

No.	REVISIONS	DATE	BY
ADDENDUM #5 - REVISION TO REMOVE MOTOR OPERATED VALVE	5/26/20	TDT	

Kimley»Horn
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 655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
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KHA PROJECT
148400015
 DATE
6/26/19
 SCALE AS SHOWN
 DESIGNED BY TDT
 DRAWN BY JLH
 CHECKED BY TDT

Manatee County
SEWRF RECLAIMED PUMP BACK STATION
 MANATEE COUNTY
 FL DATE:

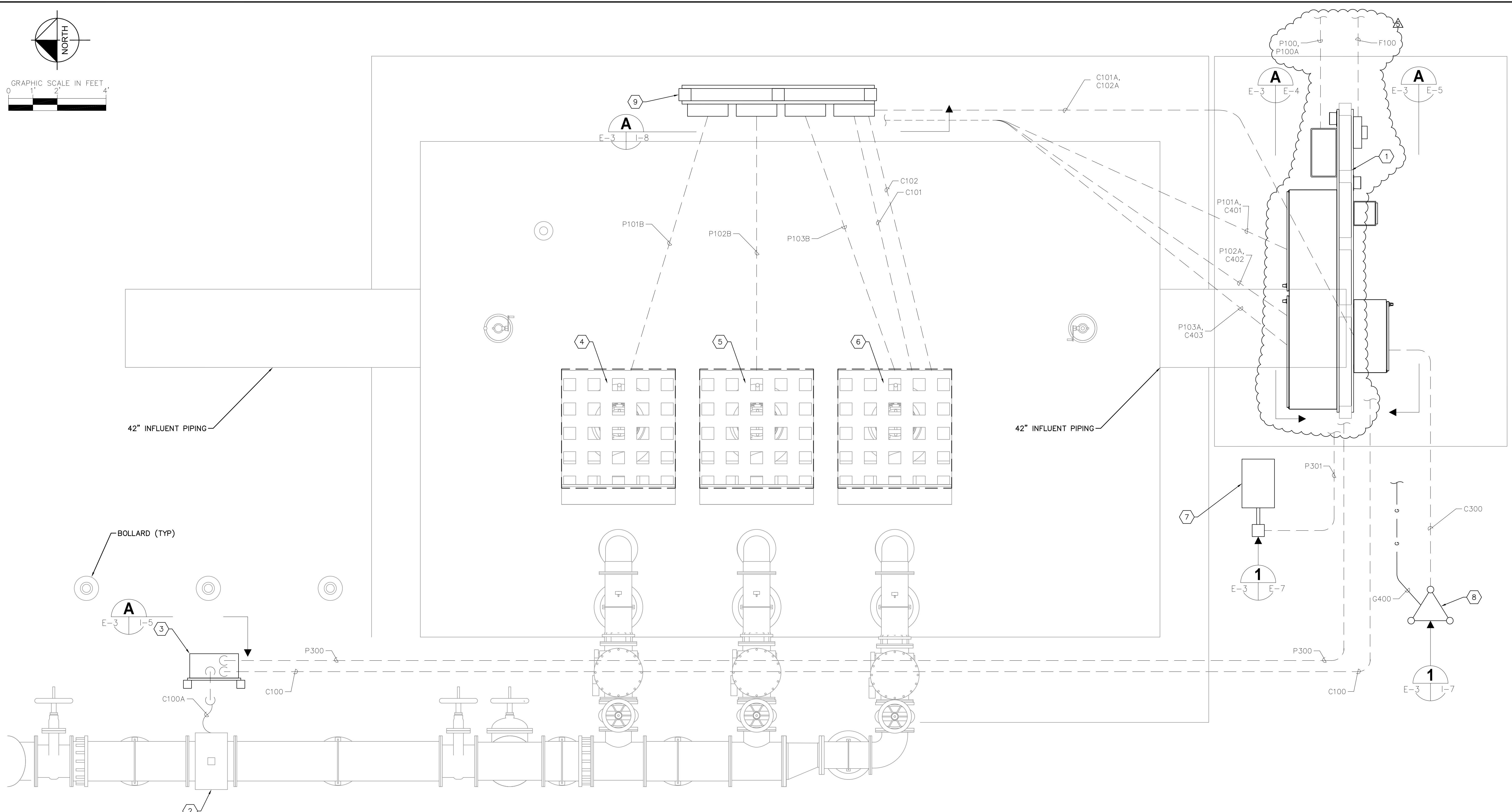
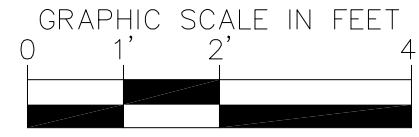
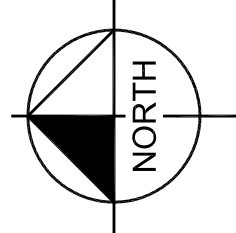
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 FL LICENSE NUMBER
47079

ELECTRICAL SITE PLAN

SHEET NUMBER
E-2

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KEY NOTES:

- 1 PROPOSED ELECTRICAL EQUIPMENT RACK FOR CENTRAL PUMP STATION. REFER TO ELEVATIONS ON SHEETS E-4 AND E-5.
- 2 PROPOSED FLOW METER ELEMENT.
- 3 PROPOSED FLOW METER TRANSMITTER EQUIPMENT RACK. REFER TO ELEVATION OF SHEET I-5 FOR DETAILS.
- 4 PROPOSED 480V, 3 ϕ , 85 HP PUMP No. 1.
- 5 PROPOSED 480V, 3 ϕ , 85 HP PUMP No. 2.
- 6 PROPOSED 480V, 3 ϕ , 85 HP PUMP No. 3.
- 7 PROPOSED AREA LIGHT. REFER TO DETAIL ON SHEET E-7.
- 8 PROPOSED RADIO ANTENNA AND TOWER. REFER TO DETAIL ON SHEET I-7.
- 9 PROPOSED JUNCTION BOX RACK. REFER TO ELEVATION ON SHEET I-8.

CENTRAL PUMP STATION ELECTRICAL LAYOUT 1
SCALE : 1" = 2'-0" E-2 E-3



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PUMP BACK STATION**

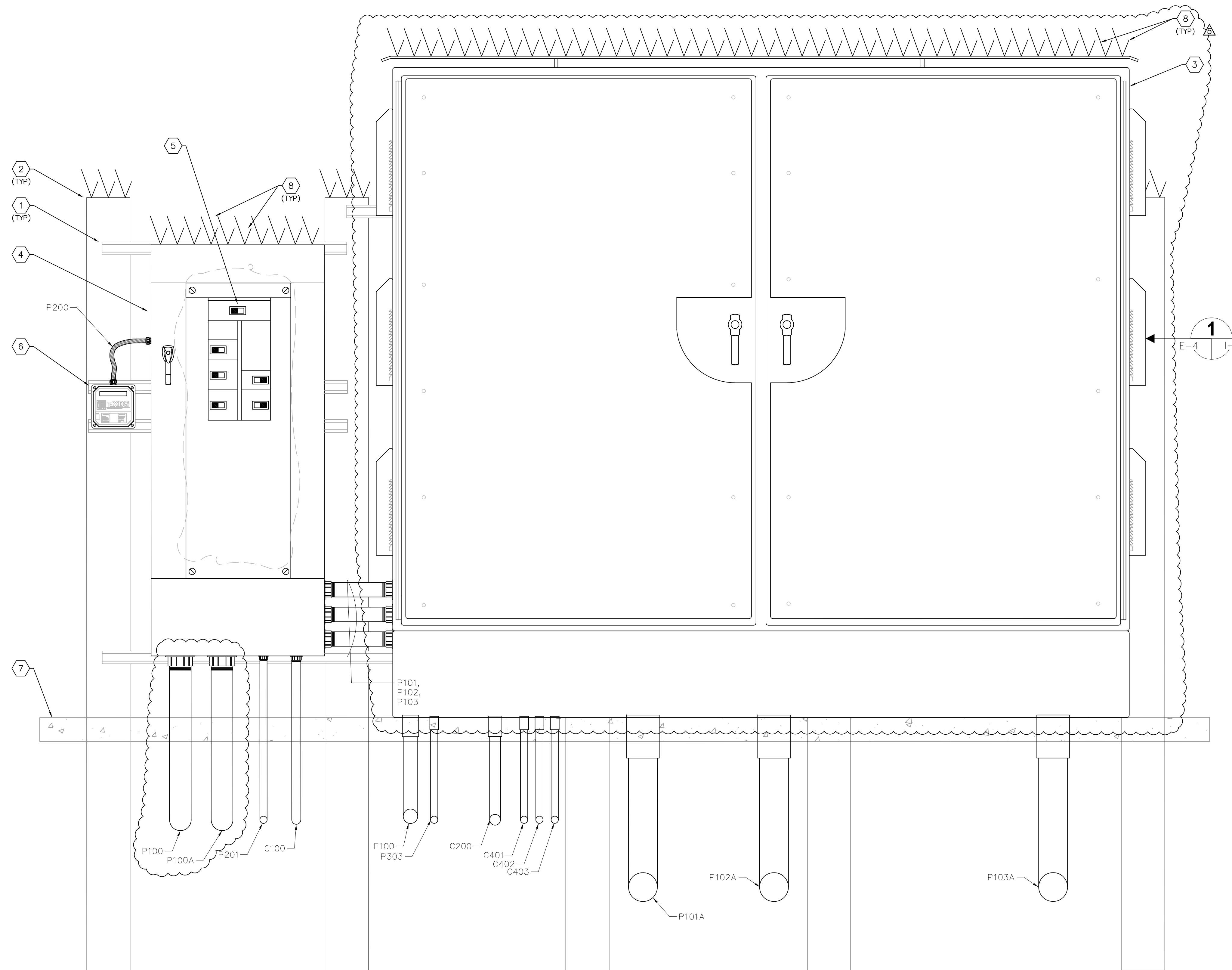
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**CENTRAL PUMP STATION
ELECTRICAL LAYOUT**

SHEET NUMBER
E-3

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- KEY NOTES:**
- 1 PROVIDE AND INSTALL 1-5/8" STAINLESS STEEL UNISTRUT (OR EQUAL) BOLTS TO SECURE UNISTRUT SHALL BE INSTALLED COMPLETELY THROUGH CONCRETE POST.
 - 2 PROVIDE AND INSTALL 6" X 6" CONCRETE POST. POST SHALL BE EMBEDDED A MINIMUM OF 3 FEET INTO CONCRETE SLAB/SOIL.
 - 3 PROVIDE AND INSTALL MOTOR CONTROL CABINET. REFER TO SHEET I-2 FOR DETAILS.
 - 4 PROVIDE AND INSTALL 600V, 600A, COPPER BUS, 3P, 4-WIRE MAIN DISTRIBUTION PANELBOARD 'MDP' WITH 600A MAIN CIRCUIT BREAKER (EATON PRL4 PANELBOARD WITH EATON CHKD3600T38W MAIN CIRCUIT BREAKER). PROVIDE IN NEMA 3R STAINLESS STEEL ENCLOSURE. PROVIDE MAINTENANCE MODE SWITCH IN DOOR OF PANELBOARD FOR MAIN CIRCUIT BREAKER MAINTENANCE MODE SELECTION.
 - 5 INTERIOR VIEW OF MAIN DISTRIBUTION PANELBOARD 'MDP'. PROVIDE MAIN CIRCUIT BREAKER AS INDICATED IN KEYED NOTE #4). PROVIDE THREE (3) 3-POLE, 600V, 350A CIRCUIT BREAKERS (ONE FOR EACH VFD), ONE (1) 3-POLE, 600V, 30A CIRCUIT BREAKER FOR MDP SURGE PROTECTION DEVICE AND ONE (1) 2-POLE, 600V, 20A CIRCUIT BREAKER FOR MINI-POWER ZONE FEEDER.
 - 6 PROVIDE AND INSTALL SURGE PROTECTION DEVICE (SPD). 480V, 3-PHASE, 4-WIRE WITH GROUND, ASCO CAT# 430277YP20ACJ10. PROVIDE AND INSTALL 3-#10 + 1-#10 NEUTRAL + 1-#10 GND IN 3/4" NON-METALLIC, WEATHERPROOF FLEXIBLE CONDUIT TO MAIN DISTRIBUTION PANELBOARD 'MDP'.
 - 7 PROPOSED CONCRETE SLAB. REFER TO STRUCTURAL DRAWINGS.
 - 8 PROVIDE AND INSTALL STAINLESS STEEL BIRD SPIKES (FOR PIGEONS OR LARGER BIRDS) TO COVER TOP OF ENCLOSURE. INSTALL BIRD SPIKES WITH NON-SILICONE BASED ADHESIVE FOR OUTDOOR CONSTRUCTION OR PER MANUFACTURER'S SPECIFICATIONS.

CENTRAL PUMP STATION ELECTRICAL RACK (FRONT ELEVATION)
 SCALE : NOT TO SCALE



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5	ADDENDUM #5 - PUMP MOTOR REVISIONS	5/26/20	TDT

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Manatee County

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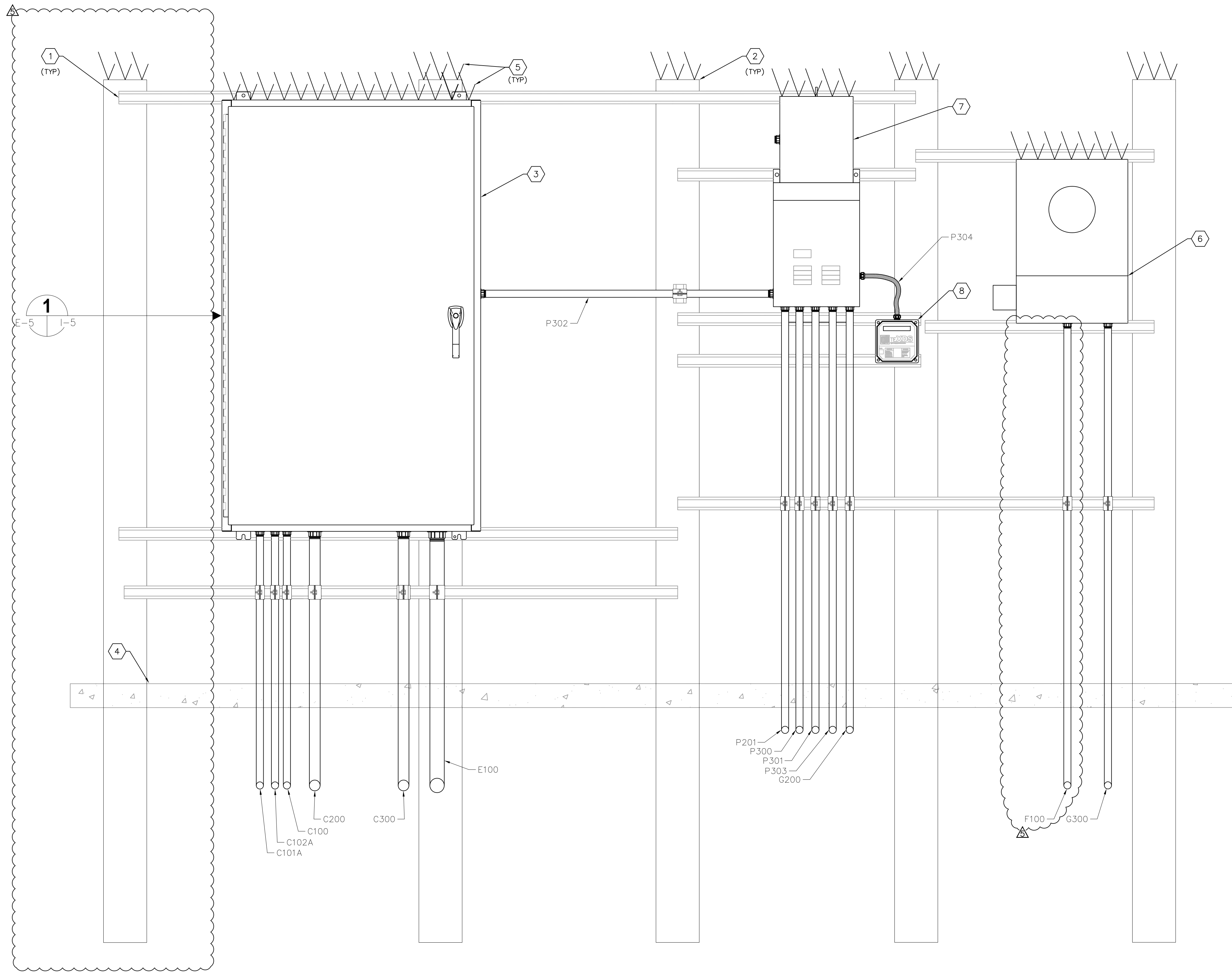
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CENTRAL PUMP STATION ELECTRICAL EQUIPMENT RACK LAYOUTS

SHEET NUMBER	E-4
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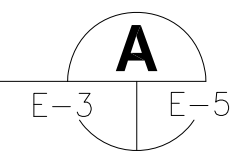
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 - 2 PROVIDE AND INSTALL 6" X 6" CONCRETE POST. POST SHALL BE EMBEDDED A MINIMUM OF 3 FEET INTO CONCRETE SLAB/SOIL.
 - 3 PROVIDE AND INSTALL PUMP CONTROL PANEL. REFER TO SPECIFICATIONS AND DETAILS ON SHEET 1-5.
 - 4 PROPOSED CONCRETE SLAB. REFER TO STRUCTURAL DRAWINGS.
 - 5 PROVIDE AND INSTALL STAINLESS STEEL BIRD SPIKES (FOR PIGEONS OR LARGER BIRDS) TO COVER TOP OF ENCLOSURE. INSTALL BIRD SPIKES WITH NON-SILICONE BASED ADHESIVE FOR OUTDOOR CONSTRUCTION OR PER MANUFACTURER'S SPECIFICATIONS.
 - 6 PROVIDE AND INSTALL FP&L APPROVED CT METER SOCKET, GROUND METER PER FP&L REQUIREMENTS. COORDINATE ALL REQUIREMENTS WITH FP&L CONTRACTOR TO VERIFY FEED-THRU VERSUS C.T. METER WITH FP&L. IF FP&L REQUIRES METER TO BE VIA FEED-THROUGH METER, THE CONTRACTOR SHALL PROVIDE A 600V, 600A, NON-FUSED DISCONNECTING MEANS AHEAD OF THE METER. THE CONTRACTOR'S BID PRICE SHALL INCLUDE THE COST OF THE FP&L DISCONNECTING MEANS. PROVIDE METER FOR LIGHTNING SURGE PROTECTION PER FP&L REQUIREMENTS.
 - 7 PROVIDE AND INSTALL NEW 480-120/240V, 1Ø, 10KVA MINI POWER ZONE 'LP' IN NEMA 3R, 316 STAINLESS STEEL ENCLOSURE, SQUARE-D MPZ10S40FSS. REFER TO SHEET E-7 FOR PANEL SCHEDULE.
 - 8 PROVIDE AND INSTALL SURGE PROTECTION DEVICE (SPD), 120/240V, SINGLE-PHASE, 3-WIRE WITH GROUND, ASCO CAT# 430120SP10ACJ10. PROVIDE AND INSTALL 2-#10 + 1-#10 NEUTRAL +1-#10 GND IN 3/4" NON-METALLIC, WEATHERPROOF FLEXIBLE CONDUIT TO MINI POWER ZONE 'LP'.

CENTRAL PUMP STATION ELECTRICAL RACK (BACK ELEVATION)

SCALE : NOT TO SCALE



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Manatee County

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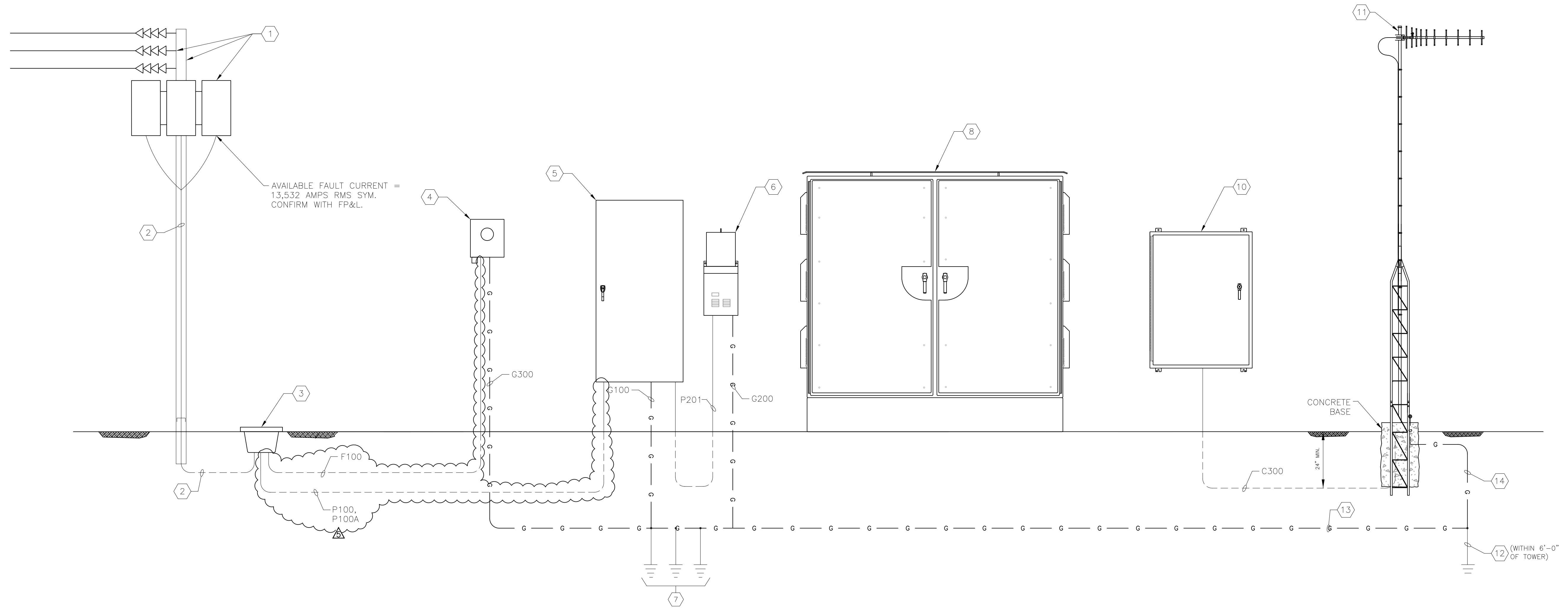
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CENTRAL PUMP STATION ELECTRICAL EQUIPMENT RACK LAYOUTS

SHEET NUMBER	E-5
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CENTRAL PUMP STATION ELECTRICAL ONE-LINE DIAGRAM

KEYED NOTES:

- 1 NEW 15KV DISTRIBUTION POLE, DISTRIBUTION TRANSFORMERS AND 15KV OVERHEAD DISTRIBUTION BY FP&L.
- 2 CONDUIT AND CONDUCTORS BY FP&L.
- 3 PROVIDE AND INSTALL NEW HANDHOLE. COORDINATE REQUIREMENTS WITH FP&L.
- 4 PROVIDE AND INSTALL FP&L APPROVED CT METER SOCKET. GROUND METER PER FP&L REQUIREMENTS. COORDINATE ALL REQUIREMENTS WITH FP&L. CONTRACTOR TO VERIFY FEED-THRU VERSUS C.T. METER WITH FP&L. IF FP&L REQUIRES MEETING TO BE VIA FEED-THROUGH METER, THE CONTRACTOR SHALL PROVIDE A 600V, 600A, NON-FUSED DISCONNECTING MEANS AHEAD OF THE METER. THE CONTRACTOR'S BID PRICE SHALL INCLUDE THE COST OF THE FP&L DISCONNECTING MEANS. PROVIDE METER FOR LIGHTNING SURGE PROTECTION PER FP&L REQUIREMENTS.
- 5 PROVIDE AND INSTALL 600V, 600A, 3 ϕ , 4-WIRE MAIN DISTRIBUTION PANELBOARD 'MDP' WITH 600A MAIN CIRCUIT BREAKER IN NEMA 3R STAINLESS STEEL ENCLOSURE.
- 6 480-120/240V, 1 ϕ , 10KVA MINI POWER ZONE 'LP' IN NEMA 3R, 316 STAINLESS STEEL ENCLOSURE. SQUARE-D MPZ10S40FSS.
- 7 PROVIDE AND INSTALL THREE (3) 5/8" X 20'-0" COPPER CLAD GROUND RODS. SPACE GROUND RODS A MINIMUM OF 10'-0" APART. BOND GROUND RODS TOGETHER WITH 2/0 BARE COPPER GROUNDING ELECTRODE CONDUCTORS. ALL CONNECTIONS SHALL BE VIA EXOTHERMIC WELDS.
- 8 MOTOR CONTROL CABINET. REFER TO SHEET I-2 FOR DETAILS.
- 10 PUMP CONTROL PANEL. REFER TO SHEET I-5 FOR DETAILS.
- 11 NEW RADIO ANTENNA AND ASSOCIATED TOWER.
- 12 PROVIDE AND INSTALL ONE (1) 5/8" X 20'-0" COPPER CLAD GROUND ROD ADJACENT TO RADIO TOWER.
- 13 PROVIDE AND INSTALL BARE 1/0 AWG COPPER GROUNDING ELECTRODE CONDUCTOR IN 1" CONDUIT FROM RADIO TOWER TO GROUNDING ELECTRODE GRID (REFER TO KEYED NOTE #7). G400.

GENERAL NOTES:

- 1. NOT ALL CONDUITS AND CONDUCTORS SHOWN FOR CLARITY. REFER ALSO TO OTHER ELECTRICAL SHEETS.
- 2. TOWER & FOUNDATION SHALL BE DESIGNED FOR 130 MPH WINDSPEED.
- 3. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR TOWER AND TOWER FOUNDATION. SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA.
- 4. ALL GROUNDING ELECTRODE CONDUCTOR CONNECTIONS MADE OUTSIDE OF EQUIPMENT SHALL BE VIA EXOTHERMIC WELDS.



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 PUMP BACK STATION**

MANATEE COUNTY

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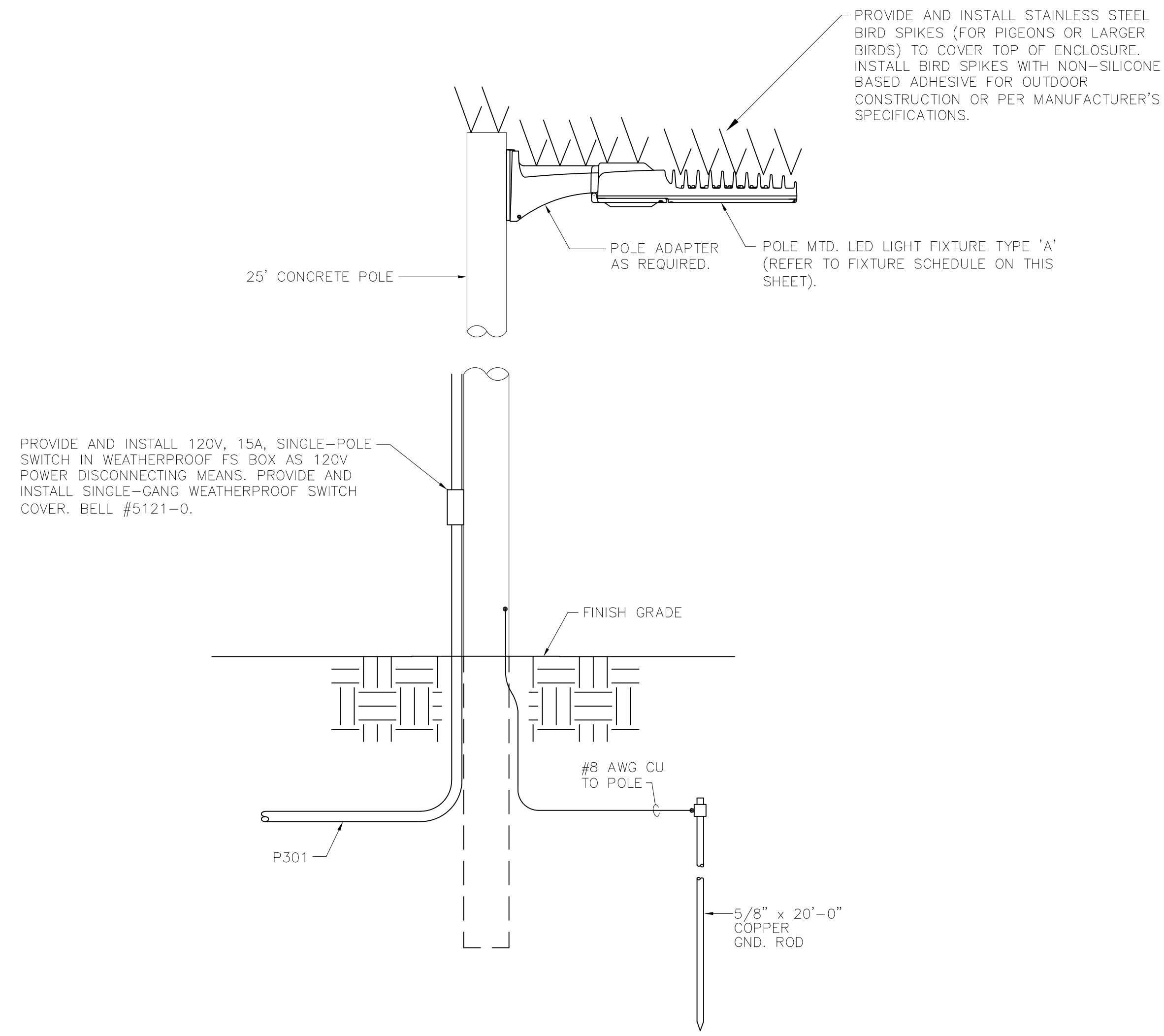
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**CENTRAL PUMP STATION
 ELECTRICAL
 ONE-LINE DIAGRAM**

SHEET NUMBER

E-6

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AREA LIGHT DETAIL **1**
SCALE : NOT TO SCALE E-3 | E-7

ELECTRICAL SERVICE LOAD SUMMARY

480 VAC, 3Ø, 4W

LOAD	CONNECTED	DEMAND	APPROX. PHASE CURRENTS		
			L1	L2	L3
PUMP No. 1	172.0 A	172.0 A	172.0 A	172.0 A	172.0 A
PUMP No. 2	172.0 A	172.0 A	172.0 A	172.0 A	172.0 A
PUMP No. 3	172.0 A	0.0 A	172.0 A	172.0 A	172.0 A
MINI POWER ZONE 'LP'	21.0 A	10.0 A	21.0 A	21.0 A	0.0 A
TOTALS	537.0 A	354.0 A	537.0 A	537.0 A	516.0 A

DEMAND LOAD IS BASED ON A MAXIMUM OF TWO (2) PUMPS RUNNING CONCURRENTLY. THE NEW ELECTRICAL SERVICE WILL CONSIST OF A 480V, 600 AMPERE FEEDER PROTECTED BY A 600A MAIN CIRCUIT BREAKER.

MAIN DISTRIBUTION PANELBOARD 'MDP' CIRCUIT BREAKER SCHEDULE

BREAKER	POLES	AMPERAGE	VOLTAGE	AIC RATING	SERVICE
A	3P	350A	600V	35K	PUMP No. 1 VFD
B	3P	350A	600V	35K	PUMP No. 2 VFD
C	3P	350A	600V	35K	PUMP No. 3 VFD
D	2P	20A	600V	35K	MINI POWER ZONE 'LP'
E	3P	30A	600V	35K	SURGE PROTECTION DEVICE (SPD)

PROPOSED PANEL SCHEDULE

EQUIPMENT SERVED	CIRCUIT BREAKER		KVA/PHASE		CIRC. NO.		KVA/PHASE		CIRCUIT BREAKER		EQUIPMENT SERVED	
	POLE	AMPS	A	B	1	2	A	B	POLE	AMPS		
PUMP CONTROL PANEL	1	20	QOB	0.8	1	2	0.2	0.2	1	20	QOB	AREA LIGHT
PUMP CONTROL PANEL	1	20	QOB	0.8	3	4	0.2	0.2	1	20	QOB	MOTOR CONTROL CABINET
MOTOR CONTROL CABINET	1	20	QOB	0.4	5	6	0.2	0.2	1	20	QOB	MOTOR CONTROL CABINET
SURGE PROTECTION DEVICE (SPD)	2	30	QOB		7	8	0.2	0.2	1	20	QOB	MOTOR CONTROL CABINET
" "	-	-	-		9	10	0.2	0.2	1	20	QOB	FLOW METER TRANSMITTER
SUB-TOTAL KVA				1.2	0.8			0.4	0.6			
TOTAL CONNECTED LOAD = 3.0 KVA						TOTAL DEMAND LOAD = 2.6 KVA						

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	CATALOG NUMBER	LAMP(S)	VOLTS	MOUNTING	REMARKS
A	GENERAL ELECTRIC	EASCOE2F550ADKBZ	(1) 119 W LED	120/277	POLE	LED AREA LIGHT



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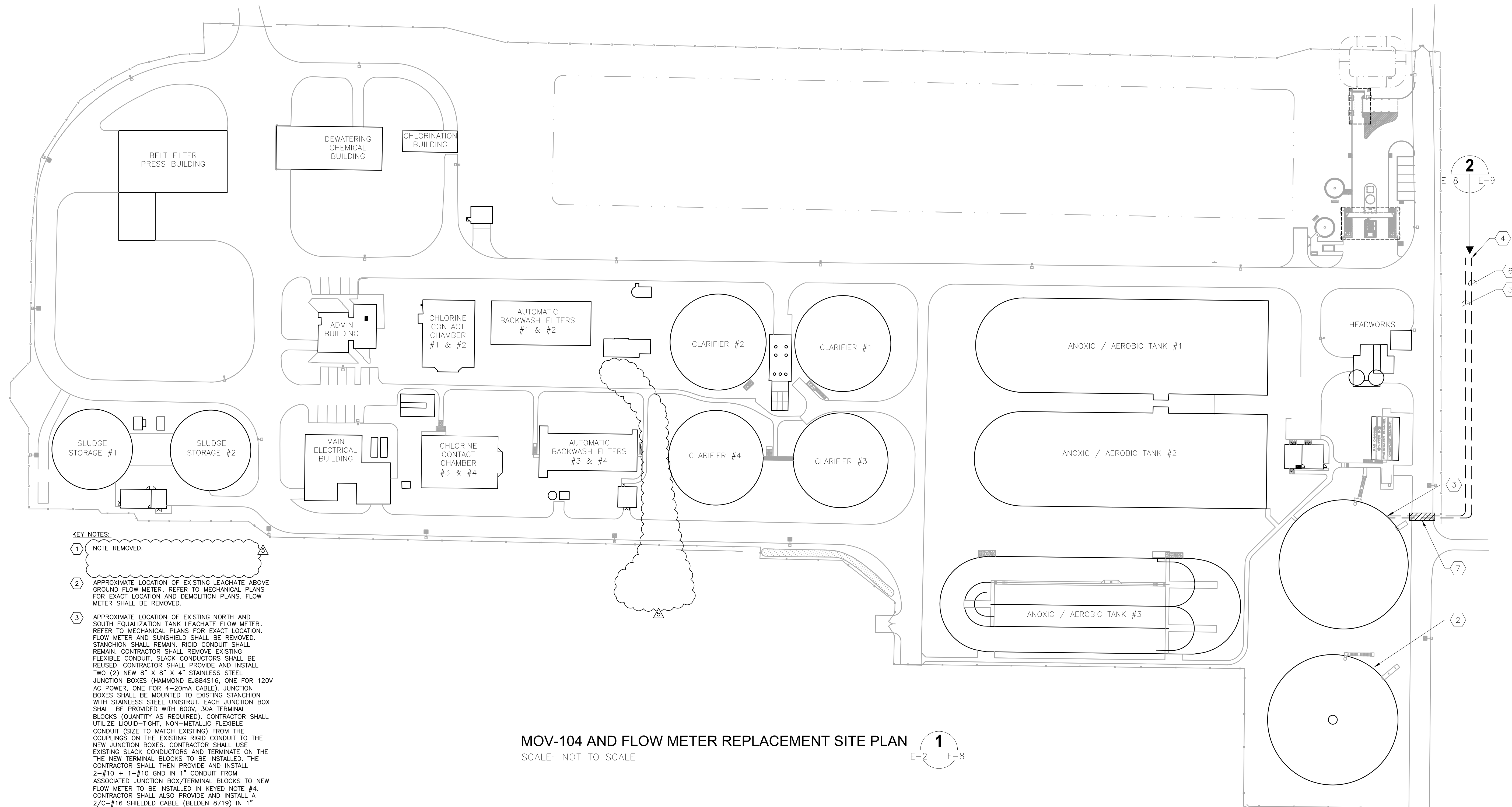
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**ELECTRICAL DETAILS
AND PANEL SCHEDULE**

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KEY NOTES:

- 1 NOTE REMOVED.
- 2 APPROXIMATE LOCATION OF EXISTING LEACHATE ABOVE GROUND FLOW METER. REFER TO MECHANICAL PLANS FOR EXACT LOCATION AND DEMOLITION PLANS. FLOW METER SHALL BE REMOVED.
- 3 APPROXIMATE LOCATION OF EXISTING NORTH AND SOUTH EQUALIZATION TANK LEACHATE FLOW METER. REFER TO MECHANICAL PLANS FOR EXACT LOCATION. FLOW METER AND SUNSHIELD SHALL BE REMOVED. STANCHION SHALL REMAIN. RIGID CONDUIT SHALL REMAIN. CONTRACTOR SHALL REMOVE EXISTING FLEXIBLE CONDUIT, SLACK CONDUCTORS SHALL BE REUSED. CONTRACTOR SHALL PROVIDE AND INSTALL TWO (2) NEW 8" X 8" X 4" STAINLESS STEEL JUNCTION BOXES (HAMMOND EJ884S16, ONE FOR 120V AC POWER, ONE FOR 4-20mA CABLE). JUNCTION BOXES SHALL BE MOUNTED TO EXISTING STANCHION WITH STAINLESS STEEL UNISTRUT. EACH JUNCTION BOX SHALL BE PROVIDED WITH 800V, 30A TERMINAL BLOCKS (QUANTITY AS REQUIRED). CONTRACTOR SHALL UTILIZE LIQUID-TIGHT, NON-METALLIC FLEXIBLE CONDUIT (SIZE TO MATCH EXISTING) FROM THE COUPLINGS ON THE EXISTING RIGID CONDUIT TO THE NEW JUNCTION BOXES. CONTRACTOR SHALL USE EXISTING SLACK CONDUCTORS AND TERMINATE ON THE NEW TERMINAL BLOCKS TO BE INSTALLED. THE CONTRACTOR SHALL THEN PROVIDE AND INSTALL 2-#10 + 1-#10 GND IN 1" CONDUIT FROM ASSOCIATED JUNCTION BOX/TERMINAL BLOCKS TO NEW FLOW METER TO BE INSTALLED IN KEYED NOTE #4. CONTRACTOR SHALL ALSO PROVIDE AND INSTALL A 2/C-#16 SHIELDED CABLE (BELDEN 8719) IN 1" CONDUIT (4-20mA FLOW METER SIGNAL) FROM ASSOCIATED JUNCTION BOX/TERMINAL BLOCKS TO NEW FLOW METER TO BE INSTALLED IN KEYED NOTE #4.
- 4 NEW ABOVE GROUND FLOW METER ASSEMBLY. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION.
- 5 PROVIDE AND INSTALL 2-#10 + 1-#10 GND IN 1" CONDUIT FROM ASSOCIATED JUNCTION BOX/TERMINAL BLOCKS TO NEW FLOW METER FOR 120V AC POWER.
- 6 PROVIDE AND INSTALL A 2/C-#16 SHIELDED CABLE (BELDEN 8719) IN 1" CONDUIT FROM ASSOCIATED JUNCTION BOX/TERMINAL BLOCKS TO NEW FLOW METER.
- 7 CONTRACTOR SHALL CUT EXISTING ASPHALT PAVEMENT, INSTALL CONDUIT AND REPAIR PAVEMENT TO ORIGINAL CONDITION.

MOV-104 AND FLOW METER REPLACEMENT SITE PLAN
SCALE: NOT TO SCALE



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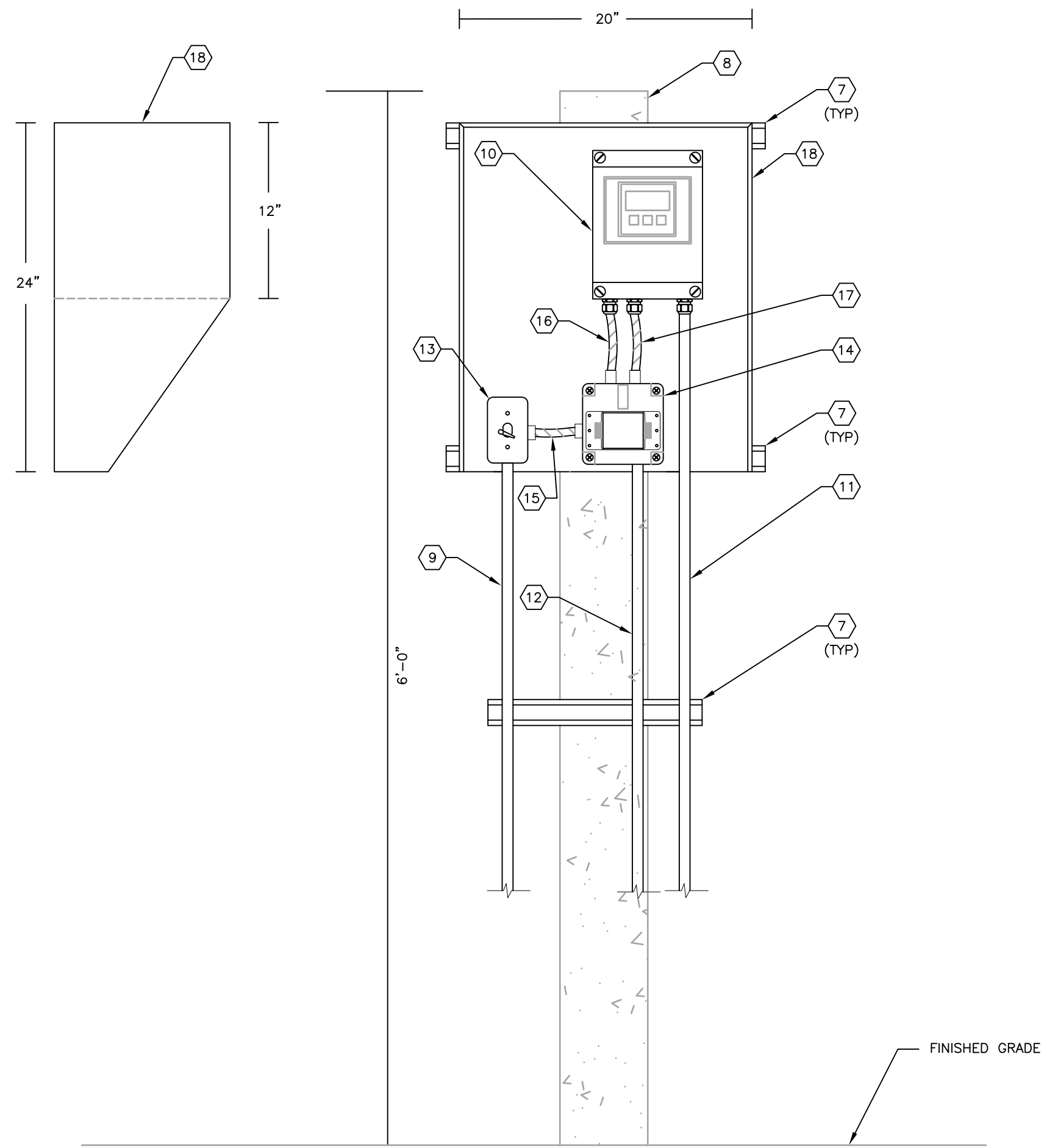
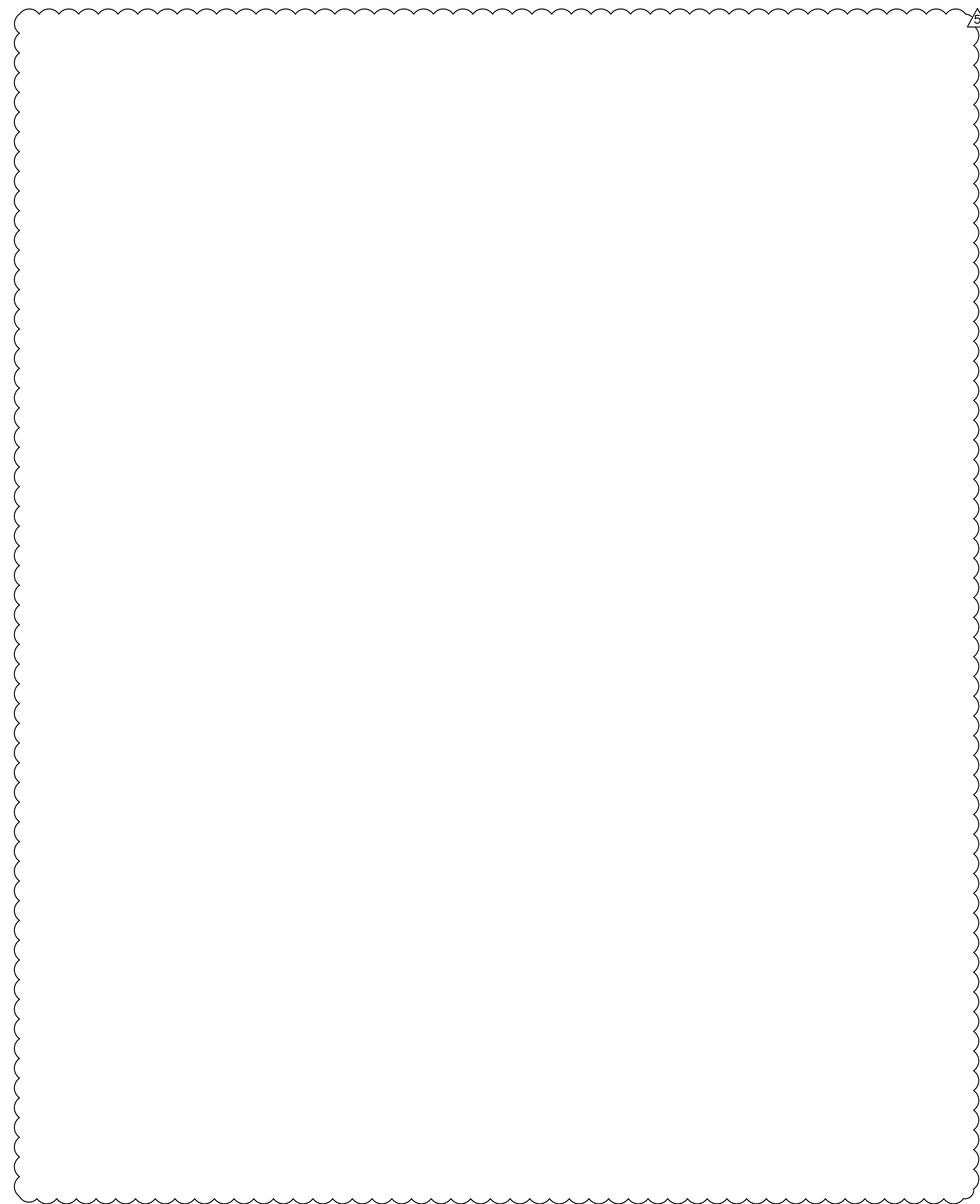
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FLOW METER REPLACEMENT SITE PLAN

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FLOW METER TRANSMITTER DETAIL 2
SCALE: NOT TO SCALE

KEY NOTES:

- 1 NOTE REMOVED.
- 2 NOTE REMOVED.
- 3 NOTE REMOVED.
- 4 NOTE REMOVED.
- 5 NOTE REMOVED.
- 6 NOTE REMOVED.
- 7 PROVIDE AND INSTALL 1-5/8" STAINLESS STEEL UNISTRUT (OR EQUAL), BOLTS TO SECURE UNISTRUT SHALL BE INSTALLED COMPLETELY THROUGH CONCRETE POST.
- 8 PROVIDE AND INSTALL 6" X 6" CONCRETE POST. POST SHALL BE EMBEDDED A MINIMUM OF 3 FEET INTO SOIL.
- 9 PROVIDE AND INSTALL 2-#10 + 1-#10 GND IN 1" CONDUIT TO NEW JUNCTION BOX INSTALLED FOR FLOW METER TRANSMITTER FOR 120V POWER. REFER TO KEYED NOTE #5 ON SHEET E-8.
- 10 PROVIDE AND INSTALL ENDRESS HAUSER MAG METER PROMAG W400 REMOTE TRANSMITTER. PROVIDE 1/4" ALUMINUM PLATE FOR MOUNTING.
- 11 PROVIDE AND INSTALL MANUFACTURER SUPPLIED SENSOR CABLES IN 1" CONDUIT. VERIFY CONDUIT SIZE WITH MANUFACTURER.
- 12 PROVIDE AND INSTALL 2/C-#16 SHIELDED (BELDEN 8719) IN 1" CONDUIT TO JUNCTION BOX INSTALLED FOR FLOW METER 4-20mA SIGNAL. REFER TO KEYED NOTE #6 ON SHEET E-8.
- 13 PROVIDE AND INSTALL 120V, 15A, SINGLE-POLE SWITCH IN WEATHERPROOF FS BOX AS 120V POWER DISCONNECTING MEANS. PROVIDE AND INSTALL SINGLE-GANG WEATHERPROOF SWITCH COVER. BELL #5121-0.
- 14 PROVIDE AND INSTALL EDCO - SLAC SERIES AC POWER/SIGNAL TVSS DEVICE IN NEMA 4X ENCLOSURE TO PROTECT 120V POWER CIRCUIT AND 4-20mA ANALOG OUTPUT SIGNAL.
- 15 PROVIDE AND INSTALL 2-#10 + 1-#10 GND IN 3/4" FLEXIBLE, SEALTITE CONDUIT FOR 120V POWER.
- 16 PROVIDE AND INSTALL 2-#10 + 1-#10 GND IN 3/4" FLEXIBLE, SEALTITE CONDUIT TO FLOW METER TRANSMITTER FOR 120V POWER.
- 17 PROVIDE AND INSTALL 2/C-#16 SHIELDED (BELDEN 8719) IN 3/4" FLEXIBLE, SEALTITE CONDUIT. (4-20mA FLOW METER SIGNAL).
- 18 PROVIDE AND INSTALL SUN-SHIELD, CONSTRUCTED FROM 1/8" ALUMINUM STOCK. PROVIDE FULL FILLET WELDS. 20" WIDE, 24" TALL.

GENERAL NOTES:


- 1. THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING CONTROL CONDUCTORS FOR MOV-104 (QUANTITY AND FUNCTION) PRIOR TO ORDERING EQUIPMENT OR SUBMITTING SHOP DRAWINGS. THE CONTRACTOR SHALL INSURE THE NEW MOTOR OPERATED VALVE PROVIDES THE SAME CONTROL FUNCTIONS AND MONITORING CAPABILITY AS THE EXISTING VALVE.
- 2. THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING POWER SUPPLY UTILIZED FOR THE FLOW METER BEING RELOCATED IS 120V AC PRIOR TO ORDERING EQUIPMENT OR SUBMITTING SHOP DRAWINGS.

No.	REVISIONS	DATE	BY
ADDENDUM #5 - REVISION TO REMOVE MOTOR OPERATED VALVE		5/26/20	TDT

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KHA PROJECT	148400015
DATE	6/26/19
SCALE	AS SHOWN
DESIGNED BY	TDT
DRAWN BY	JLH
CHECKED BY	TDT


**SEWRF RECLAIMED
PUMP BACK STATION**
MANATEE COUNTY

LICENSED PROFESSIONAL	TIMOTHY THOMAS, P.E.
FL LICENSE NUMBER	47079

ELECTRICAL DETAILS

SHEET NUMBER	E-9
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**TRICON
ENGINEERING**
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Certificate of Authorization No. 00031028

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CONDUIT AND CABLE SCHEDULE					
CONDUIT No.	QTY/SIZE	NUMBER OF CONDUCTORS/SIZE	FROM	TO	REMARKS
P100	4"	3-#350 + 1-#250 NEUTRAL	FP&L HANDHOLE	MAIN DISTRIBUTION PANELBOARD 'MDP'	
P100A	4"	3-#350 + 1-#250 NEUTRAL	FP&L HANDHOLE	MAIN DISTRIBUTION PANELBOARD 'MDP'	
P101	2"	3-4/0 + 1-#4 GND	MAIN DISTRIBUTION PANELBOARD 'MDP'	MOTOR CONTROL CABINET	PUMP No. 1 VFD FEEDER.
P101A	2"	3-4/0 + 1-#4 GND	MOTOR CONTROL CABINET	PUMP No. 1 JUNCTION BOX	
P101B	4"	PUMP CABLE BY MANUFACTURER	PUMP No. 1 JUNCTION BOX	PUMP No. 1	CABLE TO INCLUDE CONDUCTORS FOR PUMP LEAK AND TEMPERATURE SENSOR.
P102	2"	3-4/0 + 1-#4 GND	MAIN DISTRIBUTION PANELBOARD 'MDP'	MOTOR CONTROL CABINET	PUMP No. 2 VFD FEEDER.
P102A	2"	3-4/0 + 1-#4 GND	MOTOR CONTROL CABINET	PUMP No. 2 JUNCTION BOX	
P102B	4"	PUMP CABLE BY MANUFACTURER	PUMP No. 2 JUNCTION BOX	PUMP No. 2	CABLE TO INCLUDE CONDUCTORS FOR PUMP LEAK AND TEMPERATURE SENSOR.
P103	2"	3-4/0 + 1-#4 GND	MAIN DISTRIBUTION PANELBOARD 'MDP'	MOTOR CONTROL CABINET	PUMP No. 3 VFD FEEDER.
P103A	2"	3-4/0 + 1-#4 GND	MOTOR CONTROL CABINET	PUMP No. 3 JUNCTION BOX	
P103B	4"	PUMP CABLE BY MANUFACTURER	PUMP No. 3 JUNCTION BOX	PUMP No. 3	CABLE TO INCLUDE CONDUCTORS FOR PUMP LEAK AND TEMPERATURE SENSOR.
P200	1"	3-#10 + 1-#10 NEU + 1-#10 GND	MAIN DISTRIBUTION PANELBOARD 'MDP'	'MDP' SURGE PROTECTION DEVICE	PROVIDE NON-METALLIC WEATHERPROOF FLEXIBLE CONDUIT.
P201	1"	2-#10 + 1-#10 GND	MAIN DISTRIBUTION PANELBOARD 'MDP'	MINI POWER ZONE 'LP' TRANSFORMER	
P300	3/4"	2-#12 + 1-#12 GND	PANELBOARD 'LP'	FLOW METER TRANSMITTER	120V AC FLOW TRANSMITTER POWER. CIRCUIT LP-10.
P301	3/4"	2-#12 + 1-#12 GND	PANELBOARD 'LP'	AREA LIGHT	120V AC AREA LIGHT POWER. CIRCUIT LP-2.
P302	3/4"	2-#12 + 2-#12 NEU + 1-#12 GND	PANELBOARD 'LP'	PUMP CONTROL PANEL	120V AC PUMP CONTROL CABINET POWER. CIRCUITS LP-1 AND LP-3.
P303	1"	4-#12 + 4-#12 NEU + 1-#12 GND	PANELBOARD 'LP'	MOTOR CONTROL CABINET	120V AC POWER. CIRCUITS LP-4, LP-5, LP-6 AND LP-8.
P304	3/4"	2-#10 + 1-#10 NEU + 1-#10 GND	PANELBOARD ZONE 'LP'	'LP' SURGE PROTECTION DEVICE	PROVIDE NON-METALLIC WEATHERPROOF FLEXIBLE CONDUIT.
G100	1-1/4"	2/0 BARE COPPER	MAIN DISTRIBUTION PANELBOARD 'MDP'	GROUNDING ELECTRODE GRID	
G200	3/4"	#8 BARE COPPER	PANELBOARD 'LP'	GROUNDING ELECTRODE GRID	
G300	1"	#4 BARE COPPER	METER SOCKET	GROUNDING ELECTRODE GRID	
G400	1-1/4"	1/0 BARE COPPER	RADIO ANTENNA TOWER	GROUNDING ELECTRODE GRID	
C100	1"	2/C-#16 SHIELDED CABLE	PUMP CONTROL CABINET	FLOW METER TRANSMITTER	FLOW METER 4-20mA SIGNAL. CABLE TO BE BELDEN 8719.
C100A	1"	SENSOR CABLE	FLOW METER ELEMENT	FLOW METER TRANSMITTER	FLOW METER ELEMENT SENSOR CABLE TO BE PROVIDED BY MANUFACTURER.
C101	2"	FIVE (5) 2/C-#14 + 1-#14 GND	WET WELL FLOAT SWITCHES	WET WELL JUNCTION BOX	CABLES TO BE PROVIDED BY FLOAT SWITCH MANUFACTURER.
C101A	2"	10-#14 + 1-#14 GND	WET WELL JUNCTION BOX	PUMP CONTROL PANEL	FLOAT SIGNALS.
C102	2"	LEVEL TRANSMITTER CABLE	WET WELL LEVEL TRANSDUCER	WET WELL JUNCTION BOX	CABLE TO BE PROVIDED BY LEVEL TRANSDUCER MANUFACTURER.
C102A	1"	2/C-#16 SHIELDED CABLE	WET WELL JUNCTION BOX	PUMP CONTROL CABINET	WET WELL LEVEL 4-20mA SIGNAL. CABLE TO BE BELDEN 8719.
C200	1"	20-#14 + 1-#14 GND	MOTOR CONTROL CABINET	PUMP CONTROL CABINET	VFD MINI CAS II AND NORMAL POWER MONITORING. CONDUCTOR COUNT INCLUDES SPARES.
C300	1-1/4"	COAXIAL CABLE	PUMP CONTROL PANEL	RADIO ANTENNA TOWER	
C401	3/4"	2-#14 + 1-#14 GND	PUMP No. 1 JUNCTION BOX	MOTOR CONTROL CABINET	MINI CAS II FROM PUMP No. 1.
C402	3/4"	2-#14 + 1-#14 GND	PUMP No. 2 JUNCTION BOX	MOTOR CONTROL CABINET	MINI CAS II FROM PUMP No. 2.
C403	3/4"	2-#14 + 1-#14 GND	PUMP No. 3 JUNCTION BOX	MOTOR CONTROL CABINET	MINI CAS II FROM PUMP No. 3.
E100	2"	ETHERNET CABLE	PUMP CONTROL CABINET	MOTOR CONTROL CABINET	VFD ETHERNET CONTROL
F100	1"	EMPTY	METER SOCKET	FP&L CT'S	COORDINATE CONDUIT SIZE AND ALL OTHER REQUIREMENTS WITH FP&L. PROVIDE PULL-STRING.

No.	REVISIONS	DATE	BY
ADDENDUM #5 - PUMP MOTOR REVISIONS		5/26/20	TDT

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KHA PROJECT 148400015
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PUMP BACK STATION**
MANATEE COUNTY

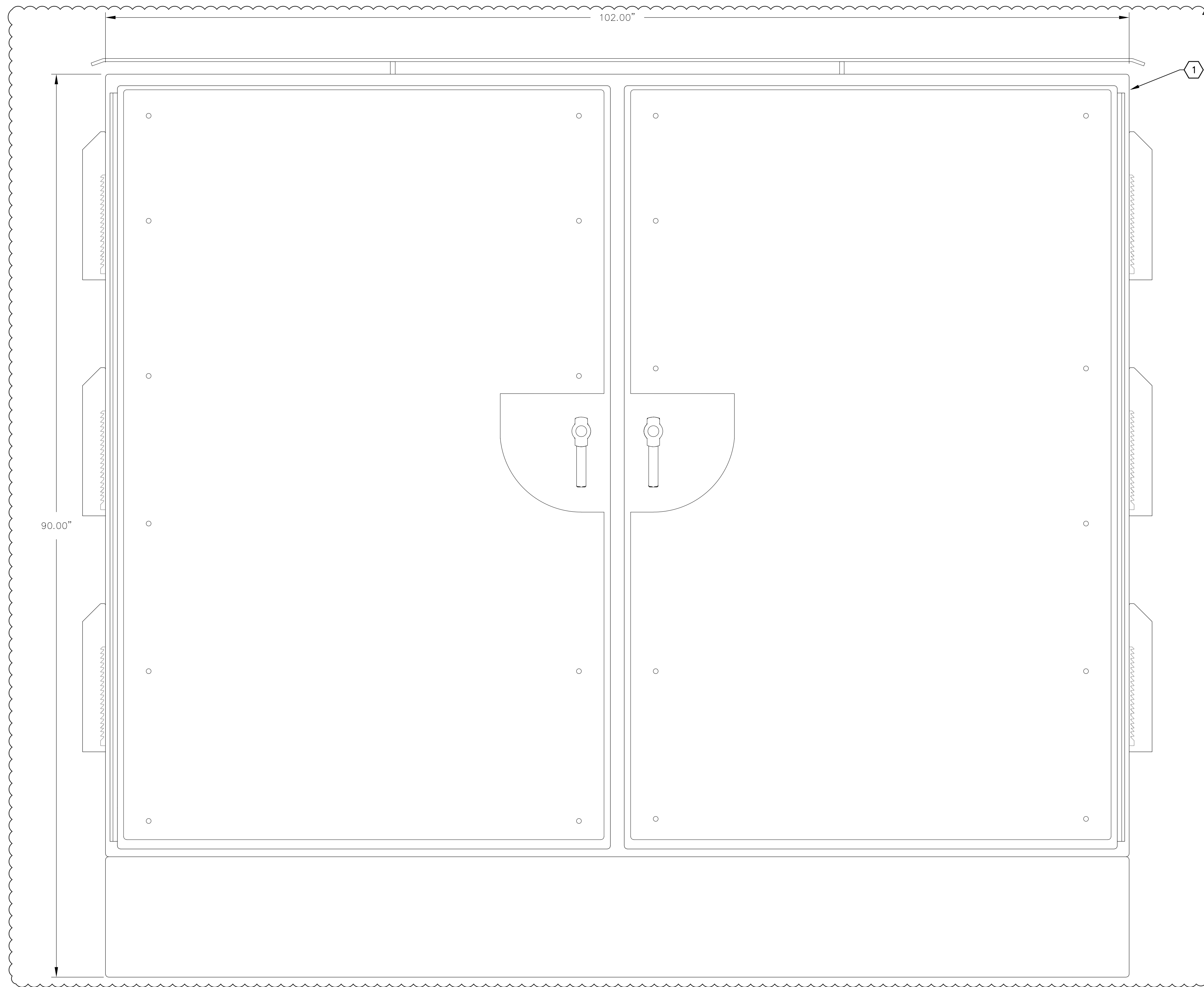
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FL LICENSE NUMBER 47079
FL DATE:

**CONDUIT AND CABLE
SCHEDULE**

SHEET NUMBER
E-10



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- GENERAL NOTES:**
1. REFER TO SHEET I-5 FOR BILL OF MATERIALS.
 2. PROVIDE AND INSTALL ALL ASSOCIATED END BARRIERS, TERMINAL JUMPERS AND SPACERS AS REQUIRED FOR TERMINAL BLOCKS AS SHOWN OR REQUIRED.
 3. PROVIDE AND INSTALL 35mm ALUMINUM DIN RAIL. QUANTITY AS REQUIRED.
 4. PROVIDE AND INSTALL CORROSION INHIBITOR, HOFFMAN # AHCI10E.
 5. PROVIDE AND INSTALL STAINLESS STEEL BIRD SPIKES (FOR PIGEONS OR LARGER BIRDS) TO COVER TOP OF ENCLOSURE. INSTALL BIRD SPIKES WITH NON-SILICONE BASED ADHESIVE FOR OUTDOOR CONSTRUCTION OR PER MANUFACTURER'S SPECIFICATIONS.

**MOTOR CONTROL CABINET
EXTERIOR ELEVATION** 1
E-4 | I-2



No.	REVISIONS	DATE	BY
1	ADDENDUM #5 - PUMP MOTOR REVISIONS	5/26/20	TDT

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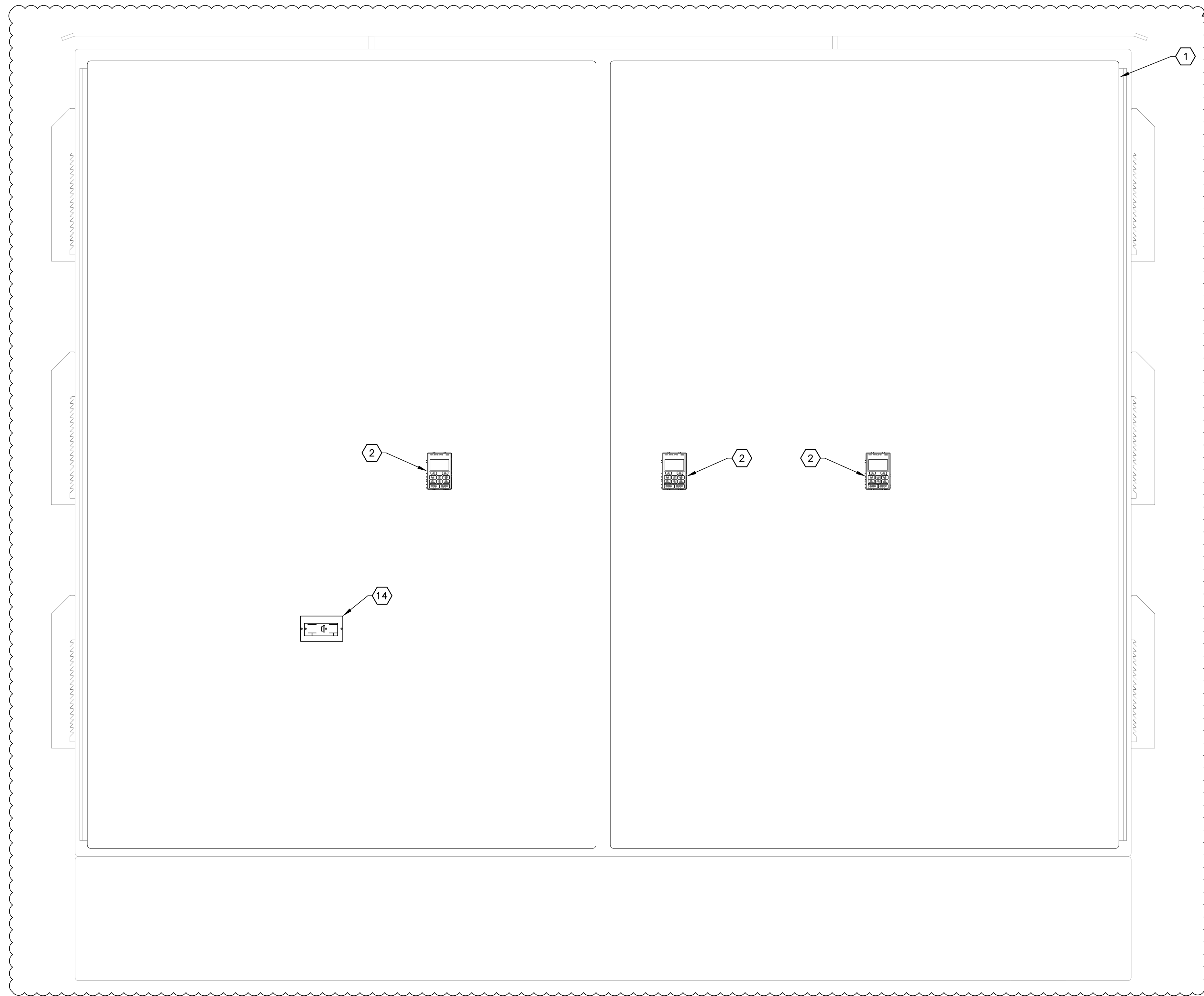
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FL LICENSE NUMBER 47079
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**MOTOR CONTROL CABINET
EXTERIOR ELEVATION**

SHEET NUMBER
I-2

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 3. PROVIDE AND INSTALL 35mm ALUMINUM DIN RAIL. QUANTITY AS REQUIRED.
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 5. PROVIDE AND INSTALL STAINLESS STEEL BIRD SPIKES (FOR PIGEONS OR LARGER BIRDS) TO COVER TOP OF ENCLOSURE. INSTALL BIRD SPIKES WITH NON-SILICONE BASED ADHESIVE FOR OUTDOOR CONSTRUCTION OR PER MANUFACTURER'S SPECIFICATIONS.

**MOTOR CONTROL CABINET
DEADFRONT ELEVATION 1**
SCALE: NOT TO SCALE E-4 I-3
(SHOWN WITH ENCLOSURE DOOR OPEN)



No.	REVISIONS	DATE	BY
1	ADDENDUM #5 - PUMP MOTOR REVISIONS	5/26/20	TDT

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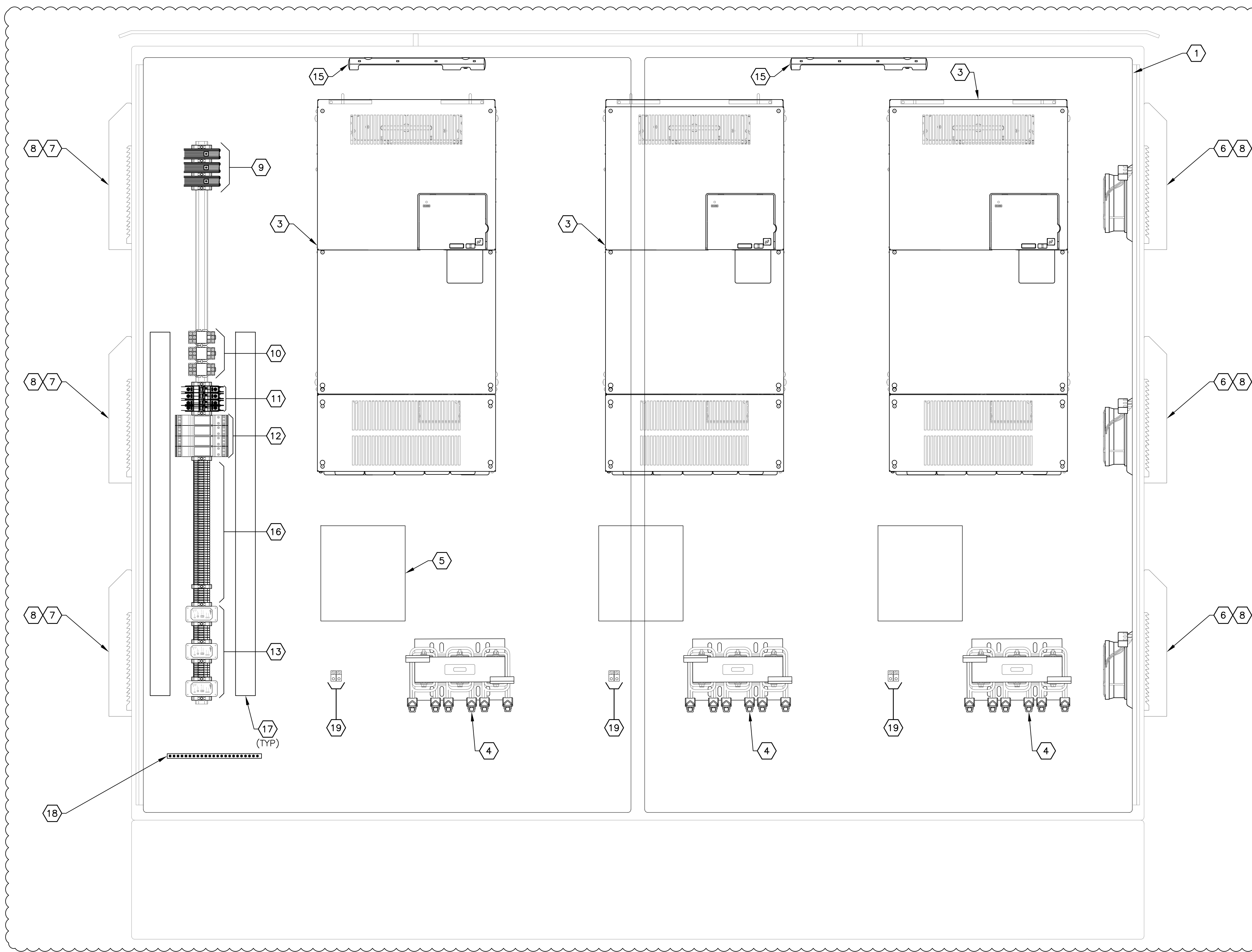
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**MOTOR CONTROL CABINET
DEADFRONT ELEVATION**

SHEET NUMBER
I-2A

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**MOTOR CONTROL CABINET
DEADFRONT ELEVATION 1**
SCALE: NOT TO SCALE E-4 I-4
(SHOWN WITH ENCLOSURE DOOR OPEN)



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MANATEE COUNTY FL

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**MOTOR CONTROL CABINET
DEADFRONT ELEVATION**

SHEET NUMBER
I-2B

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MOTOR CONTROL CABINET BILL OF MATERIALS					
NOTE #	QTY	DESCRIPTION	PART NUMBER	MANUFACTURER	NOTES
1	1	102" X 90" X 24", NEMA 4X, POWDER COATED WHITE	CUSTOM	CUSTOM	316 STAINLESS STEEL, POWDER COATED WHITE WITH HINGED AND DEADFRONT DOORS, HANDLES, PADLOCKABLE 3-POINT LATCHING, DOOR STOP KITS ALUMINUM BACKPANEL AND SUNSHIELDS.
2	3	DOOR KEYPAD MOUNTING KIT	UUX000527	YASKAWA	REMOVAL KEYPAD FOR VARIABLE FREQUENCY DRIVE CONTROL.
3	3	VARIABLE FREQUENCY DRIVE	CIMR-PW4A0208AFF	YASKAWA	480V, 208 AMP OUTPUT CAPACITY FOR 125 HP DRIVE. PROVIDE WITH ETHERNET IP CARD, YASKAWA PART # SI-EN3.
4	3	IEEE 519 COMPLIANT FILTER			SIZE AND PART NUMBER BY MOTOR CONTROL PANEL FABRICATOR.
5	3	MOTOR OUTPUT FILTER			SIZE AND PART NUMBER BY MOTOR CONTROL PANEL FABRICATOR.
6	3	CABINET FAN, UL TYPE 12	PF 67000-11667154055	PFANNENBERG	368 CFM, 115V, 50/60 HZ WITH FILTER.
7	3	CABINET EXHAUST FILTER	PFA 6000-11740004055	PFANNENBERG	
8	6	WASHDOWN SHROUD	PF-RH-60000-1818200020	PFANNENBERG	STAINLESS STEEL
9	3	CAT 6 SURGE PROTECTION DEVICE	#2858991	PHOENIX CONTACT	
10	3	FAN CONTROL RELAYS	CLASS 8501, TYPE R	SQUARE D	10A CONTACTS WITH 120V AC COILS.
11	4	POWER CIRCUIT BREAKERS	TYPE 1489M	ALLEN BRADLEY	120V, 5 AMPERE.
12	4	120V SURGE PROTECTION DEVICE	#2905228	PHOENIX CONTACT	
13	3	PUMP MOTOR SUPERVISORY RELAY	MINI CAS II	XYLEM	RELAYS TO BE PROVIDED BY PUMP MANUFACTURER.
14	1	DUPLEX GFI RECEPTACLE	GFR5352IA	HUBBELL	
15	2	120V AC LED CABINET LIGHT	LEDA1S35	HOFFMAN	120V AC LED FIXTURE WITH INTEGRAL ON/OFF SWITCH. PROVIDE CUSTOM BRACKET TO MOUNT FIXTURE TO PANEL.
16		TERMINAL BLOCKS	DN-T10B-A	AUTOMATION DIRECT	QUANTITY AS REQUIRED.
17		2" X 3" SLOTTED WIRING DUCT	G2X3LG6	PANDUIT	QUANTITY AS REQUIRED.
18	1	EQUIPMENT GROUND BAR SYSTEM	UGB2/0-414-18	PANDUIT	PROVIDE BONDING STANDOFFS (PANDUIT UGB-B-S0).
19	3	GROUNDING LUGS			PROVIDE GROUNDING LUGS AS REQUIRED FOR PUMP MOTOR CABLE GROUNDING.



No.	REVISIONS	DATE	BY
1	ADDENDUM #5 - PUMP MOTOR REVISIONS	5/26/20	TDT

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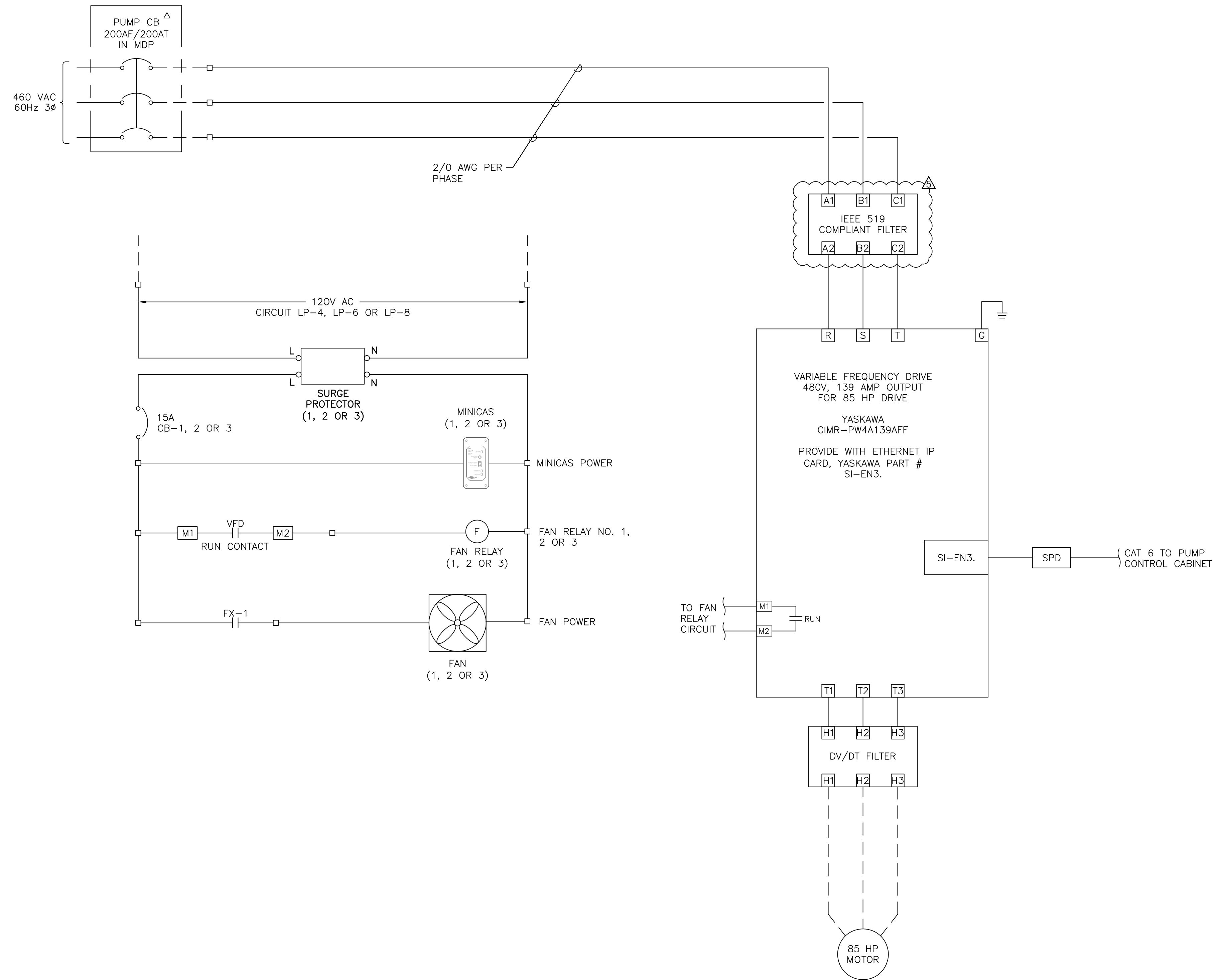
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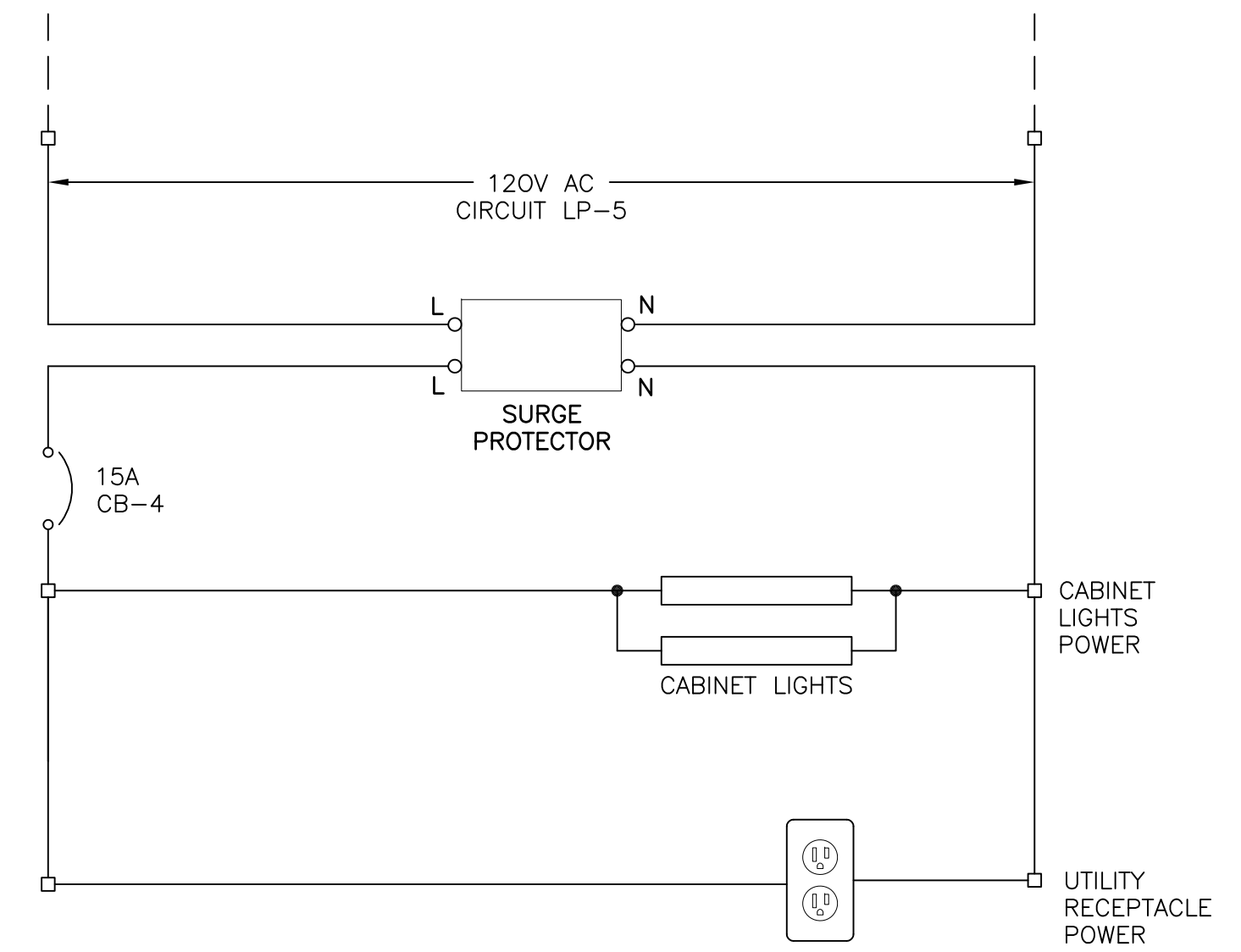
MOTOR CONTROL CABINET BILL OF MATERIALS

SHEET NUMBER
I-3

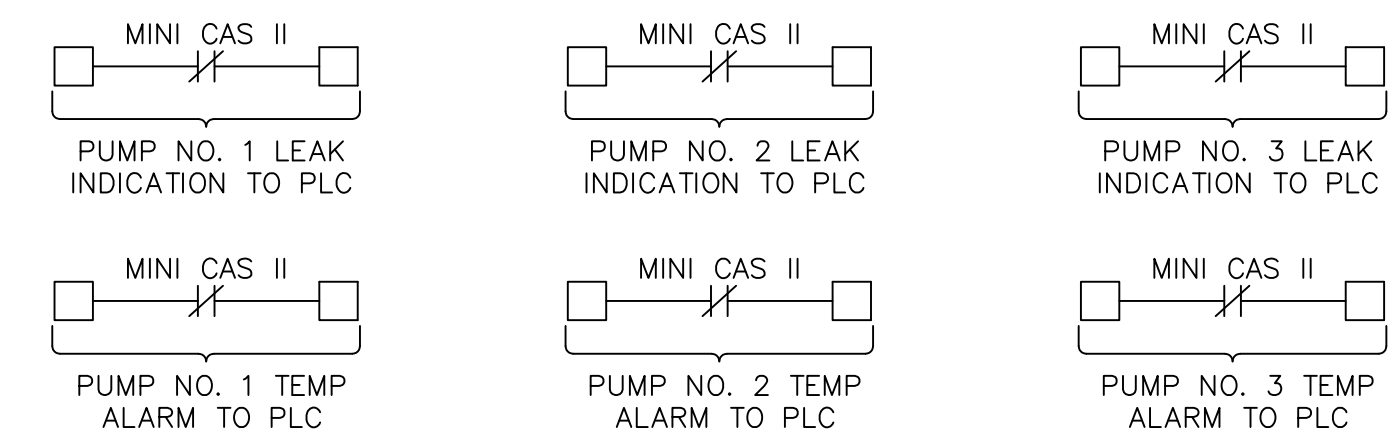
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TYPICAL VFD WIRING SCHEMATIC



UTILITY POWER WIRING SCHEMATIC



MINI CAS II OUTPUTS TO PLC



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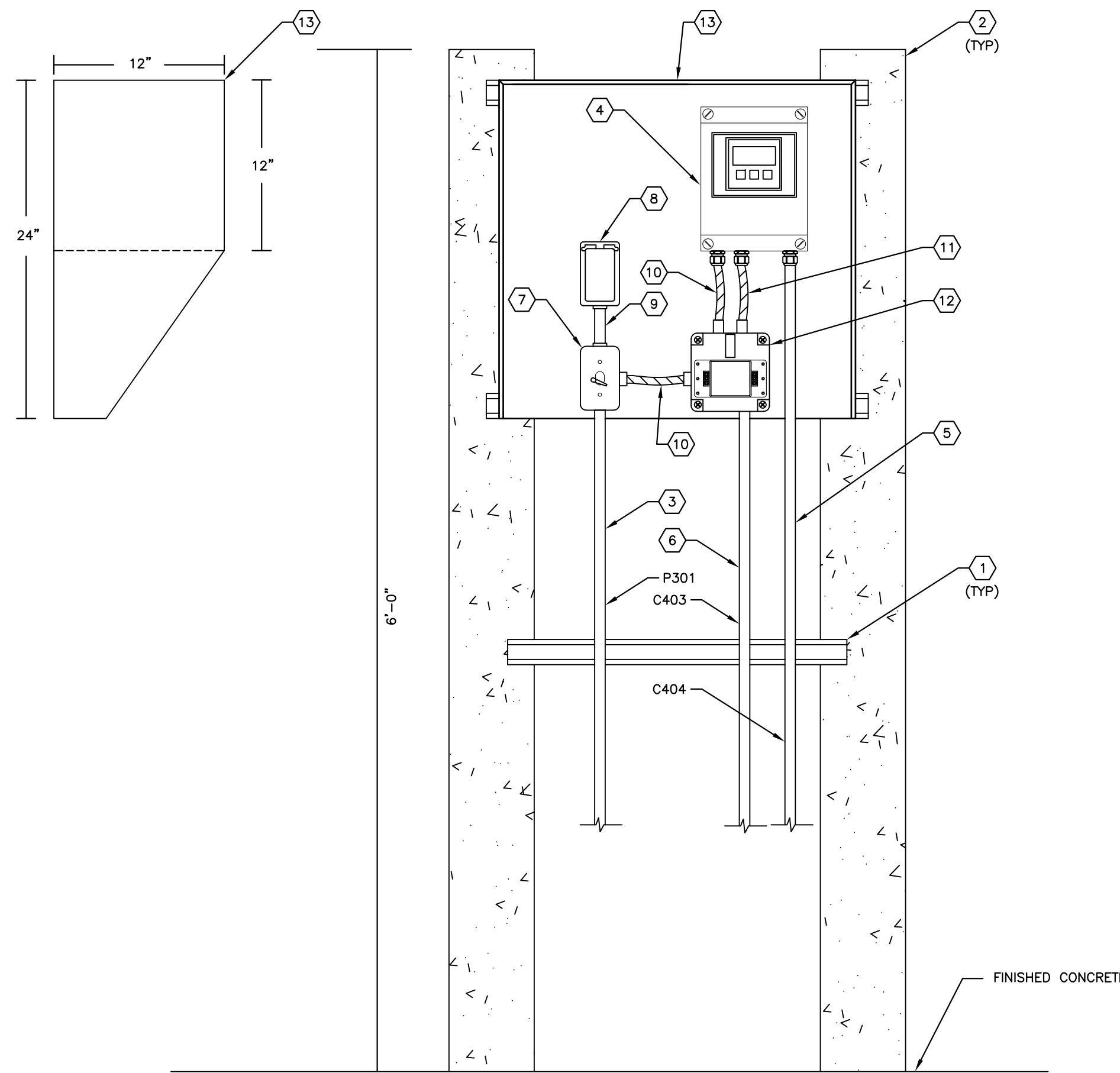
TYPICAL VFD
WIRING SCHEMATIC

SHEET NUMBER

I-4

No.	REVISIONS	DATE	BY
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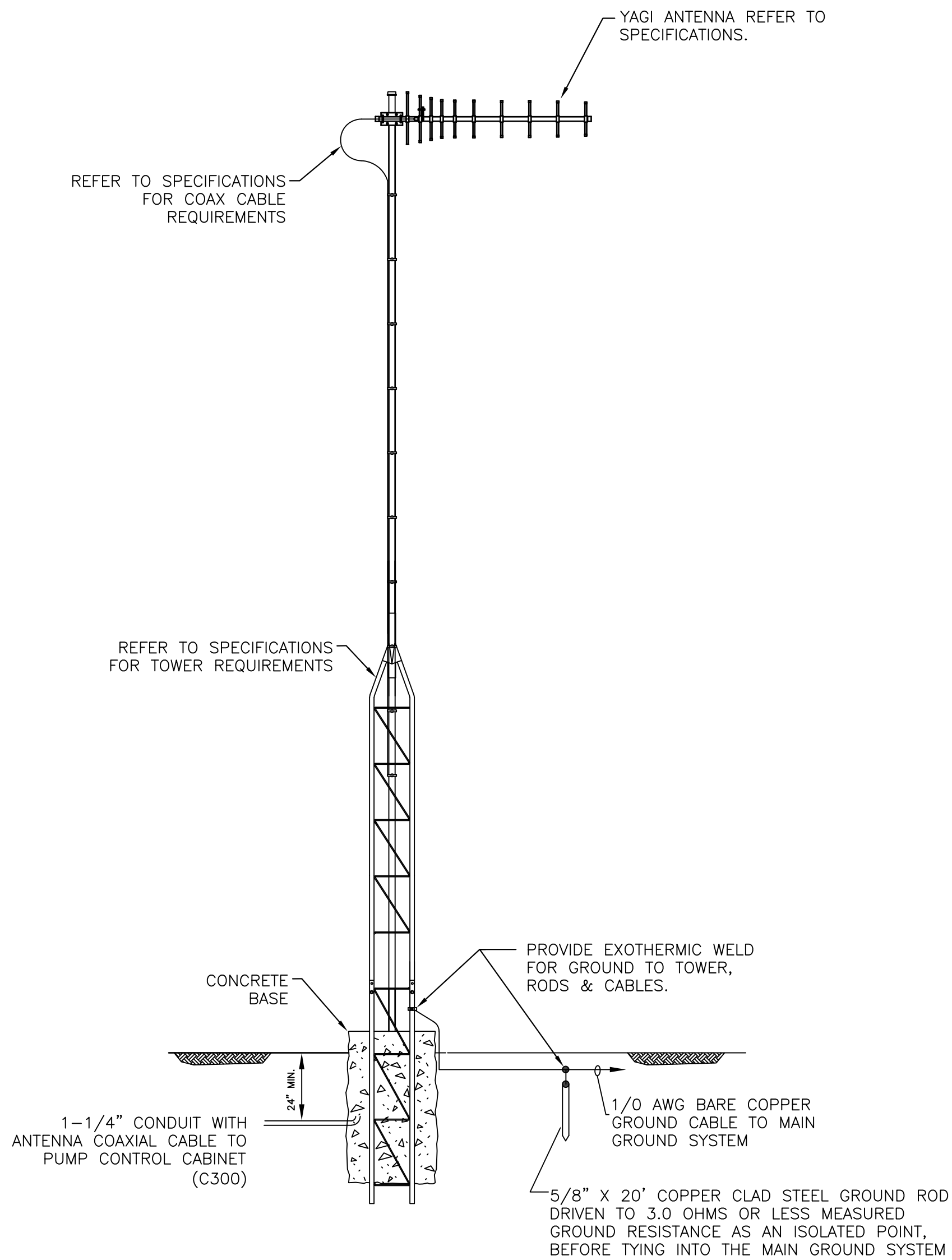
FLOW TRANSMITTER RACK ELEVATION **A**
SCALE : NOT TO SCALE

KEY NOTES:

- 1 PROVIDE AND INSTALL 1-5/8" STAINLESS STEEL UNISTRUT (OR EQUAL). BOLTS TO SECURE UNISTRUT SHALL BE INSTALLED COMPLETELY THROUGH CONCRETE POST.
- 2 PROVIDE AND INSTALL 6" X 6" CONCRETE POST. POST SHALL BE EMBEDDED A MINIMUM OF 3 FEET INTO CONCRETE SLAB/SOIL.
- 3 PROVIDE AND INSTALL 2-#12 THWN CU + 1-#12 THWN CU GND IN 3/4"C. FOR FLOW METER TRANSMITTER AND RECEPTACLE FOR 120V POWER, (P300).
- 4 PROVIDE AND INSTALL FLOW METER TRANSMITTER. REFER TO SPECIFICATIONS. PROVIDE 1/4" ALUMINUM PLATE FOR MOUNTING.
- 5 PROVIDE AND INSTALL MANUFACTURER SUPPLIED SENSOR CABLES IN 1"C. TO FIELD SENSORS, (C100A).
- 6 PROVIDE AND INSTALL 2/C-#16 SHIELDED (BELDEN 8719) IN 1"C. (4-20mA FLOW METER SIGNAL) TO DFS RTU, (C100).
- 7 PROVIDE AND INSTALL 120V, 15A, SINGLE-POLE SWITCH IN WEATHERPROOF FS BOX AS 120V POWER DISCONNECTING MEANS. PROVIDE AND INSTALL SINGLE-GANG WEATHERPROOF SWITCH COVER. BELL #5121-0.

KEY NOTES:

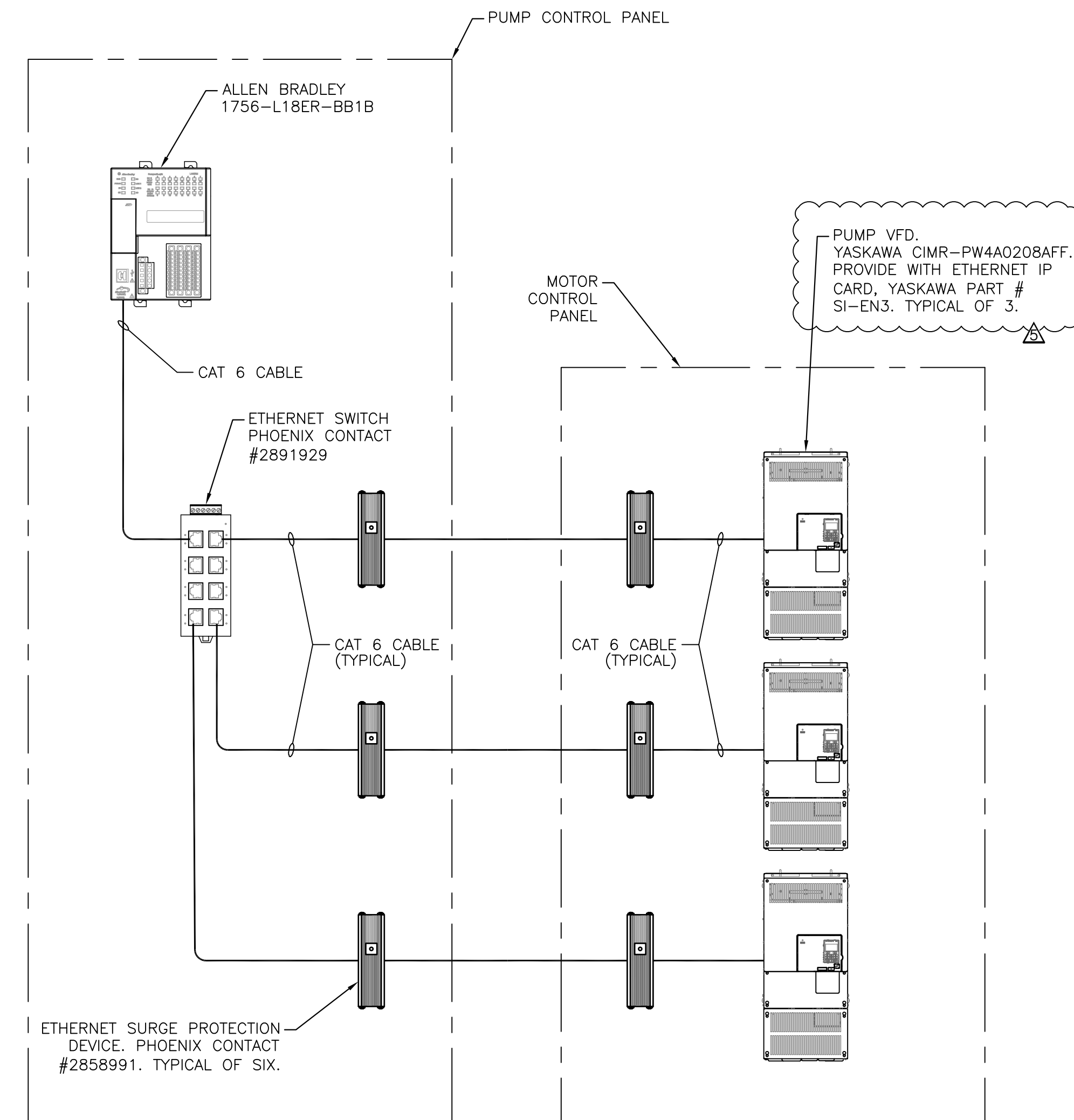
- 8 PROVIDE AND INSTALL DUPLEX GFCI RECEPTACLE, HUBBELL, GFR53521A OR EQUAL. PROVIDE AND INSTALL SINGLE-GANG WEATHERPROOF GFCI COVER. BELL #5103-6.
- 9 PROVIDE AND INSTALL 2-#12 THWN CU + 1-#12 THWN CU GND IN 3/4"C. TO RECEPTACLE FOR 120V POWER.
- 10 PROVIDE AND INSTALL 2-#12 THWN CU + 1-#12 THWN CU GND IN 3/4" FLEXIBLE, SEALTITE CONDUIT TO FLOW METER TRANSMITTER FOR 120V POWER.
- 11 PROVIDE AND INSTALL 2/C-#16 SHIELDED (BELDEN 8719) IN 3/4" FLEXIBLE, SEALTITE CONDUIT. (4-20mA FLOW METER SIGNAL).
- 12 PROVIDE AND INSTALL EDCO - SLAC SERIES AC POWER/SIGNAL TVSS DEVICE IN NEMA 4X ENCLOSURE TO PROTECT 120V POWER CIRCUIT AND 4-20mA ANALOG OUTPUT SIGNAL.
- 13 PROVIDE AND INSTALL SUN-SHIELD, CONSTRUCTED FROM 1/8" ALUMINUM STOCK. PROVIDE FULL FILLET WELDS. 24" WIDE, 24" TALL.



TOWER & ANTENNA DETAIL **1**
SCALE : NOT TO SCALE

NOTES:

1. TOWER & FOUNDATION DESIGNED FOR 150 MPH WINDSPEED.
2. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ANTENNA FOUNDATION. SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA.
3. CONTRACTOR TO PROVIDE RADIO SURVEY TO DETERMINE TOWER HEIGHT REQUIREMENT AND ANTENNA AIMING. REFER ALSO TO SPECIFICATIONS.



COMMUNICATIONS RISER



No.	REVISIONS	DATE	BY
1	ADDENDUM #5 - PUMP MOTOR REVISIONS	5/26/20	TDT



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**SEWRF RECLAIMED
PUMP BACK STATION**

MANATEE COUNTY

LICENSED PROFESSIONAL	
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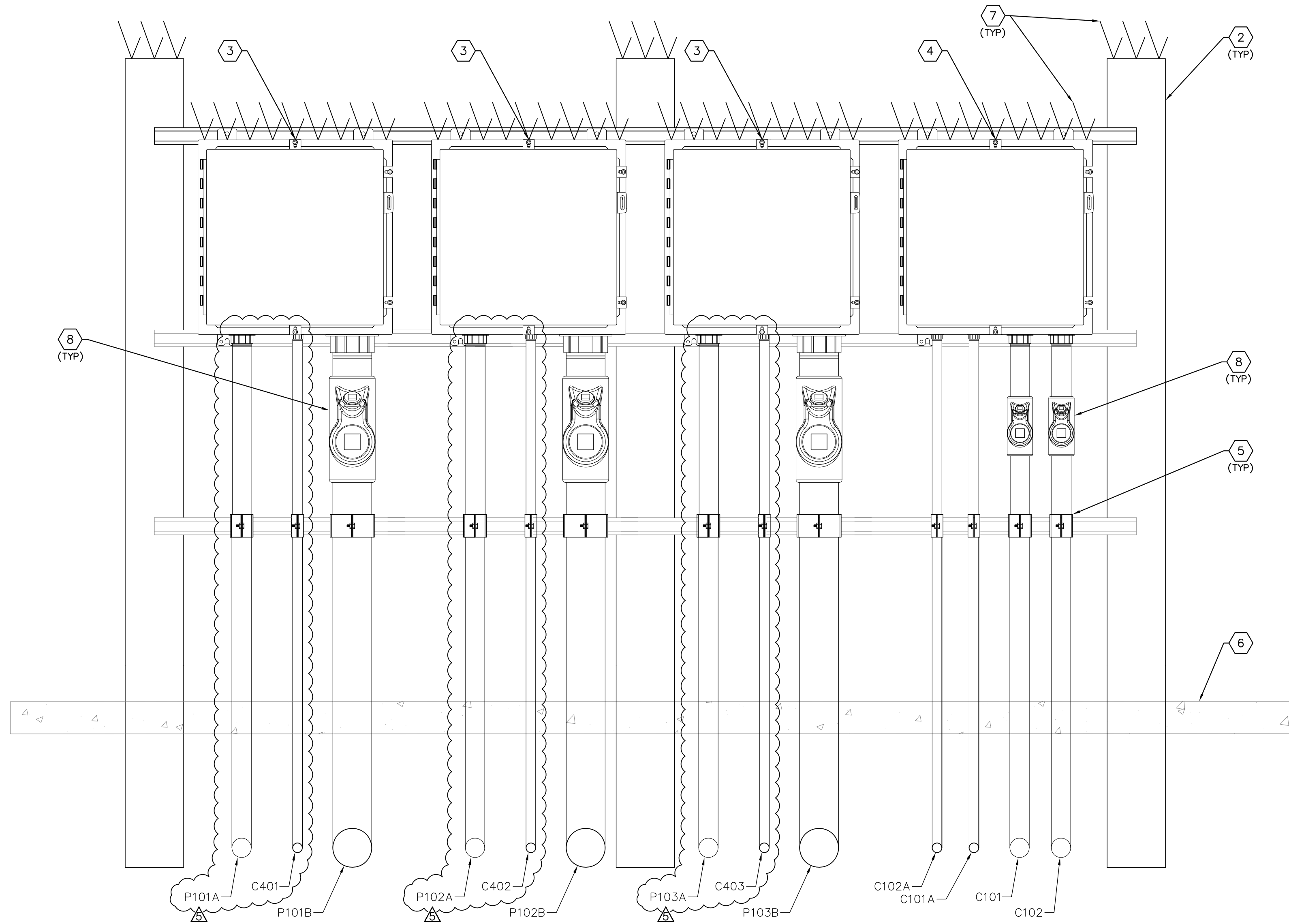
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**INSTRUMENTATION
DETAILS**

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JUNCTION BOX RACK ELEVATION
 SCALE: NOT TO SCALE
 E-3 | 1-8

- KEY NOTES:**
- 1 PROVIDE AND INSTALL 1-5/8" STAINLESS STEEL UNISTRUT (OR EQUAL), BOLTS TO SECURE UNISTRUT SHALL BE INSTALLED COMPLETELY THROUGH CONCRETE POST.
 - 2 PROVIDE AND INSTALL 6" X 6" CONCRETE POST. POST SHALL BE EMBEDDED A MINIMUM OF 3 FEET INTO CONCRETE SLAB/SOIL (TYP OF 3).
 - 3 PUMP MOTOR CONNECTIONS JUNCTION BOX USED AS A DEMARCATION BOX TO PROVIDE ISOLATION BETWEEN THE WET WELL AND MOTOR CONTROL CABINET. PROVIDE AND INSTALL A 24"x24"x12" NEMA 4X, STAINLESS STEEL JUNCTION BOX WITH HINGED DOOR, HAMMOND #1418N4S16J12. PROVIDE INNER PANEL. REFER TO SHEET I-9 FOR DETAILS. TYPICAL OF 3.
 - 4 WET WELL JUNCTION BOX USED AS A DEMARCATION BOX TO PROVIDE ISOLATION BETWEEN THE WET WELL AND PUMP CONTROL CABINET. PROVIDE AND INSTALL A 20"x20"x6" NEMA 4X, STAINLESS STEEL JUNCTION BOX WITH HINGED DOOR, HAMMOND #1418N4S16D6. PROVIDE INNER PANEL. REFER TO SHEET I-9 FOR DETAILS.
 - 5 PROVIDE AND INSTALL ALUMINUM CONDUIT CLAMP.
 - 6 PROPOSED CONCRETE SLAB. REFER TO STRUCTURAL DRAWINGS.
 - 7 PROVIDE AND INSTALL STAINLESS STEEL BIRD SPIKES (FOR PIGEONS OR LARGER BIRDS) TO COVER TOP OF ENCLOSURE. INSTALL BIRD SPIKES WITH NON-SILICONE BASED ADHESIVE FOR OUTDOOR CONSTRUCTION OR PER MANUFACTURER'S SPECIFICATIONS.
 - 8 PROVIDE AND INSTALL EYS SEAL. SIZE AS REQUIRED.



No.	REVISIONS	DATE	BY
1	ADDENDUM #5 - PUMP MOTOR REVISIONS	5/26/20	TDT

Kimley»Horn

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 PHONE: 813-620-1460
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KHA PROJECT	148400015
DATE	6/26/19
SCALE	AS SHOWN
DESIGNED BY	TDT
DRAWN BY	JLH
CHECKED BY	TDT

Manatee County

SEWRF RECLAIMED PUMP BACK STATION

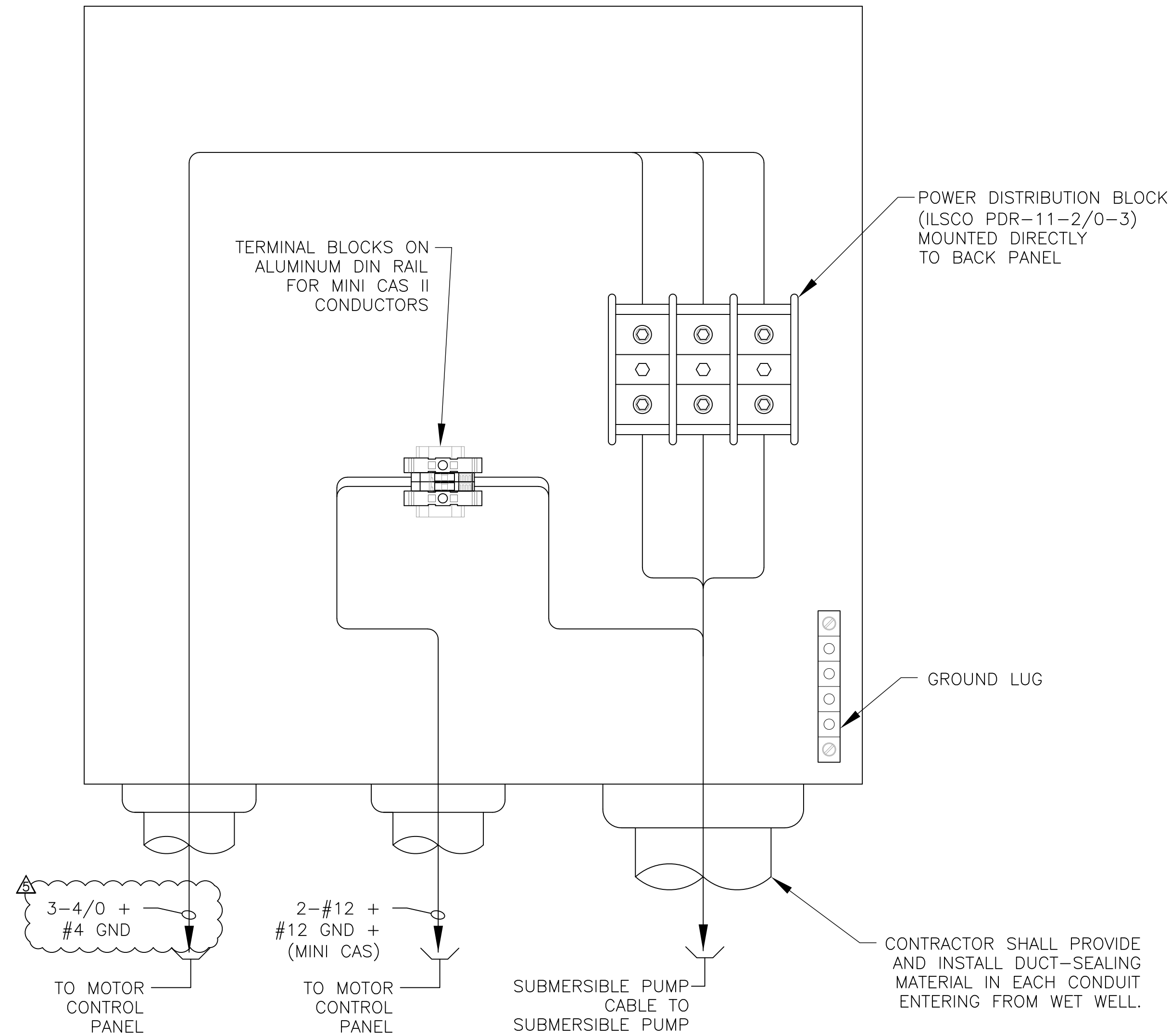
MANATEE COUNTY

LICENSED PROFESSIONAL	TIMOTHY THOMAS, P.E.
FL LICENSE NUMBER	47079
FL DATE:	

WET WELL JUNCTION BOX RACK DETAILS

SHEET NUMBER	1-8
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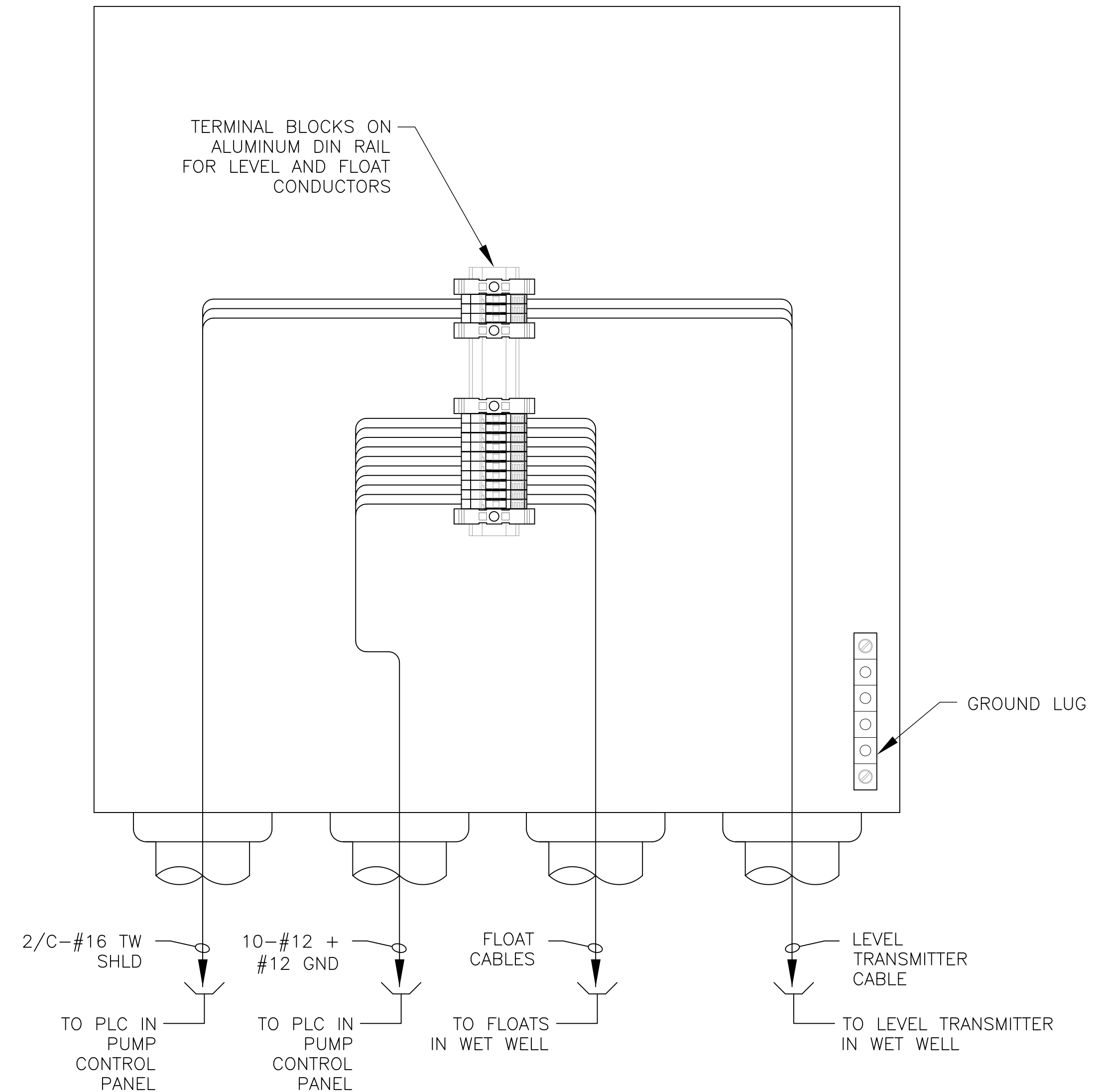
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TYPICAL MOTOR JUNCTION BOX DETAIL 1
SCALE : NOT TO SCALE

NOTES:

- COVER NOT SHOWN FOR CLARITY
- BOND GROUNDING CONDUCTORS TO ENCLOSURE BACK PANEL.



LEVEL AND FLOAT JUNCTION BOX DETAIL 2
SCALE : NOT TO SCALE

NOTES:

- COVER NOT SHOWN FOR CLARITY
- BOND GROUNDING CONDUCTORS TO ENCLOSURE BACK PANEL.



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JUNCTION BOX DETAILS

SHEET NUMBER

1-9