

**DUPLEX PUMP STATION  
ELECTRICAL DRAWING INDEX**

STANDARD DRAWINGS

- E-1 ELECTRICAL DRAWING INDEX
- EE-2 ELECTRICAL SYMBOLS LEGEND & ABBREVIATIONS

DUPLEX PUMP STATION SITES

- E-3 STANDARD 480V-3Ø (0-30HP) DUPLEX PUMP STATION POWER, BONDING & GROUNDING PLAN
- E-4 STANDARD 480V-3Ø (0-30HP) DUPLEX PUMP STATION ELECTRICAL EQUIPMENT RACK ELEVATION
- E-5 STANDARD 480V-3Ø (0-30HP) DUPLEX PUMP STATION ELECTRICAL RISER DIAGRAM
- E-6 STANDARD 480V-3Ø (0-30HP) DUPLEX PUMP STATION CONTROL PANEL ELEVATION
- E-7 STANDARD 480V-3Ø (0-30HP) DUPLEX PUMP STATION CONTROL PANEL ELEMENTARY DRAWING
- E-8 STANDARD 480V-3Ø (0-30HP) DUPLEX PUMP STATION CONTROL PANEL ELEMENTARY DRAWING
- E-9 STANDARD 480V-3Ø (0-30HP) DUPLEX PUMP STATION CONTROL PANEL ELEMENTARY DRAWING
- E-10 STANDARD 480V-3Ø (0-30HP) DUPLEX PUMP STATION CONTROL PANEL ELEMENTARY DRAWING
- E-11 STANDARD 480V-3Ø (0-30HP) DUPLEX PUMP STATION DATA COLLECTOR INSTALLATION DRAWING

STANDARD DETAIL DRAWINGS

- ES-1 JUNCTION BOX AND TERMINAL STRIP INSTALLATION AT CONTROL PANEL LOCATION
- ES-2 GROUNDING DETAILS
- ES-3 STREAMER RETARDING FIXTURE AIR TERMINAL FIXTURE POLE MOUNTED
- ES-4 LEVEL TRANSMITTER DETAIL
- ES-5 TERMINATION OF SHIELDED INSTRUMENT CONTROL CABINET DETAIL
- ES-6 INSTRUMENT GROUNDING & SURGE PROTECTION DETAIL
- ES-7 UNDERGROUND CONDUIT INSTALLATION
- ES-8 GROUND ROD INSTALLATION DETAIL
- ES-9 STEP DOWN XFMR GROUNDING FOR 3PH 3WIRE DELTA PRIMARY, 3PH 4WIRE WYE SECONDARY

**GENERAL NOTE:**

*SITE SPECIFIC CONDITIONS DETERMINE THE CLASSIFICATION OF PUMP STATION IN ACCORDANCE WITH FDEP STANDARDS AND MUST BE DETERMINED BY THE DESIGN ENGINEER FOR EACH SPECIFIC PROJECT.*

**SUBMITTAL REQUIREMENT:**


*LEE COUNTY UTILITIES REQUIRES PUMP STATION SUBMITTALS BE PROVIDED FOR THEIR REVIEW TO ENSURE COMPLIANCE WITH THE LCU PUMP STATION STANDARDS.*

ELECTRICAL DRAWING  
INDEX

E - 1

NOTE:

THIS DRAWING IS A LEE COUNTY STANDARD DETAIL AND THEREFORE DOES NOT NEED TO BE SIGNED AND SEALED

|   |   |   |
|---|---|---|
|          | LEE COUNTY<br>SOUTHWEST<br>FLORIDA<br>1500 MONROE STREET  | LEE COUNTY<br>UTILITIES<br>ENGINEERING<br>FORT MYERS, FLORIDA 33901 |
|   | SHEET TITLE: <b>DUPLEX PUMP STATION<br/>DRAWING INDEX</b> |   |
| TITLE: <b>STANDARD 480V 3PH<br/>PUMP STATION</b>  |   |   |
| PROJECT: <b>WASTE WATER DUPLEX, TRIPLEX PUMP STA.<br/>MASTER PUMP STATION DESIGN STANDARD</b> |   |   |
| PROJECT NO:<br>480V 3PH PS  | FILE NAME:<br>480V 3PH                                    | SHEET NUMBER:<br>1 OF 10  |

**CONTROL/ELEMENTARY SYMBOLS**

|  |  |
|--|--|
|  | NORMALLY OPEN CONTACT                            |
|  | NORMALLY CLOSED CONTACT                          |
|  | LIMIT SWITCH, NORMALLY OPEN                      |
|  | LIMIT SWITCH, NORMALLY CLOSED                    |
|  | PRESSURE SWITCH, NORMALLY OPEN                   |
|  | PRESSURE SWITCH, NORMALLY CLOSED                 |
|  | FLOAT SWITCH, NORMALLY OPEN                      |
|  | FLOAT SWITCH, NORMALLY CLOSED                    |
|  | FLOW SWITCH, NORMALLY OPEN                       |
|  | FLOW SWITCH, NORMALLY CLOSED                     |
|  | TEMPERATURE SWITCH, NORMALLY OPEN                |
|  | TEMPERATURE SWITCH, NORMALLY CLOSED              |
|  | NORMALLY OPEN, TIMED TO CLOSE CONTACT            |
|  | NORMALLY CLOSED, TIMED TO OPEN CONTACT           |
|  | NORMALLY CLOSED, TIMED TO CLOSE CONTACT          |
|  | NORMALLY OPEN, TIMED TO OPEN CONTACT             |
|  | ANALYZER INDICATOR TRANSMITTER                   |
|  | ALARM RELAY                                      |
|  | ALARM TIMER                                      |
|  | CONTROL RELAY                                    |
|  | FLOW INDICATOR TRANSMITTER (TOTALIZER)           |
|  | FLOW SWITCH HIGH/LOW                             |
|  | LIQUID LEVEL SWITCH                              |
|  | LEVEL INDICATOR TRANSMITTER                      |
|  | LIMIT SWITCH OR LEVEL SWITCH                     |
|  | MOTOR SWITCH MANUAL                              |
|  | MOTOR STARTER                                    |
|  | PRESSURE GAUGE                                   |
|  | PROCESS FLOW TIMER                               |
|  | PRESSURE SWITCH                                  |
|  | TEMPERATURE SWITCH                               |
|  | TIMING RELAY                                     |
|  | SURGE SUPPRESSION DEVICE                         |
|  | SOLENOID VALVE                                   |
|  | VIBRATION SWITCH                                 |
|  | TORQUE SWITCH                                    |
|  | ZERO SPEED SWITCH                                |
|  | ALARM INDICATING LIGHT                           |
|  | RUN INDICATING LIGHT                             |
|  | MOMENTARY CONTACT PUSHBUTTON                     |
|  | MOMENTARY BREAK PUSHBUTTON OR RESET KEYED SWITCH |
|  | MAINTAINED CONTACT ON-OFF SWITCH                 |
|  | START/STOP (S/S) CONTROL SWITCH                  |
|  | MAINTAINED CONTACT                               |
|  | FUSE   |
|  | MOLDED CASE CIRCUIT BREAKER                      |
|  | CONTROL POWER TRANSFORMER                        |
|  | REMOTE TERMINAL BLOCK POINT                      |
|  | COPPERWELD GRD. ROD                              |
|  | HAND OFF REMOTE CONTROL STATION                  |
|  | HAND OFF AUTO CONTROL STATION                    |
|  | MOTOR STRIP HEATER                               |

**ELECTRICAL PLAN SYMBOLS**

|  |   |
|--|---|
|  | WALL OUTLET BOX AND 20 AMP SINGLE POLE SWITCH ('o' INDICATES SWITCHES) 48" TO CENTERLINE  |
|  | WALL OUTLET BOX AND 20 AMP 3-WAY SWITCH ('o' INDICATES SWITCHES) 48" TO CTR LINE.   |
|  | MANUAL MOTOR STARTING SWITCH WITH OVERLOADS AND PILOT LIGHT. NEMA 4X TYPICAL  |
|  | WALL OUTLET BOX AND 20 AMP SWITCH WITH WEATHERPROOF COVER OR ENCLOSURE.   |
|  | WALL OUTLET BOX AND 20 AMP DUPLEX RECEPTACLE 18" TO CENTERLINE  |
|  | WALL OUTLET BOX AND 20 AMP DUPLEX RECEPT MOUNTED 48" AFF OR AS NOTED.   |
|  | WALL OUTLET BOX AND 20 AMP GFCI DUPLEX RECEPTACLE AT 18" TO CENTERLINE. WP INDICATES WEATHERPROOF COVER PLATE.  |
|  | WALL OUTLET BOX AND 20 AMP GFCI RECEPTACLE MOUNTED 48" AFF OR AS NOTED.   |
|  | WALL OUTLET BOX AND DOUBLE 20 AMP DUPLEX RECEPTACLES 18" TO CENTERLINE  |
|  | FLUSH MOUNTED JUNCTION BOX ( SURFACE IN MECH/ELEC SPACES OR ABOVE CEILINGS).  |
|  | BRANCH CIRCUIT CONDUIT AND WIRE GENERALLY SURFACE MOUNTED, CONCEALED ABOVE CEILINGS SLASH MARKS INDICATE NUMBER OF CONDUCTORS; (MARKS SHOWN TO AID CONTRACTOR IN BIDDING, THE CONTRACTOR SHALL PROVIDE THE REQUIRED CONDUCTORS UNDER THE CONTRACT SUM WHETHER OR NOT SHOWN). SHORT SLASHES INDICATE PHASE CONDUCTOR OR SWITCH LEG, LONG INDICATE NEUTRAL CONDUCTOR. GREEN GROUND CONDUCTOR NOT SHOWN; ALL CONDUITS REQUIRE COPPER GROUND CONDUCTOR. TWO CONDUCTORS PLUS GROUND REQUIRED, MINIMUM. |
|  | CONDUIT AND WIRE CONCEALED IN FLOOR SLAB OR UNDERGROUND.  |
|  | BRANCH CIRCUIT PANELBOARD AS NOTED; SEE PANEL SCHEDULES   |
|  | DISCONNECT SWITCH SIZE PER EQUIPMENT NAME PLATE OR AS NOTED; FOR DISCONNECTS SERVING MOTOR LOADS OF 10HP OR GREATER AND FOR ALL MOTOR LOADS SERVED THROUGH VARIABLE FREQUENCY DRIVES; PROVIDE SURGE SUPPRESSION DEVICE EQUAL TO SQ.-D. SP3650 OR EQUAL AT DISCONNECT.   |
|  | MOTOR CONNECTION  |
|  | MANUAL TRANSFER SWITCH OR REVERSING SWITCH  |

**LIGHTING FIXTURES SYMBOLS**

|  |                                     |
|--|-------------------------------------|
|  | LED FIXTURE POLE MOUNTED SEE DETAIL |
|--|-------------------------------------|

**SYSTEM SYMBOL LEGEND**

|  |   |
|--|---|
|  | SYSTEMS CABINET AS NOTED OR MARKED. (WHITE PAINTED S.S. PUMP CONTROL PANEL) |
|  | LIGHTNING PROTECTION AIR TERMINAL STREAMER RETARDING TYPE.                  |
|  | STREAMER RETARDING AIR TERMINAL MOUNTED TO LIGHT POLE.                      |

**SINGLE LINE DIAGRAM SYMBOLS**

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

**ABBREVIATIONS LIST**

|                   |  |
|-------------------|--|
| A                 | AMPS   |
| AF                | AMP FRAME                                      |
| AIC               | AMPS INTERRUPTING CURRENT                      |
| ALUM              | ALUMINUM                                       |
| AT                | AMP TRIP                                       |
| ATS               | AUTOMATIC TRANSFER SWITCH                      |
| AVAIL             | AVAILABLE                                      |
| AWG               | AMERICAN WIRE GAUGE                            |
| C.                | CONDUIT  |
| CAB               | CABINET  |
| CAT               | CATEGORY                                       |
| CONV              | CONVERSION                                     |
| CRCC              | CELLULAR ROUTER COMMUNICATION CABINET          |
| CU                | COPPER   |
| D.                | DEPTH  |
| DIA               | DIAMETER                                       |
| DRGS              | DRAWINGS                                       |
| ENET              | ETHERNET                                       |
| EXT               | EXTERNAL                                       |
| FOCC              | FIBER OPTIC CONVERSION CABINET                 |
| FPL               | FLORIDA POWER AND LIGHT                        |
| GND OR GRD. OR G. | GROUND   |
| H.                | HEIGHT   |
| Hz                | HERTZ  |
| I&C               | INSTRUMENTATION AND CONTROLS                   |
| I/O               | INPUT/OUTPUT                                   |
| INST              | INSTRUMENT                                     |
| INT               | INTERNAL                                       |
| KVA               | KILOVOLT-AMPERES (1VA*10^-3)                   |
| LCU               | LEE COUNTY UTILITIES                           |
| LT                | LIGHT  |
| MA                | MILLAMPS (1A*10^-3)                            |
| MCB               | MAGNETIC CIRCUIT BREAKER                       |
| MIN               | MINIMUM  |
| NA                | NOT APPLICABLE                                 |
| NEC               | NATIONAL ELECTRIC CODE                         |
| NEMA              | NATIONAL ELECTRIC MANUFACTURERS ASSOCIATION    |
| NTS               | NOT TO SCALE                                   |
| P.                | POLE   |
| PH                | PHASE  |
| P&ID              | PROPORTIONAL INTEGRAL DERIVATIVE               |
| PLC               | PROGRAMMABLE LOGIC CONTROLLER                  |
| PW                | PRODUCTION WELL                                |
| MPZ               | MINI POWER ZONE                                |
| SCH               | SCHEDULE                                       |
| SE                | SERVICE ENTRANCE                               |
| SPD               | SURGE PROTECTION DEVICE                        |
| SS                | STAINLESS STEEL                                |
| TEMP              | TEMPERATURE OR TEMPORARY                       |
| TSP               | TWISTED SHIELDED PAIR                          |
| TYP               | TYPICAL  |
| U.G.              | UNDERGROUND                                    |
| UPS               | UNINTERRUPTIBLE POWER SOURCE                   |
| V                 | VOLTS  |
| VA                | VOLT-AMPERES (APPARENT POWER)                  |
| VAC               | VOLTS ALTERNATING CURRENT                      |
| VDC               | VOLTS DIRECT CURRENT                           |
| VFD               | VARIABLE FREQUENCY DRIVE                       |
| W                 | WATTS (REAL POWER)                             |
| PCP               | PUMP CONTROL PANEL                             |
| W/                | WITH   |
| XFMR              | TRANSFORMER                                    |
| "                 | INCHES   |
| '                 | FEET   |
| # OR NO.          | NUMBER   |
| E# OR I#          | 11"X17" SHEET                                  |
| ES-#              | 8.5"X11" SHEET                                 |
| FDEP              | FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION |

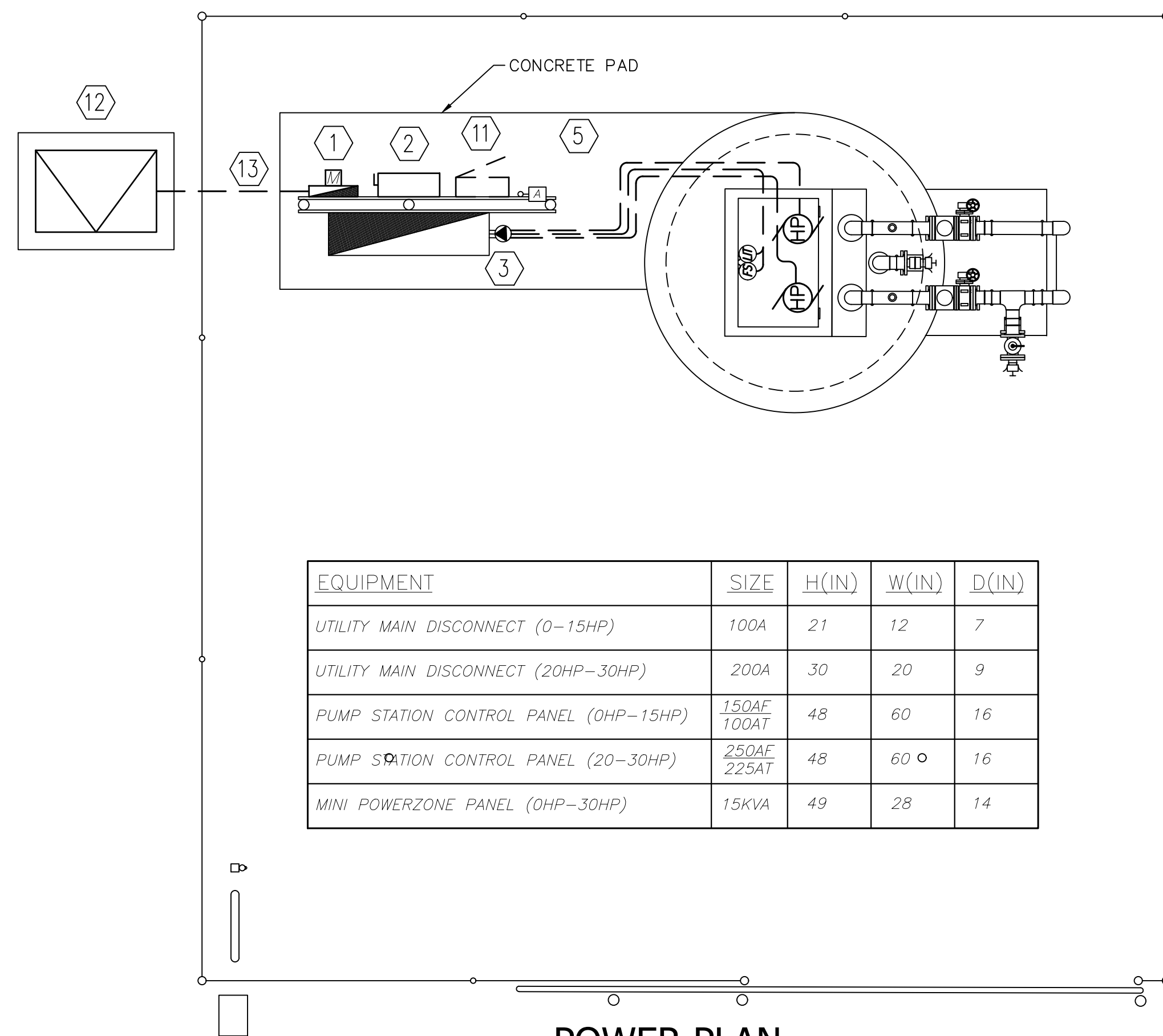
E-2

**ELECTRICAL SYMBOLS LEGEND & ABBREVIATIONS**

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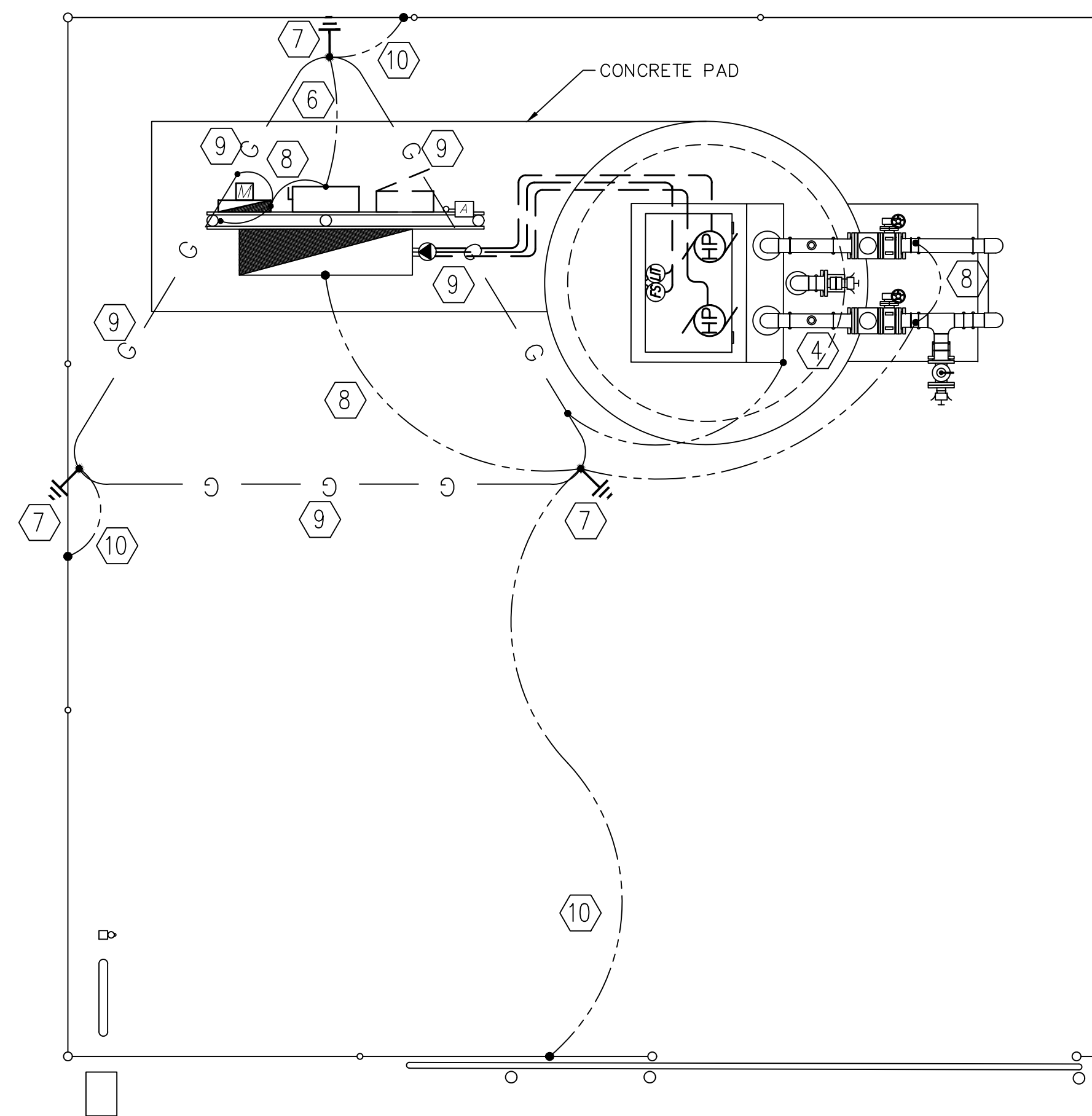
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|---|---|---|
|   | LEE COUNTY<br>SOUTHWEST<br>FLORIDA<br>1500 MONROE STREET          | LEE COUNTY<br>UTILITIES<br>ENGINEERING<br>FORT MYERS, FLORIDA 33901 |
|   | SHEET TITLE: <b>DUPLEX PUMP STATION NOTES &amp; ABBREVIATIONS</b> |   |
| TITLE: <b>STANDARD 480V 3PH PUMP STATION</b>  |   |   |
| PROJECT: <b>WASTE WATER DUPLEX, TRIPLEX PUMP STA. MASTER PUMP STATION DESIGN STANDARD</b> |   |   |
| PROJECT NO:<br>480V 3PH PS  | FILE NAME:<br>480V 3PH  | SHEET NUMBER:<br>2 OF 10  |

MINIMUM EQUIPMENT RACK LAYOUT BASED ON THE FOLLOWING:  
 ADJUST EQUIPMENT RATINGS AND DIMENSIONS FOR SPECIFIC PUMP STATION  
 HORSEPOWER AND SERVICE SIZE (MINIMUM 100A SERVICE SIZE). IN NO CASE SHALL  
 DIMENSIONS BE PERMITTED TO BE REDUCED IN SIZE.



| EQUIPMENT                             | SIZE           | H(IN) | W(IN) | D(IN) |
|---------------------------------------|----------------|-------|-------|-------|
| UTILITY MAIN DISCONNECT (0-15HP)      | 100A           | 21    | 12    | 7     |
| UTILITY MAIN DISCONNECT (20HP-30HP)   | 200A           | 30    | 20    | 9     |
| PUMP STATION CONTROL PANEL (0HP-15HP) | 150AF<br>100AT | 48    | 60    | 16    |
| PUMP STATION CONTROL PANEL (20-30HP)  | 250AF<br>225AT | 48    | 60    | 16    |
| MINI POWERZONE PANEL (0HP-30HP)       | 15KVA          | 49    | 28    | 14    |

POWER PLAN



BONDING & GROUNDING PLAN

**GENERAL NOTES**

- 1.) ALL EQUIPMENT SHALL BE HUNG ON EQUIPMENT RACK. OPEN WINDOW CUTTING OF ENCLOSURE BOTTOMS IS NOT PERMITTED.
- 2.) REFERENCE SINGLE LINE DRAWING FOR CONDUIT AND WIRE SIZE.
- 3.) ALL U.G. CONNECTIONS TO BE VIA EXOTHERMIC WELD (GADWELD) UNLESS INDICATED OTHERWISE.
- 4.) ALL REQUIRED BONDS MAY NOT BE SHOWN; PROVIDE ADDITIONAL BONDS TO ALL DEVICES, INSTRUMENTS, CABINETS, CONTROL VALVES, ETC. AS REQUIRED TO COMPLY WITH UL AND NEC.

**KEYNOTES**

- 1.) ALUMINUM DIRECT READING UTILITY METER.
- 2.) MAIN SERVICE DISCONNECT.
- 3.) DEP COMPLIANT PUMP CONTROL PANEL WITH PORTABLE GENERATOR RECEPTACLE. (WHITE PAINTED S.S. PUMP CONTROL PANEL)
- 4.) BOND TO HINGE CORNER OF HATCH FRAME. DRILL TAP AS REQUIRED.
- 5.) (3) MINIMUM 2" CONDUITS INTO WETWELL. (2) FOR SUBMERSIBLE PUMP CABLES, (1) FOR FLOATS AND LIT CABLES. CORE DRILL NEW PENETRATIONS THROUGH WETWELL. PATCH ALL WITH HYDROCEMENT.
- 6.) TINNED STRANDED COPPER ELECTRIC SERVICE MAIN GROUNDING ELECTRODE CONDUCTOR. SIZE PER SITE SPECIFIC SERVICE REQUIREMENTS.
- 7.) 20' DRIVEN GROUND ROD WITH INSPECTION TEST WELL (SEE DETAIL). TYPICAL.
- 8.) #2 TINNED SOLID COPPER BOND. TYPICAL.
- 9.) #2/0 TINNED STRANDED COPPER COUNTERPOISE LOOP GROUND. TYPICAL.
- 10.) #2/0 TINNED SOLID BARE BOND TO GROUND GRID.
- 11.) FUTURE NEMA 3R, SS 15KVA MINI POWERZONE. 480V 3PH DELTA PRIMARY 120/208V 3PH SECONDARY. NO INTERIOR WITH BOLT ON BREAKERS.
- 12.) UTILITY PADMOUNT TRANSFORMER OR AERIAL TRANSFORMER BANK. COORDINATE SERVICE CHARACTERISTICS, EXACT LOCATION AND PRIMARY FEEDER DETAILS WITH UTILITY. PROVIDE GROUNDING, TRANSFORMER PAD AND CONDUIT ENTRY PER UTILITY REQUIREMENTS.
- 13.) UNDERGROUND SERVICE LATERAL.

**LIGHTNING PROTECTION LEGEND:**

- LP — MAIN ROOF/DOWN CONDUCTOR TYPICAL
- G — #2/0 TINNED BARE COPPER COUNTERPOISE LOOP GROUND.
- #2 TINNED SOLID COPPER BOND TO EQUIPMENT/CABINETS ETC.

E-3

STANDARD 480V-3Ø (0-30HP) DUPLEX PUMP STATION  
 POWER, BONDING & GROUNDING PLAN

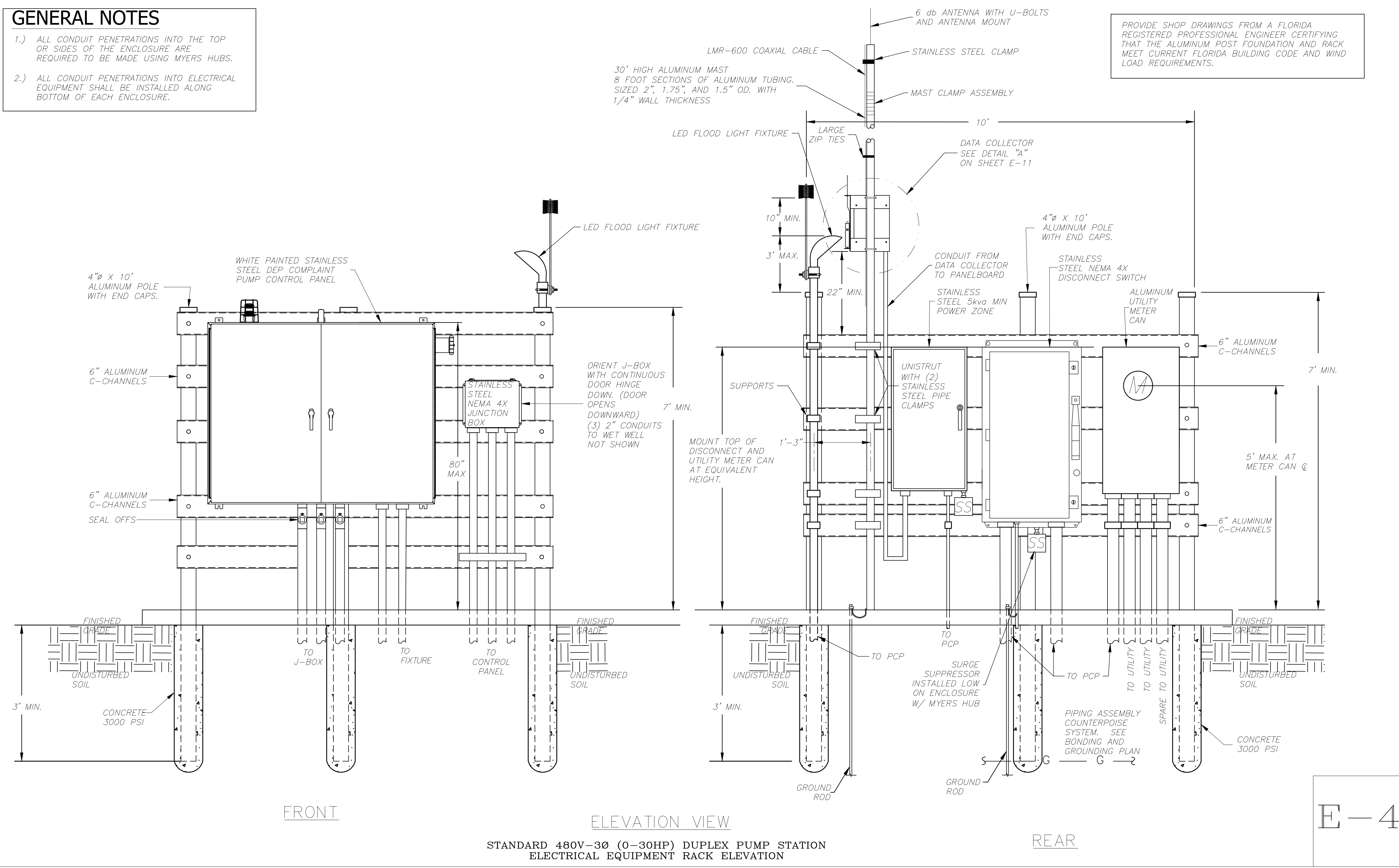
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|   |  |  |
|---|--|--|
|   | <b>LEE COUNTY SOUTHWEST FLORIDA</b><br>1500 MONROE STREET                  | <b>LEE COUNTY UTILITIES ENGINEERING</b><br>FORT MYERS, FLORIDA 33901 |
|   | SHEET TITLE: <b>DUPLEX PUMP STATION POWER BONDING &amp; GROUNDING PLAN</b> |  |
| TITLE: <b>STANDARD 480V 3PH PUMP STATION</b>  |  |  |
| PROJECT: <b>WASTE WATER DUPLEX, TRIPLEX PUMP STA. MASTER PUMP STATION DESIGN STANDARD</b> |  |  |
| PROJECT NO.: 480V 3PH PS  | FILE NAME: 480V 3PH  | SHEET NUMBER: 3 OF 10  |

**GENERAL NOTES**

- 1.) ALL CONDUIT PENETRATIONS INTO THE TOP OR SIDES OF THE ENCLOSURE ARE REQUIRED TO BE MADE USING MYERS HUBS.
- 2.) ALL CONDUIT PENETRATIONS INTO ELECTRICAL EQUIPMENT SHALL BE INSTALLED ALONG BOTTOM OF EACH ENCLOSURE.

PROVIDE SHOP DRAWINGS FROM A FLORIDA REGISTERED PROFESSIONAL ENGINEER CERTIFYING THAT THE ALUMINUM POST FOUNDATION AND RACK MEET CURRENT FLORIDA BUILDING CODE AND WIND LOAD REQUIREMENTS.



FRONT


ELEVATION VIEW

REAR

STANDARD 480V-3Ø (0-30HP) DUPLEX PUMP STATION ELECTRICAL EQUIPMENT RACK ELEVATION

E-4

**NOTE:**  
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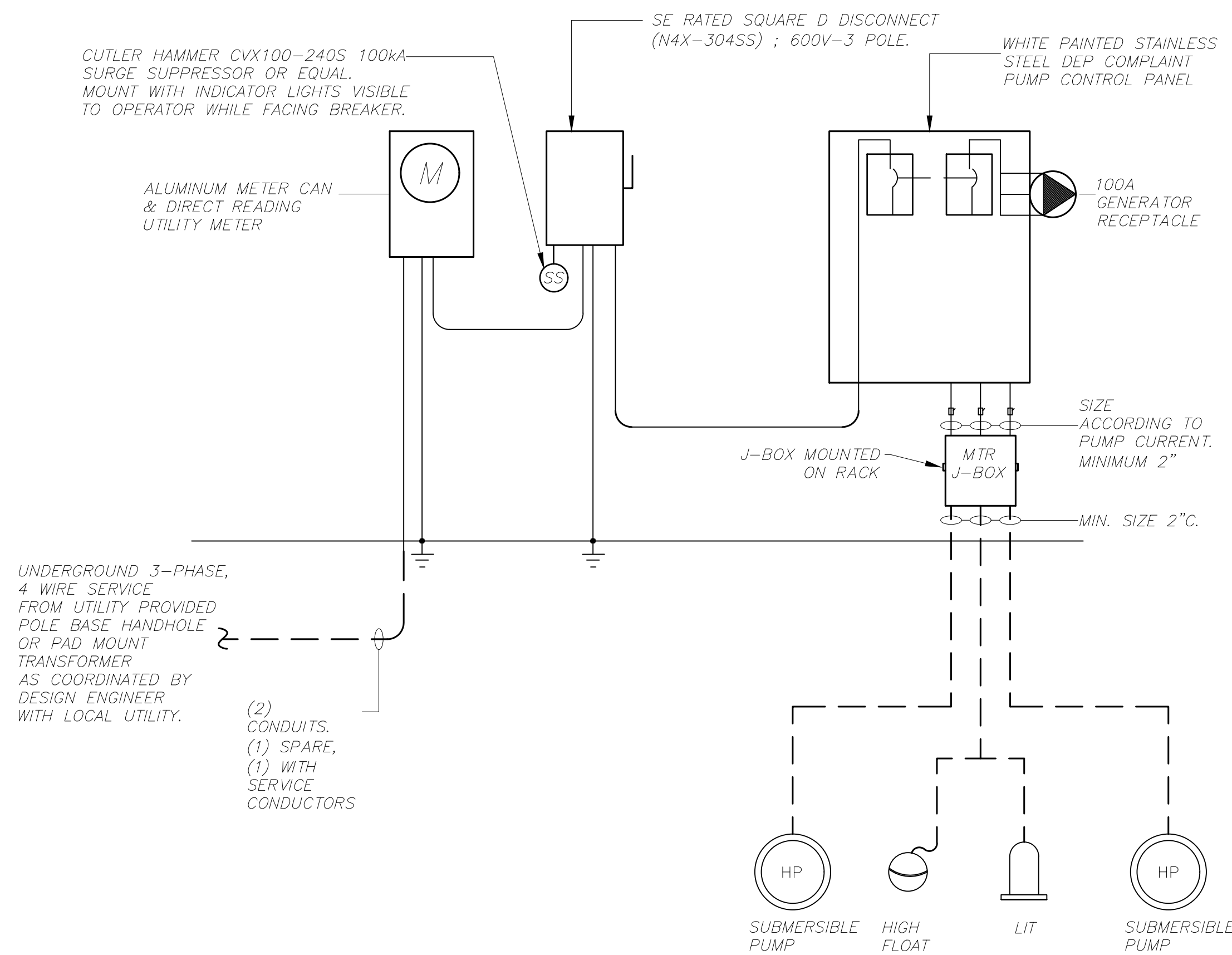
|   |   |
|---|---|
|  <p>LEE COUNTY<br/>SOUTHWEST<br/>FLORIDA</p> | <p>LEE COUNTY<br/>UTILITIES<br/>ENGINEERING</p>         |
|   | <p>1500 MONROE STREET<br/>FORT MYERS, FLORIDA 33901</p> |
| <p>SHEET TITLE: <b>DUPLEX PUMP STATION ELECTRICAL EQUIPMENT RACK ELEVATION</b></p>  |   |
| <p>TITLE: <b>STANDARD 480V 3PH PUMP STATION</b></p>   |   |
| <p>PROJECT: <b>WASTE WATER DUPLEX, TRIPLEX PUMP STA. MASTER PUMP STATION DESIGN STANDARD</b></p>                                  |   |
| <p>PROJECT NO.: 480V 3PH PS</p>   | <p>FILE NAME: 480V 3PH</p>                              |
| <p>SHEET NUMBER: 4 OF 10</p>  |   |

PROVIDE MINIMUM SERVICES UTILITY SIZES AS FOLLOWS:

| SERVICE SIZE: | CONDUIT SIZE: | CONDUCTOR SIZE: | GROUND SIZE: |
|---------------|---------------|-----------------|--------------|
| 100A          | (1)2"         | (4)#3           | (1)#8        |
| 200A          | (1)2.5"       | (4)#3/0         | (1)#3        |

**GENERAL NOTES:**

- MINIMUM EQUIPMENT AIC RATINGS:  
240V SERVICE 35,000AIC  
480V SERVICE 65,000AIC  
EQUIPMENT AIC RATINGS SHOWN TO ESTABLISH MINIMUM ACCEPTABLE RATING. DESIGNER TO COORDINATE REQUIRED AIC RATINGS WITH SITE SPECIFIC ELECTRICAL SERVICE CHARACTERISTICS AND IN NO CASE LOWER THEN ESTABLISHED MINIMUMS.
- THIS PLAN DOES NOT INDICATE ALL CONDUIT & WIRE REQUIRED; SEE ADDITIONAL REQUIREMENTS ON ELEMENTARY & PLAN DRAWINGS.



GENERIC SINGLE LINE DRAWING- REVISE ACCORDINGLY TO PROVIDE SITE SPECIFIC DETAILS INCLUDING UTILITY COORDINATION, SERVICE SIZE AND GENERATOR SIZE. SIZE SERVICE, GENERATOR, CONDUIT AND WIRE PER SITE SPECIFIC WELL HORSEPOWER.

**ELECTRICAL RISER DIAGRAM (480/277V 3-PHASE)**

N.T.S.

| PANEL: MPZ 15KVA POWER ZONE, MCB-INCLUDED VOLTAGE: 480V/208/120V,3P,4W                           |                    |           |                      |               |
|--|--------------------|-----------|----------------------|---------------|
| MOUNTING: WALL   |                    | POLES: 18 |                      | 25,000AIC MIN |
| LOCATION: EQUIPMENT RACK   |                    |           | NEMA 3R SS ENCLOSURE |               |
| CIR. NO.   | DESCRIPTION        | TRIP      | POLES                | REMARKS       |
| 1  | DATA COLLECTOR HUB | 20        | 1                    |               |
| 2  | SPARE              | 20        | 1                    |               |
| 3  | SPARE              | 20        | 1                    |               |
| 4  | SPARE              | 20        | 1                    |               |
| 5  | SPARE              | 20        | 1                    |               |
| 6  | SPARE              | 20        | 1                    |               |
| 7  | SPARE              | 20        | 1                    |               |
| 8  | SPARE              | 20        | 1                    |               |
| 9-17   | SPACE              | 20        | 1                    |               |
| 10-12  | SPACE              | 20        | 1                    |               |
| 14,16,18   | SURGE SUPPRESSION  | 30        | 1                    |               |
| PROVIDE PANEL WITH 35KAIC RATING.<br>PROVIDE PANEL WITH EXTERNAL CUTLER HAMMER CVX100 SERIES SPD |                    |           |                      |               |

**PANEL SCHEDULE**

N.T.S.

E-5

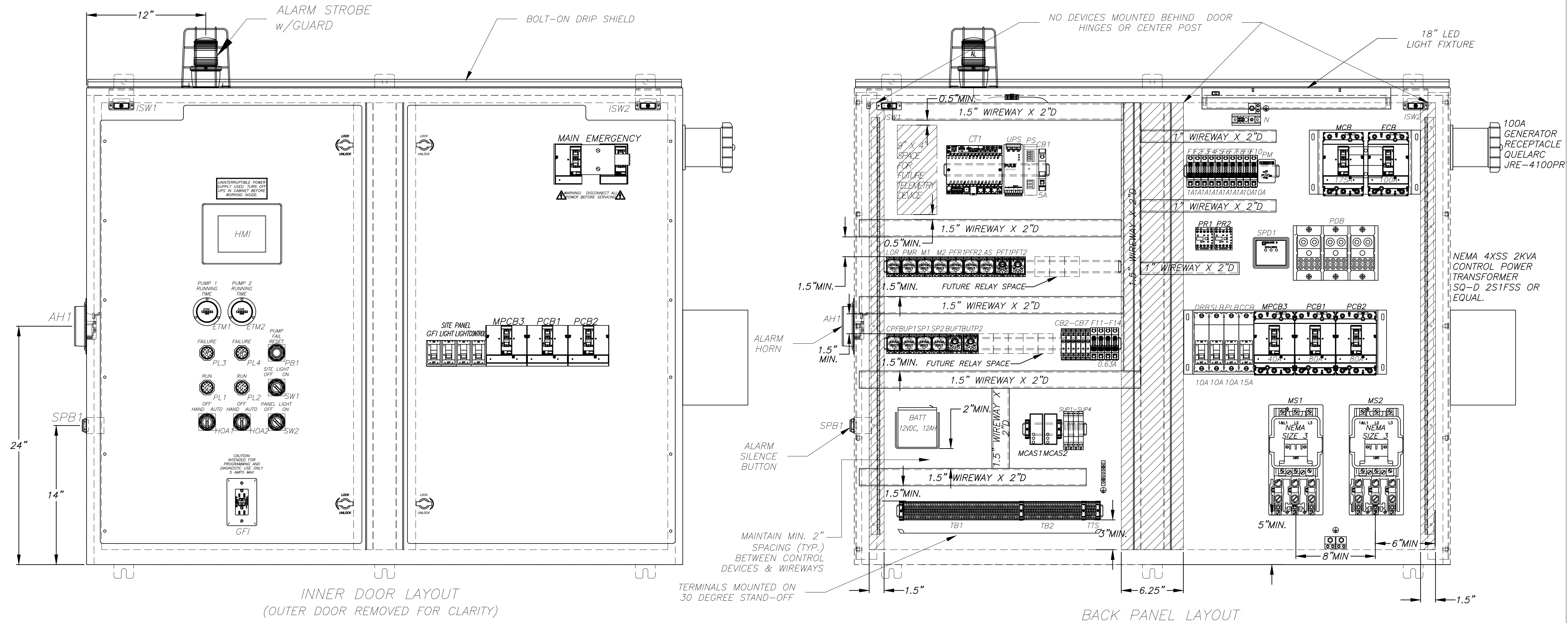
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|               |   |
|---------------|---|
|               | LEE COUNTY UTILITIES ENGINEERING  |
|               | 1500 MONROE STREET FORT MYERS, FLORIDA 33901                              |
| SHEET TITLE:  | DUPLEX PUMP STATION ELECTRICAL RISER DIAGRAM                              |
| TITLE:        | STANDARD 480V 3PH PUMP STATION  |
| PROJECT:      | WASTE WATER DUPLEX, TRIPLEX PUMP STA. MASTER PUMP STATION DESIGN STANDARD |
| PROJECT NO:   | 480V 3PH PS   |
| FILE NAME:    | 480V 3PH  |
| SHEET NUMBER: | 5 OF 10   |

CONTROL WIRE COLOR CODE:

| FUNCTION DESCRIPTION | WIRE COLOR | FUNCTION DESCRIPTION    | WIRE COLOR | FUNCTION DESCRIPTION     | WIRE COLOR   | FUNCTION DESCRIPTION            | WIRE COLOR | FUNCTION DESCRIPTION          | WIRE COLOR  |
|----------------------|------------|-------------------------|------------|--------------------------|--------------|---------------------------------|------------|-------------------------------|-------------|
| 120VAC FEED          | BLACK      | H-O-A 1 SCADA           | BROWN      | PUMP 2 RUN SCADA         | ORANGE/BLACK | PUMP 3 FAIL SCADA               | BLUE/RED   | START PUMP 3                  | BLACK/BLUE  |
| 120VAC LOAD          | RED        | H-O-A 1 COMMON SCADA    | BROWN      | PUMP 2 RUN COMMON SCADA  | ORANGE/BLACK | PUMP 3 FAIL COMMON SCADA        | BLUE/RED   | START PUMP 3 COMMON           | BLACK/BLUE  |
| 120VAC NEUTRAL       | WHITE      | H-O-A 2 SCADA           | RED/BLACK  | PUMP 3 RUN SCADA         | YELLOW/BLACK | CONTROL POWER FAIL SCADA        | YELLOW/RED | ALARM RESET                   | RED/BLUE    |
| PHASE MONITOR FAIL   | BLUE       | H-O-A 2 COMMON SCADA    | RED/BLACK  | PUMP 3 RUN COMMON SCADA  | YELLOW/BLACK | CONTROL POWER FAIL SCADA COMMON | YELLOW/RED | ALARM RESET COMMON            | RED/BLUE    |
| PHASE MONITOR COMMON | BLUE       | H-O-A 3 SCADA           | YELLOW     | PUMP 1 FAIL SCADA        | BROWN/BLACK  | START PUMP 1                    | ORANGE/RED | ALARM LIGHT HORN              | ORANGE/BLUE |
| 24VDC POSITIVE (+)   | BLUE       | H-O-A 3 COMMON SCADA    | YELLOW     | PUMP 1 FAIL COMMON SCADA | BROWN/BLACK  | START PUMP 1 COMMON             | ORANGE/RED | ALARM LIGHT HORN COMMON       | ORANGE/BLUE |
| 24VDC NEGATIVE (-)   | WHITE/BLUE | PUMP 1 RUN SCADA        | BLUE/BLACK | PUMP 2 FAIL SCADA        | BLACK/RED    | START PUMP 2                    | BROWN/RED  | SCADA HIGH LEVEL FLOAT        | YELLOW/BLUE |
| GROUND               | GREEN      | PUMP 1 RUN COMMON SCADA | BLUE/BLACK | PUMP 2 FAIL COMMON SCADA | BLACK/RED    | START PUMP 2 COMMON             | BROWN/RED  | SCADA HIGH LEVEL FLOAT COMMON | YELLOW/BLUE |



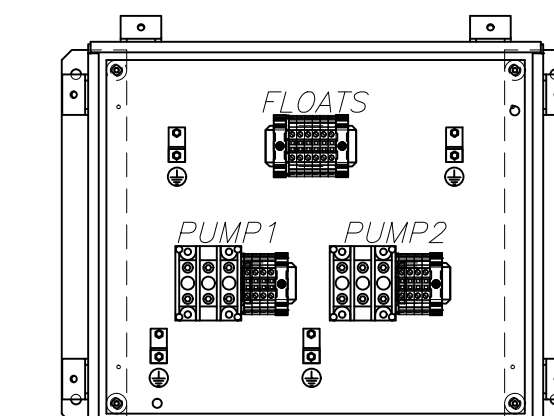
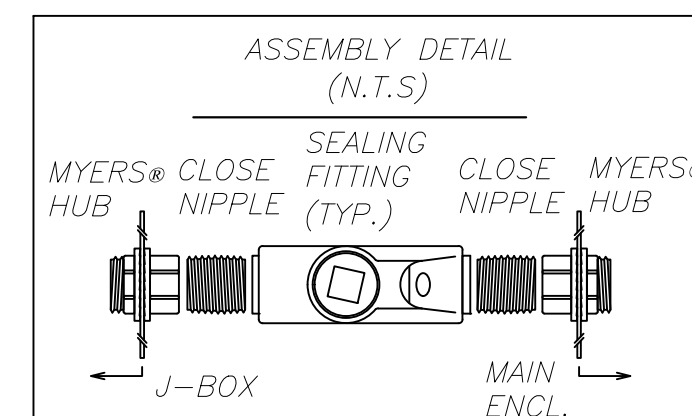
**ENCLOSURE:**  
MIN. SPN4DSS-486016 (48"H x 60"W x 16"D) NEMA 4X RATED, WITH BOLT-ON DRIP SHIELD AND REMOVABLE CENTER POST. FABRICATED FROM TYPE 304 STAINLESS STEEL, WITH WHITE PAINTED FINISH. OUTER DOORS HAVE 3-POINT PAD-LOCKABLE HANDLES, AND 90° STOPS.

**BACK PANEL:**  
SPPD-6048 (45"H x 57"W) FABRICATED FROM 12ga. CARBON STEEL PAINTED WHITE.

**INNER DOOR:**  
(2) HID-4830 FABRICATED FROM .125 BLACK ENGRAVED ALUMINUM.

NOTES:

1. TERMINAL ON CONTROL CIRCUIT TERMINAL STRIP
2. TERMINAL ON POWER DISTRIBUTION BLOCK
3. NEUTRAL AND GROUND LUGS
4. FIELD WIRING (EXTERNAL TO CONTROL PANEL)
5. PANEL WIRING
6. SEAL ALL CONDUITS ENTERING CONTROL PANEL
7. CONTROL PANEL IS UL508A LABELED
8. INSTALL IN ACCORDANCE WITH ARTICLE 504 OF THE N.E.C.
9. MINIMUM #14 AWG WIRE AT 600V
10. MAINTAIN MIN. 2" SPACE BETWEEN CONTROL DEVICES & WIREWAYS
11. MAINTAIN MAX. 6" EXTRA LENGTH ON CONTROL WIRES
12. ALL BREAKERS MUST BE ACCESSIBLE FROM DEAD-FRONT



**JUNCTION BOX ENCLOSURE:**  
SPJH45S-1412B (14"H x 12"W x 8"D) NEMA 4X RATED, JIC TYPE, FABRICATED FROM TYPE 304 STAINLESS STEEL, POLISHED FINISH. OUTER DOOR HAS JIC CLAMPS.

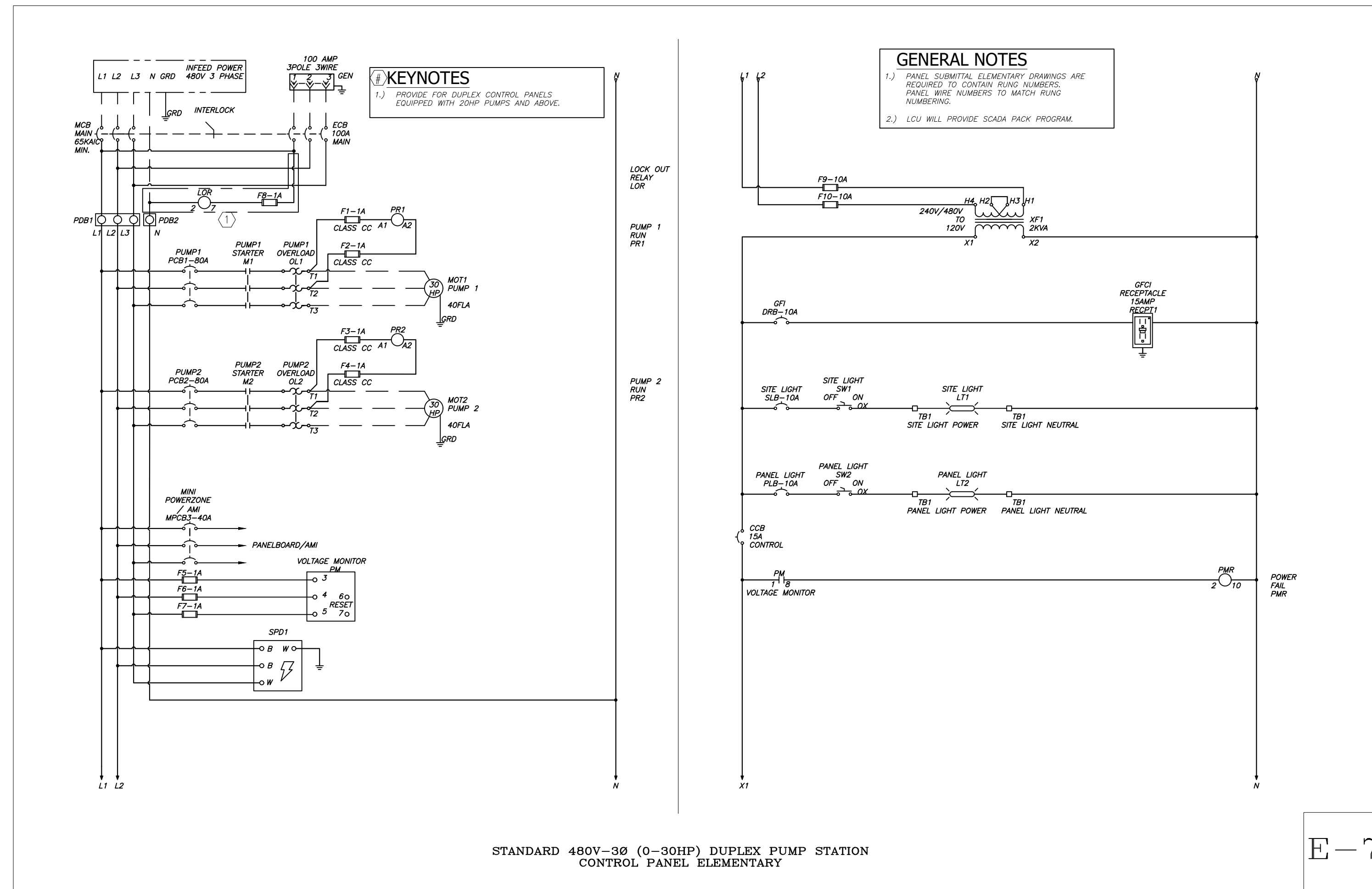
**BACK PANEL:**  
SPPJ-1412 (12.88"H x 10.88"W) FABRICATED FROM 12ga. CARBON STEEL PAINTED WHITE.

STANDARD 480V-3Ø (0-3ØHP) DUPLEX PUMP STATION CONTROL PANEL ELEVATION

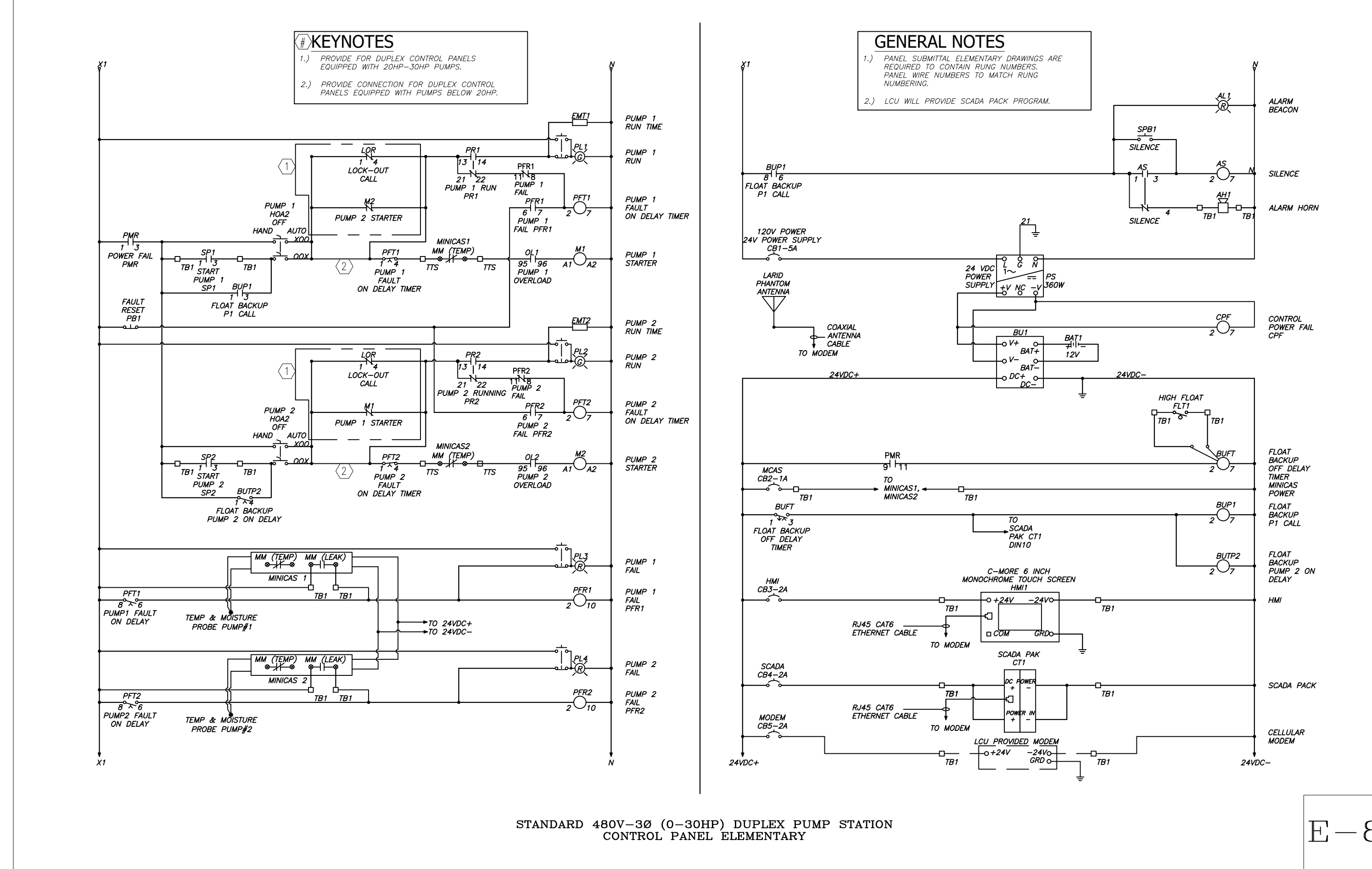
**NOTE:**  
THIS DRAWING IS A LEE COUNTY STANDARD DETAIL AND THEREFORE DOES NOT NEED TO BE SIGNED AND SEALED

E-6

|  |   |
|--|---|
| <p>LEE COUNTY<br/>SOUTHWEST<br/>FLORIDA</p>  | <p>LEE COUNTY<br/>UTILITIES<br/>ENGINEERING</p>         |
|  | <p>1500 MONROE STREET<br/>FORT MYERS, FLORIDA 33901</p> |
| <p>SHEET TITLE: <b>DUPLEX PUMP STATION CONTROL PANEL ELEVATION</b></p>                           |   |
| <p>TITLE: <b>STANDARD 480V 3PH PUMP STATION</b></p>  |   |
| <p>PROJECT: <b>WASTE WATER DUPLEX, TRIPLEX PUMP STA. MASTER PUMP STATION DESIGN STANDARD</b></p> |   |
| <p>PROJECT NO.: 480V 3PH PS</p>  | <p>FILE NAME: 480V 3PH</p>                              |
| <p>SHEET NUMBER: 6 OF 10</p>   |   |



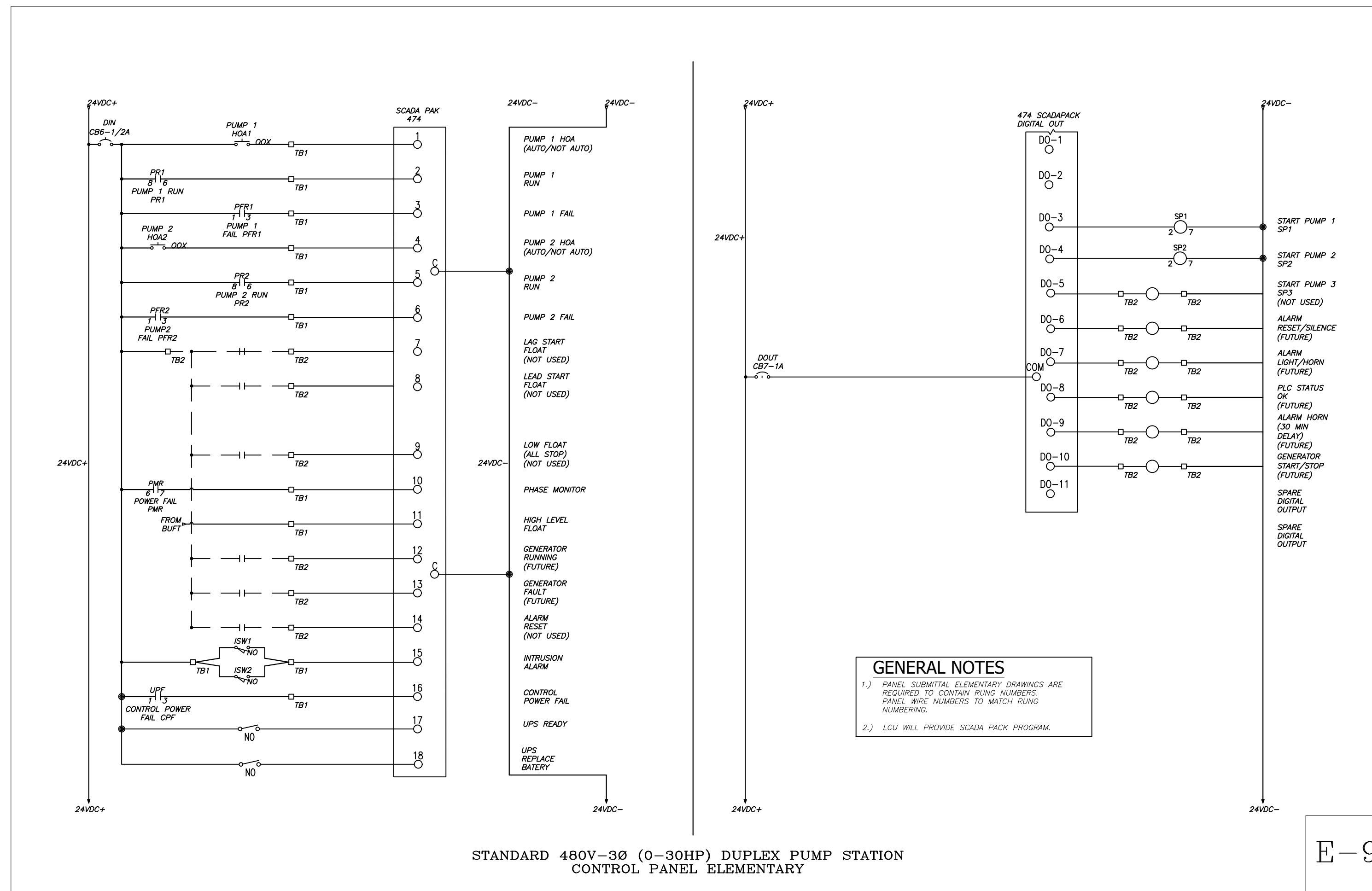
E-7



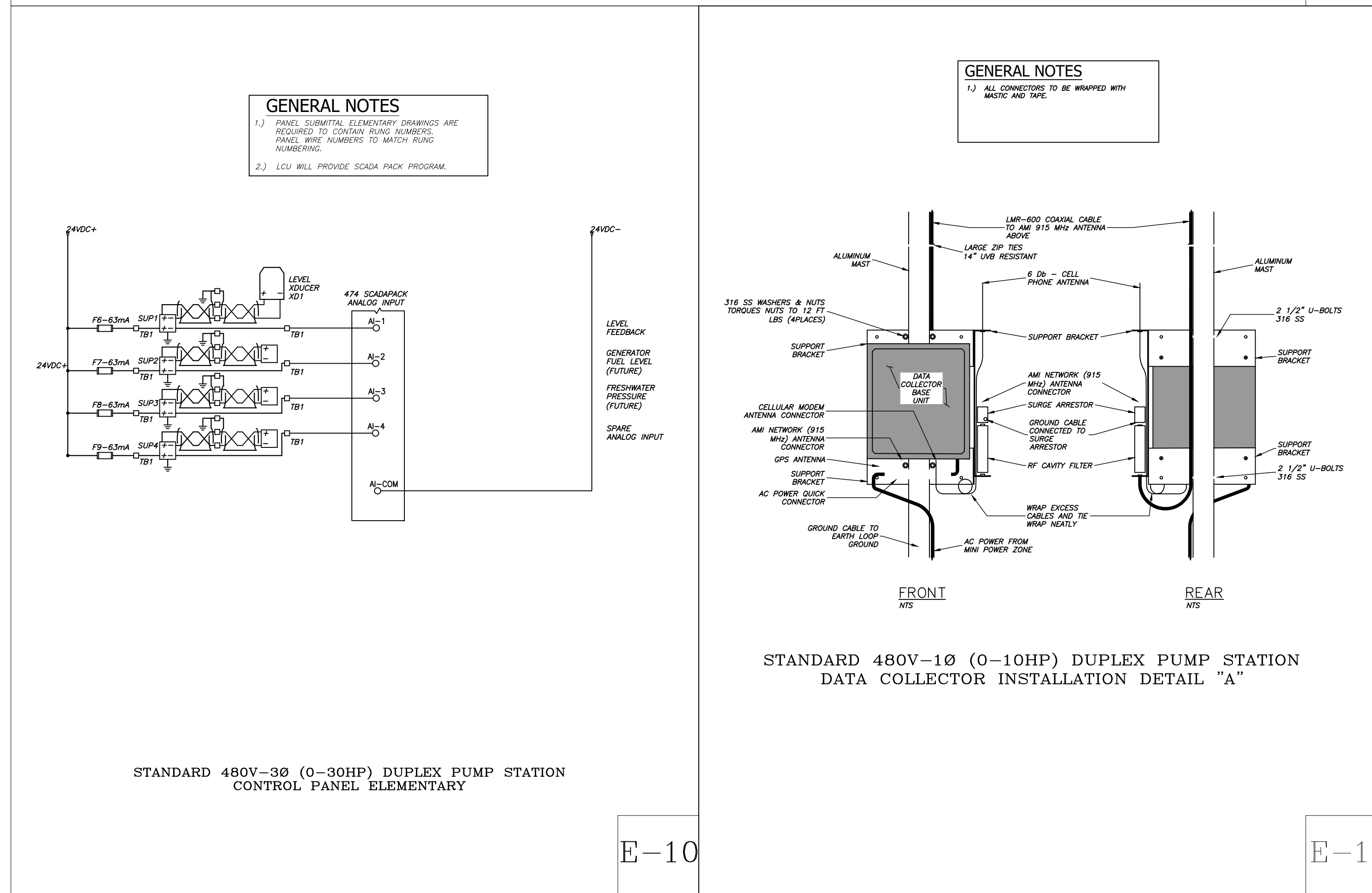
E-8

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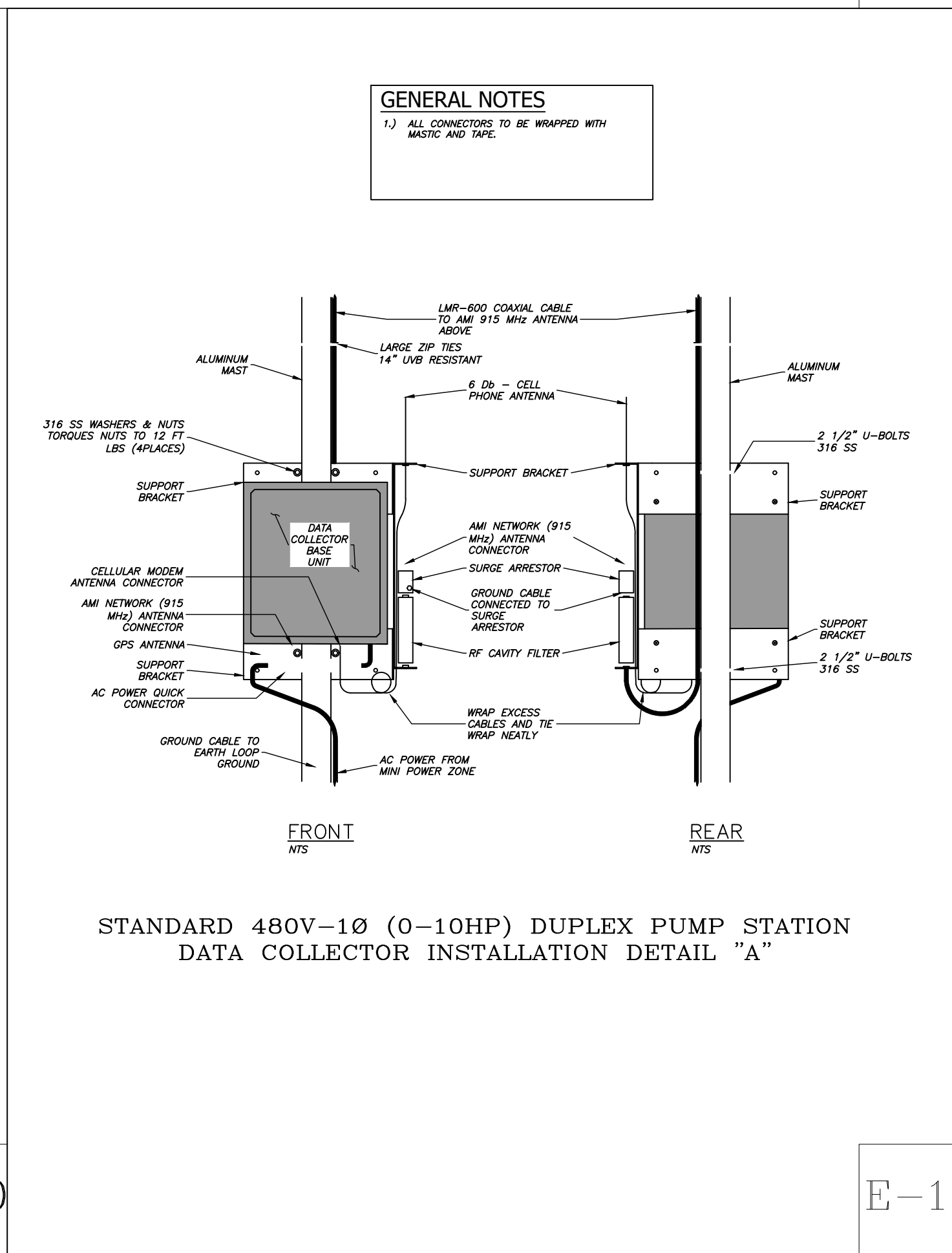
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|---|--|--|
|   | <b>LEE COUNTY SOUTHWEST FLORIDA</b><br>1500 MONROE STREET<br>FORT MYERS, FLORIDA 33901 | <b>LEE COUNTY UTILITIES ENGINEERING</b><br>FORT MYERS, FLORIDA 33901 |
|   | <b>SHEET TITLE: DUPLEX PUMP STATION ELECTRICAL DIAGRAMS</b>                            |  |
| <b>TITLE: STANDARD 480V 3PH PUMP STATION</b>  |  |  |
| <b>PROJECT: WASTE WATER DUPLEX, TRIPLEX PUMP STA. MASTER PUMP STATION DESIGN STANDARD</b> |  |  |
| <b>PROJECT NO: 480V 3PH PS</b>  | <b>FILE NAME: 480V 3PH</b>   | <b>SHEET NUMBER: 7 OF 10</b>   |



E-9




E-10

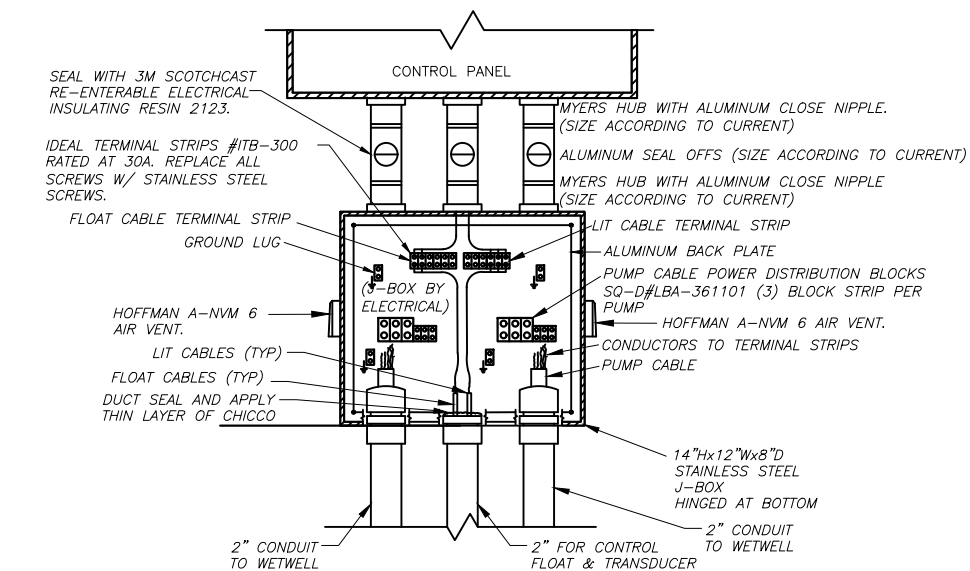


E-11

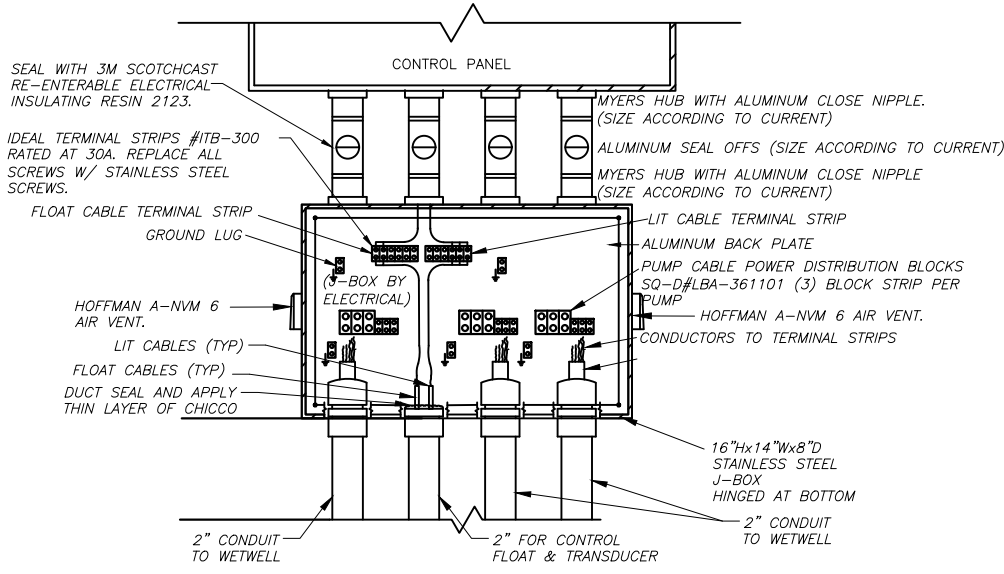
**NOTE:**  
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|---|--|--|
|      | <b>LEE COUNTY SOUTHWEST FLORIDA</b><br>1500 MONROE STREET<br>FORT MYERS, FLORIDA 33901 | <b>LEE COUNTY UTILITIES ENGINEERING</b><br>1500 MONROE STREET<br>FORT MYERS, FLORIDA 33901 |
|   | SHEET TITLE: <b>DUPLEX PUMP STATION ELEVATION &amp; ELECTRICAL DIAGRAMS</b>            |  |
| TITLE: <b>STANDARD 480V 3PH PUMP STATION</b>  |  |  |
| PROJECT: <b>WASTE WATER DUPLEX, TRIPLEX PUMP STA. MASTER PUMP STATION DESIGN STANDARD</b> |  |  |
| PROJECT NO:<br>480V 3PH PS  | FILE NAME:<br>480V 3PH   | SHEET NUMBER:<br>8 OF 10   |





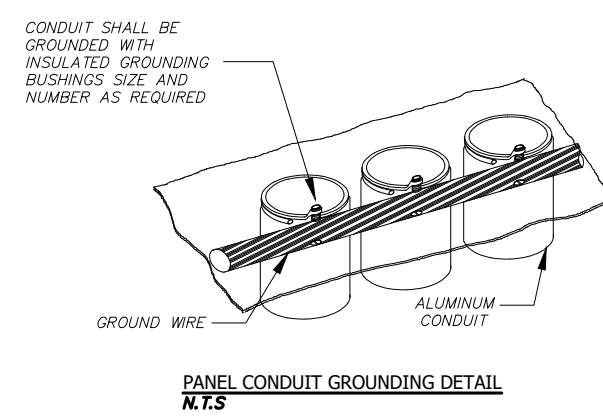
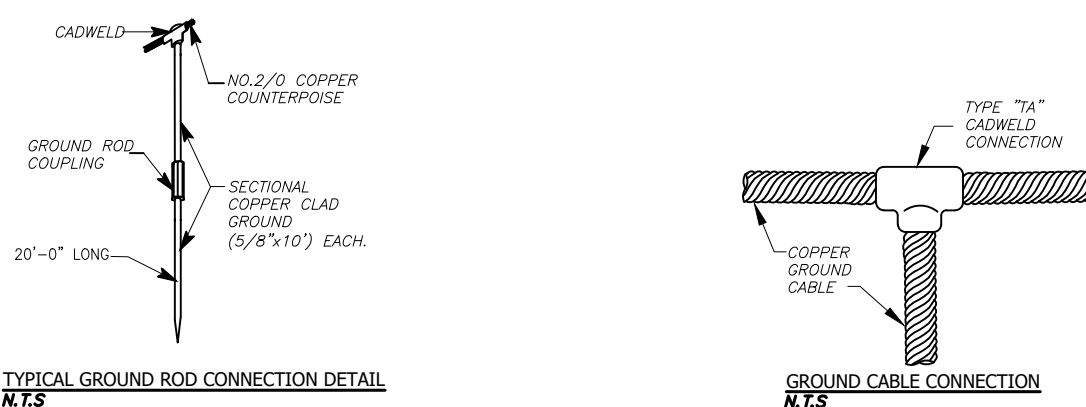
DUPLEX JUNCTION BOX  
N.T.S.



TRIPLEX JUNCTION BOX  
N.T.S.

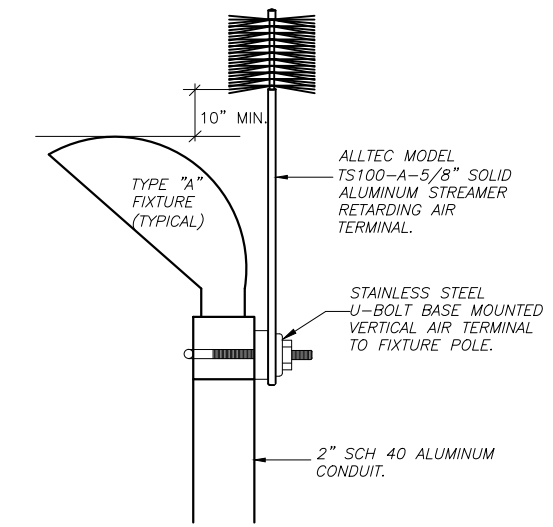
JUNCTION BOX & TERMINAL STRIP INSTALLATION AT CONTROL PANEL LOCATION

ES-1



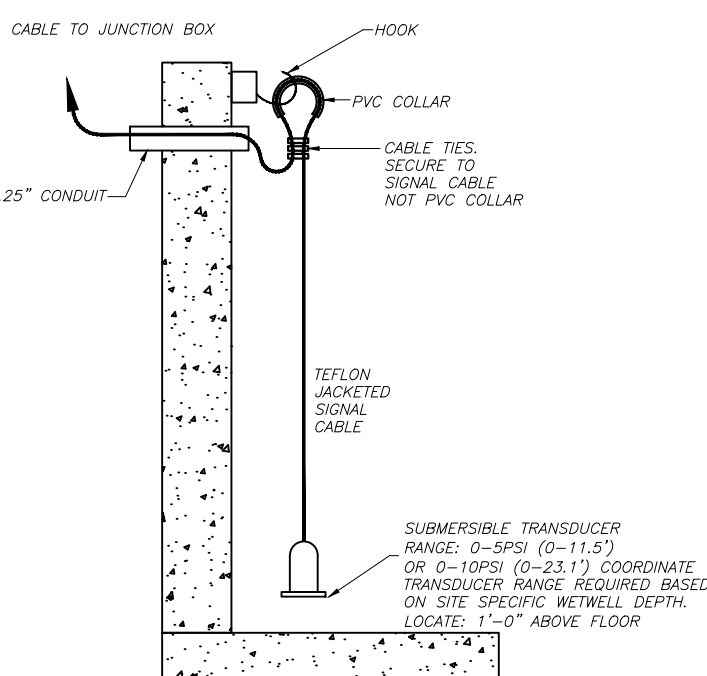
GROUNDING DETAILS

ES-2



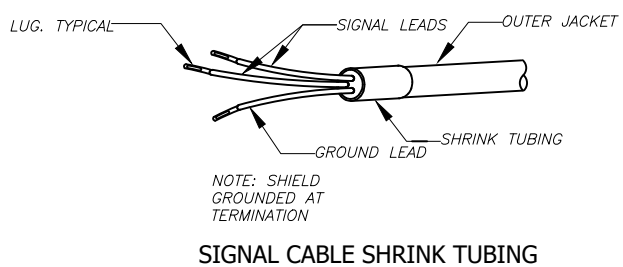
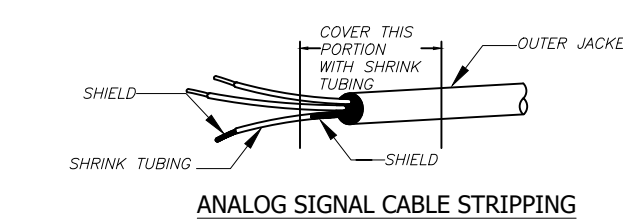
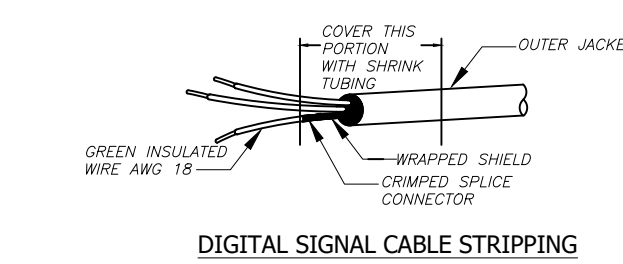
STREAMER RETARDING AIR TERMINAL FIXTURE POLE  
N.T.S.

ES-3



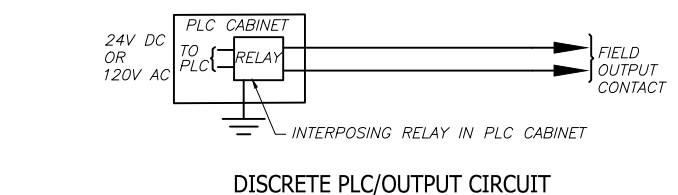
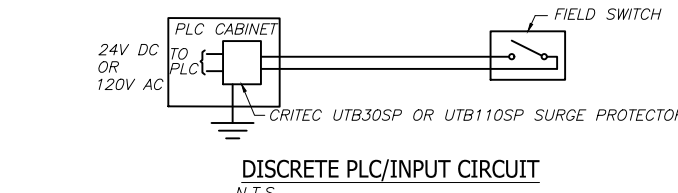
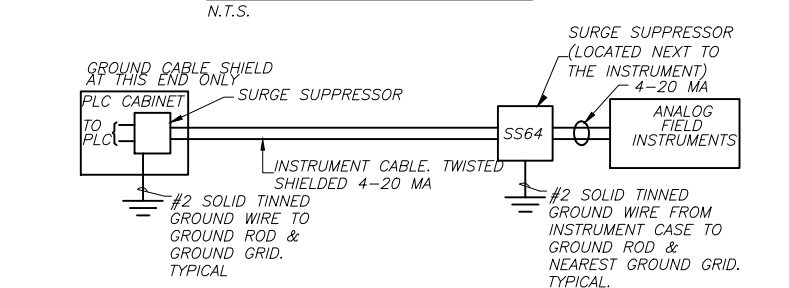
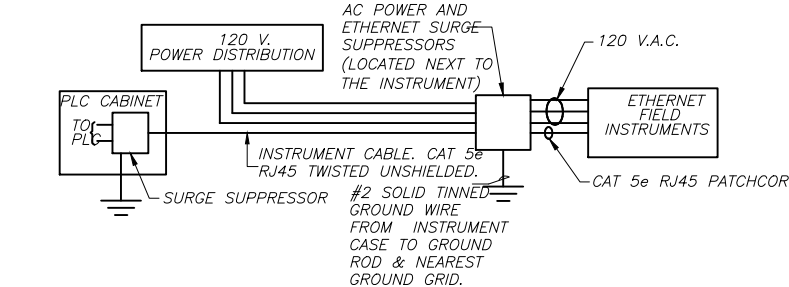
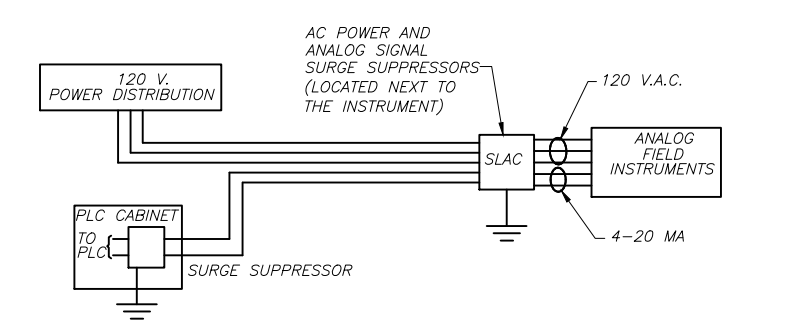
LEVEL TRANSMITTER DETAIL

ES-4



TERMINATION OF SIGNAL CABLE DETAIL

ES-5



INSTRUMENTATION GROUNDING & SURGE PROTECTION DETAIL

ES-6

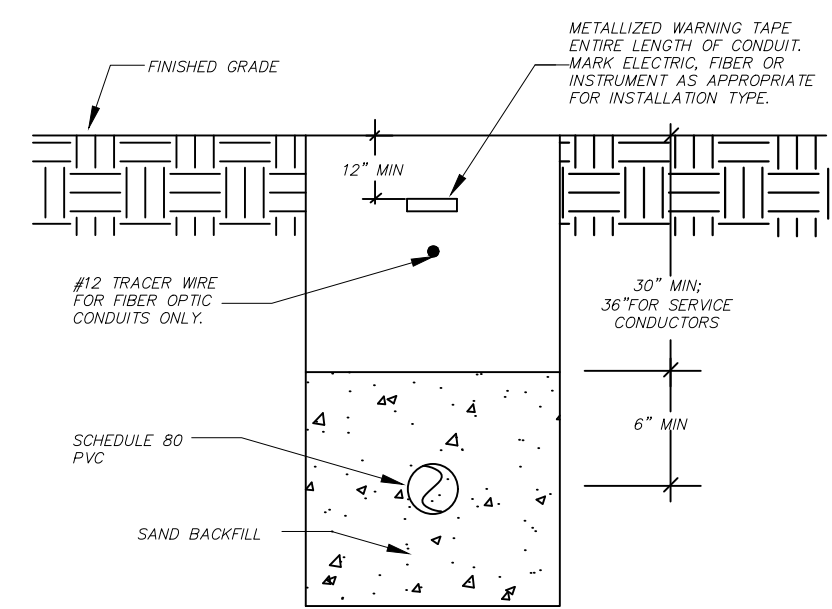
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1500 MONROE STREET FORT MYERS, FLORIDA 33901

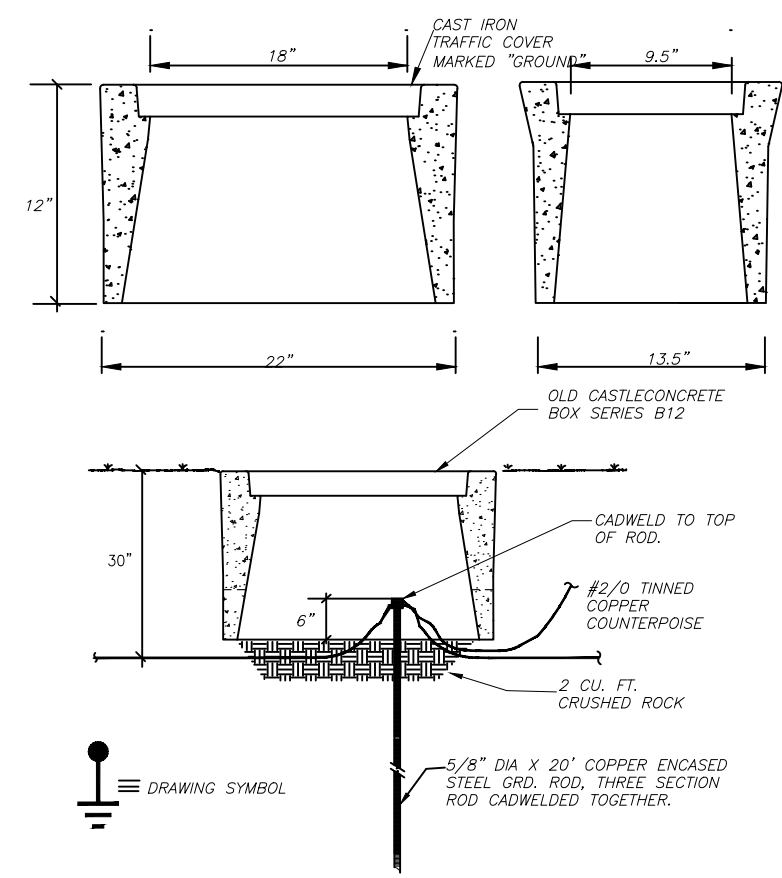
LEE COUNTY UTILITIES ENGINEERING

|              |  |               |
|--------------|--|---------------|
| SHEET TITLE: | DUPLEX PUMP STATION<br>TYPICAL DETAILS                                       |               |
| TITLE:       | STANDARD 480V 3PH<br>PUMP STATION  |               |
| PROJECT:     | WASTE WATER DUPLEX, TRIPLEX PUMP STA.<br>MASTER PUMP STATION DESIGN STANDARD |               |
| PROJECT NO:  | FILE NAME:   | SHEET NUMBER: |
| 480V 3PH PS  | 480V 3PH   | 9 OF 10       |



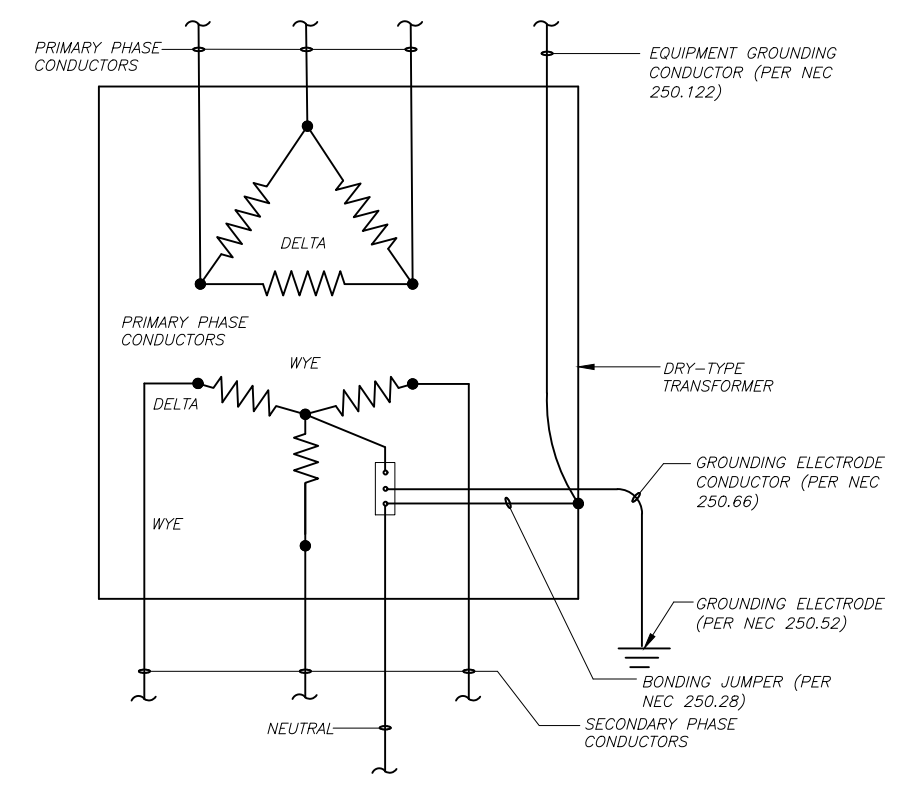
UNDERGROUND CONDUIT INSTALLATION DETAIL

ES-7



GROUND ROD INSTALLATION DETAIL


ES-8



STEP DOWN XPPR GROUNDING FOR SPD SYSTEM  
DELTA PRIMARY, WYE WYE WYE SECONDARY

ES-9

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|  <p>LEE COUNTY<br/>SOUTHWEST<br/>FLORIDA</p> <p>1500 MONROE STREET</p> | <p>LEE COUNTY<br/>UTILITIES<br/>ENGINEERING</p> <p>FORT MYERS, FLORIDA 33901</p> |  |
|   |  | <p>SHEET TITLE: <b>DUPLEX PUMP STATION<br/>TYPICAL DETAILS</b></p> |
| <p>TITLE: <b>STANDARD 480V 3PH<br/>PUMP STATION</b></p>   |  |  |
| <p>PROJECT: <b>WASTE WATER DUPLEX, TRIPLEX PUMP STA.<br/>MASTER PUMP STATION DESIGN STANDARD</b></p>  |  |  |
| <p>PROJECT NO:<br/>480V 3PH PS</p>  | <p>FILE NAME:<br/>480V 3PH</p>   | <p>SHEET NUMBER:<br/>10 OF 10</p>                                  |