

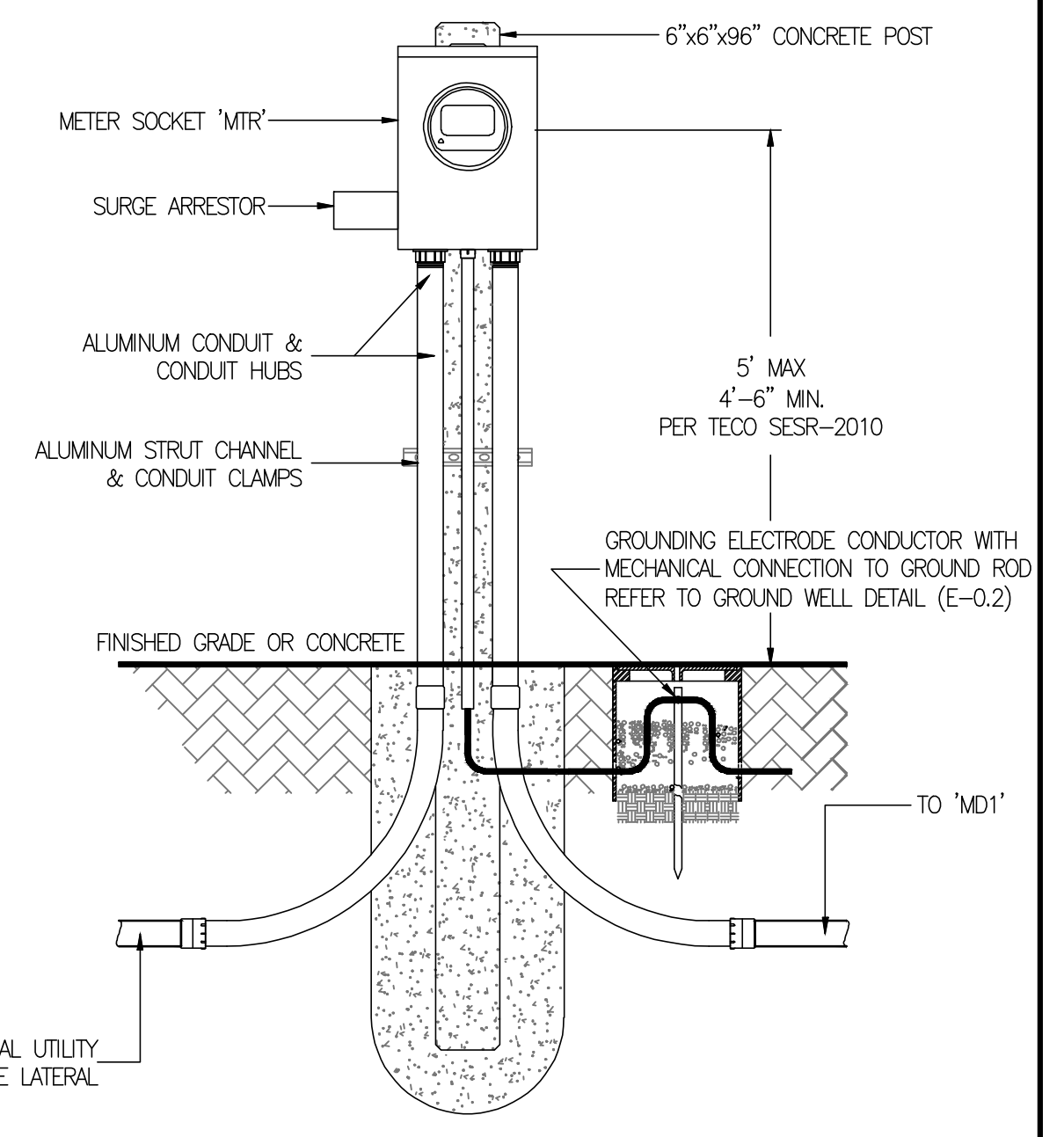
480VAC LOAD CALCULATIONS			
DESCRIPTION			AMPERES
PUMP NO.1	__HP	480VAC 3-φ	__AMPS
PUMP NO.2	__HP	480VAC 3-φ	__AMPS
MOTOR SUB TOTAL:			__AMPS
25% OF LARGEST MOTOR:			__AMPS
TOTAL MOTOR LOAD:			__AMPS
ODOR CONTROL SYSTEM (FUTURE)	1200W	480VAC 3-φ	2.5
TRANSFORMER	3KVA	480VAC 3-φ	6.25
TOTAL MAXIMUM PHASE AMPERES:			__AMPS
SERVICE SIZE: __A 480VAC, 3φ 4-WIRE, MINIMUM			

- KEYNOTES:**
- ELECTRICAL CONTRACTOR SHALL COORDINATE WITH TECO FOR METERING REQUIREMENTS AND SERVICE CONSTRUCTION STANDARDS (SES-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 CBS, AND CB10 SHALL BE CAPABLE OF INTERRUPTING A FAULT CURRENT OF 25,000 AIC MINIMUM.
 - CONTRACTOR SHALL NOT SPLICE SA DEVICE LEADS.
 - ROUND OVER AND GRIND ALL EDGES SMOOTH TO PROTECT PERSONNEL FROM POTENTIAL INJURY.
 - ALARM STROBE SHALL BE MOUNTED 18" MINIMUM ABOVE TOP OF SURROUNDING FENCE.
 - MAIN DISCONNECT (MD1) SHALL BE FURNISHED WITH A 316 STAINLESS STEEL NEMA 4X ENCLOSURE WITH WATERIGHT HUBS, A SOLID NEUTRAL ASSEMBLY AND AN EQUIPMENT GROUND KIT, SUITABLE FOR USE AS SERVICE ENTRANCE EQUIPMENT. MD1 SHALL BE FURNISHED WITH A CIRCUIT BREAKER (SEE CROSS REFERENCE TABLE ON DWG E-1.2) RATED 25 KAIC (MIN.) AT OPERATING VOLTAGE AND SHALL BE ABLE TO BE LOCKED IN THE OPEN POSITION. PROVISIONS SHALL BE PROVIDED FOR LOCKING THE DISCONNECT ENCLOSURE DOOR IN THE CLOSED POSITION. MD1 SHALL BE FURNISHED WITH A 3-PHASE SURGE ARRESTOR (SQ D SDSA3650). ADD NAMEPLATE (BLACK-2"x6") W/ WHITE 2" HIGH LETTERS ENGRAVED "MD1".
 - NOT USED.
 - RACK-MOUNT POWER RECEPTACLE: FINAL INSTALLATION LOCATION TO BE COORDINATED WITH COUNTY REPRESENTATIVE DURING DESIGN AND CONSTRUCTION.

- GENERAL NOTES:**
- ALL ELECTRIC WORK SHALL COMPLY WITH THE NEC, NECS 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 CONDUIT SHALL BE ALUMINUM THRU FIRST UNDERGROUND 90° BEND. WHERE IN CONTACT WITH CONCRETE SUB, 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.
 - GROUNDING BUSHINGS SHALL BE USED ON ALL METAL CONDUITS IN ALL ENCLOSURES.

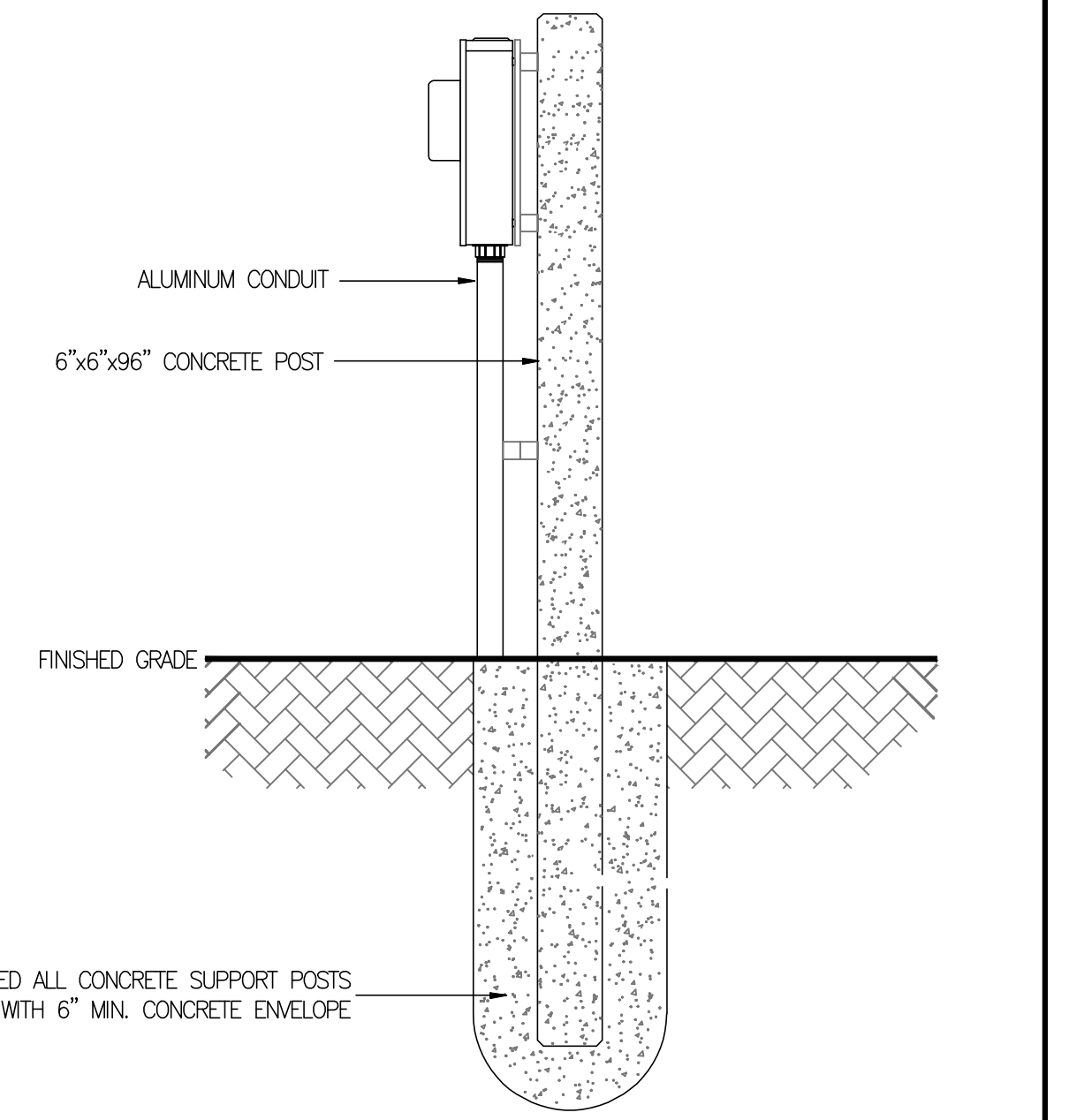
DESIGN BASIS NOTE:
THIS DRAWING REPRESENTS THE STANDARD DESIGN FOR ALL HILLSBOROUGH COUNTY STANDARD IN-FILL GRINDER PUMPING STATIONS. IT WAS DEVELOPED TO IMPROVE RELIABILITY AND MAINTAINABILITY, MINIMIZE SPARE PARTS AND INCREASE SERVICE LIFE. ALL REQUESTS FOR DEVIATION FROM THIS STANDARD MUST BE MADE 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 CONSTRUCTION DRAWINGS AND SPECIFICATIONS (IF DEEMED NECESSARY BY THE DESIGN ENGINEER) MUST BE PREPARED IN ACCORDANCE WITH F.S. 471 AND RULES 61G.

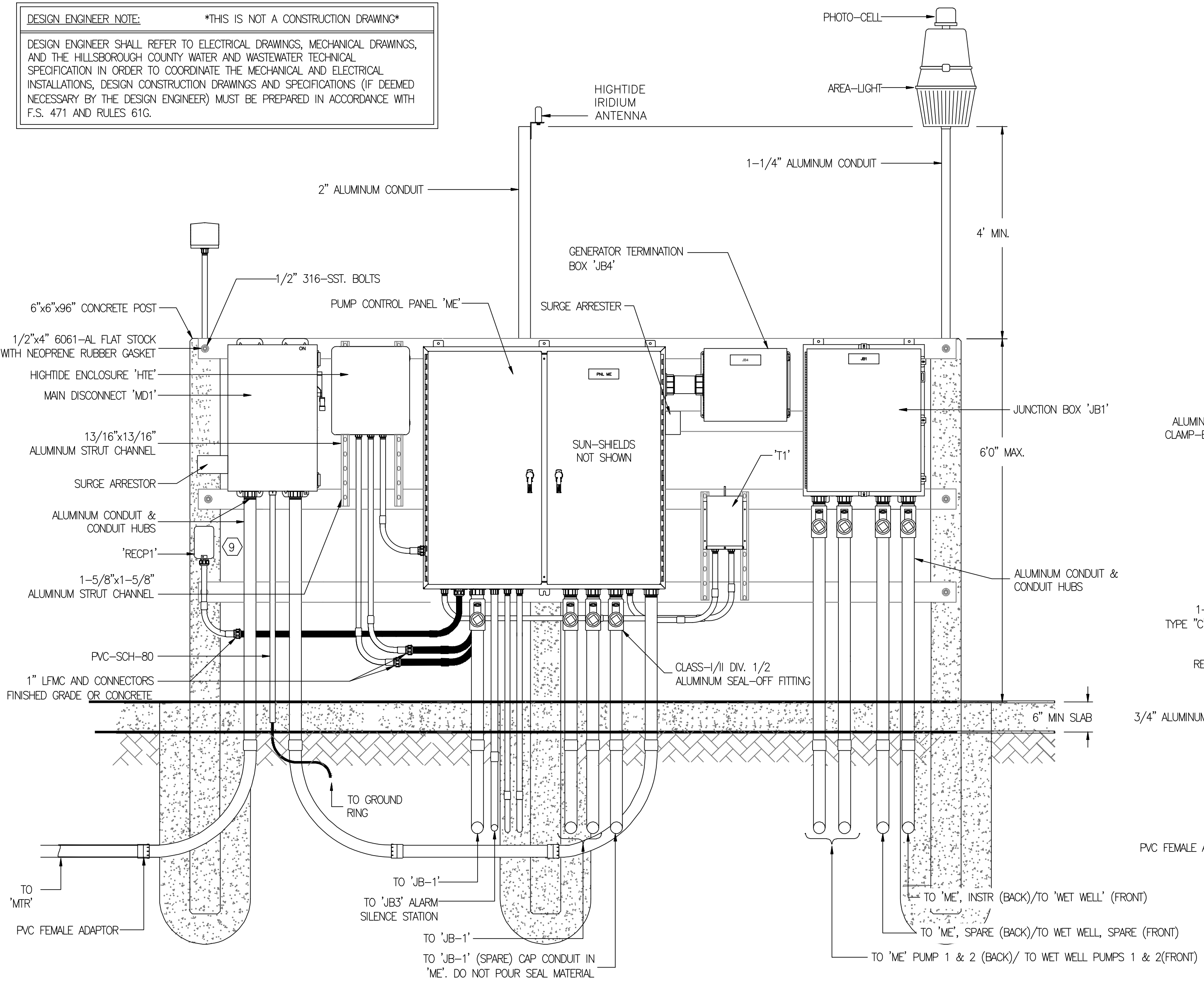


UTILITY METER DETAIL (FRONT ELEVATION)
N.T.S.

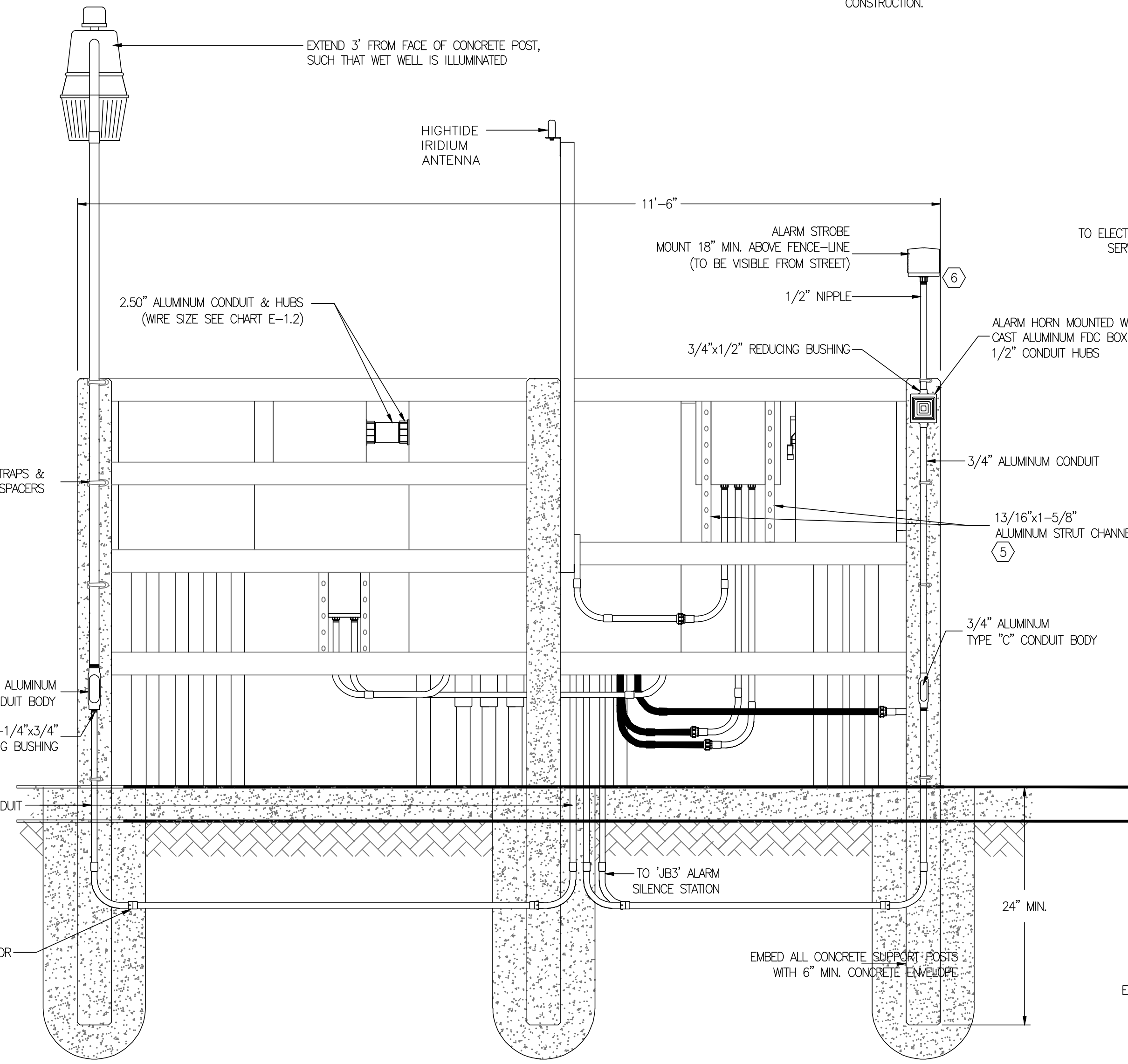
- NOTES:**
- MOUNT METER TO CONCRETE POST USING ALUMINUM STRUT, UTILIZING STANDARD MOUNTING HOLES PROVIDED BY THE MANUFACTURER.
 - USE 316-SST FASTENERS AND HARDWARE.



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



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



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

REV. NO.	DESCRIPTIONS	DATE
1	REVISED TO REFLECT CURRENT COUNTY STANDARDS	03/02/20

SEAL	SEAL

NOTE
FOR USE WITH THE FOLLOWING IN-FILL GRINDER "ME" PKGS ONLY

3PH/480VAC/4-11HP

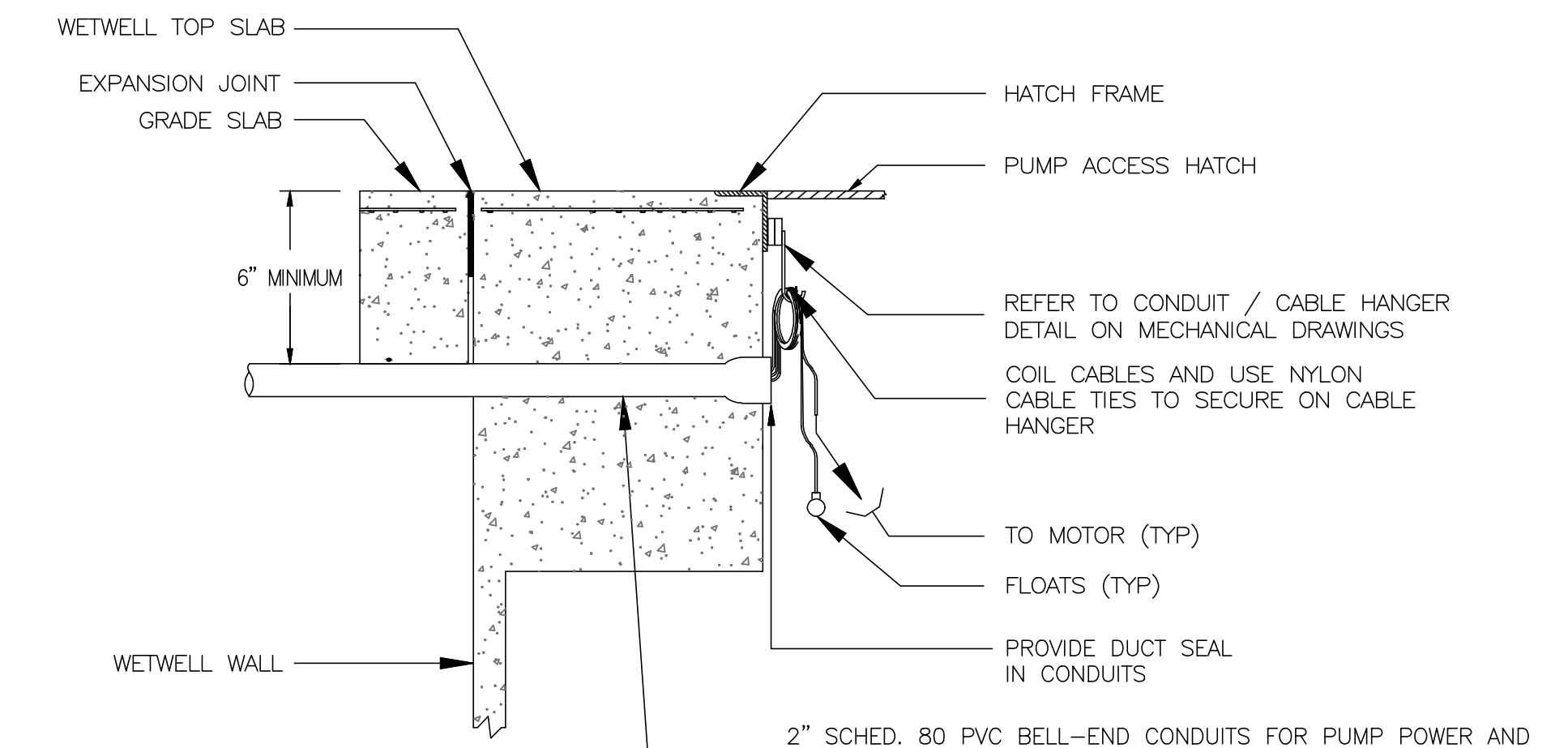
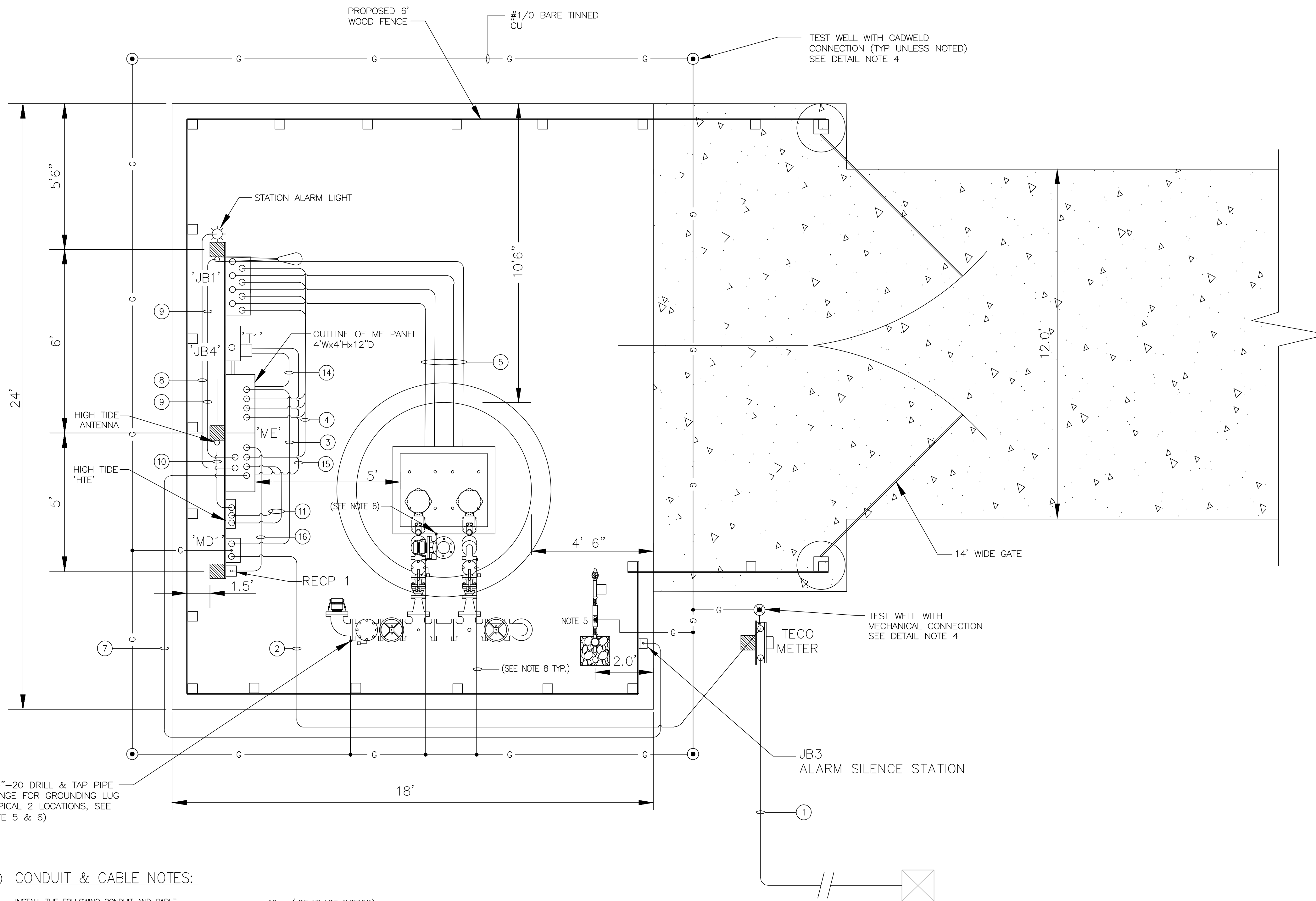
Hillsborough County Florida
PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION
925 E. TWIGGS STREET/TAMPA, FLORIDA 33602/PH. (813) 272-5977

INFILL GRINDER PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION
ELECTRICAL POWER PLAN AND DETAILS
(3PH)(480V/4-II HP)

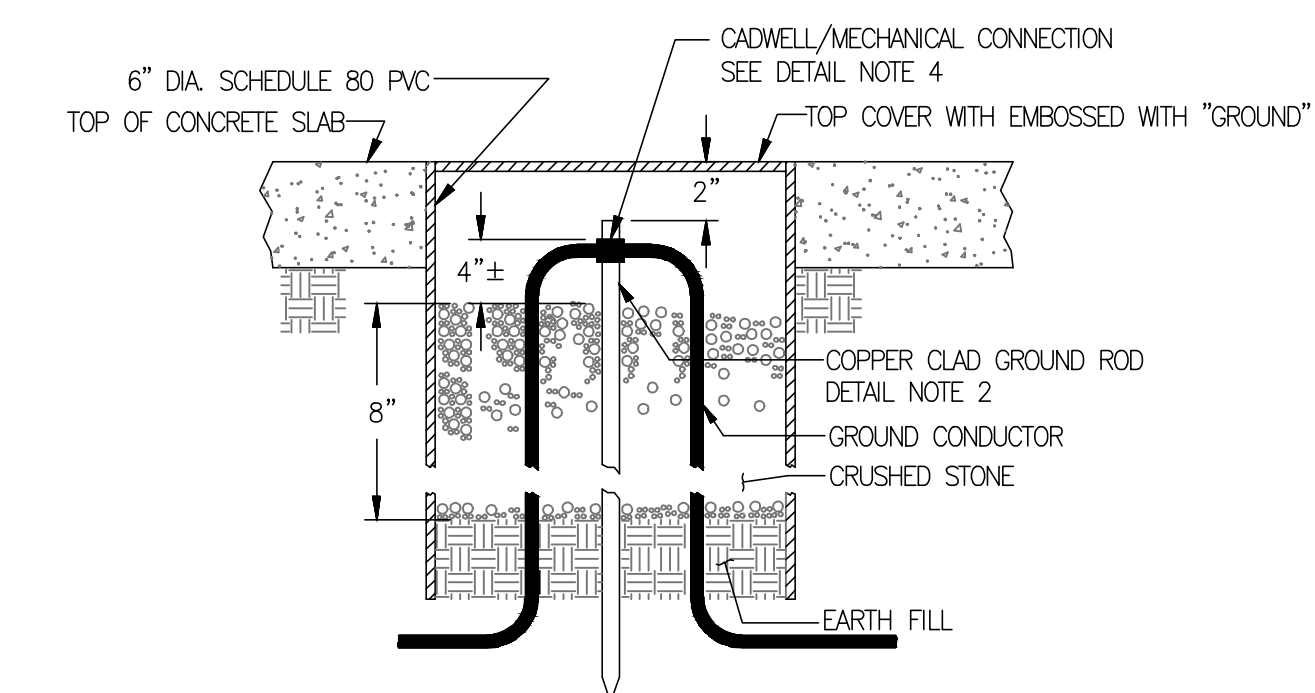
DATE: MARCH 2020	SCALE: HORIZONTAL: NA	FILE NUMBER: E-0.1
PROJ. #	VERTICAL: NA	DRAWING NUMBER: E-0.1
DRAWN		
DESIGNED		
CHECKED		
PROJ. MGR.		
STATUS: REVISED		REVISION: 1

GENERAL NOTES:

1. ALL ELECTRICAL WORK SHALL COMPLY WITH THE NEC, NESC AND LOCAL CODES INCLUDING OWNER'S STANDARDS AND REQUIREMENTS.
2. ALL POWER & CONTROL CONDUCTORS SHALL BE 600V RATED THHN/THWN-2 STRANDED CU AND SIZED PER NEC.
3. 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.
4. ALL UNDERGROUND CONDUITS SHALL BE PVC SCH-80.
5. ALL MECHANICAL CONNECTIONS SHALL BE MADE WITH STAINLESS STEEL HARDWARE AND FASTENERS WHICH INCLUDE HEAVY GAUGE FLAT AND LOCK WASHERS.
6. GROUND CONDUCTOR AT FORCEMAIN PIPING SHALL EXTEND THROUGH SLAB VIA 1" SCH. 80 PVC CONDUIT. BOND GROUND CONDUCTORS TO PUMPS ABOVE GRADE PIPING AT CHECK VALVES FLANGE CONNECTIONS, TO FORCEMAIN FLANGE CONNECTION AND TO PUMP ACCESS HATCH.
7. LAYOUT SHOWN IS TYPICAL BUT MAY BE ADJUSTED AS REQUIRED BASED ON SPECIFIC SITE CONDITIONS. DESIGN ENGINEER SHALL ARRANGE EQUIPMENT AS CLOSE AS POSSIBLE TO THIS LAYOUT AND COORDINATE ANY MODIFICATIONS WITH HCP/ID.
8. GROUND TAPS TO BE #4 AWG BARE TINNED CU.



CONDUIT/CABLE DETAIL
N.T.S.



GROUND ROD WELL DETAIL
N.T.S.

- DETAIL NOTES:**
1. TYPICAL FOR EACH GROUND ROD.
 2. 3/4" x 20' COPPER CLAD DRIVEN GROUND ROD, QUANTITY AS SHOWN ON PLAN.
 3. CONTRACTOR SHALL MEASURE THE RESISTANCE OF INSTALLED GROUNDING ELECTRODES AND IF ABOVE 5 OHMS, CONTRACTOR SHALL AUGMENT THE GROUND SYSTEM AS NECESSARY.
 4. A MECHANICAL CONNECTION SHALL BE USED TO BOND THE GROUND ROD TO THE GROUND CONDUCTOR IN THE WELLS LOCATED ADJACENT TO THE TECO METER.

(X) CONDUIT & CABLE NOTES:

- INSTALL THE FOLLOWING CONDUIT AND CABLE:
1. [SVC TO MTR] 2"C, WIRE SIZE SEE CHART E-1.2
 2. [MTR TO MD1] 2"C, WIRE SIZE SEE CHART E-1.2
 3. [MD1 TO ME/CB1] 2"C, WIRE SIZE SEE CHART E-1.2
 4. [ME/PMP1 TO JB1] 2"C, WIRE SIZE SEE CHART E-1.2, 4-#16 AWG
[ME/PMP2 TO JB1] 2"C, WIRE SIZE SEE CHART E-1.2, 4-#16 AWG
[ME/CONTL TO JB1] 2"C, FLOATS (24VAC) 6-#12 AWG, [ME/SPARE TO JB1] 2"C (DO NOT POUR SEAL)
 5. [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, [JB1/SPARE TO WELL] 2"C
 6. NOT USED
 7. [ME/ALM SIL TO JB3] 0.75"C, (120VAC) 2-#14 #12G
 8. [ME TO ALARM STROBE-HORN] 0.75"C, (120VAC) 4-#14 #12G
 9. [ME/AREA LIGHT TO AREA LIGHT] 0.75"C, (120VAC) 2-#12, #12G
 10. (HTE TO HTE ANTENNA) 2"C, ANTENNA CABLE (PER VENDOR REQUIREMENTS)
 11. [ME/ TO HTE] 0.75"C, HTE POWER (120VAC) 2-#12 #12G, 0.75"C, HTE CONTROL (24VDC) 10-#14 #12G
 12. NOT USED.
 13. NOT USED
 14. [ME/CB11 TO T1] 0.75"C, (480VAC PRIMARY) 2-#12 #12G
 15. [T1 TO ME/CB12] 0.75"C, (120VAC SECONDARY) 2-#10
 16. (ME/CB21 TO RECP1) 0.75"C, RECP1 POWER (120VAC) 2-#12 #12G

ELECTRICAL SITE PLAN
(NOTE 7)

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REVNO.	DESCRIPTIONS	DATE
1	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	3/2/20

SEAL

SEAL

NOTE
FOR USE WITH THE FOLLOWING
IN-FILL GRINDER "ME" PKGS ONLY

3PH/480VAC/4-11HP

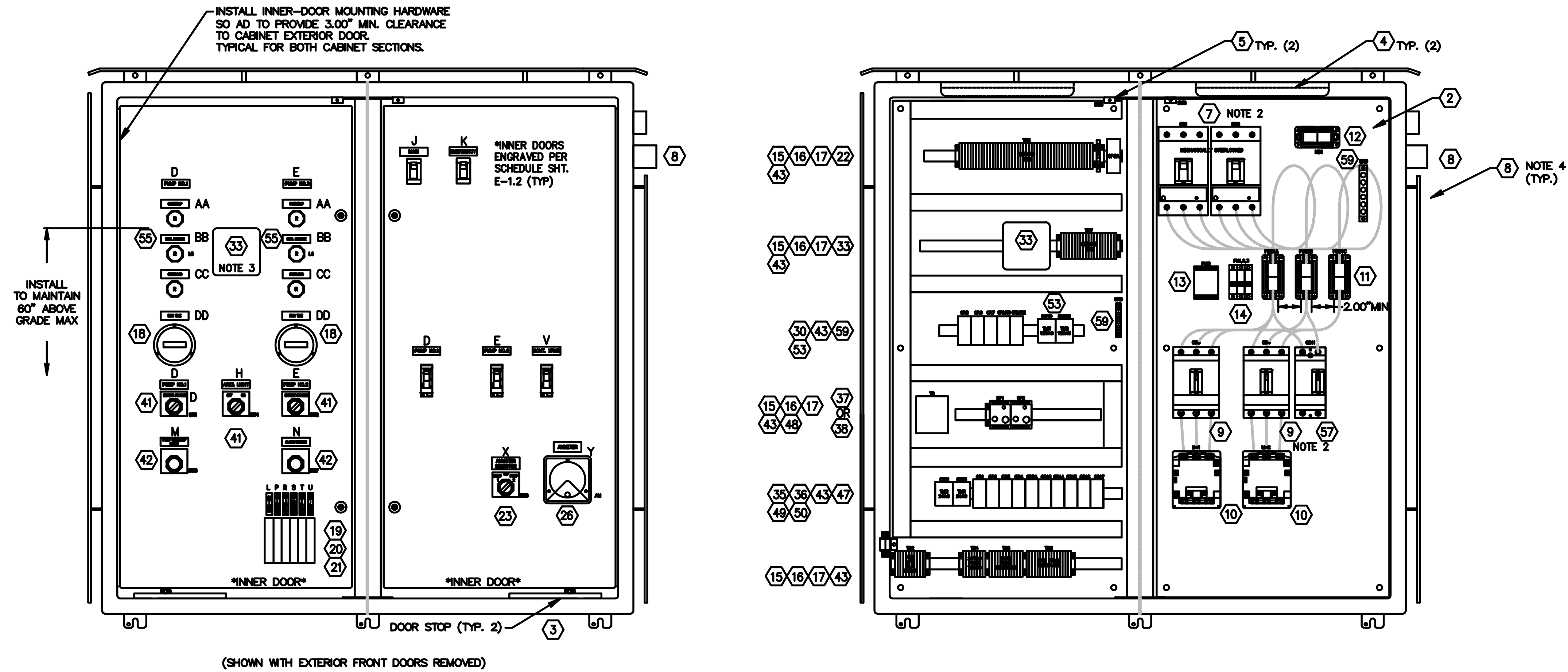
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INFILL GRINDER PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION
ELECTRICAL SITE PLAN AND DETAILS
(3PH)(480V/4-II HP)

DATE: MARCH 2020	SCALE: HORIZONTAL: NA	FILE NUMBER: E-0.2
PROJ. #	VERTICAL: NA	REVISION: 1
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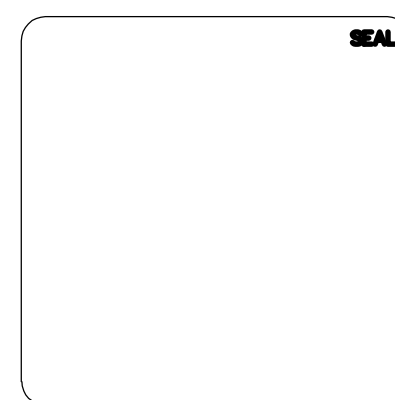
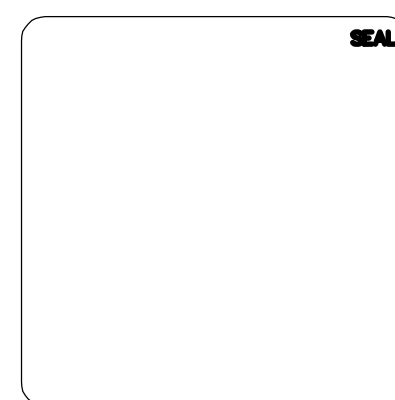
NOTES:

1. REFER TO SHT. E-1.2 FOR BILL OF MATERIAL, NAMEPLATE LEGEND AND ELECTRICAL SIZING; E-1.3 THRU E-1.6 FOR SCHEMATICS.
2. INSTALL STAND-OFF BRACKETS AS REQ'D TO EXTEND CIRCUIT BREAKERS TO INNER DOOR.
3. DUPLEXER UNIT IS COMPLETE WITH PUMP HOA'S AND INDICATOR LIGHTS. PANEL VENDOR SHALL PROVIDE APPROPRIATELY SIZED STAND-OFF BRACKET TO MOUNT DUPLEXER SUCH THAT FRONT OF UNIT IS FLUSH WITH INNER DOOR.
4. SEE DWG. E1.2 FOR LIST OF MAJOR COMPONENTS ITEMS SHOWN KEYED "⊗" AND FOR NAME PLATE SCHEDULE.



INTERIOR ELECTRICAL/CONTROL CABINET, (ME)

REV. NO.	DESCRIPTION	DATE
1	REVISIONS	3/2/20



NOTE
FOR USE WITH THE FOLLOWING
IN-FILL GRINDER "ME" PKGS ONLY

3PH/480VAC/4-11HP

Hillsborough County Florida

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

INFILL GRINDER
PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION

ELECTRICAL/CONTROL ENCLOSURE
INTERIOR LAYOUT
(3PH)(480V/4-11 HP)

DATE:	MARCH 2020
PROJ. #	
DRAWN	
DESIGNED	
CHECKED	
PROJ. MGR.	

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

STATUS: REVISED

REVISION 1

LIST OF MAJOR COMPONENTS				
ELECTRICAL/CONTROL CABINET (ME)				
ITEM NO.	QTY	DEVICE ID	MANUFACTURER	PART NO. DESCRIPTION
1	1		HOFFMAN	A48H4812WFSSLP-3PT (CUSTOM) ENCLOSURE, 48"H x 48"W x 12"D, TWO-DOOR, WELDED CABINET DIVIDER, NEMA 4X, 304 SS, 3-PT LATCHES, SUN-SHIELDS, EPOXY WHITE FINISH INNER-DOOR BOTH SIDES: 43.5"Hx21"W, ALUMINUM, 0.125" THICK MIN., POWDER-COAT IRON GRAY TEXTURE FINISH (HBT2-C0009-C50)
2	2		HOFFMAN	(CUSTOM) SUBPANEL, 45"Hx21"W, 304SS, EPOXY WHITE FINISH
3	2		FABTECH	NIH-45013 DOOR STOP KIT, 316 SS
4	2		LITHONIA	UCLD 18 WH LED CABINET LIGHT, 18" W/ SWITCH
5	2	SW5, SW6	SQUARE-D	9007-AP221 DOOR SWITCH
6	1	JBA		GENERATOR TERMINATION PANEL. REFER TO SHT. E-5.0
7	2	CB1, CB2	SEE CHART THIS SHT	
			SQUARE-D	HGL36100T S29354 CIRCUIT BREAKER, MOLDED-CASE, 600V, 3 POLE, 100 AMP TRIP UNIT, MECH-INTERLOCK
			SQUARE-D	HGL36150T S29354 CIRCUIT BREAKER, MOLDED-CASE, 600V, 3 POLE, 150 AMP TRIP UNIT, MECH-INTERLOCK
8	1	SA	SQUARE-D	SDSA3650 QTY INDICATED DOES NOT INCLUDE SURGE DEVICES REQUIRED OUTSIDE OF PANEL ME SUCH AS UTILITY METER AND MAIN DISCONNECT "MD1"
9	2	CB3, CB4	SEE CHART THIS SHT.	
			SQUARE-D	HGL36015T CIRCUIT BREAKER, MOLDED-CASE 600V, 3 POLE, 15 AMP TRIP UNIT
			SQUARE-D	HGL36020T CIRCUIT BREAKER, MOLDED-CASE 600V, 3 POLE, 20 AMP TRIP UNIT
			SQUARE-D	HGL36025T CIRCUIT BREAKER, MOLDED-CASE 600V, 3 POLE, 25 AMP TRIP UNIT
			SQUARE-D	HGL36030T CIRCUIT BREAKER, MOLDED-CASE, 600V, 3 POLE, 30 AMP TRIP UNIT
			SQUARE-D	HGL36060T CIRCUIT BREAKER, MOLDED-CASE, 600V, 3 POLE, 60 AMP TRIP UNIT
10	2	MS1, MS2	SEE CHART THIS SHT.	
			SQUARE-D	8536-SB02-V02S CONTACTOR, 3 POLE, SIZE 0, 18A CONT. FURNISH THERMAL OVERLOADS
			SQUARE-D	8536-SC03-V02S CONTACTOR, 3 POLE, SIZE 1, 27A CONT. FURNISH THERMAL OVERLOADS
			SQUARE-D	8536-SD01-V02S CONTACTOR, 3 POLE, SIZE 2, 45A CONT. FURNISH THERMAL OVERLOADS
	2		P/N 9999-504	O/I ISOLATED ALARM CONTACTS, NO/NC
11	3	PDB1A,B,C	BUSSMANN	16325-1 POWER DISTRIBUTION BLK, 1 POLE, 350A, 600VAC, PRIM: 2 CONN 14-2/0 CU, SEC:6 CONN 14-4 CU
12	1	NB1	BUSSMANN	16325-1 POWER DISTRIBUTION BLK, 1 POLE, 350A 600VAC, PRIM: 2 CONN 14-2/0 CU, SEC:6 CONN 14-4 CU
13	1	PMR	DIVERSIFIED ELECTRONICS	SDU-100-ASA PHASE MONITOR RELAY
			SQUARE-D	8501NR51 RELAY BASE
14	1	FU1,FU2,FU3	SQUARE-D	DFCC3V 3 POLE FUSE HOLDER
	3		BUSSMANN	LP-CC-1 1 AMP CLASS CC FUSE
15	76		ENTRELEC	115 116.07 TERMINAL BLOCK, 30A
16	10		ENTRELEC	118 368.16 TERMINAL BLOCK END BARRIER
17	19		WAGO	249-117 TERMINAL BLOCK END STOP
18	2	ETM1, ETM2	CRAMER	6X144 ELAPSED TIME METER 120V
19	1	CB12	SQUARE-D	QO1U303100 CIRCUIT BREAKER, 1 POLE, 30 AMP, W/PANEL MOUNT BRACKETS
20	4	CB20, CB22, CB23, CB24	SQUARE-D	QO1U103100 CIRCUIT BREAKER, 1 POLE, 10 AMP, W/PANEL MOUNT BRACKETS
21	1	CB21	SQUARE-D	QO1U153100 CIRCUIT BREAKER, 1 POLE, 15 AMP, W/PANEL MOUNT BRACKETS
22	1	CPSA	CITEL	DS42S-120 SURGE ARRESTOR, 120VAC
23	1	SW9	SQUARE-D	9001SKA3BH3 SELECTOR SWITCH, 3-POS, CENTER OFF, MAINTAINED, BLACK, WITH STANDARD LEGEND PLATE MARKED AS SHOWN
24				*NOT USED
25				*NOT USED
26	1	AM	YOKOGAWA	250 340 SERIES AMMETER, SEE CROSS REFERENCE TABLE
27				*NOT USED
28				*NOT USED
29				*NOT USED
30	1	CRMS1,CRMS2,CR5,CR6,CR7	SQUARE-D	RXM4AB2F7 RELAY, 120VAC, 4D PT, SA CONTACTS
			SQUARE-D	RX2E2M114 RELAY BASE
31				*NOT USED
32				*NOT USED
33	1	MDC	MPE INC	010-120-122P DUPLEX CONTROLLER, WITH PUMP HOA'S AND INDICATOR LIGHTS STAND-OFF BRACKET BY PANEL VENDOR
	1		MPE INC	SD12-PC (12 PIN SOCKET) SOCKET
34				*NOT USED
35	10	CR1,2,3,4,8A,12,15,14,16,17	SQUARE-D	RXM4AB1B7 CONTROL RELAY, 24VAC COIL 4PT, SA CONTACTS
36	10		SQUARE-D	RX2E2M114 RELAY BASE
37	2	SF1, SF2	SQUARE-D	PNRU110A/BE LEAK DETECTION RELAY/SEAL-FAIL RELAY (FOR NON-FLYGT PUMPS)
	2		SQUARE-D	8501NR51 RELAY BASE
38	2		ITT/FLYGT	MINI-CAS II SUPERVISION RELAY FOR TEMPERATURE AND LEAKAGE SENSORS (FOR FLYGT PUMPS ONLY)
			SQUARE-D	8501NR61 RELAY BASE
39				*NOT USED
40	1	RECP1	HUBBELL	GFTRI5GY RECEPTACLE, 125VAC, DUPLEX, GFCI, 15A, 10KA SCCR
	1		THOMAS & BETTS	IH3-2-LM RECEPTACLE BOX, DIE-CAST ALUMINUM. WEATHERPROOF, (3) 3/4" HOLES
	1		IN TERMATIC	WP1010MXD RECEPTACLE COVER, DIE-CAST ALUMINUM. WEATHERPROOF, WHILE-IN-USE
41	3	SW1, SW2, SW4	SQUARE-D	9001 SKS11BH2 SELECTOR SWITCH, 2-POS, MAINTAINED, BLACK, WITH STANDARD LEGEND PLATE MARKED AS SHOWN
42	2	SW7, SW8	SQUARE-D	9001 SKR1U MOMENTARY PUSHBUTTON, FLUSH, BLACK
43	12		IBOCO	IB-T1-1030W WIRE DUCT, 1"W x 3"H, WHITE (PER FT, 6' MIN)
	12		IBOCO	B-T1-1530W WIRE DUCT, 1.5"W x 3"H, WHITE (PER FT, 6' MIN)
44	1	AL	FEDERAL SIGNAL	141ST-120R STROBE LIGHT, RED, 120VAC (REMOTE FROM ME)
45	1	AH	FEDERAL SIGNAL	350-120-30 w/WB ALARM HORN, 120VAC, w/ALUMINUM WP HOUSING (REMOTE FROM ME)
46				*NOT USED
47	1	CR13	SQUARE-D	9050CK11V14 RELAY, 24VAC, ON TIME-DELAY, 1-10 SECONDS
	1		SQUARE-D	8501NR51 RELAY BASE
48	1	T2	SQUARE-D	9070T100D23 TRANSFORMER, 120V/24V, 1PH, 100VA
49	1	CR11	SQUARE-D	9050CK21V14 RELAY, 24VAC, OFF TIME-DELAY, 1-10 SECONDS
50	1		SQUARE-D	8501NR61 RELAY BASE
51				*NOT USED
52				*NOT USED
53	2	R9TD,R10TD	SQUARE-D	9050CK11V20 RELAY, 120VAC, TIME-DELAY, 1-10 SECONDS
	2		SQUARE-D	8501NR51 RELAY BASE
54	6	L1, L2, L3, L4, L5, L6	SQUARE-D	9001SKP38LR99 PILOT LIGHT 30MM LED 120VAC RED
56				*NOT USED
57	1	CB11	SQUARE-D	HGL26015 CIRCUIT BREAKER, MOLDED-CASE, 600V, 2 POLE, 15 AMP
58	1	T1	SQUARE-D	351F55 3KVA 480VAC - 120VAC SINGLE PHASE TRANSFORMER W/ ENCLOSURE
59	1		SQUARE-D	PK0GTAG GROUND BAR, 6 CONN 14-1/0 CU
60				*NOT USED
61				*NOT USED
62				*NOT USED
63				*NOT USED
64				*NOT USED
65				*NOT USED
66				*NOT USED
67				*NOT USED
68				*NOT USED
69	1		HUBBELL	ZS105 CABLE FITTING, PASS-THROUGH (POWER)
	1		HUBBELL	ZS108 CABLE FITTING, PASS-THROUGH (COMMUNICATION)
	1		HUBBELL	ZS210 CABLE FITTING, PASS-THROUGH (CONTROL)
70				*NOT USED

NAMEPLATE SCHEDULE			
ELECTRICAL/CONTROL CABINET (ME)			
N.P. NO	QTY	PLATE COLOR/SIZE	LRT COLOR/SIZE ENGRAVING (LINE1/LINE 2/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	3	ENG / 0.75"H X 2.50" W	ENG / 1/4" PUMP NO.1
E	3	ENG / 0.75"H X 2.50" W	ENG / 1/4" PUMP NO.2
F			*NOT USED
G	2	STANDARD LEGEND PLATE	ENABLE/DISABLE
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 / 0.50"H X 2.00" W	ENG / 3/16" 120VAC - CB12
M	1	ENG / 0.75"H X 2.50" W	ENG / 1/4" PUMP OVERTEMP / RESET
N	1	ENG / 0.75"H X 2.50" W	ENG / 1/4" ALARM SILENCE
O			*NOT USED
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" HIGHTIDE (HTE) - 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 / 0.50"H X 2.00" W	ENG / 1/4" CONTROL XFMR - CB11
W	1	STANDARD LEGEND PLATE	PUMP NO. 1/OFF/PUMP NO. 2
X	1	ENG / 0.50"H X 2.00" W	ENG / 1/4" AMMETER SELECTOR
Y	1	ENG / 0.50"H X 2.00" W	ENG / 1/4" AMMETER
AA	2	ENG / 0.50"H X 2.00" W	ENG / 3/16" OVERTEMP
BB	2	ENG / 0.50"H X 2.00" W	ENG / 3/16" SEAL FAILURE
CC	2	ENG / 0.50"H X 2.00" W	ENG / 3/16" OVERLOAD
DD	2	ENG / 0.50"H X 2.00" W	ENG / 3/16" RUNTIME

CROSS REFERENCE TABLE

SERVICE VOLTAGE	PUMP HP*	MTR-MD1 (AWG)	MD1-ME/CB1 JB1/JB4-CB2/N (AWG)	CB1-PDB1 CB2-PDB1 (AWG)	MD1 CB1 CB2	PDB1-PMR (AWG)	CB3 CB4	MS1 MS2	PDB1-CB3 PDB1-CB4 CB3-MS1 CB4-MS2 MS1-JB1 MS2-JB1 (AWG)	JB1-M1 JB2-M2	PDB1-CB11 CB11-XFM1 (AWG)	CB11	AMMETER SCALE/CT RATIO
480VAC, 3PH, 4W	4	3-#1/0, 1-#2 N	3-#1/0, 1-#2 N, 1-#8 G	3-#1/0	JGL36150	3-#14	HGL36015	SIZE 0	3-#12	PER MANUF	2-#10	HGL26015	10A/10:5
480VAC, 3PH, 4W	6	3-#1/0, 1-#2 N	3-#1/0, 1-#2 N, 1-#8 G	3-#1/0	JGL36150	3-#14	HGL36020	SIZE 1	3-#12	PER MANUF	2-#10	HGL26015	15A/15:5
480VAC, 3PH, 4W	11	3-#1/0, 1-#2 N	3-#1/0, 1-#2 N, 1-#8 G	3-#1/0	JGL36150	3-#14	HGL36025	SIZE 2	3-#12	PER MANUF	2-#10	HGL26015	30A/30:5

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

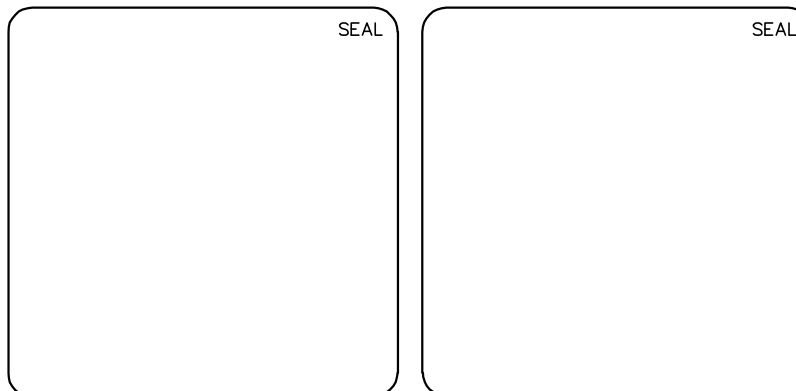
*HP RATINGS LISTED ARE BASED ON STANDARD FLYGT GRINDER PUMP SIZES

SEE DWG E-1.3 NOTE 4

DESIGN BASIS NOTE:
THIS DRAWING REPRESENTS THE STANDARD DESIGN FOR ALL HILLSBOROUGH COUNTY STANDARD IN-FILL GRINDER 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 CONSTRUCTION DRAWINGS AND SPECIFICATIONS (IF DEEMED NECESSARY BY THE DESIGN ENGINEER) MUST BE PREPARED IN ACCORDANCE WITH F.S. 471 AND RULES 61G.

REV. NO.	DESCRIPTIONS	DATE
1	REVISED TO REFLECT CURRENT COUNTY STANDARDS	3/2/20



NOTE
FOR USE WITH THE FOLLOWING IN-FILL GRINDER "ME" PKGS ONLY

3PH/480VAC/4-11HP

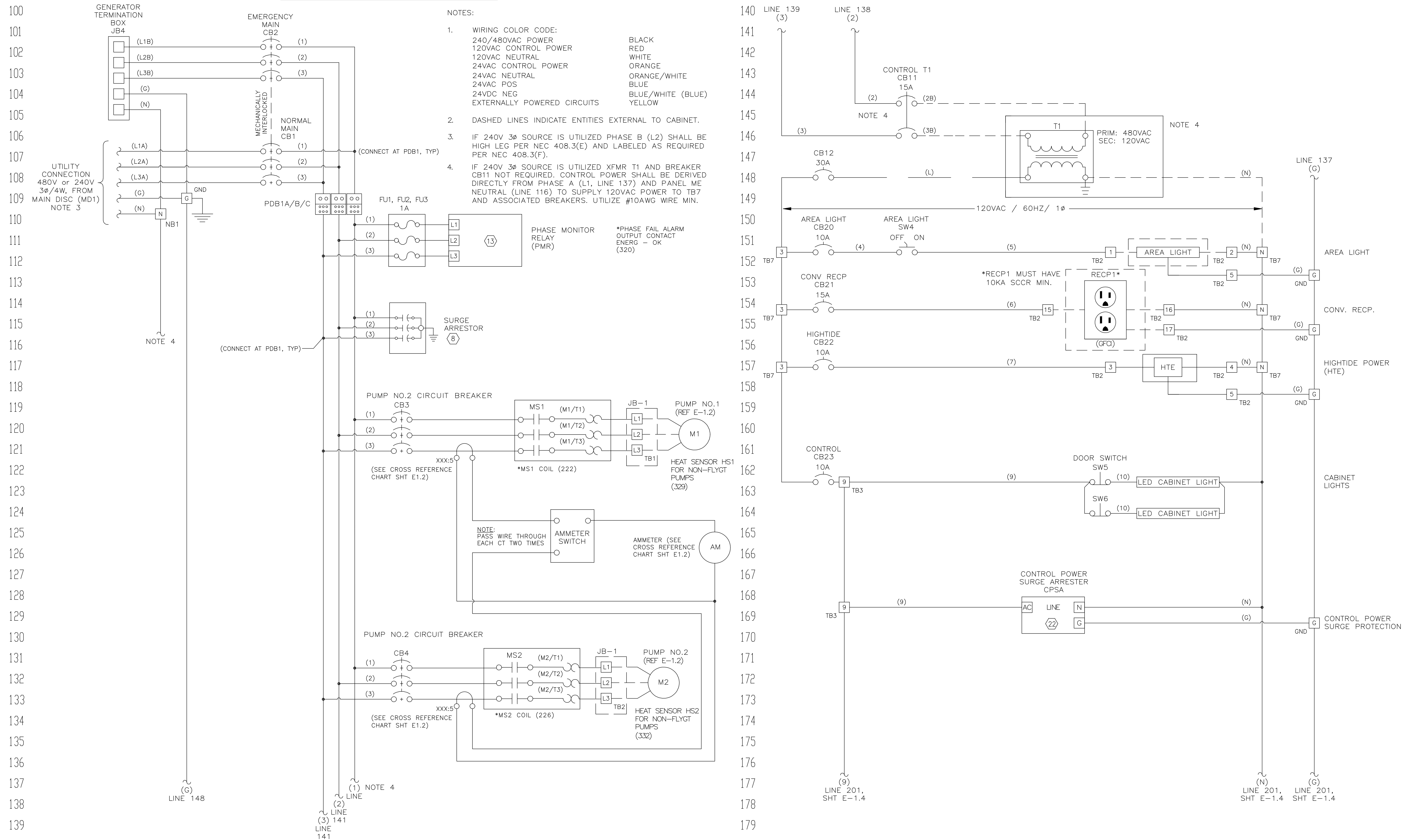


PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION
925 E. TWIGGS STREET/TAMPA, FLORIDA 33602/PH. (813) 272-5977

INFILL GRINDER PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION
ELECTRICAL/CONTROL ENCLOSURE
BILL OF MATERIAL & EQUIP SIZING CHART
(3PH)(480V/4-II HP)

DATE: MARCH 2020	SCALE: HORIZONTAL	FILE NUMBER: DRAWING NUMBER
PROJ. #	VERTICAL: NA	E-1.2
DRAWN		
DESIGNED		
CHECKED		
PROJ. MGR.		
STATUS: REVISED	REVISION: 1	

ELECTRICAL/CONTROL CABINET, (ME)



- NOTES:
1. WIRING COLOR CODE:
 240/480VAC POWER: BLACK
 120VAC CONTROL POWER: RED
 120VAC NEUTRAL: WHITE
 24VAC CONTROL POWER: ORANGE
 24VAC NEUTRAL: ORANGE/WHITE
 24VAC POS: BLUE
 24VDC NEG: BLUE/WHITE (BLUE)
 EXTERNALLY POWERED CIRCUITS: YELLOW
 2. DASHED LINES INDICATE ENTITIES EXTERNAL TO CABINET.
 3. IF 240V 3φ SOURCE IS UTILIZED PHASE B (L2) SHALL BE HIGH LEG PER NEC 408.3(E) AND LABELED AS REQUIRED PER NEC 408.3(F).
 4. IF 240V 3φ SOURCE IS UTILIZED XFMR T1 AND BREAKER CB11 NOT REQUIRED. CONTROL POWER SHALL BE DERIVED DIRECTLY FROM PHASE A (L1, LINE 137) AND PANEL ME NEUTRAL (LINE 116) TO SUPPLY 120VAC POWER TO TB7 AND ASSOCIATED BREAKERS. UTILIZE #10AWG WIRE MIN.

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REV. NO.	DESCRIPTION	DATE
1	REVISED TO REFLECT CURRENT COUNTY STANDARDS	3/2/20

SEAL

SEAL

NOTE
FOR USE WITH THE FOLLOWING
IN-FILL GRINDER "ME" PKGS ONLY

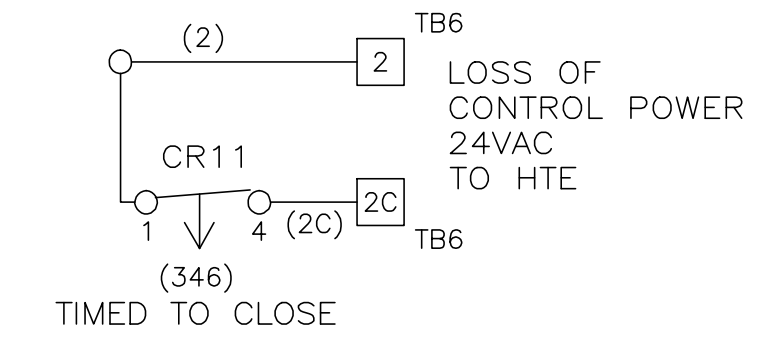
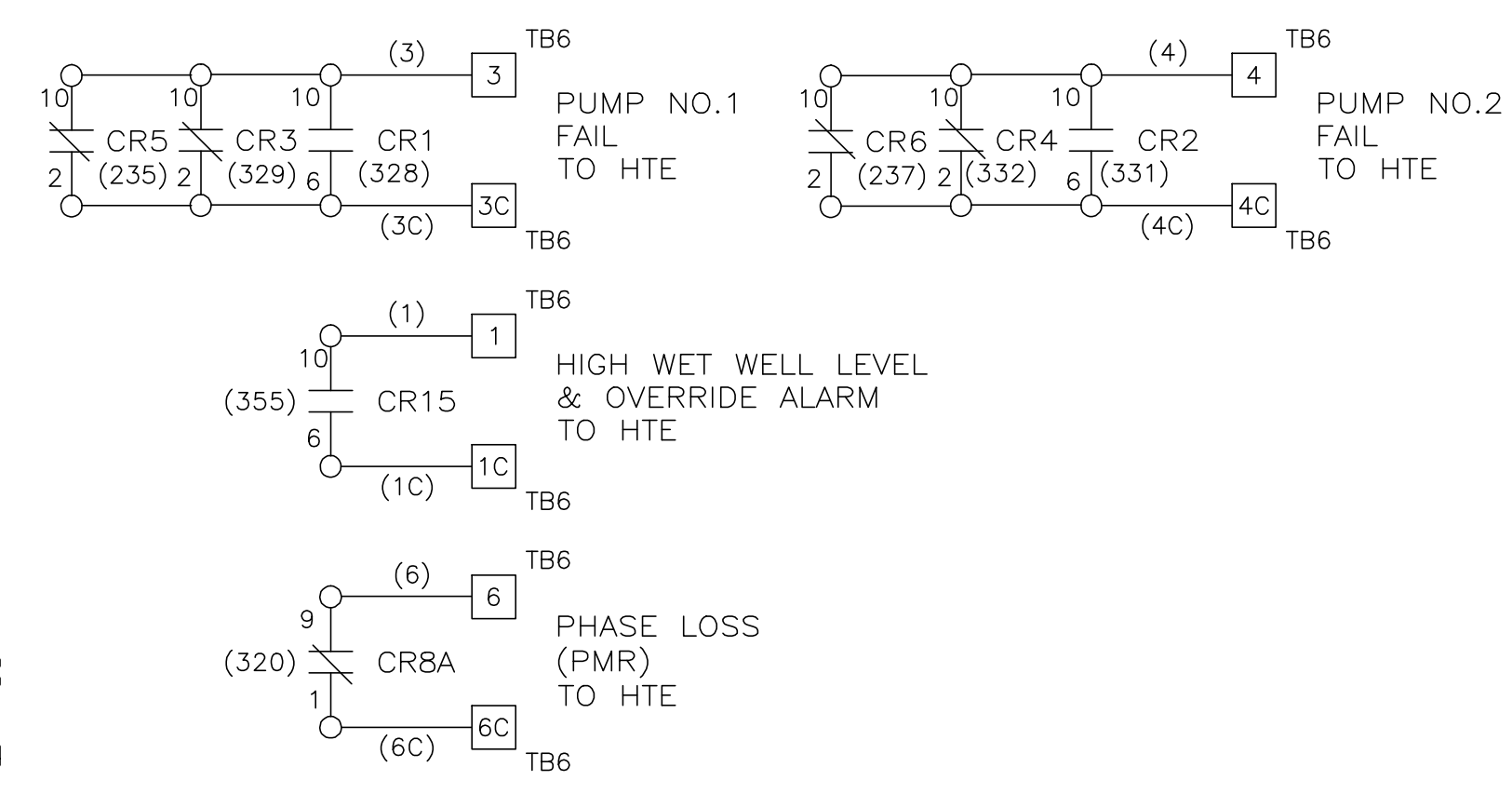
3PH/480VAC/4-11HP

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

INFILL GRINDER
 PUMP STATION
 ELECTRICAL, CONTROL & INSTRUMENTATION
 ELECTRICAL/CONTROL ENCLOSURE
 ELECTRICAL SCHEMATICS
 (3PH)(480V/4-II HP)

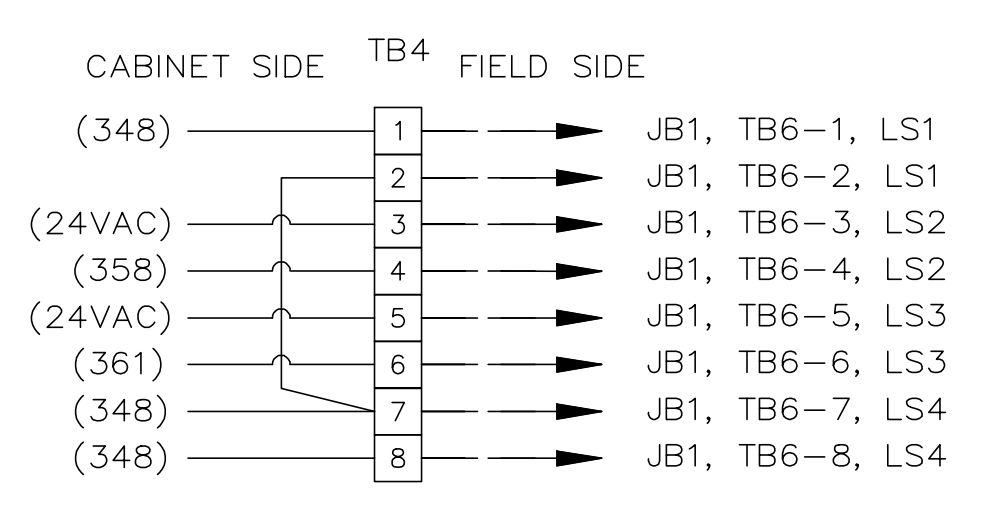
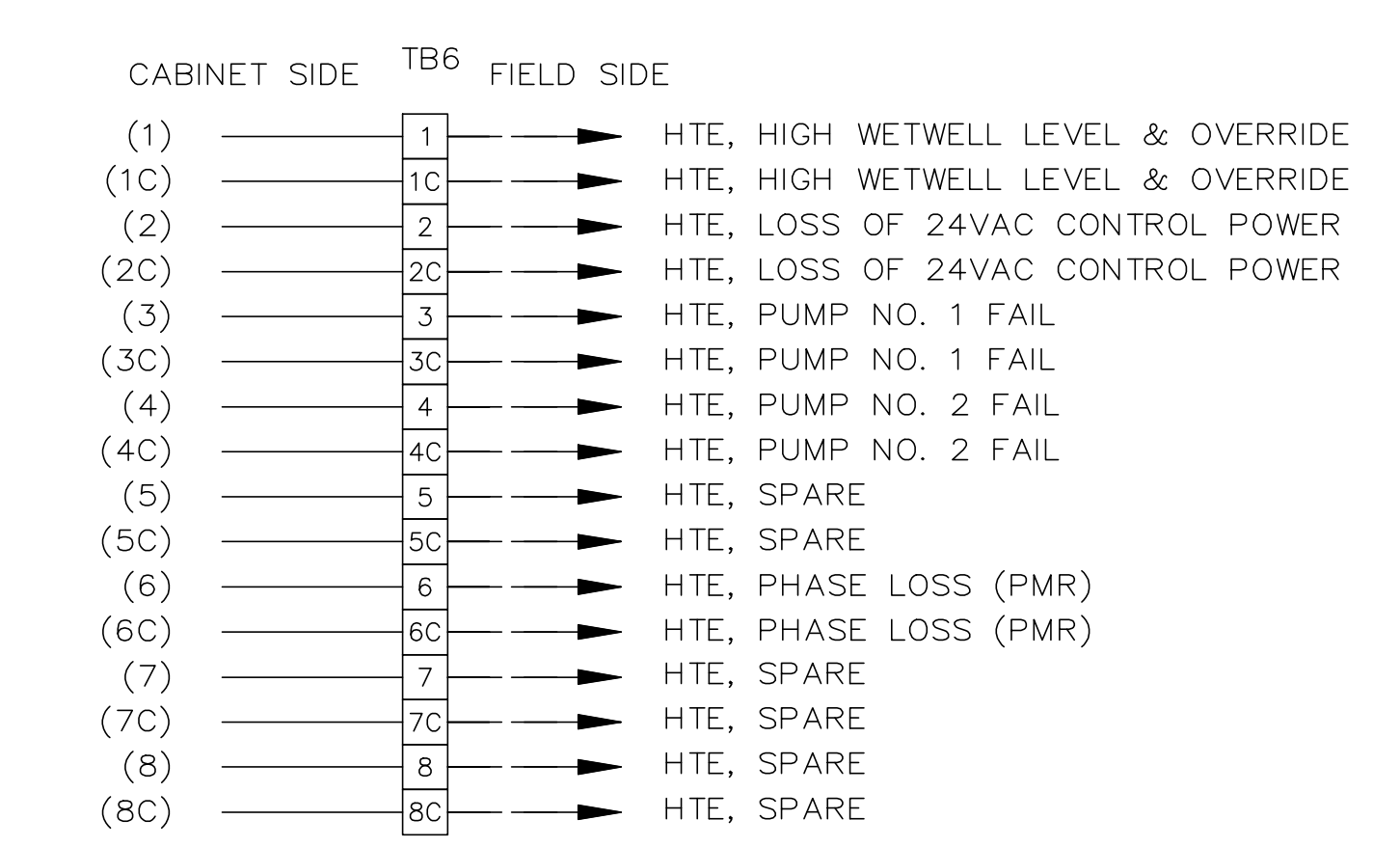
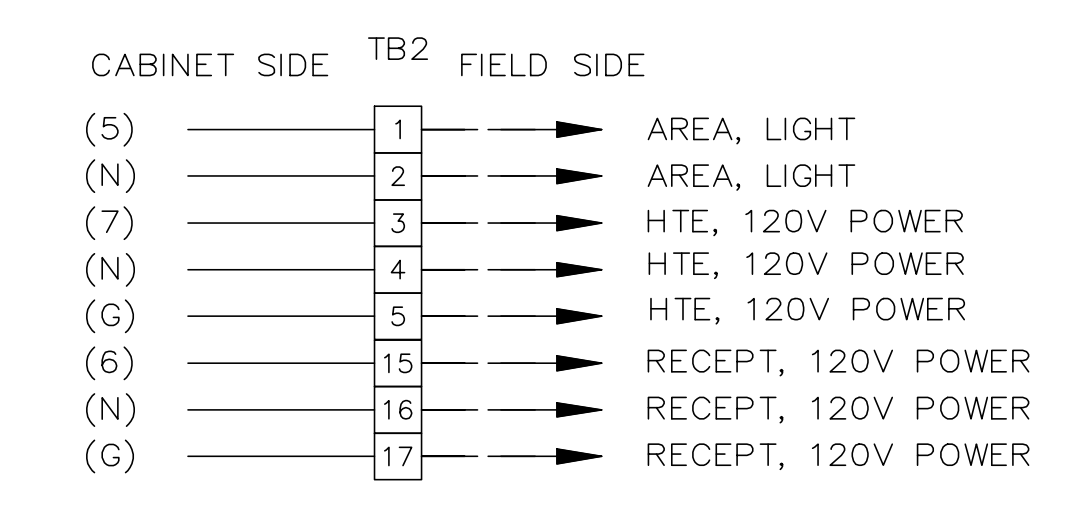
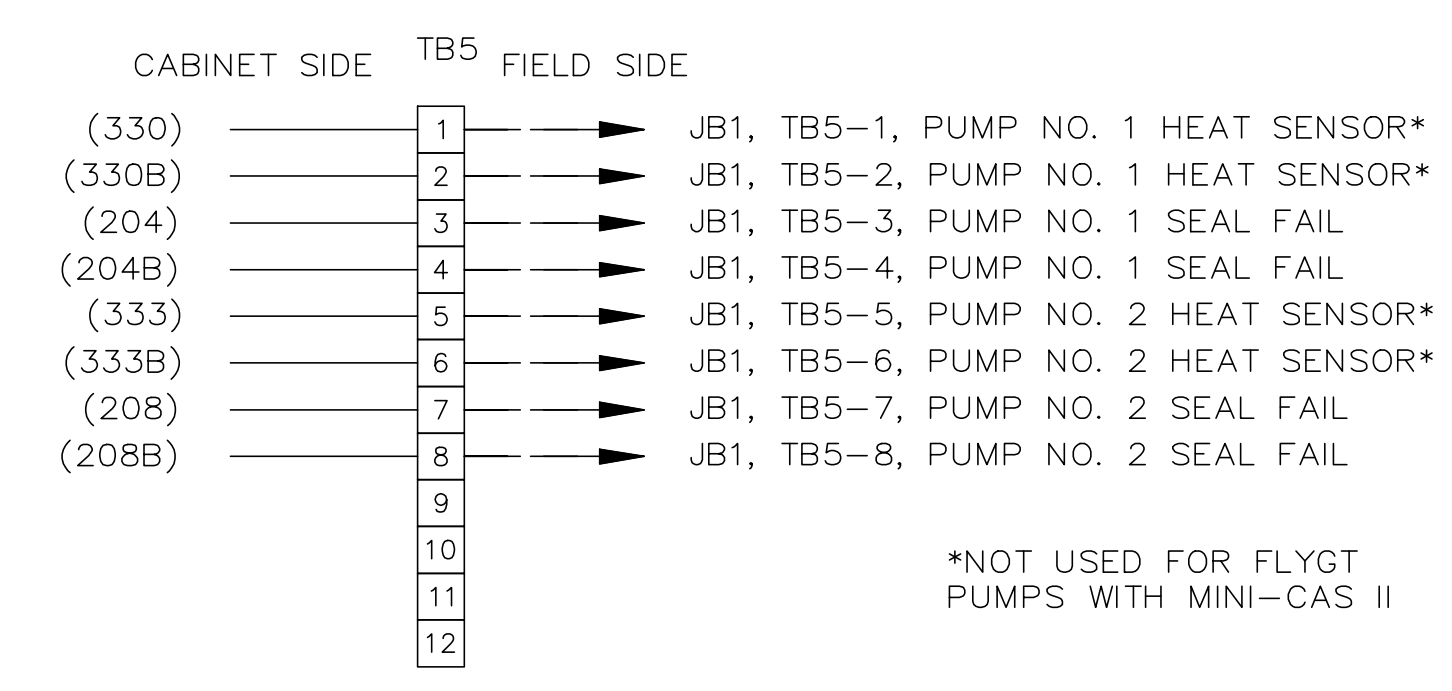
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PROJ. #	VERTICAL: NA	DRAWING NUMBER
DESIGNED		
CHECKED		
PROJ. MGR.		
STATUS: REVISED		REVISION: 1

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SHT E-1.5
LINE 362 (G)
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LINE 440 (G)

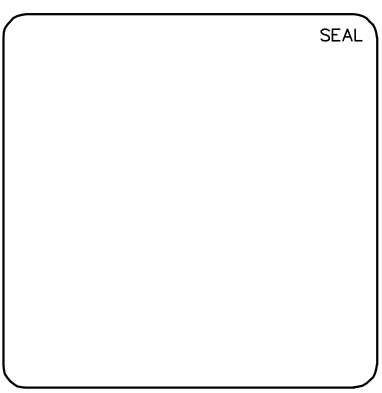
LINE 438 (G)
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LINE 438 (G)



- NOTES:
- WIRING COLOR CODE:

240/480VAC 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.

REV. NO.	DESCRIPTION	DATE
1	REVISED TO REFLECT CURRENT COUNTY STANDARDS	3/2/20



NOTE
FOR USE WITH THE FOLLOWING
IN-FILL GRINDER "ME" PKGS ONLY

3PH/480VAC/4-11HP

Hillsborough County Florida

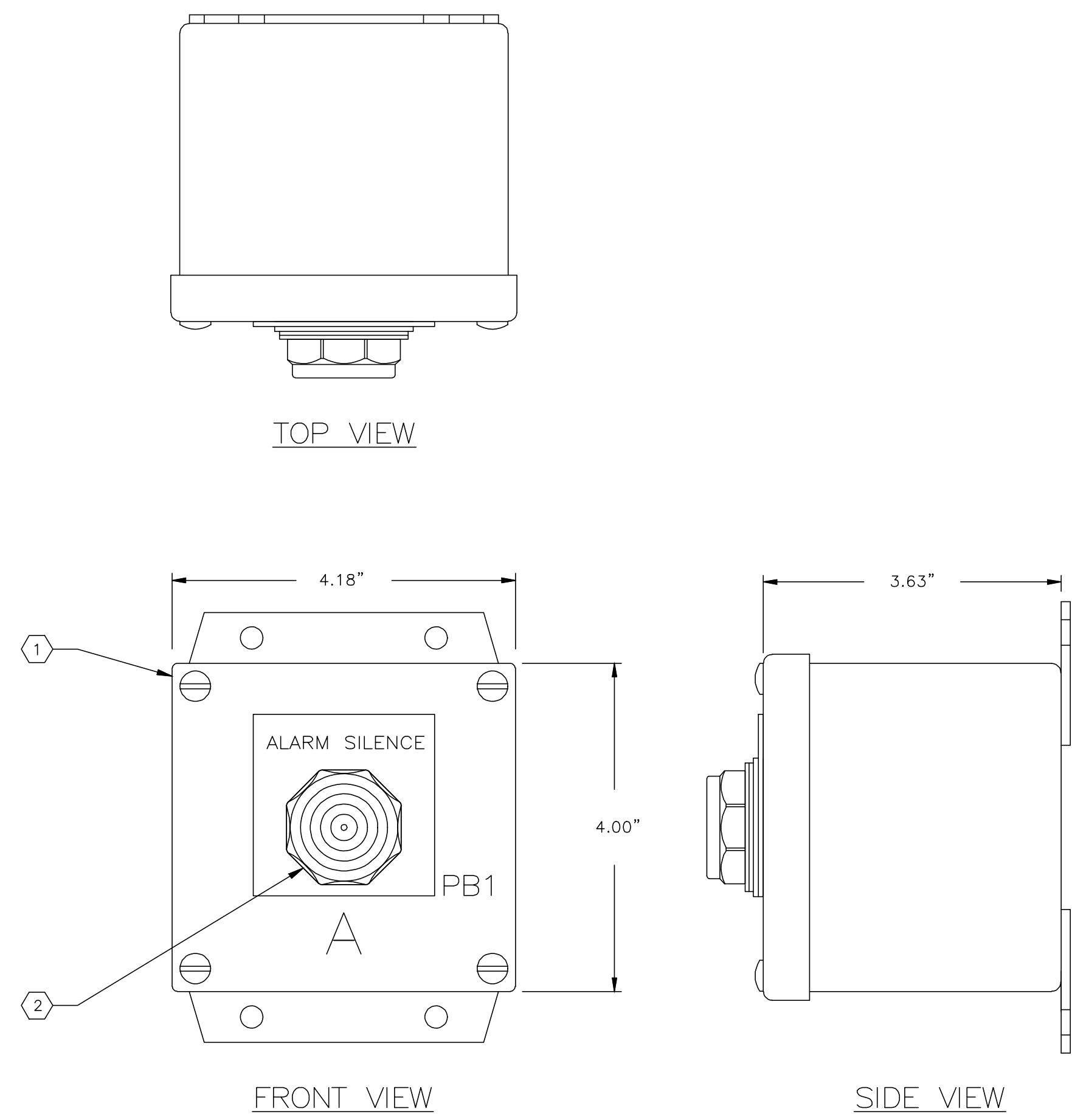
PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION
925 E. TWISS STREET/TAMPA, FLORIDA 33602/PH. (813) 272-5977

INFILL GRINDER PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION
ELECTRICAL/CONTROL ENCLOSURE
ELECTRICAL SCHEMATICS
(3PH)(480V/4-II HP)

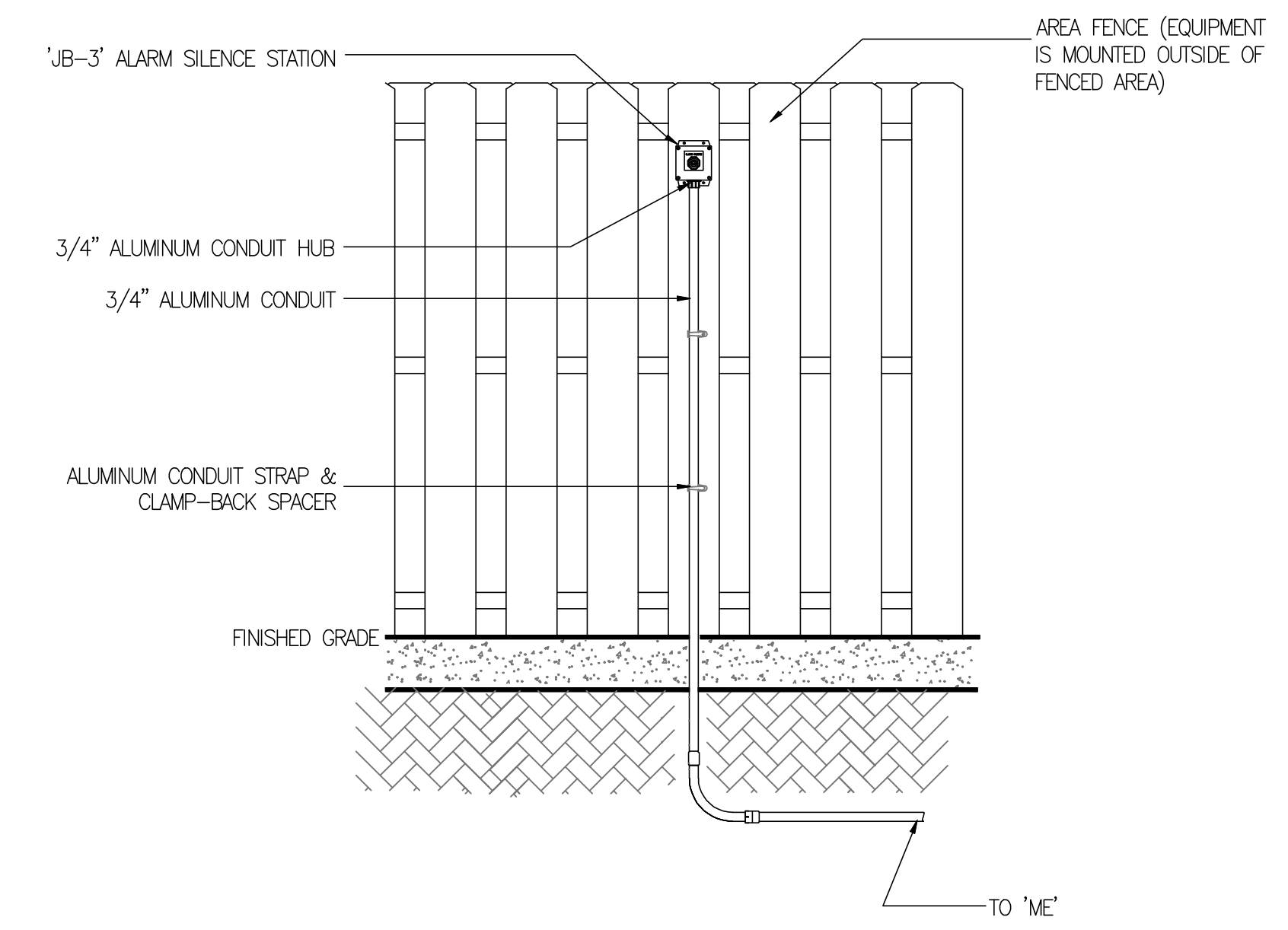
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PROJ. #	HORIZONTAL:	DRAWING NUMBER:
DRAWN	VERTICAL:	E-1.6
DESIGNED	NA	
CHECKED		
PROJ. MGR.		
STATUS: REVISED	REVISION:	1

LIST OF MAJOR COMPONENTS					
ITEM NO.	QTY	DEVICE ID	MANUFACTURER	PART NO.	DESCRIPTION
1	1		SQUARE D	9001-KYSS100	ENCLOSURE, 13.3"H x 11.3"W x 5.6"D, NEMA 3R, FIBERGLASS GRAY
2	1	PB1	SQUARE-D	9001-KR1BHS	PUSHBUTTON, FULL GUARD, N.O. CONTACTS

NAMEPLATE SCHEDULE			
N.P. NO	QTY	PLATE COLOR/SIZE	ENGRAVING (LINE1/LINE 2/ETC.)
A	1	BLK / 2.25"H X 2.25" W	WHT / 3/16"



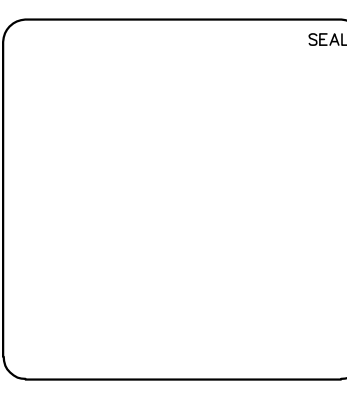
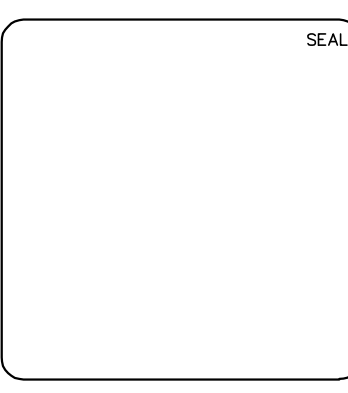
ALARM SILENCE STATION (JB-3)



PUSHBUTTON DETAIL (FRONT ELEVATION)
N.T.S.

- 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

REV. NO.	DESCRIPTIONS	DATE
1	REVISED TO REFLECT CURRENT COUNTY STANDARDS	3/2/20



NOTE
FOR USE WITH THE FOLLOWING
IN-FILL GRINDER "ME" PKGS ONLY

3PH/480VAC/4-11HP

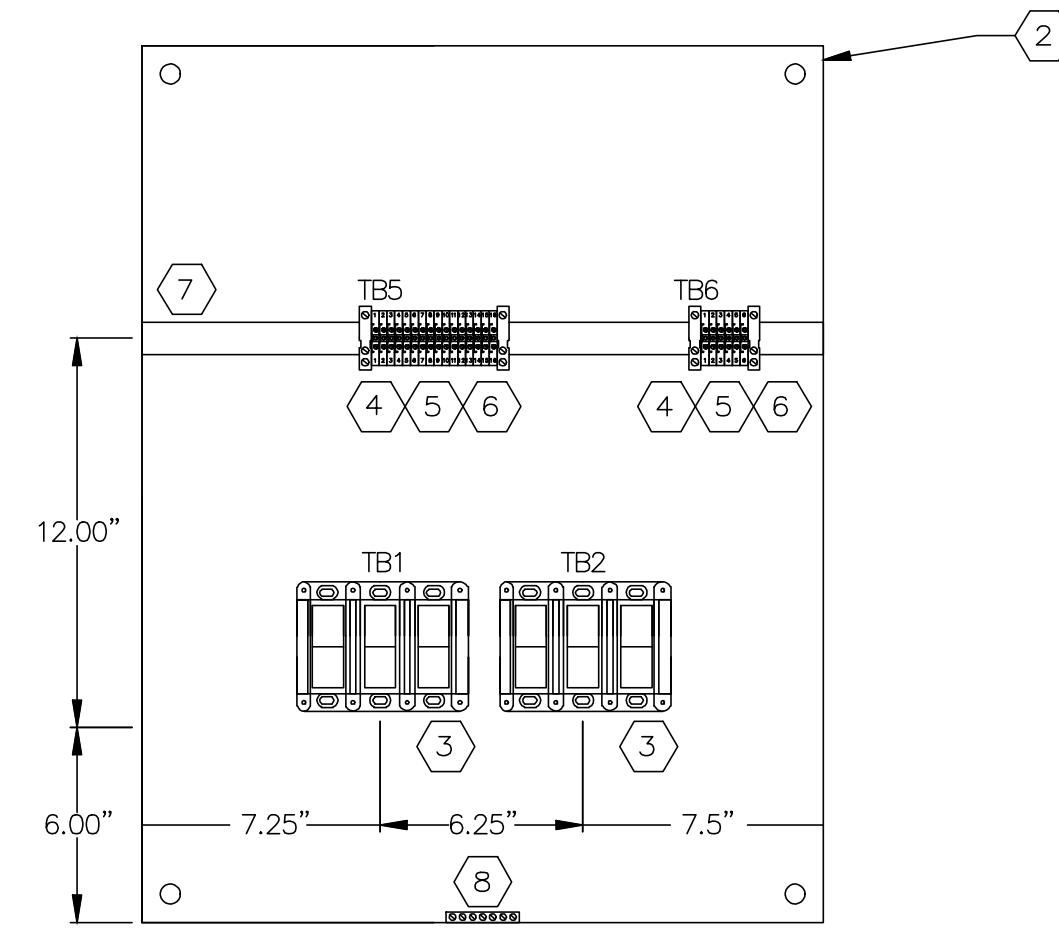
Hillsborough County Florida

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

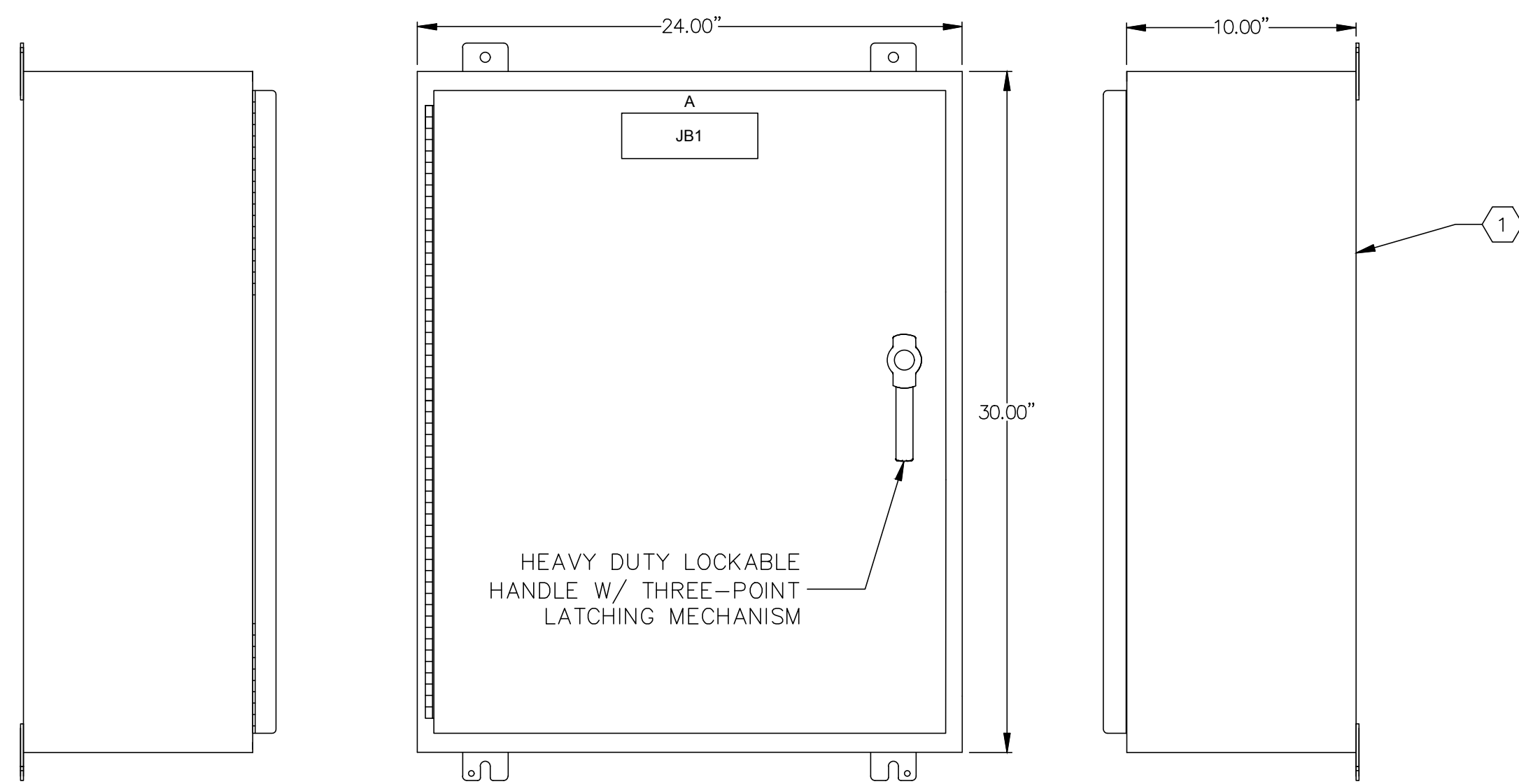
INFILL GRINDER
PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION

ALARM SILENCE STATION (JB3)
ENCLOSURE LAYOUT, DETAIL AND BILL OF
MATERIAL

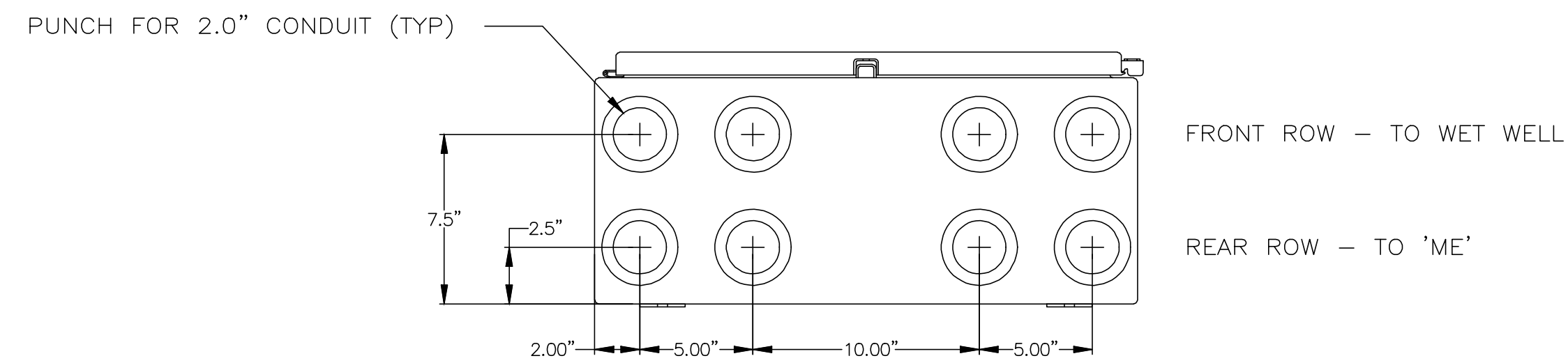
DATE: MARCH 2020	SCALE	FILE NUMBER
PROJ. #	HORIZONTAL:	DRAWING NUMBER
DRAWN	VERTICAL:	E-2.0
DESIGNED	NA	
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PROJ. MGR.		
STATUS: REVISED		REVISION 1



INSIDE PANEL VIEW



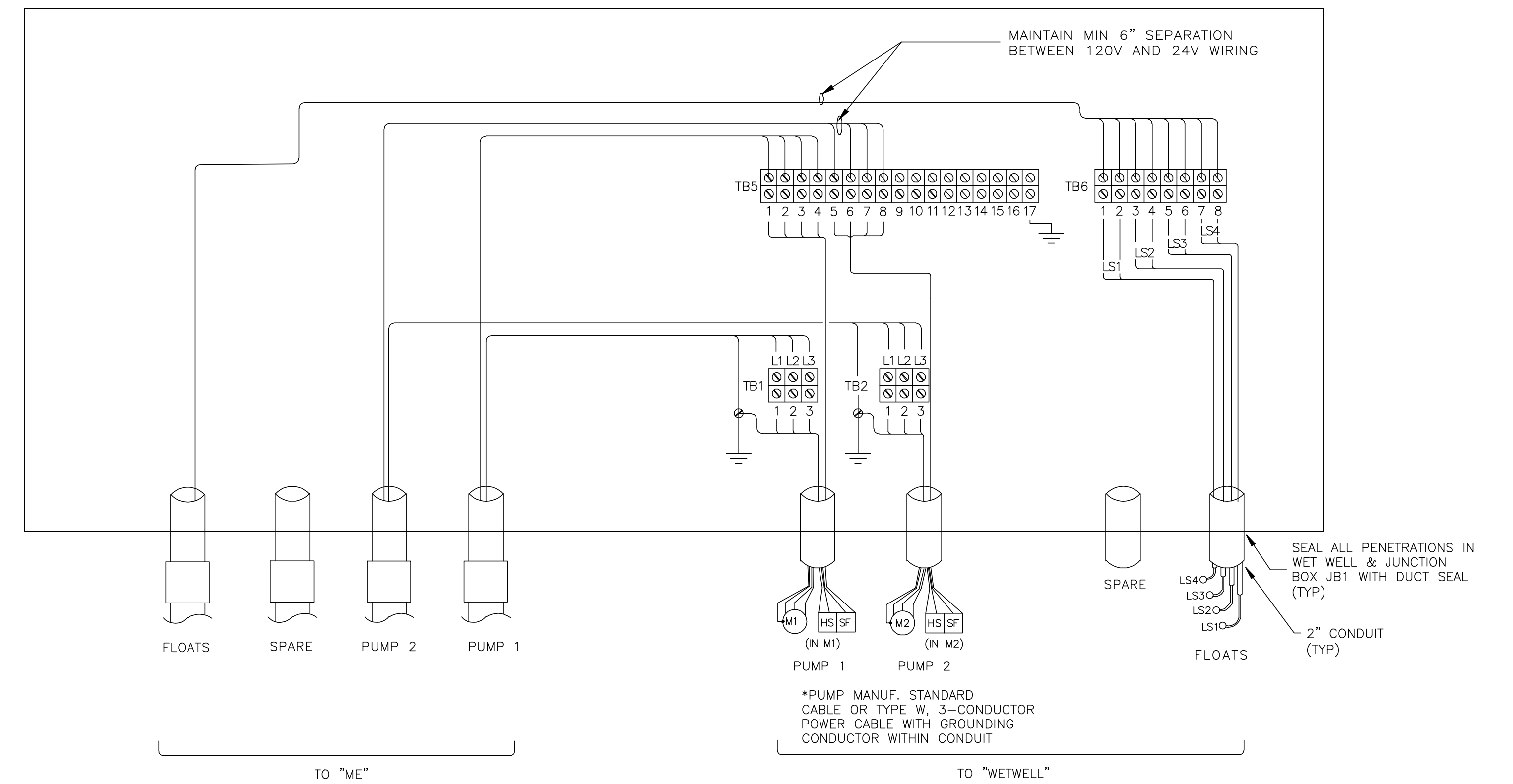
JB1 ENCLOSURE LAYOUT



BOTTOM VIEW

LIST OF MAJOR COMPONENTS					
ITEM NO.	QTY	DEVICE ID	MANUFACTURER	PART NO.	DESCRIPTION
1	1	JB1	HOFFMAN	A30H2410SSLP	ENCLOSURE, 30" H x 24" W x 10" D, NEMA 4X, 304SS, EPOXY WHITE FINISH
2	1		HOFFMAN	A30P24AL	SUBPANEL 27" H x 21" W, 0.10" THICK ALUMINUM
3	2	TB1, TB2	MARATHON	1333554	POWER DISTRIBUTION BLK, 3 POLE 310A, 600VAC, PRIM 1 CONN 6-350 CU SEC. 2 CONN 14-2/0
4	25	TB5, TB6	PHOENIX CONTACT	UKS-N	TERMINAL BLOCK
5	4		PHOENIX CONTACT	D-UK 4/10	TERMINAL BLOCK END BARRIER
6	4		PHOENIX CONTACT	E/UK	TERMINAL BLOCK END CLAMP
7	AR		PHOENIX CONTACT		DIN RAIL

NAMEPLATE SCHEDULE			
N.P. NO	QTY	PLATE COLOR/SIZE	ENGRAVING (LINE 1/LINE 2/ETC.)
A	1	BLK / 2.00" H X 6.00" W	WHT / 1/2"



JB1 ELECTRICAL SCHEMATIC

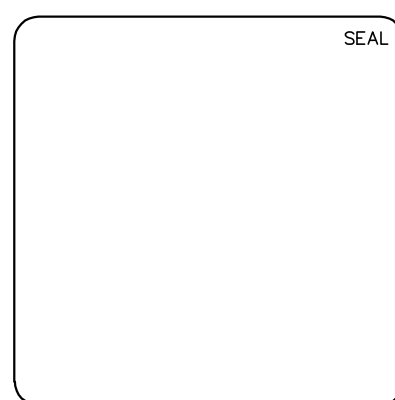
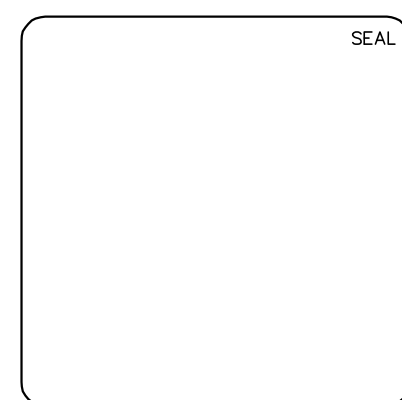
NOTES:

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

DESIGN BASIS NOTE:
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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 CONSTRUCTION DRAWINGS AND SPECIFICATIONS (IF DEEMED NECESSARY BY THE DESIGN ENGINEER) MUST BE PREPARED IN ACCORDANCE WITH F.S. 471 AND RULES 61G.

REV. NO.	DESCRIPTIONS	DATE
1	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	3/2/20
	REVISIONS	



NOTE
FOR USE WITH THE FOLLOWING
IN-FILL GRINDER "ME" PKGS ONLY

3PH/480VAC/4-11HP

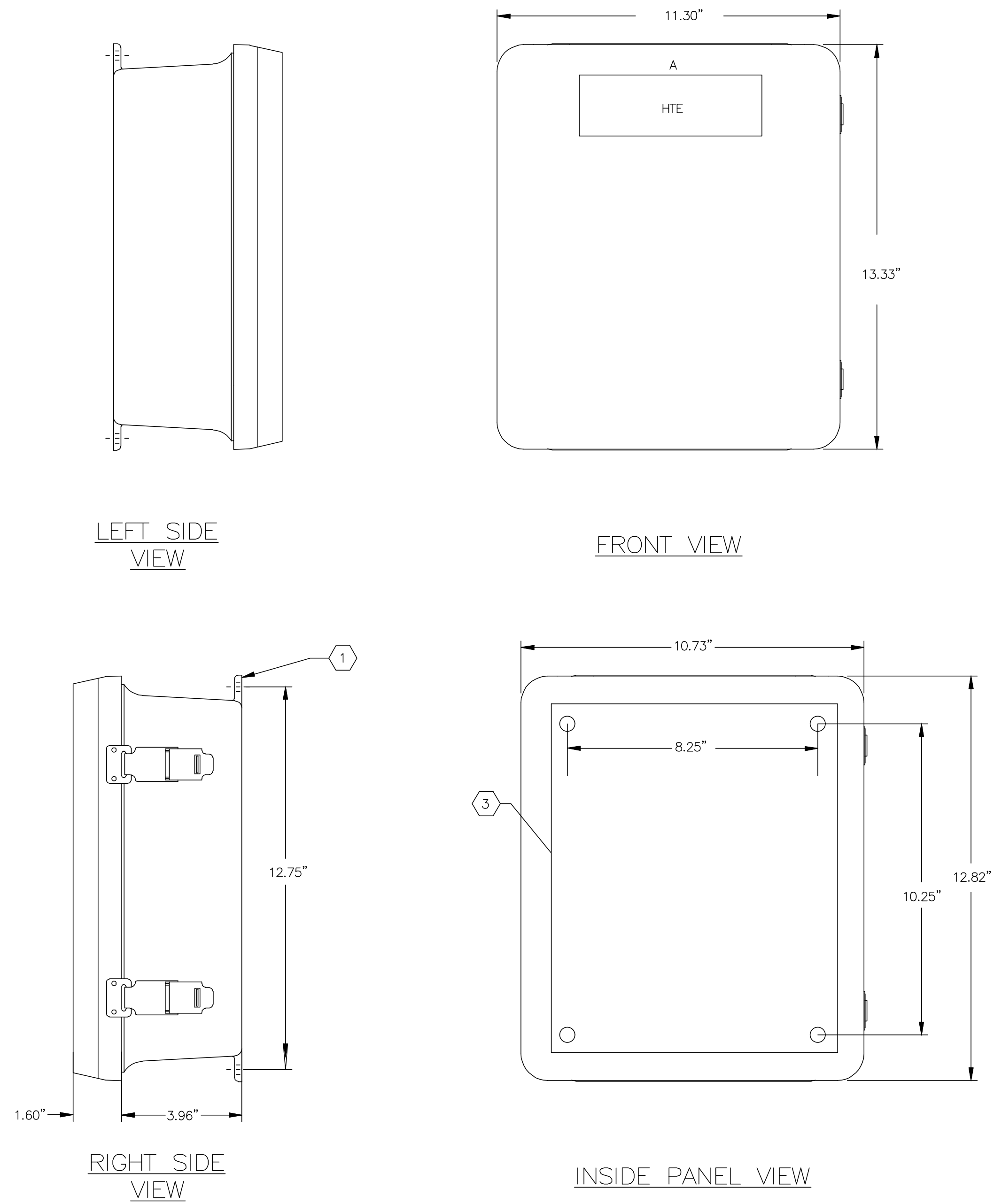
Hillsborough County Florida
PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION
925 E. TWIGGS STREET/TAMPA, FLORIDA 33602/PH. (813) 272-5977

INFILL GRINDER PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION
WET WELL JUNCTION BOX (JB1)
CABINET LAYOUT, ELECTRICAL SCHEMATIC AND BILL OF MATERIAL

DATE: MARCH 2020	SCALE: HORIZONTAL: NA	FILE NUMBER: E-3.0
PROJ. #	VERTICAL: NA	DRAWING NUMBER
DRAWN		
DESIGNED		
CHECKED		
PROJ. MGR.		
STATUS: REVISED		REVISION: 1

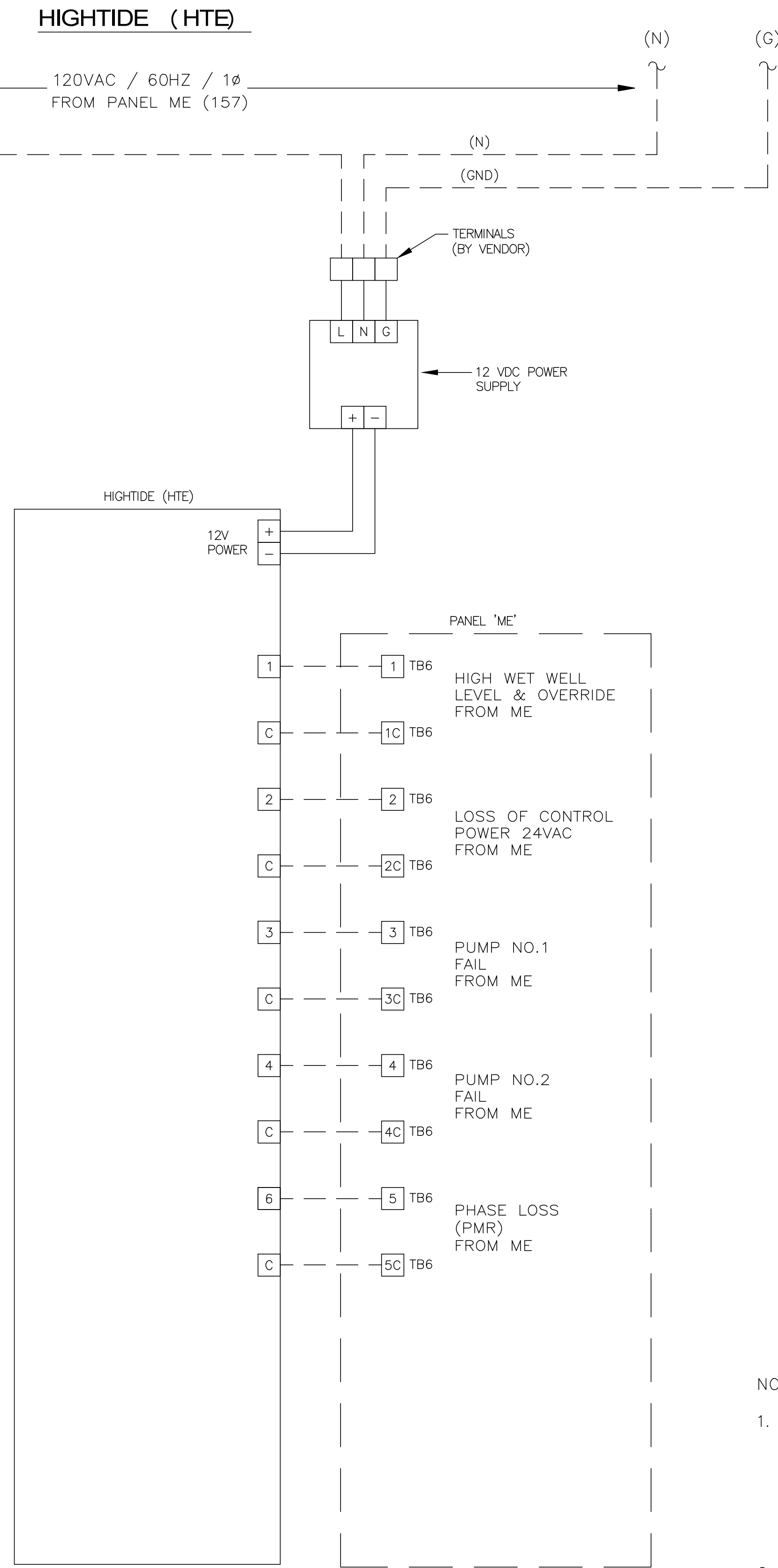
LIST OF MAJOR COMPONENTS					
ELECTRICAL/CONTROL CABINET (HTE)					
ITEM NO.	QTY	DEVICE ID	MANUFACTURER	PART NO.	DESCRIPTION
1	1	"HTE"	STAHLIN	VJ1210HWPL2	ENCLOSURE, 13.3"Hx11.3"Wx 5.6"D, NEMA 3R, FIBERGLASS GRAY, WITH HINGED FRONT PANEL.
2					*NOT USED
3	1	"HTT"	HIGHTIDE	HTT-E10-AC-IR	SATELITE COMMUNICATOR W/ 120V SURGE PROTECTION (BY VENDOR). IRIIDIUM ANTENNA WITH ANGLE BRACKET AND ANTENNA SURGE PROTECTOR REQUIRED (BY VENDOR). 12V POWER SUPPLY AND BATTERY (BY VENDOR).
4					*NOT USED
5	AR				WIRE DUCT 1.00"W X 2.00"H
6					*NOT USED

NAMEPLATE SCHEDULE			
ELECTRICAL/CONTROL CABINET (HTE)			
N.P. NO	QTY	PLATE COLOR/SIZE	ENGRAVING (LINE1/LINE 2/ETC.)
A	1	BLK / 2.00"H X 6.00" W	PNL "HTE"



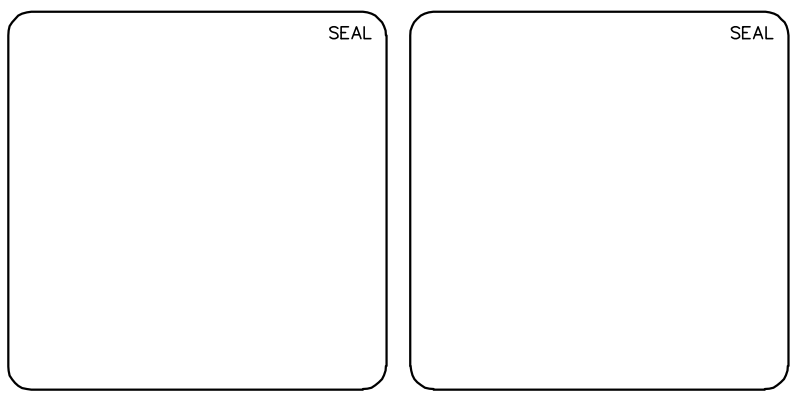
HTE (HIGHTIDE) ENCLOSURE LAYOUT

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- 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
 - DASHED LINES INDICATE ENTITIES EXTERNAL TO CABINET.

REV. NO.	DESCRIPTIONS	DATE
1	REVISED TO REFLECT CURRENT COUNTY STANDARDS	3/2/20



NOTE
FOR USE WITH THE FOLLOWING
IN-FILL GRINDER "ME" PKGS ONLY

3PH/480VAC/4-11HP

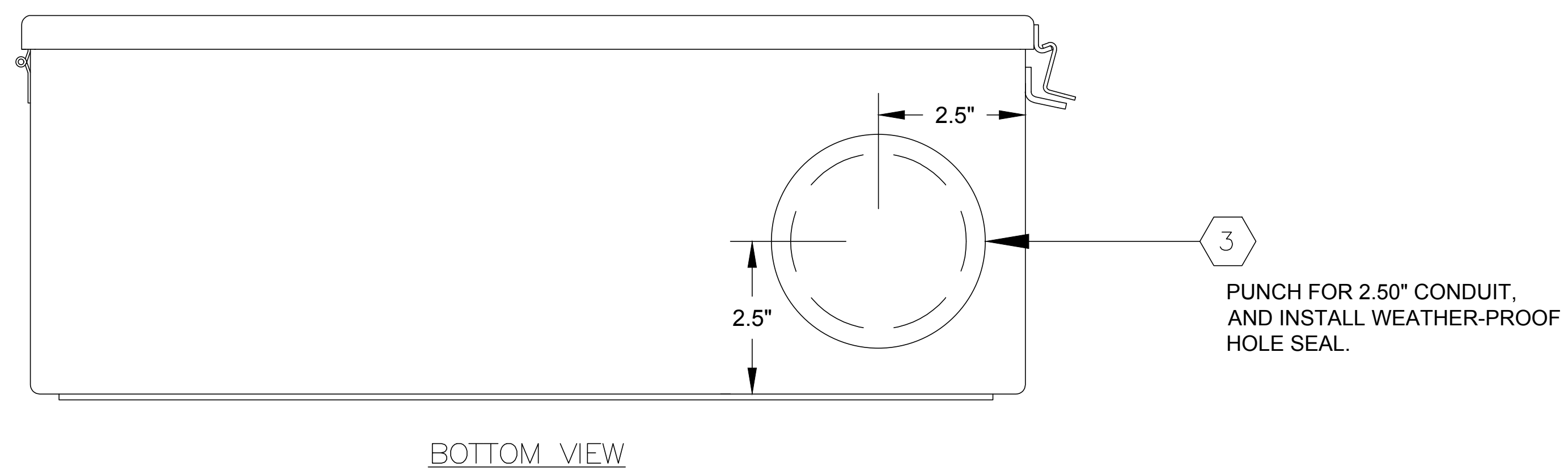
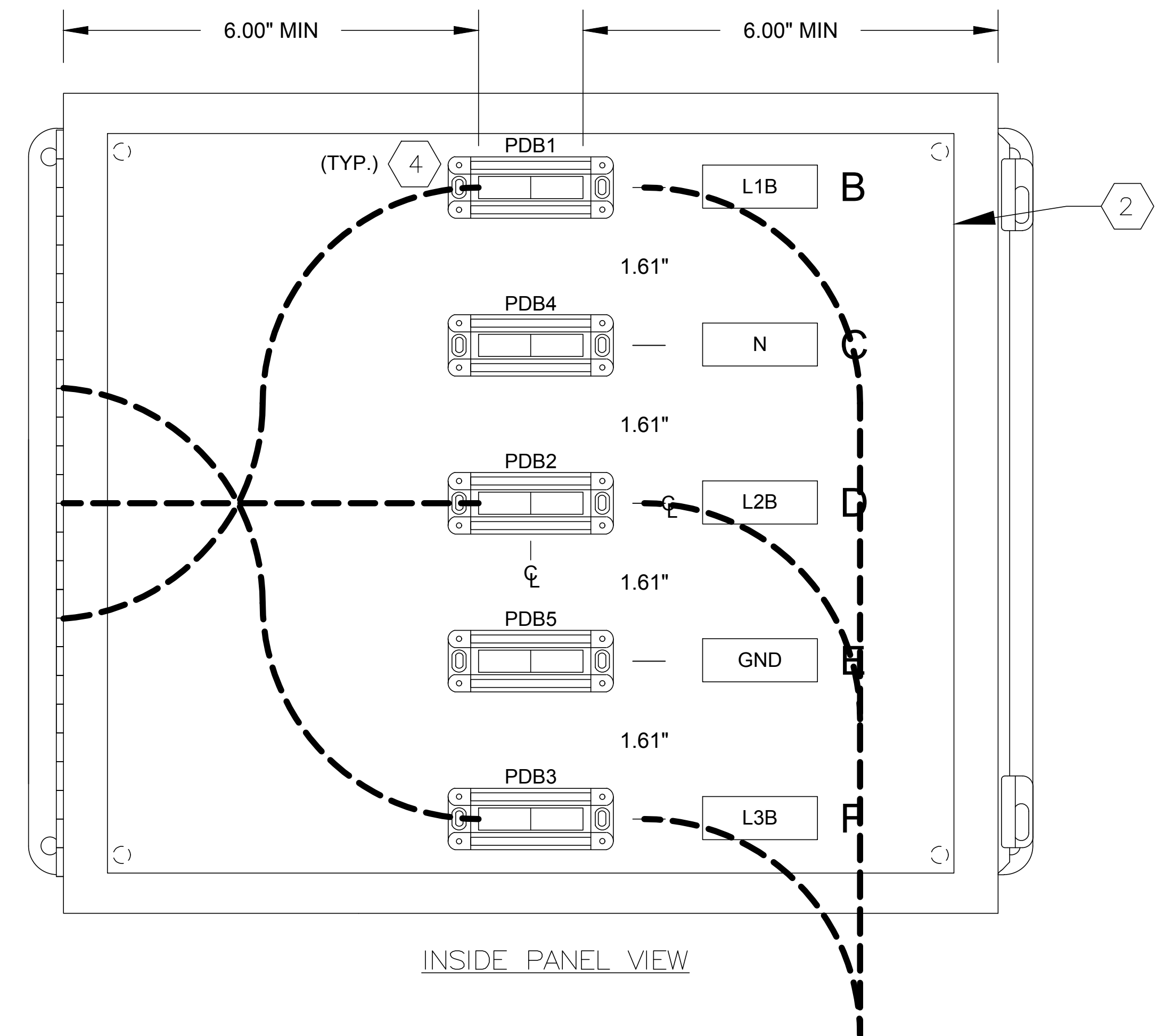
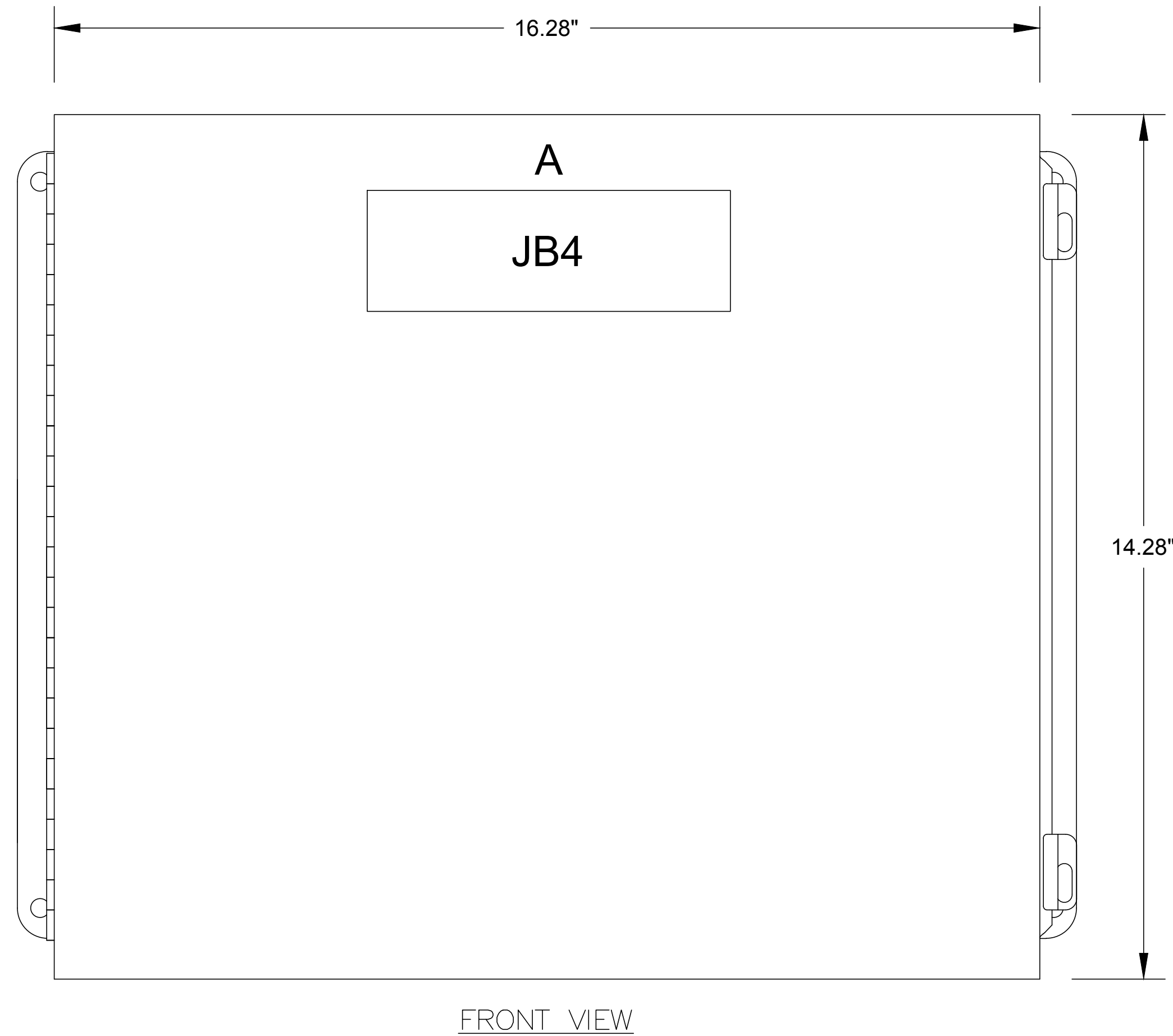
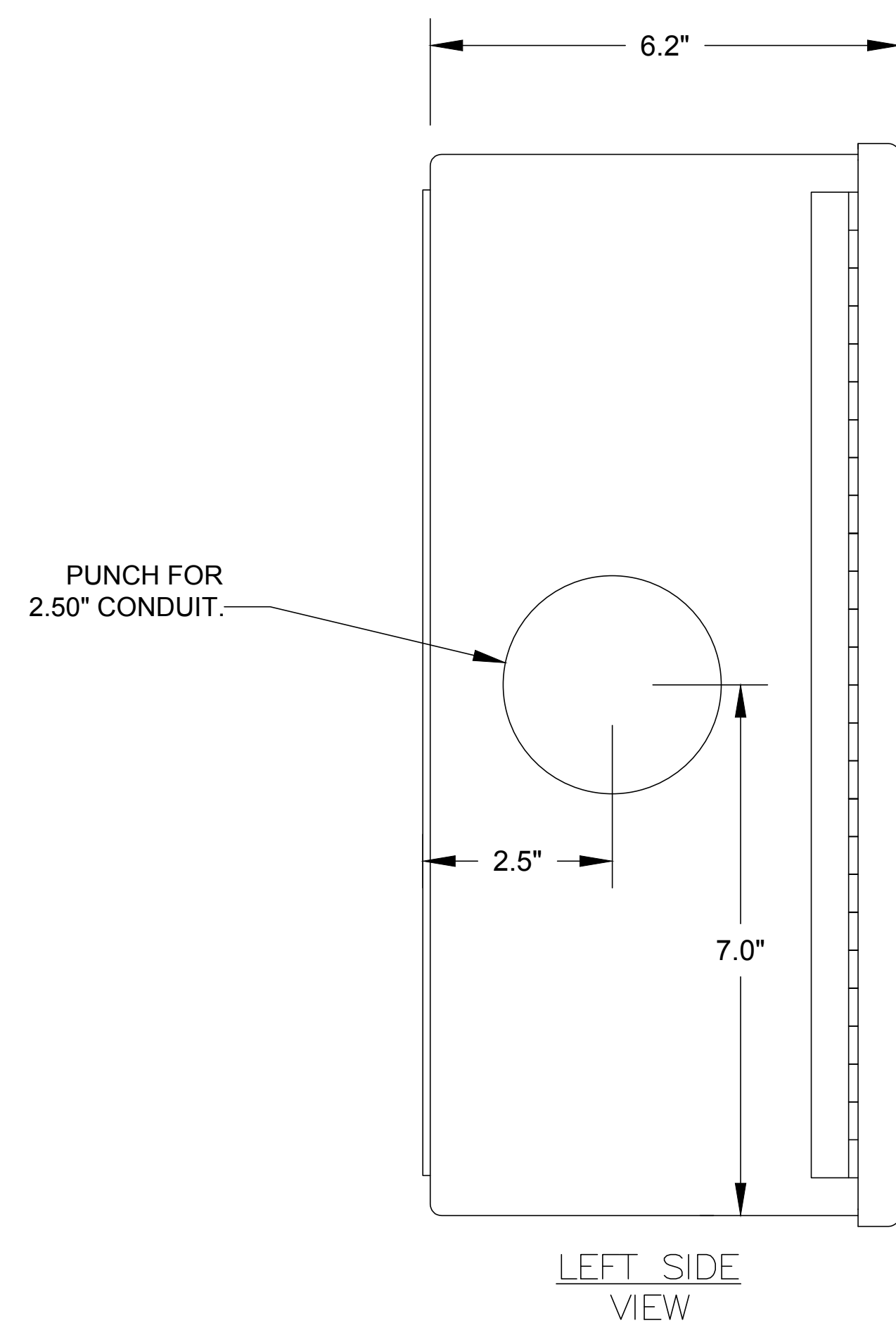
Hillsborough County Florida

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

**INFILL GRINDER
PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION**

HIGHTIDE HTT I100 COMM. DEVICE (HTE)
CABINET LAYOUT, ELECTRICAL SCHEMATIC
AND BILL OF MATERIAL

DATE: MARCH 2020	SCALE:	FILE NUMBER:
PROJ. #	HORIZONTAL:	DRAWING NUMBER:
DRAWN	VERTICAL: NA	E-4.0
DESIGNED		
CHECKED		
PROJ. MGR.		
STATUS: REVISED	REVISION:	1



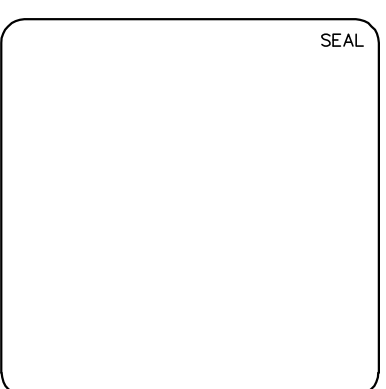
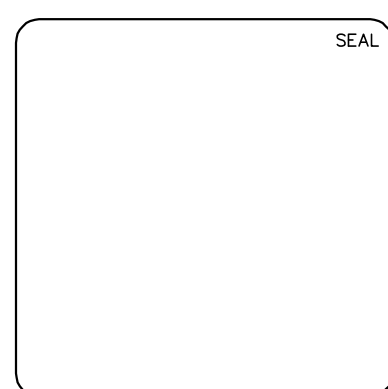
NAMEPLATE SCHEDULE				
N.P. NO	QTY	PLATE COLOR/SIZE	LRT COLOR/SIZE	ENGRAVING (LINE1/LINE 2/ETC.)
A	1	BLK / 2.00"H X 6.00" W	WHT / 1/2"	JB4
B	1	BLK / 0.75"H X 2.50" W	WHT / 1/4"	L1B
C	1	BLK / 0.75"H X 2.50" W	WHT / 1/4"	N
D	1	BLK / 0.75"H X 2.50" W	WHT / 1/4"	L2B
E	1	BLK / 0.75"H X 2.50" W	WHT / 1/4"	GND
F	1	BLK / 0.75"H X 2.50" W	WHT / 1/4"	L3B

LIST OF MAJOR COMPONENTS					
ITEM NO.	QTY	DEVICE ID	MANUFACTURER	PART NO.	DESCRIPTION
1	1	JB4	HOFFMAN	A1614CHNFSS6	ENCLOSURE, 16"Hx14"Wx 6"D, NEMA 4X, 304SS, WITH LOCK KIT, EPOXY WHITE FINISH
2	1		HOFFMAN	A16P14SS	SUBPANEL 14.75"Hx12.88" 304SS, EPOXY WHITE FINISH
3	2		HOFFMAN		HOLE SEAL, 2.50", 300 SERIES WEATHER-PROOF, EPOXY WHITE FINISH
4	5				POWER DISTRIBUTION BLK, 1 POLE 175A, 600VAC, PRIM 1 CONN 8-2/0 CU SEC. 1 CONN 8-2/0 CU

NOTE: FOR USE WITH THE FOLLOWING "ME" PACKAGES ONLY:
 - DUP, 3PH/480VAC/4-11HP

GENERATOR TERMINATION PANEL (JB4)

REV. NO.	DESCRIPTION	DATE
1	REVISED TO REFLECT CURRENT COUNTY STANDARDS	3/2/20



NOTE
 FOR USE WITH THE FOLLOWING
 IN-FILL GRINDER "ME" PKGS ONLY
 3PH/480VAC/4-11HP

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

INFILL GRINDER
 PUMP STATION
 ELECTRICAL, CONTROL & INSTRUMENTATION
 GENERATOR TERMINATION BOX JB4 (SMALL)
 CABINET LAYOUT AND BILL OF MATERIAL

DATE: MARCH 2020	SCALE: HORIZONTAL	FILE NUMBER: E-5.0
PROJ. #	DRAWN	DRAWING NUMBER
DESIGNED	CHECKED	VERTICAL: NA
PROJ. MGR.	STATUS: REVISED	REVISION: 1