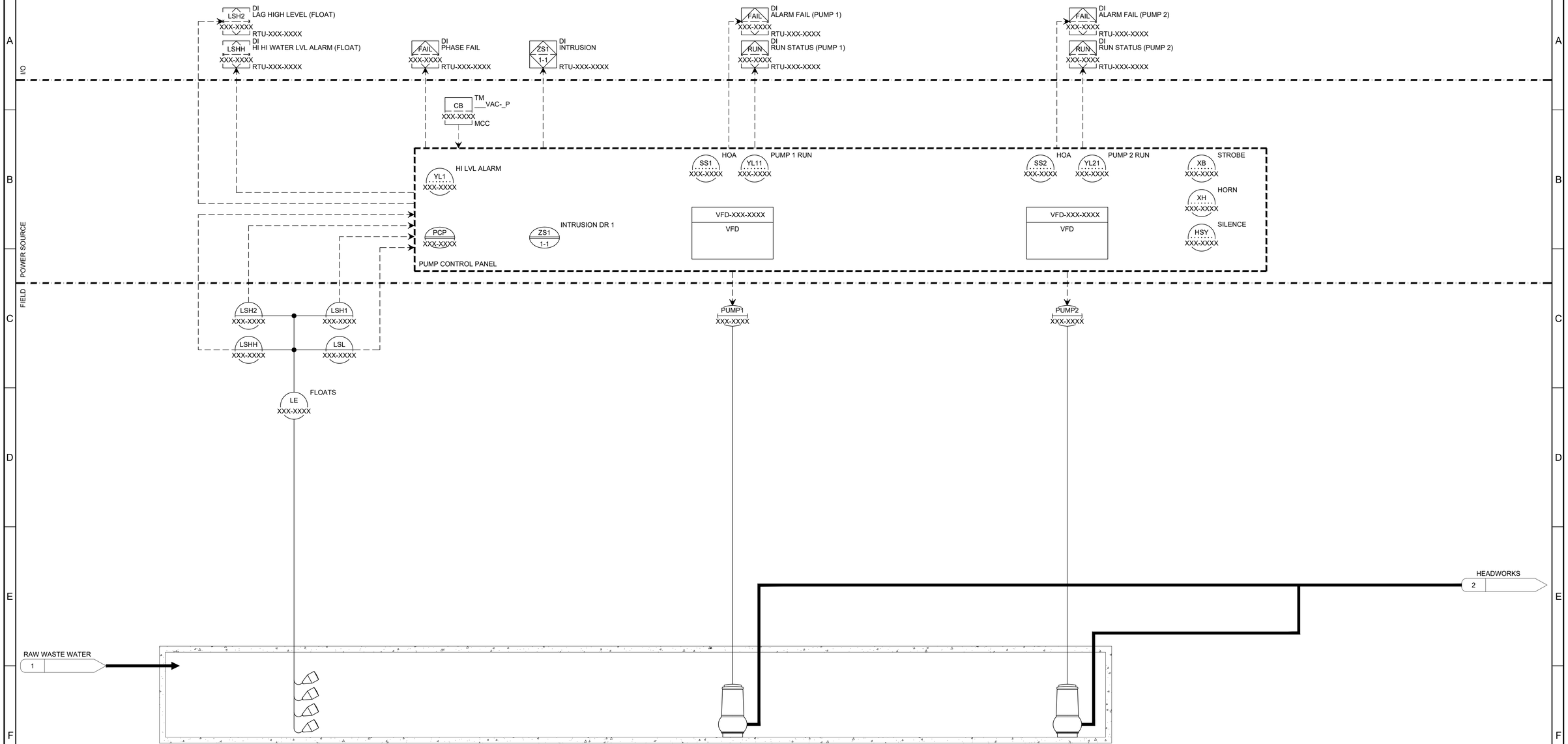

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