

PLAN SYMBOLS

PLAN SYMBOLS (CONTINUED)

CONTROL DIAGRAM SYMBOLS (CONTINUED)

ABBREVIATIONS (CONTINUED)

	HOME RUN TO PANELBOARD. NO. OF ARROWS INDICATE NO. OF CIRCUITS, HASH MARKS INDICATE NO. OF #12 AWG. CONDUCTORS. NO HASH MARKS INDICATE 2 #12 CONDUCTORS.
	CONDUIT CONCEALED IN WALL, IN SLAB ABOVE, OR ABOVE CEILING
	CONDUIT CONCEALED IN OR BELOW FLOOR OR UNDERGROUND.
	CONDUIT RUN EXPOSED. RUN PARALLEL OR PERPENDICULAR TO STRUCTURE OR WALL.
	FLEXIBLE CONDUIT WITH EQUIPMENT CONNECTION.
	CONCRETE ENCASED DUCTBANK.
	CEILING MOUNTED LIGHTING FIXTURE, LETTER INDICATES TYPE (TYPICAL).
	WALL MOUNTED LIGHTING FIXTURE.
	FLUORESCENT LIGHTING FIXTURE, CEILING MOUNTED.
	EXTERIOR LUMINAIRE AND MOUNTING STANDARD.
	EXISTING EXTERIOR LIGHTING
	EMERGENCY BATTERY PACK LIGHTING FIXTURE.
	JUNCTION BOX N.E.C. SURFACE MOUNTED UNLESS INDICATED OTHERWISE.
	JUNCTION BOX PER N.E.C., FLUSH MOUNTED UNLESS INDICATED OTHERWISE.
	FLUSH OR SURFACE MOUNTED LIGHTING PANELBOARD.
	FLUSH OR SURFACE MOUNTED POWER PANELBOARD.
	DRY TYPE TRANSFORMER. NO. INDICATES KVA RATING.
	90A, 208V, 1Ø WELDING OUTLET
	20A, 125V, 3W DUPLEX RECEPTACLE IN FLUSH OUTLET BOX, 18" ABOVE FINISHED FLOOR.
	20A, 125V, 3W DUPLEX RECEPTACLE IN FLUSH OUTLET BOX, 48" ABOVE FINISHED FLOOR OR 2" ABOVE COUNTER AS REQUIRED.
	20A, 125V, 3W DUPLEX RECEPTACLE IN FLUSH, FLOOR MOUNTED OUTLET BOX.
	20A, 125V, 3W DUPLEX RECEPTACLE, SURFACE MOUNTED.
	DISCONNECT RACK MOUNTED
	HOA/DISCONNECT RACK MOUNTED
	30A, 250V 1Ø, 3W SINGLE RECEPTACLE IN FLUSH OUTLET BOX, 18" ABOVE FINISHED FLOOR.
	SINGLE POLE SWITCH IN FLUSH OUTLET BOX, 48" ABOVE FINISHED FLOOR, UNLESS OTHERWISE NOTED (TYPICAL).
	SINGLE POLE SWITCH, SURFACE MOUNTED.
	THREE-WAY SWITCH IN FLUSH OUTLET BOX.
	MOTOR DUTY, SINGLE PHASE DISCONNECT, NEMA 4X STAINLESS STEEL
	NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED.
	NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED, WITH REMOTE CONTROL STATION AS REQUIRED BY ELEMENTARY DIAGRAMS OR SPECS
	ELECTRIC A.C. MOTOR, NO. INDICATES HORSEPOWER.
	FUSED DISCONNECT SWITCH (30/20: 30=SWITCH RATING, 20=FUSE RATING)
	MOTORIZED VALVE
	VARIABLE FREQUENCY DRIVE
	THERMOSTAT
	ELECTRIC HEATER
	FLUSH OUTLET BOX AND TELEPHONE COVER PLATE 48" ABOVE FINISHED FLOOR.
	CONTROL PULLBOX. SEE "PULL BOX DETAIL"
	POWER MANHOLE. SEE "MANHOLE DETAIL"
	TERMINATION CABINET, CLASS 1, DIVISION 2
	EYS FITTING AND CORRESPONDING "CHICO" CEMENT. COMBINATION SHALL BE RATED TO PROVIDE A CLASS 1, DIVISION 2 INSTALLATION.
	MAJOR COMPONENT, X COMPONENT NUMBER
	NAMEPLATE SCHEDULE

	ANALYZING INDICATING TRANSMITTER
	FLOW ELEMENT
	LEVEL SWITCH
	LEVEL ELEMENT
	PRESSURE SWITCH
	ZERO SPEED SWITCH
	SOLENOID VALVE
	LIQUID LEVEL SWITCH
	FLOW SWITCH
	FLOW INDICATING TRANSMITTER
	LEVEL INDICATING TRANSMITTER

SINGLE LINE DIAGRAM SYMBOLS

	COMBINATION MOTOR STARTER
	VOLTMETER
	AMMETER
	THREE PHASE VOLT SWITCH
	THREE PHASE AMP SWITCH
	GROUND FAULT INTERRUPTER
	WATT HOUR METER
	FUSE
	CAPACITOR
	DRAW-OUT CIRCUIT BREAKER
	MOLDED CASE CIRCUIT BREAKER
	TYPICAL SELECTOR SWITCH AND CONTROL. SEE ELEMENTARY DIAGRAMS FOR EXACT TYPE.
	ELECTRIC A.C. MOTOR, NO. INDICATES HORSEPOWER.
	ELECTRIC D.C. MOTOR, NO. INDICATES HORSEPOWER.
	SERVICE OR EQUIPMENT GROUND.
	NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED.
	NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED, WITH REMOTE CONTROL STATION AS REQUIRED BY ELEMENTARY DIAGRAMS OR SPECS
	LIGHTING PANELBOARD
	POWER PANELBOARD
	KIRK KEY INTERLOCK
	CURRENT TRANSFORMERS
	POTENTIAL TRANSFORMERS
	MANUAL OR AUTOMATIC TRANSFER SWITCH

CONTROL DIAGRAM SYMBOLS

	DUPLEX RECEPTACLE
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
	LIMIT SWITCH, NORMALLY OPEN
	LIMIT SWITCH, NORMALLY CLOSED
	PRESSURE SWITCH, NORMALLY OPEN
	PRESSURE SWITCH, NORMALLY CLOSED
	FLOAT SWITCH, NORMALLY OPEN
	FLOAT SWITCH, NORMALLY CLOSED

	FLOW SWITCH, NORMALLY OPEN
	FLOW SWITCH, NORMALLY CLOSED
	TEMPERATURE SWITCH, NORMALLY OPEN
	TEMPERATURE SWITCH, NORMALLY CLOSED
	NORMALLY OPEN, TIMED TO CLOSE CONTACT
	NORMALLY CLOSED, TIMED TO OPEN CONTACT
	NORMALLY CLOSED, TIMED TO CLOSE CONTACT
	NORMALLY OPEN, TIMED TO OPEN CONTACT
	LIMIT SWITCH
	TORQUE SWITCH
	PRESSURE SWITCH
	ZERO SPEED SWITCH
	SOLENOID VALVE
	LIQUID LEVEL SWITCH
	VIBRATION SWITCH
	ALARM RELAY
	ALARM TIMER
	CONTROL RELAY
	MOTOR STARTER
	TIMING RELAY
	ALARM INDICATING LIGHT
	RUN INDICATING LIGHT
	MOMENTARY CONTACT PUSHBUTTON
	MOMENTARY BREAK PUSHBUTTON OR RESET
	KEYED SWITCH
	MAINTAINED CONTACT ON-OFF SWITCH
	START/STOP (S/S) CONTROL SWITCH MAINTAINED CONTACT
	THREE POSITION MAINTAINED CONTACT SELECTOR SWITCH
	FUSE
	MOLDED CASE CIRCUIT BREAKER
	CONTROL POWER TRANSFORMER
	REMOTE TERMINAL BLOCK POINT
	HORN

ABBREVIATIONS

A	AMPERES
ACCU	AIR COOLED CONDENSING UNIT
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AIC	AMPS INTERRUPTING CURRENT
AER	AERATOR
ATS	AUTOMATIC TRANSFER SWITCH
BKR	BREAKER
BLDG	BUILDING
C	CONDUIT
CLB	CURRENT LIMITING BREAKER
CP	CONTROL PANEL
CU	COPPER
DH	DATA HIGHWAY
DISC	DISCONNECT
DO	DIGITAL OUTPUT
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
EFF	EFFLUENT
ELEC	ELECTRICAL
ELR	EMERGENCY LOCK-OUT RELAY
EM	EMERGENCY
ENCL	ENCLOSURE
EP	EXPLOSION PROOF
ESB	ENERGY SAVING BALLAST
ETM	ELAPSED TIME METER
EUH	ELECTRIC UNIT HEATER

EVA	ELECTRIC VALVE ACTUATOR
EXH	EXHAUST
EXIST	EXISTING
F&I	FINISH AND INSTALL
FPL	FLORIDA POWER AND LIGHT
FVNR	FULL VOLTAGE NON-REVERSING
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GND, G	GROUND
GRS	GALVANIZED RIGID STEEL
HOA	HAND-OFF-AUTOMATIC
HOLR	HAND-OFF-LOCAL-REMOTE
HOR	HAND-OFF-REMOTE
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HWY	HIGHWAY
INSTR	INSTRUMENTATION
IPS	INFLUENT PUMP STATION
KVA	KILOVOLT-AMPERES
KW	KILOWATT
LTG	LIGHTING
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MFR	MANUFACTURER
MH	METAL HALIDE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MSC	MANUFACTURER SUPPLIED CABLE
MTD	MOUNTED
MTS	MANUAL TRANSFER SWITCH
MV	MERCURY VAPOR
NEC	NATIONAL ELECTRIC CODE
NEUT, N	NEUTRAL
NTS	NOT TO SCALE
OC	ON CENTER
OH	OVERHEAD
P	POLE
PC	PHOTOCELL
PCP	PUMP CONTROL PANEL
PE	POWER EQUIPMENT
PM	PHASE MONITOR
PNL	PANEL
PS	PUMP STATION
PVC	POLYVINYL CHLORIDE
RA	RIGID ALUMINUM
RECPT	RECEPTACLE
RTU	REMOTE TELEMETRY UNIT
RVNR	REDUCED VOLTAGE NON-REVERSING
SH	SHIELDED
SS	STAINLESS STEEL
STP	SHIELDED TWISTED PAIR
STR	STARTER
SUPP	SUPPRESSOR
SW	SWITCH
SWGR	SWITCHGEAR
TBR	TO BE REMOVED
TD	TIME DELAY
TR	TRANSFORMER
TYP	TYPICAL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTABLE POWER SUPPLY
UV	ULTRAVIOLET
V	VOLT
VFD	VARIABLE FREQUENCY DRIVE
W	WATT
W/	WITH
WP	WEATHERPROOF
ø	PHASE

NOTES

- ALL WORK SHALL COMPLY WITH N.E.C. AND LOCAL CODES.
- CONDUCTORS SHALL NOT BE SPLICED EXCEPT AS NOTED IN SPECS.
- ALL CONTROL PANELS SHALL BE UL LISTED.
- THESE DRAWINGS ARE INTENDED TO SHOW STANDARDS ON NEW PUMP STATIONS. AT THE COUNTY'S DISCRETION REHABS AND RENOVATIONS MAY HAVE DIFFERING DETAILS ON A SITE BY SITE BASIS.

REV. NO.	DESCRIPTIONS	DATE
6	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	3/2/20
5	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	9/29/17
4	REVISED, TO INCORPORATE UPS SYSTEM MODIFICATIONS	6/7/16
3	REVISED, TO INCORPORATE FIELD CHANGES	10/16/15
2	REVISED, TO INCORPORATE FIELD CHANGES	8/26/15
1	CONFORMED	5/17/13

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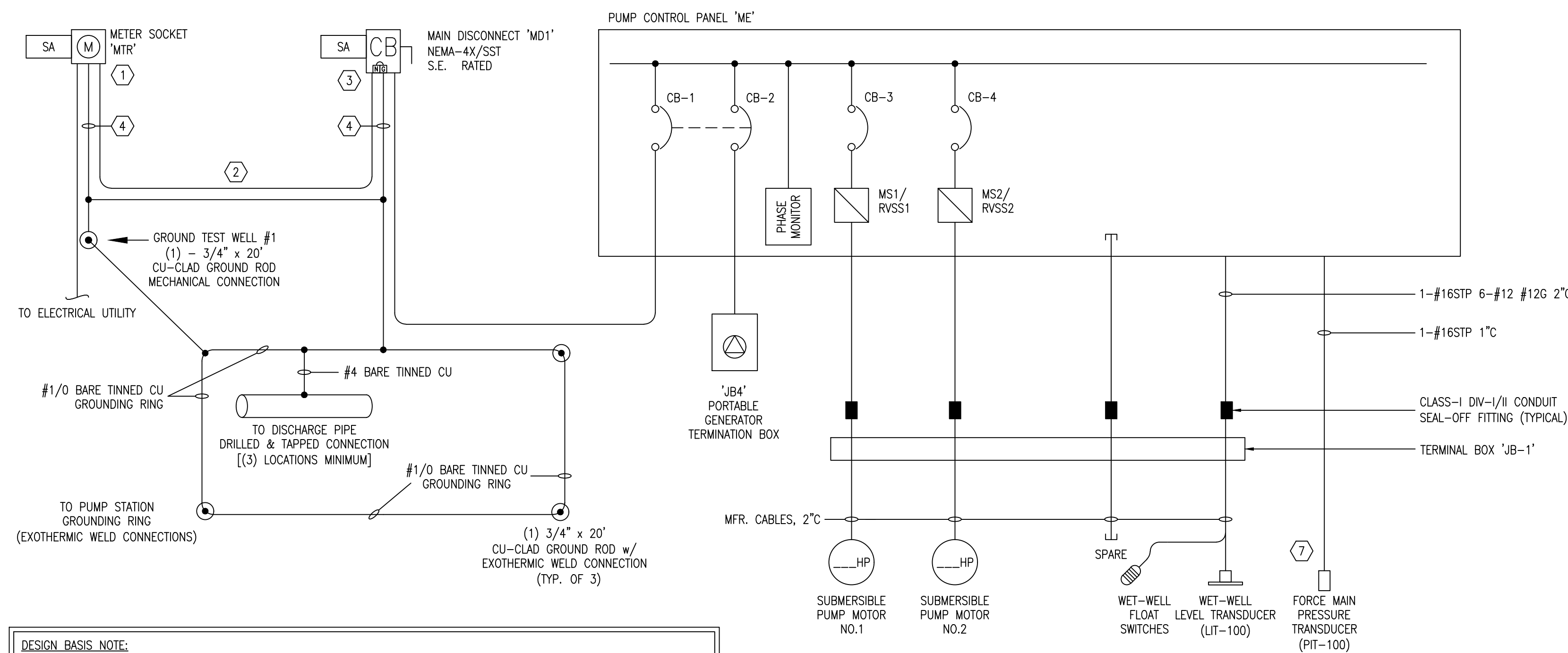
Hillsborough County Florida

PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION
925 E. TWIGGS STREET/TAMPA FLORIDA 33602/PH. (813) 272-5977

DUPLEX WASTEWATER PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION

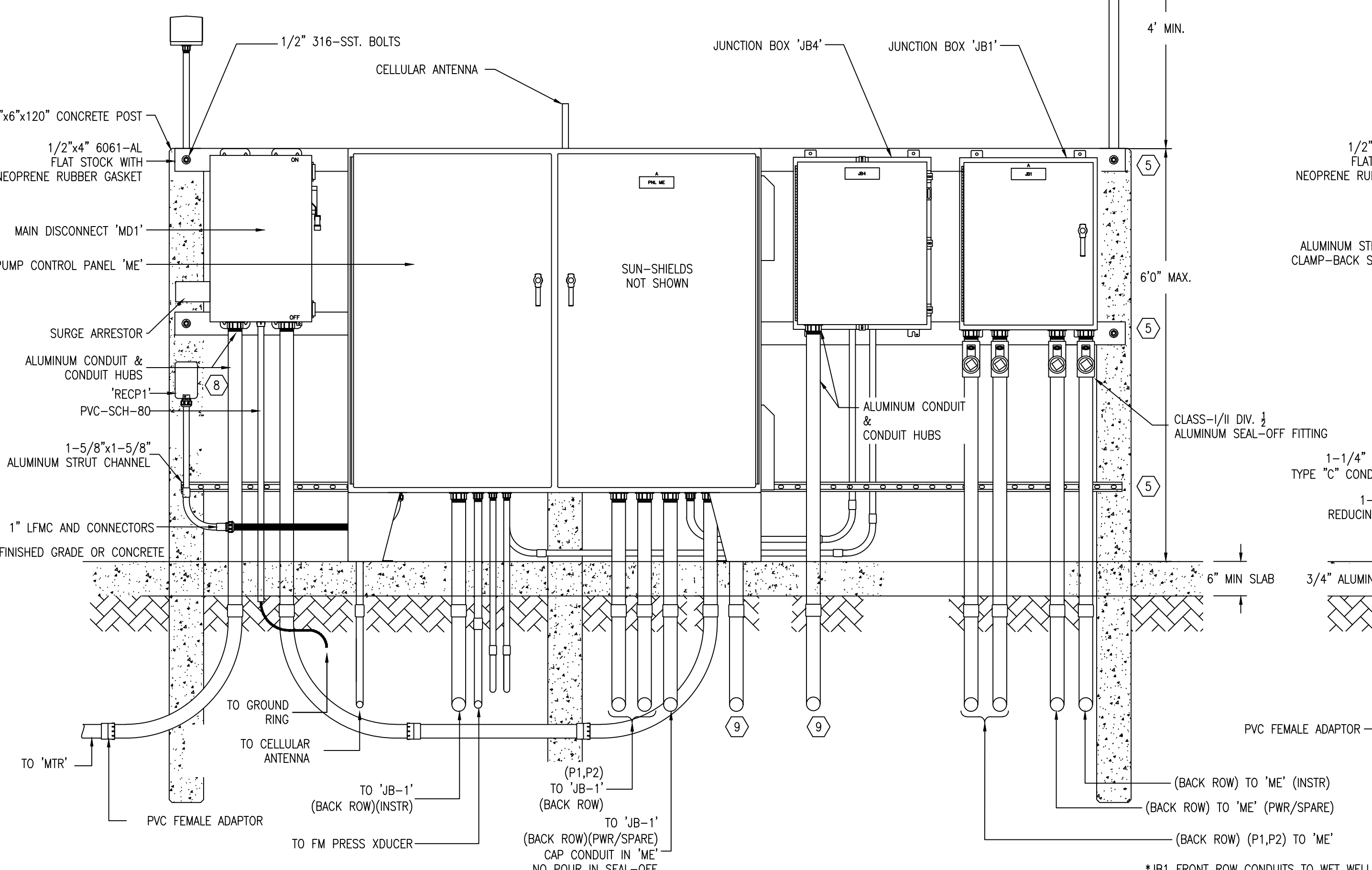
ELECTRICAL SYMBOLS, NOTES,
AND ABBREVIATIONS

ISSUE DATE: NOVEMBER 2021	SCALE	FILE NUMBER
PROJ. #	HORIZONTAL:	DRAWING NUMBER
DRAWN	VERTICAL:	E-0.0
DESIGNED	NA	
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PROJ. MGR.		
STATUS: REVISED	REVISION	6

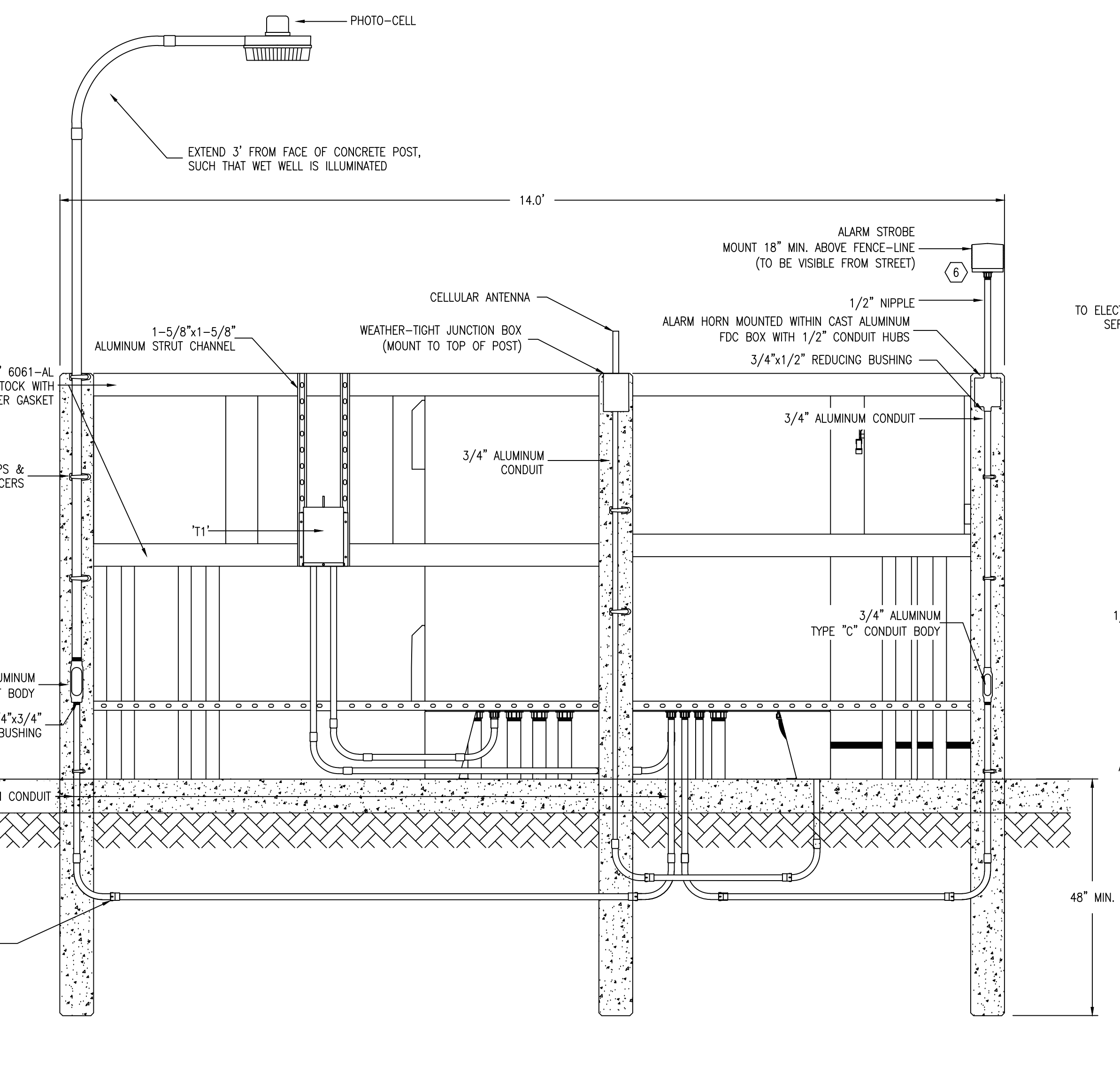


DESIGN BASIS NOTE:
THIS DRAWING REPRESENTS THE STANDARD DESIGN FOR ALL HILLSBOROUGH COUNTY STANDARD WASTEWATER PUMPING STATIONS. IT WAS DEVELOPED TO IMPROVE RELIABILITY AND MAINTAINABILITY, MINIMIZE SPARE PARTS AND INCREASE SERVICE LIFE. ALL REQUESTS FOR DEVIATION FROM THIS STANDARD MUST BE MADE IN WRITING AND WRITTEN APPROVAL RECEIVED BEFORE MODIFICATIONS ARE MADE. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS NECESSARY TO RESTORE UNAUTHORIZED MODIFICATIONS.

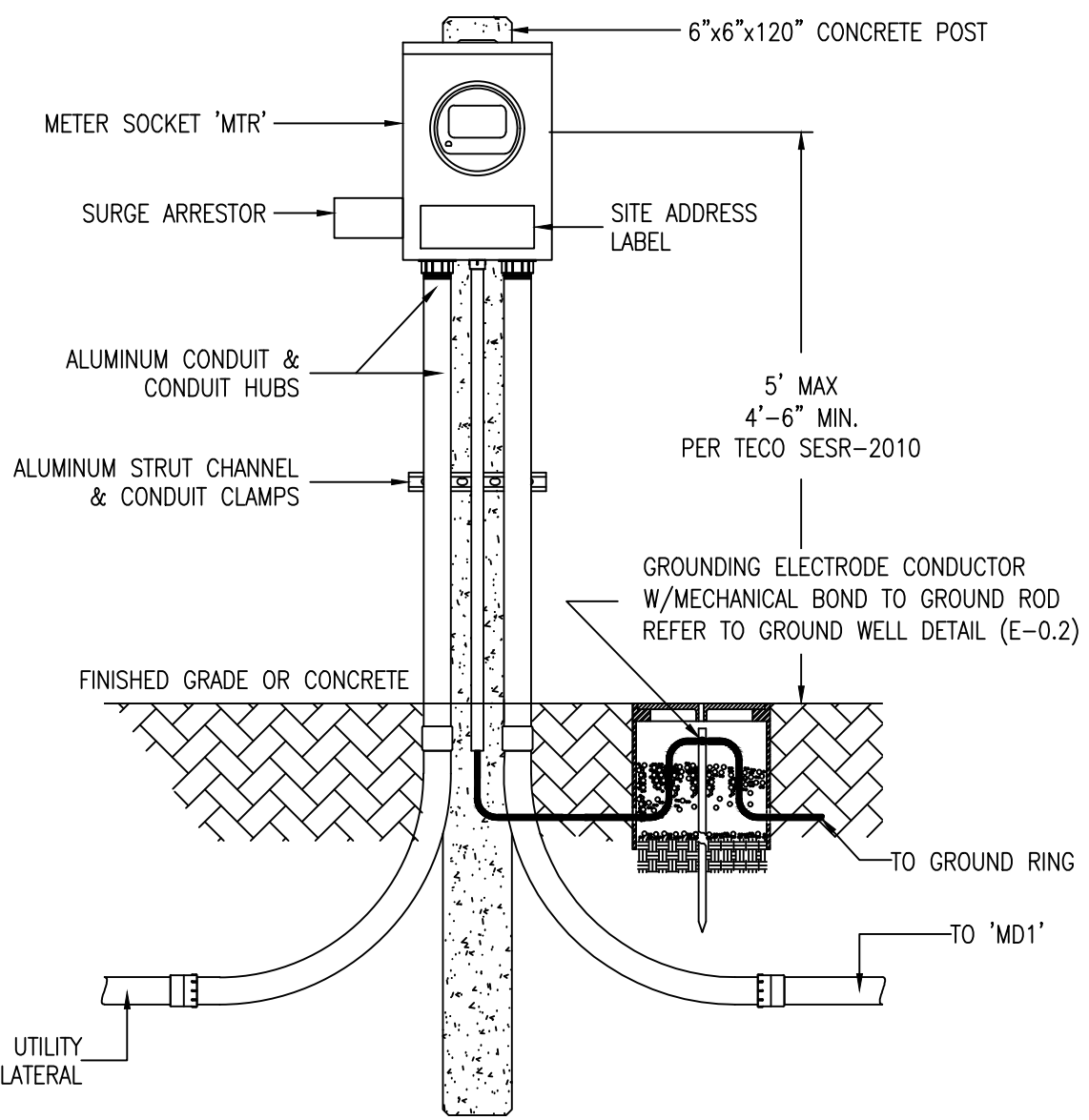
DESIGN ENGINEER NOTE: *THIS IS NOT A CONSTRUCTION DRAWING*
DESIGN ENGINEER SHALL REFER TO ELECTRICAL DRAWINGS, MECHANICAL DRAWINGS, AND THE HILLSBOROUGH COUNTY WATER AND WASTEWATER TECHNICAL SPECIFICATION IN ORDER TO COORDINATE THE MECHANICAL AND ELECTRICAL INSTALLATIONS. DESIGN ENGINEER SHALL NOT USE THIS DRAWING FOR A SPECIFIC SITE INSTALLATION. FOR EACH INSTALLATION A SPECIFIC SET OF CONSTRUCTION DRAWINGS AND SPECIFICATIONS (IF DEEMED NECESSARY BY THE DESIGN ENGINEER) MUST BE PREPARED IN ACCORDANCE WITH F.S. 471 AND RULES 61G.



ELECTRICAL EQUIPMENT RACK DETAIL (FRONT ELEVATION)
N.T.S.

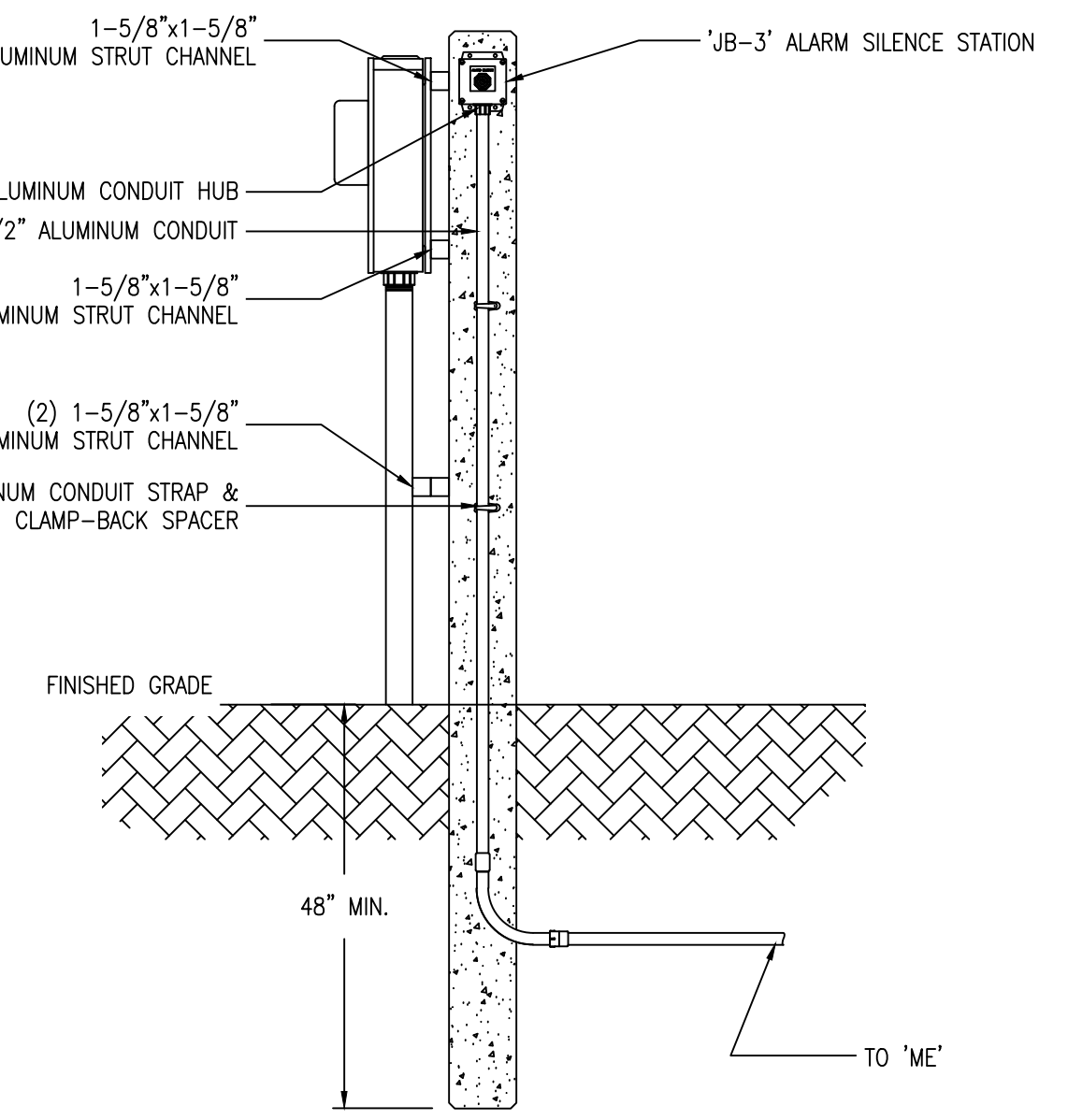


ELECTRICAL EQUIPMENT RACK DETAIL (REAR ELEVATION)
N.T.S.



UTILITY METER DETAIL (FRONT ELEVATION)
N.T.S.

- NOTES:**
- MOUNT METER TO CONCRETE POST USING ALUMINUM STRUT, UTILIZING STANDARD MOUNTING HOLES PROVIDED BY THE MANUFACTURER.
 - USE 316-SST FASTENERS AND HARDWARE.

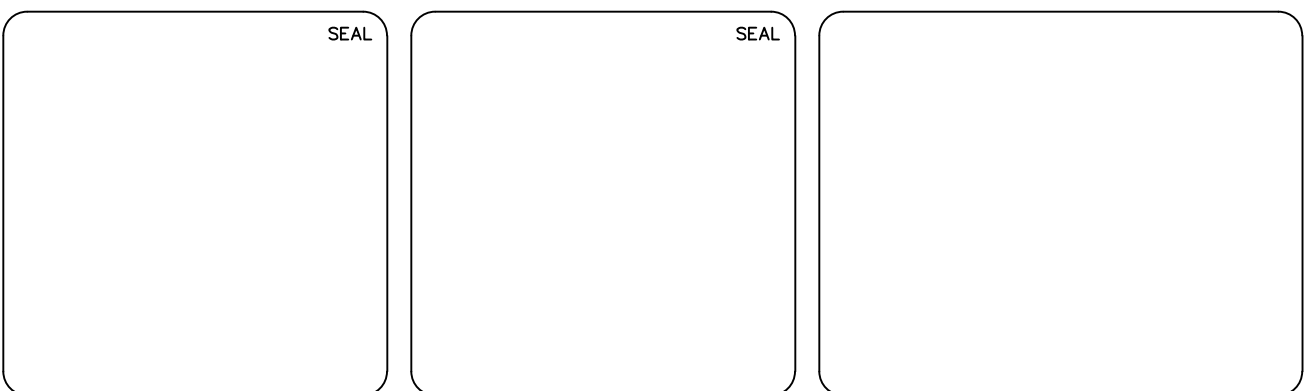


UTILITY METER DETAIL (RIGHT-SIDE ELEVATION)
N.T.S.

- KEYNOTES:**
- ELECTRICAL CONTRACTOR SHALL COORDINATE WITH TECO FOR METERING REQUIREMENTS AND SERVICE CONSTRUCTION STANDARDS (SESR-2010). WIRE IDENTIFICATION AND PHASE ARRANGEMENT SHALL BE PER NEC.
 - EQUIPMENT AND WIRE SHALL BE SIZED AND RATED ACCORDING TO THE SERVICE VOLTAGE AND RESPECTIVE PUMP SIZES AT THE STATION. REFER TO CROSS REFERENCE TABLE ON DRAWING E-1.2.
 - MD1, CB1 THRU CB5, AND CB10 SHALL BE CAPABLE OF INTERRUPTING A FAULT CURRENT OF 25,000 AIC MINIMUM.
 - REFER TO WIRE SIZE CHART E-1.2. FOR USE WITH UNGROUNDED CONDUCTORS:
• 3/0 OR SMALLER --> #4G
• OVER 3/0 THRU 350 --> #2G
• OVER 350 THRU 600 --> 1/0G
INSTALL IN 3/4" PVC SCH-80.
 - BEVEL AND GRIND ENDS SMOOTH ON ALL UNISTRUT, FLATSTOCK AND ANGLE TO PROTECT PERSONNEL FROM POTENTIAL INJURY.
 - ALARM STROBE SHALL BE MOUNTED 18" MINIMUM ABOVE TOP OF SURROUNDING FENCE.
 - CONTRACTOR SHALL COORDINATE INSTALLATION WITH ENGINEER/HCPI.
 - RACK-MOUNT POWER RECEPTACLE. LOCATE AT EQUIPMENT RACK SUPPORT POST (FACING TO FRONT) AND ADJACENT TO "ME" CABINET. RECEPTACLE TO BE 36" MINIMUM ABOVE THE PUMP STATION SLAB.
 - GENERATOR TERMINATION BOX (JB4): CONDUIT ROUTING & WIRE SIZING SHALL BE DETERMINED BY THE SITE-SPECIFIC DESIGN ENGINEER.

- GENERAL NOTES:**
- ALL ELECTRICAL WORK SHALL COMPLY WITH THE NEC, NESC AND LOCAL CODES INCLUDING OWNERS STANDARDS AND REQUIREMENTS.
 - ALL POWER & CONTROL CONDUCTORS SHALL BE 600V RATED THHN/THWN-2 STRANDED CU AND SIZED PER NEC.
 - ALL EXPOSED CONDUITS SHALL BE ALUMINUM THRU FIRST UNDERGROUND 90° BEND, WHERE IN CONTACT WITH CONCRETE SLAB, ALUMINUM CONDUIT SHALL BE COATED USING BITUMINOUS PAINT.
 - ALL UNDERGROUND CONDUITS SHALL BE PVC SCH-80.
 - ALL MECHANICAL CONNECTIONS SHALL BE THROUGH-BOLTED MADE WITH STAINLESS STEEL HARDWARE AND FASTENERS WHICH INCLUDE HEAVY GAUGE FLAT AND LOCK WASHERS.
 - ALL NEW PUMP STATIONS SHALL HAVE 480/277V, 3PH, 4-WIRE, 60HZ SERVICE, AS DESCRIBED IN THE COUNTY TECHNICAL SPECIFICATIONS, UNLESS OTHERWISE APPROVED BY THE COUNTY.
 - ELECTRICAL LAYOUT SUBJECT TO VARIATIONS BASED ON SPECIFIC SITE CONDITIONS, AS DETERMINED BY THE SITE-SPECIFIC DESIGN ENGINEER.
 - REFERENCE MECHANICAL DRAWINGS FOR SPECIFIC SITE DETAILS & DIMENSIONS, AND FOR COORDINATING THE INSTALLATION OF OTHER TRADES.
 - ROUTING SHOWN FOR CONDUITS AND GROUNDING CONDUCTORS ARE DIAGRAMMATIC. SITE-SPECIFIC DESIGN ENGINEER SHALL ROUTE CONDUITS AND GROUND CONDUCTORS AS FIELD CONDITIONS DICTATE UNLESS OTHERWISE NOTED.
 - GROUNDING BUSHINGS SHALL BE USED ON ALL METAL CONDUITS IN ALL ENCLOSURES.
 - MYERS HUBS OR EQUAL SHALL BE USED AT ALL LOCATIONS WHERE CONDUITS ARE CONNECTING INTO THE SIDE OF AN ELECTRICAL ENCLOSURE.
 - OXIDE INHIBITING COMPOUND SHALL BE APPLIED TO ALL ELECTRICAL TERMINATION CONTACT SURFACES, INCLUDING COMPRESSION AND BOLTED CONNECTIONS.
 - SENSOR CABLE SHALL CONTAIN HEAT SENSING AND SEAL FAILURE LEADS (4 TOTAL PER PUMP) AND SHALL BE INSTALLED IN CONDUIT WITH MOTOR LEADS FROM JB1 TO WETWELL.

REVNO.	DESCRIPTIONS	DATE
6	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	10/20/20
5	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	3/2/20
4	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	9/29/17
3	REVISED, TO INCORPORATE FIELD CHANGES	10/16/15
2	REVISED, TO INCORPORATE FIELD CHANGES	9/28/15
1	CONFORMED	5/17/13



Hillsborough County Florida
EST. 1854

PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION
925 E. TWOGS STREET/TAMPA FLORIDA 33602, PH: (813) 272-5977

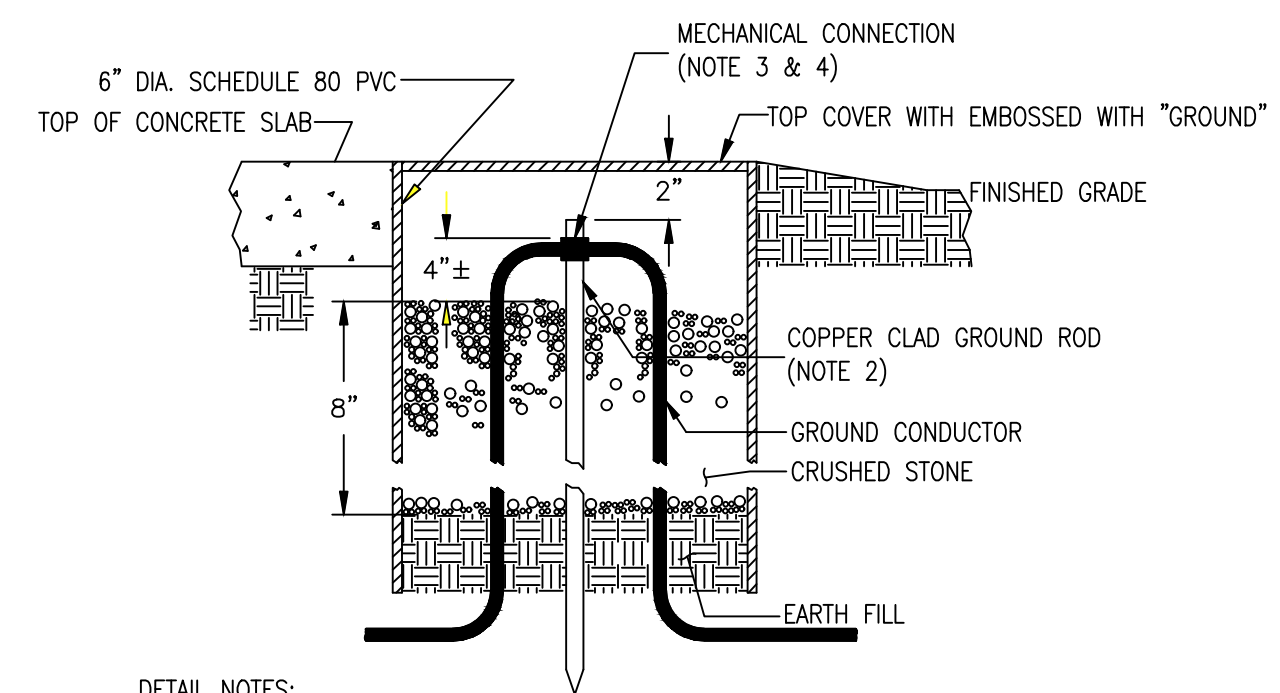
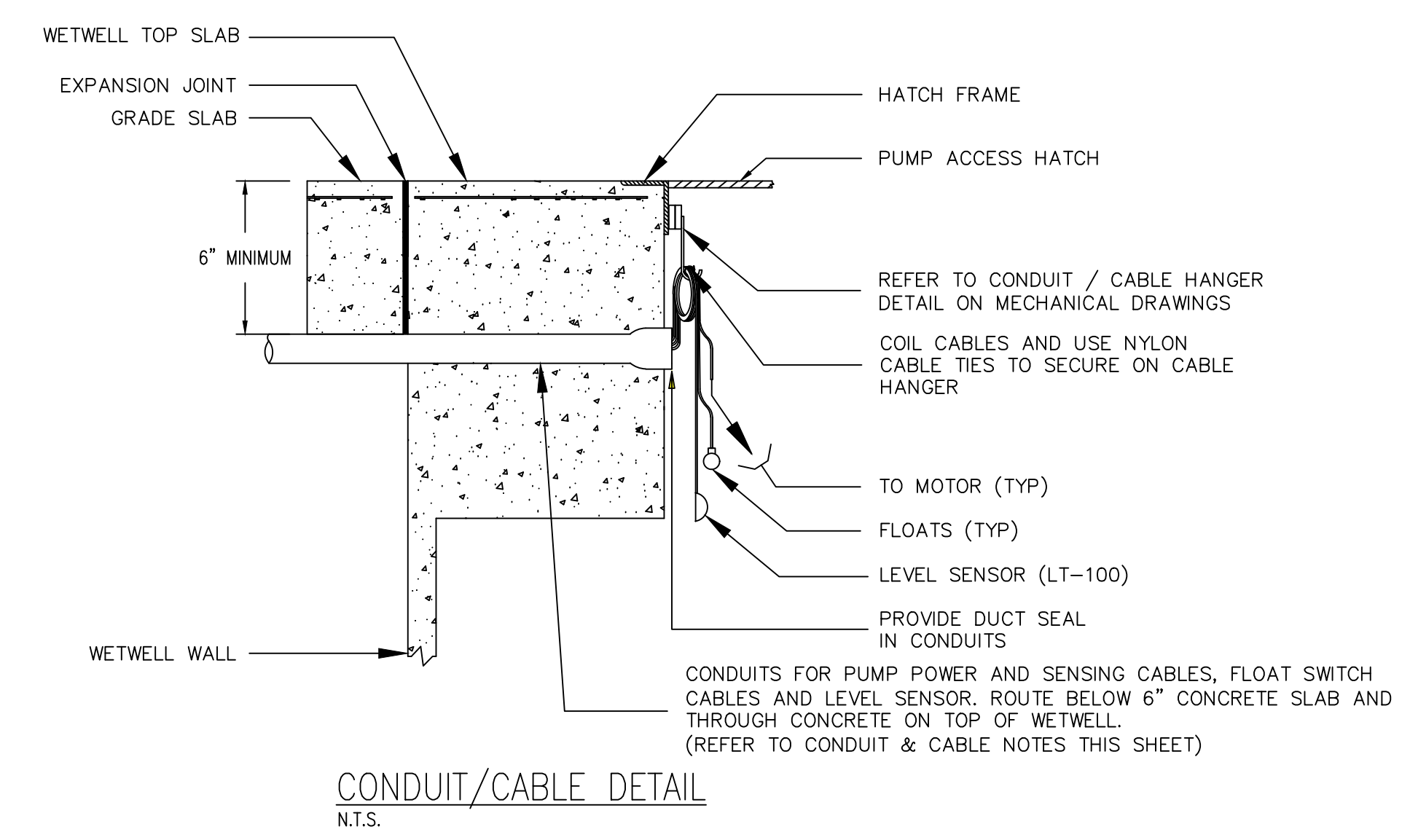
DUPLX WASTEWATER PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION

ELECTRICAL POWER PLAN
AND DETAIL
(3PH, 480V/30-75HP)

ISSUE DATE: NOVEMBER 2021	SCALE	FILE NUMBER
PROJ. #	HORIZONTAL:	DRAWING NUMBER
DRAWN	VERTICAL:	E-0.1
DESIGNED	NA	
CHECKED		
PROJ. MGR.		
STATUS: REVISED		REVISION 6

GENERAL NOTES:

- REFER TO GENERAL NOTES SHT. E-0.1, INCLUDING OWNER'S STANDARDS AND REQUIREMENTS.
- GROUND CONDUCTOR AT FORCEMAIN PIPING SHALL EXTEND THROUGH SLAB VIA 1" SCH. 80 PVC CONDUIT. BOND GROUND CONDUCTOR TO PUMPS ABOVE GRADE PIPING AT CHECK VALVES FLANGE CONNECTION, TO FORCEMAIN FLANGE CONNECTION AND TO ACCESS HATCH COVER.

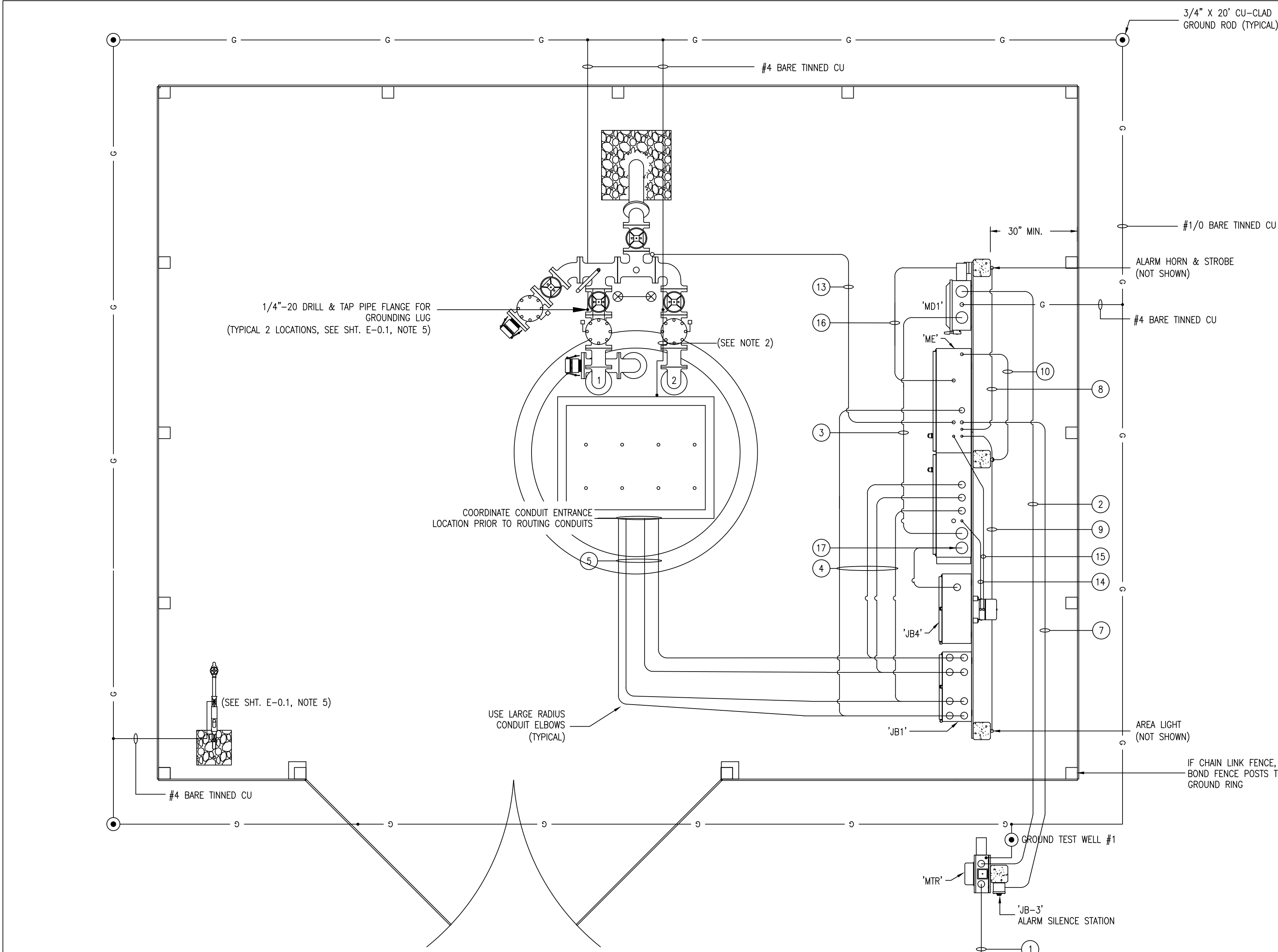


DETAIL NOTES:

- TYPICAL FOR EACH GROUND ROD.
- 3/4" x 20' COPPER CLAD DRIVEN GROUND ROD; THREE (3) GROUND RODS MINIMUM PER SITE.
- "TEST WELLS" AT TECO METER & MD1 SHALL USE MECHANICAL CONNECTIONS, TO FACILITATE ISOLATING THE GROUNDING SYSTEM FROM THE UTILITY GROUND FOR TESTING PURPOSES.
- CONTRACTOR SHALL MEASURE THE RESISTANCE OF INSTALLED GROUNDING ELECTRODES AND IF ABOVE 5 OHMS, CONTRACTOR SHALL AUGMENT THE GROUND SYSTEM AS NECESSARY.

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CONDUIT & CABLE NOTES:

- INSTALL THE FOLLOWING CONDUIT AND CABLE:
- [SVC TO MTR] 2.5°C, WIRE SIZE SEE CHART E-1.2
 - [MTR TO MD1] 2.5°C, WIRE SIZE SEE CHART E-1.2
 - [MD1 TO ME/CB1] 2.5°C, WIRE SIZE SEE CHART E-1.2
 - [ME/PMP1 TO JB1] 2°C, WIRE SIZE SEE CHART E-1.2
[ME/PMP2 TO JB1] 2°C, WIRE SIZE SEE CHART E-1.2
[ME/CONTL TO JB1] 2°C, FLOATS (24VAC) 6-#12 AWG, WELL LEVEL (24VDC) 1-#16 STP
[ME/SPARE TO JB1] 2°C
 - [JB1/PMP1 TO WELL] 2°C, MFR. CABLE
[JB1/PMP2 TO WELL] 2°C, MFR. CABLE
[JB1/CONTL TO WELL] 2°C, FLOATS (24VAC) MFR. CABLE, WELL LEVEL (24VDC) MFR. CABLE
[JB1/SPARE TO WELL] 2°C
 - N/A
 - [ME/ALM SIL TO JB3] 0.5°C, (120VAC) 2-#14 #12G
 - [ME/ALM STROBE-HORN TO JB2] 0.75°C, (120VAC) 4-#14 #12G
 - [ME/AREA LIGHT TO AREA LIGHT] 0.75°C, (120VAC) 3-#12 #12G
 - [ME/CELLULAR TO CELLULAR ANTENNA] 1°C, CELLULAR CABLE
 - N/A
 - N/A
 - [ME/PRESS TO FM PRESS TRANSMITTER] 1°C, 1-16STP
 - (480VAC ONLY)
[ME/CB11 TO T1] 0.75°C, (480VAC) 2-#12 #12G
 - (480VAC ONLY)
[T1 TO ME/CB12] 0.75°C, (120VAC) 2-#10
 - [ME/CB21 TO RECP1] 0.75°C, RECP1 POWER (120VAC) 2-#12 #12G
 - [JB4 TO ME/CB2] FINAL LOCATION OF JB4 AND ASSOCIATED CONDUIT, CONDUIT ROUTING & WIRE SIZING SHALL BE DETERMINED BY THE SITE-SPECIFIC DESIGN ENGINEER.

TO EXISTING UTILITY SERVICE POLE OR TRANSFORMER, LOCATED AT PUMP STATION

REVNO.	DESCRIPTIONS	DATE
6	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	10/20/20
5	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	3/02/20
4	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	9/28/17
3	REVISED, TO INCORPORATE FIELD CHANGES	10/16/15
2	REVISED, TO INCORPORATE FIELD CHANGES	9/26/15
1	CONFORMED	5/17/13

SEAL

SEAL



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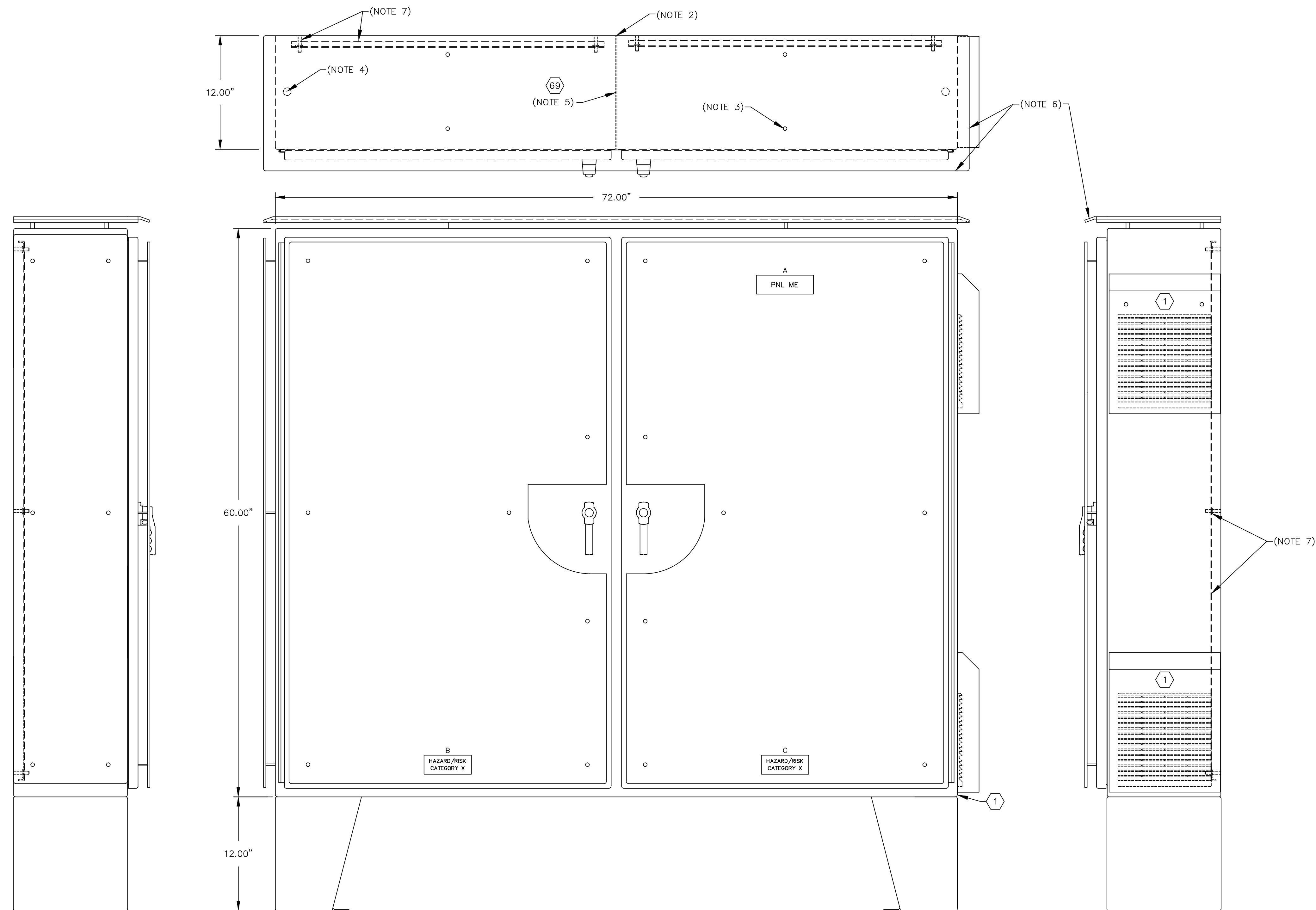
DUPLEX WASTEWATER PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION

ELECTRICAL SITE PLAN
AND DETAIL
(3PH, 480V/30-75HP)

ISSUE DATE: NOVEMBER 2021	SCALE	FILE NUMBER
PROJ. #	HORIZONTAL:	DRAWING NUMBER
DRAWN	VERTICAL:	E-0.2
DESIGNED	NA	
CHECKED		
PROJ. MGR.		
STATUS: REVISED		REVISION 6

NOTES:

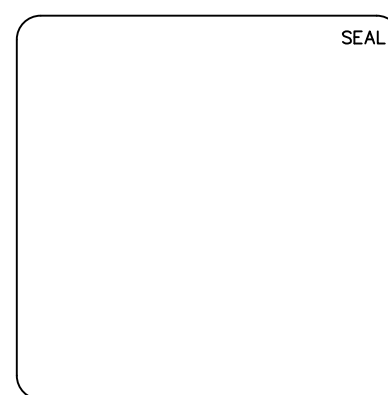
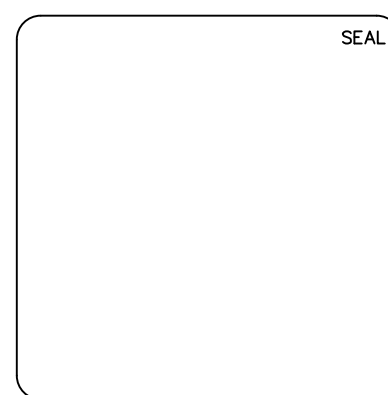
1. REFER TO SHT. E-1.2 FOR BILL OF MATERIAL, NAMEPLATE LEGEND AND ELECTRICAL SIZING; E-1.3 THRU E-1.8 FOR SCHEMATICS.
2. WELDED CABINET DIVIDER SHALL PROVIDE COMPLETE ISOLATION BETWEEN CABINET HALVES.
3. ATTACH SUN-SHIELD WITH STAINLESS STEEL HARDWARE. TYPICAL.
4. REMOVABLE LIFTING EYE SOCKET. IMMEDIATELY AFTER CABINET INSTALLATION, INSTALL SS PLUG BOLT AND RUBBER WASHER TO PROVIDE WATER-TIGHT SEAL. TYPICAL (2).
5. INSTALL PASS-THROUGH CABLE FITTINGS AT DIVIDER PLATE (BOTTOM & CENTERED) TYP. 3 (POWER, COMM, CONTROL).
6. INSTALL DRIP-SHIELDS ON FRONT AND BOTH SIDES OF TOP SUN-SHIELD.
7. THE SUBPANEL SHALL BE MOUNTED AND FASTENED TO THREADED STANDOFFS THAT ARE WELDED TO THE PANEL ENCLOSURE.



EXTERIOR ELECTRICAL/CONTROL CABINET, (ME)

5/32"=1"

REVNO.	DESCRIPTIONS	DATE
5	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	3/6/20
4	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	9/28/17
3	REVISED, TO INCORPORATE FIELD CHANGES	10/16/15
2	REVISED, TO INCORPORATE FIELD CHANGES	9/26/15
1	CONFORMED	5/17/13



DUPLEX WASTEWATER PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION

ELECTRICAL/CONTROL ENCLOSURE
EXTERIOR LAYOUT
(3PH)(480V/30-75HP)

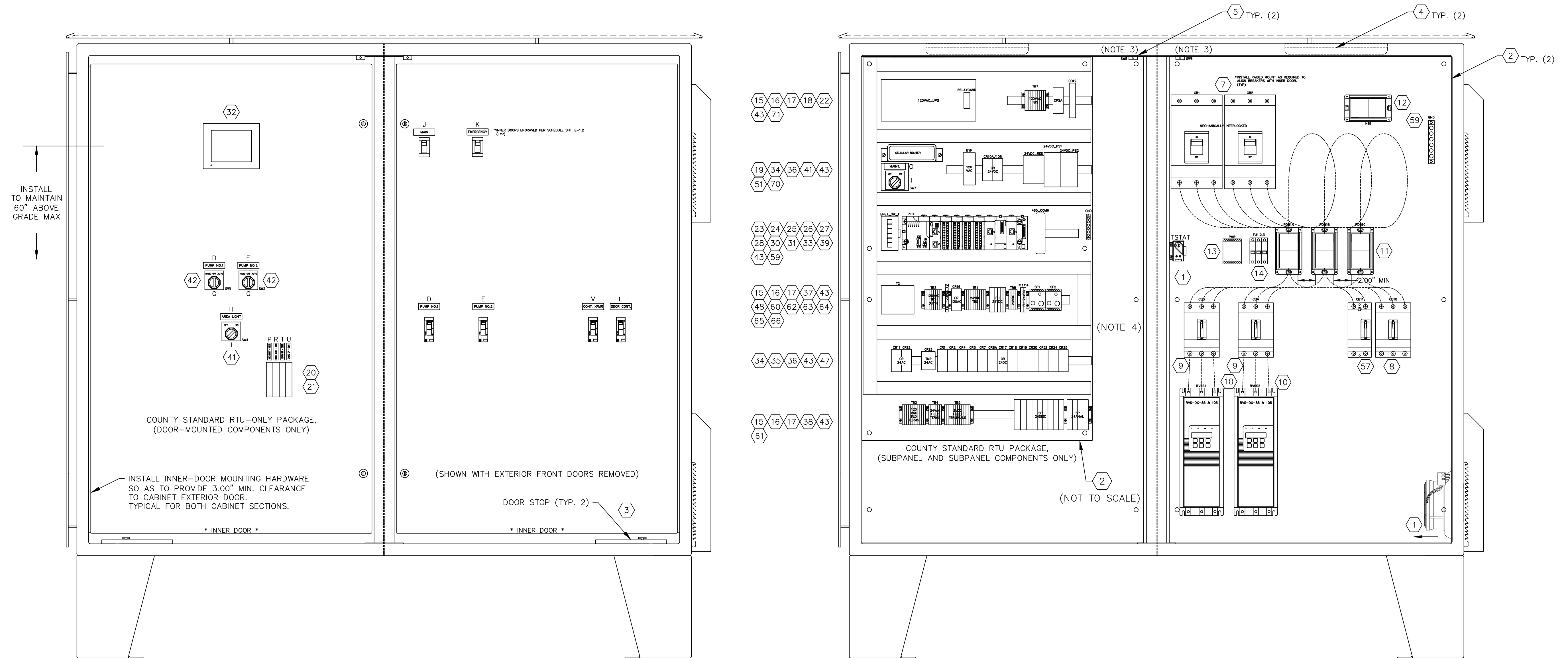
ISSUE DATE: NOVEMBER 2021
PROJ. #
DRAWN
DESIGNED
CHECKED
PROJ. MGR.

SCALE	FILE NUMBER
HORIZONTAL:	DRAWING NUMBER
VERTICAL:	E-1.0
NA	

STATUS:	REVISION
	5

NOTES:

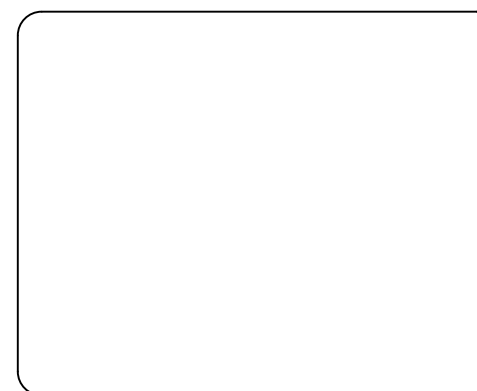
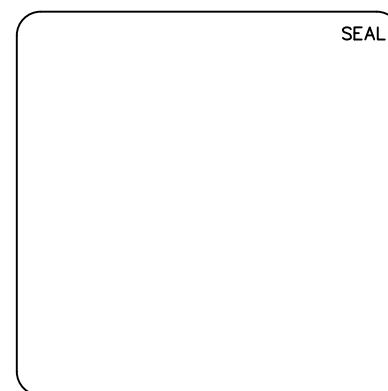
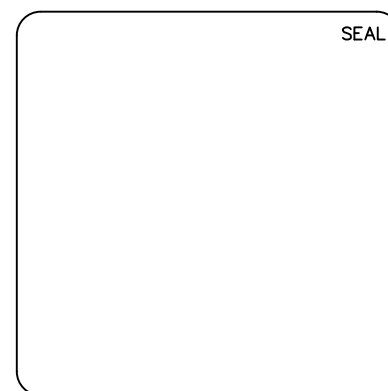
1. REFER TO SHT. E-1.2 FOR BILL OF MATERIAL, NAMEPLATE LEGEND AND ELECTRICAL SIZING; E-1.3 THRU E-1.8 FOR SCHEMATICS.
2. INSTALL STAND-OFF BRACKETS AS REQ'D TO EXTEND CIRCUIT BREAKERS TO INNER DOOR.
3. INSTALL DOOR SWITCHES TO INSURE THAT ACTUATION PLUNGER CLEARS WEATHER-STRIPPING AND MAKES CLEAR CONTACT WITH DOOR SURFACE.
4. SUBPANEL NOT TO SCALE (SEE ITEM #2 ON LIST OF MAJOR COMPONENTS (BILL OF MATERIALS), DRAWING E-1.2).



INTERIOR ELECTRICAL/CONTROL CABINET, (ME)

5/32"=1"

REVNO.	DESCRIPTIONS	DATE
6	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	3/6/20
5	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	9/29/17
4	REVISED, TO INCORPORATE UPS SYSTEM MODIFICATIONS AND DOOR SWITCH INSTALLATION NOTE	6/7/16
3	REVISED, TO INCORPORATE FIELD CHANGES	10/16/15
2	REVISED, TO INCORPORATE FIELD CHANGES	9/26/15
1	CONFORMED	5/17/13



Hillsborough County Florida

PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION

925 E. TWIGGS STREET/TAMPA FLORIDA 33602/PH. (813) 272-5977

DUPLEX WASTEWATER PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION

ELECTRICAL/CONTROL ENCLOSURE
INTERIOR LAYOUT
(3PH)(480V/30-75HP)

ISSUE DATE: NOVEMBER 2021
PROJ. #
DRAWN
DESIGNED
CHECKED
PROJ. MGR.

SCALE	FILE NUMBER
HORIZONTAL:	DRAWING NUMBER
VERTICAL:	E-1.1
NA	REVISION
	6

LIST OF MAJOR COMPONENTS				
ELECTRICAL/CONTROL CABINET (ME)				
ITEM NO.	QTY	DEVICE ID	MANUFACTURER	DESCRIPTION
1	1		HOFFMAN	A48H4812WFSLLP-3PT (CUSTOM) ENCLOSURE, 48"x48"x12"D, TWO-DOOR, WELDED CABINET DIVIDER, NEMA 4X, 304 SS, 3-PT LATCHES, SUN-SHIELDS, EPOXY WHITE FINISH
2	2		HOFFMAN	(CUSTOM) SUBPANEL, 45"x21"W, ALUMINUM (COPPER FREE), 0.25 INCH THK MIN., EPOXY WHITE FINISH
3	2		FABTECH	NH45013 DOOR STOP KIT, 316 SS
4	2		GE	UCF18/DWADV-16547 CABINET LIGHT, FLUORESCENT
5	2		GE	F15T8/WW-10147 CABINET LIGHT, BULB
6	1			9007-AP221 DOOR SWITCH
7	2	CB1, CB2	SEE CHART THIS SHT.	GENERATOR TERMINATION PANEL, REFER TO SHT. E-5.0
8	1	CB10	SQUARE-D	JUL36250U31X CIRCUIT BREAKER, 600V, 3 POLE, 250 AMP, ELECTRONIC TRIP (MICROLOGIC), MECH-INTERLOCK
9	2	CB3, CB4	SEE CHART THIS SHT.	CIRCUIT BREAKER, MOLDED-CASE, 600V, 3 POLE, 20 AMP TRIP UNIT
10	2	MS1, MS2	SEE CHART THIS SHT.	CIRCUIT BREAKER, MOLDED-CASE, 600V, 3 POLE, 15 AMP TRIP UNIT
11	3	PDB1A,B,C	BUSSMANN	HGL36020T CIRCUIT BREAKER, MOLDED-CASE, 600V, 3 POLE, 20 AMP TRIP UNIT
12	1	NB1	BUSSMANN	HGL36025T CIRCUIT BREAKER, MOLDED-CASE, 600V, 3 POLE, 25 AMP TRIP UNIT
13	1	PMR	DIVERSIFIED	HGL36040T CIRCUIT BREAKER, MOLDED-CASE, 600V, 3 POLE, 40 AMP TRIP UNIT
14	1	FU1,FU2,FU3	SQUARE-D	HGL36050T CIRCUIT BREAKER, MOLDED CASE, 600V, 3 POLE, 50 AMP TRIP UNIT
15	55		BUSSMANN	8501NR51 RELAY BASE
16	11		SQUARE-D	DFCC3V 3 POLE FUSE HOLDER
17	24		BUSSMANN	LP-CC-1 1 AMP CLASS CC FUSE
18	1	120VAC_UPS	SOLA	115 116.07 TERMINAL BLOCK, 30A
19	2	24VDC_PS1,24VDC_PS2	WEIDMULLER	8951360000 POWER SUPPLY, 24VDC, 10AMP
20	4	CB20, CB22, CB23, CB24	SQUARE-D	QOU1103100 CIRCUIT BREAKER, 1 POLE, 10 AMP, W/PANEL MOUNT BRACKETS
21	1	CB21	SQUARE-D	QOU1153100 CIRCUIT BREAKER, 1 POLE, 15 AMP, W/PANEL MOUNT BRACKETS
22	1	CPSA	CITEL	DS425-120 SURGE ARRESTOR, 120VAC
23	1	PLC_BP	MODICON	BMXXBP0800 M340, BACKPLANE, 8-SLOT
24	1	PLC_FS	MODICON	BMXCP3500 M340, POWER SUPPLY MODULE, 120VAC INPUT
25	1	PLC_MOD_0	MODICON	BMXP342020 M340, PROCESSOR MODULE, MODBUS, ETHERNET
26	2	PLC_MOD_1,2	MODICON	BMXDD1602 M340, DISCRETE INPUT MODULE, 16PT
27	1	PLC_MOD_3	MODICON	BMXDRA1605 M340, DISCRETE OUTPUT MODULE, 16PT
28	1	PLC_MOD_4	MODICON	BMXAM0810 M340, ANALOG INPUT MODULE, 8PT
29				*NOT USED
30	4		MODICON	BMXFTB2000 TERMINAL CONNECTOR
31	1	PLC_MOD_5	MODICON	BMXNOE0100 M340, I-O SCANNER MODULE
32	1	OPI	MODICON	MAGELIS HMIGTO2310 OPERATOR INTERFACE PANEL, 5.7", COLOR, TOUCHSCREEN, 24VDC, ENET
33	2	PM1, PM2	SQUARE-D	LTMR100EBD TSYS-T, CONTROLLER
34	13	CR1,2,4,5,7,8A,10A,10B,17,1,8,19,20,21	SQUARE-D	RXM4AB1BD CONTROL RELAY, 24VDC COIL, 4PDT, 5A CONTACTS
35	2	CR11,12	SQUARE-D	RXM040W DIODE MODULE, 6-230VDC (FOR CR4, CR5)
36	16		SQUARE-D	RXZE2M114 RELAY BASE
37	2	SF1, SF2	CROUZET/SYRELEC	PNRU110A/BE LEAK DETECTION RELAY / SEAL-FAIL RELAY
38	4	SP-1,2,24,25	CITEL	DLA-24D3 SURGE PROTECTOR, ANALOG, 24VDC, SINGLE CHANNEL, PLUG & BASE
39	1	ENET_SW_1	CONNEXIUM	TCSEB083F23F0 ETHERNET SWITCH, MANAGED
40	1	RECP1	HUBBELL	GFR15GY RECEPTACLE, 125VAC, DUPLEX, GFCI, 15A, 10KA SCCR
41	1		THOMAS & BETTS	IH3-2LM RECEPTACLE BOX, DIE-CAST ALUMINUM, WEATHERPROOF, (3) 3/4" HOLES
42	2	SW4,SW7	SQUARE-D	9001 KS11BH2 SELECTOR SWITCH, 2-POS, MAINTAINED
43	2	SW1, SW2	SQUARE-D	9001 KS43BH2 SELECTOR SWITCH, 3-POS, MAINTAINED
44	2		PANDUIT	G1X3WH6/C1WH6 WIRE DUCT, 1"W x 3"H, WHITE/WITH COVER
45	1		PANDUIT	G1.5X3WH6/C1.5WH6 WIRE DUCT, 1.5"W x 3"H, WHITE/WITH COVER
46	1		FEDERAL SIGNAL	141ST-24R STROBE LIGHT, RED, 24VDC (REMOTE FROM ME)
47	1		FEDERAL SIGNAL	450E-24-31 w/WB ALARM HORN, 24VDC, w/ALUMINUM WP HOUSING (REMOTE FROM ME)
48	1	CR13	SQD	9050JCK11V14 RELAY, 24VAC, TIME-DELAY, 1-10 SECONDS
49	1	T2	SQUARE-D	8501NR51 RELAY BASE
50	1	LT-100	ENDRESS HAUSER	FMX21-FE-2-2-1H-G-K-41-A-PO-PS PRESSURE TRANSMITTER, SUBMERSIBLE (WET WELL LEVEL)
51	1	PIT-100	ROSEMOUNT	3051TG2A2B21A1M5 PRESSURE TRANSMITTER, W/LCD DISPLAY (FORCE MAIN PRESSURE)

51	1	ECR1	MDS	MDSECR4G51NNNS1S2USUNNN	CELLULAR ROUTER, 4G LTE (COUNTY TO PROVIDE FREQS AT TIME OF ORDER)
52	1		SQUARE-D	MSPNEUP1	SOFTWARE DEVICE LICENSE
53	1		LAIRD	PK12GTA	GROUND BAR, 6 CONN 14-10 CU
54				TRA6927M3PBN-001	4G/3G MULTIBAND NO GROUND PLANE PHANTOM ANTENNA
55					*NOT USED
56	1		VENTEV	565112	15' LMR 195 JUMPER w/N MALE (39931) TO SMA MALE (37467) CONNECTORS
57	1	CB11	SQUARE-D	HGL26015	CIRCUIT BREAKER, MOLDED-CASE, 600V, 2 POLE, 15 AMP
58	1	T1	SQUARE-D	3S1FSS	3KVA 480VAC - 120VAC SINGLE PHASE TRANSFORMER W/ ENCLOSURE
59	1		SQUARE-D	PK0GT6	GROUND BAR, 6 CONN 14-10 CU
60	1	CR16	SQUARE-D	RXM4AB2F7	RELAY, 120VAC, 4DPT, 5A CONTACTS
61	9	SP-5.6,7,8,9,10,11,26,27	CITEL	DLA-24D3	SURGE PROTECTOR, DISCRETE, 24VDC, TWO CHANNEL, PLUG & BASE
62	1	FU4	BUSSMANN	GMA-2-R	FUSE, 2 AMP, FAST ACTING
63	8	FU5,6,7,8,9,10,11,12	BUSSMANN	GMA-500-R	FUSE, 500mA, FAST ACTING
64	1	FU13	BUSSMANN	GMA-100-R	FUSE, 100mA, FAST ACTING
65	3	FU14	BUSSMANN	GMA-300-R	FUSE, 300mA, FAST ACTING
66	9	FL4,5,6,7,8,9,10,13,14	ENTRELEC	173 523.11	FUSE TERMINAL BLOCK JUMPER
67	3		ENTRELEC	168 973.07	TERMINAL BLOCK JUMPER
68				115 657.25	FUSE TERMINAL BLOCK, 10A
69	1		HUBBELL	116 951.15	FUSE TERMINAL BLOCK END BARRIER
70	1	BYP	SQUARE-D	RUMC32F7	CONTROL RELAY, 120VAC COIL, 3PDT, 10A CONTACTS, W/STATUS LED
71	1	CB12	SQUARE-D	QOU130	CIRCUIT BREAKER, 1 POLE, 30A

CROSS REFERENCE TABLE

SERVICE VOLTAGE	PUMP HP	PUMP FLA (PER NEC)	MTR-MD1 (AWG)	MD1-CB1/N J1/JB4-CB2/N (AWG)	CB1-PDB1 CB2-PDB1 (AWG)	MD1 CB1 CB2 SETTINGS J (I _r /I _r /I _t) L (L/H)	GENERATOR CONNECTION	PDB1-PMR (AWG)	CB3 CB4 (MAX)	RVSS1 RVSS2	PDB1-CB3 PDB1-CB4 CB3-RVSS1 CB4-RVSS2 RVSS1-JB1 RVSS2-JB1 (AWG)	JB1-M1 JB1-M2	ODOR CONTROL CB10 (MAX)	PDB1-CB10 (AWG)	PDB1-CB20 (AWG)	PDB1-CB11-XFMR1 (AWG)	CB11
480VAC, 3PH, 4W	30	40.0	3-#3/0, 1-#2 N, 1-#6 G	3-#3/0, 1-#2 N, 1-#6 G	3-#3/0	J250(200/16/10)	JB4	3-#14	H80	RVS-DX-72	3-#4	PER MANUF	H20	3-#12	--	2-#10	H15
480VAC, 3PH, 4W	40	52.0	3-#3/0, 1-#2 N, 1-#6 G	3-#3/0, 1-#2 N, 1-#6 G	3-#3/0	J250(200/16/10)	JB4	3-#14	H90	RVS-DX-72	3-#3	PER MANUF	H20	3-#12	--	2-#10	H15
480VAC, 3PH, 4W	50	65.0	3-#4/0, 1-#2 N, 1-#6 G	3-#4/0, 1-#2 N, 1-#6 G	3-#4/0	J250(225/16/10)	JB4	3-#14	H100	RVS-DX-72	3-#3	PER MANUF	H20	3-#12	--	2-#10	H15
480VAC, 3PH, 4W	60	77.0	3-#350, 1-#2 N, 1-#4 G	3-#350, 1-#2 N, 1-#4 G	3-#350	L300(H)	JB4	3-#14	H110	RVS-DX-85	3-#2	PER MANUF	H20	3-#12	--	2-#10	H15
480VAC, 3PH, 4W	75	96.0	3-#350, 1-#2 N, 1-#4 G	3-#350, 1-#2 N, 1-#4 G	3-#350	L300(H)	JB4	3-#14	H125	RVS-DX-105	3-#1	PER MANUF	H20	3-#12	--	2-#10	H15

EQUIPMENT AND CONDUCTORS SHALL COMPLY WITH NEC AND ALL OTHER APPLICABLE CODES, INCLUDING EXISTING COUNTY STANDARDS.

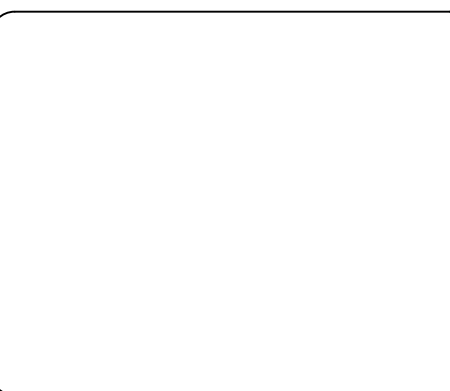
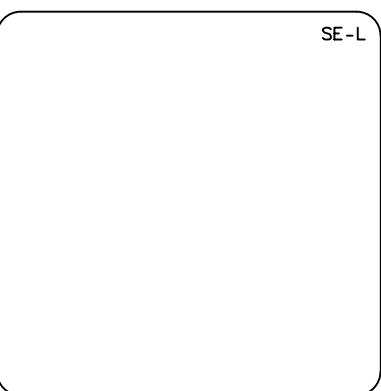
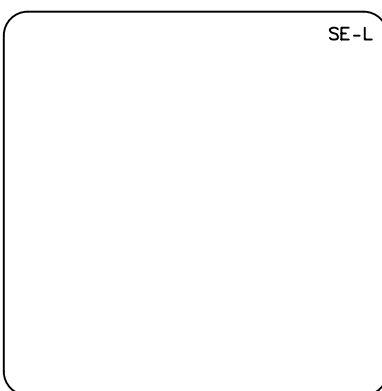
NAMEPLATE SCHEDULE

N.P. NO.	QTY	PLATE COLOR/SIZE	LTR COLOR/SIZE	ENGRAVING (LINE1/LINE2/ETC.)
A	1	BLK / 2.00" H x 6.00" W	WHT / 1/2"	PNL ME
B	1	BLK / 2.00" H x 5.00" W	WHT / 3/8"	HAZARD/RISK / CATEGORY X
C	1	BLK / 2.00" H x 5.00" W	WHT / 3/8"	HAZARD/RISK / CATEGORY X
D	2	ENG / 0.75" H x 2.50" W	ENG / 1/4"	PUMP NO.1
E	2	ENG / 0.75" H x 2.50" W	ENG / 1/4"	PUMP NO.2
F				*NOT USED
G	2	ENG / 2.25" H x 2.25" W	ENG / 3/16"	HAND OFF AUTO
H	1	ENG / 0.75" H x 2.50" W	ENG / 1/4"	AREA LIGHT
I	2	ENG / 2.25" H x 2.25" W	ENG / 3/16"	OFF ON
J	1	ENG / 0.75" H x 2.50" W	ENG / 1/4"	MAIN - CB1
K	1	ENG / 0.75" H x 2.50" W	ENG / 1/4"	EMERGENCY - CB2
L	1	ENG / 0.75" H x 2.50" W	ENG / 1/4"	ODOR CONT - CB10
M				*NOT USED
N				*NOT USED
O	1	ENG / 0.75" H x 2.50" W	ENG / 1/4"	MAINT.
P	1	ENG / 0.50" H x 2.00" W	ENG / 3/16"	AREA LIGHT - CB20
R	1	ENG / 0.50" H x 2.00" W	ENG / 3/16"	CONV. RECP. - CB21
S	1	ENG / 0.50" H x 2.00" W	ENG / 3/16"	AUTODIALER - CB22
T	1	ENG / 0.50" H x 2.00" W	ENG / 3/16"	120VAC CONTROL POWER - CB23
U	1	ENG / 0.50" H x 2.00" W	ENG / 3/16"	24VAC CONTROL POWER - CB24
V	1	ENG / 0.75" H x 2.50" W	ENG / 1/4"	CONTROL - CB11
W				*NOT USED

DESIGN BASIS NOTE:
THIS DRAWING REPRESENTS THE STANDARD DESIGN FOR ALL HILLSBOROUGH COUNTY STANDARD WASTEWATER PUMPING STATIONS. IT WAS DEVELOPED TO IMPROVE RELIABILITY, MAINTAINABILITY, MINIMIZE SPARE PARTS AND INCREASE SERVICE LIFE. ALL REQUESTS FOR DEVIATION FROM THIS STANDARD MUST BE MADE IN WRITING AND WRITTEN APPROVAL RECEIVED BEFORE MODIFICATIONS ARE MADE. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS NECESSARY TO RESTORE UNAUTHORIZED MODIFICATIONS.

DESIGN ENGINEER NOTE: *THIS IS NOT A CONSTRUCTION DRAWING*
DESIGN ENGINEER SHALL REFER TO ELECTRICAL DRAWINGS, MECHANICAL DRAWINGS, AND THE HILLSBOROUGH COUNTY WATER -ND WASTEWATER TECHNICAL SPECIFICATION IN ORDER TO COORDINATE THE MECHANICAL -ND ELECTRICAL INSTALLATIONS. DESIGN ENGINEER SHALL NOT USE THIS DRAWING FOR A SPECIFIC SITE INSTALLATION. FOR EACH INSTALLATION - SPECIFIC SET OF CONSTRUCTION DRAWINGS AND SPECIFICATIONS (IF DEEMED NECESSARY BY THE DESIGN ENGINEER) MUST BE PREPARED IN ACCORDANCE WITH F.S. 471 -ND RULES 61G.

REVNO.	DESCRIPTIONS	DATE
5	REVISED, TO REFLECT CURRENT COUNTY ST-ND-RS	11/23/21
4	REVISED, TO REFLECT CURRENT COUNTY ST-ND-RS	9/29/21
3	REVISED, TO INCORPORATE FIELD CHANGES	10/16/21
2	REVISED, TO INCORPORATE FIELD CHANGES	9/28/21
1	CONFORMED	5/17/21



Hillsborough County Florida
PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION
925 E. TWIGGS STREET/1ST FLORIDA - 33606/PH: (813) 272-5977

DUPLEX WASTEWATER PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION
ELECTRICAL/CONTROL ENCLOSURE
BILL OF MATERIAL & EQUIP SIZING CHART
(3PH)(480V/30-75HP)

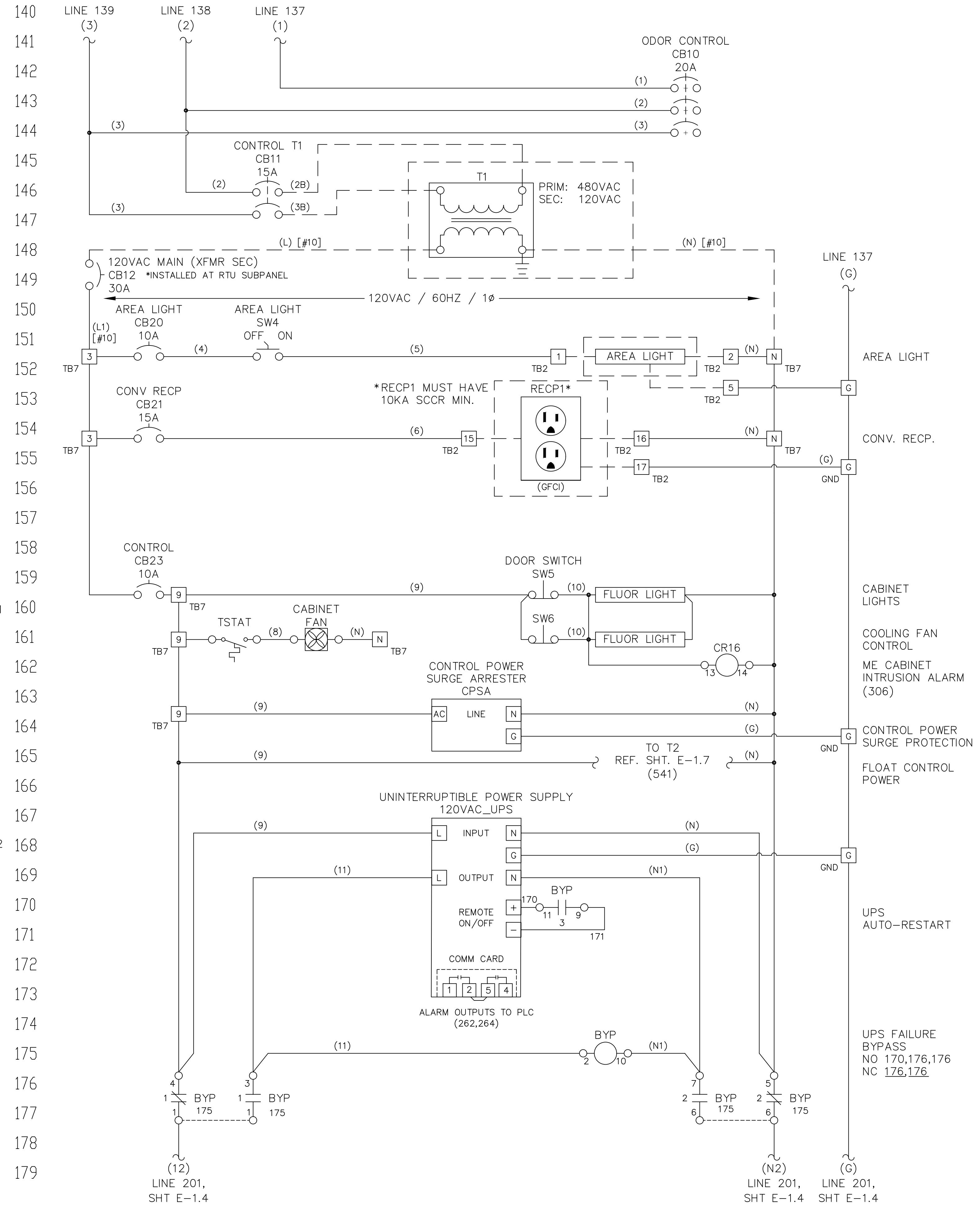
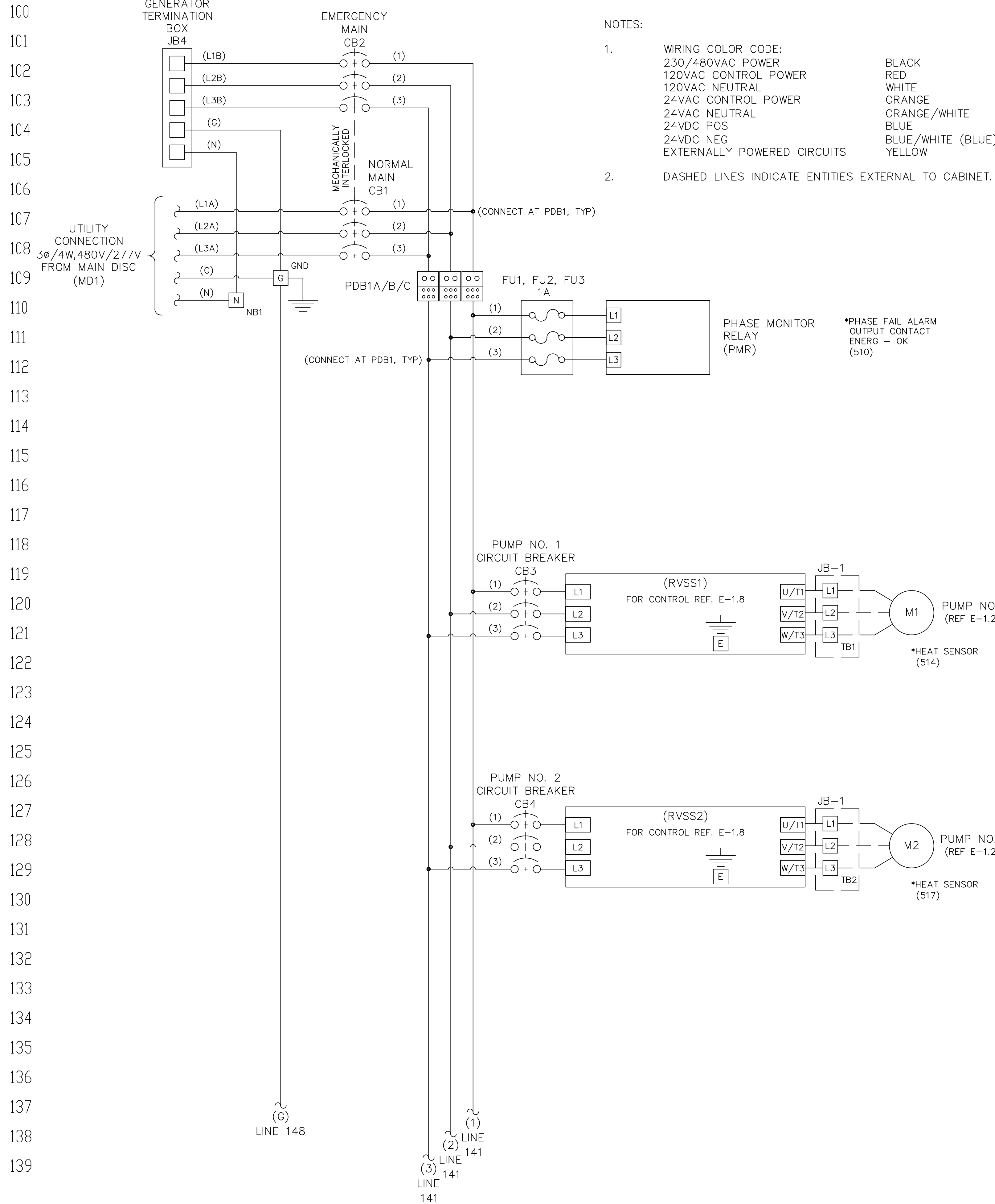
ISSUE DATE: NOVEMBER 2021
PROJ. #
DRAWN
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PROJ. MGR.

SCALE
HORIZONTAL:
VERTICAL:
NA

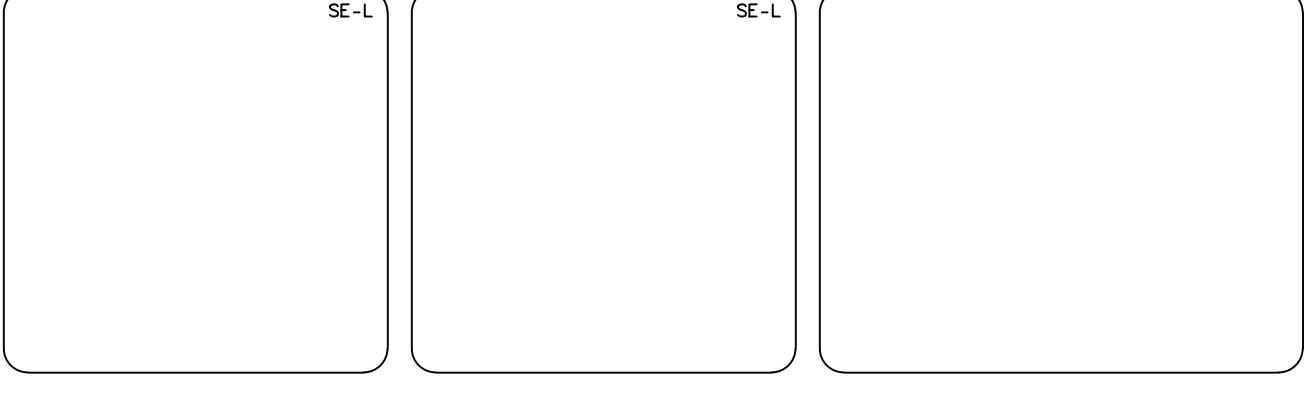
FILE NUMBER
DR-WING NUMBER
E-1.2

STATUS: REVISED
REVISION
5

ELECTRICAL/CONTROL CABINET, (ME)



REVNO.	DESCRIPTIONS	REVISIONS
3	REVISED TO REFLECT CURRENT COUNTY ST-ND-RDS	3/9/20
2	MODIFIED LINE 170 TO --COMMODO--TE NEW UPS	8/26/18
1	CONFORMED	8/26/18

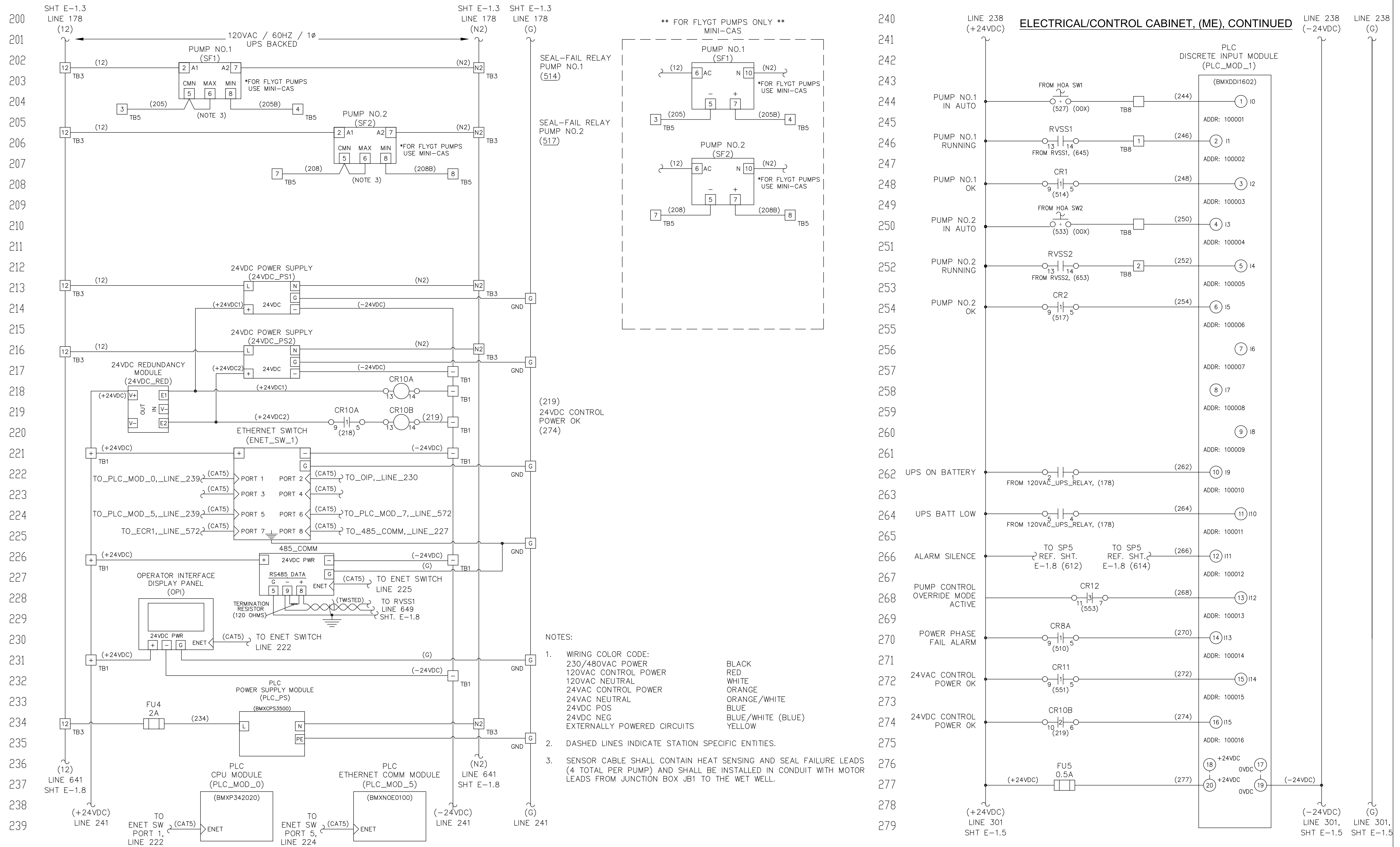


Hillsborough County Florida
 PUBLIC UTILITIES DEPARTMENT
 TECHNICAL SERVICES DIVISION
 925 E. TWIGGS STREET/T-HP - FLORIDA - 33602/PH. (813) 272-5977

**DUPLEX WASTEWATER PUMP STATION
 ELECTRICAL, CONTROL & INSTRUMENTATION**

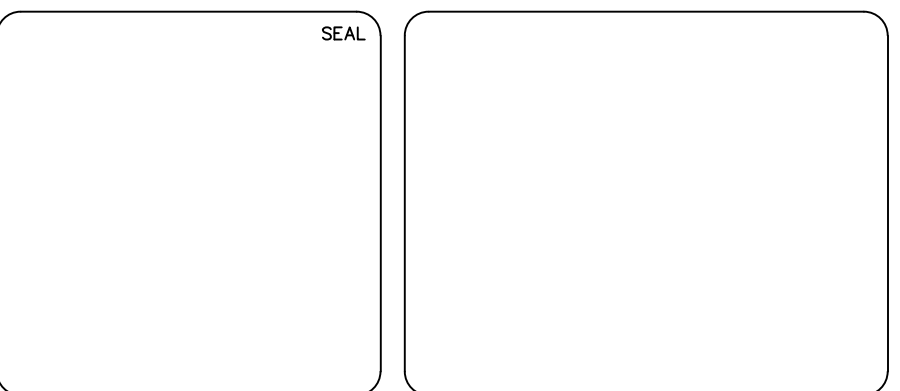
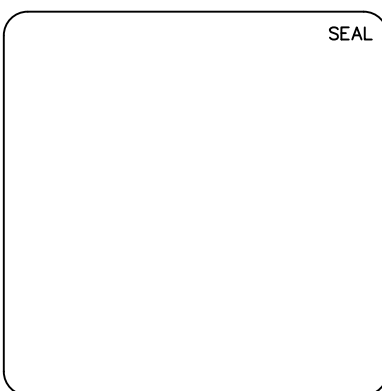
**ELECTRICAL/CONTROL ENCLOSURE
 ELECTRICAL SCHEMATICS
 (3PH)(480V/30-75HP)**

ISSUE DATE: NOVEMBER 2021	SCALE	FILE NUMBER
PROJ. #	HORIZONTAL:	DR-WING NUMBER
DRAWN	VERTICAL:	E-1.3
DESIGNED	NA	
CHECKED		
PROJ. MGR.		
STATUS:		REVISION
		3



- NOTES:**
- WIRING COLOR CODE:
230/480VAC POWER BLACK
120VAC CONTROL POWER RED
120VAC NEUTRAL WHITE
24VAC CONTROL POWER ORANGE
24VAC NEUTRAL ORANGE/WHITE
24VDC POS BLUE
24VDC NEG BLUE/WHITE (BLUE)
EXTERNALLY POWERED CIRCUITS YELLOW
 - DASHED LINES INDICATE STATION SPECIFIC ENTITIES.
 - SENSOR CABLE SHALL CONTAIN HEAT SENSING AND SEAL FAILURE LEADS (4 TOTAL PER PUMP) AND SHALL BE INSTALLED IN CONDUIT WITH MOTOR LEADS FROM JUNCTION BOX JB1 TO THE WET WELL.

REVNO.	DESCRIPTIONS	DATE
2	REVISED TO REFLECT CURRENT COUNTY STANDARDS	3/9/20
1	CONFORMED	6/25/18

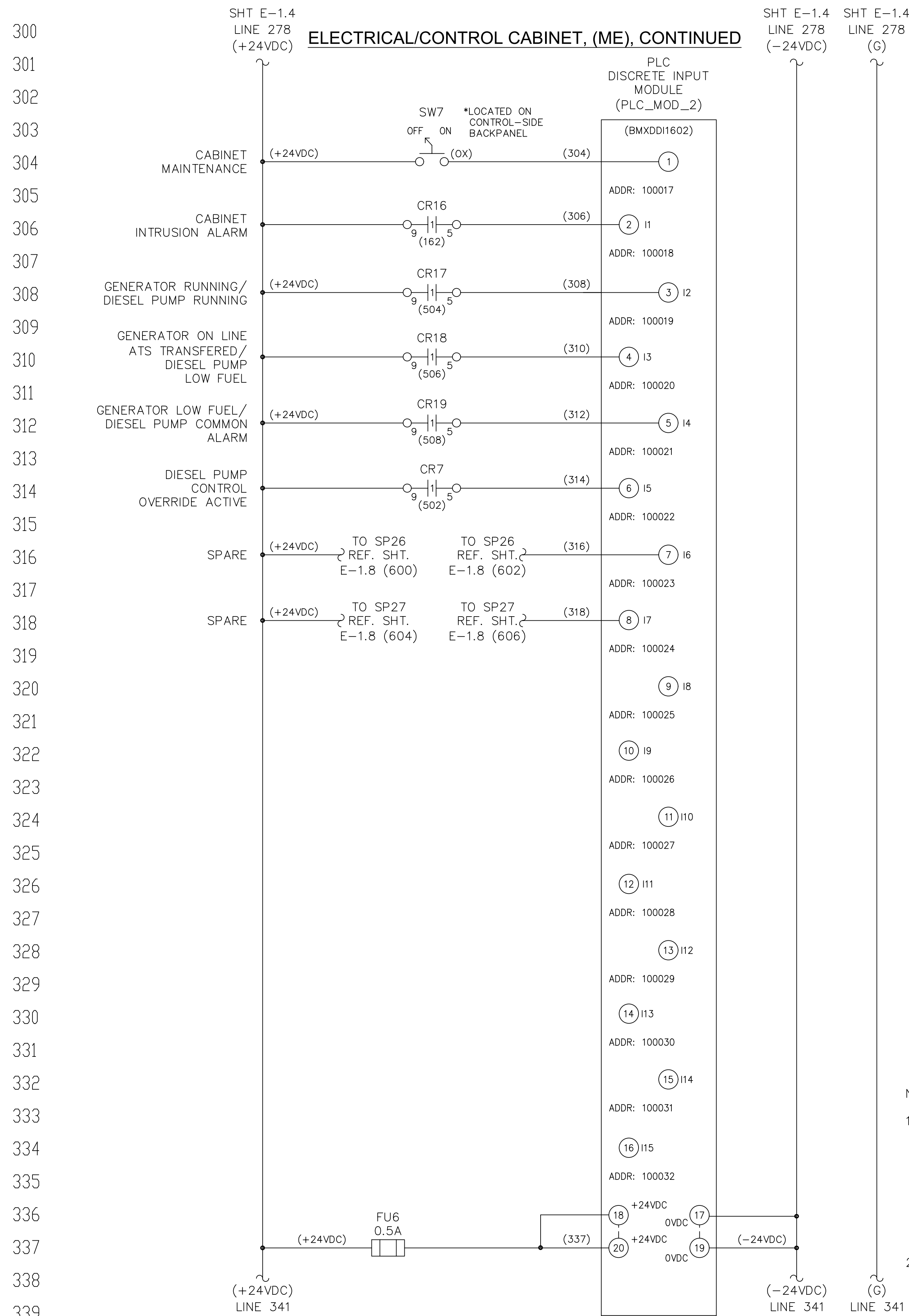


PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION
925 E. TWIGGS STREET/TAMPA FLORIDA 33602/PH. (813) 272-5977

DUPLEX WASTEWATER PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION

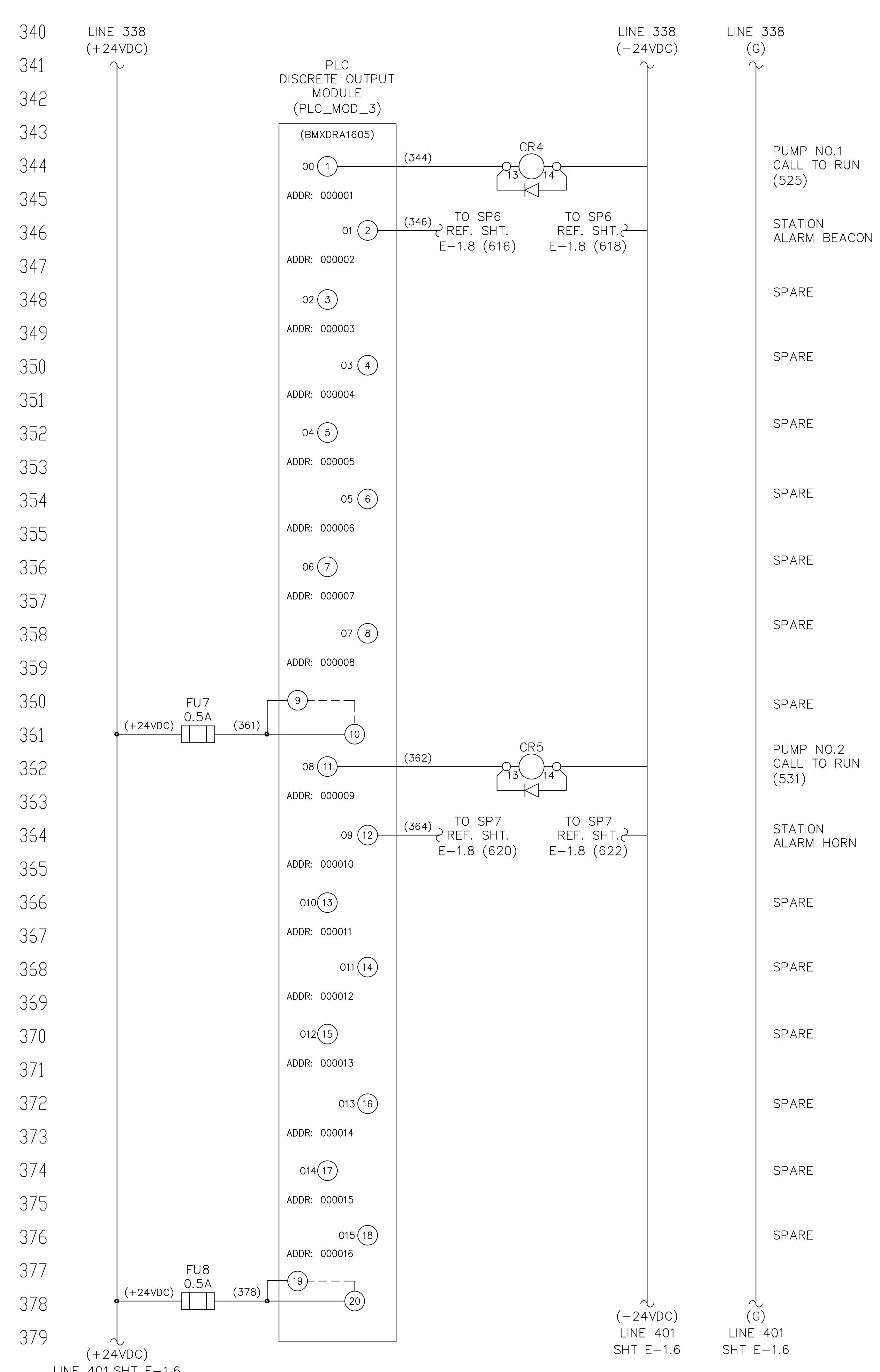
ELECTRICAL/CONTROL ENCLOSURE
ELECTRICAL SCHEMATICS
(3PH)(480V/30-75HP)

ISSUE DATE: NOVEMBER 2021	SCALE	FILE NUMBER
PROJ. #	HORIZONTAL: NA	DRAWING NUMBER
DRAWN	VERTICAL: NA	E-1.4
DESIGNED		
CHECKED		
PROJ. MGR.		
STATUS:		REVISION
		2



NOTES:

- WIRING COLOR CODE:
 230/480VAC POWER BLACK
 120VAC CONTROL POWER RED
 120VAC NEUTRAL WHITE
 24VAC CONTROL POWER ORANGE
 24VAC NEUTRAL ORANGE/WHITE
 24VDC POS BLUE
 24VDC NEG BLUE/WHITE (BLUE)
 EXTERNALLY POWERED CIRCUITS YELLOW
- DASHED LINES INDICATE ENTITIES EXTERNAL TO CAB.



REVNO.	DESCRIPTIONS	DATE
3	REVISED TO REFLECT CURRENT COUNTY ST-ND-RDS	3/9/20
2	ELIMINATED SWITCH ON LINE 305	8/29/18
1	CONFORMED	8/15/18

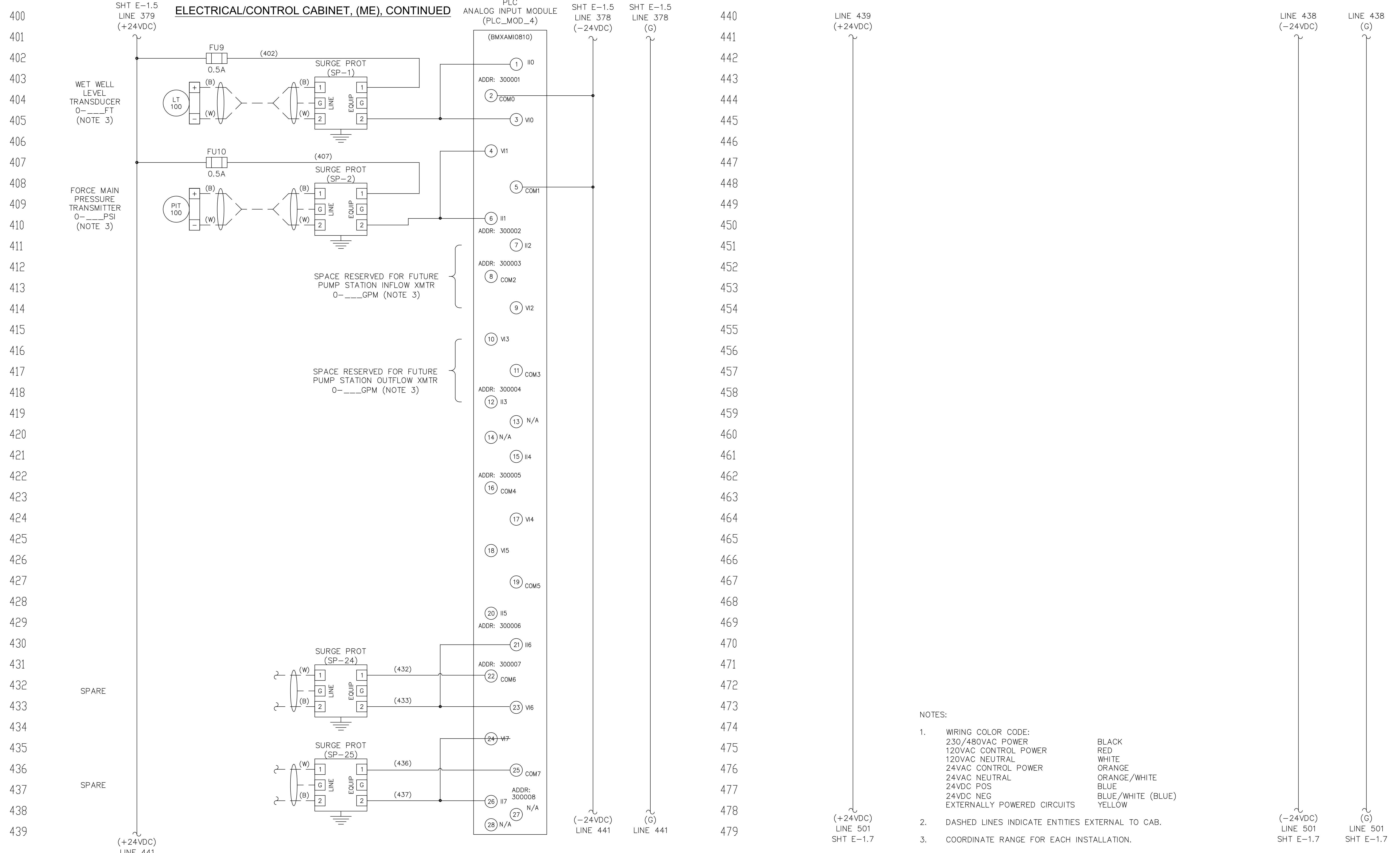


PUBLIC UTILITIES DEPARTMENT
 TECHNICAL SERVICES DIVISION
 925 E. TWIGGS STREET/T-14P - FLORIDA - 33602/PH. (813) 272-5977

DUPLEX WASTEWATER PUMP STATION
 ELECTRICAL, CONTROL & INSTRUMENTATION

 ELECTRICAL/CONTROL ENCLOSURE
 ELECTRICAL SCHEMATICS
 (3PH)(480V/30-75HP)

ISSUE DATE: NOVEMBER 2021	SCALE	FILE NUMBER
PROJ. #	HORIZONTAL:	DR-WING NUMBER
DRAWN	VERTICAL:	E-1.5
DESIGNED	NA	
CHECKED		
PROJ. MGR.		
STATUS:		REVISION
		3



REVNO.	DESCRIPTIONS	DATE
2	REVISED TO REFLECT CURRENT COUNTY ST-ND-RDS	3/9/20
1	CONFORMED	8/15/18
	D-TE	

SE-L	SE-L	
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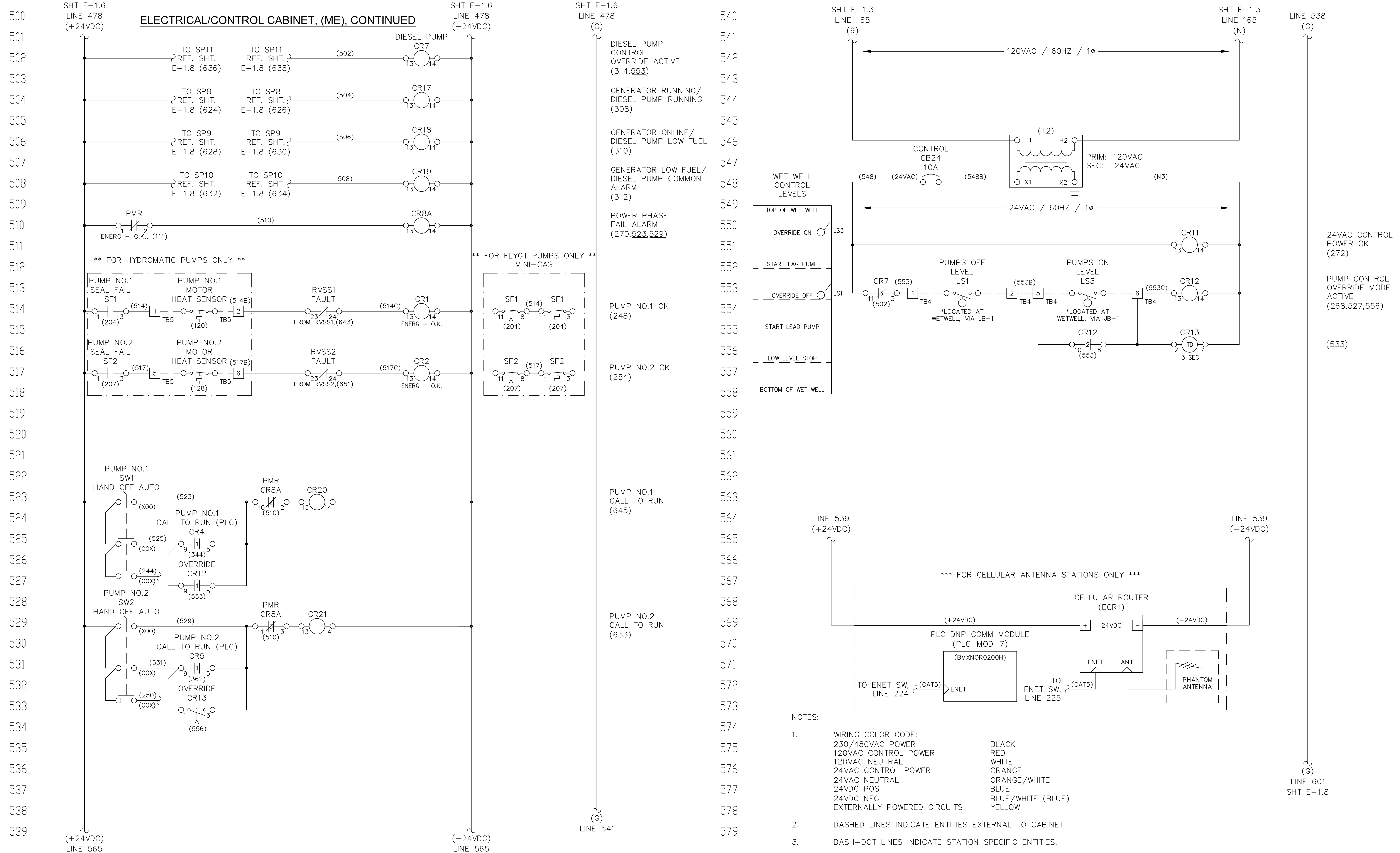
Hillsborough County Florida

PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION
925 E. TWIGGS STREET/T-14P - FLORIDA - 33602/PH: (813) 272-5977

DUPLEX WASTEWATER PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION

ELECTRICAL/CONTROL ENCLOSURE
ELECTRICAL SCHEMATICS
(3PH)(480V/30-75HP)

ISSUE DATE: NOVEMBER 2021	SCALE	FILE NUMBER
PROJ. #	HORIZONTAL:	DR-WING NUMBER
DRAWN	VERTICAL:	E-1.6
DESIGNED	NA	
CHECKED		
PROJ. MGR.		
STATUS:		REVISION
		2



REVNO.	DESCRIPTIONS	REVISIONS
2	REVISED TO REFLECT CURRENT COUNTY ST-NO-RDS	3/9/20
1	CONFORMED	8/18/18
		D-TE

SE-L	SE-L
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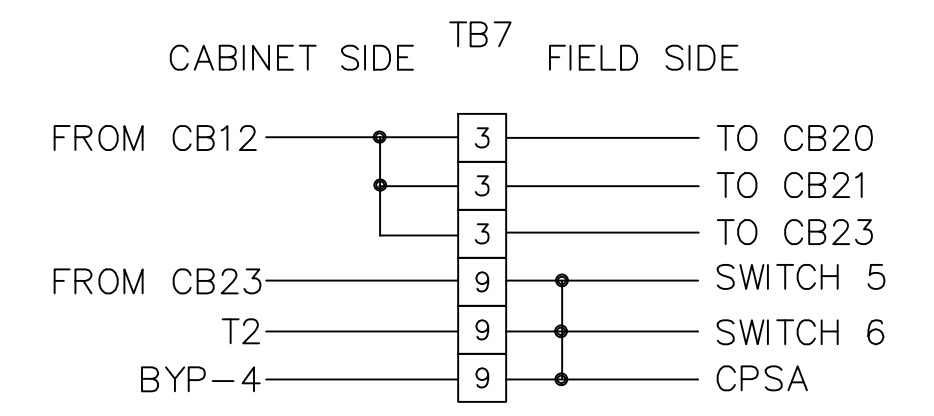
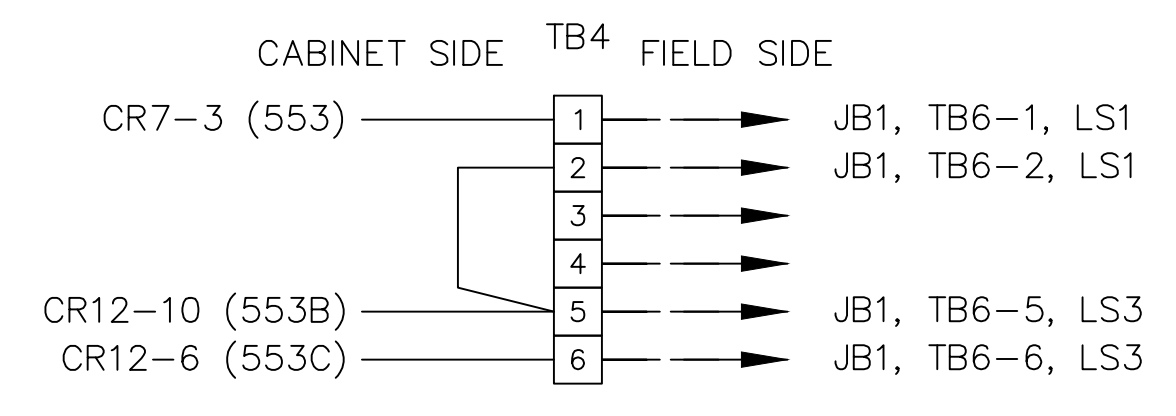
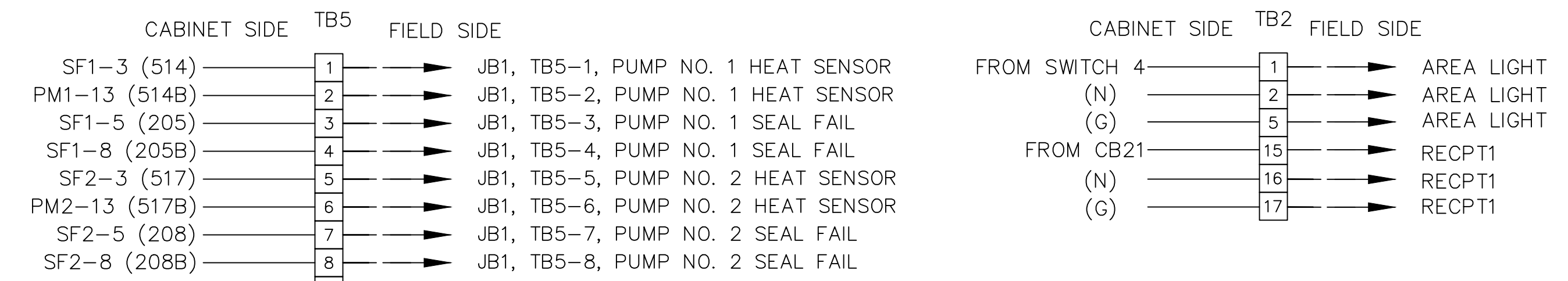
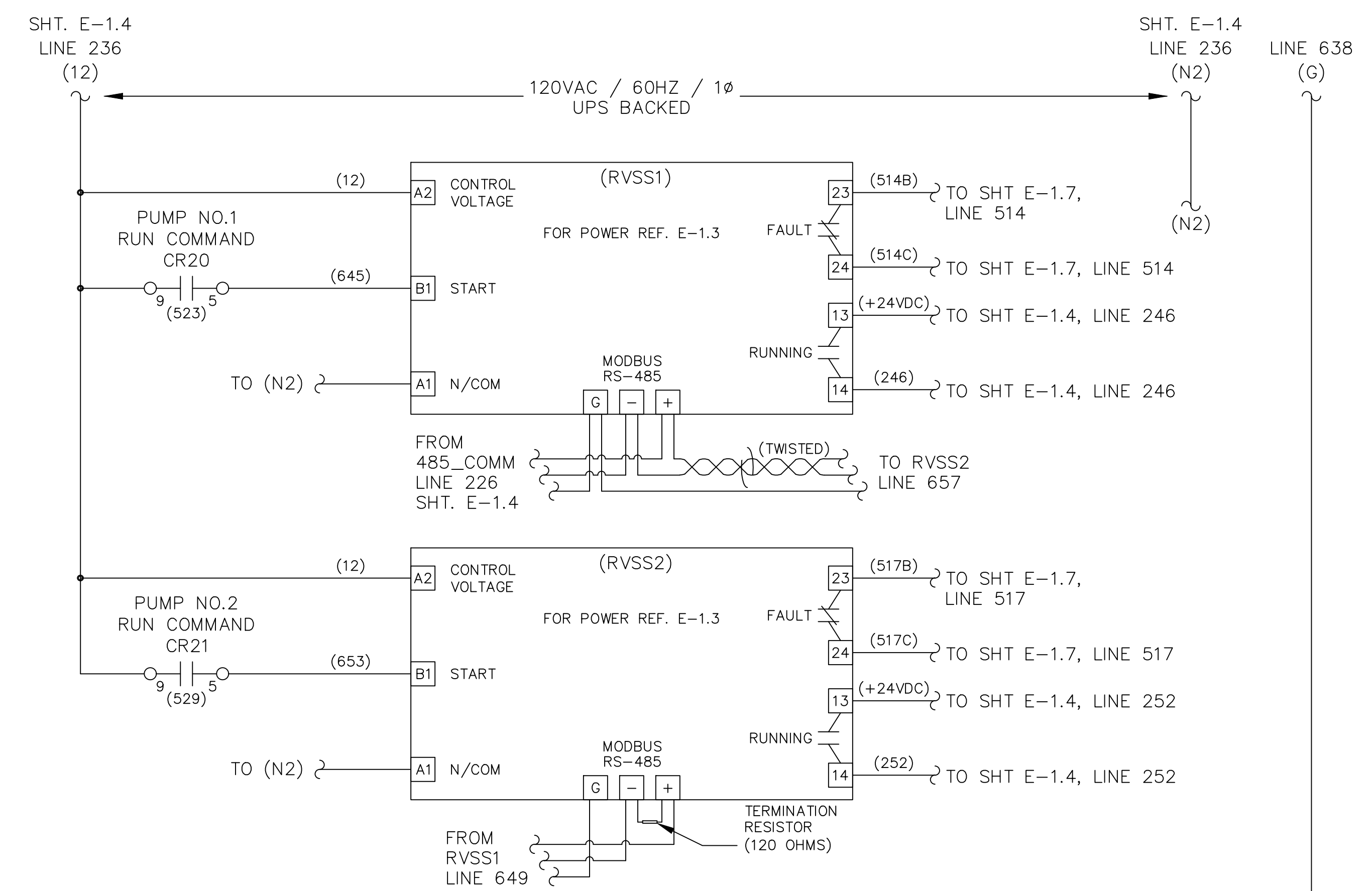
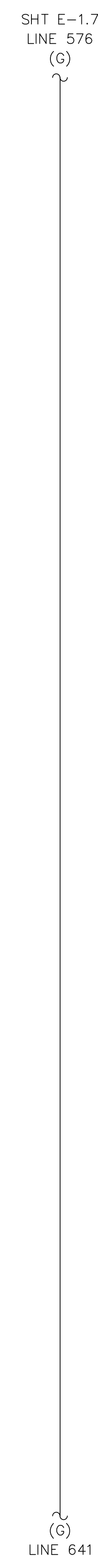
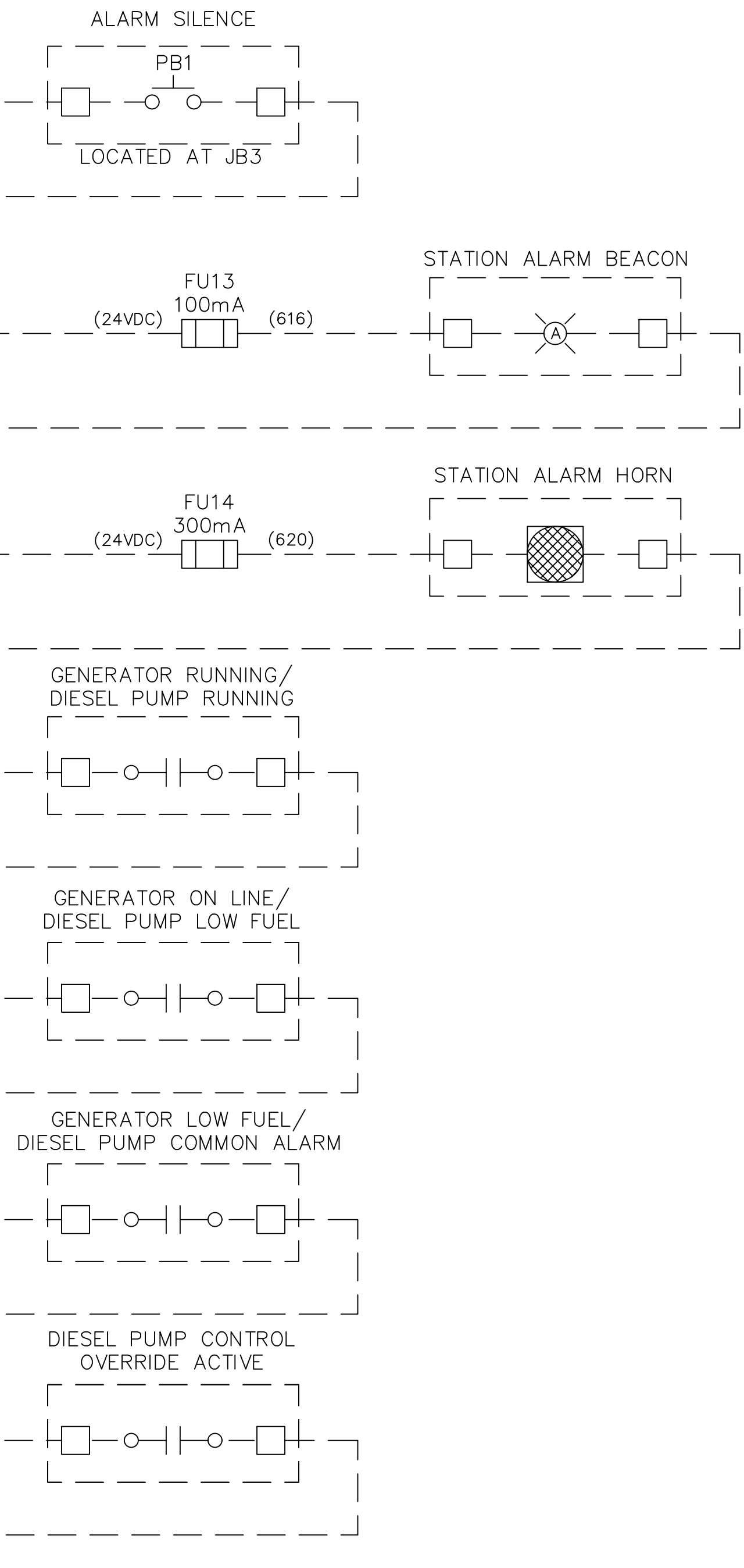
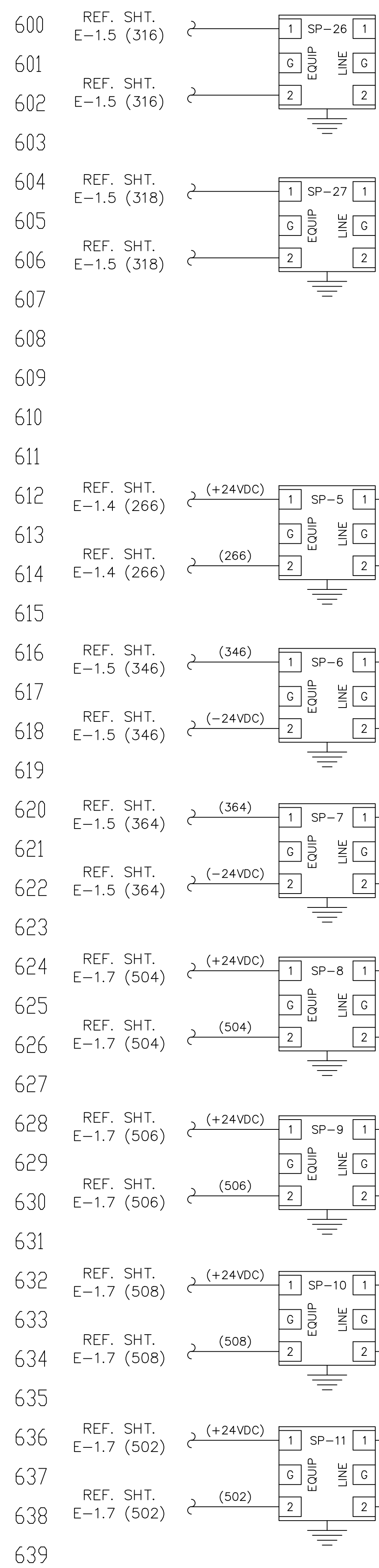
Hillsborough County Florida

PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION
925 E. TWIGGS STREET/T-HP - FLORIDA - 33602/PH. (813) 272-5977

DUPLEX WASTEWATER PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION

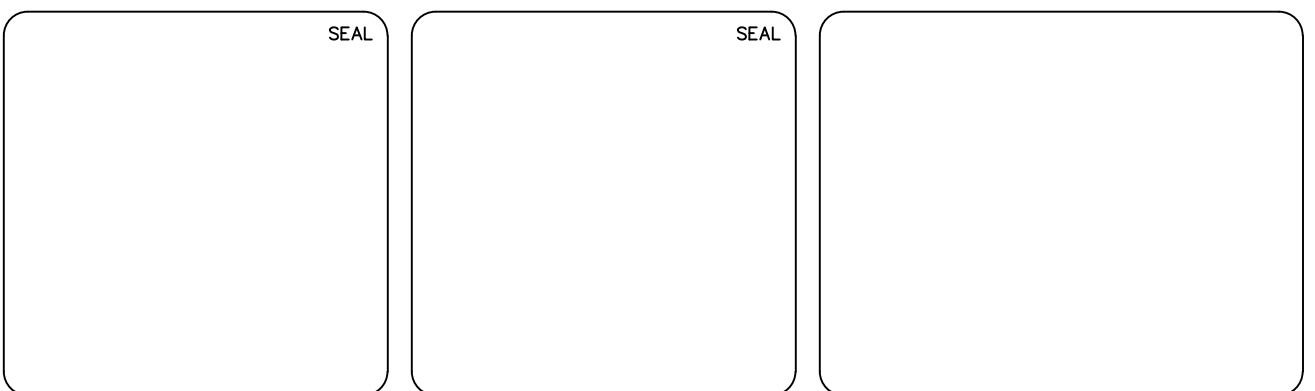
ELECTRICAL/CONTROL ENCLOSURE
ELECTRICAL SCHEMATICS
(3PH)(480V/30-75HP)

ISSUE DATE: NOVEMBER 2021	SCALE	FILE NUMBER
PROJ. #	HORIZONTAL:	DR-WING NUMBER
DRAWN	VERTICAL:	NA
DESIGNED	STATUS:	REVISION
CHECKED		2
PROJ. MGR.		



- NOTES:
- WIRING COLOR CODE:
 - 230/480VAC POWER: BLACK
 - 120VAC CONTROL POWER: RED
 - 120VAC NEUTRAL: WHITE
 - 24VAC CONTROL POWER: ORANGE
 - 24VAC NEUTRAL: ORANGE/WHITE
 - 24VDC POS: BLUE
 - 24VDC NEG: BLUE/WHITE (BLUE)
 - EXTERNALLY POWERED CIRCUITS: YELLOW
 - DASHED LINES INDICATE ENTITIES EXTERNAL TO CABINET.

REVNO.	DESCRIPTIONS	DATE
2	REVISED TO REFLECT CURRENT COUNTY STANDARDS	3/9/20
1	CONFORMED	6/18/18



PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION
925 E. TWIGGS STREET/TAMPA FLORIDA 33602/PH. (813) 272-5977

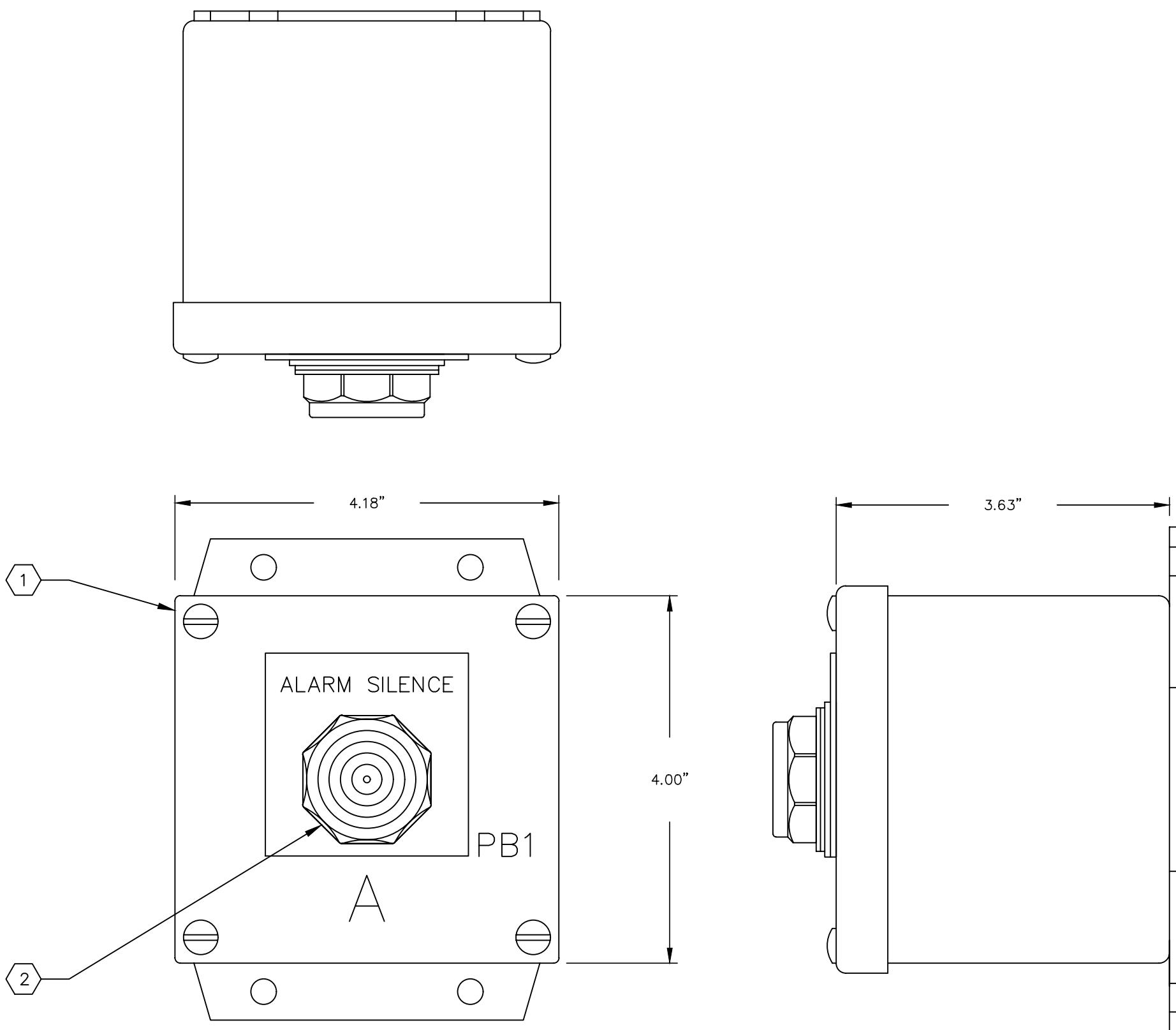
DUPLEX WASTEWATER PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION

ELECTRICAL/CONTROL ENCLOSURE
ELECTRICAL SCHEMATICS
(3PH)(480V/30-75HP)

ISSUE DATE: NOVEMBER 2021	SCALE	FILE NUMBER
PROJ. #	HORIZONTAL:	DRAWING NUMBER
DRAWN	VERTICAL:	E-1.8
DESIGNED	NA	
CHECKED		
PROJ. MGR.		
STATUS:		REVISION
		2

LIST OF MAJOR COMPONENTS					
ITEM NO.	QTY	DEVICE ID	MANUFACTURER	PART NO.	DESCRIPTION
ALARM SILENCE STATION:					
1	1		SQUARE-D	9001-KYSS100	JUNCTION BOX, 5"Hx4"Wx3.5"D, NEMA 4X, 304SS, SCREW COVER
2	1	PB1	SQUARE-D	9001 KR1BH5	PUSHBUTTON, FULL GUARD, N.O. CONTACTS

NAMEPLATE SCHEDULE				
N.P. NO.	QTY	PLATE COLOR/SIZE	LTR COLOR/SIZE	ENGRAVING (LINE1/LINE2/ETC.)
ALARM SILENCE STATION:				
A	1	BLK / 2.25" H x 2.25" W	WHT / 3/16"	ALARMSILENCE



ALARM SILENCE STATION (JB-3)
3/4"=1"

NOTES:

- | | |
|-----------------------------|-------------------|
| WIRING COLOR CODE: | |
| 240/480VAC POWER | BLACK |
| 120VAC CONTROL POWER | RED |
| 120VAC NEUTRAL | WHITE |
| 24VDC POS | BLUE |
| 24VDC NEG | BLUE/WHITE (BLUE) |
| EXTERNALLY POWERED CIRCUITS | YELLOW |

REV. NO.	DESCRIPTIONS	REVISIONS
4	REVISED, TO REFLECT CURRENT COUNTY ST-NO-RDS	9/29/17
3	REVISED, TO INCORPORATE FIELD CHANGES	10/16/15
2	REVISED, TO INCORPORATE FIELD CHANGES	8/26/15
1	CONFORMED	5/17/13

SE-L	SE-L	
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Hillsborough County Florida
PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION
925 E. TWIGGS STREET/T-14P - FLORIDA - 33602/PH. (813) 272-5977

ALARM SILENCE STATION

ENCLOSURE LAYOUT AND
BILL OF MATERIAL

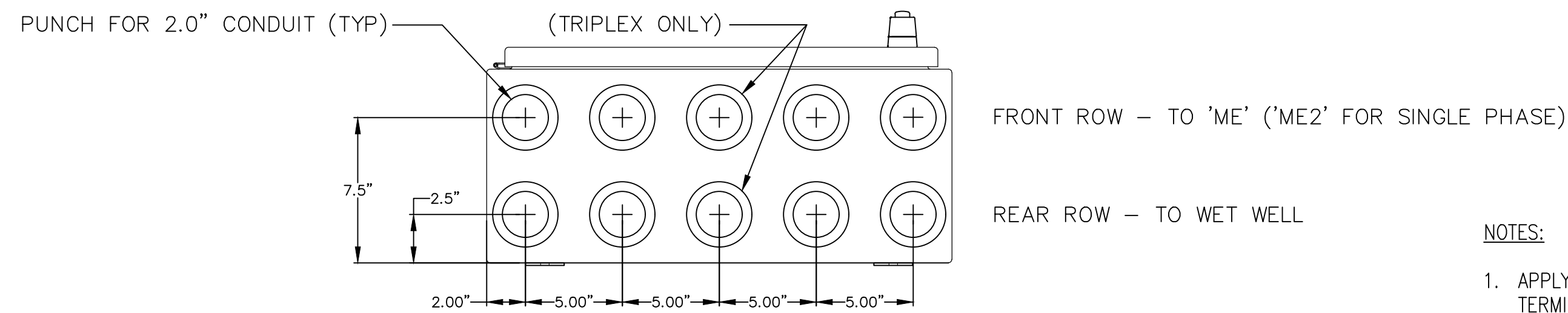
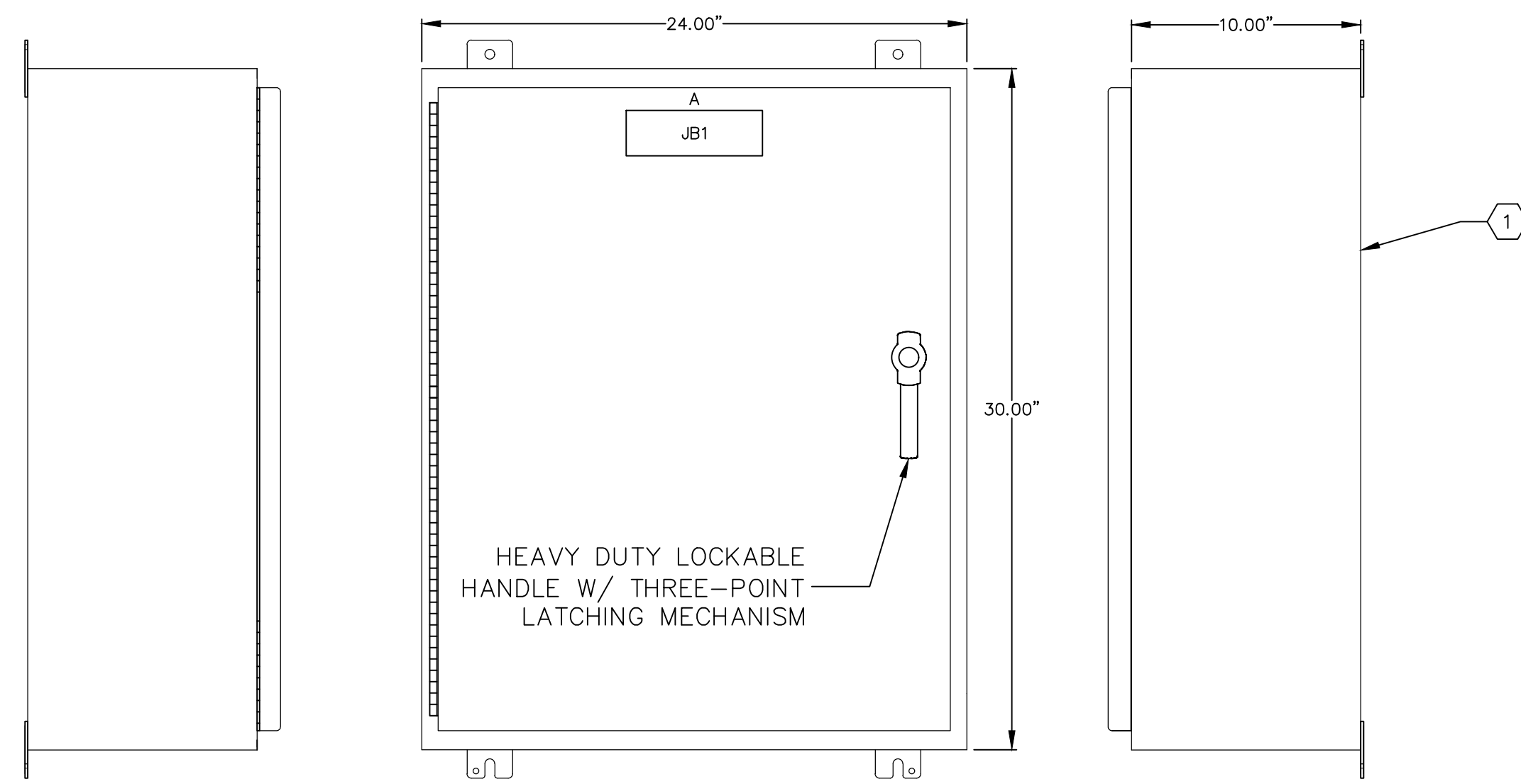
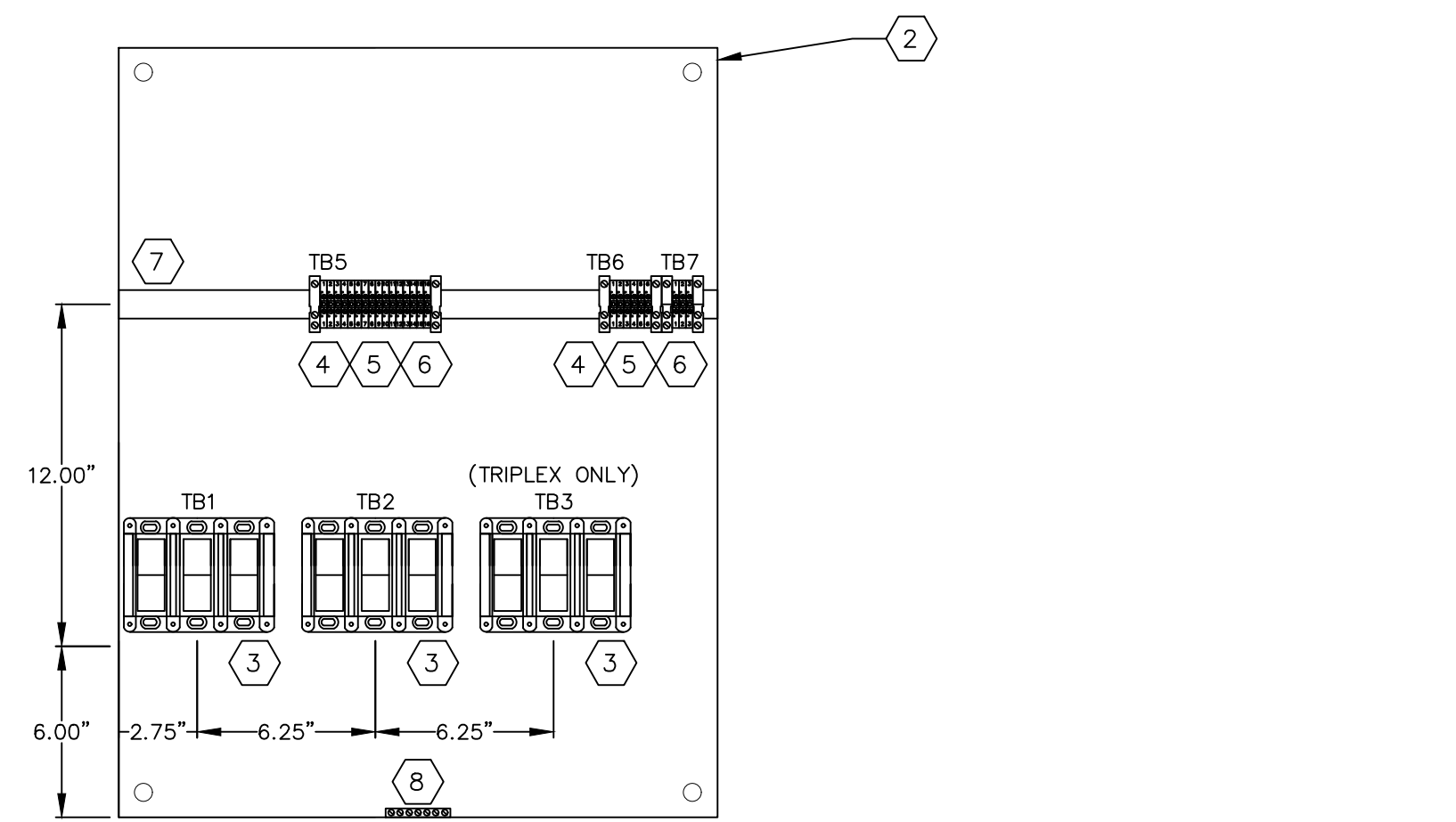
ISSUE DATE: NOVEMBER 2021	SCALE	FILE NUMBER
PROJ. #	HORIZONTAL:	DR-WING NUMBER
DRAWN	VERTICAL:	E-2.0
DESIGNED	NA	
CHECKED		
PROJ. MGR.		
STATUS: REVISED	REVISION	4

LIST OF MAJOR COMPONENTS

WETWELL JUNCTION BOX (JB1)					
ITEM NO.	QTY	DEVICE ID	MANUFACTURER	PART NO.	DESCRIPTION
1	1	JB1	HOFFMAN**	A30H2410SSLP-3PT	ENCLOSURE, 30"Hx24"Wx10"D, NEMA 4X, 304 SS, 3-PT LATCHES, EPOXY WHITE FINISH
2	1		HOFFMAN**	A30P24AL	SUBPANEL, 27"Hx21"W, 0.10" THICK, ALUMINUM
3	2	TB1, TB2, TB3*	MARATHON	1333554	POWER DISTRIBUTION BLK, 3 POLE, 310A, 600VAC, PRIM: 1 CONN 6-350 CU, SEC: 2 CONN 14-2/0 CU
4	25	TB5, TB6, TB7	PHOENIX CONTACT	UK5-N	TERMINAL BLOCK
5	3		PHOENIX CONTACT	D-UKK3/5	TERMINAL BLOCK END BARRIER
6	6		PHOENIX CONTACT	1201442	TERMINAL BLOCK END STOP
7	AR		PHOENIX CONTACT		DIN RAIL
8	1	GND	SQUARE-D	PK7GTA	GROUND BAR, 14-4 CU, 7 POINT
		*TRIPLEX ONLY	**OR COUNTY APPROVED EQUAL		

NAMEPLATE SCHEDULE

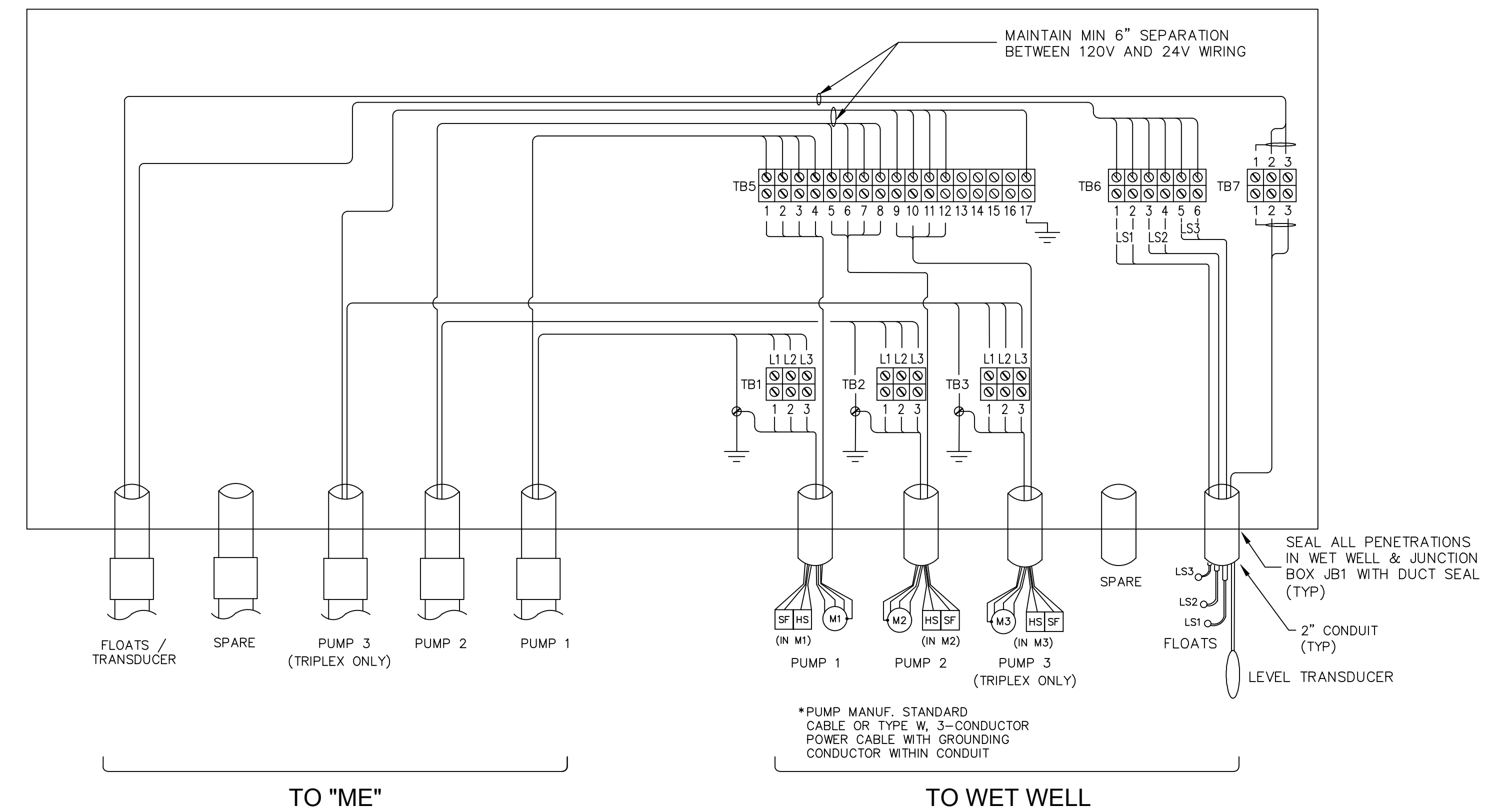
N.P. NO.	QTY	PLATE COLOR/SIZE	LTR COLOR/SIZE	ENGRAVING (LINE1/LINE2/ETC.)
WET WELL JUNCTION BOX (JB1):				
A	1	BLK / 2.00" H x 6.00" W	WHT / 1/2"	JB1



JB1 ENCLOSURE LAYOUT
2" = 1"

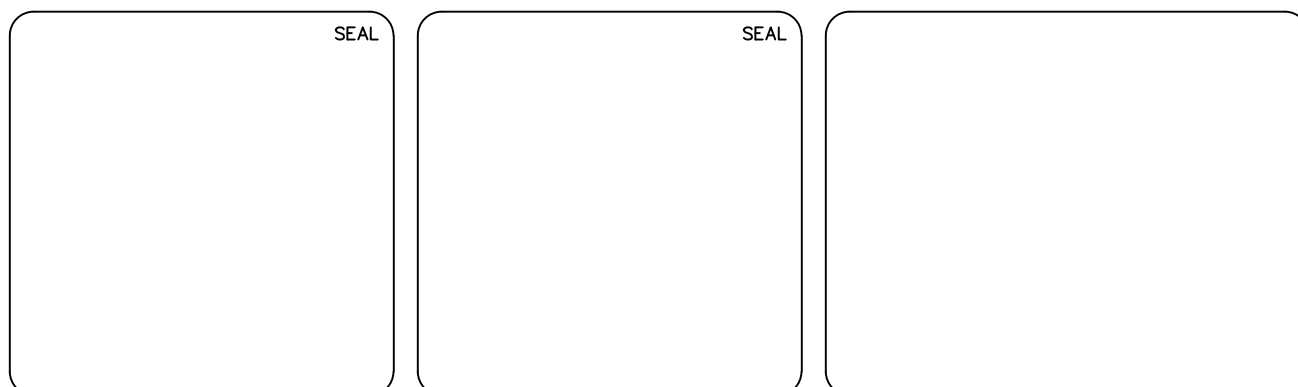
NOTES:

1. APPLY OXIDE-INHIBITING COMPOUND TO ALL ELECTRICAL TERMINATION CONTACT SURFACES, INCLUDING COMPRESSION AND BOLTED CONNECTIONS. PENETROX COMPOUND BURNDY OR EQUAL PRODUCT.
2. SCREW-DOWN CABLE TIES SHALL BE 3M CABLE TIE BASE MODEL 06299 OR PANDUIT MODEL ABM112 OR APPROVED EQUAL. (SIZE AS REQ'D)
3. CONTRACTOR SHALL MOUNT TERMINALS AS SHOWN.



JB1 ELECTRICAL SCHEMATIC
NTS

REVNO.	DESCRIPTIONS	REVISIONS	DATE
5	REVISED, TO REFLECT CURRENT COUNTY STANDARDS		9/6/19
4	REVISED, TO REFLECT CURRENT COUNTY STANDARDS		9/26/17
3	REVISED, TO INCORPORATE FIELD CHANGES		10/16/15
2	REVISED, TO INCORPORATE FIELD CHANGES		8/26/15
1	CONFORMED		5/17/13



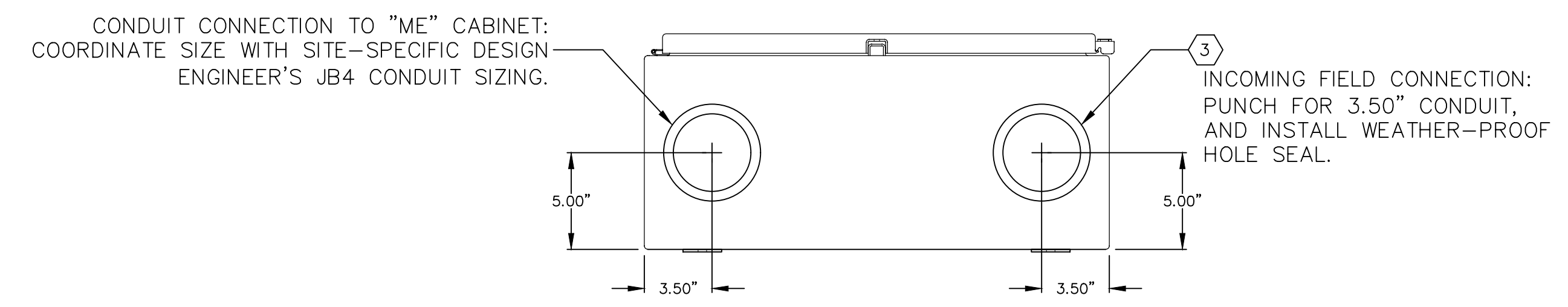
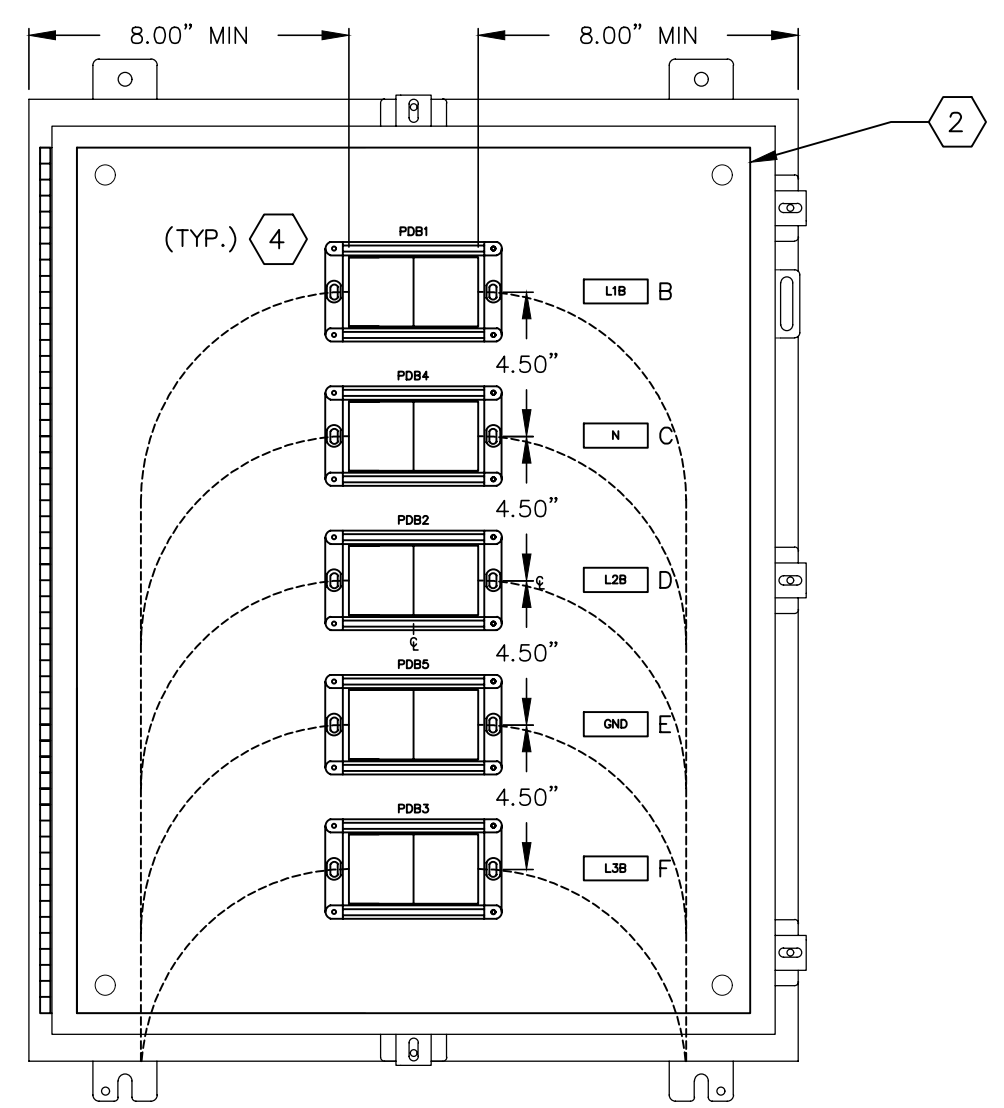
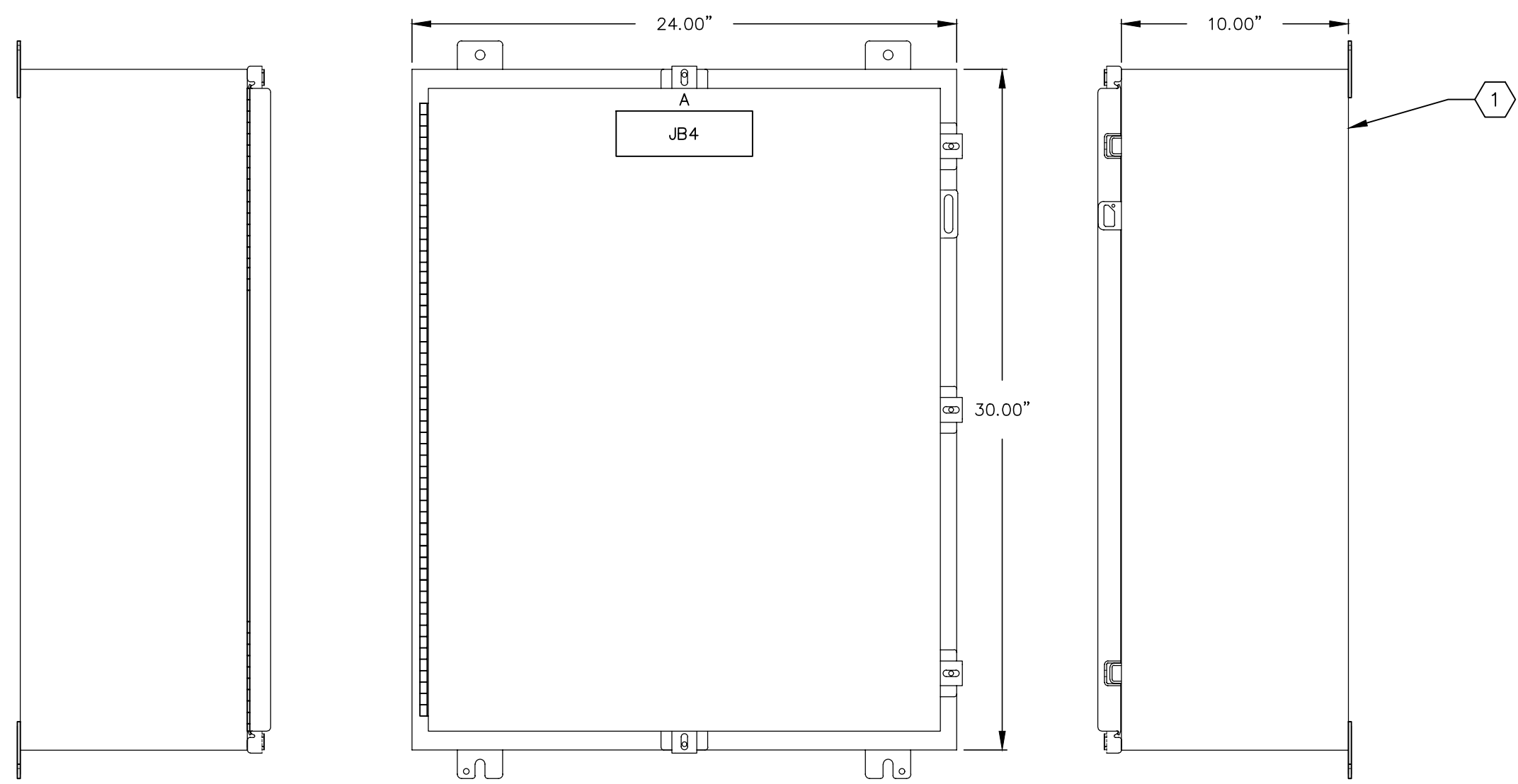
PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION
925 E. TWIGGS STREET/TAMPA FLORIDA 33602/PH. (813) 272-5977

WET WELL JUNCTION BOX, (JB1)
CABINET LAYOUT, ELECTRICAL SCHEMATIC,
AND BILL OF MATERIAL

ISSUE DATE: NOVEMBER 2021
PROJ. #
DRAWN
DESIGNED
CHECKED
PROJ. MGR.
STATUS:

SCALE	FILE NUMBER
HORIZONTAL:	DRAWING NUMBER
VERTICAL:	E-3.0
NA	REVISION
	5

LIST OF MAJOR COMPONENTS					
ITEM NO.	QTY	DEVICE ID	MANUFACTURER	PART NO.	DESCRIPTION
GENERATOR TERMINATION BOX (JB4):					
1	1	JB4	HOFFMAN	A30H2410SSLP	ENCLOSURE, 30"Hx24"Wx10"D, NEMA 4X, 304SS, EPOXY WHITE FINISH
2	1		HOFFMAN	A30P24SS6	SUBPANEL, 27"Hx21"W, 304 SS
3	2		HOFFMAN	AS350SS	HOLE SEAL, 3.50", 300 SERIES SS, WEATHER-PROOF, EPOXY WHITE FINISH
4	5	PDB1,2,3,4,5	MARATHON	1441557	POWER DISTRIBUTION BLK, 1 POLE, 420A, 600VAC, PRIM: 1 CONN 4-600 CU, SEC: 1 CONN 4-600 CU

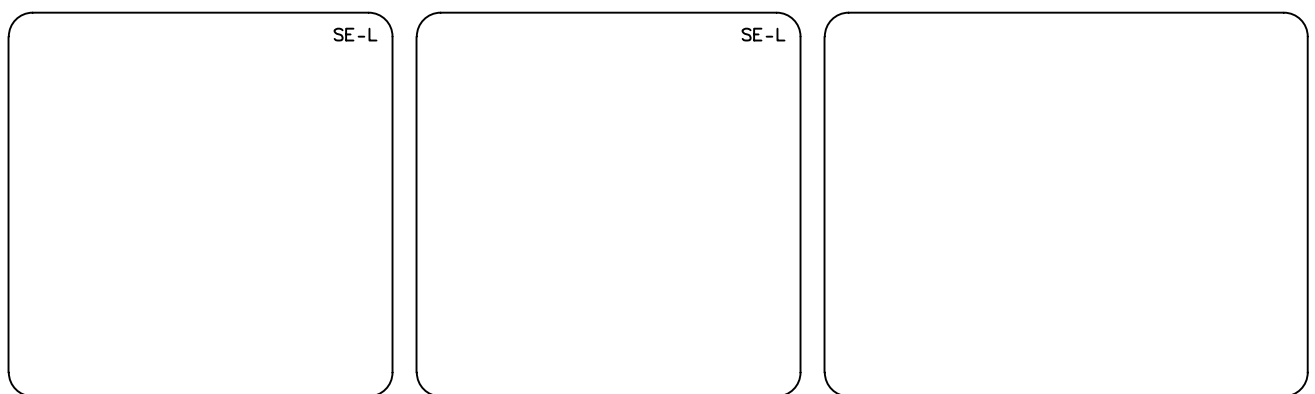


GENERATOR TERMINATION PANEL (JB4)

NOTE: FOR USE WITH THE FOLLOWING "ME" PACKAGES ONLY:
 - DUP, 3PH/480VAC/25-100HP
 - TRI, 3PH/480VAC/25-75HP

NAMEPLATE SCHEDULE				
N.P. NO.	QTY	PLATE COLOR/SIZE	LTR COLOR/SIZE	ENGRAVING (LINE1/LINE2/ETC.)
GENERATOR TERMINATION BOX (JB4):				
A	1	BLK / 2.00" H x 6.00" W	WHT / 1/2"	JB4
B	1	BLK / 0.75" H x 2.50" W	WHT / 1/4"	L1B
C	1	BLK / 0.75" H x 2.50" W	WHT / 1/4"	N
D	1	BLK / 0.75" H x 2.50" W	WHT / 1/4"	L2B
E	1	BLK / 0.75" H x 2.50" W	WHT / 1/4"	GND
F	1	BLK / 0.75" H x 2.50" W	WHT / 1/4"	L3B

REV. NO.	DESCRIPTION	DATE
5	REVISED, TO REFLECT CURRENT COUNTY ST-NO-RIS	3/9/20
4	REVISED, TO REFLECT CURRENT COUNTY ST-NO-RIS	9/29/17
3	REVISED, TO INCORPORATE FIELD CHANGES	10/16/15
2	REVISED, TO INCORPORATE FIELD CHANGES	8/26/15
1	CONFORMED	5/17/13



GENERATOR TERMINATION BOX, JB4
 (LARGE)
 CABINET LAYOUT
 AND BILL OF MATERIAL

ISSUE DATE: NOVEMBER 2021	SCALE	FILE NUMBER
PROJ. #	HORIZONTAL:	DR. WING NUMBER
DRAWN	VERTICAL:	E-6.0
DESIGNED	NA	
CHECKED		
PROJ. MGR.		
STATUS: REVISED	REVISION	5