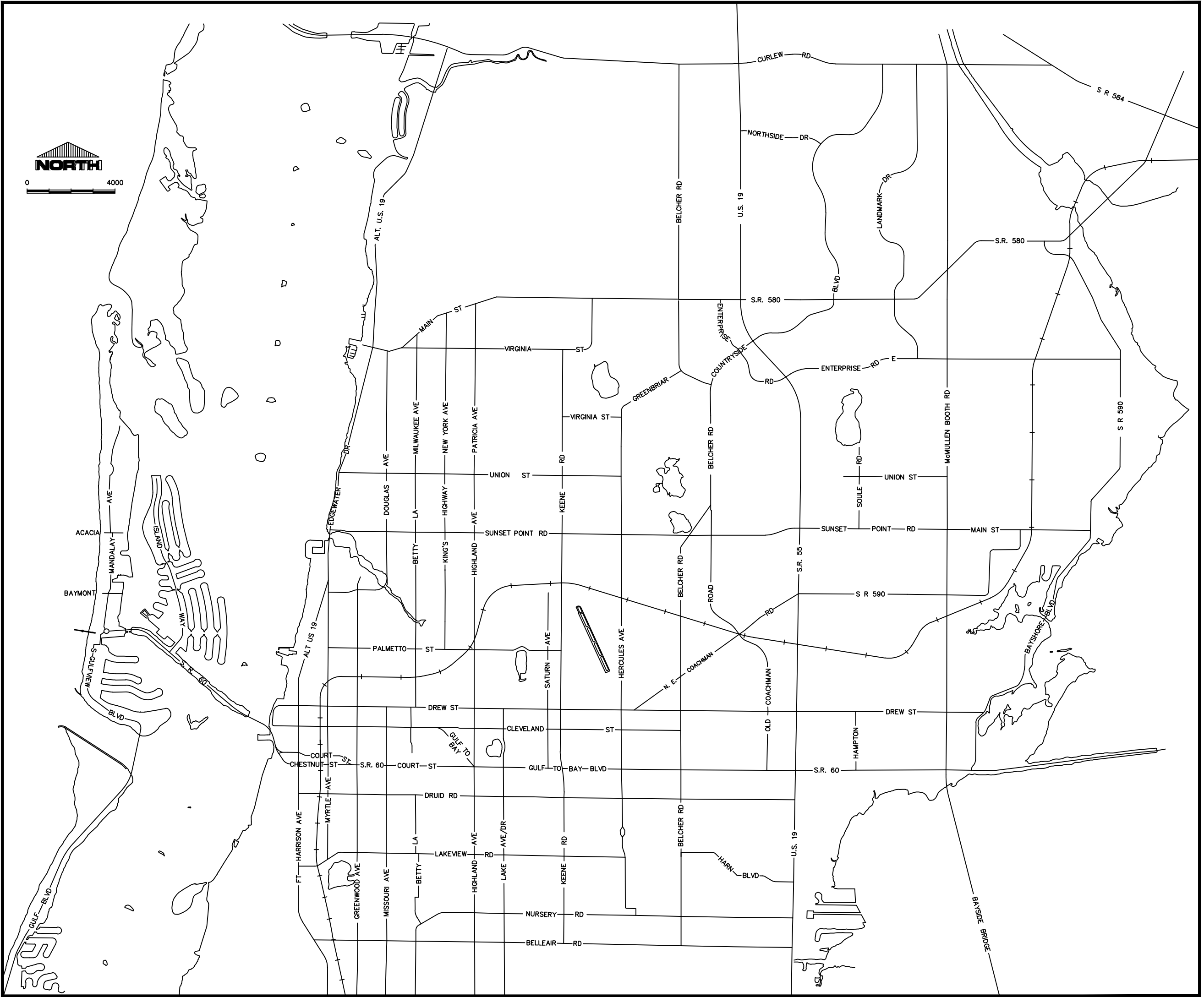


SHEET INDEX

SHEET #	SHEET DESCRIPTION
1	COVER SHEET
2	240V 3-PHASE, DUPLEX PUMP LIFT STATION 9.4 TO 12 HP ELECTRICAL STANDARDS
3	240V 3-PHASE, DUPLEX PUMP STATION EQUIPMENT RACK ELEVATION
4	TYPICAL PUMP CONTROL PANEL, DFS CABINET & JUNCTION BOX DETAILS
5	TYPICAL PUMP CONTROL PANEL SCHEMATIC WIRING DIAGRAM
6	TYPICAL PUMP CONTROL PANEL SCHEMATIC WIRING DIAGRAMS
7	TYPICAL DFS CABINET SCHEMATIC WIRING DIAGRAM
8	TYPICAL DFS CABINET SCHEMATIC WIRING DIAGRAM
9	TYPICAL DFS CABINET SCHEMATIC WIRING DIAGRAM
10	TYPICAL DFS CABINET SCHEMATIC WIRING DIAGRAM
11	TYPICAL DFS CABINET SCHEMATIC WIRING DIAGRAM
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13	TYPICAL DFS CABINET SCHEMATIC WIRING DIAGRAM
14	TYPICAL DFS CABINET SCHEMATIC WIRING DIAGRAM
15	TYPICAL LIFT STATION ONE LINE DIAGRAM
16	ELECTRICAL SCHEDULES AND LOAD CALCULATIONS
17	TYPICAL LIFT STATION ELECTRICAL DETAILS
18	CONDUIT AND CABLE SCHEDULE AND PANEL SCHEDULE
19	INSTRUMENTATION LEGEND ABBREVIATIONS AND SYMBOLS
20	TYPICAL LIFT STATION P&IDs
21	TYPICAL LIFT STATION P&IDs



PUMP STATION STANDARD ELECTRICAL DETAILS 240V 3-PH PUMP 9.4 TO 12 HP



CITY OFFICIALS

Frank Hibbard	Mayor
Mark Bunker	Councilmember
Kathleen Beckman	Councilmember
David Allbritton	Councilmember
Hoyt Hamilton	Councilmember
William B. Horne II	City Manager

Tara Kivett, P.E.
City Engineer

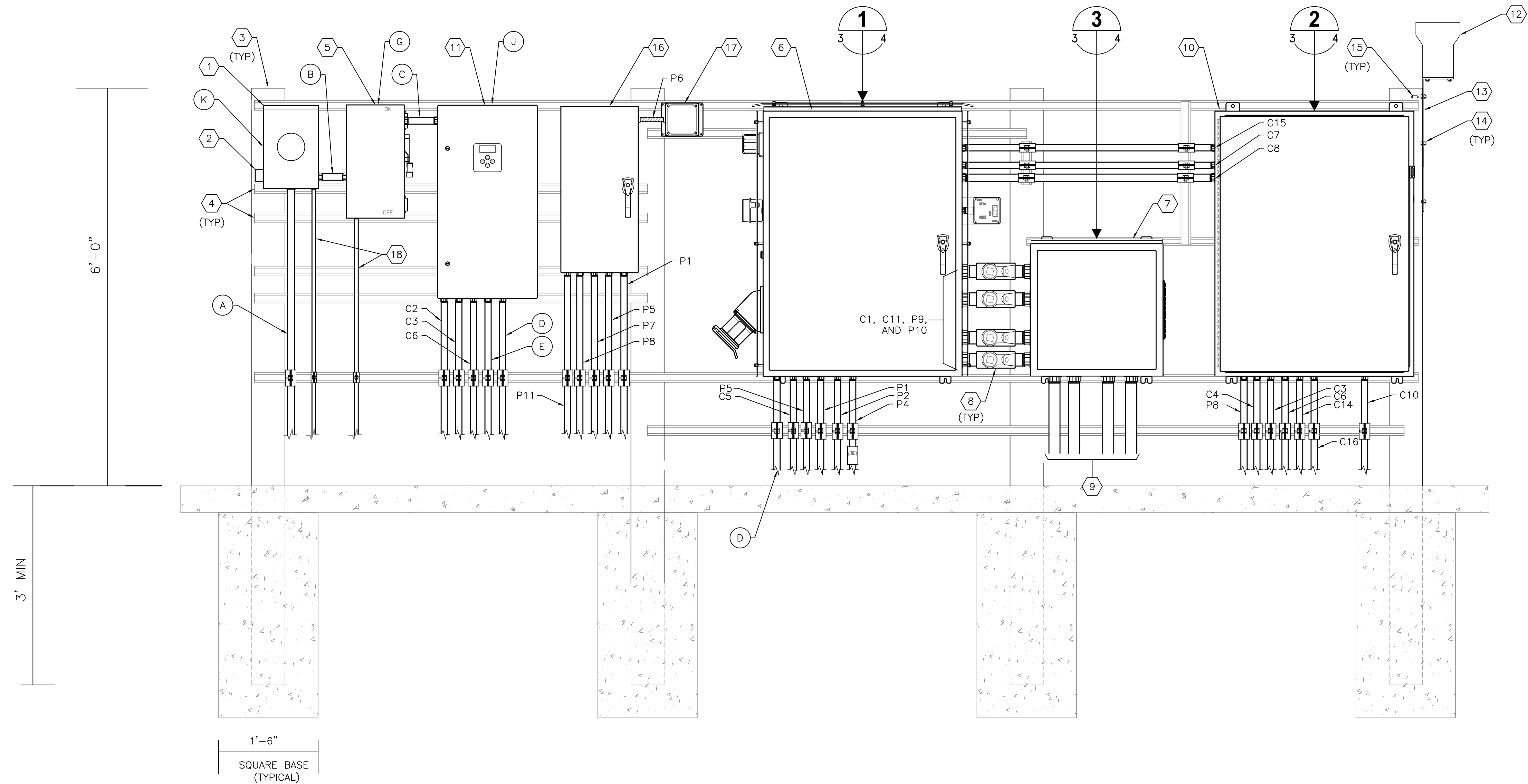
Approved For
Construction

CITY ENGINEER D. TARA KIVETT, P.E. #86611

Date Approved

100% PLANS PRELIMINARY

City Project No. 18-0058-UT
City Plan Set No. 2020011



240V 3-PHASE DUPLEX PUMP STATION
EQUIPMENT RACK FRONT SIDE ELEVATION
SCALE : NONE

KEYED NOTES:

- 1 PROVIDE AND INSTALL METER SOCKET. REFER TO EQUIPMENT SCHEDULE FOR SIZE/TYPE REQUIRED. COORDINATE REQUIREMENTS WITH UTILITY.
- 2 PROVIDE AND INSTALL UTILITY APPROVED LIGHTNING PROTECTION DEVICE.
- 3 PROVIDE AND INSTALL 6" X 6" X 9' REINFORCED SQUARE CONCRETE POST.
- 4 PROVIDE AND INSTALL 1-5/8" X 1-5/8" 316 STAINLESS STEEL UNISTRUT WITH STAINLESS STEEL HARDWARE. NOTE: INSTALL ALL BOLTS FOR UNISTRUT COMPLETELY THROUGH CONCRETE POSTS.
- 5 PROVIDE AND INSTALL 3--POLE, 240V, FUSED DISCONNECT IN NEMA 4X STAINLESS STEEL ENCLOSURE. REFER TO EQUIPMENT SCHEDULE FOR SIZE/TYPE REQUIRED. DISCONNECT SHALL BE PAD-LOCKABLE.
- 6 PROVIDE AND INSTALL NEW PUMP CONTROL PANEL. REFER TO DETAIL ON SHEET 4.
- 7 PROVIDE AND INSTALL NEW 24" X 24" X 8" NEMA 4X 316 STAINLESS STEEL JUNCTION BOX WITH STEEL BACKPANEL. PROVIDE STAINLESS STEEL LOUVER PLATE AND FILTER. REFER TO DETAIL ON SHEET 4.
- 8 PROVIDE AND INSTALL CROUSE-HINDS EYS TYPE SEALS W/CHICO COMPOUNDS.
- 9 2" CONDUITS TO WET WELL. C12, C13, P12 AND P13. CABLES FOR PUMP MOTORS, LEVEL TRANSDUCER AND FLOATS ARE ALL BY RESPECTIVE MANUFACTURER.
- 10 DATA FLOW SYSTEMS (DFS) CABINET. REFER TO DETAIL ON SHEET 4.
- 11 PROVIDE AND INSTALL NEW 240V, 3--POLE, SOLID NEUTRAL AUTOMATIC TRANSFER SWITCH (ATS). REFER TO EQUIPMENT SCHEDULE FOR SIZE/TYPE REQUIRED.
- 12 PROVIDE AND INSTALL NEW 8" RAIN GAUGE. XYLEM RG600 WITH 4-20MA OUTPUT TIPPING BUCKET CONVERTER MODULE, XYLEM ELA000.
- 13 PROVIDE AND INSTALL 10" SQUARE 1/4" ALUMINUM BRACKET, OVERFLOW LIGHT ALUMINUM BRACKET.
- 14 PROVIDE AND INSTALL 3/4" STAINLESS STEEL NUT AND BOLT (TYP).
- 15 PROVIDE AND INSTALL STAINLESS STEEL WEDGE ANCHOR IN CONCRETE POST TO SECURE RAIN GAUGE BRACKET (TYP).
- 16 PROVIDE AND INSTALL 240V, 60A, SINGLE--PHASE LOADCENTER IN NEMA 3R STAINLESS STEEL ENCLOSURE. REFER TO SHEET 18 FOR PANEL SCHEDULE.
- 17 PROVIDE AND INSTALL SURGE PROTECTION DEVICE (SPD) UNIT, 120/240V, 3Ø, TYPE 1, ASCO SERIES 400, IN NEMA 4X ENCLOSURE.
- 18 REFER TO ONE LINE DIAGRAM FOR REQUIRED GROUNDING ELECTRODE CONDUCTORS. ALL CONDUCTORS SHALL BE INSTALLED IN 1" CONDUIT.

GENERAL NOTES:

1. ALL PANELS SHALL BE LABELED FOR THE ARC FLASH RISK HAZARD PRESENT AT EACH PIECE OF EQUIPMENT.
2. PROVIDE CONDUIT AND CONDUCTOR BETWEEN PUMP CONTROL PANEL AND NEW DFS RTU ENCLOSURE AS REQUIRED (NOT SHOWN FOR CLARITY).

TIMOTHY THOMAS P.E. No. 47079



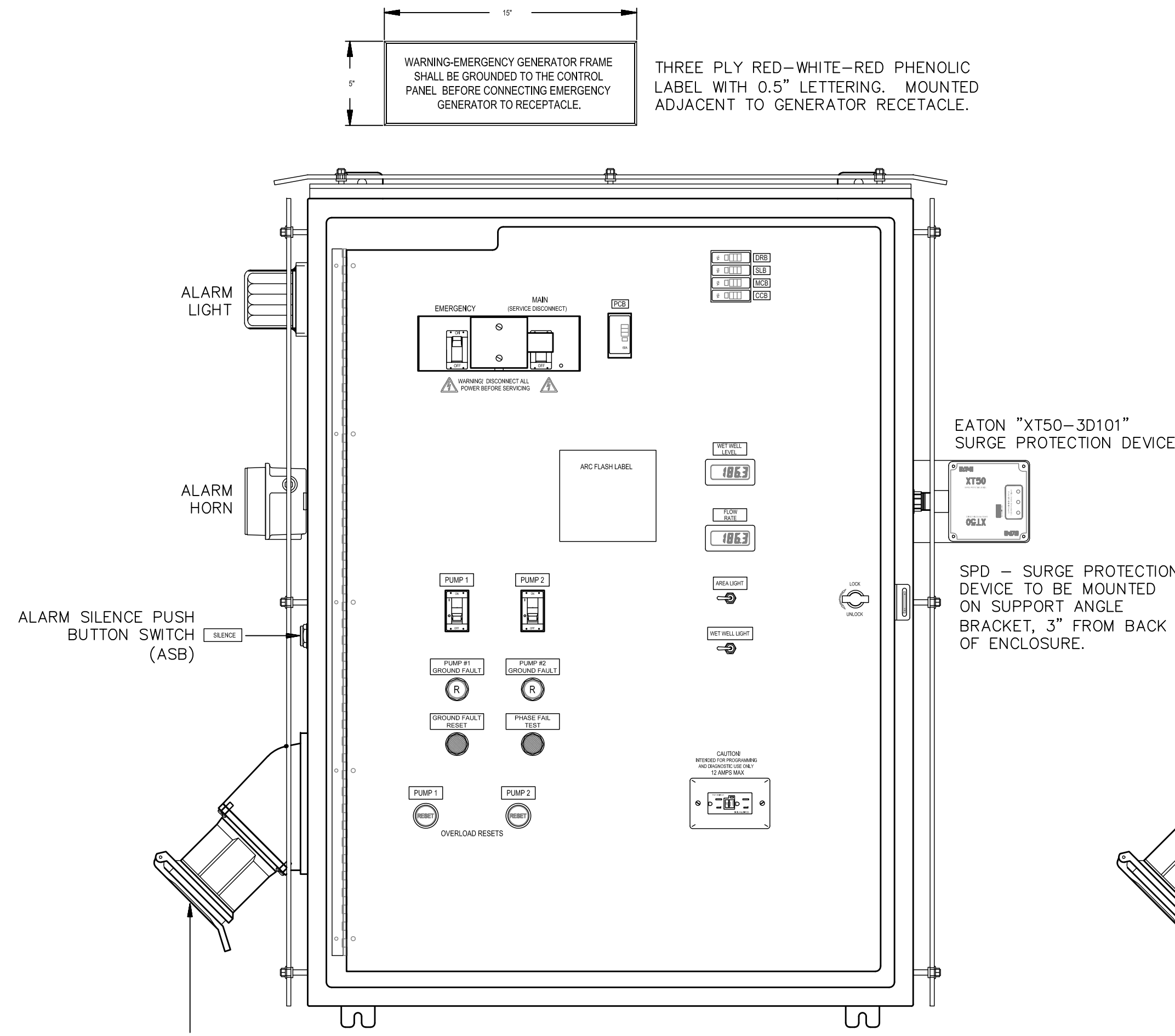
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SURVEYED BY:	DRAWN BY:			
REVIEWED BY:				
PROJECT ENGINEER	DATE			
APPROVED BY:				
CITY ENGINEER MICHAEL D. QUILLEN, P.E. # 335721	DATE			

CITY OF CLEARWATER, FLORIDA
ENGINEERING DEPARTMENT
100 S. MYRTLE AVE.
CLEARWATER, FL 33756



240V 3--PHASE, DUPLEX PUMP STATION
EQUIPMENT RACK ELEVATION

DWG NAME: ###	FIELD BOOK: N/A	SURVEYED BY: CLEARWATER	SCALE: VERT. N/A
CONTRACT NO.: ###	DATE DRAWN: ###	DRAWN BY: JLH	HORIZ. N/A
JOB NO.: 22609.19	DESIGNED BY: TDT	CHECKED BY: GLW	SHEET NO.: 3 OF 21
APPROVED FOR			

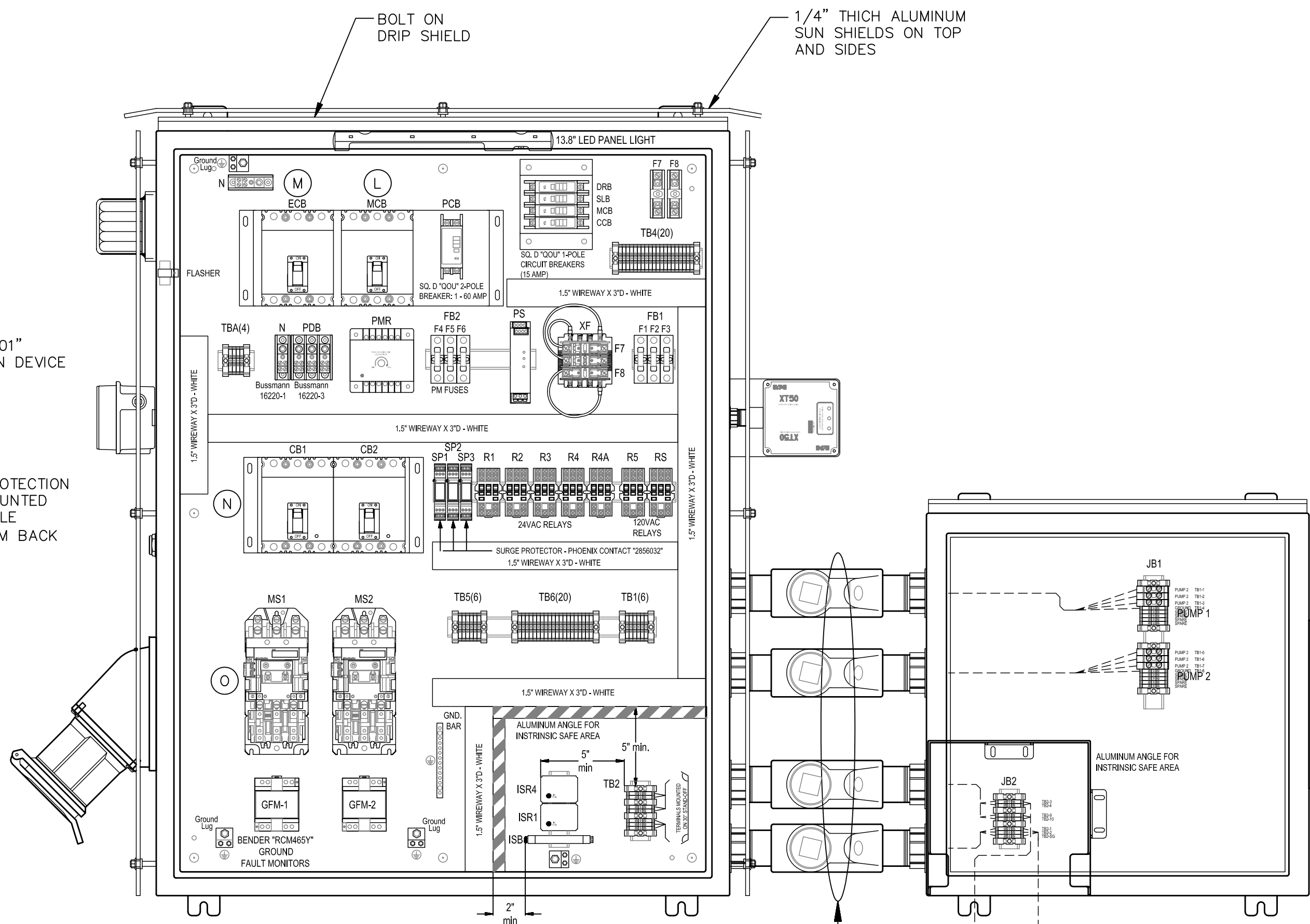


PUMP CONTROL PANEL DETAIL
SCALE : N.T.S.

INNER DOOR VIEW
(OUTER DOOR REMOVED FOR CLARITY)

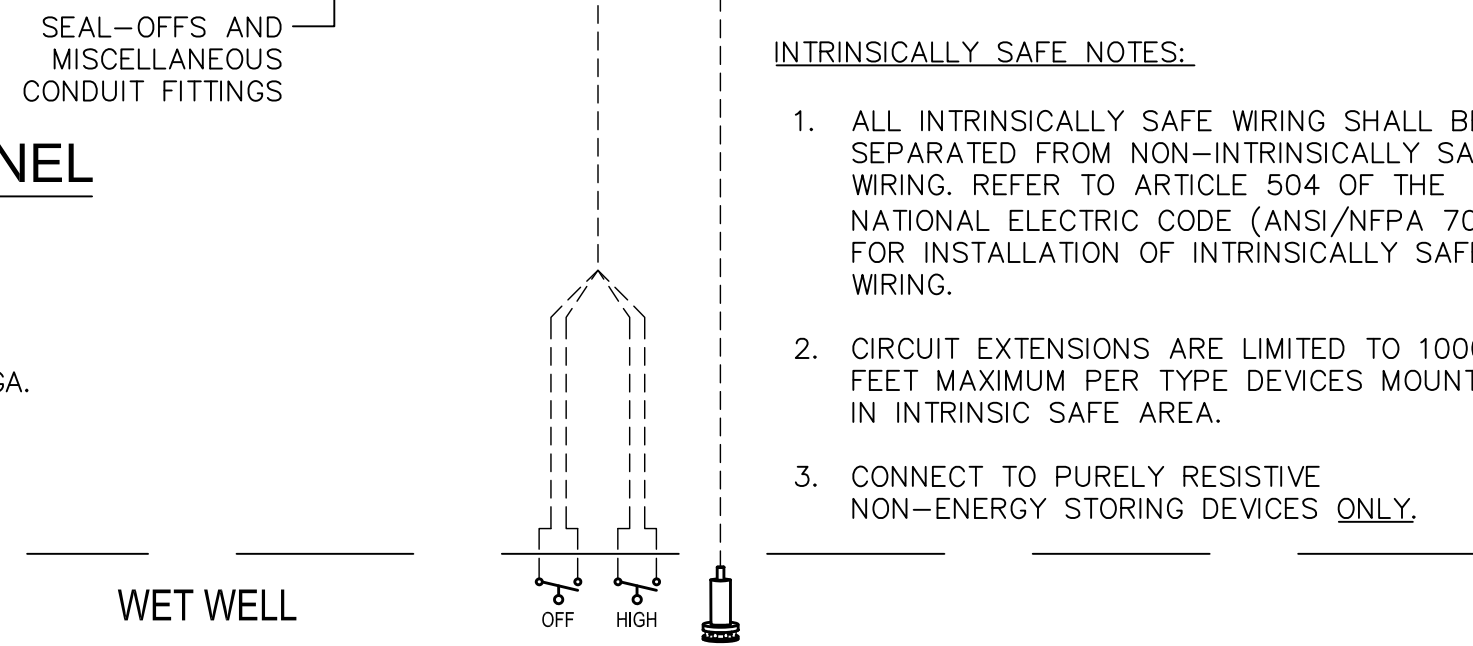
ENCLOSURE:
HAMMOND HW483612S16HK (48"H x 36"W x 12"D) NEMA 4X RATED TYPE 316 STAINLESS STEEL WITH BOLT-ON DRIP SHIELD, PAD-LOCKING HASP AND 0.25" THICK ALUMINUM SUN SHIELDS ON TOP AND SIDES. OUTER DOOR SHALL HAVE ROLLER CAM TYPE 3-POINT, PAD-LOCKABLE HANDLE, WELDED ON STUDS FOR PRINT POCKET AND 90° STOP.

INNER DOOR:
HID-4836, 0.125 BLACK ENGRAVED ALUMINUM WITH CONTINUOUS HINGE, TWIST LATCHES, AND 90° STOP.



PUMP CONTROL PANEL BACK PANEL
SCALE : N.T.S.

BACK PANEL:
HAMMOND 18P4533 (45"H x 33"W) FABRICATED FROM 12 GA. STEEL FINISHED IN WHITE.

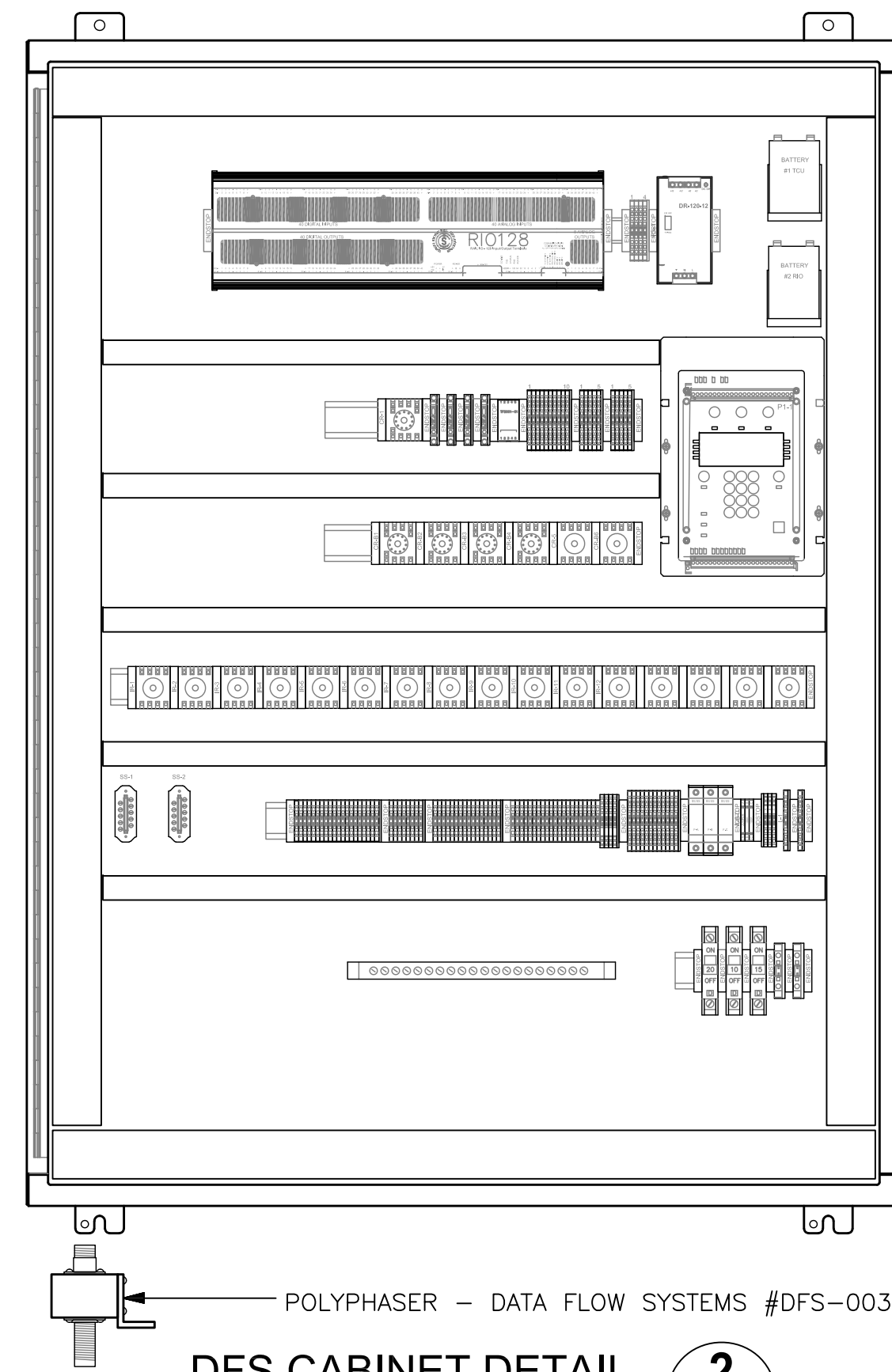


JUNCTION BOX ENCLOSURE DETAIL
SCALE : N.T.S.

JUNCTION BOX:
SPN4SS6-24248 (24"H x 24"W x 8"D) NEMA 4X RATED TYPE 316 STAINLESS STEEL WITH BOLT-ON DRIP SHIELD. OUTER DOOR HAS STAINLESS STEEL 1/4-TURN LATCHES AND PAD-LOCKING HASP.

BACK PANEL:
SPP-2424 (21"H x 21"W) FABRICATED FROM 12GA. WHITE ENAMELED STEEL.

LOUVER:
WIEGMANN WAWK0808SSA (10.56"H x 9.5"W) FABRICATED FROM 316 STAINLESS STEEL. PROVIDE WIEGMANN WAFLT88 FILTER KIT FOR LOUVER.



DFS CABINET DETAIL
SCALE : N.T.S.

TCU ENCLOSURE:
(OUTER DOOR REMOVED FOR CLARITY)

ENCLOSURE:
HAMMOND HW483612GYHK (48"H x 36"W x 12"D) NEMA 4X RATED, FABRICATED FROM 14 GA. MILD STEEL WITH 3-POINT LATCHING SYSTEM. ENCLOSURE SHALL BE POWDER COATED WHITE. HASP AND STAPLE SHALL BE PROVIDED FOR PADLOCKING.

BACK PANEL:
HAMMOND 18P4533 (45"H x 33"W) FABRICATED FROM 12 GA. STEEL FINISHED IN WHITE.

RECORD DRAWINGS				
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REVIEWED BY:				
PROJECT ENGINEER	DATE			
APPROVED BY:				
CITY ENGINEER MICHAEL D. QUILLLEN, P.E. # 33721	DATE			

CITY OF CLEARWATER, FLORIDA
ENGINEERING DEPARTMENT
100 S. MYRTLE AVE.
CLEARWATER, FL 33756



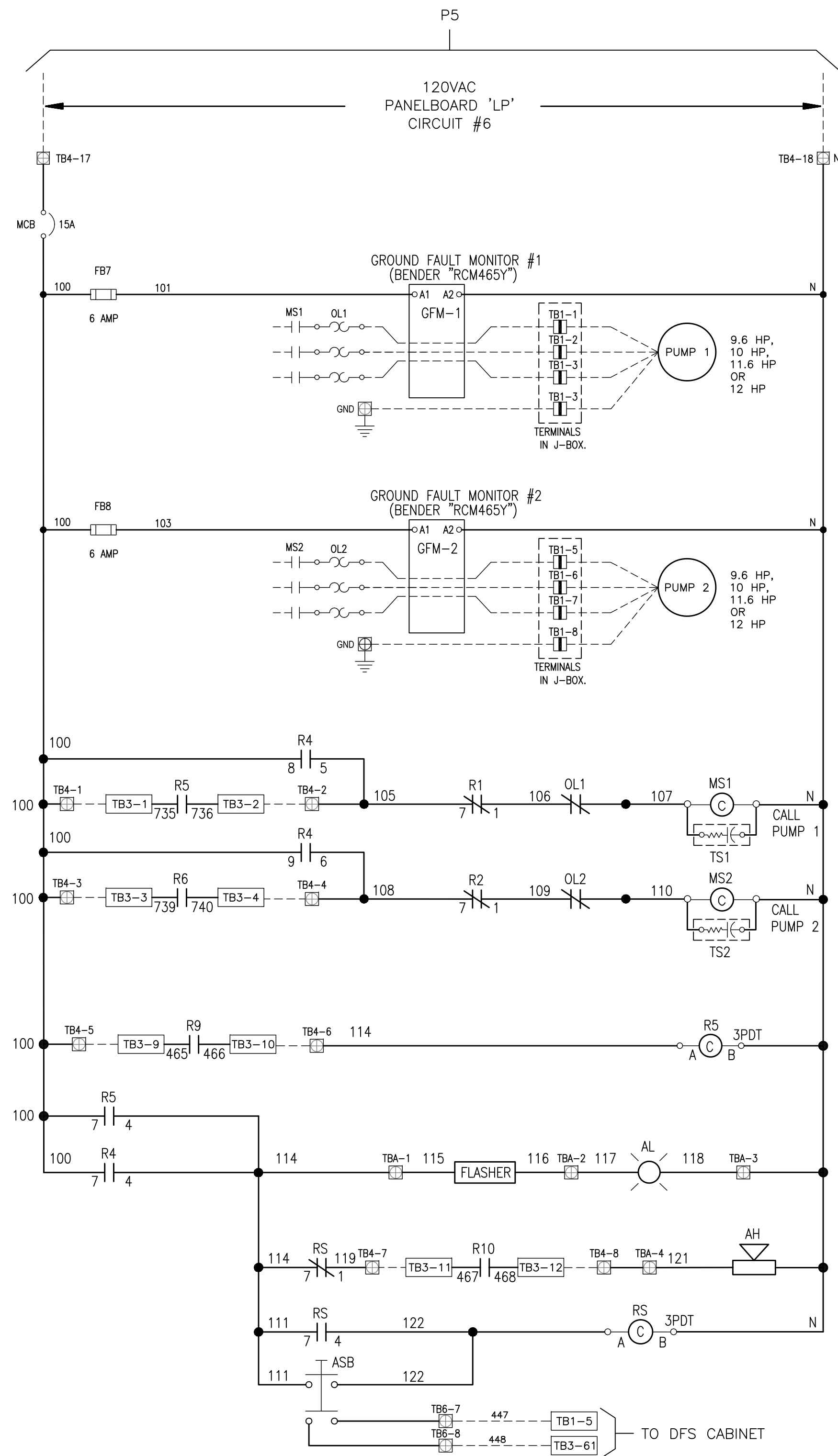
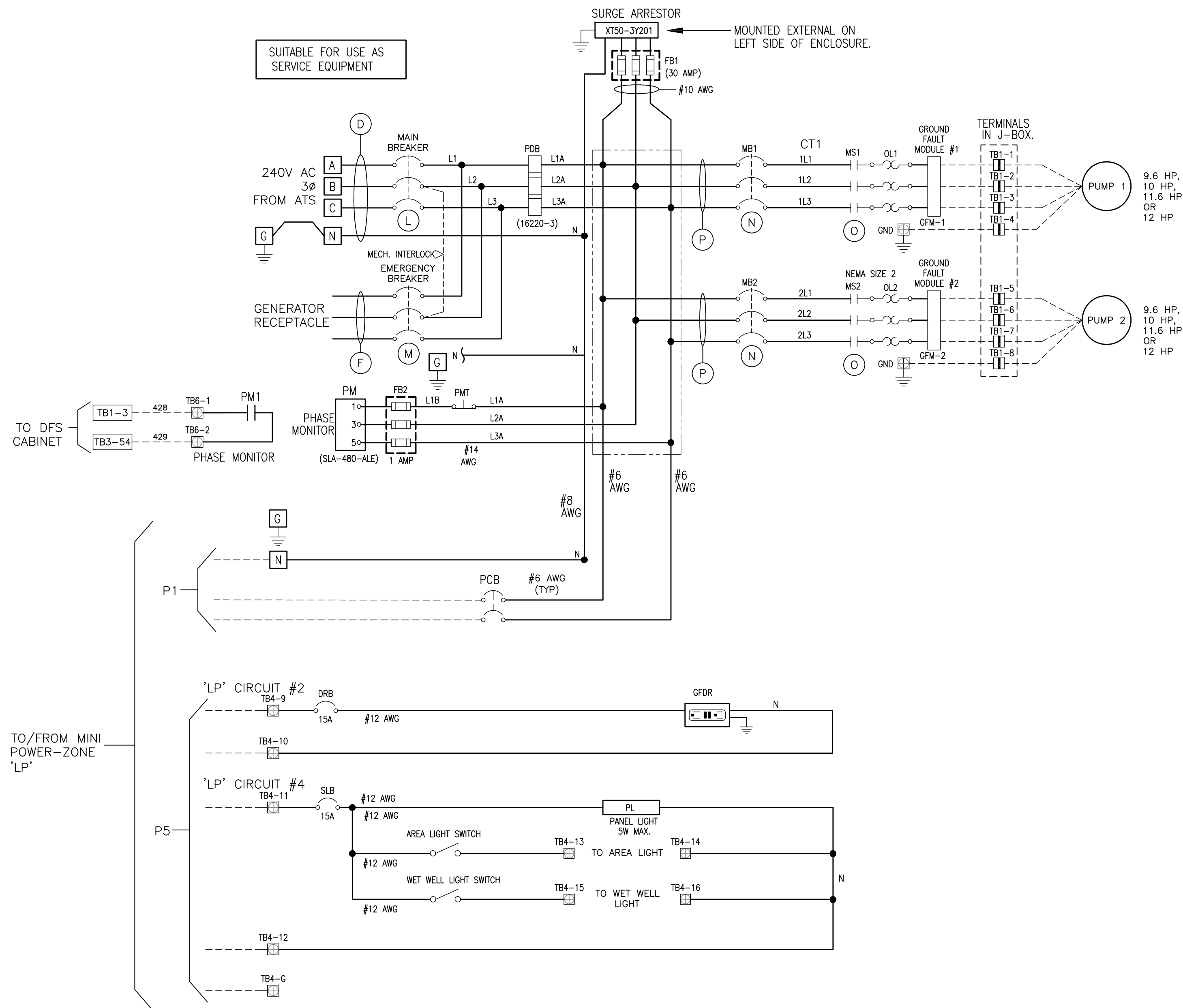
TYPICAL PUMP CONTROL PANEL, DFS CABINET AND JUNCTION BOX DETAILS

DWG NAME: ###	FIELD BOOK: N/A	SURVEYED BY: CLEARWATER	SCALE: VERT. N/A
CONTRACT NO.: ###	DATE DRAWN: ###	DRAWN BY: JLH	HORIZ. N/A
JOB NO.: 22609.19	DESIGNED BY: TDT	CHECKED BY: GLW	SHEET NO.: 4 OF 21
APPROVED FOR			

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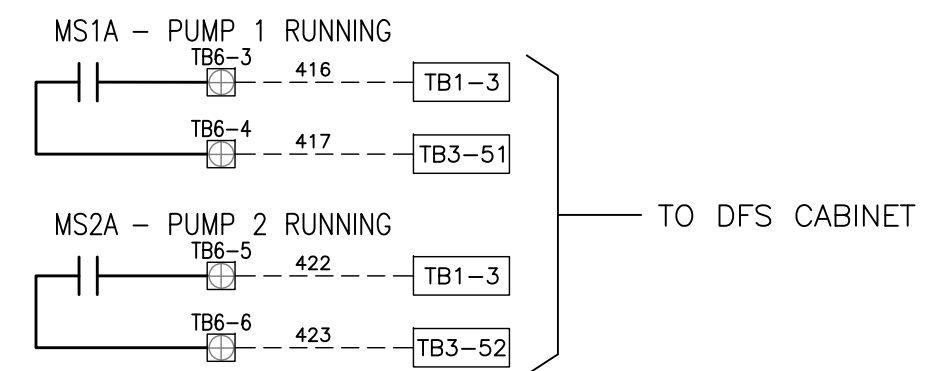


NOTES:

1. PANEL SHALL BE U.L. 698A LABELED FOR HAZARDOUS LOCATIONS AND SERVICE ENTRANCE RATED.
2. ANTENNA CABLE SURGE SUPPRESSOR SHALL NOT BE LOCATED OR MOUNTED IN THE INTRINSICALLY SAFE AREA.
3. CONTROL WIRING SHALL BE #14 AWG.
4. INTRINSICALLY SAFE WIRING TO BE LIGHT BLUE IN COLOR.
5. REFER TO MANUFACTURER'S TECHNICAL DATA SHEET FOR PROPER WIRING OF THIS DEVICE PER INTRINSICALLY SAFE DEVICES.
6. ALL POINT CONTACTS TO BE PROTECTED BY ANTIOXIDANT COMPOUND.

LEGEND:

- TBX-X] TERMINAL BLOCK LOCATED IN DFS CABINET
TBX-X] TERMINAL BLOCK LOCATED IN PUMP CONTROL PANEL
TBX-X] TERMINAL BLOCK LOCATED WET WELL JUNCTION BOX



RECORD DRAWINGS				
SURVEYED BY:	DRAWN BY:			
REVIEWED BY:				
APPROVED BY:	PROJECT ENGINEER	DATE		
	CITY ENGINEER MICHAEL G. QUILLIN, P.E. # 335721	DATE	REVISION	BY DATE

CITY OF CLEARWATER, FLORIDA
ENGINEERING DEPARTMENT
100 S. MYRTLE AVE.
CLEARWATER, FL 33756

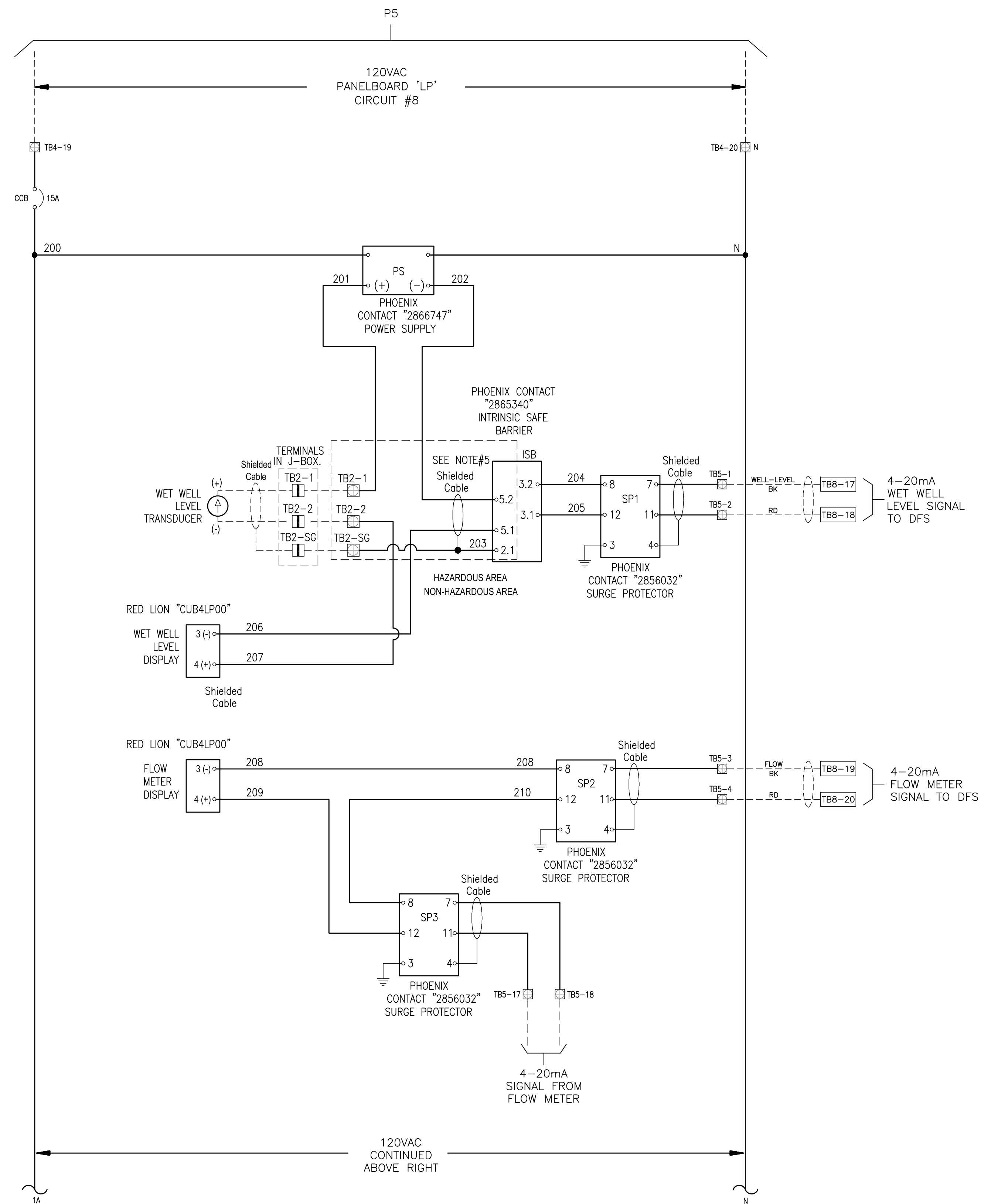


TYPICAL PUMP CONTROL PANEL SCHEMATIC WIRING DIAGRAM

DWG NAME: ###	FIELD BOOK: N/A	SURVEYED BY: CLEARWATER	SCALE: VERT. N/A
CONTRACT NO.: ###	DATE DRAWN: ###	DRAWN BY: JLH	HORIZ. N/A
JOB NO.: 22609.19	DESIGNED BY: TDT	CHECKED BY: GLW	SHEET NO.: 5 OF 21
APPROVED FOR			

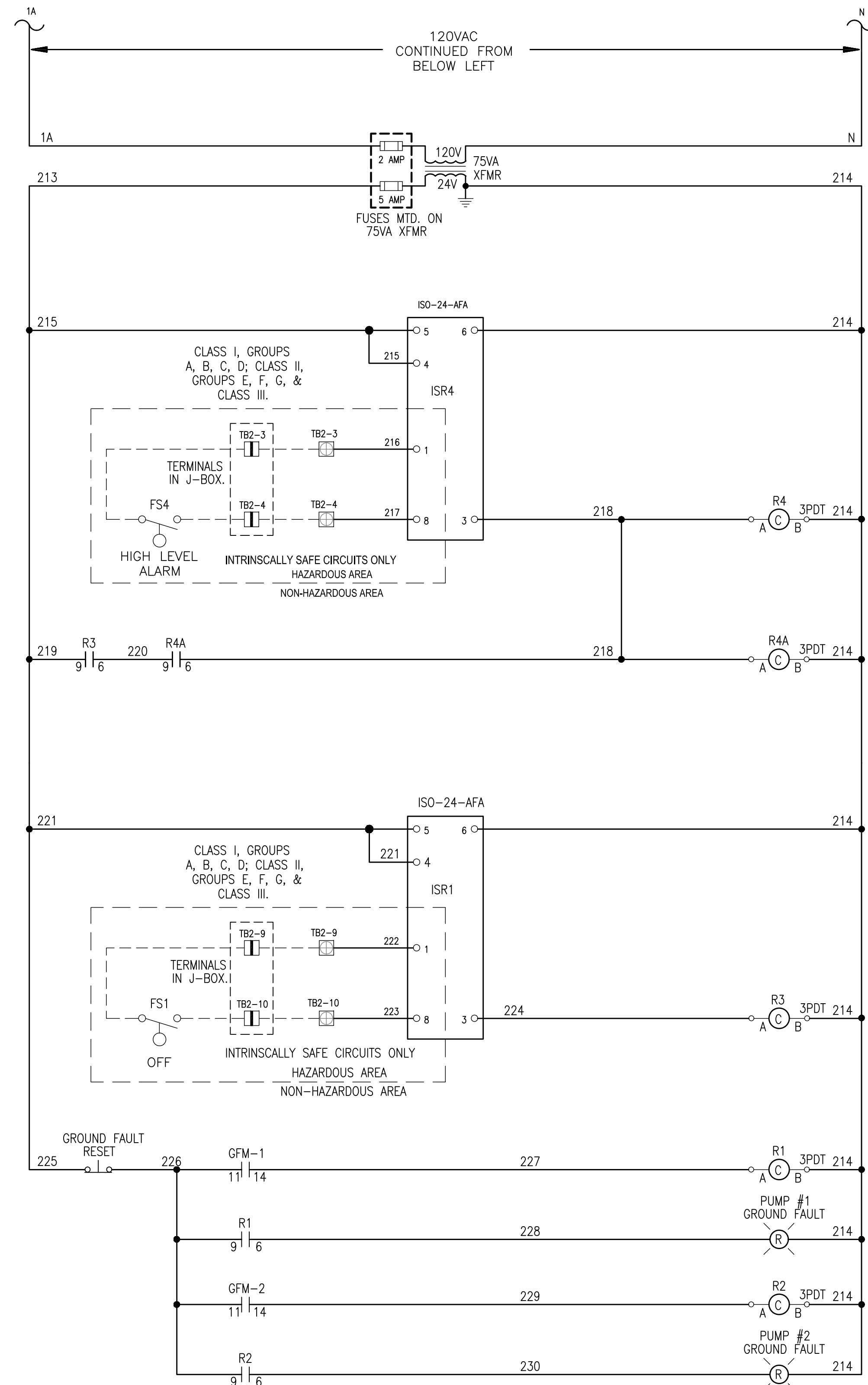
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LEGEND:

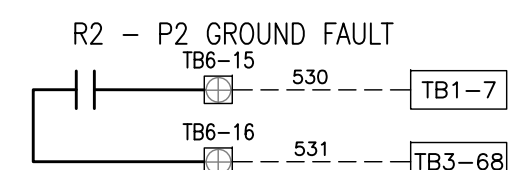
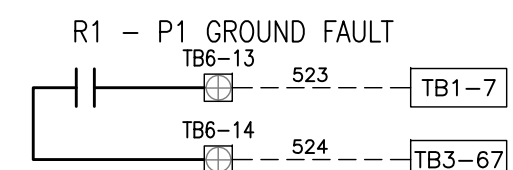
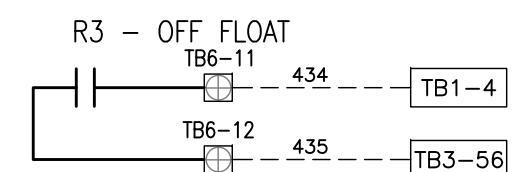
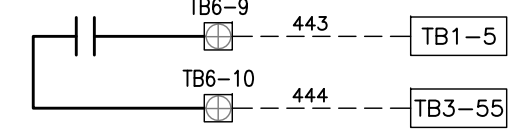
- TBX-X TERMINAL BLOCK LOCATED IN DFS CABINET
- TBX-X TERMINAL BLOCK LOCATED IN PUMP CONTROL PANEL
- TBX-X TERMINAL BLOCK LOCATED WET WELL JUNCTION BOX



LEGEND

- AH - ALARM HORN
- AL - ALARM LIGHT
- ASB - ALARM SILENCE BUTTON
- CCB - CONTROL CIRCUIT BREAKER
- CB - CIRCUIT BREAKER
- DRB - DUPLEX RECEPTACLE BREAKER
- ECB - EMERGENCY CIRCUIT BREAKER
- F - FUSE
- FB - FUSE BLOCK
- FL - FLASHER
- FS - FLOAT SW ITCH
- GFDR - GROUND FAULT DUPLEX RECEP.
- GFM - GROUND FAULT MONITOR
- GR - GENERATOR RECEPTACLE
- ISB - INTRINSIC SAFE BARRIER
- ISR - INTRINSIC SAFE RELAY
- MB - MOTOR BREAKER
- MCB - MAIN CIRCUIT BREAKER
- MS - MOTOR STARTER
- OL - OVERLOAD
- PM - PHASE MONITOR
- PMT - PHASE MONITOR TEST
- PS - POWER SUPPLY
- R - RELAY
- RES - RESISTOR
- SCB - SPARE CIRCUIT BREAKER
- SLB - SITE LIGHT BREAKER
- SP - SURGE PROTECTOR
- TB - TERMINAL BLOCK
- TCU - TELEMETRY CONTROL UNIT
- TS - TRANSIENT SUPPRESSOR
- XFMR - TRANSFORMER
- 3PDT - THREE-POLE, DOUBLE-THROW

R4A - HIGH LEVEL ALARM



TO DFS CABINET

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REVIEWED BY:				
APPROVED BY:	PROJECT ENGINEER	DATE		
	CITY ENGINEER MICHAEL D. QUILLLEN, P.E. # 33721	DATE	REVISION	BY DATE

CITY OF CLEARWATER, FLORIDA
ENGINEERING DEPARTMENT
100 S. MYRTLE AVE.
CLEARWATER, FL 33756



TYPICAL PUMP CONTROL PANEL SCHEMATIC WIRING DIAGRAMS

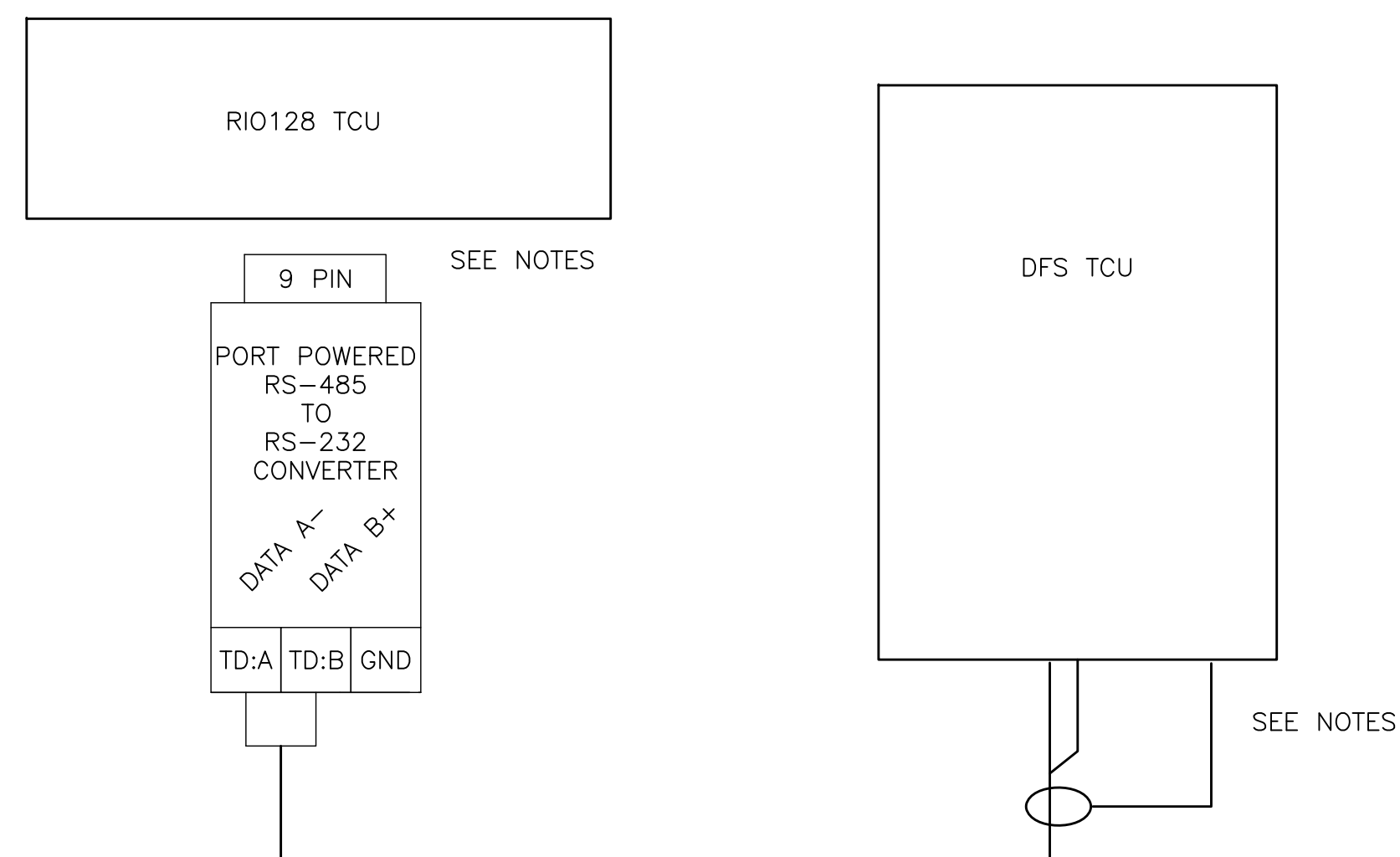
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CONTRACT NO.: ###	DATE DRAWN: ###	DRAWN BY: JLH	HORIZ. N/A
JOB NO.: 22609.19	DESIGNED BY: TDT	CHECKED BY: GLW	SHEET NO.: 6 OF 21
APPROVED FOR			



CONTROL WIRE SIZE #16 UNLESS NOTED
ANALOG WIRE #18 SHIELDED TWISTED PAIR
AC CONTROL WIRES - RED
NEUTRAL WIRES - WHITE
DC+ WIRES - BLUE
DC- WIRES - BLUE/WHITE
POWERED FROM FIELD - YELLOW
FIELD WIRING - - - - -

NOTE:

- (1) ALL GROUNDING CONNECTIONS TO BE SINGLE POINT TO GROUND BUS ONLY
- (2) AC AND DC BUS ARE TYPICAL TERMINAL BLOCK BUSES.
- (3) WIRES FOLLOW LEGEND UNLESS OTHERWISE MARKED.
- (4) ALL FUSES ARE 1 AMP SLOWBLOW UNLESS NOTED.
- (5) 250VAC RATED FUSES AND HOLDER REQUIRED FOR 240VAC LINE
- (6) ALL POINT CONTACTS TO BE PROTECTED BY ANTIOXIDANT COMPOUND.



COMMUNICATIONS RISER DIAGRAM

NOTE:

- (1) RIO-128 CONNECTOR J1 (RS-232) CONNECT RS-485 PORT POWERED CONNECTOR
- (2) RS-485 TERMINAL BLOCK TD:B (DATA B+) TERMINATES TO TCU CONNECTOR P4-3
- (3) RS-485 TERMINAL BLOCK TD:A (DATA A-) TERMINATES TO TCU CONNECTOR P4-4
- (4) TERMINATE THE SHIELD OF THE COMMUNICATION CABLE TO TCU CONNECTOR P4-5

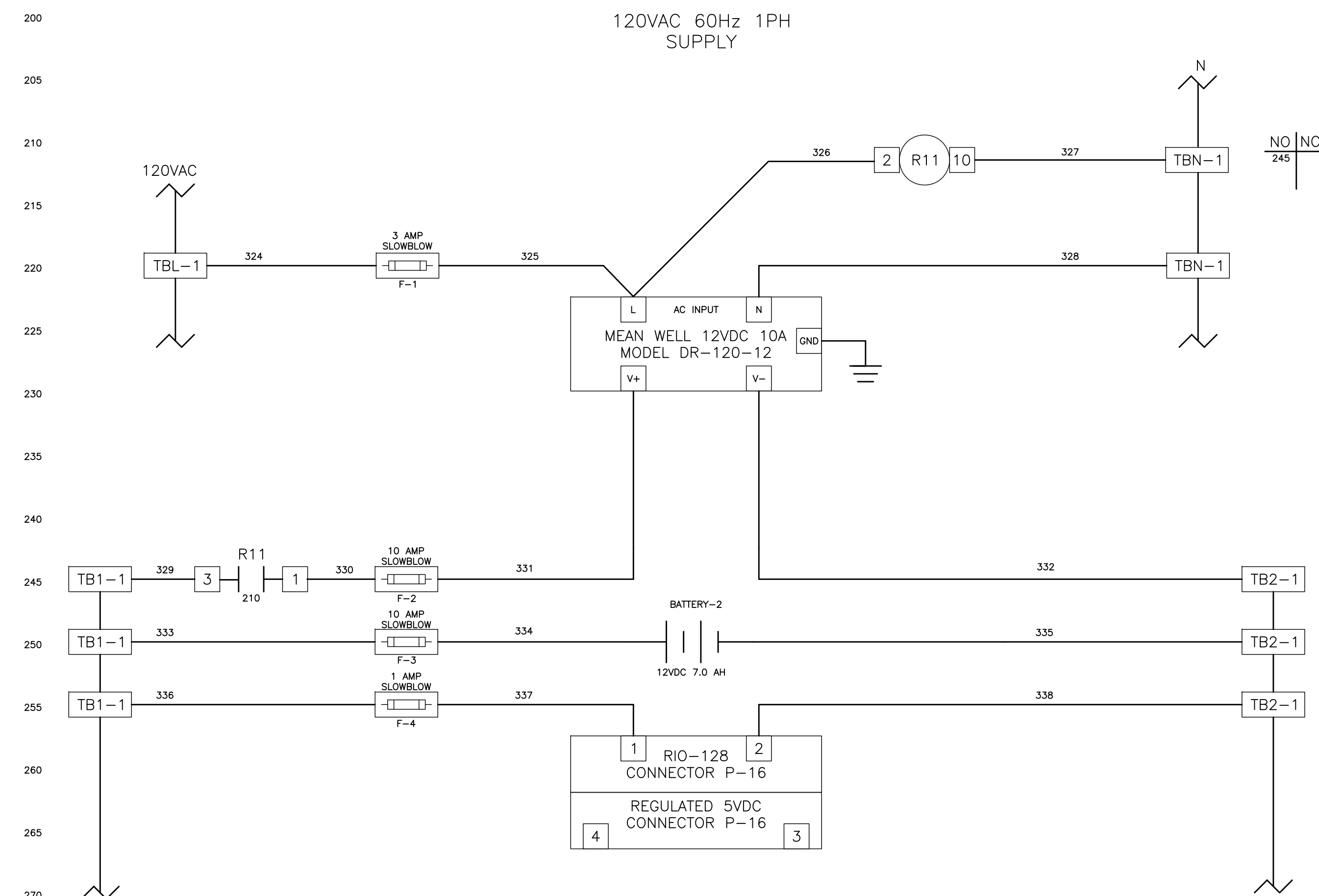
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SURVEYED BY:		DRAWN BY:			
REVIEWED BY:					
PROJECT ENGINEER		DATE			
APPROVED BY:					
CITY ENGINEER MICHAEL D. QUILLEN, P.E. # 33721		DATE		REVISION	BY DATE

CITY OF CLEARWATER, FLORIDA
ENGINEERING DEPARTMENT
100 S. MYRTLE AVE.
CLEARWATER, FL 33756



TYPICAL DFS CABINET SCHEMATIC WIRING DIAGRAM

OWG NAME: ####	FIELD BOOK: N/A	SURVEYED BY: CLEARWATER	SCALE: VERT. N/A
CONTRACT NO.: ####	DATE DRAWN: ####	DRAWN BY: JLH	HORIZ. N/A
JOB NO.: 22609.19	DESIGNED BY: TDT	CHECKED BY: GLW	SHEET NO.: 7 OF 21
APPROVED FOR _____			



WIRE LEGEND

CONTROL WIRE SIZE #16 UNLESS NOTED
ANALOG WIRE #18 SHIELDED TWISTED PAIR
AC CONTROL WIRES - RED
NEUTRAL WIRES - WHITE
DC+ WIRES - BLUE
DC- WIRES - BLUE/WHITE
POWERED FROM FIELD - YELLOW
FIELD WIRING - - - - -

NOTE:

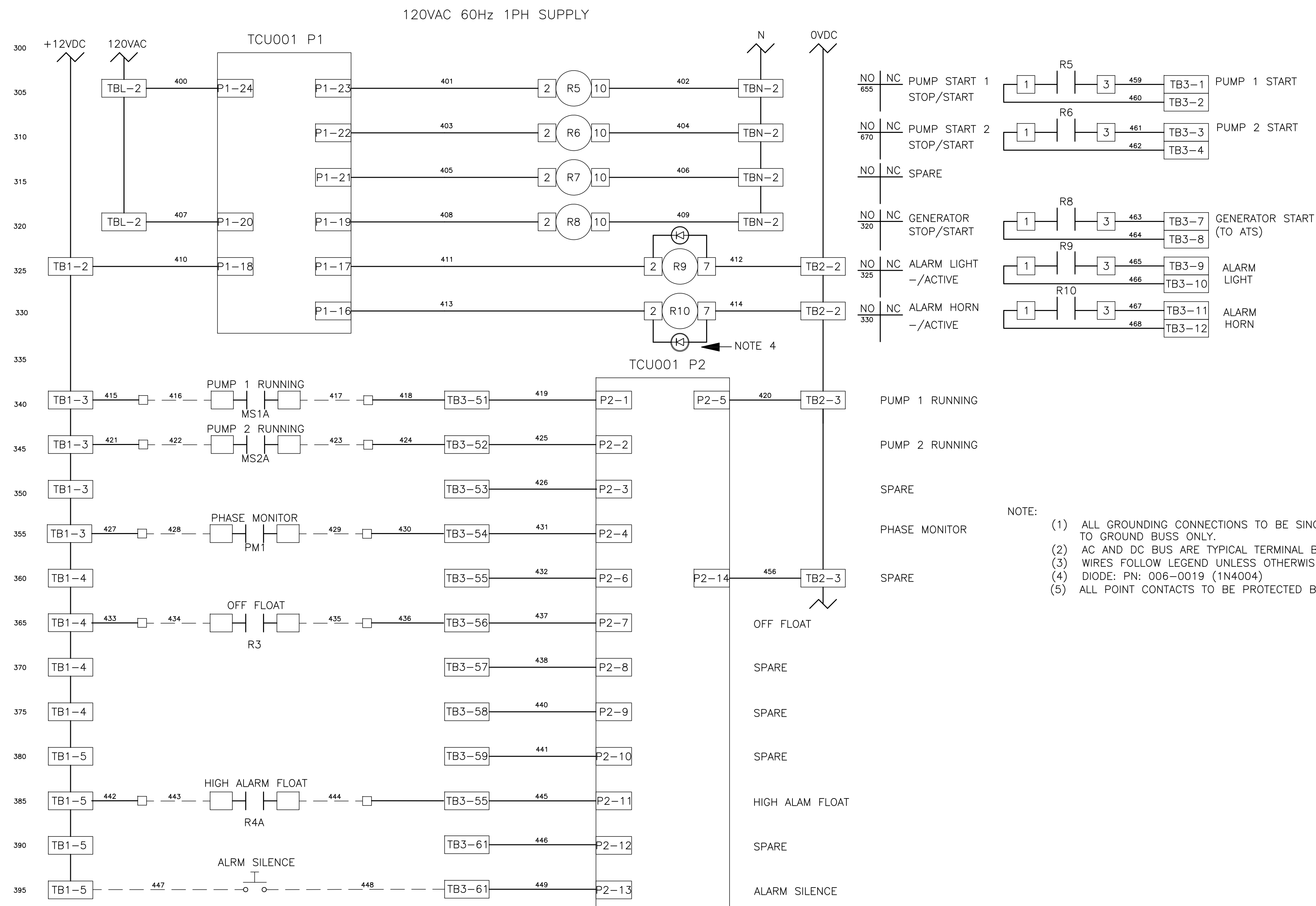
- (1) ALL GROUNDING CONNECTIONS TO BE SINGLE POINT TO GROUND BUS ONLY.
- (2) AC AND DC BUS ARE TYPICAL TERMINAL BLOCK BUSES.
- (3) WIRES FOLLOW LEGEND UNLESS OTHERWISE MARKED.
- (4) ALL POINT CONTACTS TO BE PROTECTED BY ANTIOXIDANT COMPOUND.

RECORD DRAWINGS			
SURVEYED BY:	DRAWN BY:		
REVIEWED BY:			
PROJECT ENGINEER	DATE		
APPROVED BY:			
CITY ENGINEER MICHAEL D. QUILLLEN, P.E. # 33721	DATE	REVISION	BY DATE

CITY OF CLEARWATER, FLORIDA
ENGINEERING DEPARTMENT
100 S. MYRTLE AVE.
CLEARWATER, FL 33756

TYPICAL DFS CABINET
SCHEMATIC WIRING DIAGRAM

DWG NAME: #####	FIELD BOOK: N/A	SURVEYED BY: CLEARWATER	SCALE: VERT. N/A
CONTRACT NO.: #####	DATE DRAWN: #####	DRAWN BY: JLH	HORIZ. N/A
JOB NO.: 22609.19	DESIGNED BY: TDT	CHECKED BY: GLW	SHEET NO. 8 OF 21
APPROVED FOR _____			



- NOTE:
- (1) ALL GROUNDING CONNECTIONS TO BE SINGLE POINT TO GROUND BUSS ONLY.
 - (2) AC AND DC BUS ARE TYPICAL TERMINAL BLOCK BUSSES.
 - (3) WIRES FOLLOW LEGEND UNLESS OTHERWISE MARKED.
 - (4) DIODE: PN: 006-0019 (1N4004)
 - (5) ALL POINT CONTACTS TO BE PROTECTED BY ANTIOXIDANT COMPOUND.

RECORD DRAWINGS				
SURVEYED BY:	DRAWN BY:			
REVIEWED BY:				
PROJECT ENGINEER	DATE			
APPROVED BY:				
CITY ENGINEER MICHAEL G. QUILLLEN, P.E. # 33721	DATE			
REVISION		BY	DATE	

CITY OF CLEARWATER, FLORIDA
ENGINEERING DEPARTMENT
100 S. MYRTLE AVE.
CLEARWATER, FL 33756



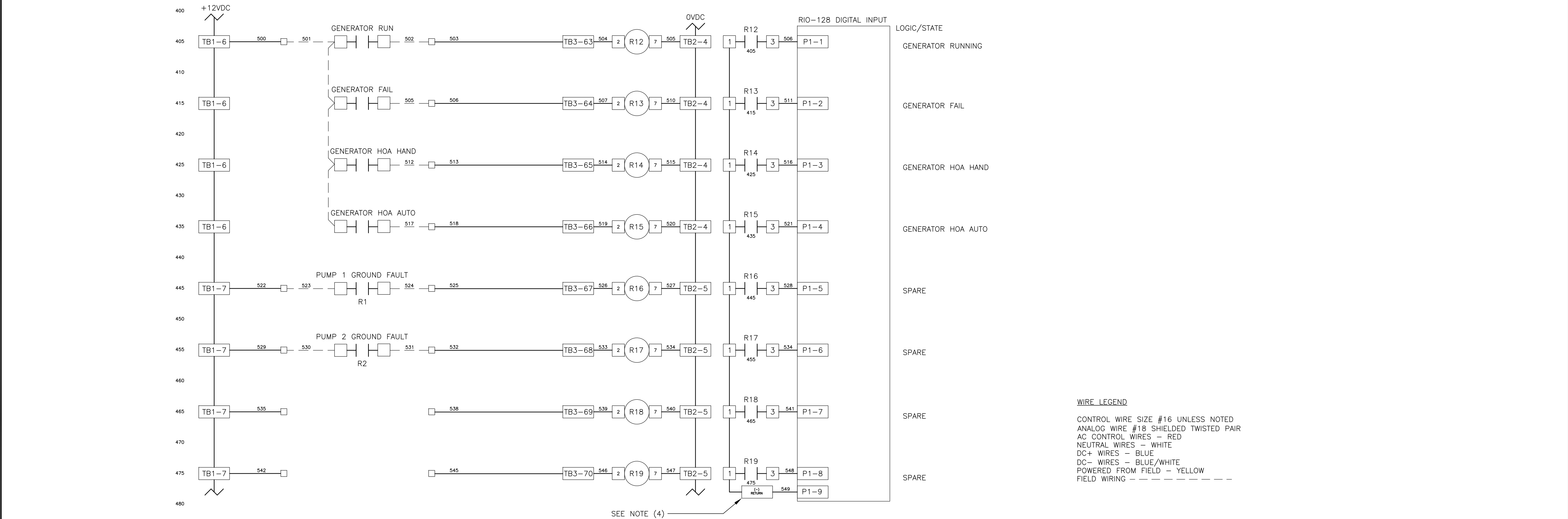
TYPICAL DFS CABINET SCHEMATIC WIRING DIAGRAM

DWG NAME: ###	FIELD BOOK: N/A	SURVEYED BY: CLEARWATER	SCALE: VERT. N/A
CONTRACT NO.: ###	DATE DRAWN: ###	DRAWN BY: JLH	HORIZ. N/A
JOB NO.: 22609.19	DESIGNED BY: TDT	CHECKED BY: GLW	SHEET NO.: 9 OF 21
APPROVED FOR			

TIMOTHY THOMAS P.E. No. 47079

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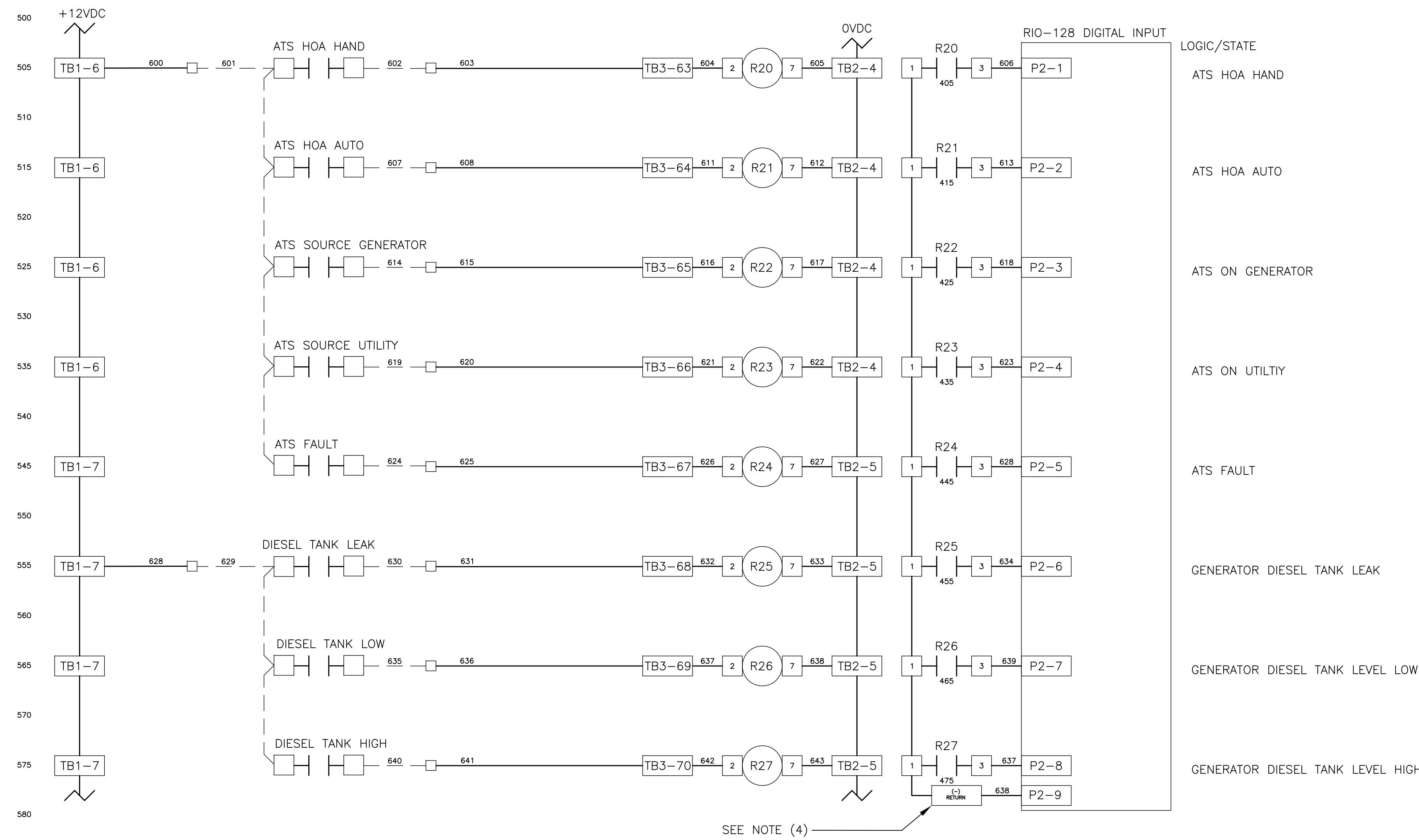
WIRE LEGEND

CONTROL WIRE SIZE #16 UNLESS NOTED
ANALOG WIRE #18 SHIELDED TWISTED PAIR
AC CONTROL WIRES - RED
NEUTRAL WIRES - WHITE
DC+ WIRES - BLUE
DC- WIRES - BLUE/WHITE
POWERED FROM FIELD - YELLOW
FIELD WIRING - - - - -

NOTE:

- (1) ALL GROUNDING CONNECTIONS TO BE SINGLE POINT TO GROUND BUS ONLY.
- (2) AC AND DC BUS ARE TYPICAL TERMINAL BLOCK BUSES.
- (3) WIRES FOLLOW LEGEND UNLESS OTHERWISE MARKED.
- (4) TERMINAL BLOCKS ARE FOR THE DC RETURN (-) BUS FOR THE RIO-128 DIGITAL INPUTS.
- (5) ALL POINT CONTACTS TO BE PROTECTED BY ANTIOXIDANT COMPOUND.

RECORD DRAWINGS					<div><div><div><div><div></div><div>NO</div></div><div>CALL 811</div></div><div><div>SUNSHINE STATE ONE CALL OF FLORIDA www.callsunshine.com (800) 432-4770 MIN. 48 HOURS BEFORE YOU EXCAVATE</div></div></div><div><div>CITY OF CLEARWATER, FLORIDA ENGINEERING DEPARTMENT 100 S. MYRTLE AVE. CLEARWATER, FL 33756</div></div></div>	TYPICAL DFS CABINET SCHEMATIC WIRING DIAGRAM																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										</
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NOTE:
(1) ALL GROUNDING CONNECTIONS TO BE SINGLE POINT TO GROUND BUS ONLY.
(2) AC AND DC BUS ARE TYPICAL TERMINAL BLOCK BUSES.
(3) WIRES FOLLOW LEGEND UNLESS OTHERWISE MARKED.
(4) TERMINAL BLOCKS ARE FOR THE DC RETURN (-) BUS FOR THE RIO-128 DIGITAL INPUTS.
(5) ALL POINT CONTACTS TO BE PROTECTED BY ANTIOXIDANT COMPOUND.

WIRE LEGEND
CONTROL WIRE SIZE #16 UNLESS NOTED
ANALOG WIRE #18 SHIELDED TWISTED PAIR
AC CONTROL WIRES - RED
NEUTRAL WIRES - WHITE
DC+ WIRES - BLUE
DC- WIRES - BLUE/WHITE
POWERED FROM FIELD - YELLOW
FIELD WIRING - - - - -

RECORD DRAWINGS				
SURVEYED BY:	DRAWN BY:			
REVIEWED BY:				
PROJECT ENGINEER	DATE			
APPROVED BY:				
CITY ENGINEER MICHAEL D. QUILLEN, P.E. # 33721	DATE			

CITY OF CLEARWATER, FLORIDA
ENGINEERING DEPARTMENT
100 S. MYRTLE AVE.
CLEARWATER, FL 33756

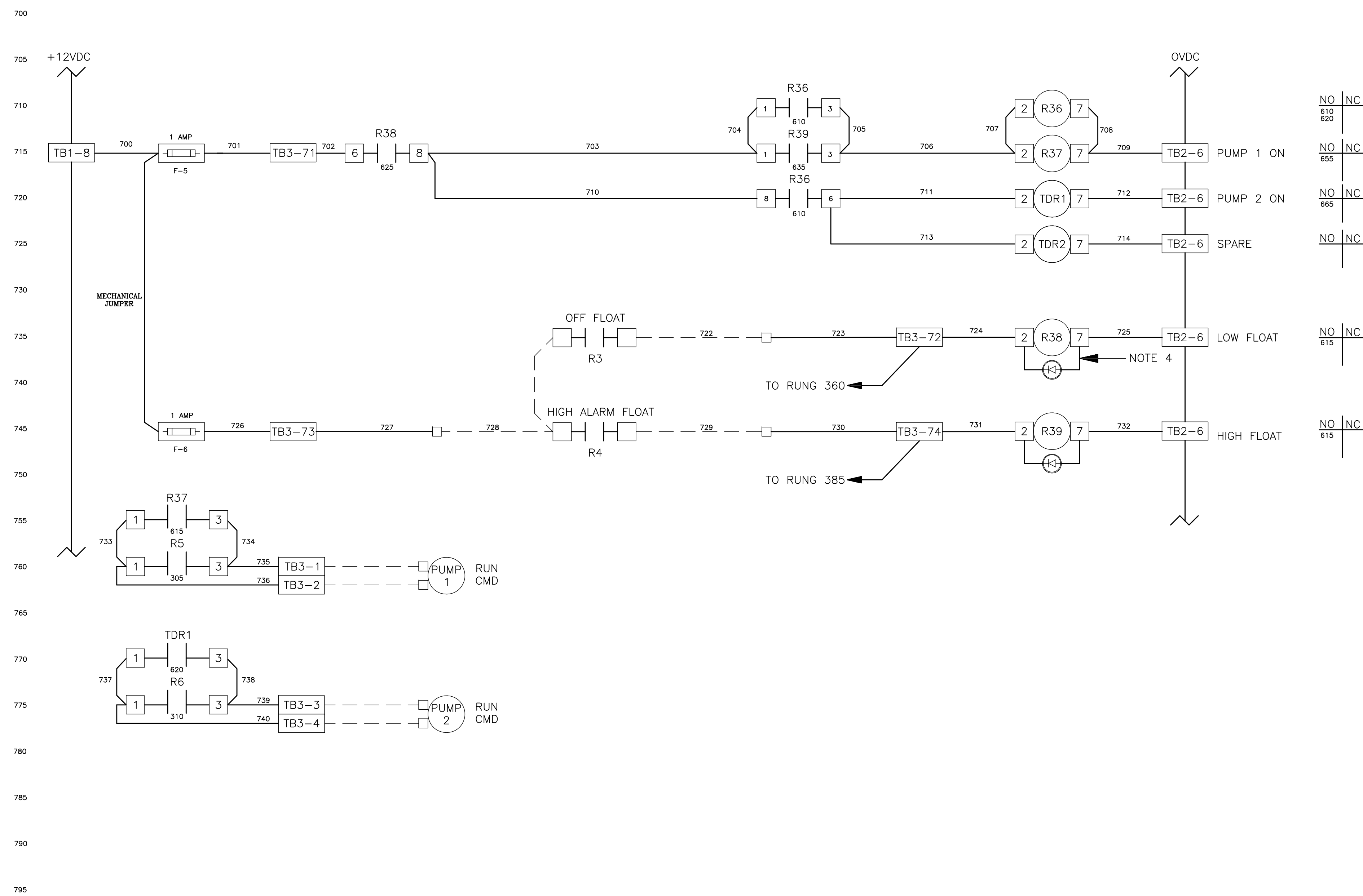
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TYPICAL DFS CABINET
SCHEMATIC WIRING DIAGRAM

DWG NAME: ###	FIELD BOOK: N/A	SURVEYED BY: CLEARWATER	SCALE: VERT. N/A
CONTRACT NO.: ###	DATE DRAWN: ###	DRAWN BY: JLH	HORIZ. N/A
JOB NO.: 22609.19	DESIGNED BY: TDT	CHECKED BY: GLW	SHEET NO.: 11 OF 21
APPROVED FOR			



- NOTE:
- (1) ALL GROUNDING CONNECTIONS TO BE SINGLE POINT TO GROUND BUS ONLY.
 - (2) AC AND DC BUS ARE TYPICAL TERMINAL BLOCK BUSES.
 - (3) WIRES FOLLOW LEGEND UNLESS OTHERWISE MARKED.
 - (4) DIODE: PN: 006-0019 (1N4004)
 - (5) ALL POINT CONTACTS TO BE PROTECTED BY ANTIOXIDANT COMPOUND.

TIMOTHY THOMAS P.E. No. 47079

TRICON
ENGINEERING

777 S. Harbour Island Blvd,
Suite 350
Tampa, FL 33602
813.227.9100
Certificate of Authorization No. 31028

RECORD DRAWINGS				
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REVIEWED BY:				
PROJECT ENGINEER	DATE			
APPROVED BY:				
CITY ENGINEER MICHAEL G. QUILLIN, P.E. # 33721	DATE			

CITY OF CLEARWATER, FLORIDA
ENGINEERING DEPARTMENT
100 S. MYRTLE AVE.
CLEARWATER, FL 33756

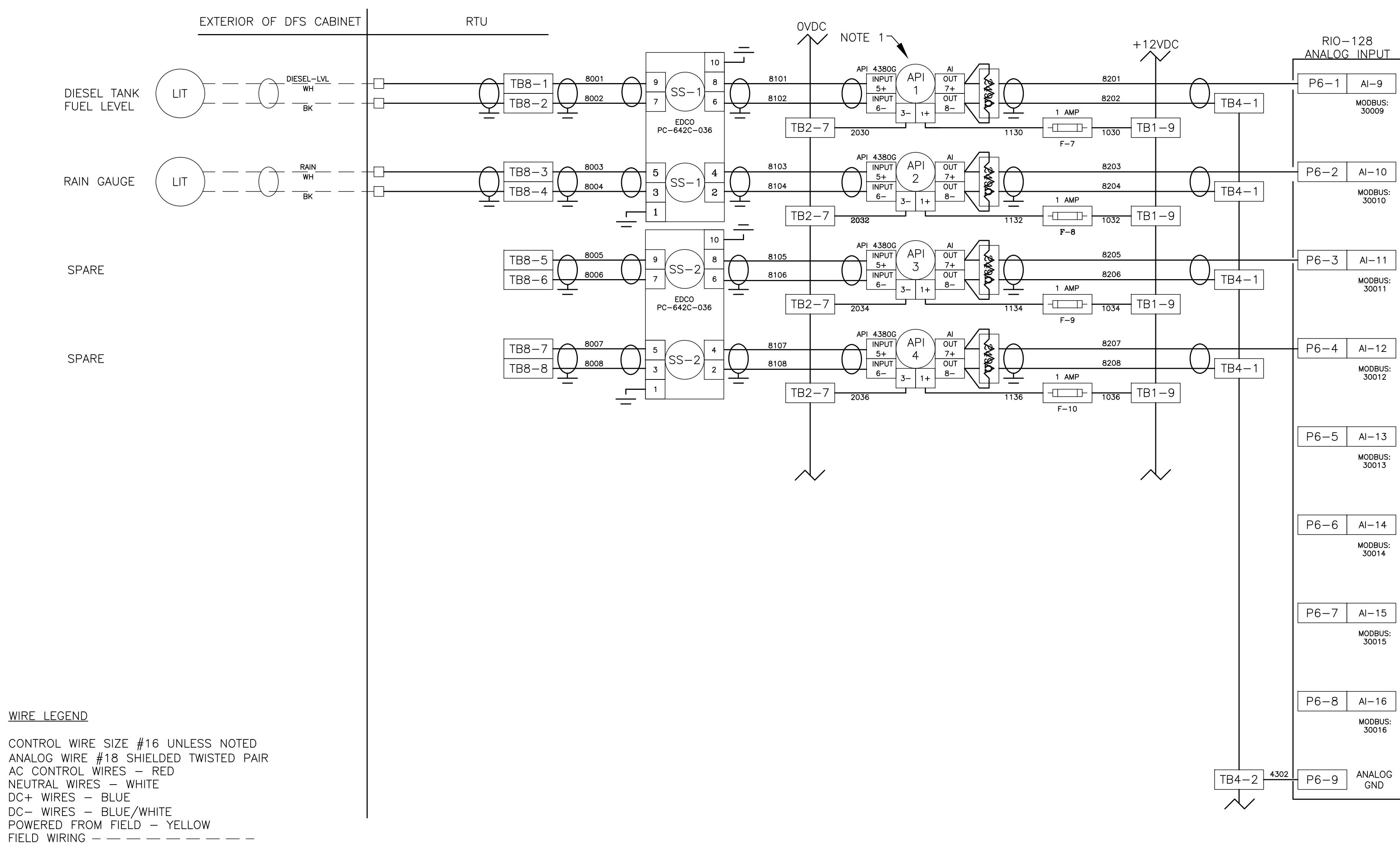
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TYPICAL DFS CABINET SCHEMATIC WIRING DIAGRAM

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CONTRACT NO.: ###	DATE DRAWN: ###	DRAWN BY: JLH	HORIZ. N/A
JOB NO.: 22609.19	DESIGNED BY: TDT	CHECKED BY: GLW	SHEET NO.: 12 OF 21
APPROVED FOR			



RECORD DRAWINGS				
SURVEYED BY:	DRAWN BY:			
REVIEWED BY:				
APPROVED BY:				
CITY ENGINEER MICHAEL D. QUILLLEN, P.E. # 33721		REVISION	BY	DATE

CITY OF CLEARWATER, FLORIDA
ENGINEERING DEPARTMENT
100 S. MYRTLE AVE.
CLEARWATER, FL 33756



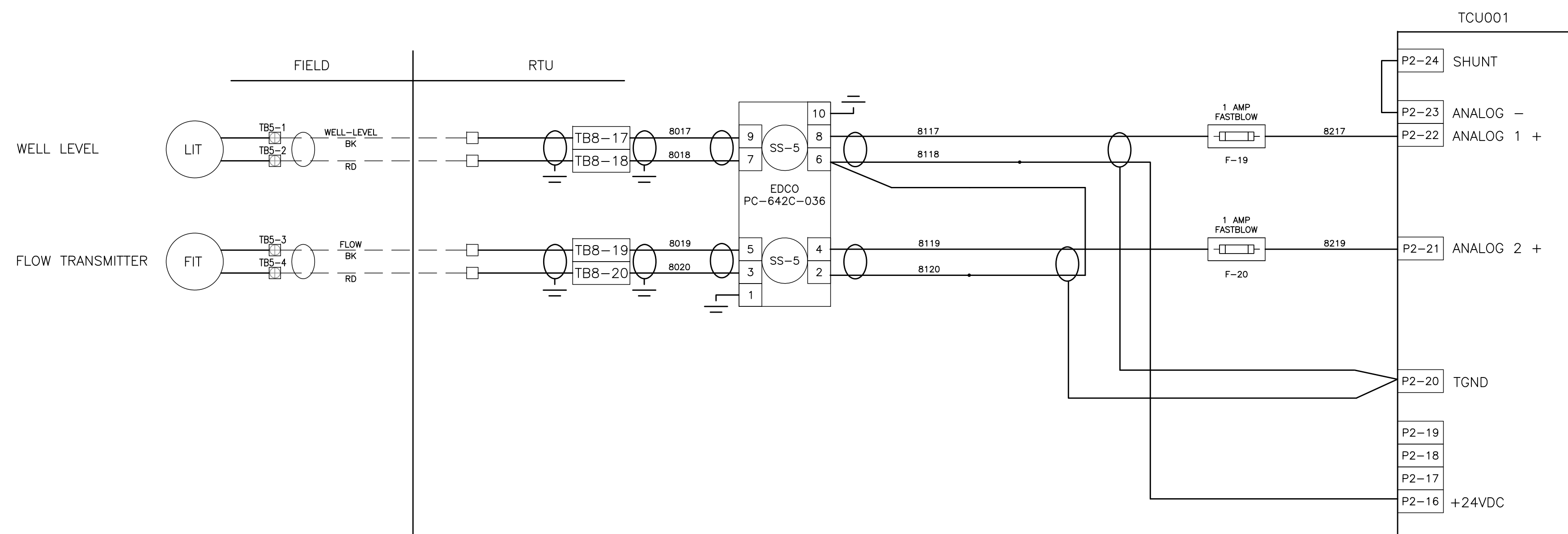
TYPICAL DFS CABINET SCHEMATIC WIRING DIAGRAM

DWG NAME: ###	FIELD BOOK: N/A	SURVEYED BY: CLEARWATER	SCALE: VERT. N/A
CONTRACT NO.: ###	DATE DRAWN: ###	DRAWN BY: JLH	HORIZ. N/A
JOB NO.: 22609.19	DESIGNED BY: TDT	CHECKED BY: GLW	SHEET NO.: 13 OF 21
APPROVED FOR			

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WIRE LEGEND

CONTROL WIRE SIZE #16 UNLESS NOTED
ANALOG WIRE #18 SHIELDED TWISTED PAIR
AC CONTROL WIRES - RED
NEUTRAL WIRES - WHITE
DC+ WIRES - BLUE
DC- WIRES - BLUE/WHITE
POWERED FROM FIELD - YELLOW
FIELD WIRING - - - - -

NOTE:

- (1) LOOP ISOLATORS ON ANALOG INPUTS MUST BE CORRECTLY CONFIGURED FOR 4-20ma INPUT & 4-20ma OUTPUT BEFORE INSTALLING; FAILURE TO DO SO WILL RESULT IN EQUIPMENT DAMAGE AND VOIDS FACTORY WARRANTY
- (2) DO NOT EXCEED 5.5 VOLTS ON ANALOG INPUTS.
- (3) LOOP ISOLATORS ARE RECOMMENDED FOR CIRCUIT PROTECTION.
- (4) STATIC SENSITIVE DEVICES; OBSERVE PROPER ESD PROCEDURES DURING INSTALLATION.
- (5) ALL POINT CONTACTS TO BE PROTECTED BY ANTIOXIDANT COMPOUND.

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CITY ENGINEER MICHAEL D. QUILLIN, P.E. # 33721	DATE			

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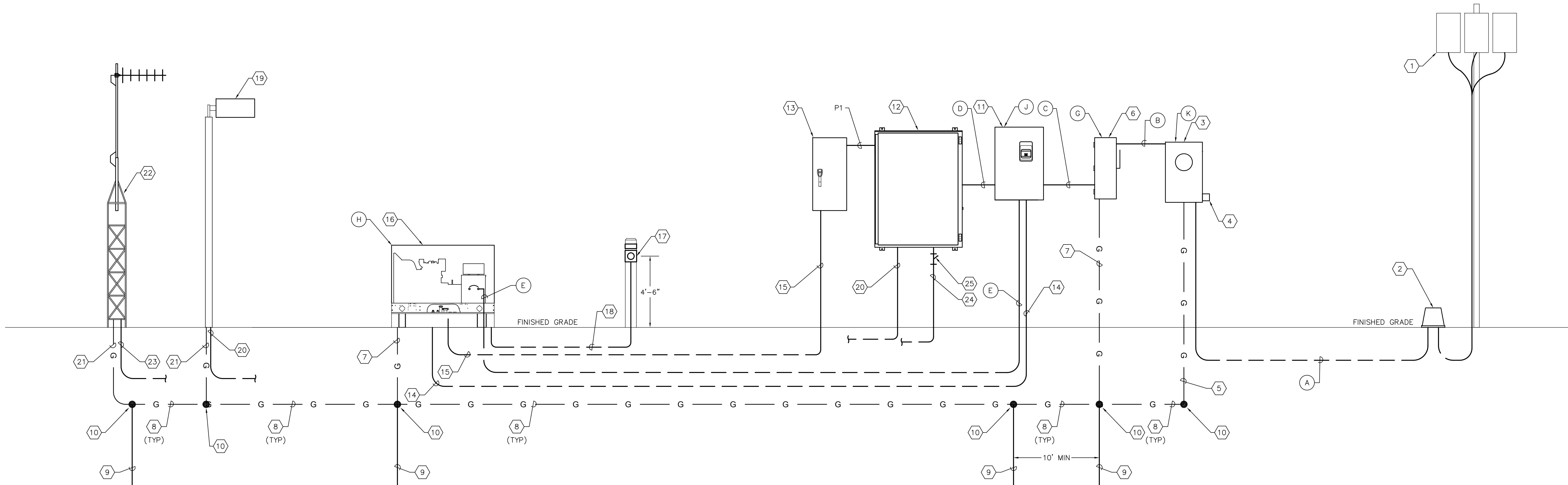
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SCHEMATIC WIRING DIAGRAM

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CONTRACT NO.: ###	DATE DRAWN: ###	DRAWN BY: JLH	HORIZ. N/A
JOB NO.: 22609.19	DESIGNED BY: TDT	CHECKED BY: GLW	SHEET NO.: 14 OF 21
APPROVED FOR			



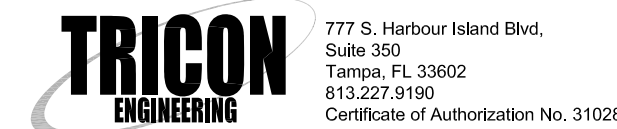
ONE LINE DIAGRAM NOTES:

- 1 UTILITY TRANSFORMERS. COORDINATE ALL WORK WITH UTILITY.
- 2 PROVIDE AND INSTALL UTILITY APPROVED PEDESTAL.
- 3 PROVIDE AND INSTALL NEW 480V, 3Ø, METER SOCKET. GROUND METER SOCKET PER UTILITY SPECIFICATIONS. COORDINATE NEW ELECTRICAL SERVICE ENTRANCE REQUIREMENTS WITH UTILITY. REFER TO SCHEDULE FOR SIZE REQUIRED PER SITE.
- 4 PROVIDE AND INSTALL UTILITY APPROVED LIGHTNING PROTECTION DEVICE.
- 5 PROVIDE AND INSTALL #4 CU GROUNDING ELECTRODE CONDUCTOR. COORDINATE REQUIREMENTS WITH UTILITY.
- 6 PROVIDE AND INSTALL NEW 240, 3-POLE DISCONNECT IN NEMA 4X STAINLESS STEEL ENCLOSURE. PROVIDE SOLID NEUTRAL AND GROUND LUG KITS TO MAKE DISCONNECT SERVICE ENTRANCE RATED. REFER TO SCHEDULE FOR AMPERE AND FUSING REQUIREMENTS.
- 7 PROVIDE AND INSTALL #4 CU GROUNDING ELECTRODE CONDUCTOR.
- 8 PROVIDE AND INSTALL 1/0 AWG CU GROUNDING ELECTRODE CONDUCTOR.
- 9 PROVIDE AND INSTALL 5/8" X 20'-0" GROUNDING ELECTRODE.
- 10 EXOTHERMIC WELD.
- 11 PROVIDE AND INSTALL 3-POLE, S/N, 240V, TRANSFER SWITCH IN NEMA 3R STAINLESS STEEL ENCLOSURE. REFER TO SCHEDULE FOR SIZE.
- 12 PROVIDE AND INSTALL PUMP CONTROL PANEL.
- 13 PROVIDE AND INSTALL 240V, 60A, SINGLE-PHASE LOADCENTER IN NEMA 3R STAINLESS STEEL ENCLOSURE. REFER TO SHEET 18 FOR PANEL SCHEDULE.
- 14 PROVIDE AND INSTALL 4-#12 THWN CU + 1-#12 THWN CU GND IN 3/4"C. FOR GENERATOR START CONTROL. VERIFY/COORDINATE REQUIREMENTS WITH TRANSFER SWITCH/GENERATOR MANUFACTURER.
- 15 PROVIDE AND INSTALL THE FOLLOWING CIRCUITS FOR GENERATOR AUXILIARY EQUIPMENT : 2#12 THWN CU + 1-#12 THWN CU GND IN 3/4"C. FOR GENERATOR ALTERNATOR HEATER. 2#12 THWN CU + 1-#12 THWN CU GND IN 3/4"C. FOR GENERATOR BLOCK HEATER. 2-#12 THWN CU + 1-#12 THWN CU GND IN 3/4"C. FOR GENERATOR BATTERY CHARGER. CONFIRM/COORDINATE REQUIREMENTS WITH GENERATOR MANUFACTURER.
- 16 PROVIDE AND INSTALL NEW 240V, 3Ø, 4-WIRE GENERATOR IN WEATHERPROOF ENCLOSURE. REFER TO SCHEDULE FOR SIZE. REFER ALSO TO SPECIFICATIONS.
- 17 GENERATOR EMERGENCY SHUT DOWN PUSH BUTTON STATION. MAINTAINED 2 POSITION SWITCH w/ 1-5/8" DIA. OPERATOR, 1 N.O. & 1 N.C. CONTACT MOUNTED IN A NEMA 4X SS ENCLOSURE, 4'-6" ABOVE FINISHED GRADE ON 6" X 6" X 9' CONCRETE POST. PROVIDE PHENOLIC NAMEPLATE ABOVE PUSH BUTTON STATION. NAMEPLATE SHALL BE THREE-PLY PHENOLIC RED-WHITE-RED ENGRAVED THROUGH THE FIRST RED LAYER. LETTERING SHALL BE 1/2" MIN., EDGES OF NAMEPLATE SHALL BE BEVELED 45 DEG. NAMEPLATE SHALL READ AS FOLLOWS: "GENERATOR EMERGENCY SHUT DOWN".
- 18 PROVIDE AND INSTALL 2#12 THWN CU + 1-#12 THWN CU GND IN 3/4"C. FOR GENERATOR EMERGENCY SHUT DOWN CIRCUIT.
- 19 PROVIDE AND INSTALL AREA LIGHT. QUANTITY VARIES PER LIFT STATION SITE.
- 20 PROVIDE AND INSTALL 2-#12 THWN CU + 1-#12 THWN CU GND IN 3/4"C. TO PUMP CONTROL PANEL FOR AREA LIGHT POWER.
- 21 PROVIDE AND INSTALL #8 CU BONDING CONDUCTOR.
- 22 NEW DFS ANTENNA.
- 23 PROVIDE AND INSTALL COAXIAL CABLE IN 2"C. TO DFS CONTROL CABINET.
- 24 2-#12 THWN + 1-#12 THWN CU GND IN 3/4" C. TO WET WELL LIGHT. 3/4" CONDUIT SHALL BE A CONTINUOUS RUN OF RIGID ALUMINUM CONDUIT. THE RIGID ALUMINUM CONDUIT EXTENDING BELOW GRADE SHALL BE COATED WITH TWO COATS OF AN ASPHALTUM-TYPE PAINT ALONG ITS ENTIRE LENGTH BELOW GRADE, EXTENDING 6' ABOVE GRADE (OR ABOVE THE TOP OF THE FINISHED SLAB) AND IN ITS ENTIRETY WITHIN THE WET WELL.
- 25 PROVIDE AND INSTALL 3/4" EYS SEAL FOR CONDUIT TO WET WELL FOR WET WELL LIGHT.

GENERAL NOTES:

1. NOT ALL CONDUITS AND CONDUCTORS REQUIRED SHOWN FOR CLARITY. REFERENCE OTHER SHEETS FOR ADDITIONAL REQUIREMENTS.

TIMOTHY THOMAS P.E. No. 47079



RECORD DRAWINGS				
SURVEYED BY:	DRAWN BY:			
REVIEWED BY:				
PROJECT ENGINEER	DATE			
APPROVED BY:				
CITY ENGINEER MICHAEL D. QUILLLEN, P.E. # 33721	DATE			

CITY OF CLEARWATER, FLORIDA
ENGINEERING DEPARTMENT
100 S. MYRTLE AVE.
CLEARWATER, FL 33756



TYPICAL LIFT STATION
ONE LINE DIAGRAM

DWG NAME: ###	FIELD BOOK: N/A	SURVEYED BY: CLEARWATER	SCALE: VERT. N/A
CONTRACT NO.: ###	DATE DRAWN: ###	DRAWN BY: JLH	HORIZ. N/A
JOB NO.: 22609.19	DESIGNED BY: TDT	CHECKED BY: GLW	SHEET NO.: 15 OF 21
APPROVED FOR			

EQUIPMENT, CONDUIT AND CONDUCTOR SCHEDULES											
	9.4 HP STATIONS		10 HP STATIONS		11.6 HP STATIONS		12 HP LIFT STATIONS		FROM:	TO:	NOTES:
CONDUIT/CONDUCTORS	CONDUCTORS	CONDUIT	CONDUCTORS	CONDUIT	CONDUCTORS	CONDUIT	CONDUCTORS	CONDUIT			
Ⓐ	3-#3 THWN CU + 1-#3 THWN CU NEUTRAL	1-1/2" C.	3-#3 THWN CU + 1-#3 THWN CU NEUTRAL	1-1/2" C.	3-#1 THWN CU + 1-#1 THWN CU NEUTRAL	1-1/2" C.	3-#1 THWN CU + 1-#1 THWN CU NEUTRAL	1-1/2" C.	UTILITY	METER	
Ⓑ	3-#3 THWN CU + 1-#3 THWN CU NEUTRAL + 1-#8 THWN CU GND	1-1/2" C.	3-#3 THWN CU + 1-#3 THWN CU NEUTRAL + 1-#8 THWN CU GND	1-1/2" C.	3-#1 THWN CU + 1-#1 THWN CU NEUTRAL + 1-#6 THWN CU GND	1-1/2" C.	3-#1 THWN CU + 1-#1 THWN CU NEUTRAL + 1-#6 THWN CU GND	1-1/2" C.	METER	MAIN DISCONNECT	
Ⓒ	3-#3 THWN CU + 1-#3 THWN CU NEUTRAL + 1-#8 THWN CU GND	1-1/2" C.	3-#3 THWN CU + 1-#3 THWN CU NEUTRAL + 1-#8 THWN CU GND	1-1/2" C.	3-#1 THWN CU + 1-#1 THWN CU NEUTRAL + 1-#6 THWN CU GND	1-1/2" C.	3-#1 THWN CU + 1-#1 THWN CU NEUTRAL + 1-#6 THWN CU GND	1-1/2" C.	MAIN DISCONNECT	AUTOMATIC TRANSFER SWITCH	
Ⓓ	3-#3 THWN CU + 1-#3 THWN CU NEUTRAL + 1-#8 THWN CU GND	1-1/2" C.	3-#3 THWN CU + 1-#3 THWN CU NEUTRAL + 1-#8 THWN CU GND	1-1/2" C.	3-#1 THWN CU + 1-#1 THWN CU NEUTRAL + 1-#6 THWN CU GND	1-1/2" C.	3-#1 THWN CU + 1-#1 THWN CU NEUTRAL + 1-#6 THWN CU GND	1-1/2" C.	AUTOMATIC TRANSFER SWITCH	PUMP CONTROL PANEL	
Ⓔ	3-#3 THWN CU + 1-#3 THWN CU NEUTRAL + 1-#8 THWN CU GND	1-1/2" C.	3-#3 THWN CU + 1-#3 THWN CU NEUTRAL + 1-#8 THWN CU GND	1-1/2" C.	3-#1 THWN CU + 1-#1 THWN CU NEUTRAL + 1-#6 THWN CU GND	1-1/2" C.	3-#1 THWN CU + 1-#1 THWN CU NEUTRAL + 1-#6 THWN CU GND	1-1/2" C.	AUTOMATIC TRANSFER SWITCH	GENERATOR SET	
Ⓕ	3-#3 THWN CU + 1-#3 THWN CU NEUTRAL + 1-#8 THWN CU GND		3-#3 THWN CU + 1-#3 THWN CU NEUTRAL + 1-#8 THWN CU GND		3-#1 THWN CU + 1-#1 THWN CU NEUTRAL + 1-#6 THWN CU GND		3-#1 THWN CU + 1-#1 THWN CU NEUTRAL + 1-#6 THWN CU GND		PUMP CONTROL PANEL	GENERATOR RECEPTACLE	
Ⓖ	3-#8 THWN CU + 1-#10 THWN CU GND	2" C.	3-#8 THWN CU + 1-#10 THWN CU GND	2" C.	3-#8 THWN CU + 1-#10 THWN CU GND	2" C.	3-#8 THWN CU + 1-#10 THWN CU GND	2" C.	PUMP CONTROL PANEL	WET WELL JUNCTION BOX	
EQUIPMENT									NOTES:		
Ⓖ	100 AMPERE DISCONNECT FUSED AT 100 AMPERES		200 AMPERE DISCONNECT FUSED AT 125 AMPERES		200 AMPERE DISCONNECT FUSED AT 125 AMPERES		200 AMPERE DISCONNECT FUSED AT 125 AMPERES		ALL DISCONNECTS SHALL BE PADLOCKABLE		
Ⓕ	240V, 3ø, 40 KW GENERATOR WITH 100 AMPERE MAIN CIRCUIT BREAKER		240V, 3ø, 50 KW GENERATOR WITH 100 AMPERE MAIN CIRCUIT BREAKER		240V, 3ø, 50 KW GENERATOR WITH 100 AMPERE MAIN CIRCUIT BREAKER		240V, 3ø, 50 KW GENERATOR WITH 100 AMPERE MAIN CIRCUIT BREAKER				
Ⓖ	240V, 100 AMPERE TRANSFER SWITCH		240V, 125 AMPERE TRANSFER SWITCH		240V, 125 AMPERE TRANSFER SWITCH		240V, 125 AMPERE TRANSFER SWITCH				
Ⓖ	100 AMPERE, 240V, 3-PHASE METER		125 AMPERE, 240V, 3-PHASE METER		125 AMPERE, 240V, 3-PHASE METER		125 AMPERE, 240V, 3-PHASE METER				
PUMP CONTROL PANEL									NOTES:		
Ⓖ	100 AMPERE MAIN CIRCUIT BREAKER		125 AMPERE MAIN CIRCUIT BREAKER		125 AMPERE MAIN CIRCUIT BREAKER		125 AMPERE MAIN CIRCUIT BREAKER				
Ⓖ	100 AMPERE EMERGENCY CIRCUIT BREAKER		125 AMPERE EMERGENCY CIRCUIT BREAKER		125 AMPERE EMERGENCY CIRCUIT BREAKER		125 AMPERE EMERGENCY CIRCUIT BREAKER				
Ⓖ	50 AMP MOTOR CIRCUIT BREAKERS		60 AMP MOTOR CIRCUIT BREAKERS		70 AMP MOTOR CIRCUIT BREAKERS		70 AMP MOTOR CIRCUIT BREAKERS				
⓪	ALLEN BRADLEY 509 NEMA SIZE 2 MOTOR STARTER		ALLEN BRADLEY 509 NEMA SIZE 2 MOTOR STARTER		ALLEN BRADLEY 509 NEMA SIZE 2 MOTOR STARTER		ALLEN BRADLEY 509 NEMA SIZE 2 MOTOR STARTER				
Ⓖ	#8 AWG CU MOTOR CONDUCTORS		#8 AWG CU MOTOR CONDUCTORS		#8 AWG CU MOTOR CONDUCTORS		#8 AWG CU MOTOR CONDUCTORS				

LOAD CALCULATION: 9.4 HP	
MOTORS:	
PUMP NO. 1:	9.4 HP, 240 VAC, 3 ø, 26.0 A
PUMP NO. 2:	9.4 HP, 240 VAC, 3 ø, 26.0 A
MOTOR SUB-TOTAL	52.0 A
+ 25% OF LARGEST MOTOR	6.5 A
SUB-TOTAL	58.5 A
AUXILIARY EQUIPMENT	20.0 A
TOTAL MAXIMUM PHASE AMPERES	78.5 A
SERVICE SIZE:	
100 A, 240 VAC, 3 ø, 4 - WIRE MINIMUM.	

LOAD CALCULATION: 10 HP	
MOTORS:	
PUMP NO. 1:	10 HP, 240 VAC, 3 ø, 28.0 A
PUMP NO. 2:	10 HP, 240 VAC, 3 ø, 28.0 A
MOTOR SUB-TOTAL	56.0 A
+ 25% OF LARGEST MOTOR	7.0 A
SUB-TOTAL	63.0 A
AUXILIARY EQUIPMENT	20.0 A
TOTAL MAXIMUM PHASE AMPERES	83.0 A
SERVICE SIZE:	
125 A, 240 VAC, 3 ø, 4 - WIRE MINIMUM.	

LOAD CALCULATION: 11.6 HP	
MOTORS:	
PUMP NO. 1:	11.6 HP, 240 VAC, 3 ø, 32.5 A
PUMP NO. 2:	11.6 HP, 240 VAC, 3 ø, 32.5 A
MOTOR SUB-TOTAL	65.0 A
+ 25% OF LARGEST MOTOR	8.1 A
SUB-TOTAL	73.1 A
AUXILIARY EQUIPMENT	20.0 A
TOTAL MAXIMUM PHASE AMPERES	93.1 A
SERVICE SIZE:	
125 A, 240 VAC, 3 ø, 4 - WIRE MINIMUM.	

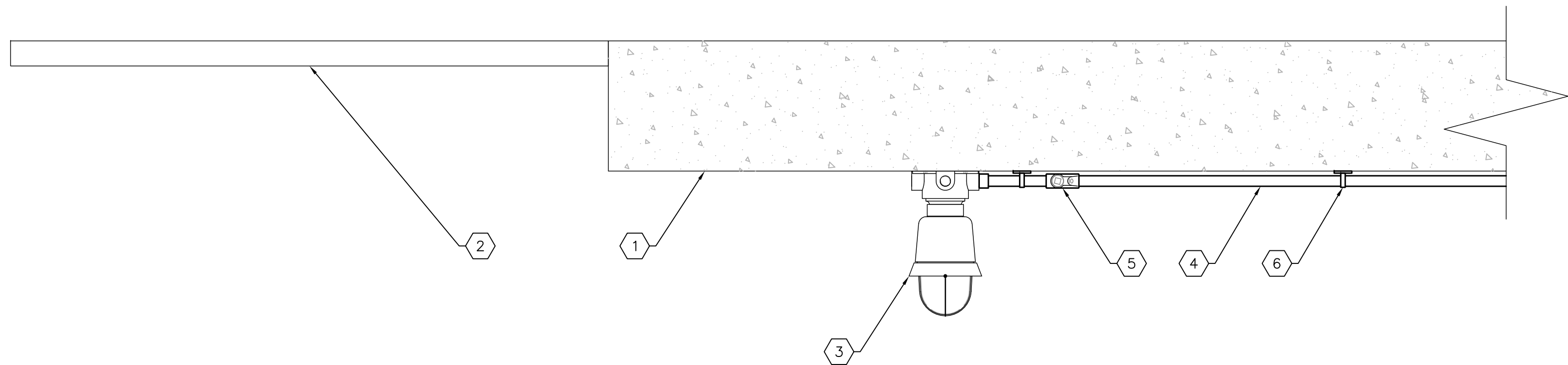
LOAD CALCULATION: 12 HP	
MOTORS:	
PUMP NO. 1:	12 HP, 240 VAC, 3 ø, 34.0 A
PUMP NO. 2:	12 HP, 240 VAC, 3 ø, 34.0 A
MOTOR SUB-TOTAL	68.0 A
+ 25% OF LARGEST MOTOR	8.5 A
SUB-TOTAL	76.5 A
AUXILIARY EQUIPMENT	20.0 A
TOTAL MAXIMUM PHASE AMPERES	96.5 A
SERVICE SIZE:	
125 A, 240 VAC, 3 ø, 4 - WIRE MINIMUM.	

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TIMOTHY THOMAS P.E. No. 47079

RECORD DRAWINGS					CITY OF CLEARWATER, FLORIDA ENGINEERING DEPARTMENT 100 S. MYRTLE AVE. CLEARWATER, FL 33756	<div><div>INVESTIGATE BEFORE YOU EXCAVATE</div><div>CALL 811</div><div>SUNSHINE STATE ONE CALL OF FLORIDA www.callsunshine.com (800) 432-4770 MIN. 48 HOURS BEFORE YOU EXCAVATE</div></div>	ELECTRICAL SCHEDULES AND LOAD CALCULATIONS		DWG NAME: ###		FIELD BOOK: N/A	SURVEYED BY: CLEARWATER	SCALE: N/A
CONTRACT NO.: ###		DATE DRAWN: ###	DRAWN BY: JLH	HORIZ: N/A									
JOB NO.: 22609.19		DESIGNED BY: TDT	CHECKED BY: GLW	SHEET NO.: 16 OF 21									
APPROVED FOR													
SURVEYED BY:		DRAWN BY:											
REVIEWED BY:													
PROJECT ENGINEER		DATE											
APPROVED BY:													
CITY ENGINEER MICHAEL D. QUILLEN, P.E. # 33721		DATE		REVISION	BY	DATE							



TYPICAL WET WELL LIGHT DETAIL
SCALE: NONE

KEYED NOTES:

1

UNDERSIDE OF PROPOSED WET WELL SLAB.

2

PROPOSED WET WELL HATCH.

3

PROVIDE AND INSTALL WET WELL LED LIGHT. CROUSE HINDS 120V WITH 19W LED DRIVER. PROVIDE GLOBE AND GUARD. SUITABLE FOR USE IN CLASS 1, DIVISION 1 ENVIRONMENT. UL WET LABEL. CROUSE HINDS MODEL #EVLEDBX2C701.

4

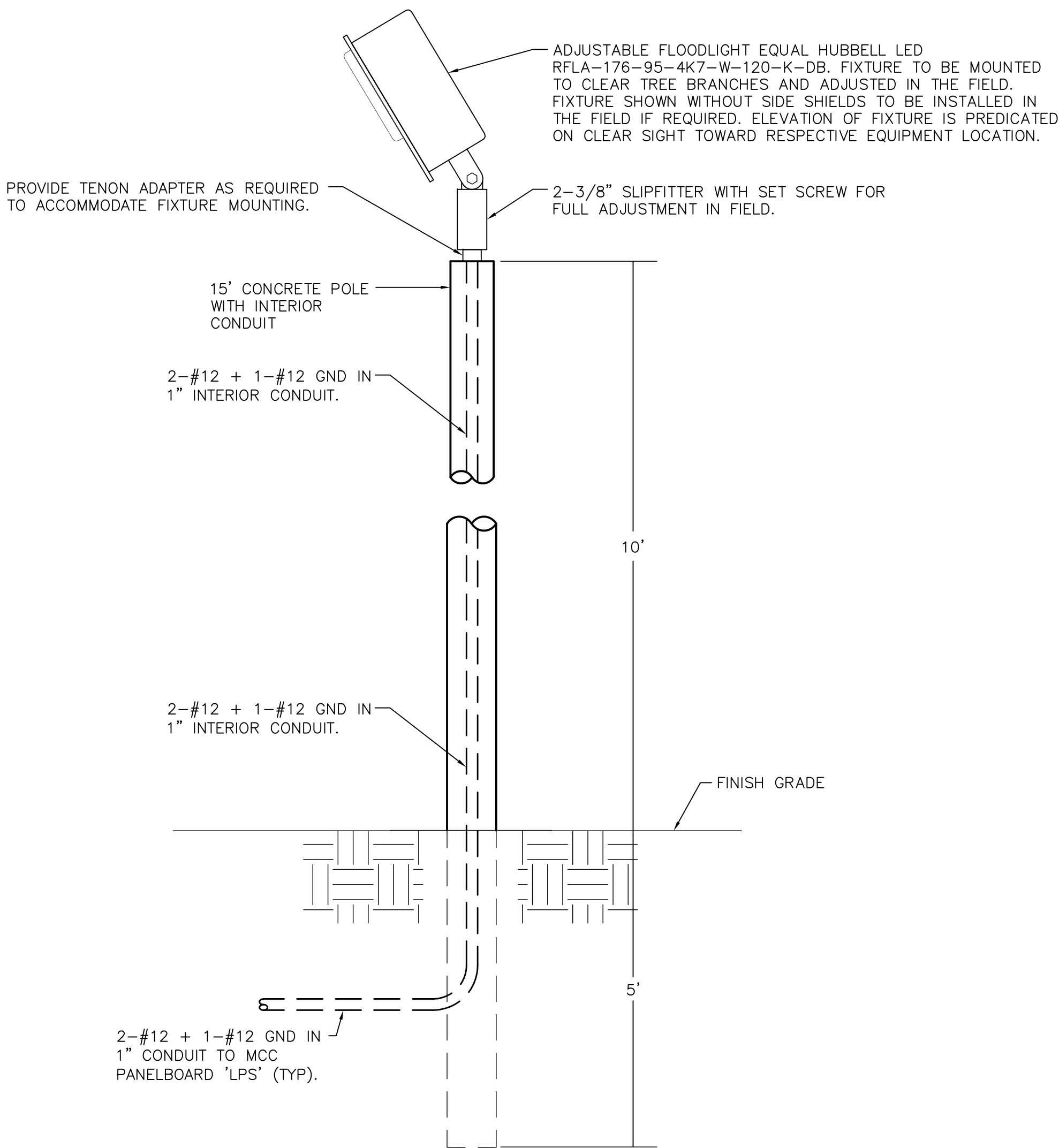
2-#12 THWN + 1-#12 THWN CU GND IN 3/4" C. TO WET WELL LIGHT. 3/4" CONDUIT SHALL BE A CONTINUOUS RUN OF RIGID ALUMINUM CONDUIT TO PUMP CONTROL PANEL. THE RIGID ALUMINUM CONDUIT SHALL BE COATED WITH TWO COATS OF AN ASPHALTUM-TYPE PAINT IN ITS ENTIRETY.

5

PROVIDE AND INSTALL 3/4" EYS SEAL.

6

PROVIDE AND INSTALL STAINLESS STEEL CONDUIT STRAPS SECURED WITH STAINLESS STEEL TAPCONS AND STAINLESS STEEL WASHERS.



TYPICAL AREA LIGHT DETAIL
SCALE: NONE

RECORD DRAWINGS				
SURVEYED BY:	DRAWN BY:			
REVIEWED BY:				
PROJECT ENGINEER	DATE			
APPROVED BY:				
CITY ENGINEER MICHAEL D. QUILLEN, P.E. # 33721	DATE			

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TYPICAL LIFT STATION
ELECTRICAL DETAILS

DWG NAME: ###	FIELD BOOK: N/A	SURVEYED BY: CLEARWATER	SCALE: VERT. N/A
CONTRACT NO.: ###	DATE DRAWN: ###	DRAWN BY: JLH	HORIZ. N/A
JOB NO.: 22609.19	DESIGNED BY: TDT	CHECKED BY: GLW	SHEET NO.: 17 OF 21
APPROVED FOR			

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POWER CONDUIT AND CABLE SCHEDULE					
CONDUIT No.	QTY/SIZE	NUMER OF CONDUCTORS/SIZE	FROM	TO	REMARKS
P1	1-1/4"	2-#6 + 1-#6 NEU + 1-#8 GND	PUMP CONTROL PANEL	PANELBOARD 'LP'	PANELBOARD 'LP' 240V FEEDER FROM THE PUMP CONTROL PANEL.
P2	3/4"	2-#12 + 1-#12 GND	PUMP CONTROL PANEL	AREA LIGHT(S)	QUANTITY OF AREA LIGHTS DIFFERS BETWEEN LS 54 AND LS 65.
P3	3/4"	2-#12 + 1-#12 GND	1ST AREA LIGHT	2ND AREA LIGHT	WHEN REQUIRED.
P4	3/4"	2-#12 + 1-#12 GND	PUMP CONTROL PANEL	WET WELL LIGHT	
P5	3/4"	4-#12 + 4-#12 NEU + 1-#12 GND	PANELBOARD 'LP'	PUMP CONTROL PANEL	120V POWER CIRCUITS FOR RECEPTACLE, LIGHTS AND CONTROLS. 'LP' CIRCUITS 2, 4, 6 AND 8.
P6	3/4"	2-#10 + 1-#10 NEU + 1-#10 GND	PANELBOARD 'LP'	PANELBOARD 'LP' SURGE PROT	CONNECT SURGE PROTECTION DEVICE VIA NON-METALLIC FLEXIBLE CONDUIT.
P7	1"	6-#12 + 2-#12 NEU + 1-#12 GND	PANELBOARD 'LP'	GENERATOR	POWER FOR GENERATOR BLOCK HEATER, ALTERNATOR HEATER AND BATTERY CHARGER. 'LP' CIRCUITS 5/7, 9 AND 11.
P8	3/4"	2-#12 + 1-#12 GND	PANELBOARD 'LP'	DFS CABINET	120V POWER FOR DFS CABINET. 'LP' CIRCUIT 10.
P9	2"	REFER TO 'P2' ON SHEET 16	PUMP CONTROL PANEL	WET WELL JUNCTION BOX	PUMP #1 POWER.
P10	2"	REFER TO 'P2' ON SHEET 16	PUMP CONTROL PANEL	WET WELL JUNCTION BOX	PUMP #2 POWER.
P11	3/4"	2-#12 + 1-#12 GND	PANELBOARD 'LP'	FLOW METER TRANSMITTER	120V POWER FOR FLOW METER TRANSMITTER. COORDINATE CONNECTION REQUIREMENTS WITH FLOW METER MANUFACTURER. 'LP' CIRCUIT 13.
P12	2"	CABLE SUPPLIED WITH PUMP	WET WELL JUNCTION BOX	WET WELL	PUMP #1 POWER.
P13	2"	CABLE SUPPLIED WITH PUMP	WET WELL JUNCTION BOX	WET WELL	PUMP #2 POWER.
C1	2"	4-#12 + 1-#12 GND	PUMP CONTROL PANEL	WET WELL JUNCTION BOX	CONDUCTORS FOR FLOATS.
C2	3/4"	4-#12 + 1-#12 GND	ATS	GENERATOR	GENERATOR STOP/START SIGNAL. COUNT INCLUDES SPARES.
C3	1"	16-#12 + 1-#12 GND	ATS	DFS CABINET	SIGNALS FOR ATS IN AUTO, ATS IN MANUAL, SOURCE - UTILITY, SOURCE - GENERATOR, ATS FAIL AND SCADA START GENERATOR. COUNT INCLUDES SPARES.
C4	1"	10-#12 + 1-#12 GND	GENERATOR	DFS CABINET	SIGNALS FOR GENERATOR RUNNING, GENERATOR IN AUTO, GENERATOR IN MANUAL AND GENERATOR FAIL. COUNT INCLUDES SPARES.
C5	3/4"	2/C-#16 TWISTED SHIELDED	PUMP CONTROL PANEL	FLOW METER TRANSMITTER	4-20mA FLOW METER SIGNAL.
C6	3/4"	2-#12 + 1-#12 GND	ATS	DFS CABINET	GENERATOR STOP/START SIGNAL FROM DFS (SCADA REMOTE START SIGNAL).
C7	1"	TWO (2) 2/C-#16 TWISTED SHIELDED	PUMP CONTROL PANEL	DFS CABINET	4-20mA FLOW METER SIGNAL AND LEVEL TRANSMITTER SIGNAL. BOTH CABLES SHALL BE BELDEN 8719.
C8	1-1/4"	20-#14 + 1-#14 GND	PUMP CONTROL PANEL	DFS CABINET	12V DC I/O SIGNALS BETWEEN PUMP CONTROL PANEL AND DFS CABINET. REFER TO DFS SCHEMATIC WIRING DIAGRAMS. COUNT INCLUDES SPARES.
C9		2/C-#16 TWISTED SHIELDED	DFS CABINET	RAIN GAUGE	CABLE BY RAIN GAUGE MANUFACTURER. CABLE NOT SHOWN ON PLANS FOR CLARITY. PROVIDE CABLE GROMMET FOR DFS CABINET.
C10	2"	EMPTY	DFS CABINET	DFS ANTENNA	CONDUIT FOR ANTENNA COAXIAL CABLE. CABLE TO BE INSTALLED BY DFS.
C11	2"	2/C-#16 TWISTED SHIELDED	PUMP CONTROL PANEL	WET WELL JUNCTION BOX	CONDUCTORS FOR LEVEL TRANSMITTER.
C12	2"	FLOAT CABLES SUPPLIED WITH FLOAT	WET WELL JUNCTION BOX	WET WELL	OFF AND HIGH FLOAT CABLES.
C13	2"	CABLE SUPPLIED WITH TRANSMITTER	WET WELL JUNCTION BOX	WET WELL	LEVEL TRANSMITTER CABLE.
C14	3/4"	2/C-#16 TWISTED SHIELDED	DFS CABINET	GENERATOR	4-20mA GENERATOR DIESEL TANK LEVEL SIGNAL.
C15	1-1/4"	14-#14 + 1-#14 GND	PUMP CONTROL PANEL	DFS CABINET	120V AC I/O SIGNALS BETWEEN PUMP CONTROL PANEL AND DFS CABINET. REFER TO DFS SCHEMATIC WIRING DIAGRAMS. COUNT INCLUDES SPARES.
C16	1"	8-#14 + 1-#14 GND	DFS CABINET	GENERATOR	I/O SIGNALS BETWEEN GENERATOR AND DFS CABINET FOR LEAK, LOW LOW LEVEL AND HIGH LEVEL ALARM SIGNALS. COUNT INCLUDES SPARES.

PROPOSED PANEL SCHEDULE													
PANEL 'LP' ; SQUARE D CO. ; 120/240 VOLTS, 1Ø, 3W ; 60 AMP MAIN ; SURFACE ENCLOSURE ; Q0 ; CIRCUIT BREAKER ; 35K AIC RATING ; TOP AT 5'-6" AFF													
EQUIPMENT SERVED	CIRCUIT BREAKER			KVA/PHASE		CIRC. NO.	CIRC. NO.	KVA/PHASE		CIRCUIT BREAKER			EQUIPMENT SERVED
	POLE	AMPS	FRAME	A	B			A	B	POLE	AMPS	FRAME	
SURGE PROTECTION DEVICE	2	30	QOB			1	2	0.8		1	20	QOB	PUMP CONTROL PANEL RECEPTACLE
" "	-	-	-			3	4		1.0	1	20	QOB	PUMP CONTROL PANEL LIGHTS
GENERATOR BLOCK HEATER	2	20	QOB	1.2		5	6	0.4		1	20	QOB	PUMP CONTROL PANEL CONTROLS
" "	-	-	-		1.2	7	8		0.4	1	20	QOB	PUMP CONTROL PANEL CONTROLS
GENERATOR ALTERNATOR HEATER	1	20	QOB	0.8		9	10	0.6		1	20	QOB	DFS CABINET
BATTERY CHARGER	1	20	QOB		1.0	11	12						SPACE
FLOW METER TRANSMITTER	1	20	QOB	0.2		13	14			--	--	--	SPACE
SPARE	1	20	QOB			15	16			--	--	--	SPACE
SUB-TOTAL KVA				2.2	2.2			1.8	1.4				
TOTAL CONNECTED LOAD = 7.6 KVA								TOTAL DEMAND LOAD = 7.6 KVA					

RECORD DRAWINGS				
SURVEYED BY:	DRAWN BY:			
REVIEWED BY:				
PROJECT ENGINEER	DATE			
APPROVED BY:				
CITY ENGINEER MICHAEL D. QUILLEN, P.E. # 335721	DATE	REVISION	BY	DATE

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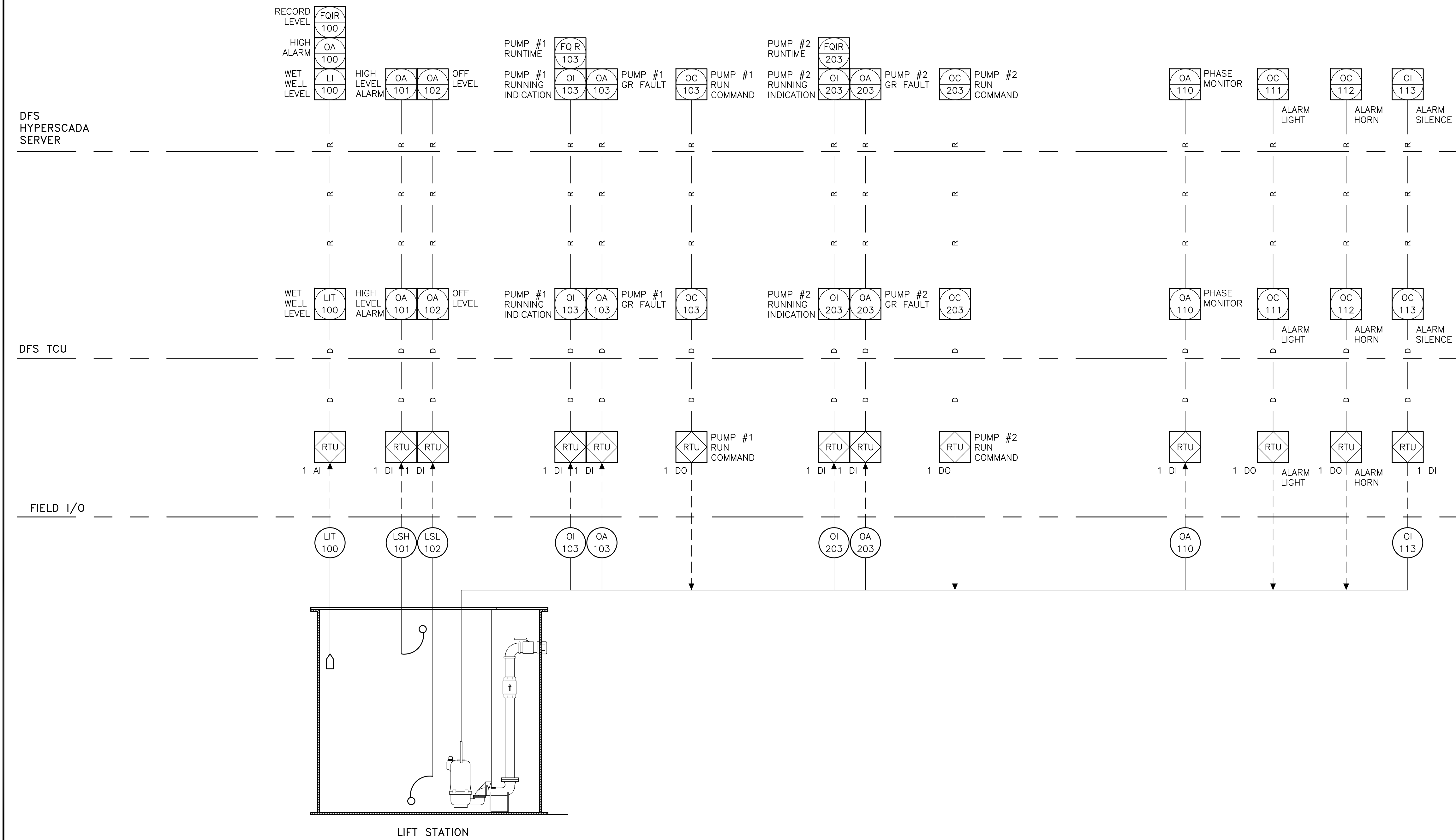


CONDUIT AND CABLE SCHEDULE
AND PANEL SCHEDULE

DWG NAME: ###	FIELD BOOK: N/A	SURVEYED BY: CLEARWATER	SCALE: VERT. N/A
CONTRACT NO.: ###	DATE DRAWN: ###	DRAWN BY: JLH	HORIZ. N/A
JOB NO.: 22609.19	DESIGNED BY: TDT	CHECKED BY: GLW	SHEET NO.: 18 OF 21
APPROVED FOR			

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APPROVED BY:				
CITY ENGINEER MICHAEL G. QUILLIN, P.E. # 33721	DATE			

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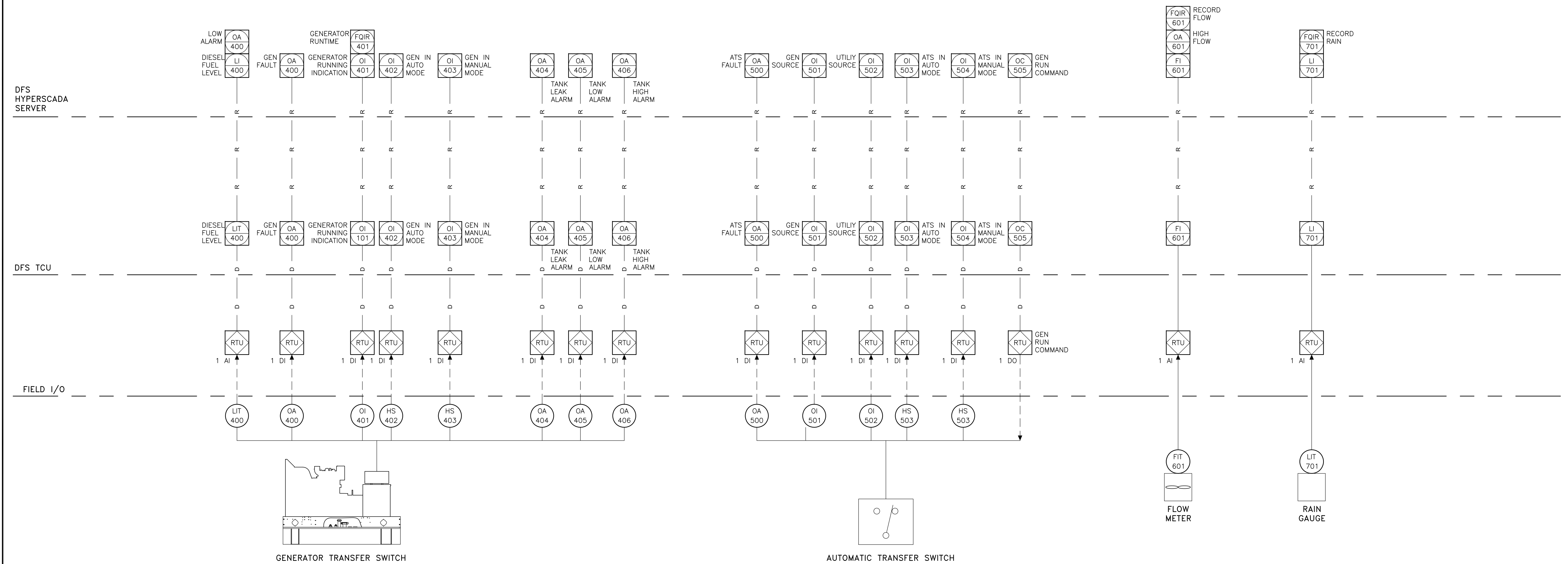
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JOB NO.: 22609.19	DESIGNED BY: TDT	CHECKED BY: GLW	SHEET NO.: 20 OF 21

APPROVED FOR



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REVIEWED BY:				
PROJECT ENGINEER	DATE			
APPROVED BY:				
CITY ENGINEER MICHAEL G. QUILLIN, P.E. # 33721	DATE			

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