

LIGHT FIXTURE SCHEDULE

ELECTRICAL GENERAL NOTES

- 16" X 10" WALL MOUNTED VANDAL RESISTANT LED WALL PACK. DIE CAST ALUMINUM BODY WITH STAINLESS STEEL HARDWARE. DARK BRONZE FINISH. SPECULAR ANODIZED ALUMINUM REFLECTOR. PRISMATIC BOROSILICATE GLASS REFRACTOR LENS. GASKETED FOR WET LOCATIONS; (2 PACKAGE), 28W. 120 VOLTS. MOUNT AT 12' AFG.
LUMARK LDWP-GL-2A-120VED
APPROVED EQUAL
- B. 10" X 2.75" X 48"L WRAP AROUND LED. CURVED ACRYLIC PRISMATIC DIFFUSER. DIE FORMED STEEL CONSTRUCTION; POLYESTER ENAMEL PAINT FINISH; HIGHLY REFLECTIVE WHITE PAINT 120VOLT.
LITHONIA #LBL4 LP835
APPROVED EQUAL
- B1. SAME AS TYPE B BUT WITH BATTERY BACK-UP BALLAST.
LITHONIA #LBL4 LP835
APPROVED EQUAL
- C. 13" X 3" X 26"L ROUND POLE MOUNT AREA LUMINAIRE. MOISTURE AND ENVIRONMENTAL CONTAMINANT SEALED APPLICATIONS IP65; PRECISION MOLDED PROPRIETARY ACRYLIC LENSES; STAINLESS STEEL HARDWARE. 134W LED LAMP, 120VOLTS. MOUNT 10'-0" AFF.
LITHONIA #DSX0 LED P6 50K T4M MVOLT RPA DDBXD
APPROVED EQUAL
- D. 14"DIA. X 14"H RIGID PENDANT MOUNT INDUSTRIAL LUMINAIRE. CLASS I DIVISION II ENCLOSED & GASKETED, WET LOCATION HOSE DOWN APPLICATIONS IP66; LOW PROFILE CLEAR GLASS GLOBE & GUARD; STAINLESS STEEL HARDWARE. 70W LED LAMP, 120VOLTS. MOUNT 10'-0" AFF.
RAL #SAFR-09-L2-U-LCG-P
APPROVED EQUAL
- E. 14"DIA. X 14"H WALL MOUNT INDUSTRIAL LUMINAIRE. CLASS I DIVISION II ENCLOSED & GASKETED, WET LOCATION HOSE DOWN APPLICATIONS IP66; LOW PROFILE CLEAR GLASS GLOBE & GUARD; STAINLESS STEEL HARDWARE. 70W LED LAMP, 120VOLTS. MOUNT 10'-0" AFF.
RAL #SAFR-09-L2-U-LCG-W
APPROVED EQUAL
- XE. LED EXIT SIGN. THERMOPLASTIC HOUSING AND FACEPLATE. DAMP LOCATION. NICAD BATTERY. MOUNTING AS INDICATED. 120 VOLTS.
SURELITE APX6-1-00-R
APPROVED EQUAL

FIXTURE SCHEDULE NOTES

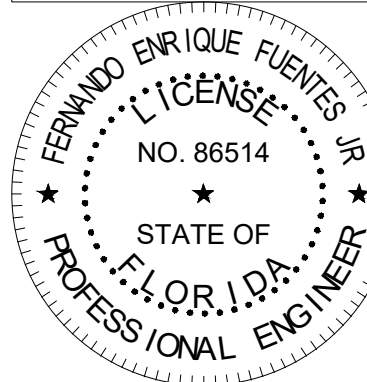
1. MANUFACTURER AND CATALOG NUMBERS LISTED ARE FOR PURPOSES OF ESTABLISHING FUNCTION, APPEARANCE AND QUALITY OF FIXTURE.
2. MOUNT FIXTURES TO BOTTOM CORD OF BEAM/TRUSS: SEE FIXTURE MOUNTING DETAIL.

IT IS THE CONTRACTORS' RESPONSIBILITIES TO USE NON-DESTRUCTIVE IMAGING METHODS (RADAR, XRAY) TO LOCATE EMBEDDED CONDUIT IN CONCRETE PRIOR TO DEMOLITION, SAW CUTTING AND CORE DRILLING. RELOCATE AND RECONSTRUCT AFFECTED CONDUIT AND WIRE PER ELECTRICAL SPECIFICATIONS.

- DO NOT SCALE THE ELECTRICAL DRAWINGS. REFER TO THE MECHANICAL AND STRUCTURAL DRAWINGS AND APPROVED MANUFACTURER'S SHOP DRAWINGS FOR THE EXACT LOCATION OF ALL EQUIPMENT. REFER TO SITE SURVEY DRAWINGS FOR EXACT LOCATIONS OF EXISTING FACILITIES.
2. ALL WORK SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRICAL SAFETY CODE, UTILITY REQUIREMENTS AND LOCAL CODES.
3. PROVIDE SCHEDULE 40 PVC CONDUIT BELOW GRADE IN CONCRETE ENCASED DUCT BANKS MAJOR DUCT BANKS AS INDICATED, MINOR DUCT BANKS AS DIRECTED BY ENGINEER IN FIELD. PROVIDE BELL END CONDUIT IN MANHOLES AND AT STUBUP LOCATIONS. ALL U.G. PROCESS RELATED CONDUIT SHALL BE PROTECTED IN CONCRETE ENCASEMENT.
4. CONDUCTORS SHALL NOT BE SPLICED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.
5. FURNISH AND INSTALL A #2 TINNED BARE COPPER COUNTERPOISE WIRE ABOVE ALL CONDUITS IN DUCT BANKS, BONDED TO BUILDING COUNTERPOISE AT BOTH ENDS.
6. ALL DISCONNECTS, J-BOXES, TERMINAL CABINETS, ETC. & MOUNTING HARDWARE SHALL BE NEMA 4X STAINLESS STEEL UNLESS NOTED OTHERWISE.
7. ALL CONDUITS (POWER, CONTROL, INSTRUMENTATION, ETC.) SHALL HAVE EQUIPMENT GROUNDING CONDUCTOR SIZED PER TABLE 250.122 OF THE N.E.C.
8. PROVIDE CONCRETE REINFORCED ENCASEMENT OF ALL DUCT BANKS INCLUDING DUCTBANKS UNDER STRUCTURES; TYPICAL.
9. DO NOT ABANDON ELECTRICAL IN PLACE. REMOVE CONDUCTORS BACK TO PANEL/MCC. REMOVE CONDUIT BACK TO FIRST MANHOLE, HANDHOLE OR REUSE FOR NEW WORK. REMOVE COMPLETE DUCT BANK AND MANHOLES IF NOT BEING REUSED.
10. THE ELECTRICAL CONTRACTOR SHALL VERIFY ALL INSTRUMENT/CONTROL EQUIPMENT LOCATIONS WITH THE MECHANICAL DRAWINGS AND THE CONTROLS CONTRACTOR PRIOR TO ROUGH-IN. LOCATIONS SHOWN ON DRAWING ARE APPROXIMATE ONLY. THE ELECTRICAL CONTRACTOR SHALL VERIFY ALL CONTROL CABLING REQUIRED WITH THE CONTROLS CONTRACTOR PRIOR TO ROUGH-IN. DOCUMENT COORDINATION TO THE GENERAL CONTRACTOR PRIOR TO ROUGH-IN.
11. ALL WIRE INTO AND OUT OF CONTROL CABINETS SHALL BE TYPE TC CONTROL CABLE WITH MULTIPLE CONDUCTORS, #14 STRANDED WIRE AS SPECIFIED; TYPICAL THROUGHOUT.
12. ALL WIRE INTO AND OUT OF INSTRUMENTATION CABINETS SHALL BE TYPE TC TWISTED SHIELDED INSTRUMENT CABLE WITH MULTIPLE CONDUCTOR PAIRS OF #16 STRANDED WIRE AS SPECIFIED; TYPICAL THROUGHOUT.
13. THE SEQUENCE OF CONSTRUCTION WILL REQUIRE TEMPORARY ELECTRICAL SERVICES BE PROVIDED TO ALL AFFECTED FACILITIES TO MAINTAIN CONTINUOUS OPERATION DURING CONSTRUCTION. GENERAL CONTRACTOR SHALL COORDINATE AND COMMUNICATE ALL REQUIRED TEMPORARY REQUIREMENTS WITH ELECTRICAL CONTRACTOR. GENERAL CONTRACTOR TO ASSUME OVERALL RESPONSIBILITY TO COORDINATE WITH OWNER TO ENSURE POWER TO ALL EXISTING FACILITIES IS ONLY INTERRUPTED AS AUTHORIZED BY OWNER.
14. ALL CONDUCTORS SHALL BE ROUTED IN AND OUT OF MANHOLES TAKING THE LONGEST DISTANCE TO ALLOW FOR SLACK CABLE.
15. ALL CONTROL PANELS SHALL BE CONSTRUCTED BY A UL508A APPROVED PANEL VENDOR AND SHALL BEAR A UL508A LABEL ON THE PANEL.
16. DRAWINGS DO NOT SHOW EXACT ROUTING OF CONDUIT. COORDINATE CONDUIT LOCATIONS WITH OTHER TRADES SO THAT CONFLICTS ARE AVOIDED.
17. LOCATIONS OF MANHOLES, HANDHOLES AND PULL BOXES ARE APPROXIMATE. CONTRACTOR SHALL COORDINATE EXACT LOCATION WITH EXISTING AND PROPOSED PIPING AND OTHER INTERFERENCES.
18. PROVIDE A #2 BOND FROM ALL FIELD INSTRUMENTS, MOTORS, CONTROL PANELS, TERMINATION CABINETS, ETC TO THE GROUND GRID.
19. PROVIDE 2' MINIMUM DISTANCE BETWEEN PARALLEL RUNS OF LOW VOLTAGE 480V & 120V POWER CONDUITS AND I&C CONDUITS. POWER CONDUIT SHALL CROSS INSTRUMENTATION CONDUIT PERPENDICULARLY AT RIGHT ANGLES WITH 6" SEPARATION FOR 480V & 120V. VFD MOTOR LEAD CONDUIT SHALL HAVE 24" SEPARATION TO INSTRUMENTATION & CONTROL CONDUITS.
20. CONDUCTOR PULLING TENSIONS SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATION. CONTRACTOR SHALL INSTALL PULL BOXES TO MEET MANUFACTURER'S REQUIREMENTS.
21. PLAN DRAWINGS DO NOT SHOW ALL CONDUITS REQUIRED. PROVIDE ADDITIONAL CONDUIT FOR CONDUCTORS AS SHOWN ON RISER, ONE-LINE DIAGRAMS, DETAILS AND NOTES.

- ALL CIRCUITS SHALL BE IDENTIFIED IN JUNCTION BOXES, PULL BOXES, CONTROL PANELS, PANELBOARDS, LIGHTING POLES, CONTROLLERS AND SERVICE POINTS. IDENTIFICATION SHALL MATCH PANELBOARD SCHEDULES, MCC SECTION, I&C SHOP DRAWINGS & SCHEDULES & TAG LISTS, ETC.
23. EXPOSED RUNS OF CONDUITS SHALL BE INSTALLED WITH RUNS PARALLEL OR PERPENDICULAR TO WALLS, STRUCTURAL MEMBERS OR INTERSECTIONS OF VERTICAL PLANES AND CEILINGS, WITH RIGHT ANGLE TURNS CONSISTING OF SYMMETRICAL BENDS OR PULL BOXES AS INDICATED ON THE DRAWINGS. BENDS AND OFFSETS SHALL BE AVOIDED WHERE POSSIBLE.
24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONDUIT AND WIRING INSTALLATION FOR ALL VENDOR PROVIDED EQUIPMENT (PACKAGE SYSTEMS). IF THE SHOP DRAWINGS DIFFER FROM THE DESIGNED FACILITIES, THE CONTRACTOR SHALL REDESIGN THE FACILITIES AND SUBMIT THE REVISED DESIGN FOR THE ENGINEER'S APPROVAL AT NO ADDITIONAL COST TO THE OWNER. PRIOR TO ELECTRICAL SUBMITTAL THE CONTRACTOR SHALL VERIFY ALL SUPPLIED BREAKER SIZES, STARTER SIZES, OVERLOAD SIZES, ETC. FOR ALL SYSTEMS SUCH AS HVAC, EXHAUST FANS, CHEMICAL PUMPS ETC. AND MODIFY BREAKERS, OVERLOADS, ETC. IN CONTRACTOR SUPPLIED EQUIPMENT ACCORDINGLY.
25. ALL EXCAVATIONS FOR CONDUITS, HANDHOLES, MANHOLES AND PULLBOXES NEAR EXISTING PIPING, CONDUIT AND EQUIPMENT SHALL BE HAND EXCAVATED AND COORDINATED WITH ENGINEER AND OWNER. DAMAGE TO EXISTING SYSTEMS ARE TO BE IMMEDIATELY REPORTED TO OWNER AND REPAIRED TO OWNER AND ENGINEER SATISFACTION AT NO CHANGE TO CONTRACT.
26. MINIMUM DEPTH FROM TOP OF DUCTBANKS OR CONDUITS TO FINISHED GRADE SHALL BE 30" UNLESS OTHERWISE NOTED.
27. PROVIDE COLORED WARNING TAPE 6" WIDE SHALL BE INSTALLED 12" BELOW FINISHED GRADE DIRECTLY ABOVE ALL UNDERGROUND YARD CONDUITS.
28. GROUNDING CONNECTIONS BELOW GRADE SHALL BE EXOTHERMIC UNLESS SPECIFICALLY INDICATED OTHERWISE.
29. ALL ENCLOSURES, TERMINAL CABINETS, WIREWAYS, PULL BOXES ETC. SHALL CONTAIN A GROUNDING BUS BAR. CONNECT ALL RACEWAY BONDS TO BUS BAR VIA GROUNDING BUSHING AND EXTEND BONDING JUMPER FROM BUS BAR TO ENCLOSURE.
30. CONTRACTOR SHALL CORE DRILL EXISTING CONCRETE WALLS, FLOORS, MANHOLES, HANDHOLES AND PULL BOXES FOR CONDUIT PENETRATIONS. SEAL PENETRATIONS WITH NON-SHRINK GROUT OR APPROPRIATE FIRE RATED DEVICES WHERE APPLICABLE.
31. ALL CONDUITS PENETRATING RATED FIRE WALLS OR RATED FIRE FLOORS SHALL BE INSTALLED WITH U.L. APPROVED DEVICES TO MAINTAIN THE FIRE RATING OF THE WALL OR FLOOR PENETRATED.
32. PROVIDE CONDUIT DUCT SEAL AT ALL CONDUIT ENDS.
33. ALL SPARE CONDUITS SHALL BE SEALED WITH A CAP AT BOTH ENDS AND A PULL STRING INSTALLED WITH IDENTIFICATION ON BOTH ENDS.
34. FLEXIBLE CONDUITS SHALL BE USED TO TERMINATE ALL MOTORS AND OTHER VIBRATING EQUIPMENT & SHALL BE A MAXIMUM OF 24" IN LENGTH.
35. PROVIDE TYPEWRITTEN PANEL SCHEDULES IN PANELBOARD & TYPEWRITTEN TERMINAL BLOCK SCHEDULES IN TERMINAL CABINETS; PROPOSED & MODIFIED.
36. PROVIDE 1/2"=1' SCALE ELECTRICAL ROOM/AREA LAYOUT DRAWING SUBMITTAL, SHOWING ALL ELECTRICAL EQUIPMENT.
37. 20AMP LIGHTING AND RECEPTACLE BRANCH CIRCUITS EXCEEDING 75 FT IN LENGTH SHALL BE A MINIMUM #10 AWG WIRE.
38. PROVIDE NON-DESTRUCTIVE IMAGING METHODS (RADAR, XRAY) TO LOCATE EMBEDDED CONDUIT IN CONCRETE PRIOR TO DEMOLITION, SAW CUTTING AND CORE DRILLING. RELOCATE AND RECONSTRUCT AFFECTED CONDUIT AND WIRE PER ELECTRICAL SPECIFICATIONS.
39. COMPLY WITH NEC REQUIREMENTS FOR HAZARDOUS AREAS AS DEFINED BY NFPA-820 STANDARDS FOR FIRE PROTECTION IN WASTEWATER TREATMENT AND COLLECTION FACILITIES CURRENT EDITION.
40. ALL SEAL-OFFS SHALL BE INSTALLED WITH PROPERLY RATED SEALING COMPOUND APPROVED FOR THE LOCATION.

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CONSTRUCTION PLANS

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IT IS THE CONTRACTORS' RESPONSIBILITIES TO USE NON-DESTRUCTIVE IMAGING METHODS (RADAR, XRAY) TO LOCATE UNDERGROUND PIPING, UNDERGROUND CONDUIT, CONCRETE ENCASED DUCTBANKS, EMBEDDED CONDUIT IN CONCRETE PRIOR TO DEMOLITION, SAW CUTTING AND CORE DRILLING. RELOCATE AS REQUIRED TO FACILITATE CONSTRUCTION, RECONSTRUCT DAMAGED PIPING, CONDUIT AND WIRE PER ELECTRICAL SPECIFICATIONS AND TO OWNER SATISFACTION.

GENERAL NOTE:

1. WRF IS REQUIRED TO REMAIN ENERGIZED THROUGHOUT CONSTRUCTION UNLESS AN OUTAGE IS SCHEDULED. ANY OUTAGES MUST BE SCHEDULED & APPROVED WITH OWNER A MINIMUM OF 7 DAYS IN ADVANCE.

- GENERAL NOTE:
1. WRF IS REQUIRED TO REMAIN ENERGIZED THROUGHOUT CONSTRUCTION UNLESS AN OUTAGE IS SCHEDULED. ANY OUTAGES MUST BE SCHEDULED & APPROVED WITH OWNER A MINIMUM OF 7 DAYS IN ADVANCE.

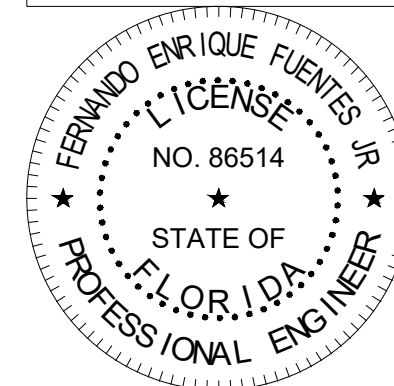
KEYNOTES

1. APPROXIMATE LOCATION OF EXISTING HEADWORKS ELECTRICAL SERVICE EQUIPMENT. REFERENCE SHEET ED01 FOR DETAILS. INTERCEPT CONDUIT FOR EXISTING FRONT ENTRANCE GATE, FRONT ENTRANCE SHED, SANDALHAVEN FLOWMETER, FLOWMETER FIT-1-1 AND SAMPLER RECEP.TS. DEMO REMAINING EQUIPMENT COMPLETE UPON COMPLETION OF NEW WORK. LIMITED SCHEDULED OUTAGES ARE PERMITTED TO BE SCHEDULED TO FACILITATE NEW HEADWORKS SERVICE CONSTRUCTION.
2. EXISTING 120V, 1P SANDALHAVEN FLOWMETER TO REMAIN. LOAD TO BE REFEED FROM NEW HEADWORKS SERVICE.
3. APPROXIMATE LOCATION OF EXISTING POWER MANHOLE TO REMAIN.
4. APPROXIMATE LOCATION OF EXISTING FPL 480V, 3P PAD MOUNT TRANSFORMER TO REMAIN. CONNECT NEW HEADWORKS FACILITY ELECTRICAL SERVICE TO TRANSFORMER. TRANSFORMER PROVIDES SERVICE TO A TOTAL OF (4) SERVICES AT THE PLANT AND MUST REMAINED ENERGIZED THROUGHOUT. LIMITED SCHEDULED OUTAGES ARE PERMITTED TO BE SCHEDULED TO FACILITATE CONSTRUCTION.
5. !!APPROXIMATE LOCATION OF EXISTING HEADWORKS UNDERGROUND SERVICE LATERAL. FIELD LOCATE AND CLEARLY IDENTIFY THROUGHOUT CONSTRUCTION!!
6. APPROXIMATE LOCATION OF EXISTING STAND-BY GENERATOR WITH SUB-BASE FUEL TANK. UNIT TO BE RELOCATED TO NEW HEADWORKS FACILITY UPON COMPLETION OF NEW WORK.
7. EXISTING HEADWORKS ELECTRICAL EQUIPMENT ROOM. EQUIPMENT TO BE DEMOED UPON COMPLETION OF NEW HEADWORKS.
8. EXISTING 480V, 3P ODOR CONTROL UNIT TO BE RELOCATED TO NEW HEADWORKS.
9. EXISTING 120V, 1P FLOWMETER FIT-1-1 & SAMPLER RECEP.T TO REMAIN. LOADS TO BE REFEED FROM NEW HEADWORKS SERVICE. ANALOG SIGNAL FROM FIT-1-1 TO CONNECT TO RECORDER LOCATED AT OFFICE VIA I&C T/C. RELABLE INSTRUMENT AS SWRF-01-FIT/FE-1110.
10. DEMO EXISTING 120/240V, 1P STORAGE SHED LIGHTING & RECEP.T CIRCUIT COMPLETE.
11. EXISTING 480V, 3P ASR-1 WELL AND (3) ACTUATORS TO REMAIN. LOADS TO BE REFEED FROM NEW HEADWORKS SERVICE.
12. EXISTING 120/240V, 1P FRONT ENTRANCE GATE SHED. LOAD TO BE REFEED FROM NEW HEADWORKS SERVICE.
13. EXISTING 120V, 1P FRONT ENTRANCE GATE TO REMAIN. LOAD TO BE REFEED FROM NEW HEADWORKS SERVICE.
14. (3) EXISTING 120V, 1P H2S ODOR LOGGERS. RELOCATED (2) H2S ODOR LOGGERS TO NEW HEADWORKS FACILITY. LOAD TO BE REFEED FROM NEW HEADWORKS SERVICE. TURN OVER REMAINING UNIT TO OWNER.



15. DEMO EXISTING SITE LIGHTING. LIGHTING CIRCUIT FED FROM CHLORINE BUILDING.
16. INSTRUMENTATION & CONTROLS TERMINATION CABINET (I&C T/C) TO REMAIN. UTILIZE TO TERMINATE RELOCATED SWRF-01-FIT/FE-1110 (FIT-1-1) ANALOG SIGNAL.
17. !!APPROXIMATE LOCATION OF EXISTING ELECTRICAL PULLBOX. FIELD LOCATE AND CLEARLY IDENTIFY THROUGHOUT CONSTRUCTION!!
18. EXISTING SITE LIGHTING TO REMAIN. LIGHTING CIRCUIT FED FROM CHLORINE BUILDING.

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KHA PROJECT
048104001

DATE _____

OCTOBER, 2022

SCALE: AS SHOWN

DESIGNED BY:F.E.F.JR.

DRAWN BY: F.E.F.JR.

CHECKED BY: T.M.P.

SOUTH WATER RECLAMATION FACILITY HEADWORKS

PREPARED FOR

ENGLEWOOD WATER DISTRICT



EXISTING ELECTRICAL SITE PLAN

SHEET NUMBER

E03

IT IS THE CONTRACTOR'S RESPONSIBILITIES TO USE NON-DESTRUCTIVE IMAGING METHODS (RADAR, XRAY) TO LOCATE UNDERGROUND PIPING, UNDERGROUND CONDUIT, CONCRETE ENCASED DUCTBANKS, EMBEDDED CONDUIT IN CONCRETE PRIOR TO DEMOLITION, SAW CUTTING AND CORE DRILLING. RELOCATE AS REQUIRED TO FACILITATE CONSTRUCTION , RECONSTRUCT DAMAGED PIPING, CONDUIT AND WIRE PER ELECTRICAL SPECIFICATIONS AND TO OWNER SATISFACTION.

GENERAL NOTE:

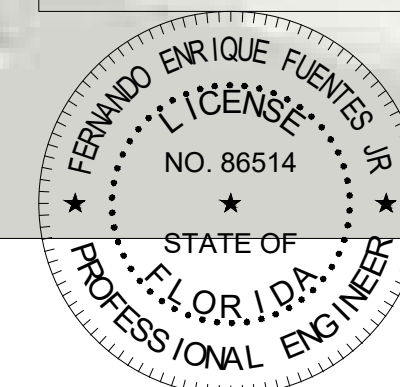
1. WRF IS REQUIRED TO REMAIN ENERGIZED THROUGHOUT CONSTRUCTION UNLESS AN OUTAGE IS SCHEDULED. ANY OUTAGES MUST BE SCHEDULED & APPROVED WITH OWNER A MINIMUM OF 7 DAYS IN ADVANCE.

KEYNOTES

1. NEW HEADWORKS 480V, 3P UNDERGROUND SERVICE LATERAL. COORDINATE EXACT CONNECTION REQUIREMENTS AND LOCATION WITH FPL PRIOR TO ROUGH-IN.
2. APPROXIMATE LOCATION OF EXISTING POWER MANHOLE TO REMAIN.
3. APPROXIMATE LOCATION OF EXISTING FPL 480V, 3P PAD MOUNT TRANSFORMER TO REMAIN. CONNECT NEW HEADWORKS FACILITY ELECTRICAL SERVICE TO TRANSFORMER. TRANSFORMER PROVIDES SERVICE TO A TOTAL OF (4) SERVICES AT THE PLANT AND MUST REMAINED ENERGIZED THROUGHOUT. LIMITED SCHEDULED OUTAGES ARE PERMITTED TO BE SCHEDULED TO FACILITATE CONSTRUCTION.
4. APPROXIMATE LOCATION OF EXISTING HEADWORKS UNDERGROUND SERVICE LATERAL. REMOVE WIRE BACK TO FPL TRANSFORMER UPON COMMISSIONING OF NEW HEADWORKS ELECTRICAL SERVICE.
5. RELOCATED STAND-BY GENERATOR WITH SUB-BASE FUEL TANK.
6. RELOCATED 480V, 3P ODOR CONTROL UNIT.
7. CONTRACTOR TO INTERCEPT CONDUIT AND EXTEND TO NEW HEADWORKS ELECTRICAL ROOM VIA NEW MANHOLES & DUCTBANK ON EAST SIDE OF DEMOED HEADWORKS FACILITY.
8. NEW POWER AND CONTROL MANHOLES.
9. NEW POWER AND CONTROL DUCTBANK.
10. NEW HEADWORKS ELECTRICAL BUILDING.
11. NEW POWER MANHOLE.
12. (2)1" C., (1)1" C. WITH (2)PAIR #16 TSP INSTRUMENTATION CABLE IN AND (1)1" C. SPARE.
13. ROUTE TO PANELBOARD VIA LIGHTING CONTROL PANEL.
14. INSTALL LIGHTNING PROTECTION & GROUNDING ON POLE MOUNTED LIGHT FIXTURE PER ELECTRICAL DETAILS.



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SOUTH WATER RECLAMATION FACILITY HEADWORKS

PREPARED FOR

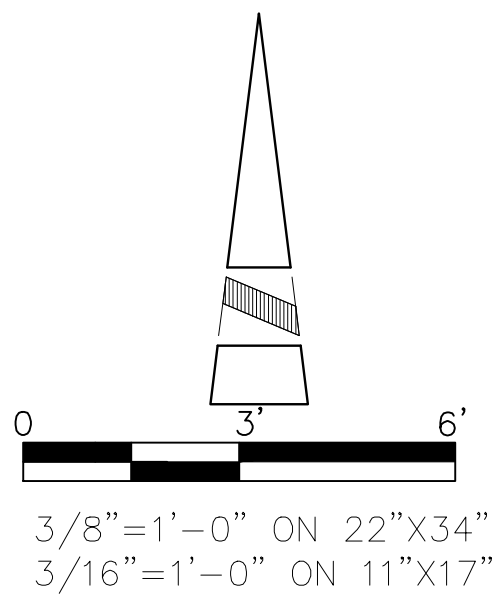
ENGLEWOOD WATER DISTRICT



PROPOSED ELECTRICAL SITE PLAN

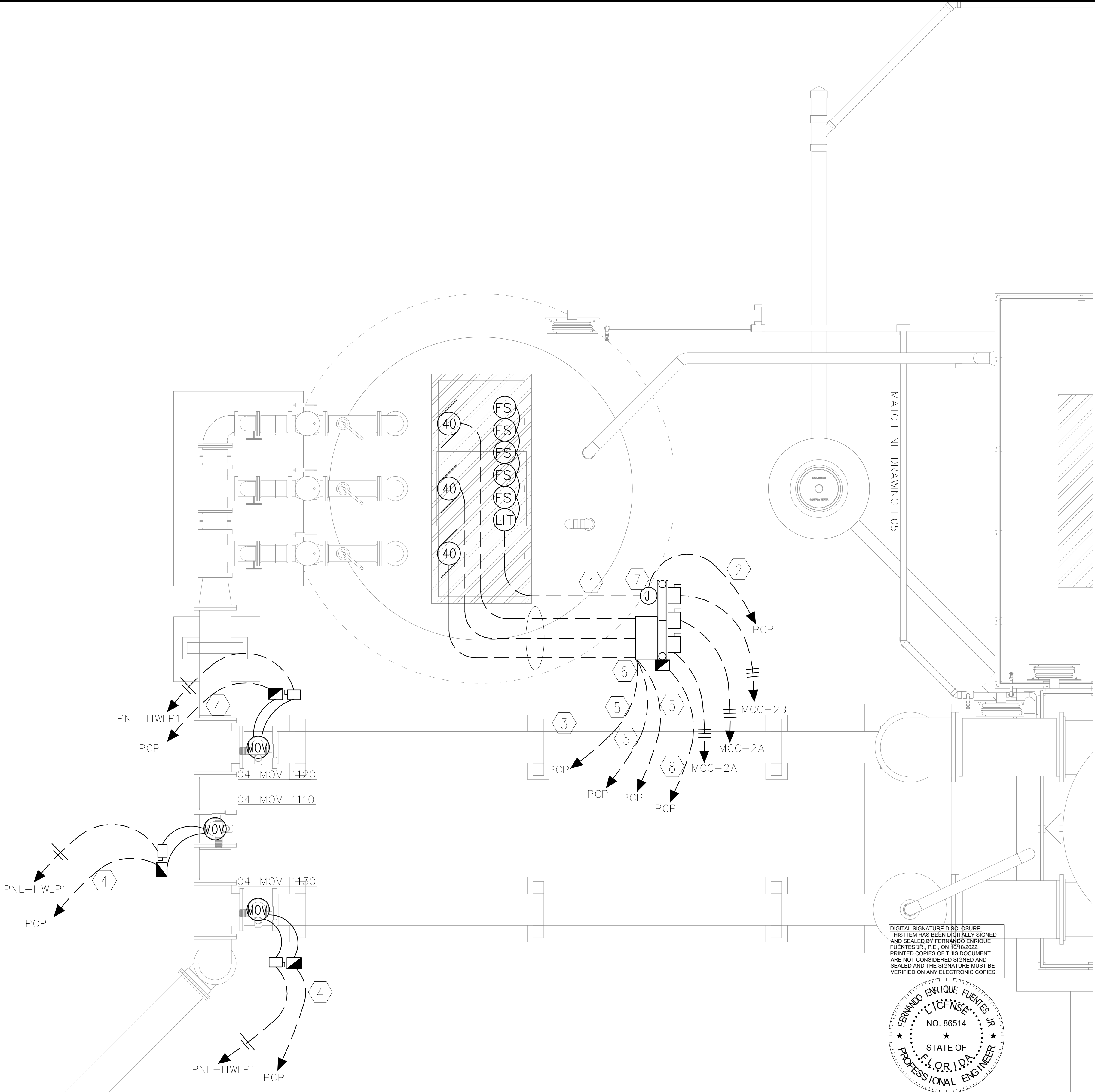
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E04



- GENERAL NOTE:
- THIS PLAN DOES NOT INDICATE ALL CONDUIT & WIRE REQUIRED; SEE ADDITIONAL REQUIREMENTS ON ELEMENTARY & PLAN DRAWINGS.
 - ALL EQUIPMENT & DEVICE LOCATIONS ARE APPROXIMATE. COORDINATE WITH SHOP DRAWING FOR EXACT LOCATIONS.
 - PROVIDE CLASS-1 DIVISION-2 EXPLOSION PROOF WIRING METHODS WITHIN 3' OF ODOR CONTROL DUCTWORK. PROVIDE SEAL-OFF FITTINGS FOR FIELD CONDUITS.

- # KEYNOTES
- (2)2.5" C INTO WETWELL, (1) TO PULL IN FLOAT SWITCH MANUFACTURER CABLES & (1) TO PULL IN LEVEL TRANSMITTER MANUFACTURER CABLES. CORE DRILL NEW PENETRATIONS THROUGH WETWELL. PATCH ALL WITH HYDROCEMENT.
 - (15) CONDUCTOR #14 CONTROL CABLE IN 1.25" C. + (2) PAIR #16 TSP INSTRUMENTATION CABLE IN 1" C.
 - (3)2.5" C INTO WETWELL TO PULL IN PUMP CABLES. CORE DRILL NEW PENETRATIONS THROUGH WETWELL. PATCH ALL WITH HYDROCEMENT.
 - (15) CONDUCTOR #14 CONTROL CABLE IN 2" C.
 - (2) PAIR #16 TSP INSTRUMENTATION CABLE IN 1" C.
 - N4X SS POWDER COATED WHITE SUBMERSIBLE PUMPS TERMINATION CABINET.
 - N4X SS POWDER COATED WHITE FLOAT SWITCH AND LEVEL TRANSMITTER TERMINATION CABINET.
 - (5) CONDUCTOR #14 CONTROL CABLE IN 1" C.



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CHECKED BY: T.M.P.

**SOUTH WATER RECLAMATION FACILITY
HEADWORKS**

PREPARED FOR

ENGLEWOOD WATER DISTRICT

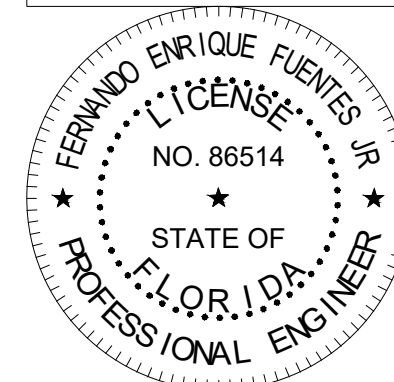
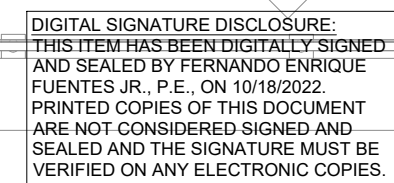
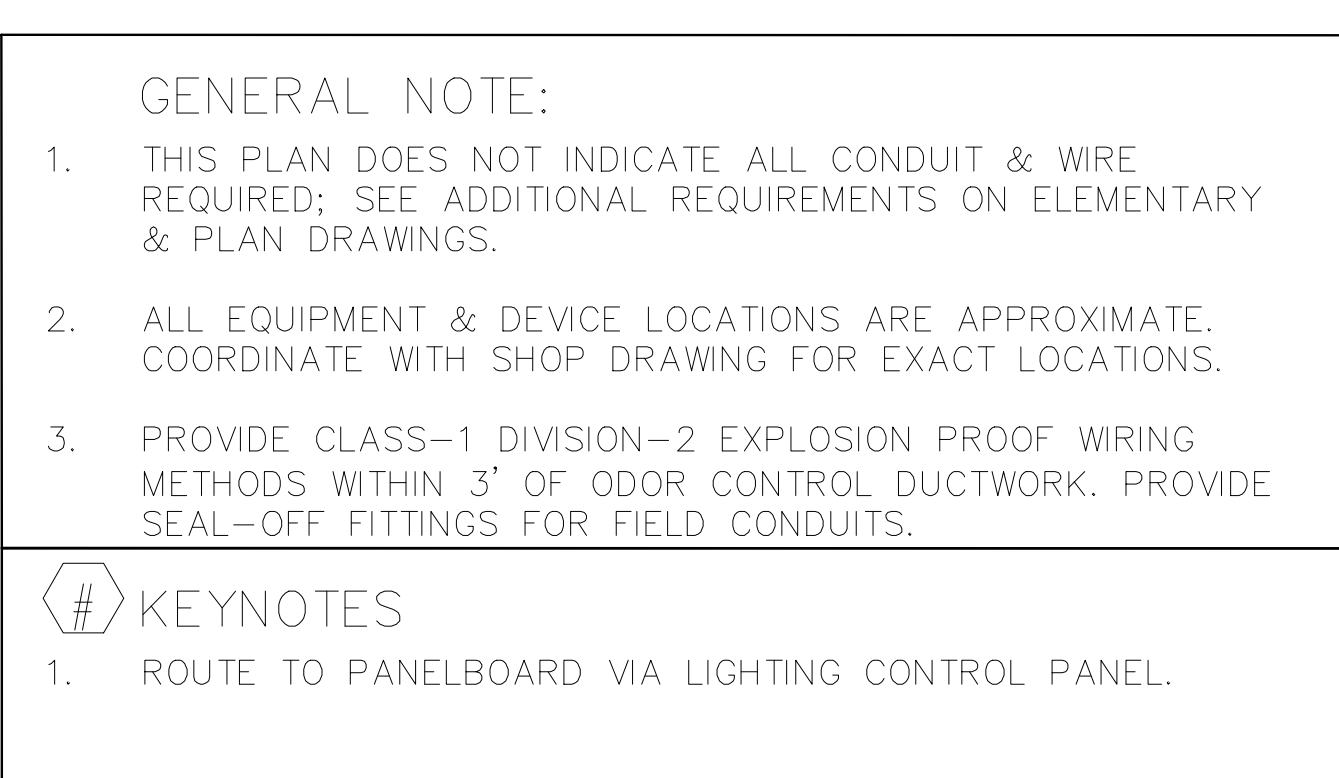
RIC CONSULTING ENGINEERS
ELECTRICAL * INSTRUMENTATION * CONTROL
12651 McGregor Blvd. Ste 4-402 | Fort Myers, FL 33919
239.481.6775 | Certificate of Authorization #8212

FERNANDO E. FUENTES JR., P.E. #86514 DATE

**MASTER INFLUENT LIFT STATION
POWER & CONTROL PLAN**

SHEET NUMBER

E06



CONSTRUCTION PLANS

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ENGLEWOOD WATER DISTRICT

FERNANDO E. FUENTES JR., P.E. #86514 DATE

HEADWORKS LIGHTING PLAN

E07

K:\Englewood Headworks\E09.dwg Plotted: Oct 18, 2022 - 4:57pm by fernandof

GENERAL NOTES:

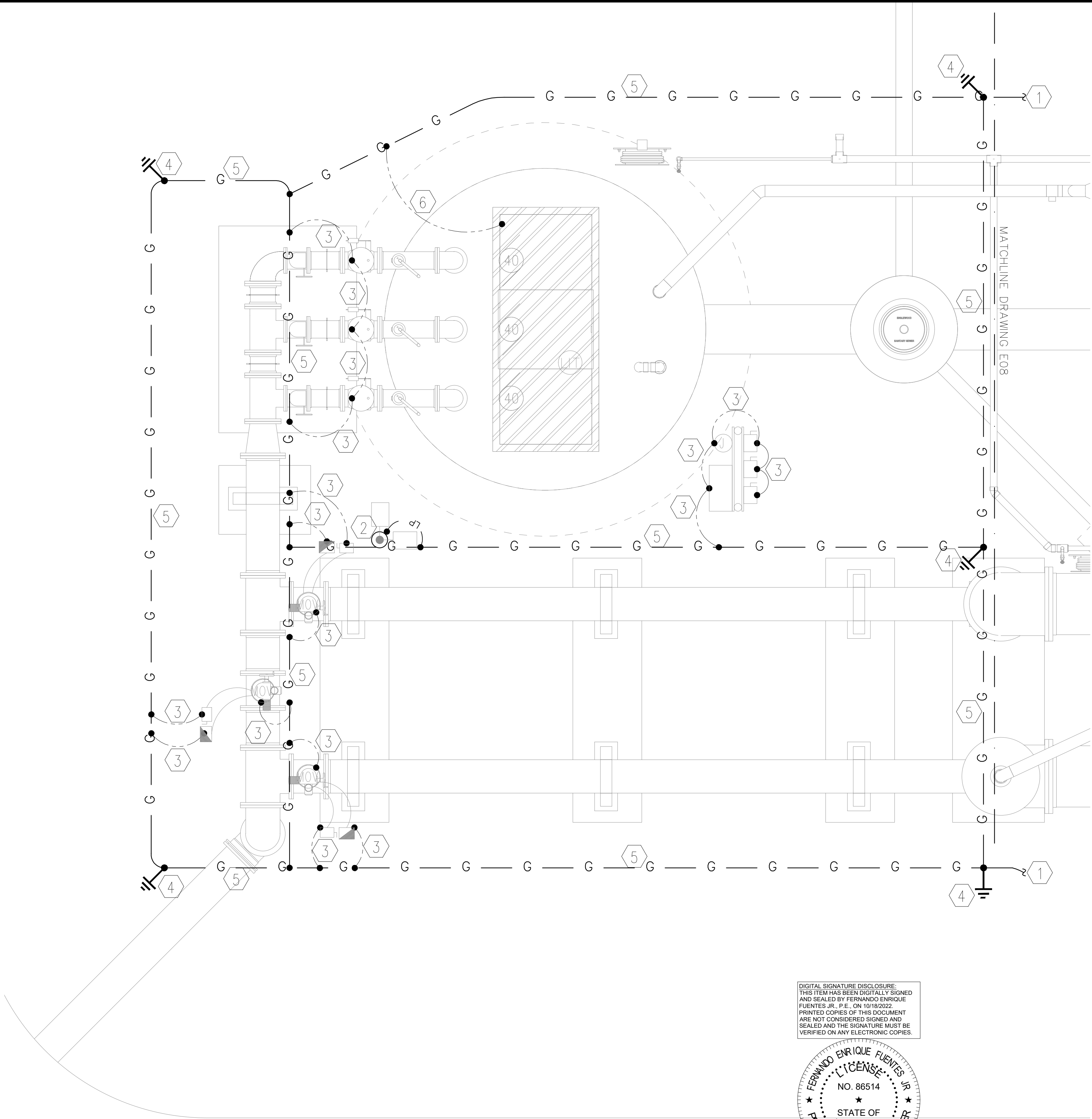
1. ALL U.G CONNECTIONS TO BE VIA EXOTHERMIC WELD (CADWELD) UNLESS INDICATED OTHERWISE.
2. ALL WORK INDICATED ON THIS DRAWING, IS TO BE PERFORMED IN COMPLIANCE WITH THE LIGHTNING PROTECTION DETAILS AND SPECIFICATIONS.
3. PROVIDE CONCEALED SLEEVES OR FLAT STRAP CONDUCTOR ON ALL WALKWAYS FOR LIGHTNING PROTECTION CONDUCTOR.
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.
5. BONDS DIRECTLY TO GROUNDING SYSTEM ARE TO BE #2 TINNED SOLID COPPER. BONDS TO ALUMINUM LIGHTNING PROTECTION SYSTEM ARE TO BE #2 SOLID ALUMINUM.

KEYNOTES

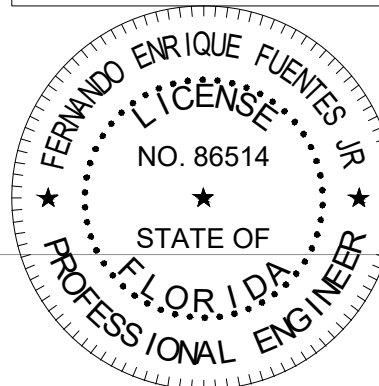
1. #2/0 TINNED STRANDED COPPER COUNTERPOISE TO PUMP STATION GROUND GRID.
2. LIGHT FIXTURE MOUNTED AIR TERMINAL. TYPICAL
3. #2 TINNED SOLID COPPER BOND. TYPICAL.
4. 20' DRIVEN GROUND ROD WITH INSPECTION TEST WELL (SEE DETAIL). TYPICAL
5. #2/0 TINNED STRANDED COPPER COUNTERPOISE LOOP GROUND. TYPICAL
6. BOND TO HINGE CORNER OF HATCH FRAME. DRILL TAP AS REQUIRED.

LIGHTNING PROTECTION LEGEND:

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



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CONSTRUCTION PLANS

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PHONE: 239-271-2650
WWW.KIMLEY-HORN.COM REGISTRY No. 35106

KHA PROJECT
048104001
DATE
OCTOBER, 2022
SCALE: AS SHOWN
DESIGNED BY: F.E.F.JR.
DRAWN BY: F.E.F.JR.
CHECKED BY: T.M.P.

SOUTH WATER RECLAMATION FACILITY
HEADWORKS

PREPARED FOR

ENGLEWOOD WATER DISTRICT

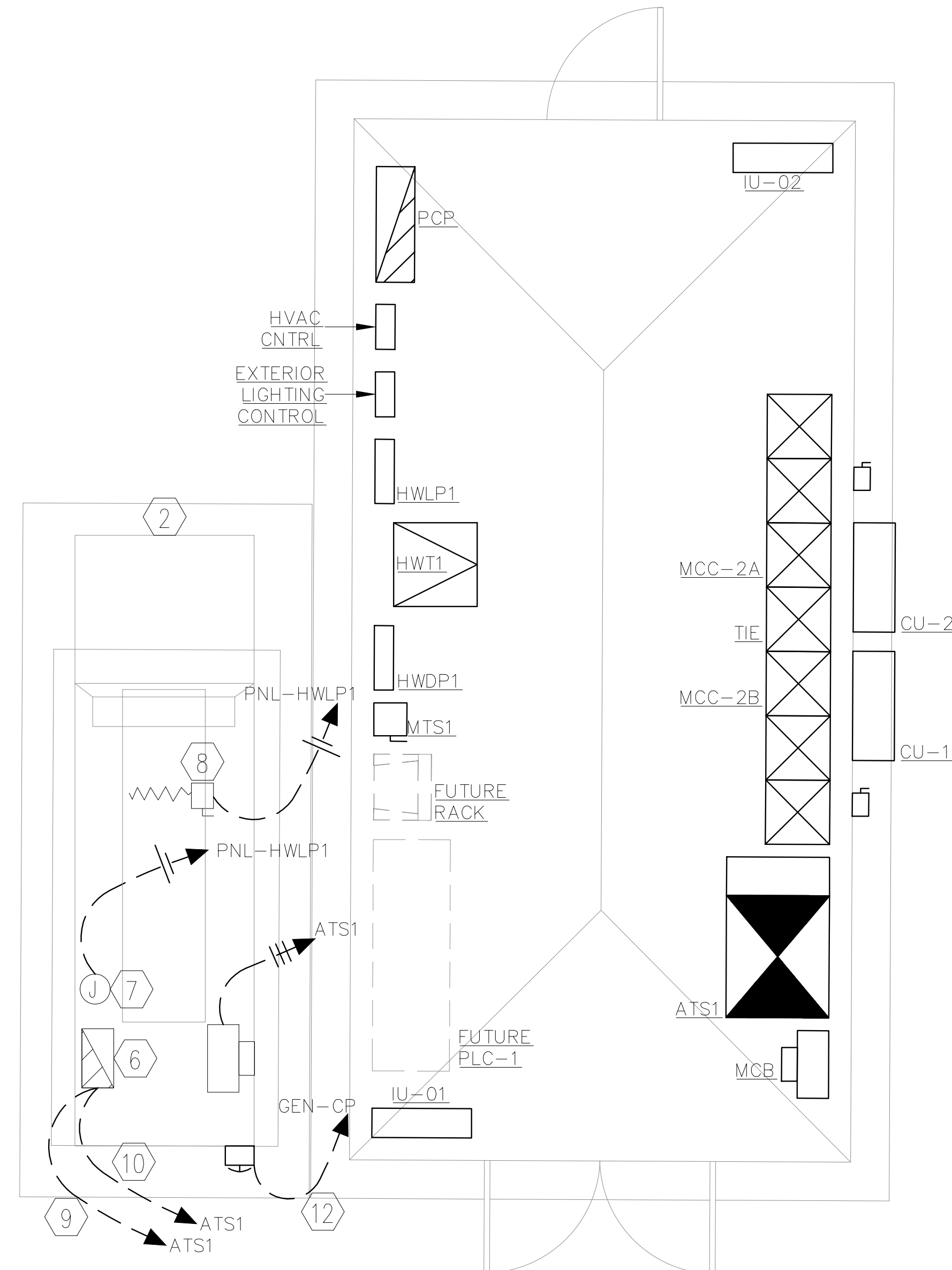
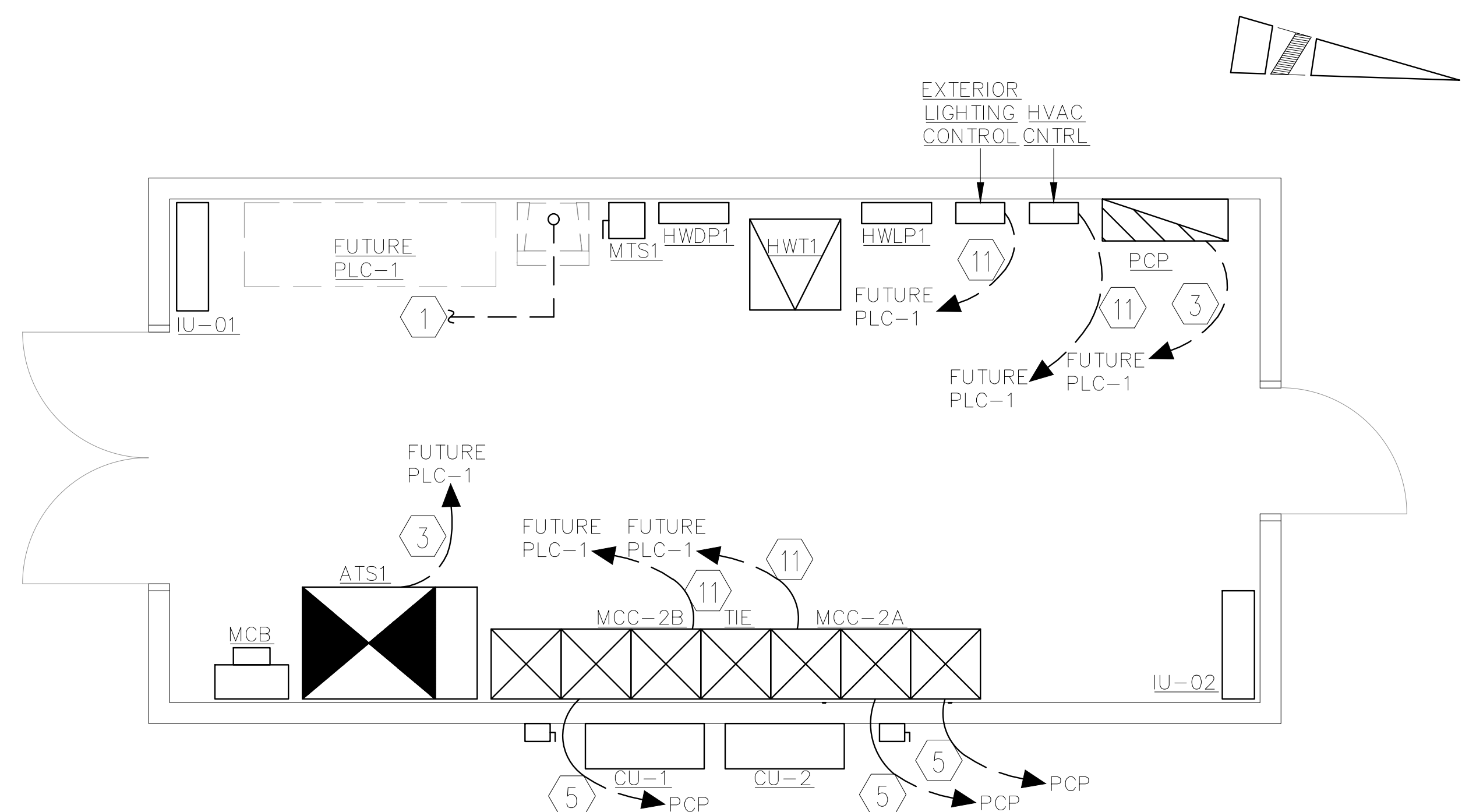
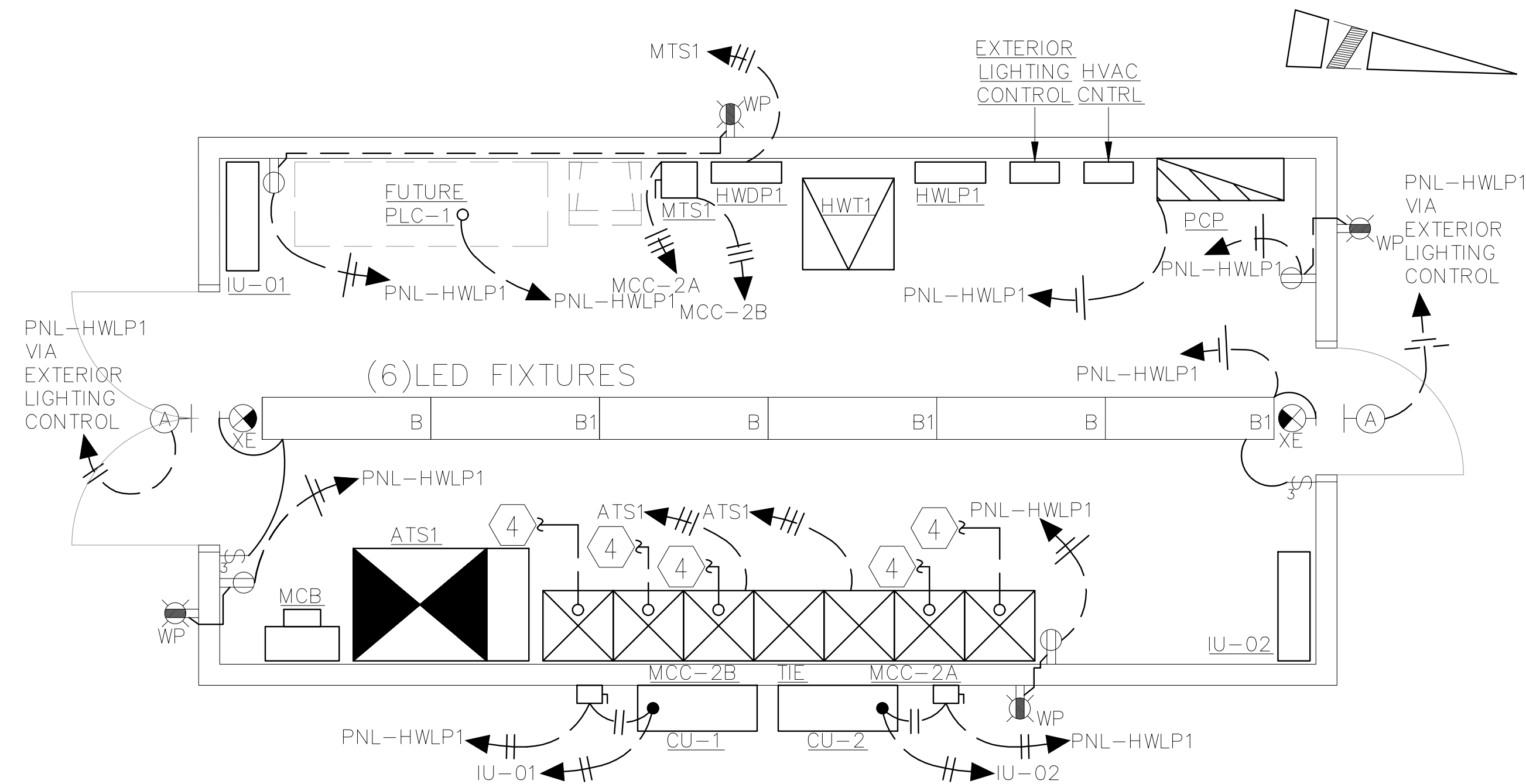
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FERNANDO E. FUENTES JR., P.E. #86514 DATE

MASTER INFLUENT LIFT STATION
LIGHTNING PROTECTION, BONDING
& GROUNDING PLAN

SHEET NUMBER

E09



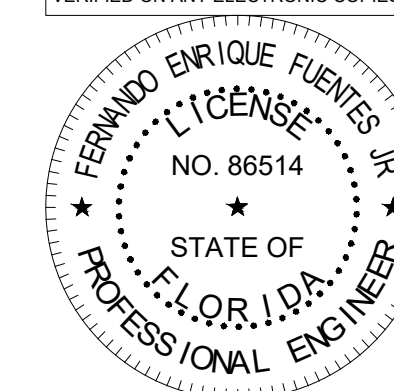
GENERAL NOTE:

1. THIS PLAN DOES NOT INDICATE ALL CONDUIT & WIRE REQUIRED; SEE ADDITIONAL REQUIREMENTS ON ELEMENTARY & PLAN DRAWINGS.
2. ALL EQUIPMENT & DEVICE LOCATIONS ARE APPROXIMATE. COORDINATE WITH SHOP DRAWING FOR EXACT LOCATIONS.
3. PROVIDE CLASS-1 DIVISION-2 EXPLOSION PROOF WIRING METHODS WITHIN 3' OF ODOR CONTROL DUCTWORK. PROVIDE SEAL-OFF FITTINGS FOR FIELD CONDUITS.

KEYNOTES

1. 2" SPARE SPARE CONDUIT TO I&C MANHOLE
2. RELOCATED STAND-BY GENERATOR WITH SUB-BASE FUEL TANK.
3. 2"C SPARE.
4. (2) SPARE 2" CONDUITS TO POWER MANHOLE.
5. (19) CONDUCTOR #14 CONTROL CABLE IN 1.5"C. + (4) PAIR #16 TSP INSTRUMENTATION CABLE IN 1.25"C.
6. GENSET CONTROL PANEL (GEN-CP).
7. (2)#10 AND #10G IN 1"C. TO BATTERY CHARGER. FIELD COORDINATE EXACT LOCATION OF BATTERY.
8. GENSET STRIP HEATER. MINIMUM (3)#10 IN 0.75"C. COORDINATE EXACT LOCATION OF HEATERS.
9. (2)1.25"C. (1) SPARE, (1) WITH (9) CONDUCTOR #14 CONTROL CABLE.
10. DEDICATED 2 WIRE UTP CABLE FOR REMOTE GEN-START COMMAND IN 1"C.
11. 1"C. SPARE.
12. (3)#14 IN 0.75"C. FOR NEW GEN E-STOP.

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SOUTH WATER RECLAMATION FACILITY HEADWORKS

PREPARED FOR

ENGLEWOOD WATER DISTRICT

RYAN CONSULTING ENGINEERS
ELECTRICAL*INSTRUMENTATION*CONTROL

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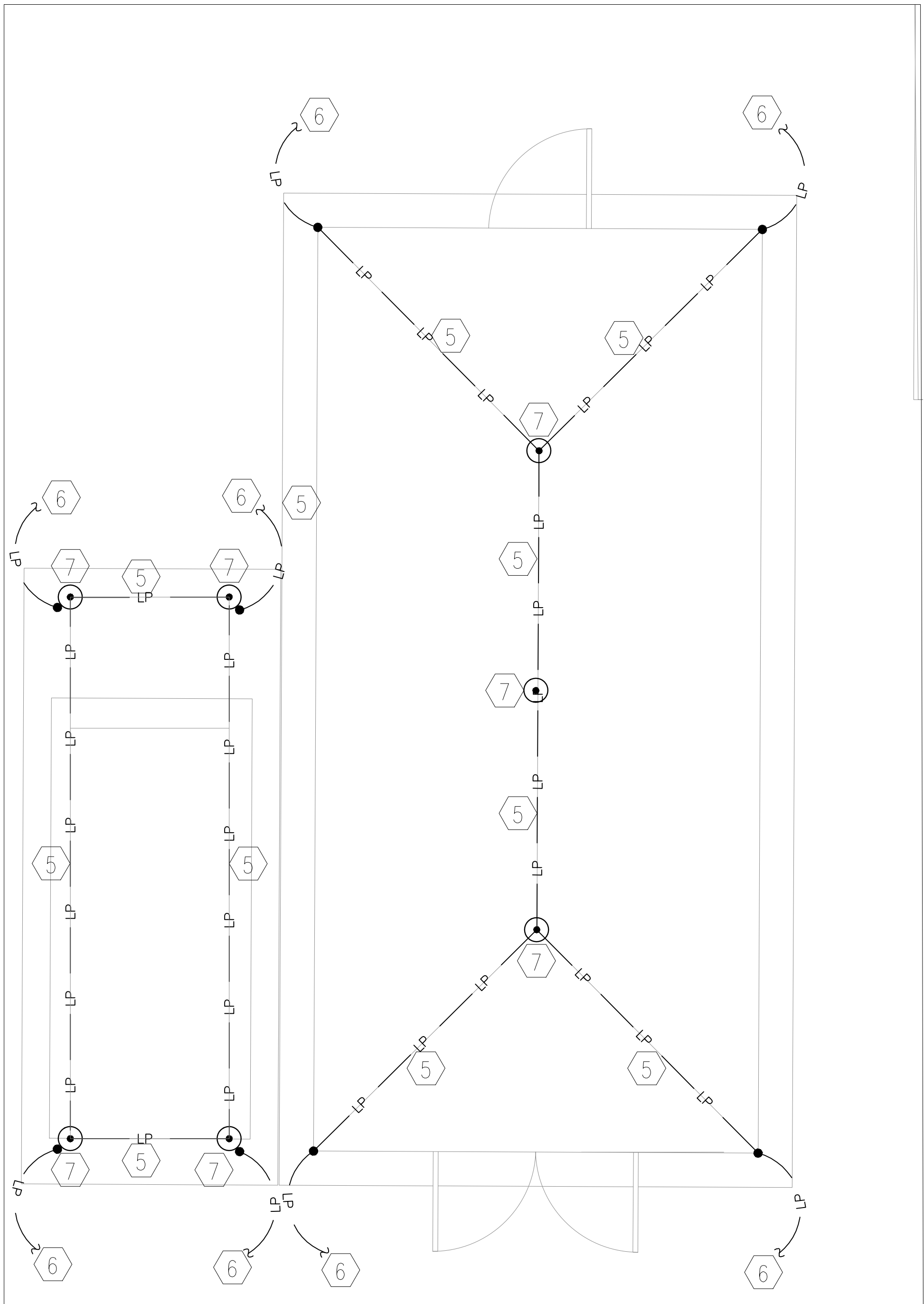
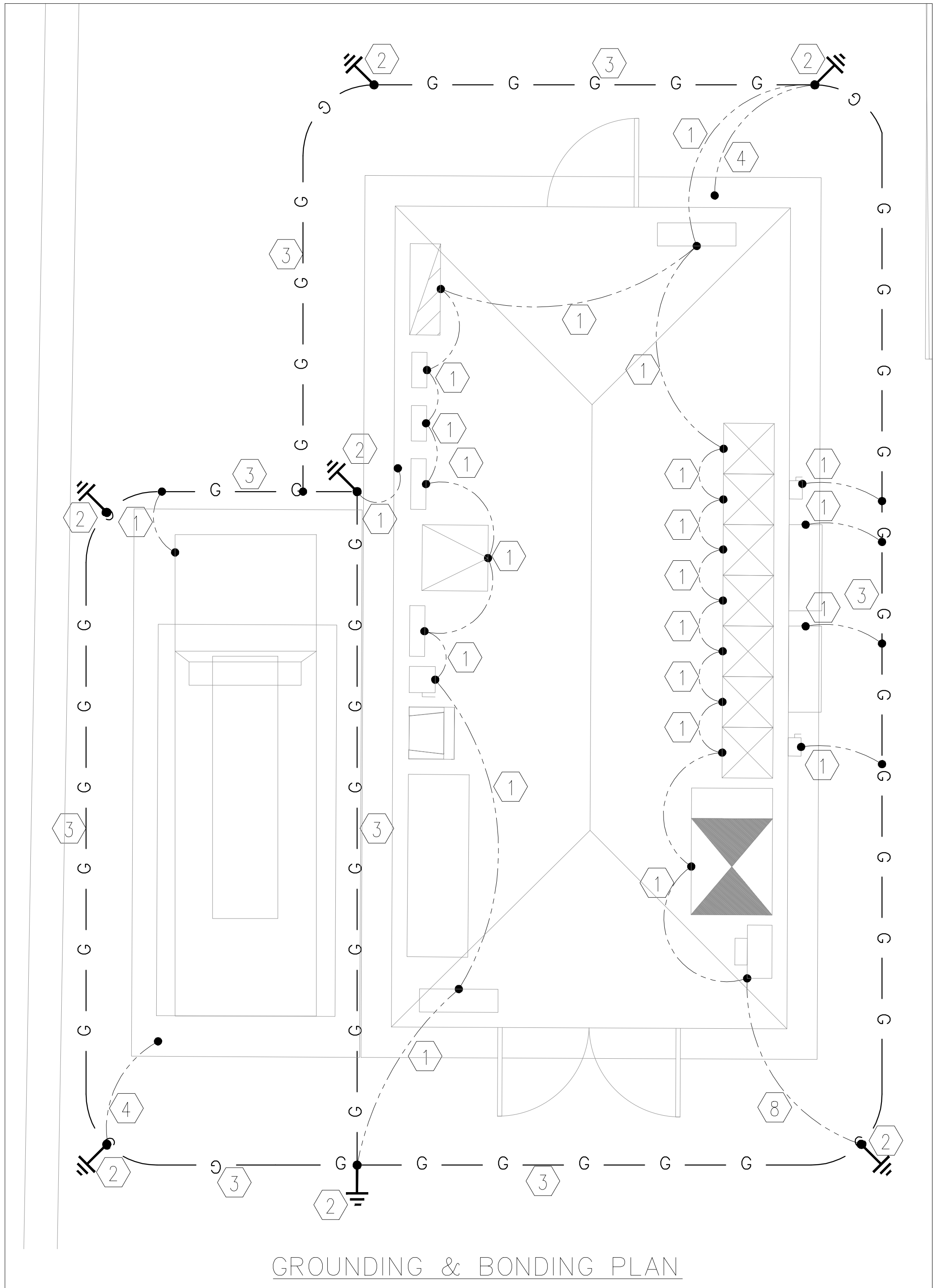
FERNANDO E. FUENTES JR., P.E. #86514 DATE

ELECTRIC BUILDING AND GENERATOR ELECTRICAL, POWER & CONTROL PLAN

SHEET NUMBER

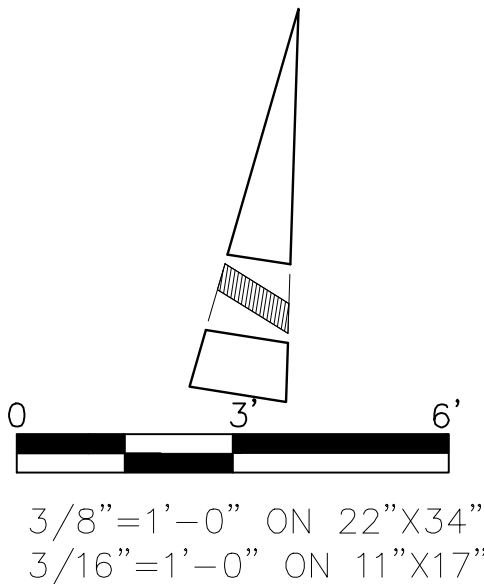
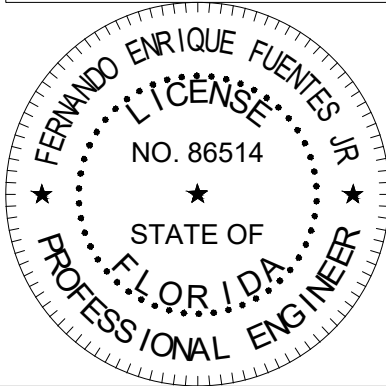
E10

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LIGHTNING PROTECTION PLAN

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3/8"=1'-0" ON 22"X34"
3/16"=1'-0" ON 11"X17"

GENERAL NOTES:

- ALL U.G CONNECTIONS TO BE VIA EXOTHERMIC WELD (CADWELD) UNLESS INDICATED OTHERWISE.
- ALL WORK INDICATED ON THIS DRAWING, IS TO BE PERFORMED IN COMPLIANCE WITH THE LIGHTNING PROTECTION DETAILS AND SPECIFICATIONS.
- PROVIDE CONCEALED SLEEVES OR FLAT STRAP CONDUCTOR ON ALL WALKWAYS FOR LIGHTNING PROTECTION CONDUCTOR.
- 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.
- BONDS DIRECTLY TO GROUNDING SYSTEM ARE TO BE #2 TINNED SOLID COPPER. BONDS TO ALUMINUM LIGHTNING PROTECTION SYSTEM ARE TO BE #2 SOLID ALUMINUM.

KEYNOTES

- #2 TINNED SOLID COPPER BOND. TYPICAL.
- 20' DRIVEN GROUND ROD WITH INSPECTION TEST WELL (SEE DETAIL). TYPICAL
- #2/0 TINNED STRANDED COPPER COUNTERPOISE LOOP GROUND. TYPICAL
- #2 TINNED SOLID BARE BOND TO FOUNDATION REBAR AND WIRE MESH IN FLOOR SLAB. BOND TO NEAREST GROUND ROD.
- MAIN ROOF CONDUCTOR. TYPICAL.
- ROOF DOWN CONDUCTOR TO GROUND GRID.
- ROOF MOUNTED AIR TERMINAL. TYPICAL
- #2/0 TINNED STRANDED COPPER ELECTRIC SERVICE MAIN GROUNDING ELECTRODE CONDUCTOR.

LIGHTNING PROTECTION LEGEND:

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

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CHECKED BY: T.M.P.

**SOUTH WATER RECLAMATION FACILITY
HEADWORKS**

PREPARED FOR

ENGLEWOOD WATER DISTRICT

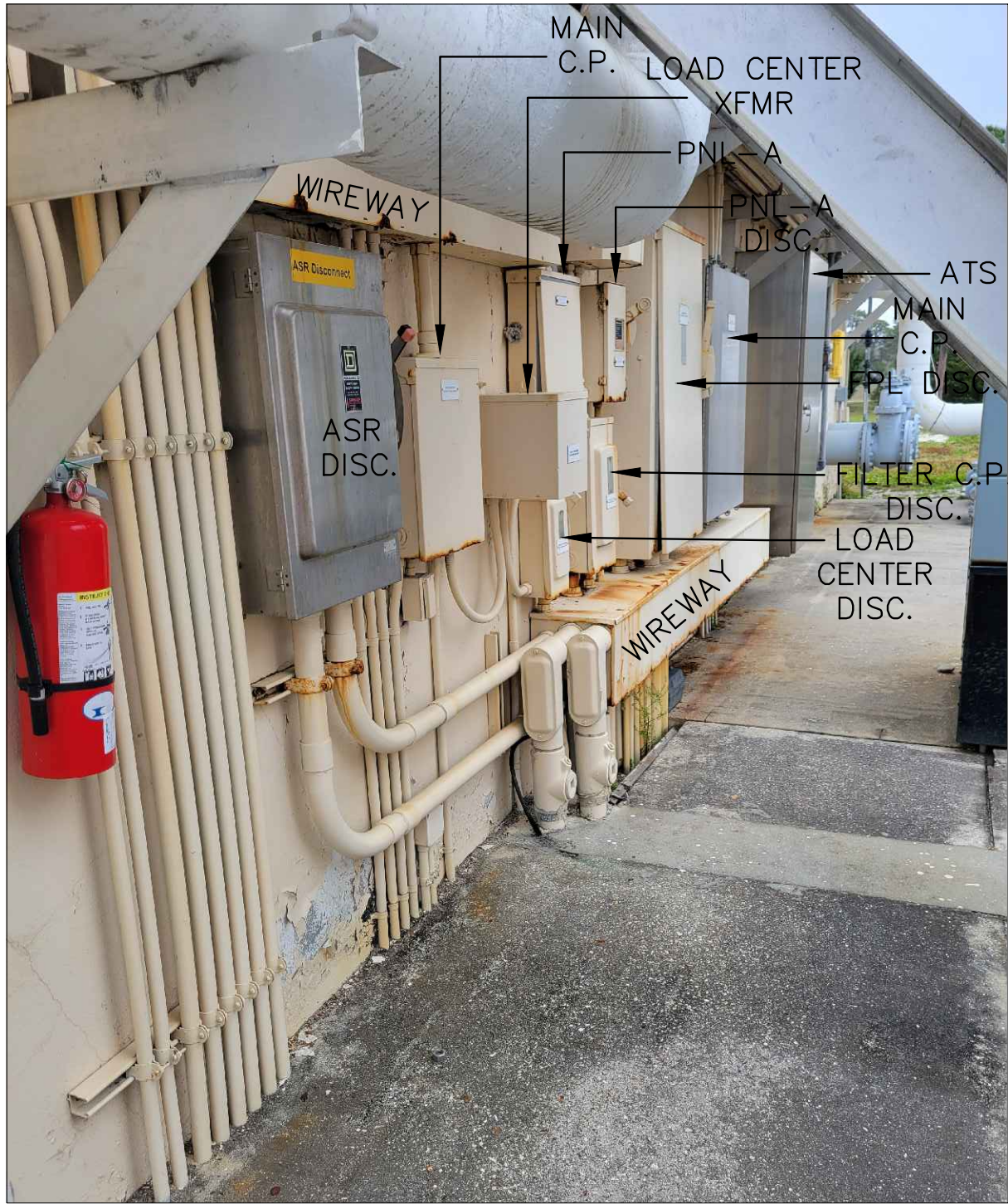
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FERNANDO E. FUENTES JR., P.E. #86514 DATE

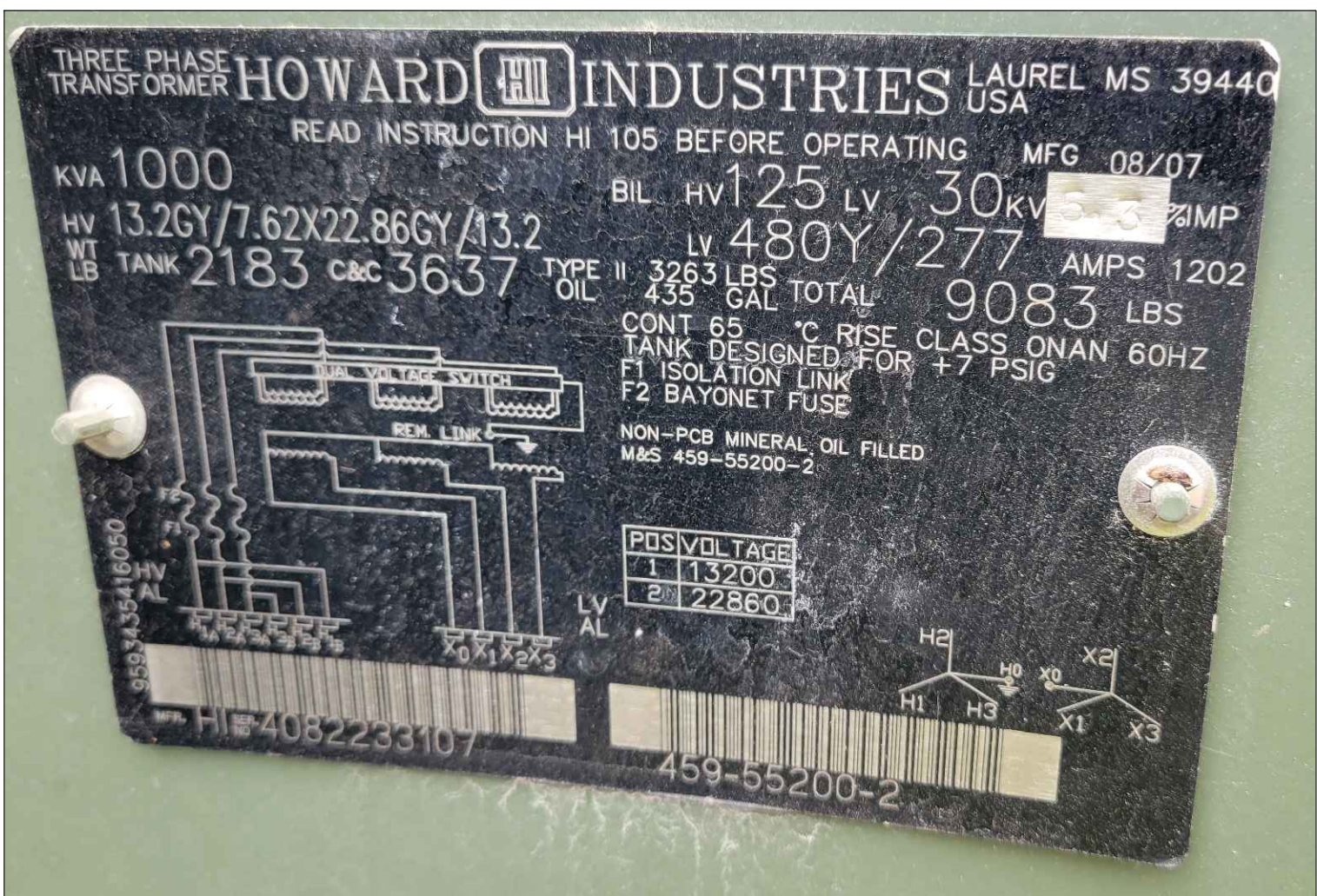
**ELECTRIC BUILDING AND
GENERATOR LIGHTNING
PROTECTION, BONDING &
GROUNDING PLAN**

SHEET NUMBER

E11

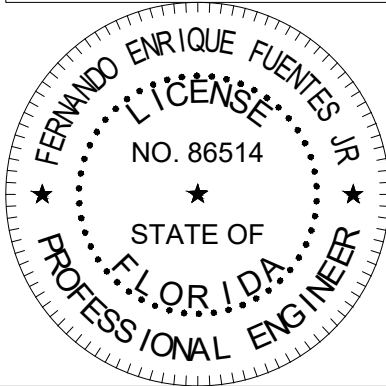


EXISTING HEADWORKS ELECTRICAL SERVICE EQUIPMENT TO BE DEMOED
N.T.S.



FPL PADMOUNT TRANSFORMER NAMEPLATE
N.T.S.

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EXISTING 480V, 3P FPL ELECTRICAL SERVICE TRANSFORMER TO REMAIN
N.T.S.

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**SOUTH WATER RECLAMATION FACILITY
HEADWORKS**
PREPARED FOR
ENGLEWOOD WATER DISTRICT

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FERNANDO E. FUENTES JR., P.E. #86514 DATE

**EXISTING HEADWORKS ELECTRICAL
SERVICE DEMOLITION**

SHEET NUMBER
ED01

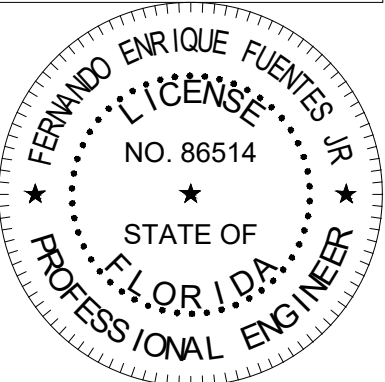
K:\Englewood Headworks\ED03.dwg Plotted: Oct 18, 2022 - 4:57pm by fernandof

PANEL: HWDP1											
250 AMP BUS RATING			MCB: 100A			480 VOLTS 3 PHASE 4 WIRE 60 HZ			FED FROM: MCC-2		
SURFACE MOUNTED						30 POLES			AIC RATING: 65,000A		
LOCATION: ELECTRICAL ROOM						ENCLOSURE TYPE: NEMA 1					
DESCRIPTION	NOTES	VA LOAD	AMP/ POLES	CKT #	CKT #	AMP/ POLES	VA LOAD	NOTES	DESCRIPTION		
FV-7-8		582	20/3	1	2	20/3	582		FV-7-9		
			-	3	4	-					
			-	5	6	-					
FV-7-14		582	20/3	7	8	60/3	26393		HWLP1 VIA 45 KVA HWT1		
			-	9	10	-					
			-	11	12	-					
SPARE			20/1	13	14	20/1			SPARE		
			-	15	16	-					
			-	17	18	-					
SPACE			-	19	20	-			SPACE		
SPACE			-	21	22	-			SPACE		
SPACE			-	23	24	-			SPACE		
SPACE			-	25	26	20/3			**SURGE SUPPRESSION		
SPACE			-	27	28	-					
SPACE			-	29	30	-					
TOTAL CONNECTED VA:		28139	TOTAL CONNECTED AMPS:		33.8		**ESTIMATED DUE TO UNKNOWN LIGHTING LOADS				
TOTAL DEMAND VA:		28139	TOTAL DEMAND AMPS:		33.8						
NOTE: **PROVIDE ALL PANELBOARDS WITH INTEGRAL SURGE SUPPRESSION MODULES RATED 200KA PER PHASE;100KA L-L, L-G. MIL SPEC FILTER; DIRECT BUS BAR CONNECTION.10YR WARRANTY											

PANEL: HWLP1												
225 AMP BUS RATING				MCB: 100A		120/208 VOLTS 3 PHASE 4 WIRE 60 HZ				FED FROM: MCC-2 VIA HWT1		
SURFACE MOUNTED						54 POLES		AIC RATING: 22,000A				
LOCATION: ELECTRICAL ROOM						ENCLOSURE TYPE: NEMA 1						
DESCRIPTION	NOTES	VA LOAD	AMP/ POLES	CKT #	CKT #	AMP/ POLES	VA LOAD	NOTES	DESCRIPTION			
COMPOSITE SAMPLER		180	20/1	1	2	20/1	1212		FRONT GATE			
ASR SITE LIGHTING		167.5	20/1	3	4	25/2	3937.5		*AC-1			
ASR RECEIPT		180	20/1	5	6	-						
DRYING BED SITE LIGHTING		670	20/1	7	8	20/1	335		HEADWORKS MLS SITE LIGHTING			
GENERATOR BATTERY CHARGER		1200	20/1	9	10	20/1	180		HEADWORKS MLS RECEPTS			
01-FIT/FE-1110		8	20/1	11	12	25/2	3937.5		*AC-2			
04-MOV-1110		1656	20/1	13	14	-						
05-AIT/AE-1110		300	20/1	15	16	20/1	1200		HEADWORKS MLS CP			
05-AIT/AE-1120		300	20/1	17	18	20/1	1656		04-MOV-1130			
04-MOV-1120		1656	20/1	19	20	20/1	720		INTERIOR RECEPTACLES			
FUTURE PLC		1200	20/1	21	22	20/1	720		EXTERIOR RECEPTACLES			
INTERIOR ELECTRIC BUILDING LIGHTING		375	20/1	23	24	20/1	140		EXTERIOR ELECTRIC BUILDING LIGHTING			
SPARE			20/1	25	26	20/1			SPARE			
SPARE			20/1	27	28	20/1			SPARE			
HEADWORKS SITE LIGHTING		648	20/1	29	30	20/1	540		HEADWORKS SITE RECEPTS			
VORTEX LIGHTING		175	20/1	31	32	20/1	9.6		SANDALHAVEN FIT			
DRYING BED RECEPTS		720	20/1	33	34	20/1	600		HVAC CP			
FRONT GATE SHED LOAD CENTER		270	40/1	35	36	20/1	1500		GENERATOR BLOCK HEATER			
SPACE			-	37	38	-						
SPACE			-	39	40	-			SPACE			
SPACE			-	41	42	-			SPACE			
SPACE			-	43	44	-			SPACE			
SPACE			-	45	46	-			SPACE			
SPACE			-	47	48	-			SPACE			
SPACE			-	49	50	20/3			**SURGE SUPPRESSION			
SPACE			-	51	52		-					
SPACE			-	53	54		-					
TOTAL CONNECTED VA:		26393					73.3					
TOTAL DEMAND VA:		26393.1			TOTAL DEMAND AMPS:		73.3	**ESTIMATED DUE TO UNKNOWN LIGHTING LOADS				
NOTE:												
* VERIFY WITH HVAC SUBMITTALS. HACR RATED.												
**PROVIDE ALL PANELBOARDS WITH INTEGRAL SURGE SUPPRESSION MODULES RATED 200KA PER PHASE;100KA L-L, L-G. MIL SPEC FILTER; DIRECT BUS BAR CONNECTION.10YR WARRANTY												

EXISTING PANEL: DWDP1											
250 AMP BUS RATING			MCB: 100A			480 VOLTS 3 PHASE 4 WIRE 60 HZ			FED FROM: MCC-3		
SURFACE MOUNTED			42 POLES						AIC RATING: 65,000A		
LOCATION: 2ND FLOOR DEWATERING BUILDING									ENCLOSURE TYPE: NEMA 1		
DESCRIPTION	NOTES	VA LOAD	AMP/ POLES	CKT #	CKT #	AMP/ POLES	VA LOAD	NOTES	DESCRIPTION		
DWLP1 VIA 30KVA DWT1			60/3	1	2	20/2			AREA SITE LIGHTING		
			-	3	4	-					
			-	5	6	20/3					
AHU-2			20/3	7	8	-		1	FV-7-8 SPARE		
			-	9	10	-					
			-	11	12	20/3			FV-7-3		
FV-7-14 SPARE	1		20/3	13	14	-					
			-	15	16	-					
			-	17	18	20/2			BYPASS CONTROL POWER		
FV-7-4			20/1	19	20	-					
			-	21	22				SPACE		
			-	23	24				SPACE		
FV-7-9 SPARE	1		20/1	25	26				SPACE		
			-	27	28				SPACE		
			-	29	30				SPACE		
ACCU-2			20/1	31	32				SPACE		
				33	34				SPACE		
				35	36				SPACE		
SPACE				37	38				SPACE		
SPACE				39	40				SPACE		
SPACE				41	42				SPACE		
TOTAL CONNECTED VA:			TOTAL CONNECTED AMPS: 0.0								
TOTAL DEMAND VA:			TOTAL DEMAND AMPS: 0.0						**ESTIMATED DUE TO UNKNOWN LIGHTING LOADS		
NOTE:											
1. PROVIDE NEW PANELBOARD SCHEDULE TO UPDATE NEW CIRCUIT DESCRIPTIONS.											

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ENGLEWOOD WATER DISTRICT

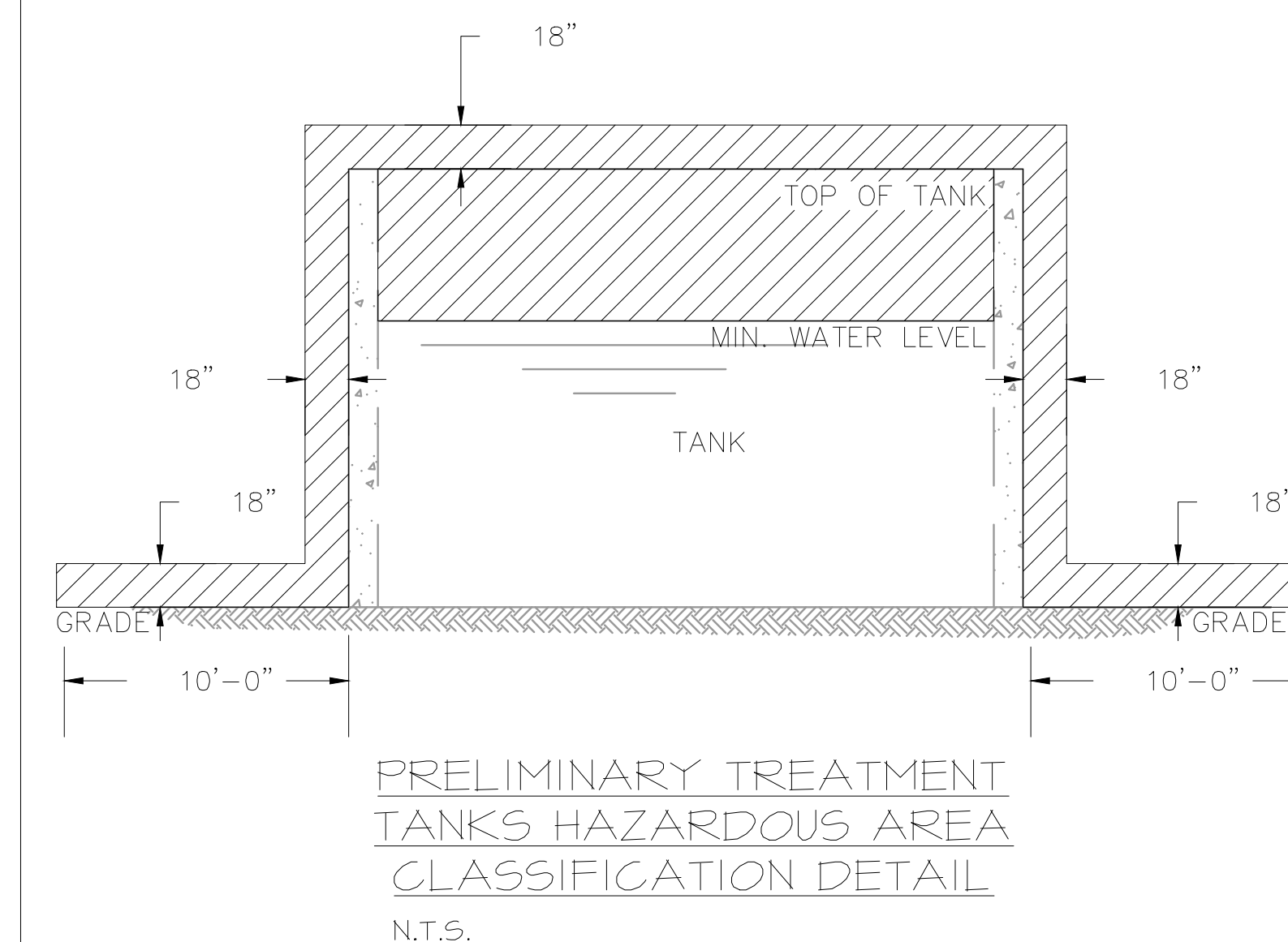
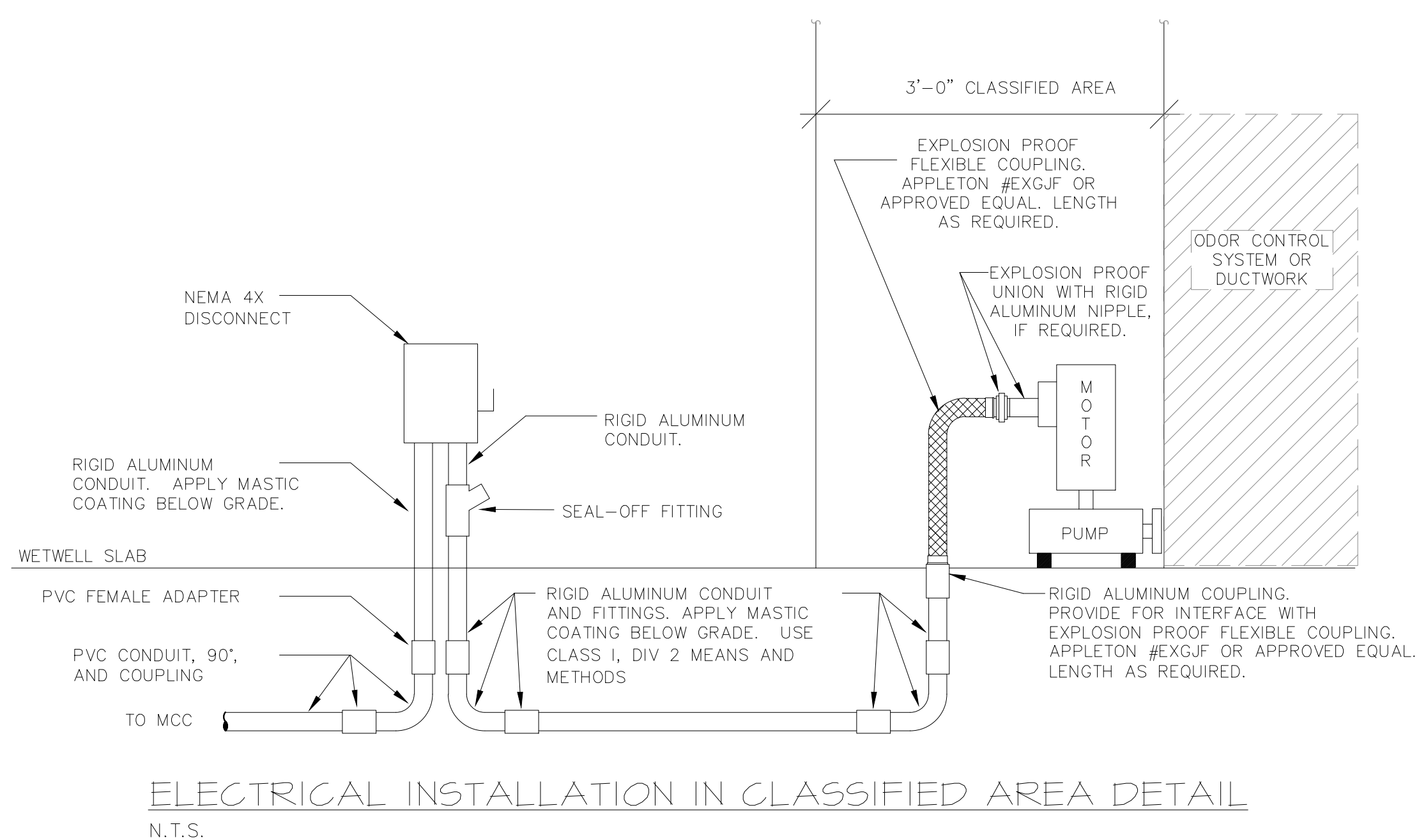
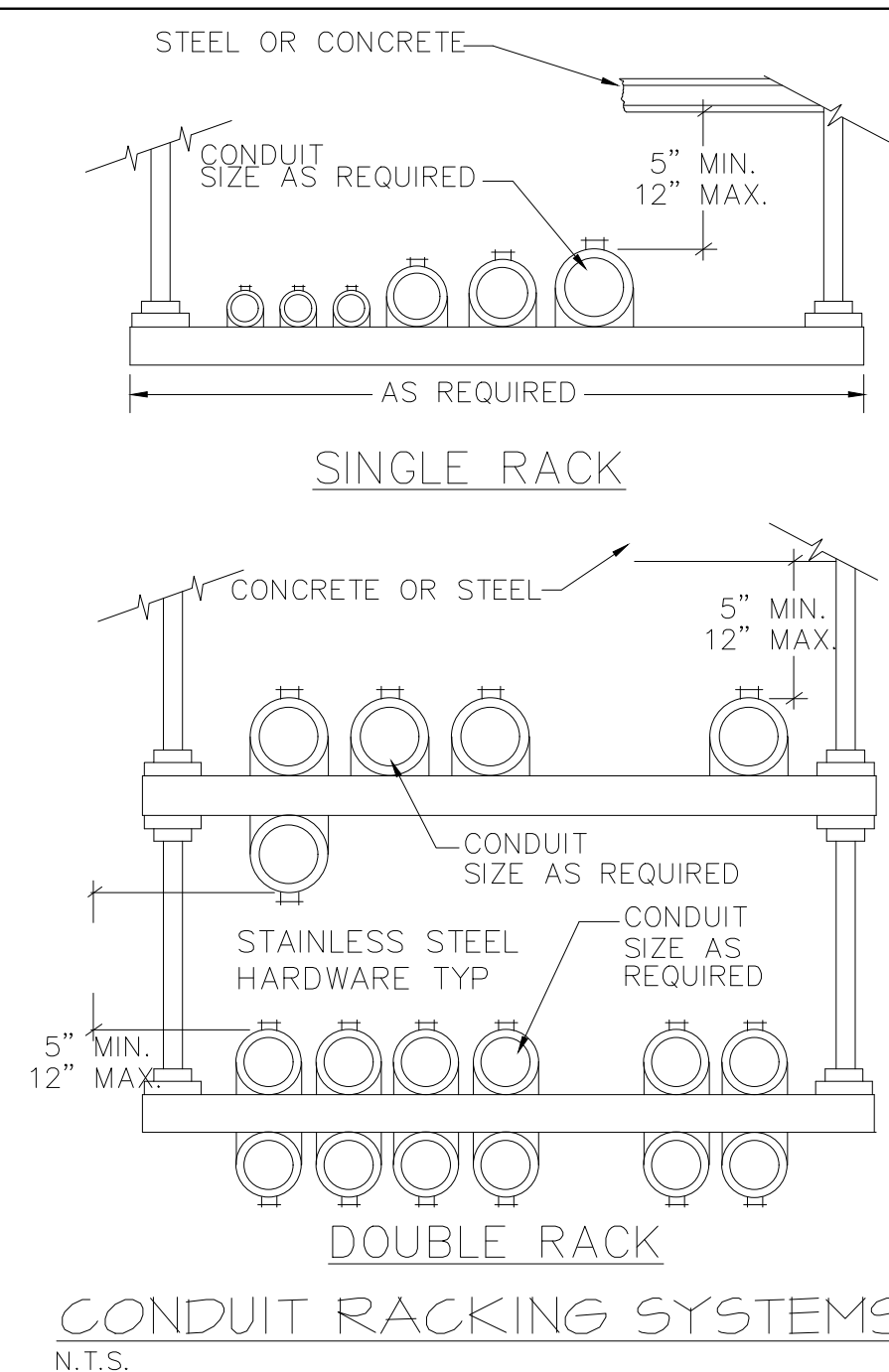
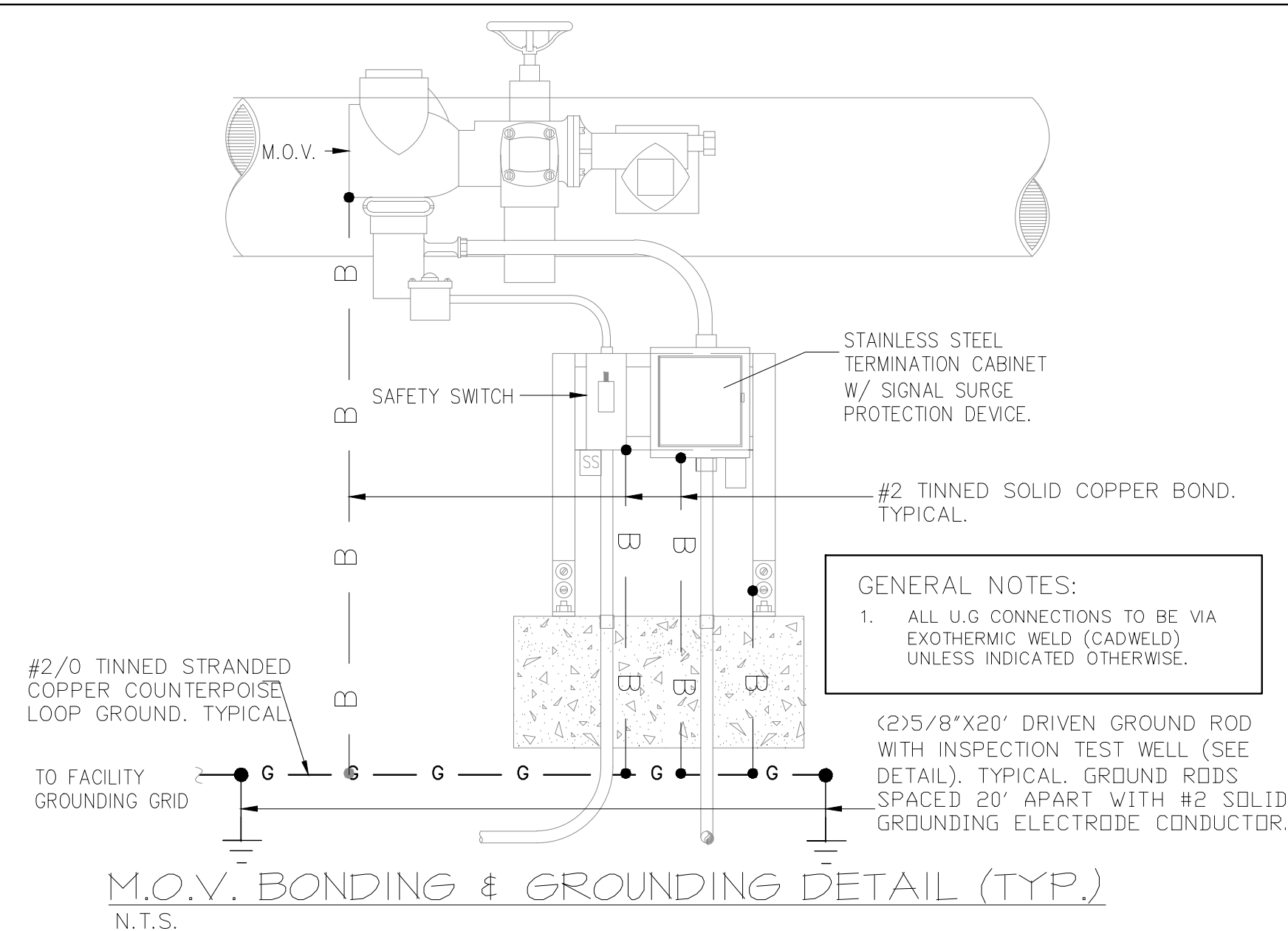
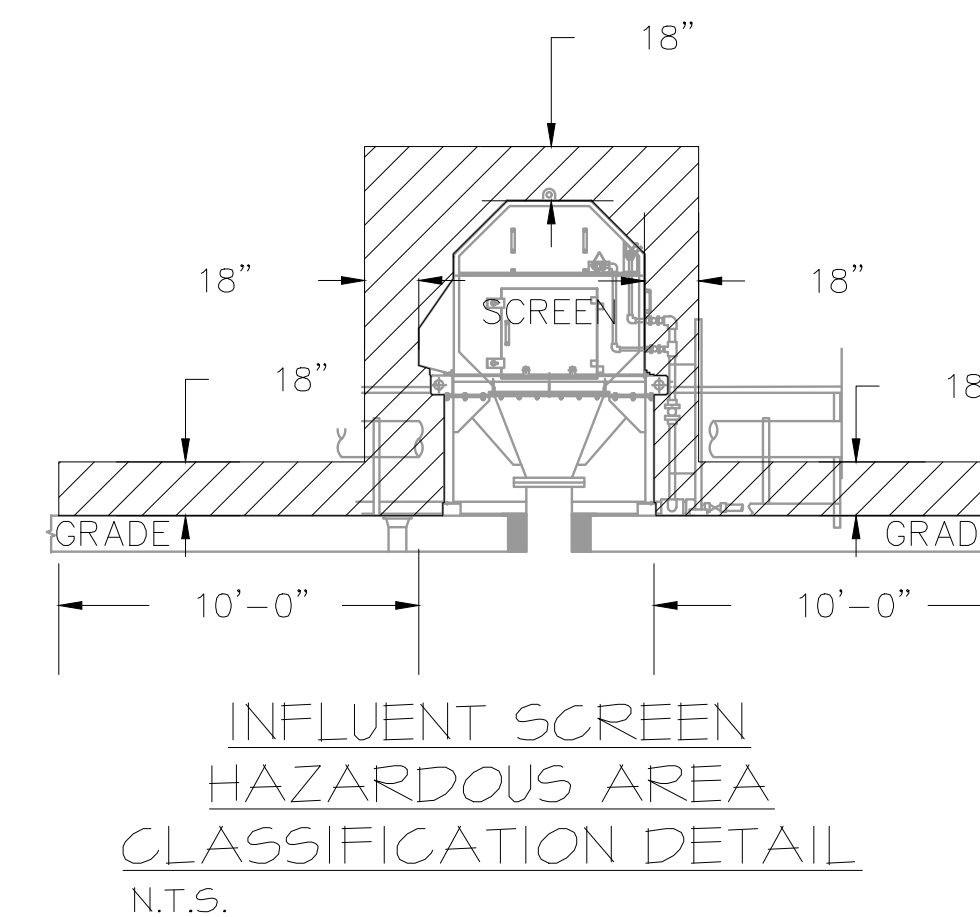
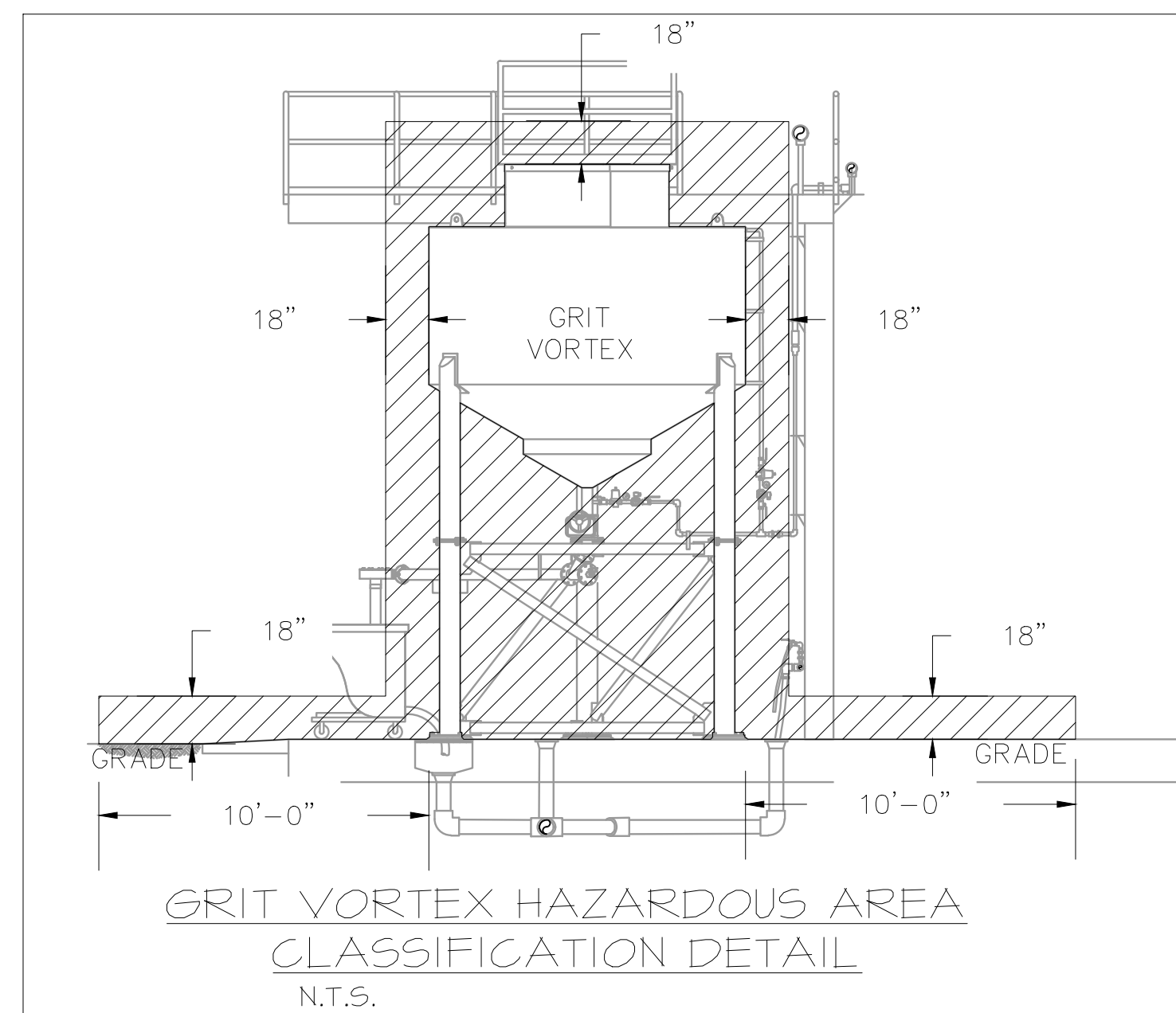
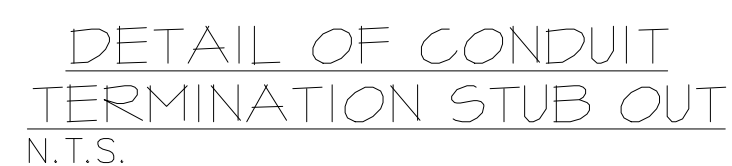
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PANELBOARD SCHEDULES

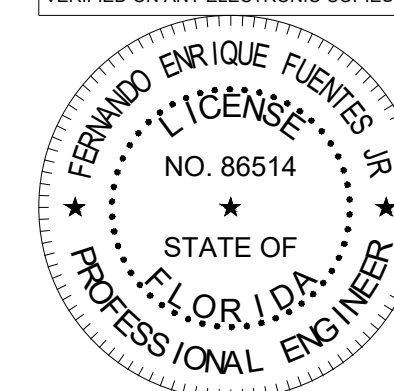
SHEET NUMBER

ED03



HAZARDOUS AREA CLASSIFICATION DETAILS

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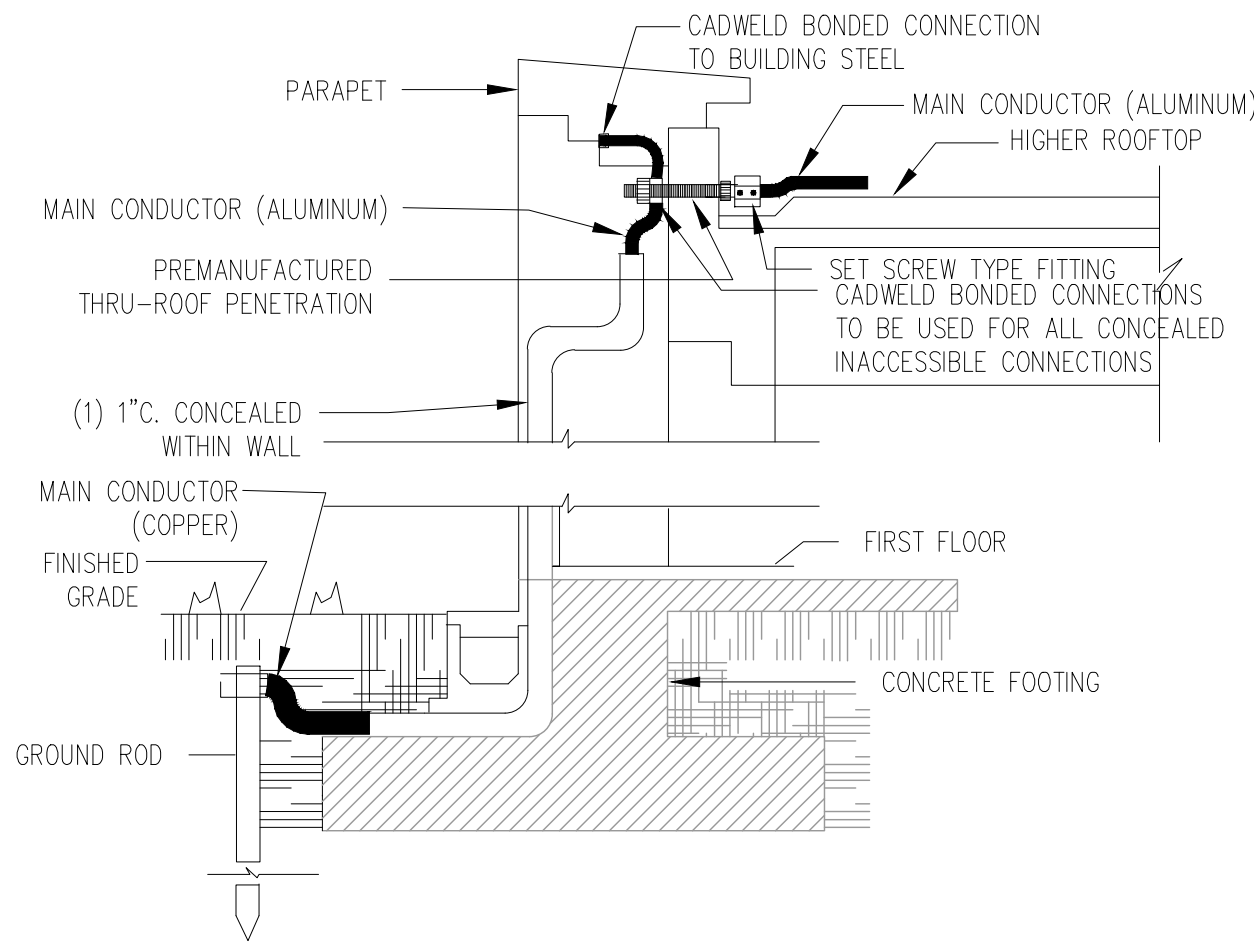
ENGLEWOOD WATER DISTRICT

FERNANDO E. FUENTES JR., P.E. #86514 DATE

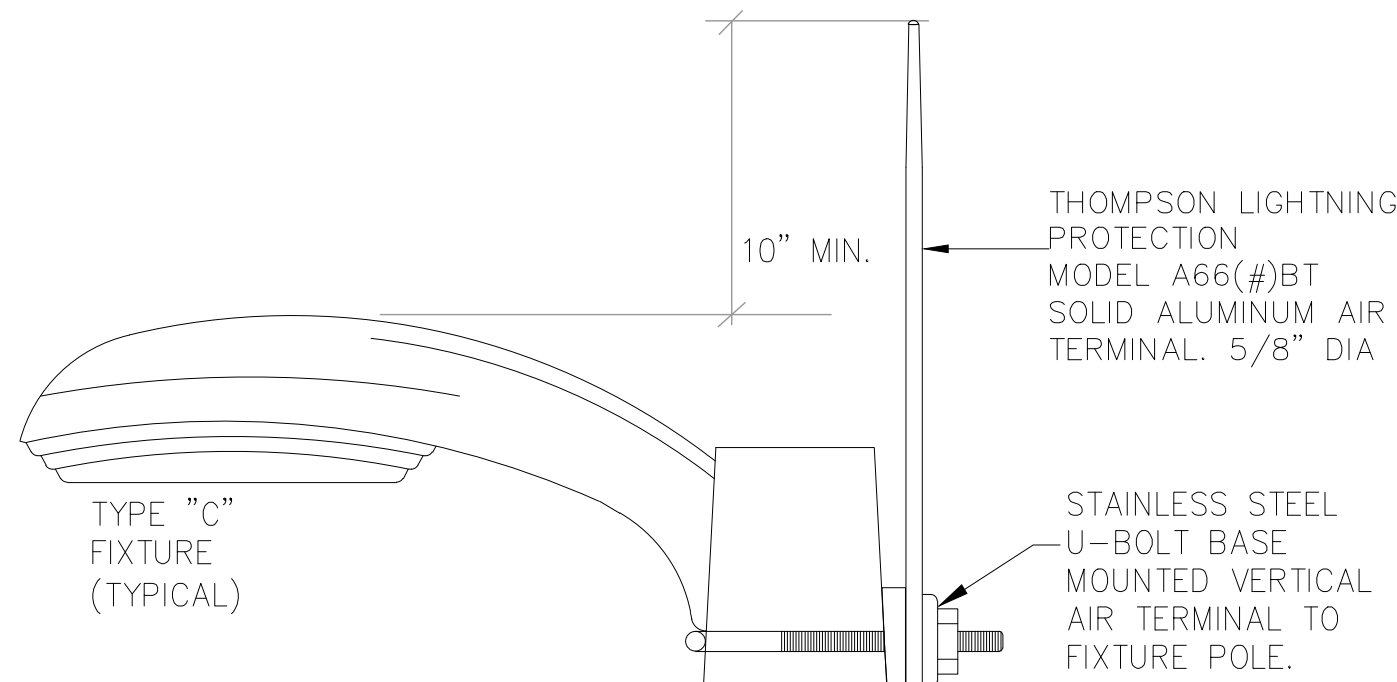
HAZARDOUS AREA CLASSIFICATION
DETAILS AND ELECTRICAL DETAILS

SHEET NUMBER

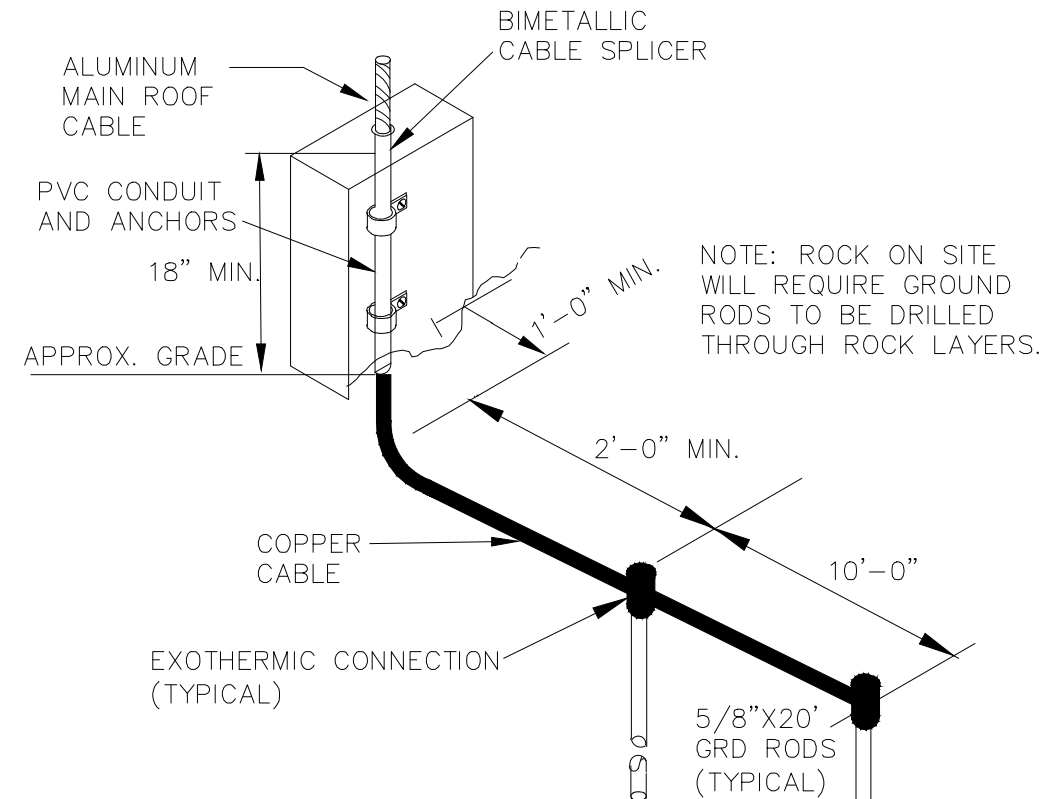
ED04



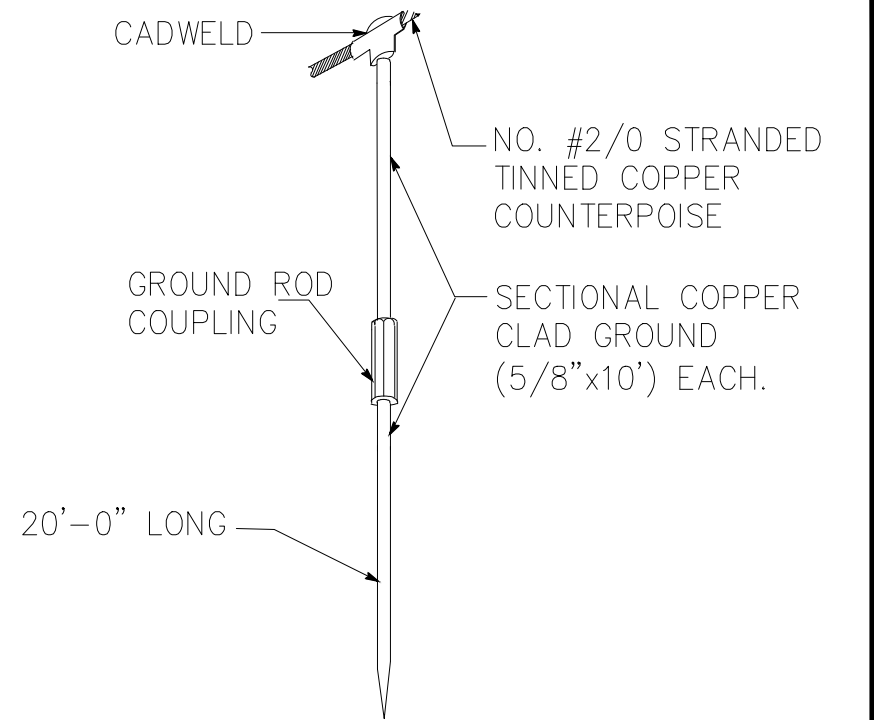
CONDUCTOR EXIT AT BUILDING BASE
N.T.S.



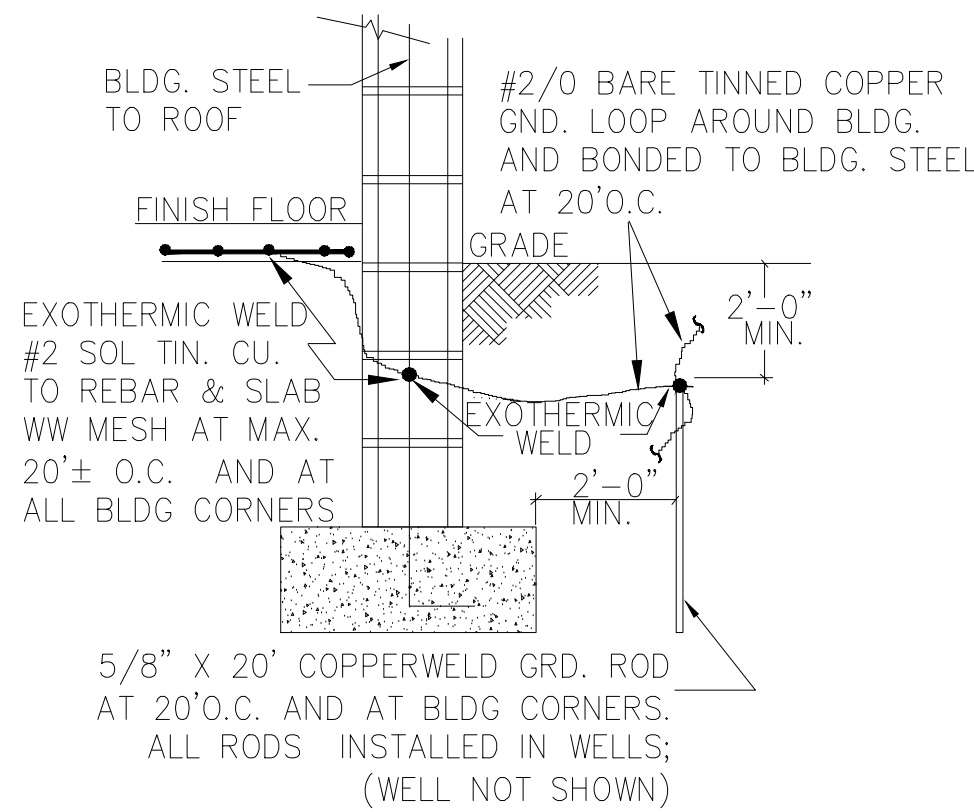
AIR TERMINAL
FIXTURE POLE MOUNTED
N.T.S.



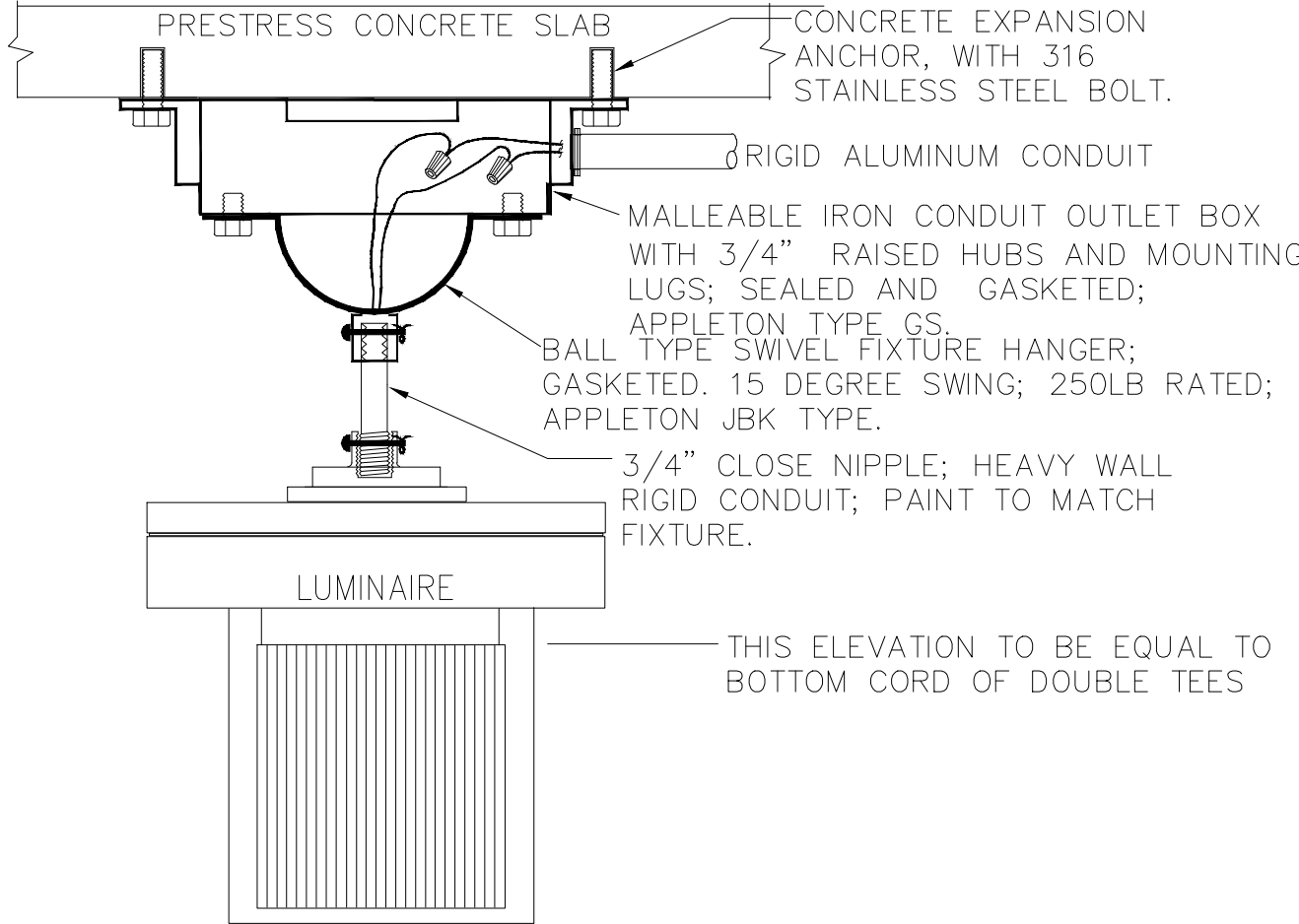
DOWNCONDUCTOR TO GROUND
ROD DETAIL
N.T.S.



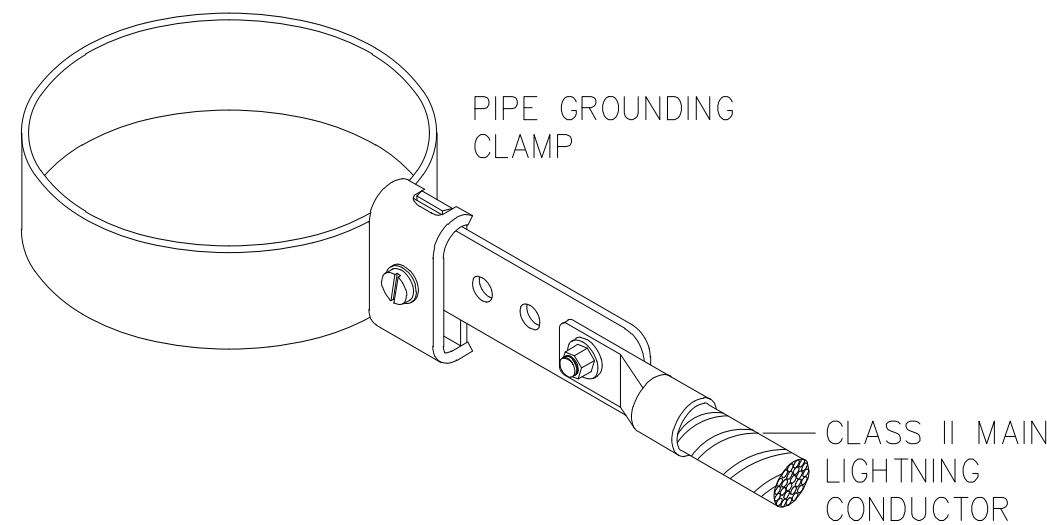
TYPICAL GROUND
ROD CONNECTION
N.T.S.



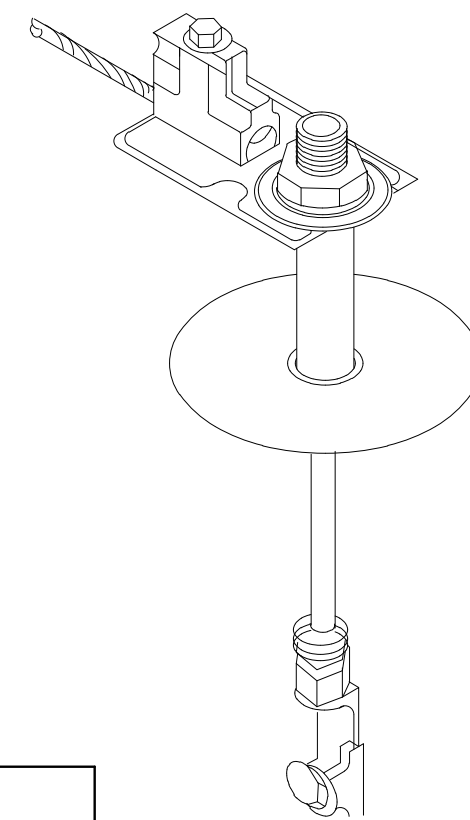
BLDG. STRUCTURE BONDING
N.T.S. TYPICAL FOR ALL NEW STRUCTURES



LUMINAIRE PENDENT MOUNTING DETAIL
N.T.S.



LIGHTNING PROTECTION PIPE
GROUNDING DETAIL
N.T.S.



DETAIL-THRU
ROOF CONNECTION
N.T.S.

THOMPSON LIGHTNING PROTECTION MODEL A66(#8)BT SOLID ALUMINUM AIR TERMINAL, 5/8" DIA. DELETE AIR TERMINAL WHEN FIXTURE IS INSTALLED UNDER A ROOF STRUCTURE.

AREA LIGHT FIXTURE (TYPE "C") (SEE LIGHTING FIXTURE SCHEDULE) REFERENCE SITE PLANS FOR QUANTITY OF FIXTURES ON SINGLE ROUND POLE.

DUPLEX GFCI RECEPTACLE; WP RATED WITH CORD AND PLUG IN SERVICE. ELEVATE ABOVE HANDRAIL HEIGHT.

HAND HOLE WITH FUSING AND SURGE SUPPRESSION EQUAL TO SQ-D TYPE SP.

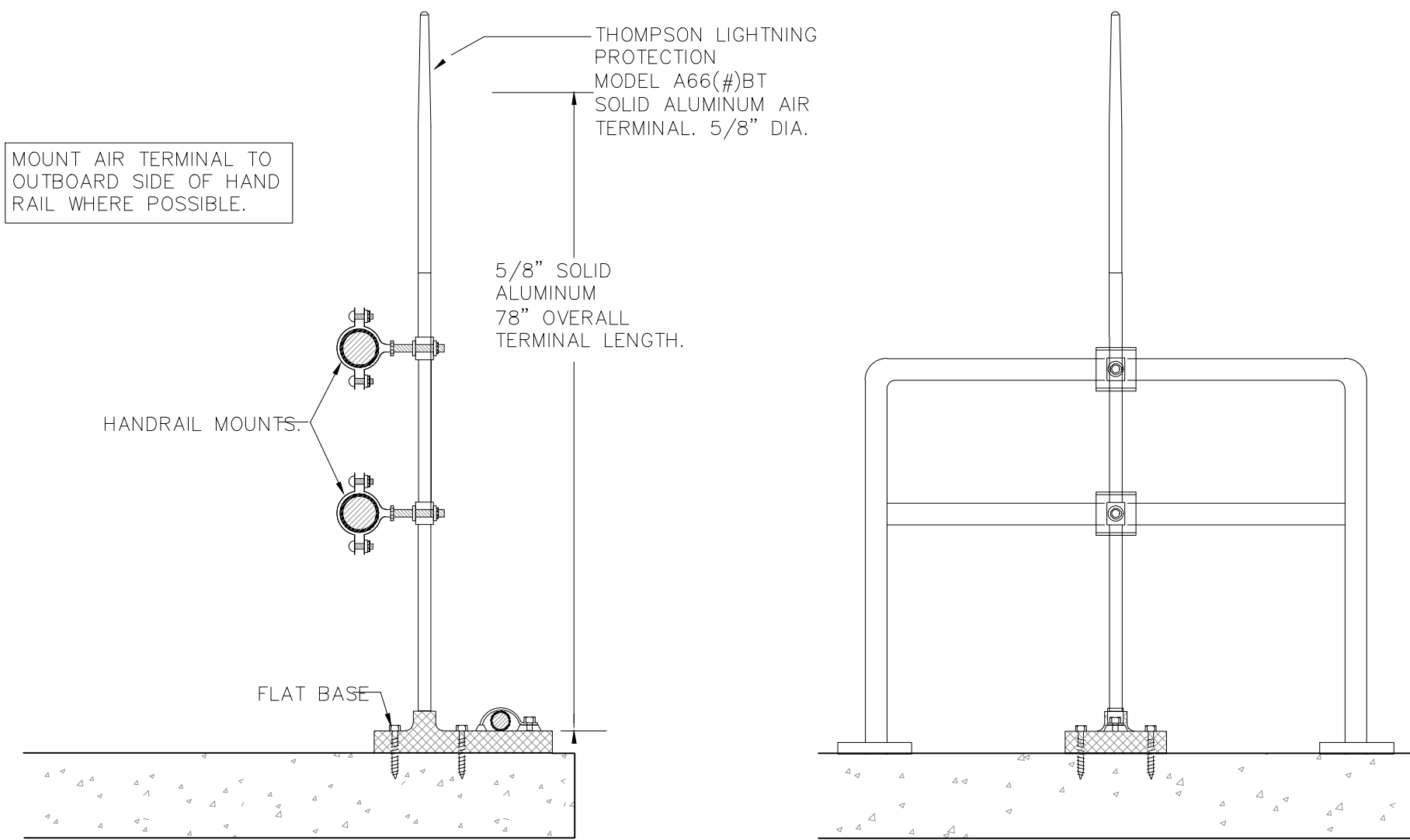
ALUMINUM BASE BOLT COVER MOUNT BASE TO FOUNDATION WITH ANCHOR BOLTS PER MANUF. MOUNT BASE TO STRUCTURE WITH W/ 4-3/4" DIA. ST.STL. BOLTS FOR ELEVATED WALKWAY MOUNTING.

5/8" X 20' COPPER WELD GRD. ROD AND #6 TO GRD.LUG. GRD ROD IN TEST WELL; TEST WELL NOT SHOWN.

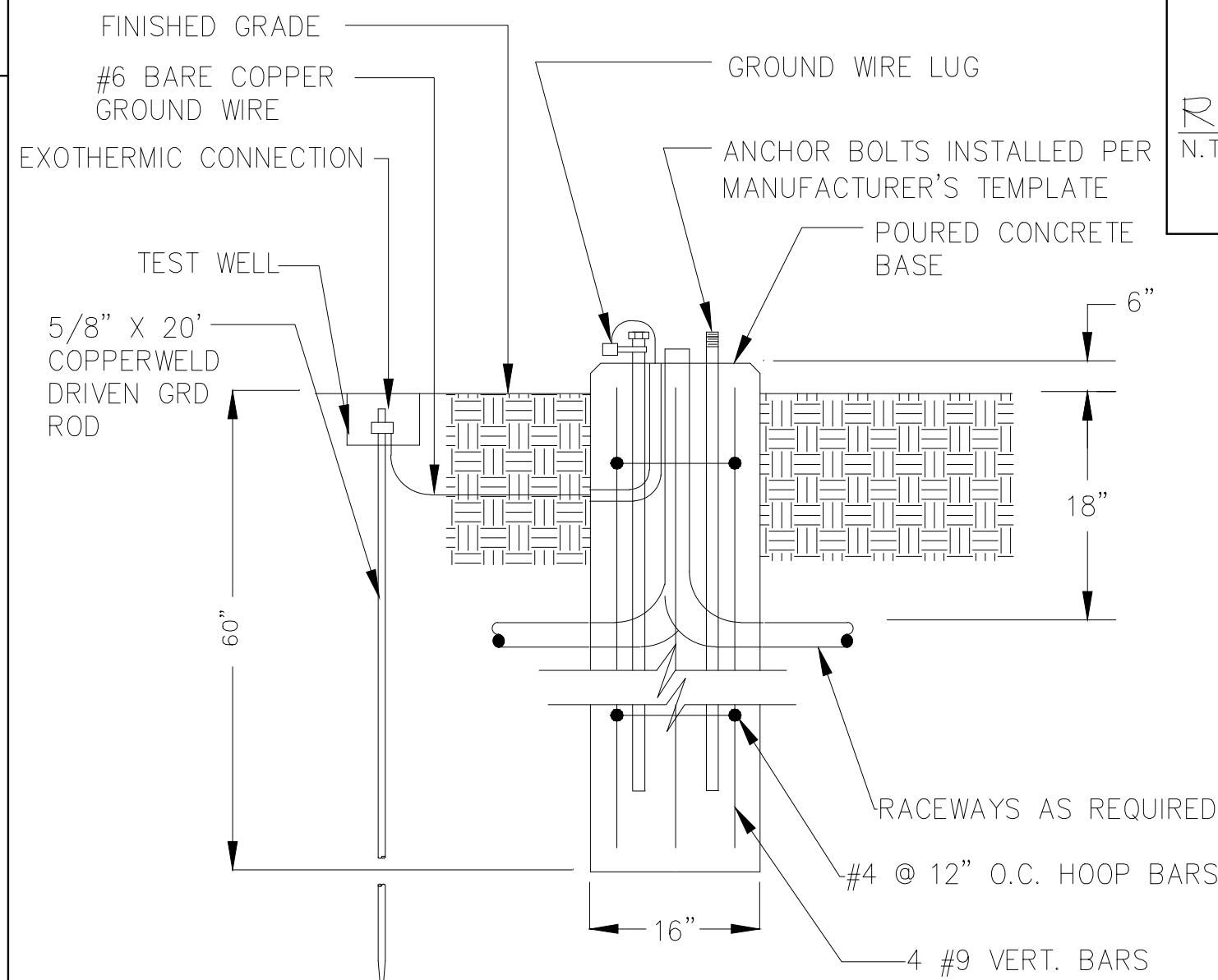
AREA LUMINAIRE DETAIL
N.T.S.

PROVIDE SHOP DRAWINGS FROM FLORIDA REGISTERED PROFESSIONAL ENGINEER CERTIFYING THAT FOUNDATION AND POLE/FIXTURE ASSEMBLY MEET CURRENT FLORIDA BUILDING CODE WIND LOAD REQUIREMENTS

CONSTRUCTION PLANS

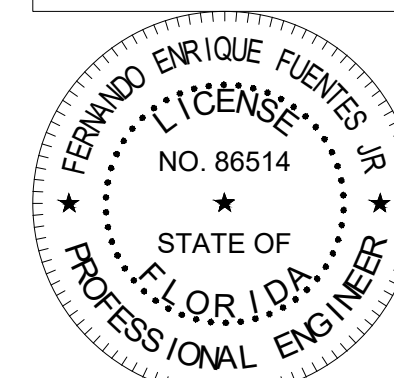


HAND RAIL MOUNTED
AIR TERMINAL DETAIL
N.T.S.



POLE BASE DETAIL FOR POLES 10' TO 12'
N.T.S.

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WWW.KIMLEY-HORN.COM REGISTRY No. 35106

KHA PROJECT
048104001

DATE
OCTOBER, 2022

SCALE: AS SHOWN

DESIGNED BY: F.E.F.JR.

DRAWN BY: F.E.F.JR.

CHECKED BY: T.M.P

SOUTH WATER RECLAMATION FACILITY HEADWORKS

PREPARED FOR

ENGLEWOOD WATER DISTRICT

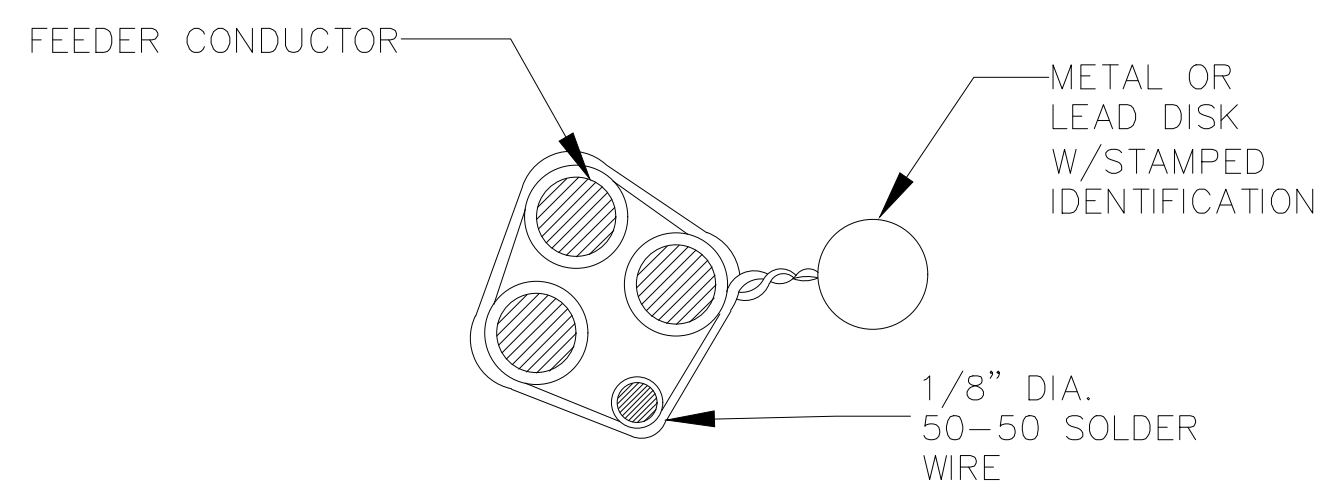
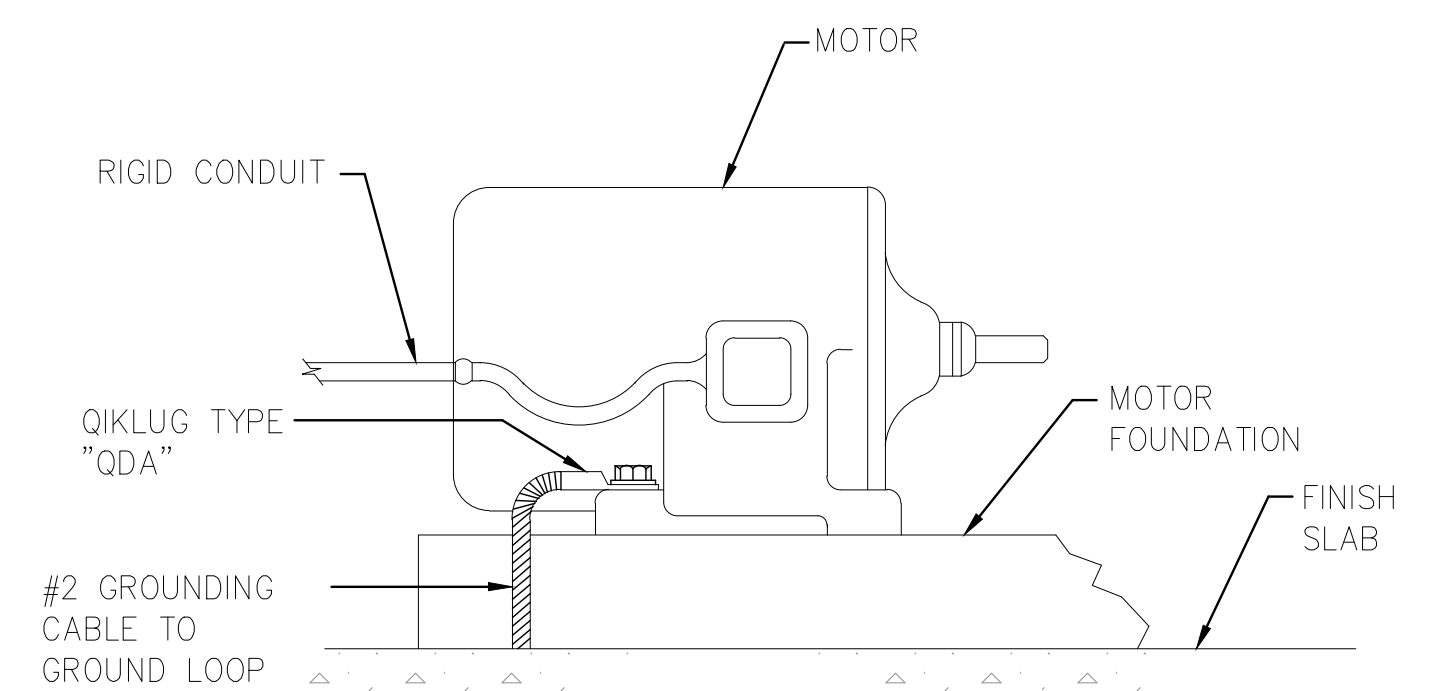
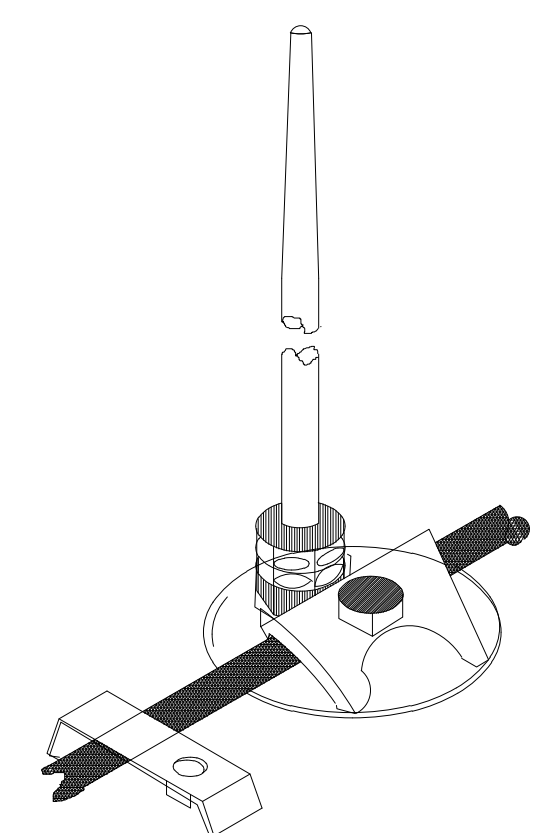
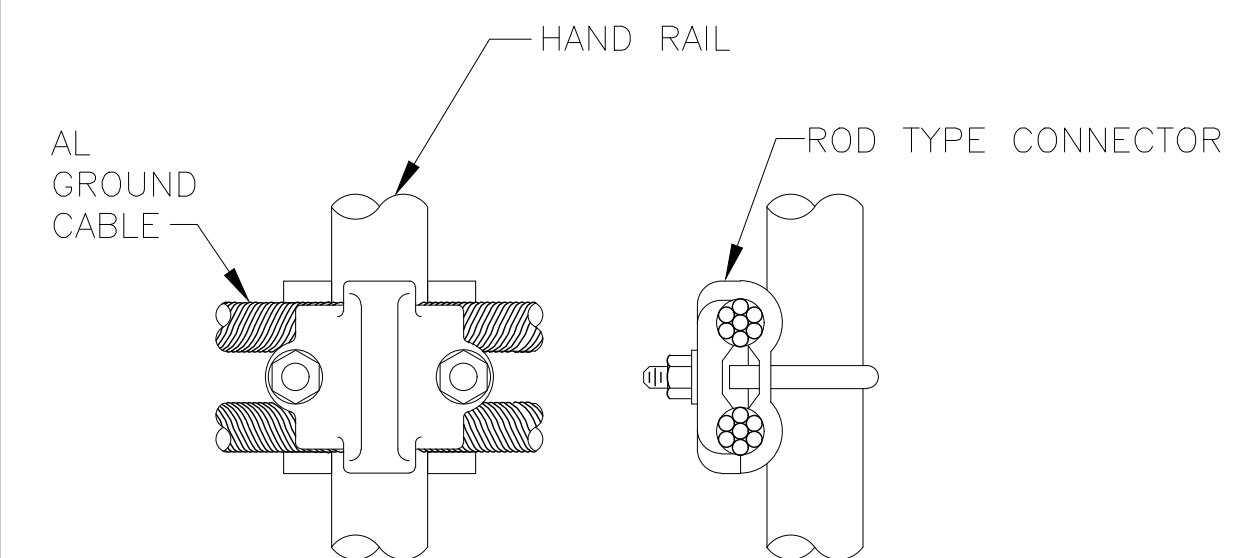
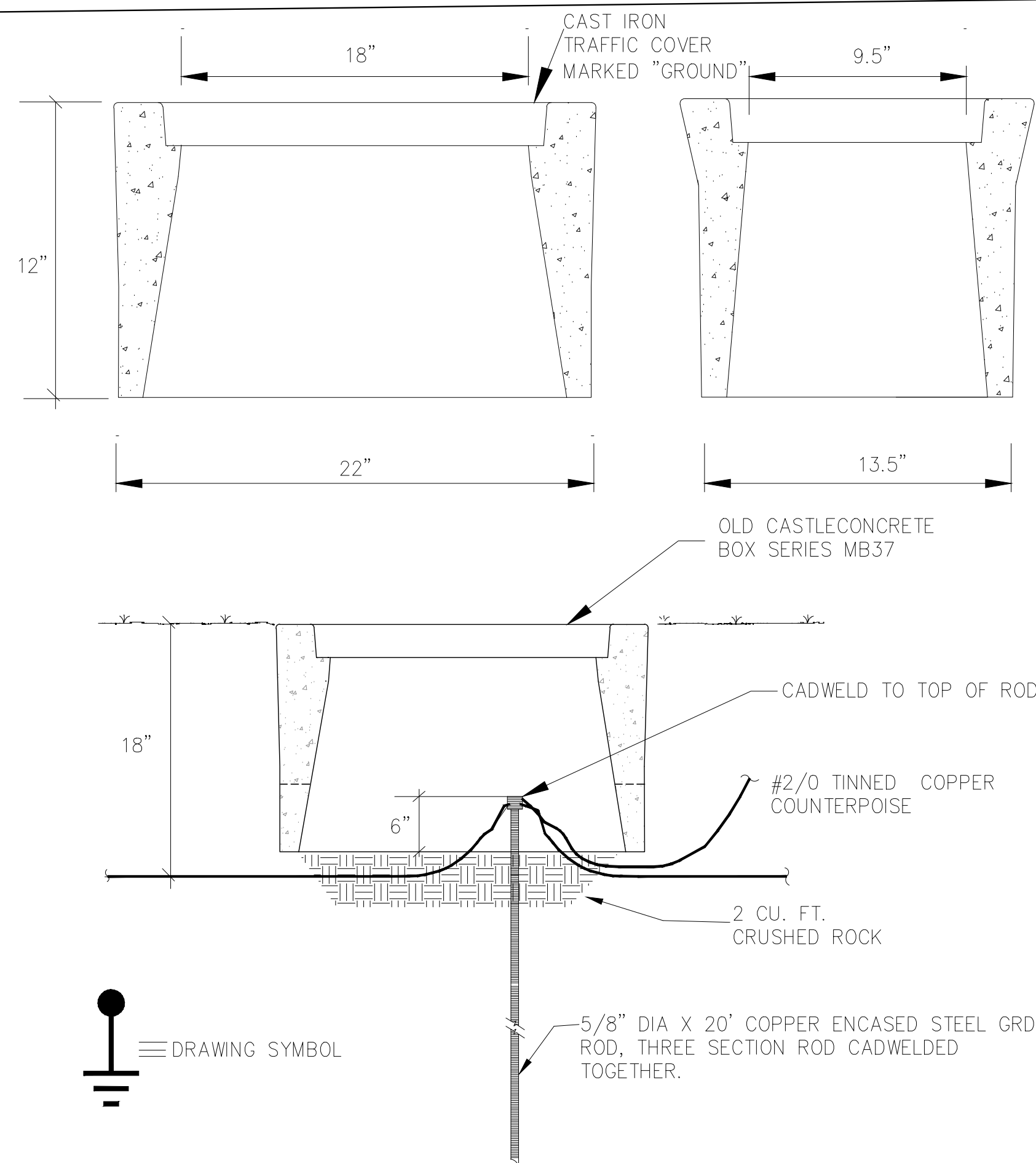
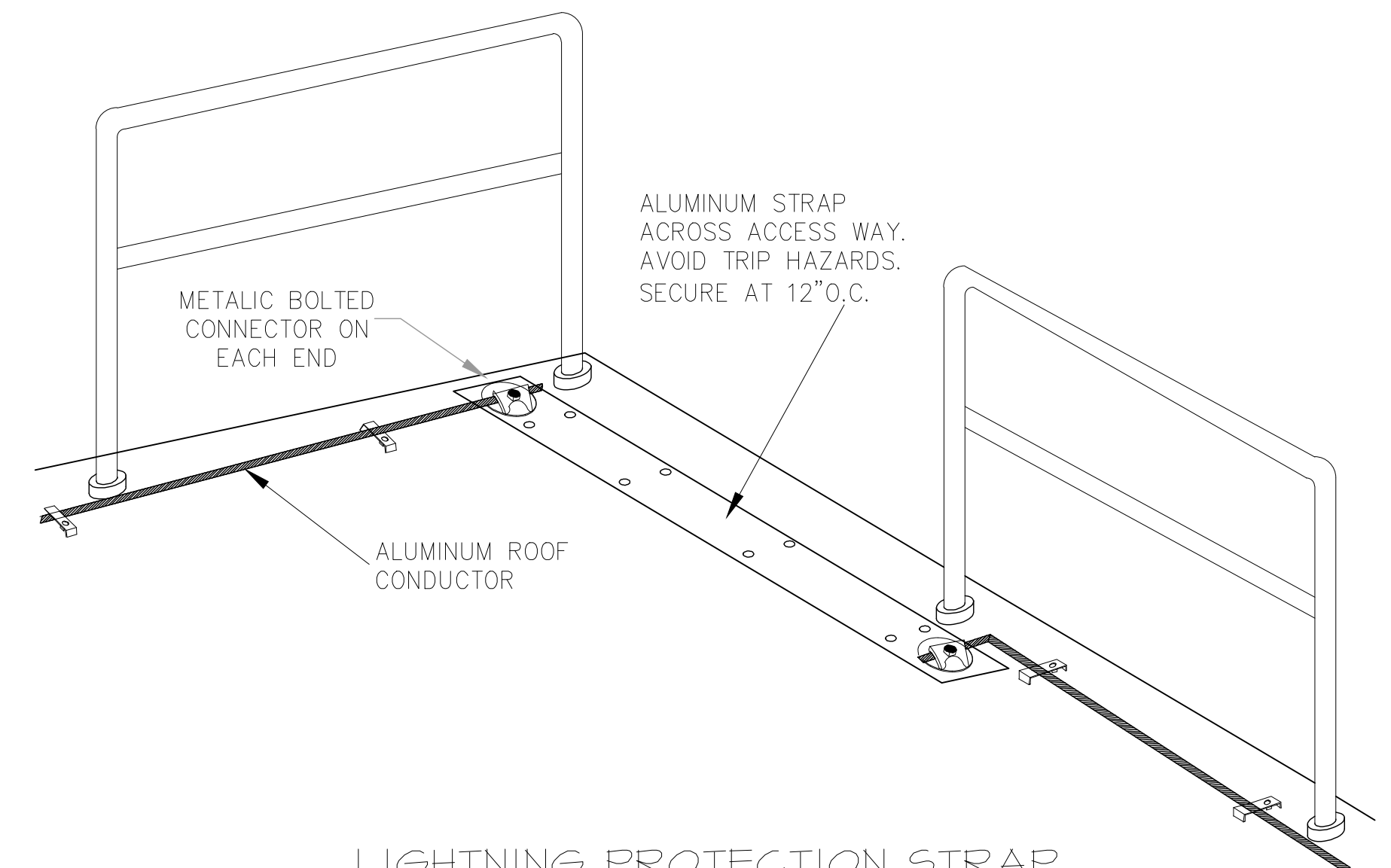
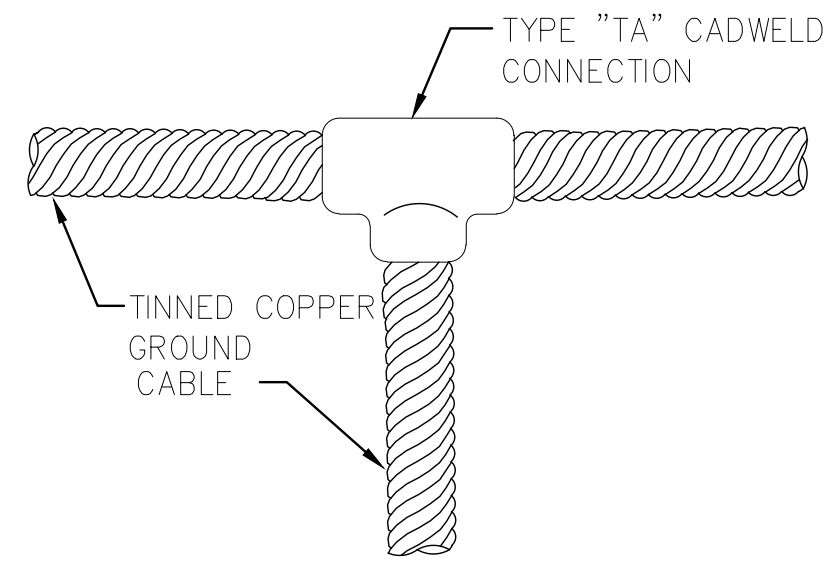
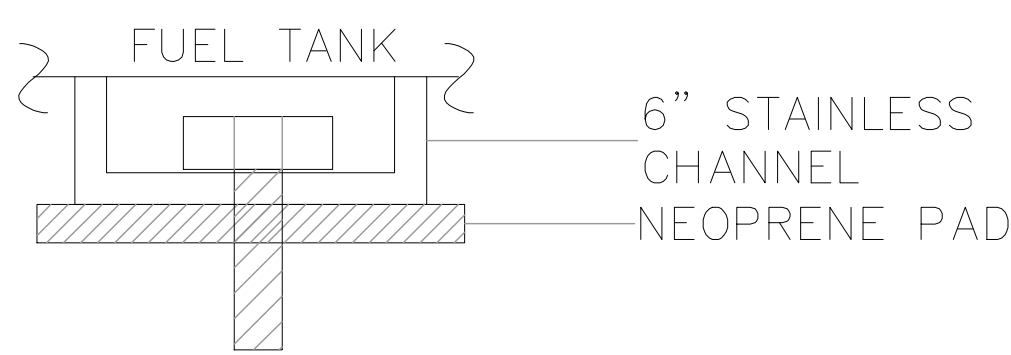
RKC CONSULTING ENGINEERS
ELECTRICAL*INSTRUMENTATION*CONTROL
12551 McGregor Blvd. Ste 4-402 | Fort Myers, FL 33919
239.481.8775 | Certificate of Authorization #8212

FERNANDO E. FUENTES JR., P.E. #86514 DATE

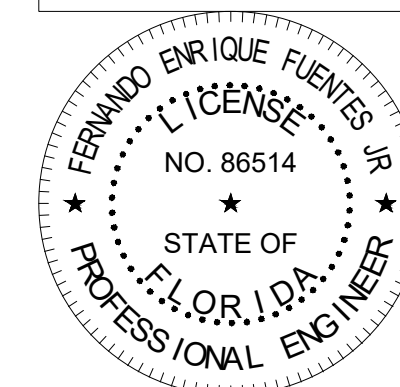
ELECTRICAL DETAILS

SHEET NUMBER

ED05



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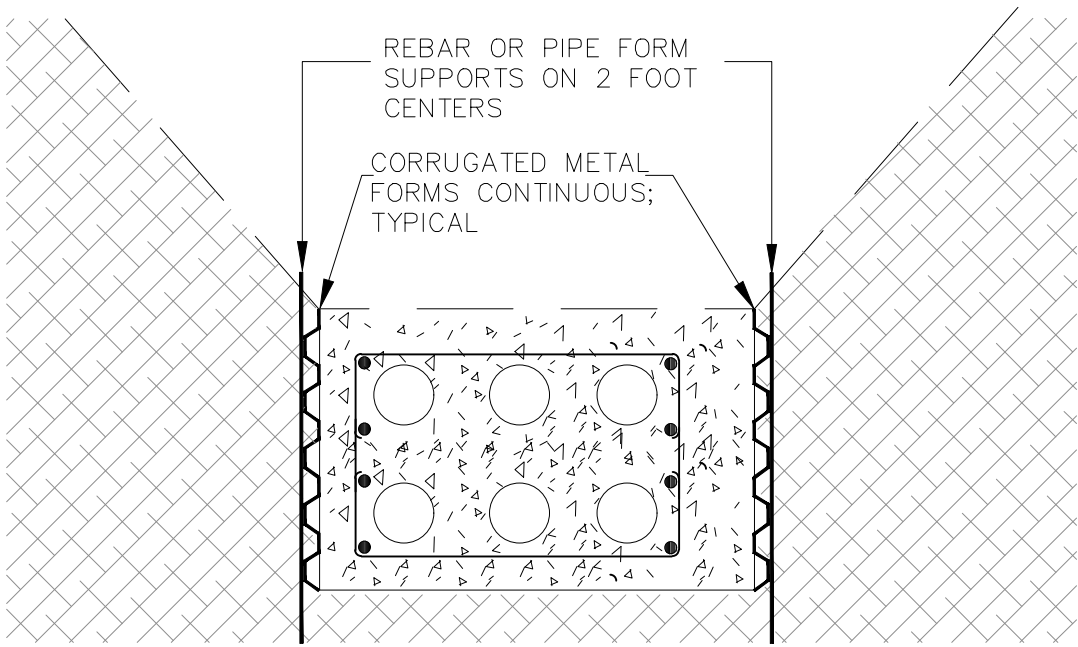


FERNANDO E. FUENTES JR., P.E. #86514 DATE

ELECTRICAL DETAILS

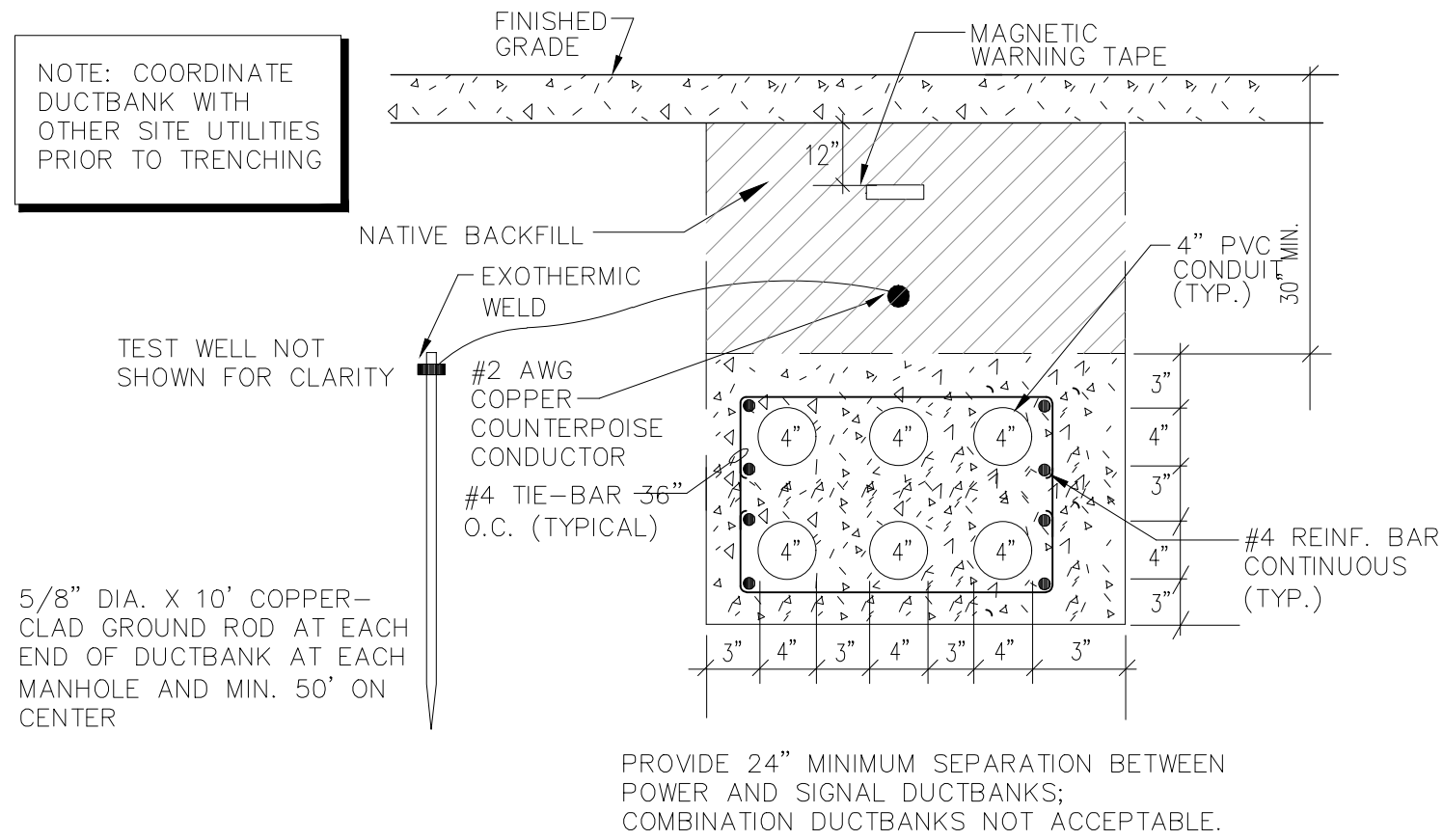
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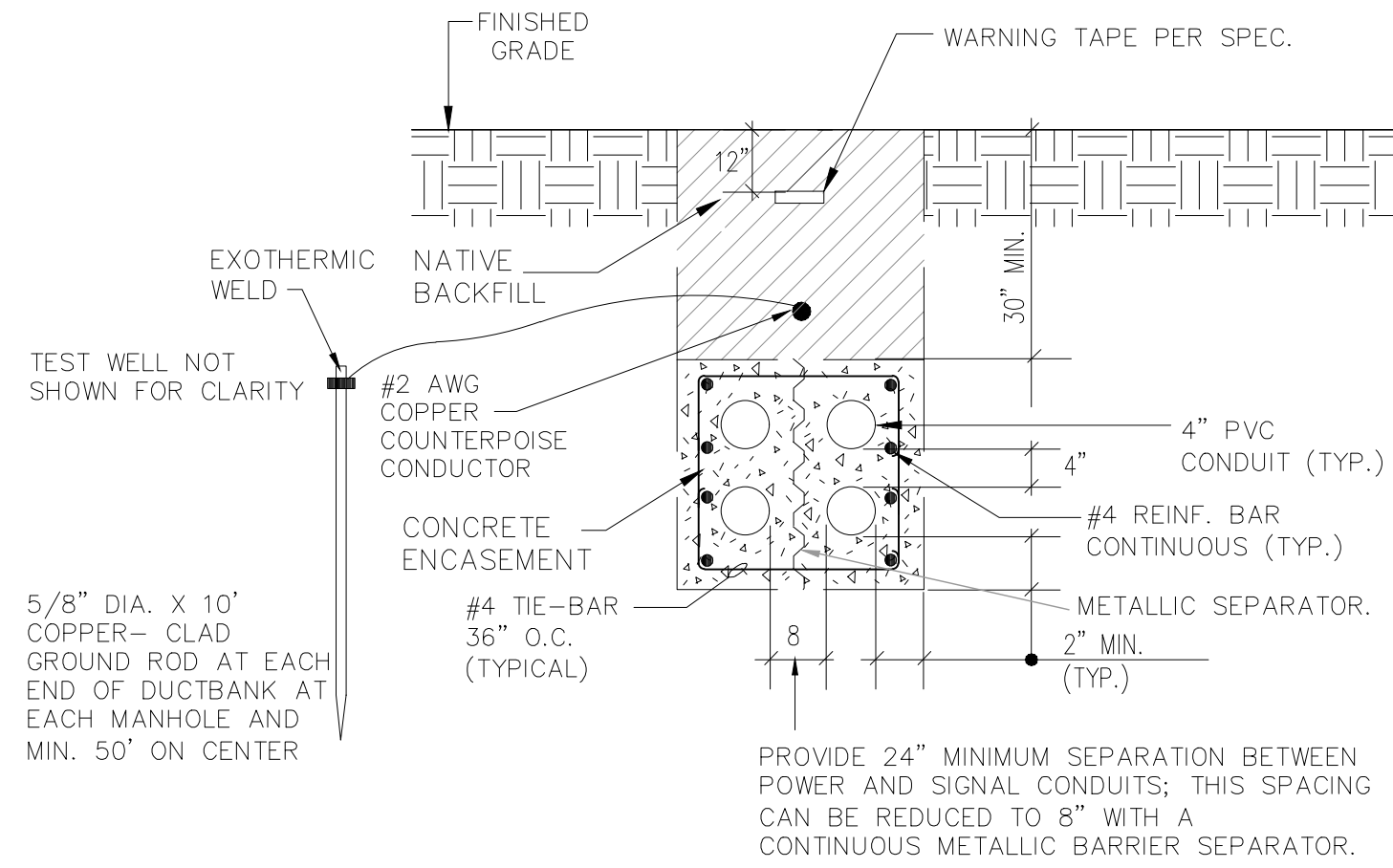


DUCT BANKS WILL BE FORM AND POUR CONSTRUCTION. FORMS WILL BE BACKFILLED PRIOR TO POUR; FORMS WILL BE SUPPORTED WITH REBAR OR OTHER MEANS. OPEN TRENCH POURING OF DUCTBANKS WILL NOT BE PERMITTED.

TYPICAL DUCTBANK CONSTRUCTION
N.T.S.



TYPICAL FEEDER DUCTBANK SECTION
N.T.S.



GENERAL NOTE:
DUCTBANK SECTIONS DO NOT SHOW
REQUIRED BRANCH CIRCUIT AND I&C
DEVICE CONDUITS AS INDICATED ON
PLANS. TYPICAL.

TYPICAL BRANCH CIRCUIT
DUCTBANK SECTION
N.T.S.

DUCTBANK DESIGNATIONS

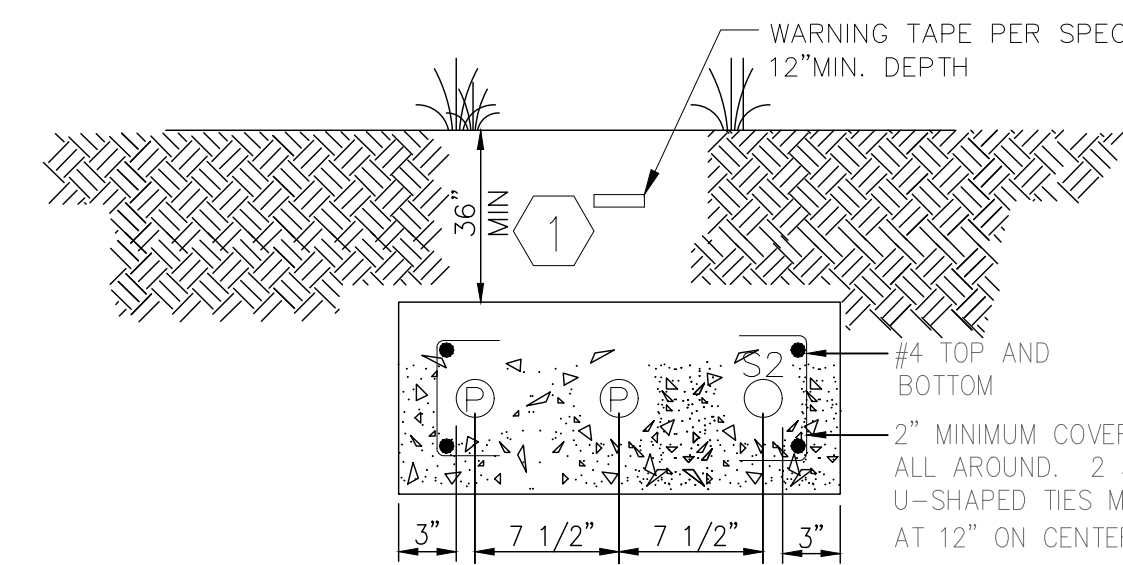
A – MCC2A/B
B – HWDP1
C – HWLP1
D – EXTERIOR LIGHTING CONTROL PANEL
E – PCP
F – SCP1
G1 – 4" CONDUIT TO GENERATOR 1 TERMINATION CABINET
G2 – 4" CONDUIT TO GENERATOR 2 TERMINATION CABINET
H – OCU
I – FUTURE SCP2
J – FUTURE SCP3
K – GCP1
L – INFLUENT FLOWMETER
M – FUTURE SCP4
N – RO FEED PUMP
P – 2" FPL PROVIDED CONTRACTOR INSTALLED CONDUIT
P1 – 4" FPL PROVIDED CONTRACTOR INSTALLED CONDUIT
Q – 2" FUTURE FIBER OPTIC CABLE
S1 – 1" CONDUIT SPARE
S2 – 2" CONDUIT SPARE
S3 – 3" CONDUIT SPARE
S4 – 4" CONDUIT SPARE

GENERAL NOTE:

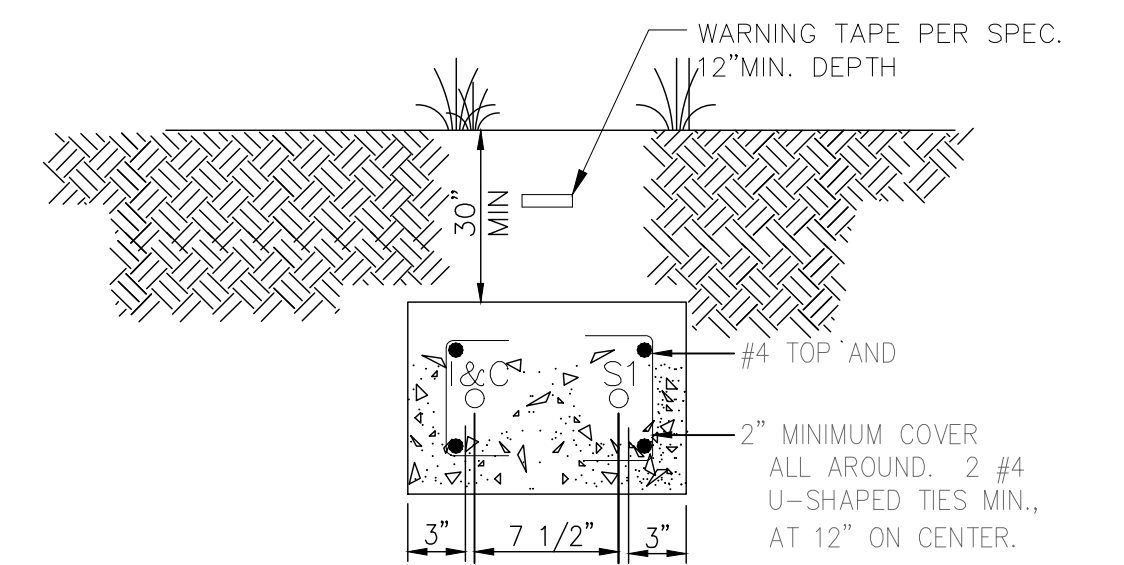
- SEE DETAILS & SPECS FOR TYPICAL DUCTBANK CONSTRUCTION. SPECIFIC CROSS SECTIONS DO NOT SHOW CONSTRUCTION DETAILS.
- ALL ELEVATIONS AND MINIMUM COVERAGE PROVIDED ARE BASED ON PROPOSED DESIGN YARD PIPING ELEVATION. CONTRACTOR TO FIELD VERIFY AND COORDINATE EXACT ELEVATIONS.
- SECTIONS SHOW MAJOR CONDUITS. THEY DO NOT SHOW ALL BRANCH CIRCUIT CONDUITS. SIZES SHOWN ARE MINIMUM REQUIRED.

KEYNOTES

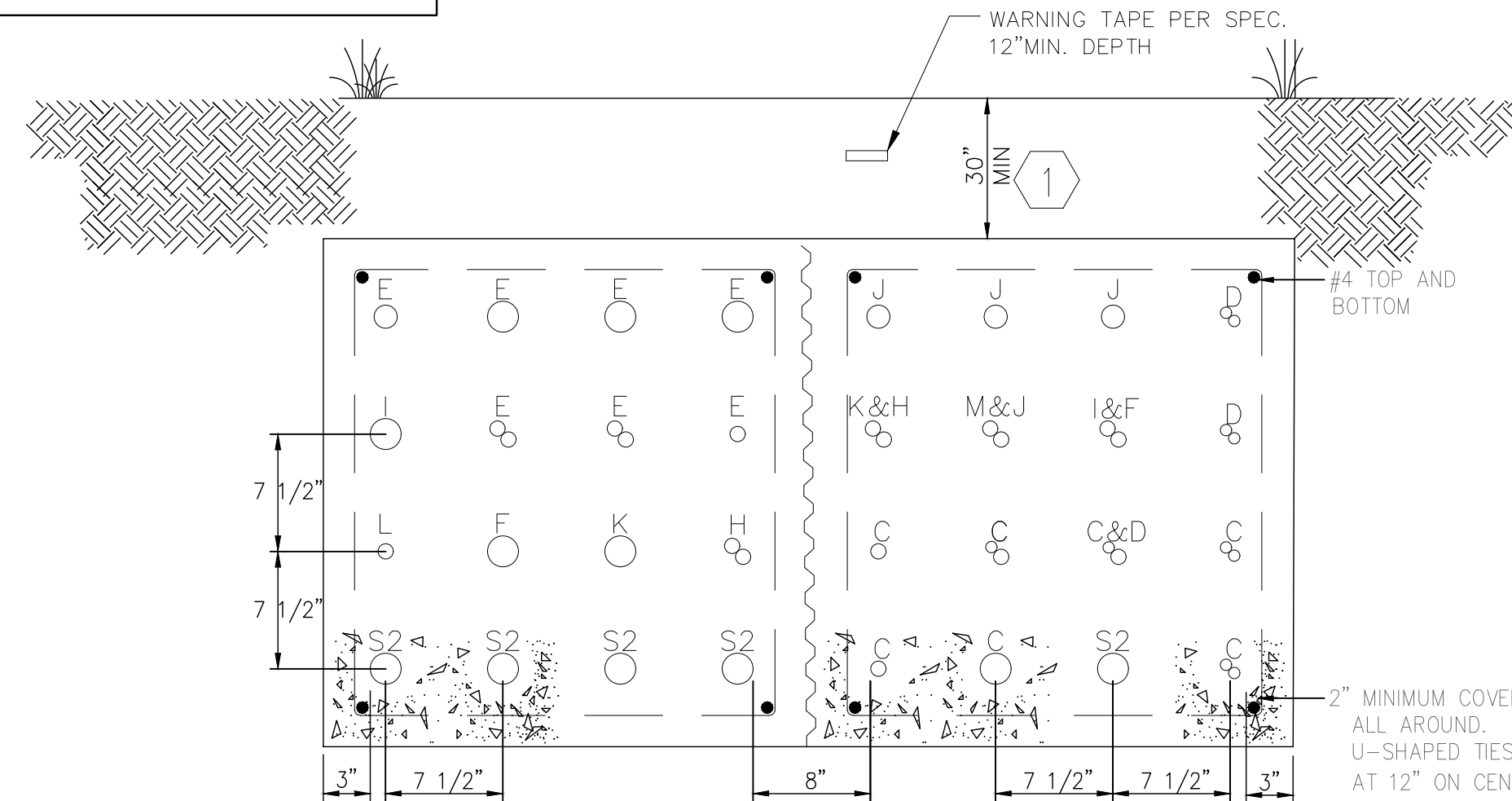
- INCREASE DEPTH OF DUCTBANK TO 64" MIN. WHERE IN CONFLICT WITH NEW OR EXISTING YARD PIPING.



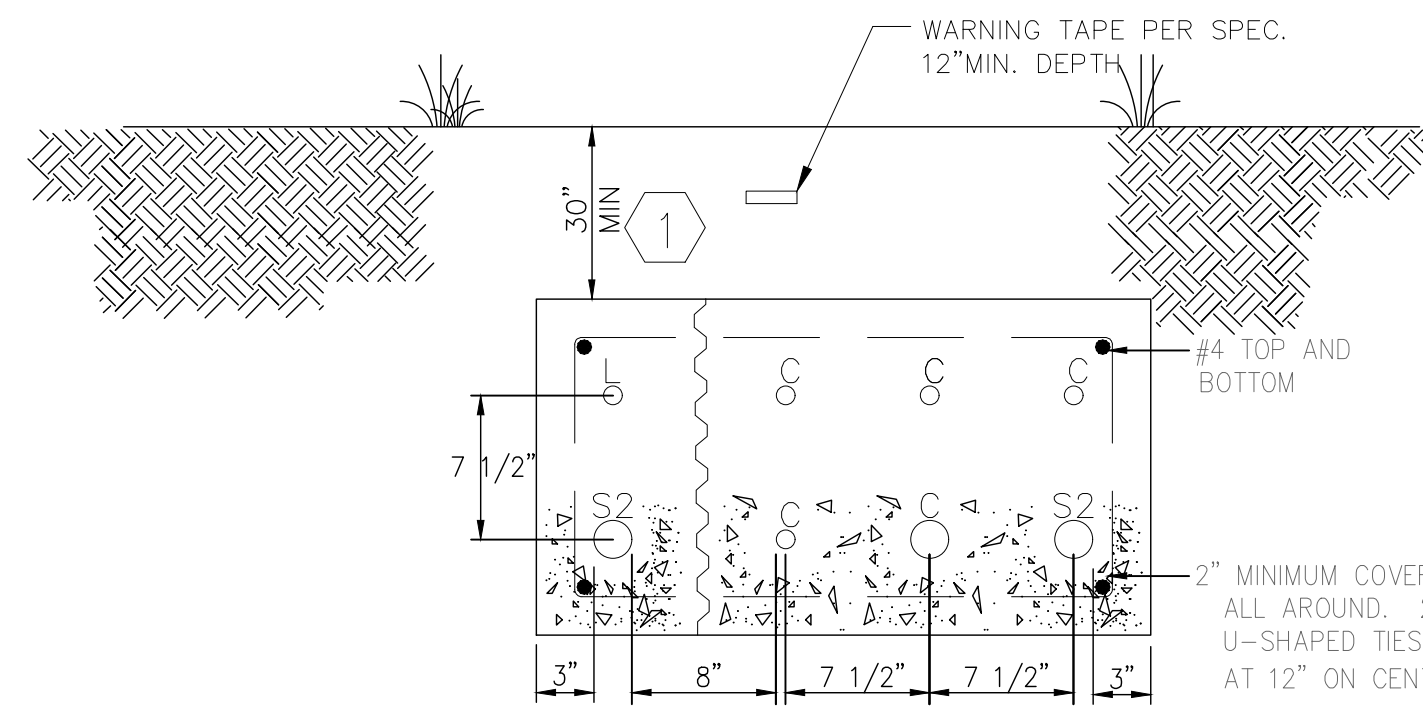
A FPL SERVICE LATERAL DUCTBANK SECTION
E04 N.T.S.



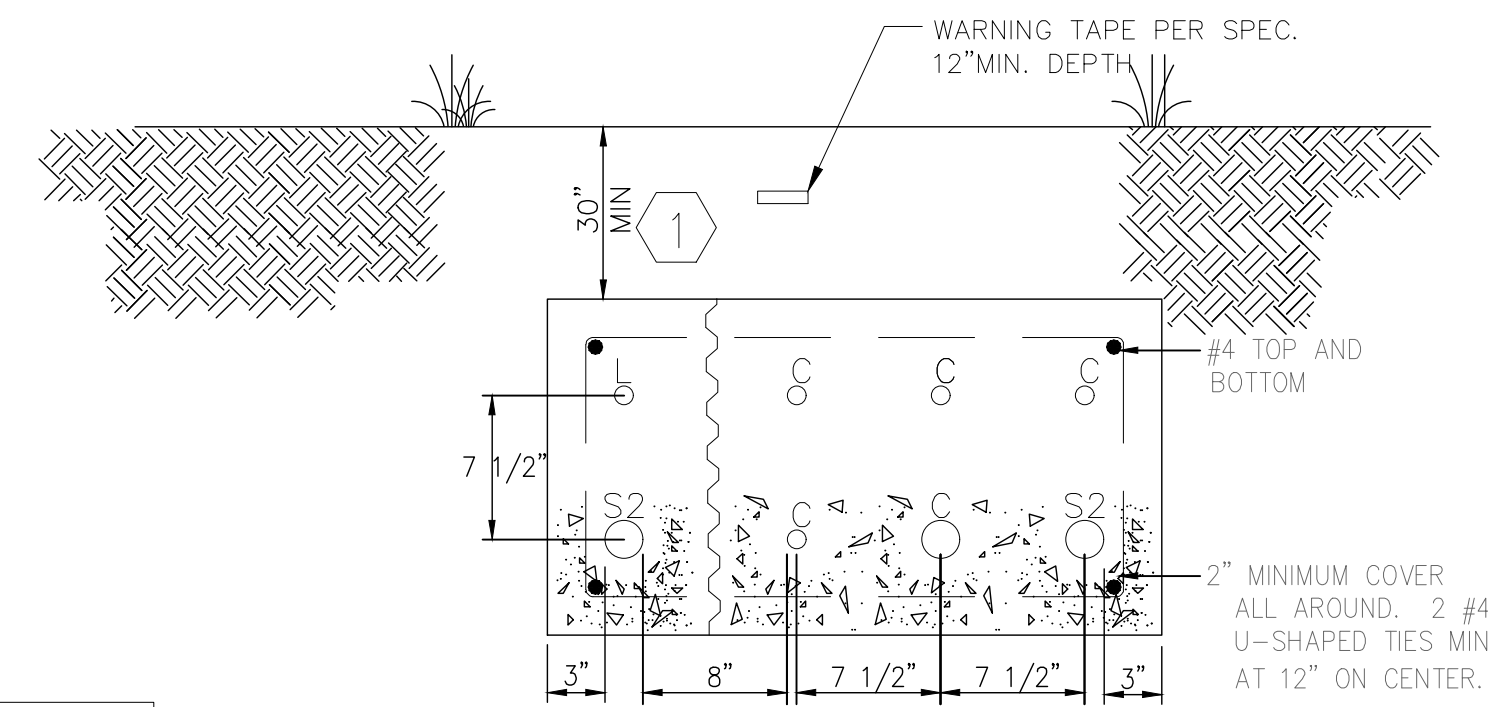
B I&C DUCTBANK SECTION
E04 N.T.S.



C POWER AND I&C DUCTBANK SECTION
E04 N.T.S.

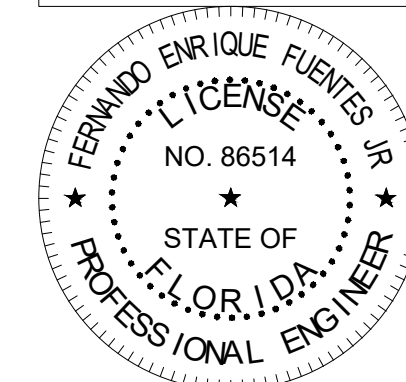


D POWER AND I&C DUCTBANK SECTION
E04 N.T.S.



E POWER AND I&C DUCTBANK SECTION
E04 N.T.S.

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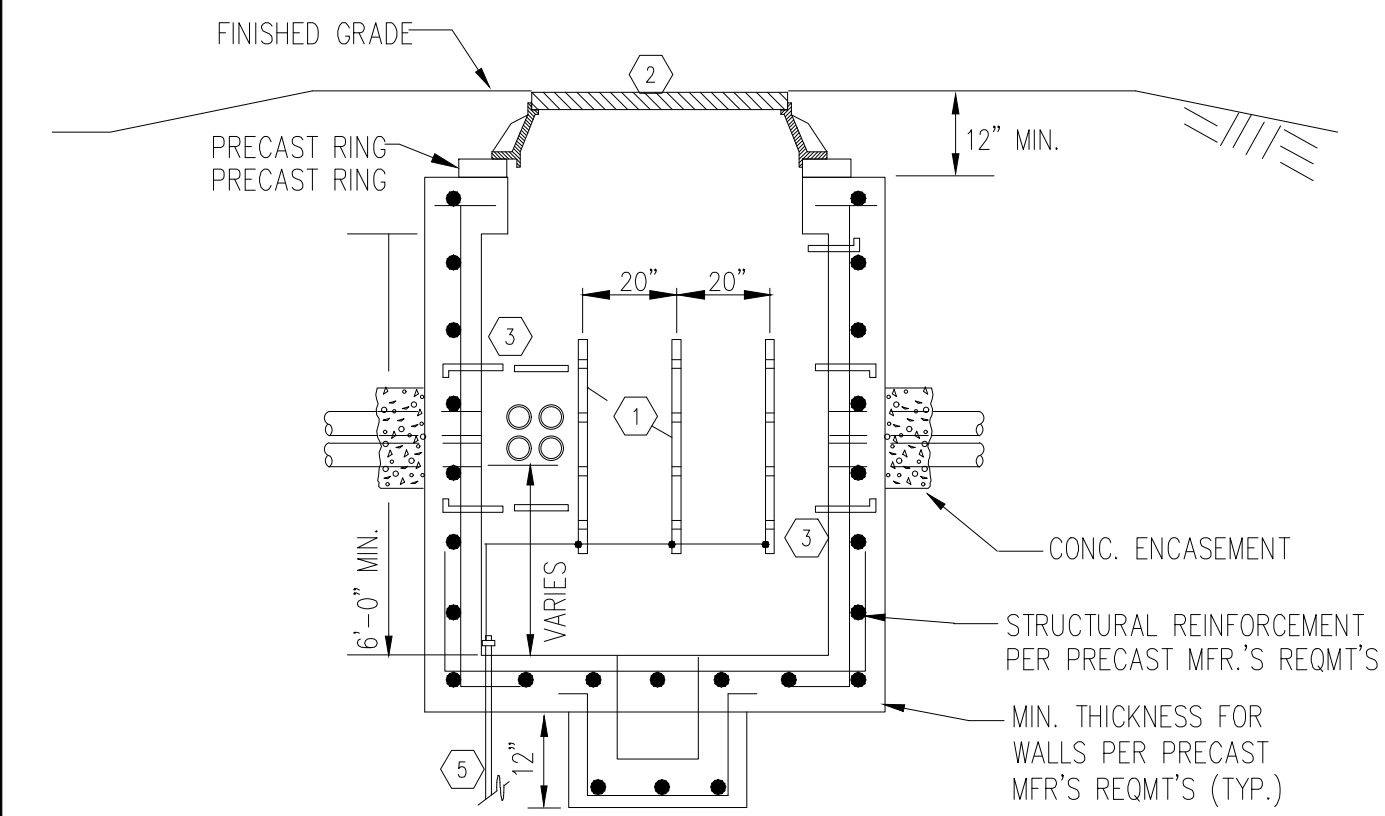
**SOUTH WATER RECLAMATION FACILITY
HEADWORKS**
PREPARED FOR
ENGLEWOOD WATER DISTRICT

**RIK CONSULTING
ENGINEERS**
ELECTRICAL INSTRUMENTATION CONTROL
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239.481.8775 | Certificate of Authorization #8212
FERNANDO E. FUENTES JR., P.E. #86514 DATE

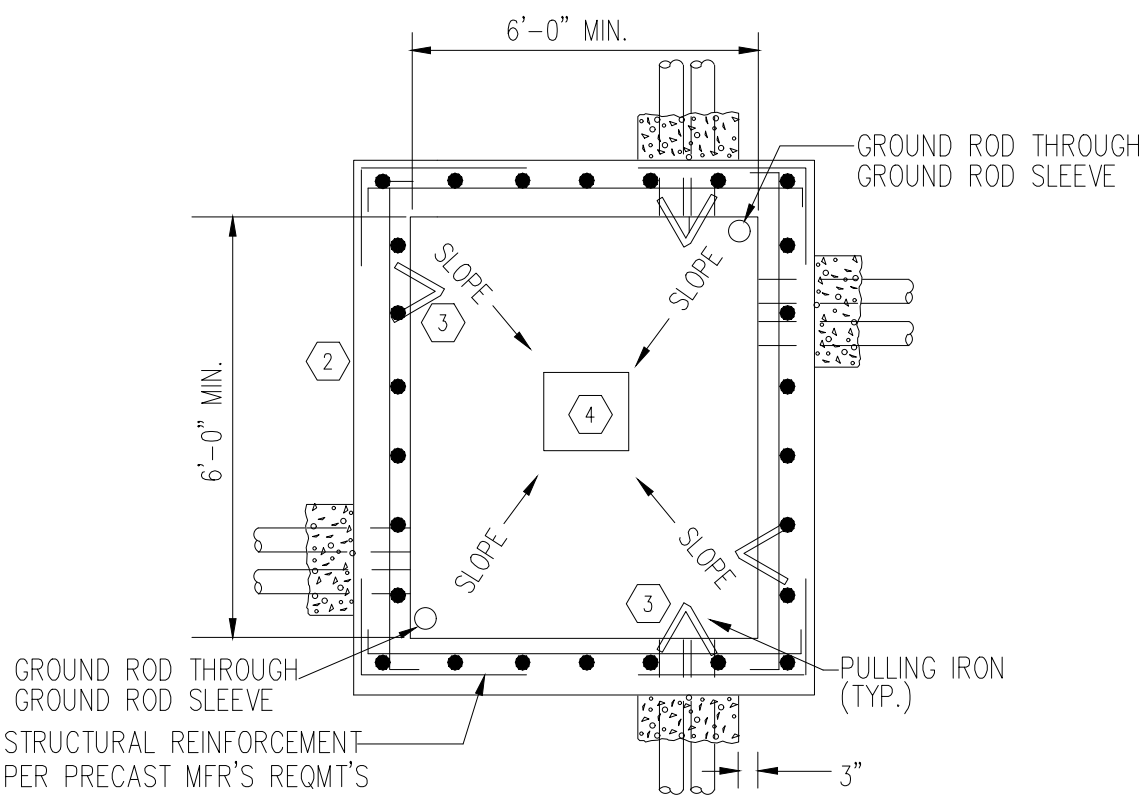
ELECTRICAL DETAILS

SHEET NUMBER

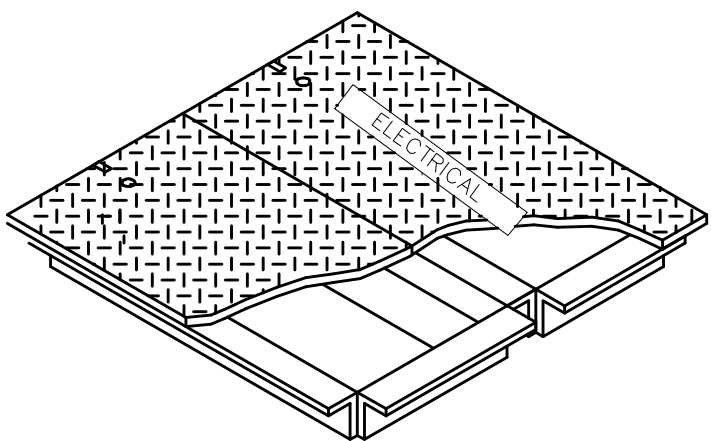
ED07



POWER MANHOLE SECTION
N.T.S.

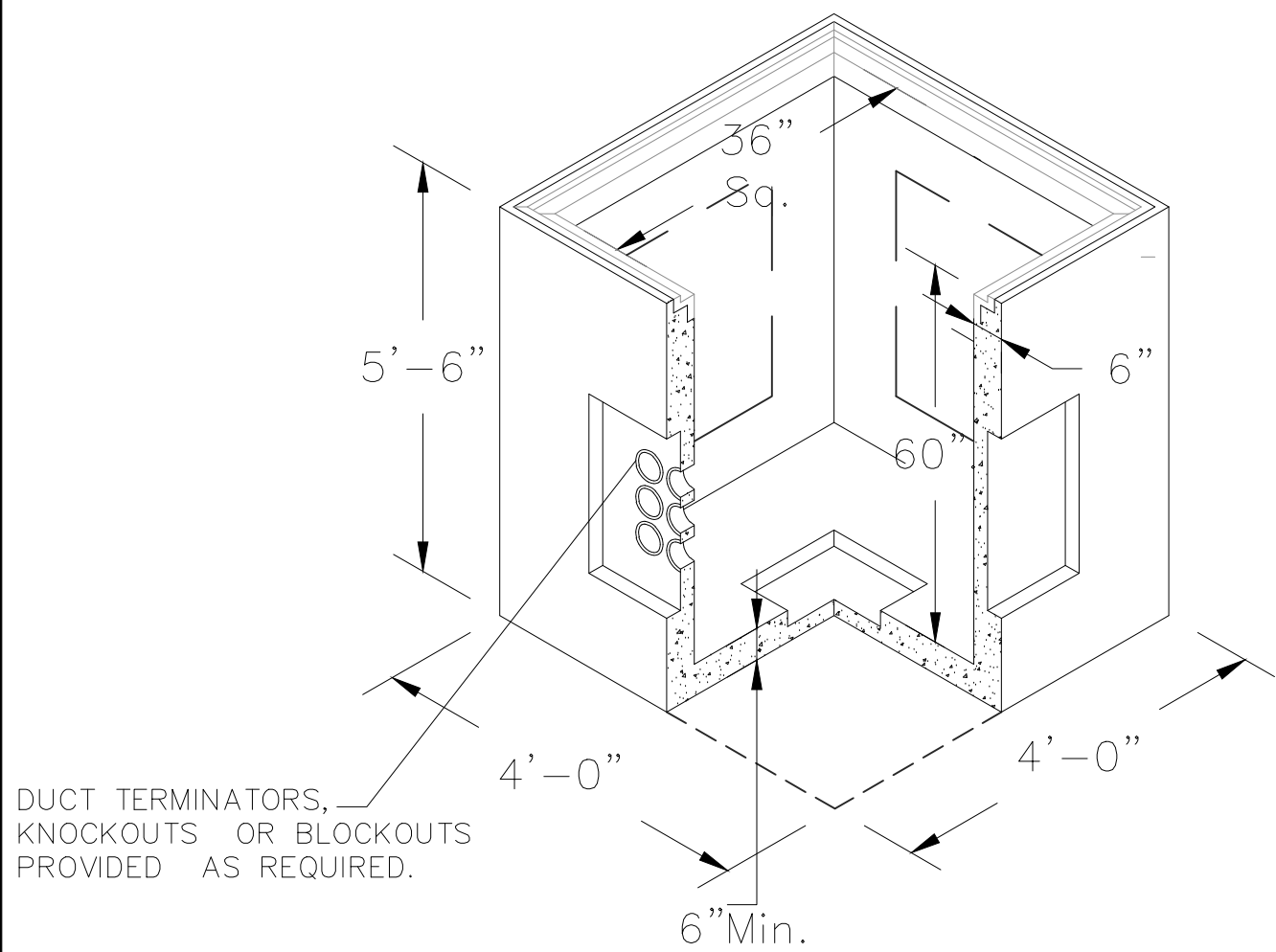


POWER MANHOLE PLAN VIEW
N.T.S.

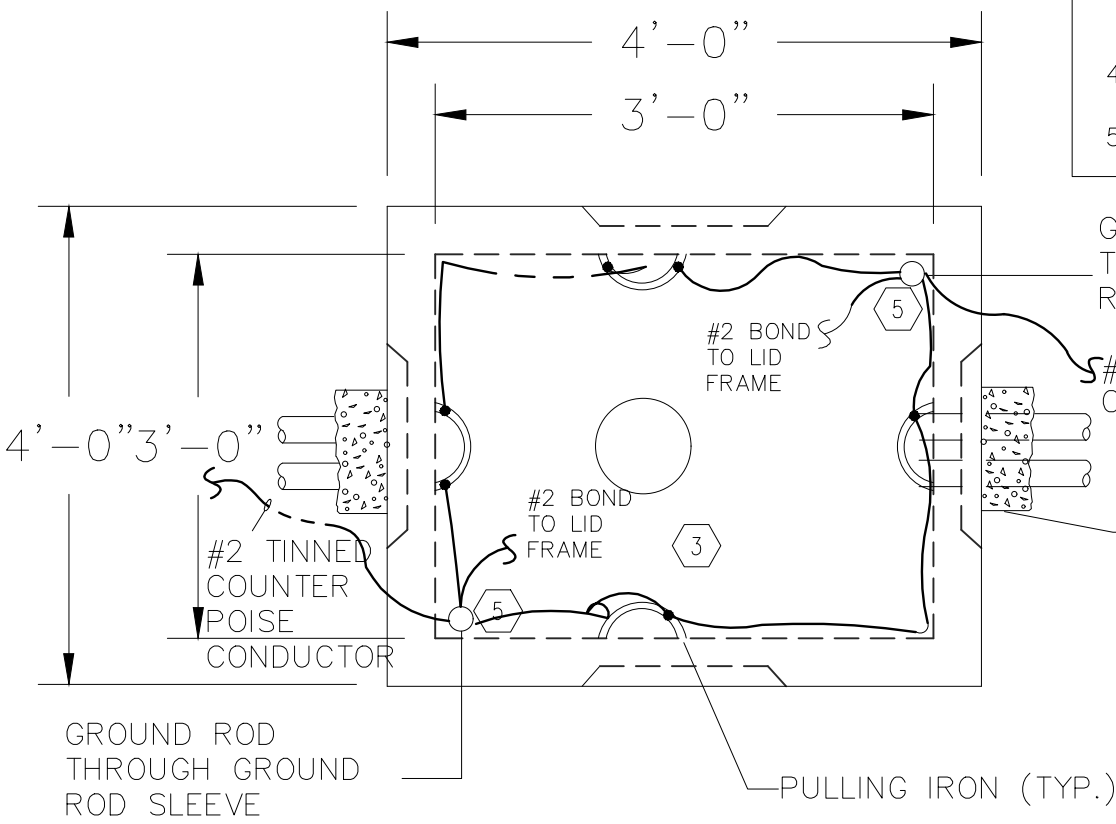


HINGED ALUMINUM COVER & HARDWARE; LOCKABLE COVER. PROVIDE PERMANENT ID TAG. ENGINEERED LIFT ASSISTANCE PER STRUCTURAL DETAIL.

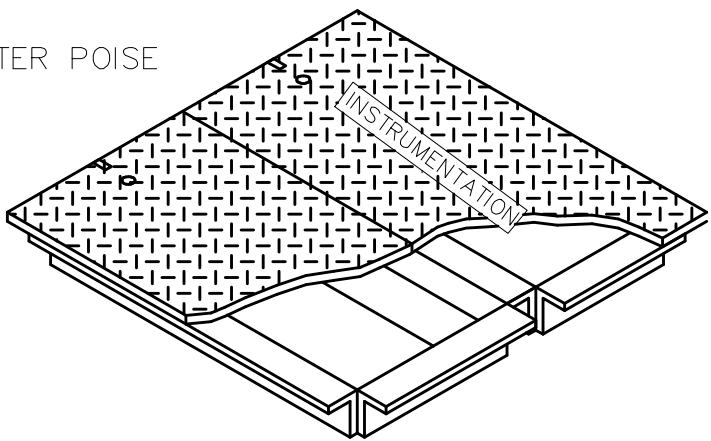
MANHOLE COVER



CONTROLS MANHOLE SECTION VIEW
N.T.S.



CONTROLS MANHOLE PLAN VIEW
N.T.S.



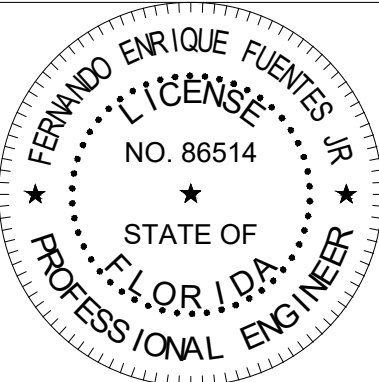
HINGED ALUMINUM COVER & HARDWARE; LOCKABLE COVER. PROVIDE PERMANENT ID TAG. ENGINEERED LIFT ASSISTANCE PER STRUCTURAL DETAIL.

MANHOLE COVER

- # MANHOLE KEYNOTES:
1. CABLE RACKS, STAINLESS STEEL OR NON METALLIC WITH STAINLESS HARDWARE.
 2. PRECAST REINFORCED CONCRETE MANHOLE, MINIMUM 4000PSI, 28DAY CONCRETE, WITH HINGED ALUMINUM LID. ALL STRUCTURES SHALL BE RATED H20 TRAFFIC BEARING.
 3. PULLING-IN-IRONS, INSTALL OPPOSITE CONDUIT ENTRANCE. POSITION BELOW AND ABOVE LEVEL OF CONDUIT ENTRANCE.
 4. CATCH BASIN, 18"x18".
 5. GROUND ROD, 5/8"x10'-0", COPPER CLAD

POWER, INSTRUMENTATION, & CONTROL MANHOLE DETAILS
N.T.S.

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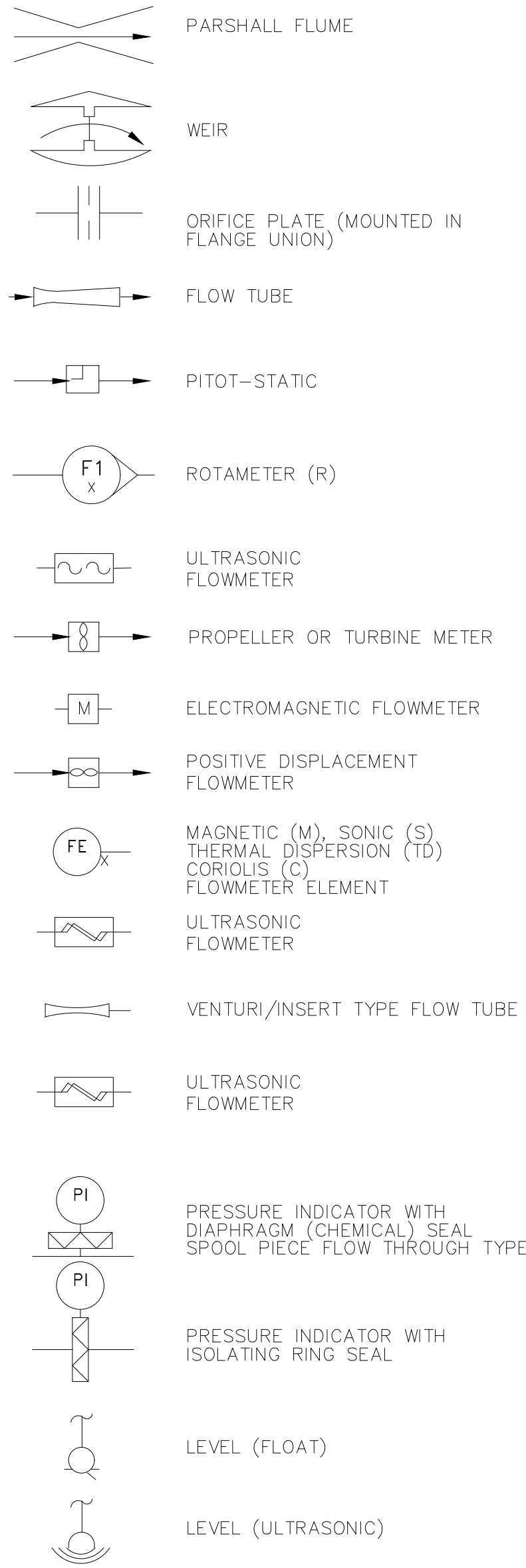
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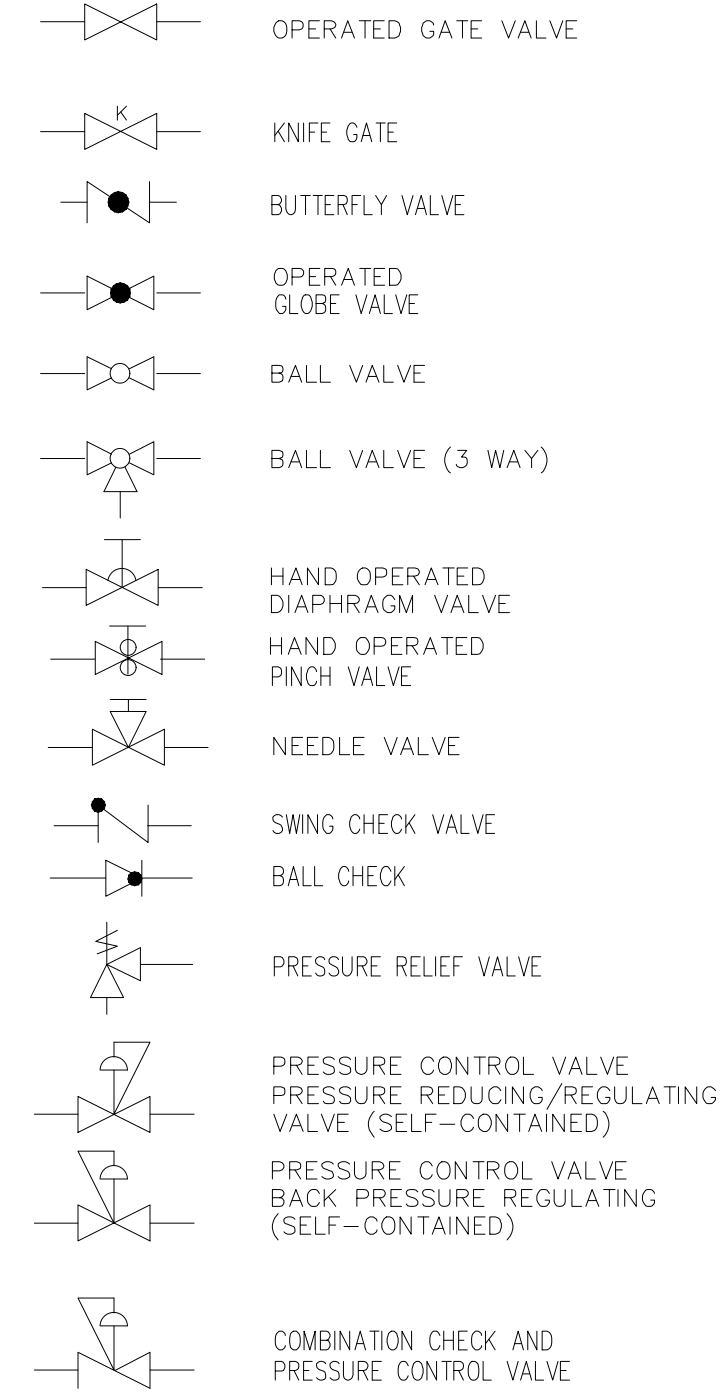
FIRST LETTER(S)			SUCCEEDING LETTERS																			
FIRST LETTER MEAS. VARI.	PROCESS OR INITIATING VARIABLE	MODIFIER	SWITCH (H/LO) OPEN, CLOSE	PRIM. ELEM. (SENSOR)	INDICATOR	INDICATING CONTROLLER	CONTROL OR CONTR. (BLND)	RECORDER (INDICATING)	INTEGRATOR	COUNTER (INTEGRATOR)	TRANSMITTING (INDICATING)	TRANSMITTER	VALVE OR ACTUATOR	RELAY	SOURCE	ALARM (HIGH & OR LOW)	SIGHT GLASS	GATE	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER	
A	ANALYSIS		ASL	AE	AI			AR			AIT	AT		AY		AAL				ALARM		
B	BURNER FLAME			BE			BC							BY		BA			USERS CHOICE	USERS CHOICE	USERS CHOICE	
C	CONDUCTIVITY		CSH	CE	CI	CIC	CC	CR			CIT	CT		CY		CAH				CONTROL	CLOSE	
D	DENSITY	DIFFERENTIAL	DSH	DE	DI	DIC	DC	DR			DIT	DT		DY	DX	DAL						
E	VOLTAGE			EE	EI						EIT	ET		EY					PRIMARY ELEMENT			
F	FLOW RATE	RATIO	FSHL	FE	FI	FIC	FC	FR	FQ	FQI	FIT	FT	FV	FY		FAL		FG				
G	GAUGE																		USER CHOICE	USER CHOICE	USER CHOICE	
H	HAND (MANUAL)		HS			HIC							HV					HG			HIGH	
I	CURRENT		IS	IE	II	IIC	IC					IT		IY		IAH			INDICATE			
J	POWER	SCAN	JSH	JE	JI	JIC	JC	JR	JQ	JQI	JIT	JT		JY								
K	TIME/SCHEDULE				KI	KIC	KC		KQ	KQI				KY	KS					CONTROL STATION		
L	LEVEL		LSH	LE	LI	LIC	LC	LR			LIT	LT	LV	LY		LAL	LS		LIGHT (PILOT)		LOW	
M	MOTION			ME	MI	MIC	MC	MR			MIT	MT		MY							MIDDLE	
N	VEND. OPT.																		USERS CHOICE	USERS CHOICE	USERS CHOICE	
O	TORQUE																		ORIFICE		CLOSE	
P	PRES. VAC.		PSH	PE	PI	PIC	PC	PR			PIT	PT	PCV	PY		PAH			POINT (TEST CONNECTION)			
Q	QUANTITY/EVENT	INTEGRATE						QR											INTEGRATE			
R	UNCLASSIFIED																		RECORD/PRINTER			
S	SPEED/FREQ.	SAFETY	SS	SE	SI		SC	SR			SIT	ST		SY		SAL				SWITCH		
T	TEMPERATURE		TSL	TE	TI	TIC	TC	TR			TIT	TT	TV	TY		TAH				TRANSMIT		
U	MULTIVARIABLE				UI			UR						UY		UA			MULTIFUNCTION			
V	VISCOSITY																			VALVE		
W	WEIGHT		WS	WE	WI	WIC		WR				WT							WELL			
X	FAILURE/TROUBLE			XE	XI			XR						XY		XAH			UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	
Y	EVENT, STATE		YS	YE	YI							YT		YY		YA				RELAY OR COMPUTE		
Z	POSITION		ZSO	ZE	ZI			ZR			ZIT	ZT		ZY		ZAH				DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT		

FERNANDO E. FUENTES JR., P.E. #86514 DATE

PRIMARY ELEMENT SYMBOLS



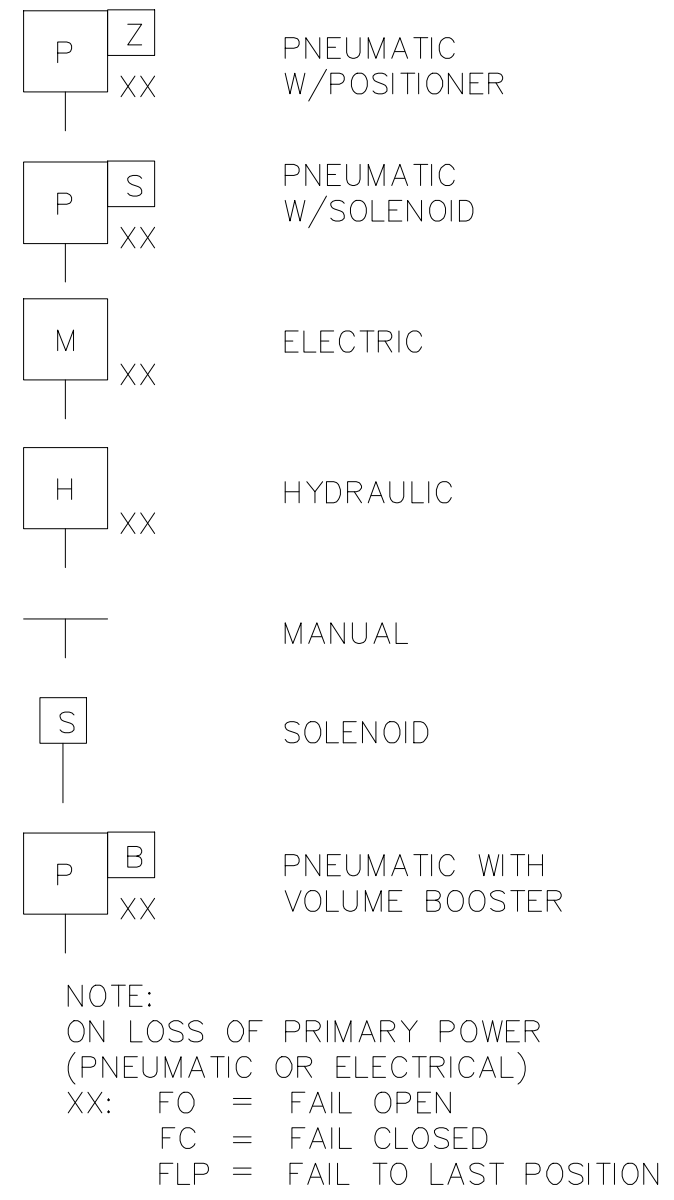
VALVE SYMBOLS



SELF CONTAINED VALVE AND EQUIPMENT

P	=	PUMP
T	=	TANK
M	=	MECHANICAL EQUIPMENT
G	=	GATE
E	=	EJECTOR
RD	=	RUPTURE DISK
ARV	=	AIR RELEASE VALVE
AVRV	=	AIR AND VACUUM RELEASE VALVE
PSV	=	PRESSURE RELIEF VALVE
PCV	=	PRESSURE CONTROL VALVE
LCV	=	LEVEL CONTROL VALVE
TCV	=	TEMPERATURE CONTROL VALVE
PRV	=	PRESSURE REGULATING VALVE

ACTUATOR SYMBOLS

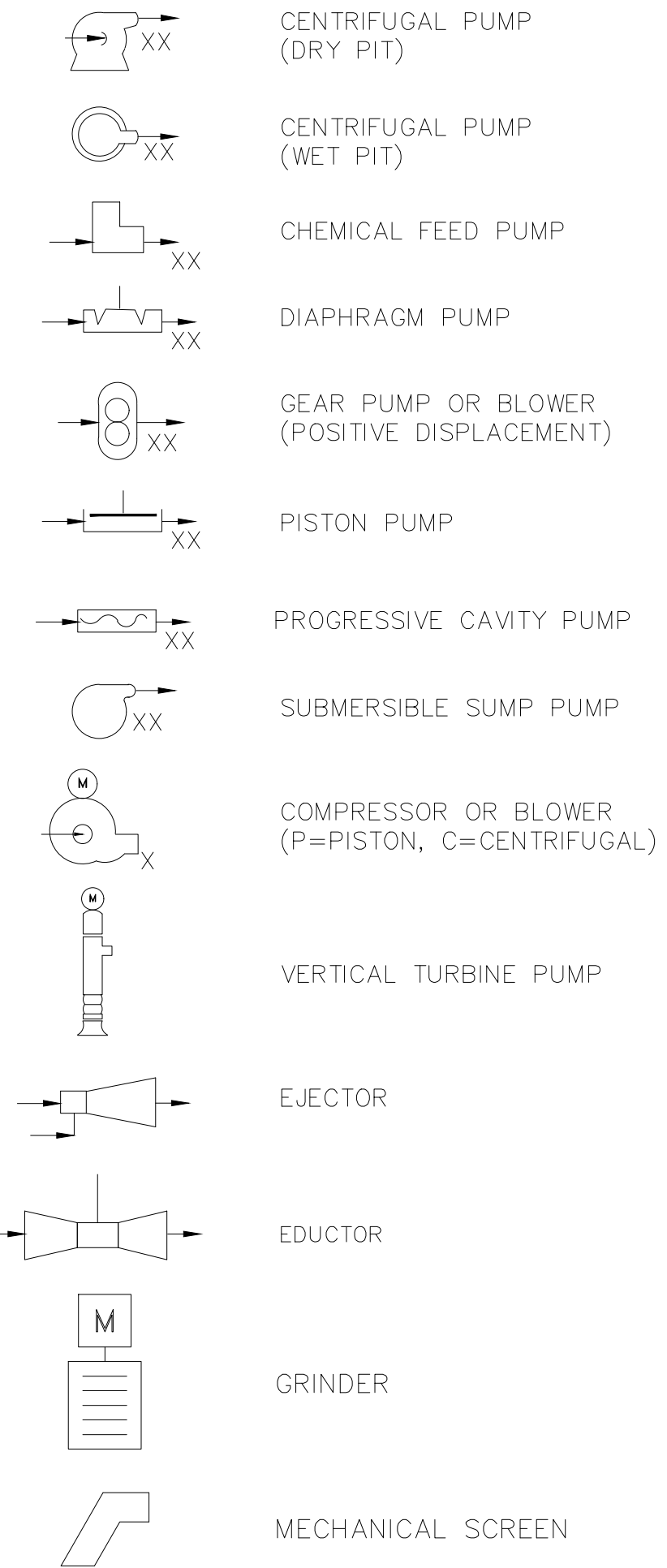


FLOW STREAM IDENTIFICATION

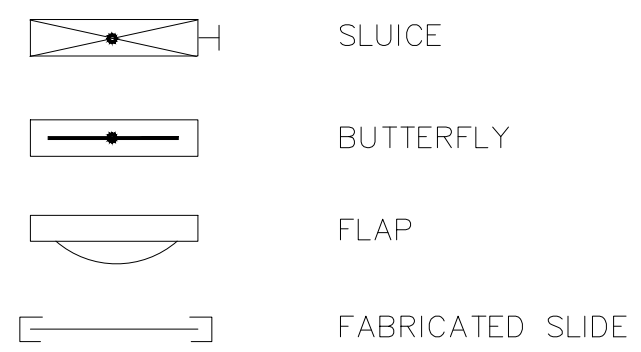
AHP	AIR HIGH PRESSURE
AI	AIR INSTRUMENT
ALP	AIR LOW PRESSURE
ARD	ACID RESISTANT DRAIN
ARV	ACID RESISTANT VENT
BWD	BACKWASH DRAIN
BWR	BACKWASH RETURN
BWS	BACKWASH SUPPLY
BYP	BYPASS
CD	CONDENSATE DRAIN
CHS	CHEMICAL SLUDGE
CHSR	CHEMICAL SLUDGE RETURN
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CG	CHLORINE GAS
CGV	CHLORINE GAS (VACUUM)
CS	CHLORINE SOLUTION
CWR	COOLING WATER RETURN
CWS	COOLING WATER SUPPLY
D	DRAIN (SANITARY)
DE	DIESEL EXHAUST
DFO	DIESEL FUEL OIL
DFR	DIESEL FUEL RETURN
DFS	DIESEL FUEL SUPPLY
DHMP	DRY HEXAMETAPHOSPHATE
DR	DRAIN
F	FILTRATE
FE	FILTER EFFLUENT
FI	FILTER INFLUENT
FF	FILTERED FEED WATER
FTW	FILTER TO WASTE
FW	FINISHED WATER
HMP	HEXAMETAPHOSPHATE
HSF	HYDROFLUOSILIC ACID SOLUTION
HW	DOMESTIC HOT WATER
LPG	LIQUID PETROLEUM GAS
LPO	LIQUID POLYMER
LS	LIME SLURRY
MF	MEMBRANE FEED WATER
OF	OVERFLOW
PO	POLYMER SOLUTION
PS	PRESSURE SEWER
QL	QUICK LIME
RCW	RECLAIMED WATER
RCY	RECYCLE
RD	ROOF DRAIN
RS	RAW SEWAGE
RW	RAW WATER
SA	SAMPLE
SW	SURFACE WASH
TCS	THICKENED CHEMICAL SLUDGE
TW	TREATED WATER
UD	UNDERDRAIN
V	VENT
VAC	VACUUM
WO	WASTE OIL
W1	NO. 1 WATER POTABLE
W2	NO. 2 WATER (REUSE WATER)

PUMP & COMPRESSOR SYMBOLS

NOTE:
XX: AS = ADJUSTABLE SPEED
CS-1 = CONSTANT SPEED (SINGLE SPEED)
CS-2 = CONSTANT SPEED (TWO SPEED)



GATE SYMBOLS



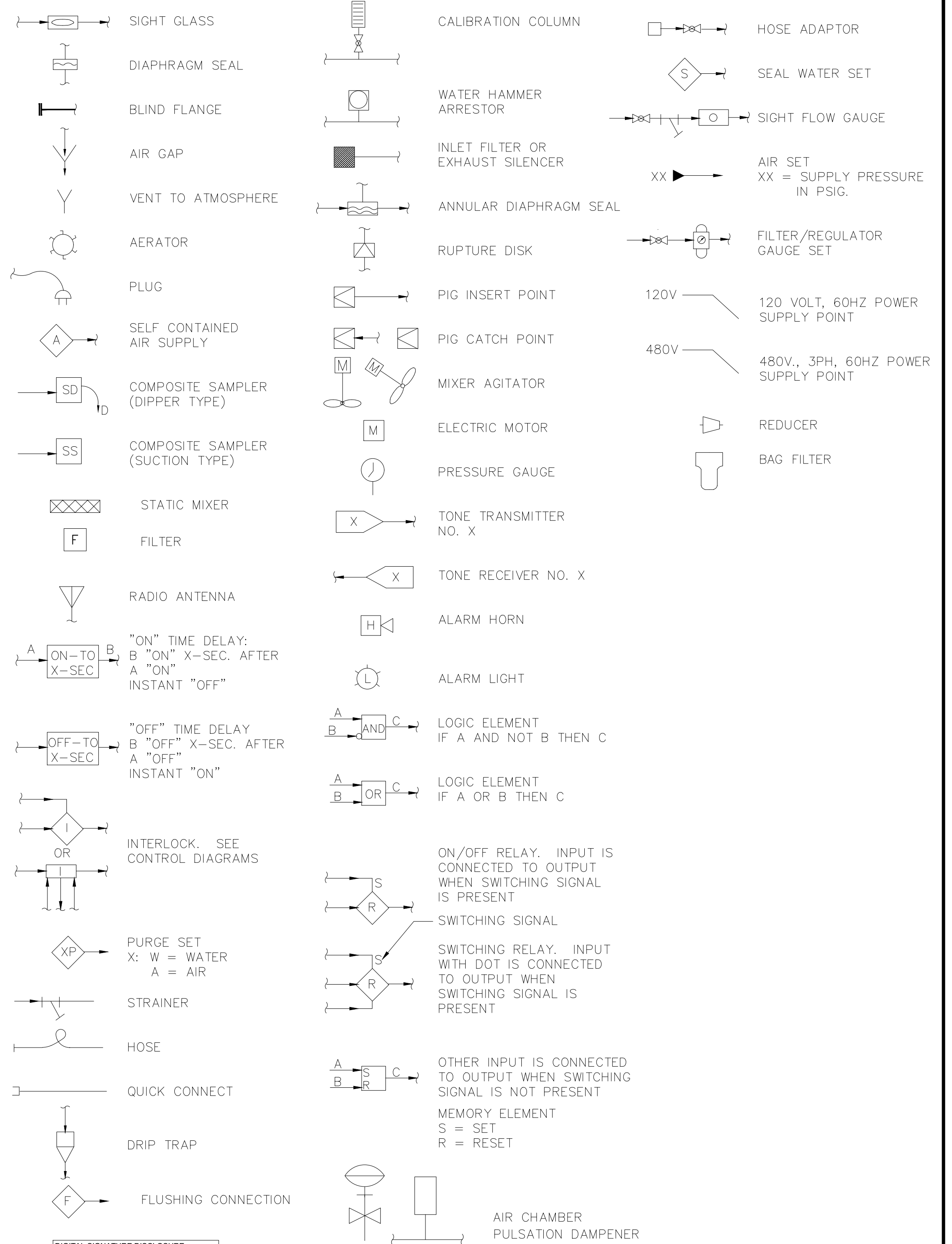
ABBREVIATIONS

Δ	DIFFERENCE
+	SUM
$\times$	MULTIPLY
$\div$	DIVIDE
1 (x)	CHARACTERIZED
x^n	RAISE TO THE Nth POWER
$\sqrt{\quad}$	SQUARE ROOT
AVG	AVERAGE
1:1	REPEAT, BOOST OR ISOLATE
>	SELECT HIGHEST SIGNAL
<	SELECT LOWEST SIGNAL

TRANSDUCERS

A	ANALOG
D	DIGITAL
E	VOLTAGE
F	FREQUENCY
I	CURRENT
P	PNEUMATIC
PF	PULSE-FREQUENCY
PD	PULSE DURATION
R	RESISTANCE

MISCELLANEOUS SYMBOLS



CONSTRUCTION PLANS

P&ID INSTRUMENTATION & CONTROLS SYMBOLS

SHEET NUMBER

102

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048104001

DATE
OCTOBER, 2022
SCALE: AS SHOWN
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DRAWN BY: F.E.F.JR.
CHECKED BY: T.M.P

SOUTH WATER RECLAMATION FACILITY HEADWORKS

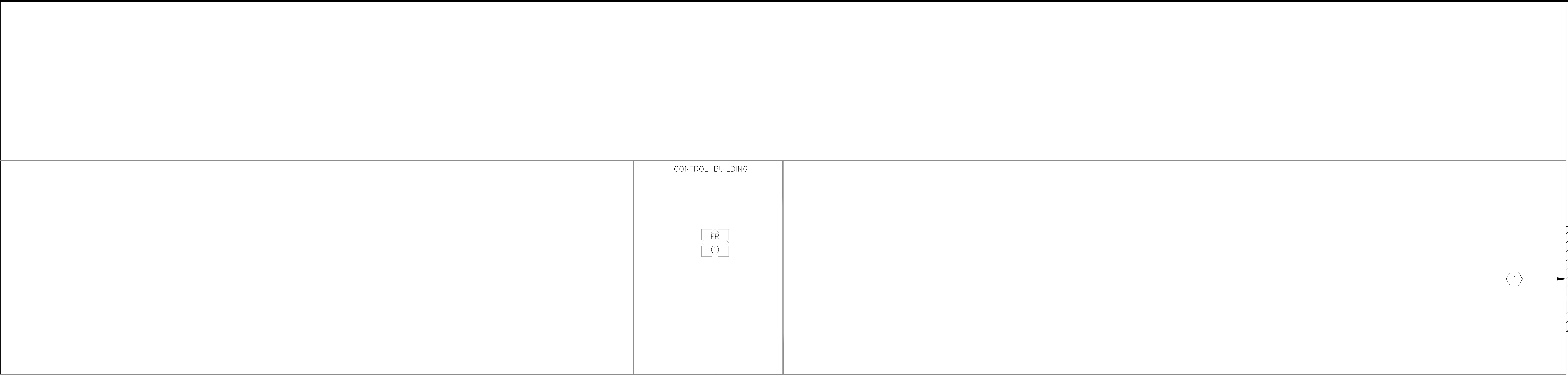
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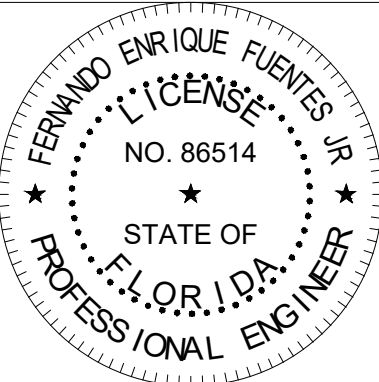
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- # KEYNOTES
1. LOCATED IN EXISTING CCP1 CABINET IN EXISTING HEADWORKS ELECTRICAL ROOM TO BE DEMOED UPON FINAL ACCEPTANCE OF NEW HEADWORKS FACILITY MASTER INFLUENT LIFT STATION CONTROL PANEL.

DEMO =

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PREPARED FOR
ENGLEWOOD WATER DISTRICT

RK CONSULTING ENGINEERS
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**P&ID
EXISTING INFLUENT METERING**

SHEET NUMBER

103

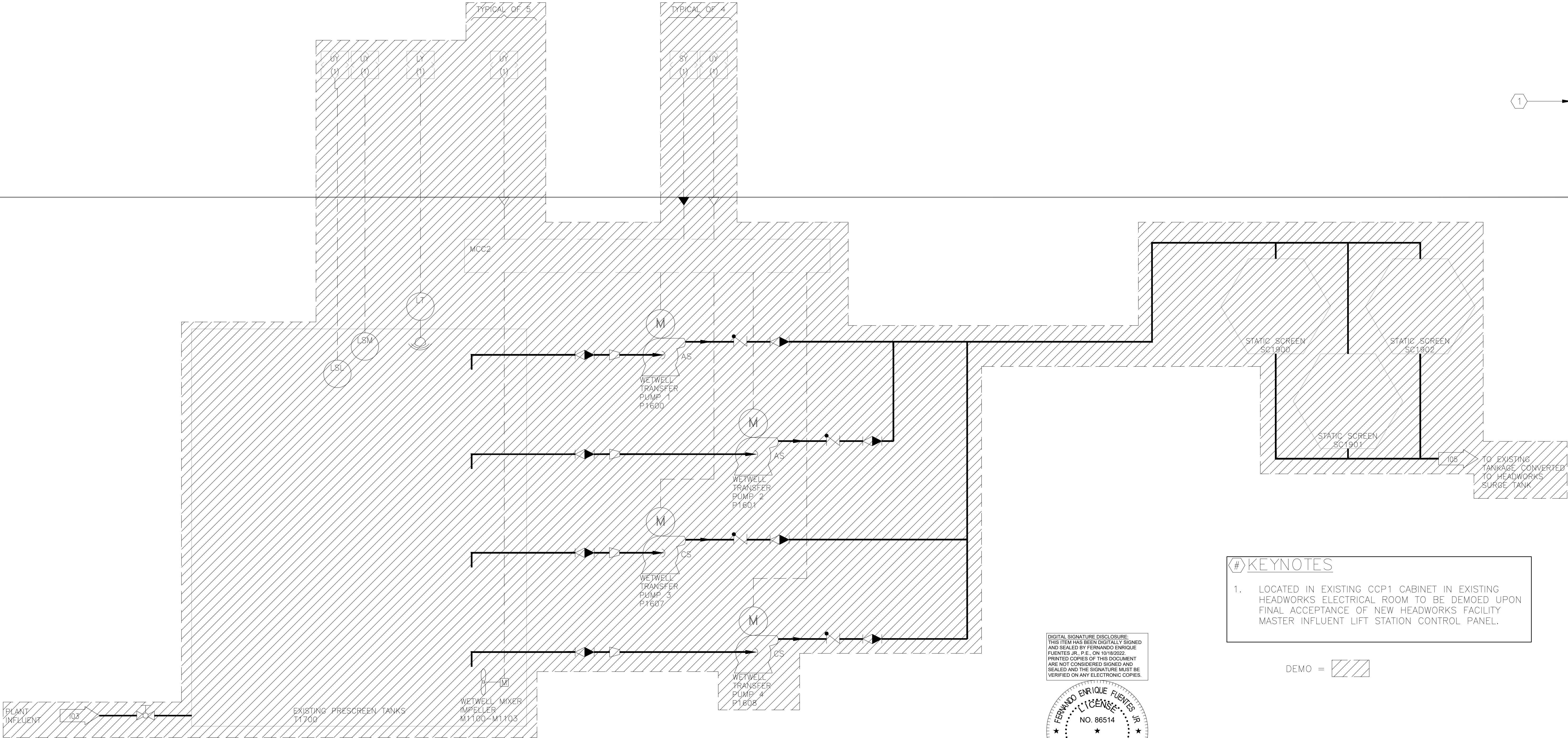
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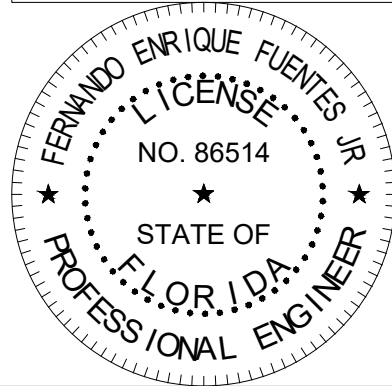
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PLC/COMPUTER

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EXISTING HEADWORKS
WETWELL TRANSFER &
STATIC SCREENS

SHEET NUMBER

104

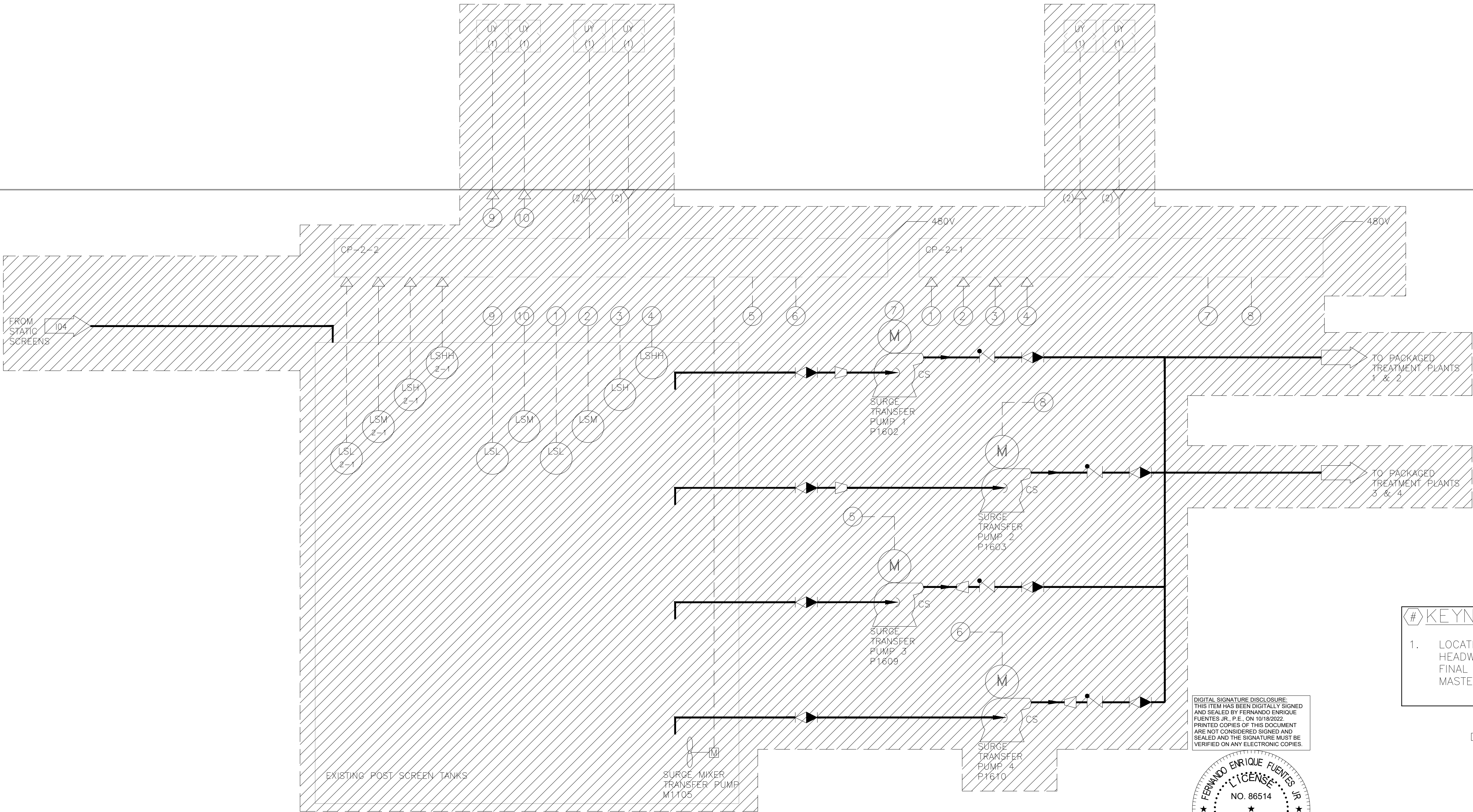
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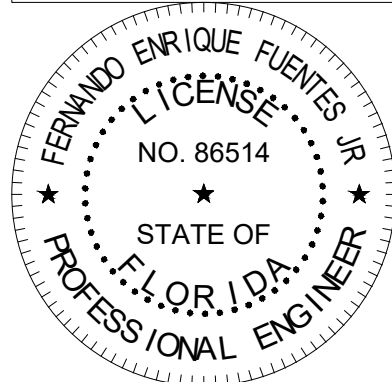
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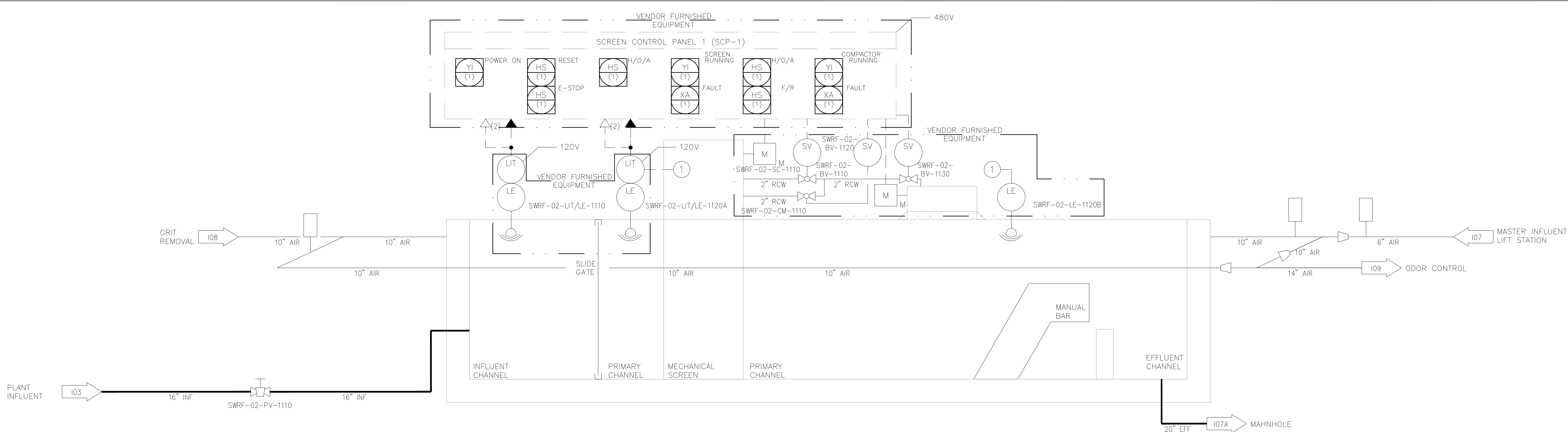
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EXISTING HEADWORKS
SURGE TRANSFER

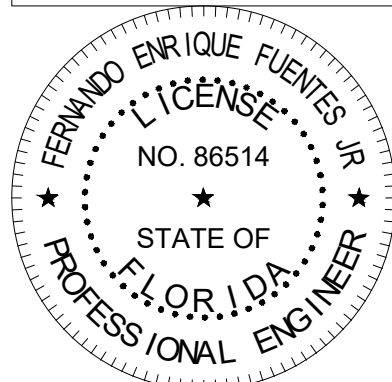
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PROCESS

MASTER INFLUENT LS PLC

PLANT CONTROLS

PLC/COMPUTER



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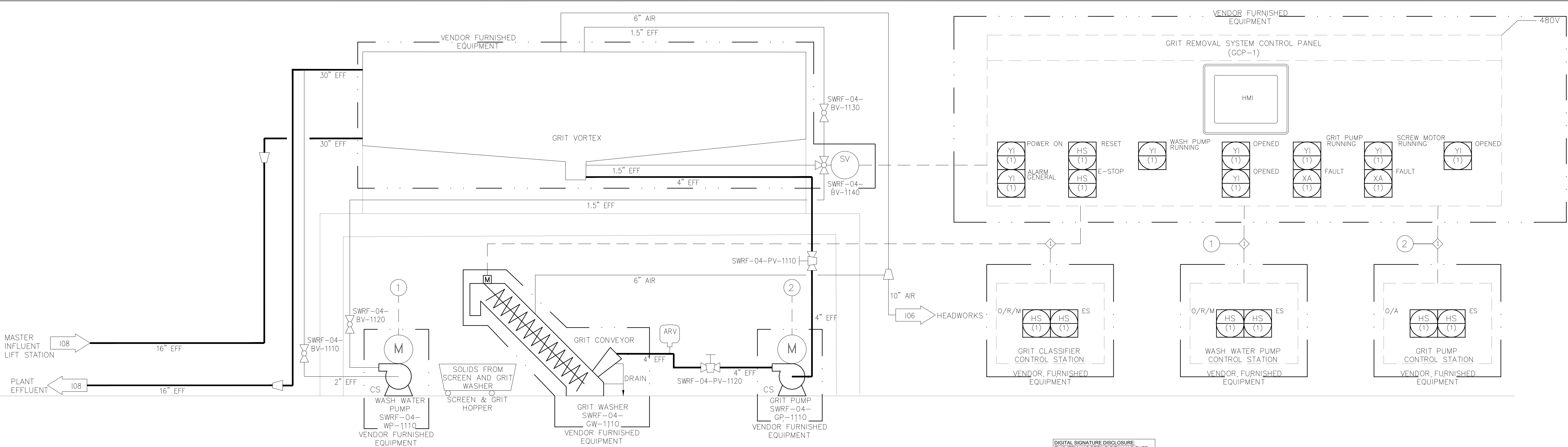
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P&ID
MASTER INFLUENT LIFT
STATION

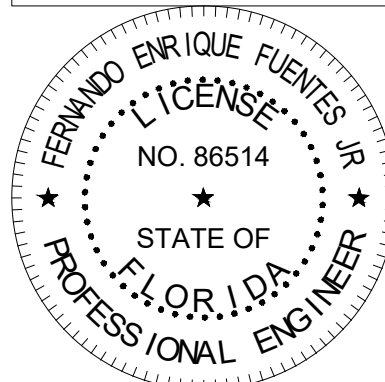
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SOUTH WATER RECLAMATION FACILITY HEADWORKS

PREPARED FOR

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P&ID
GRIT REMOVAL

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108

PROCESS

MASTER INFLUENT LS PLC

PLANT CONTROLS – PLC/COMPUTER



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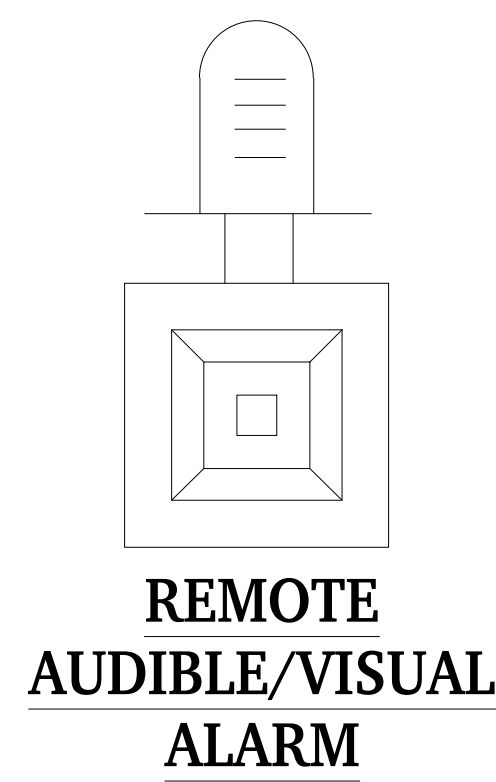
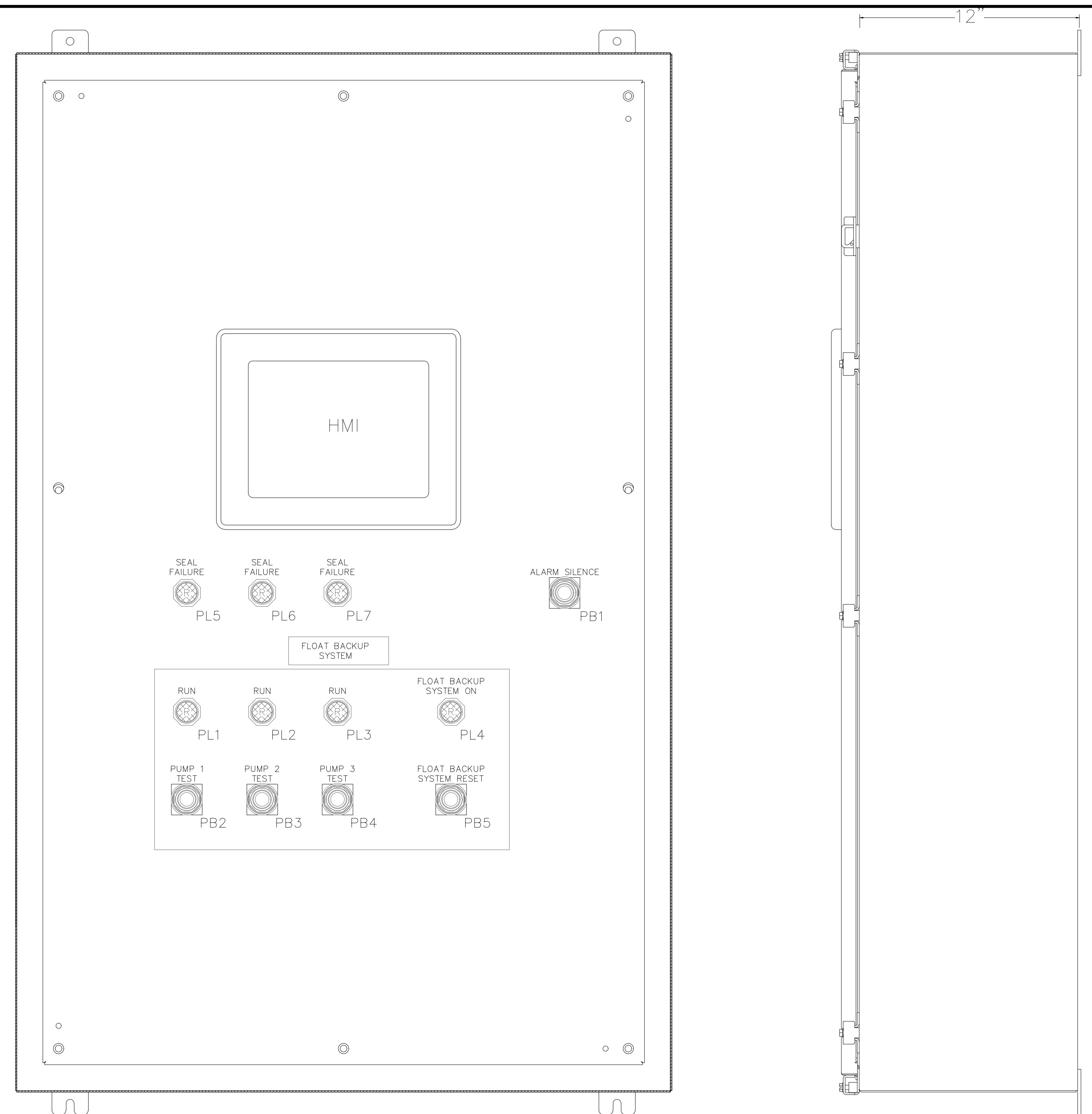
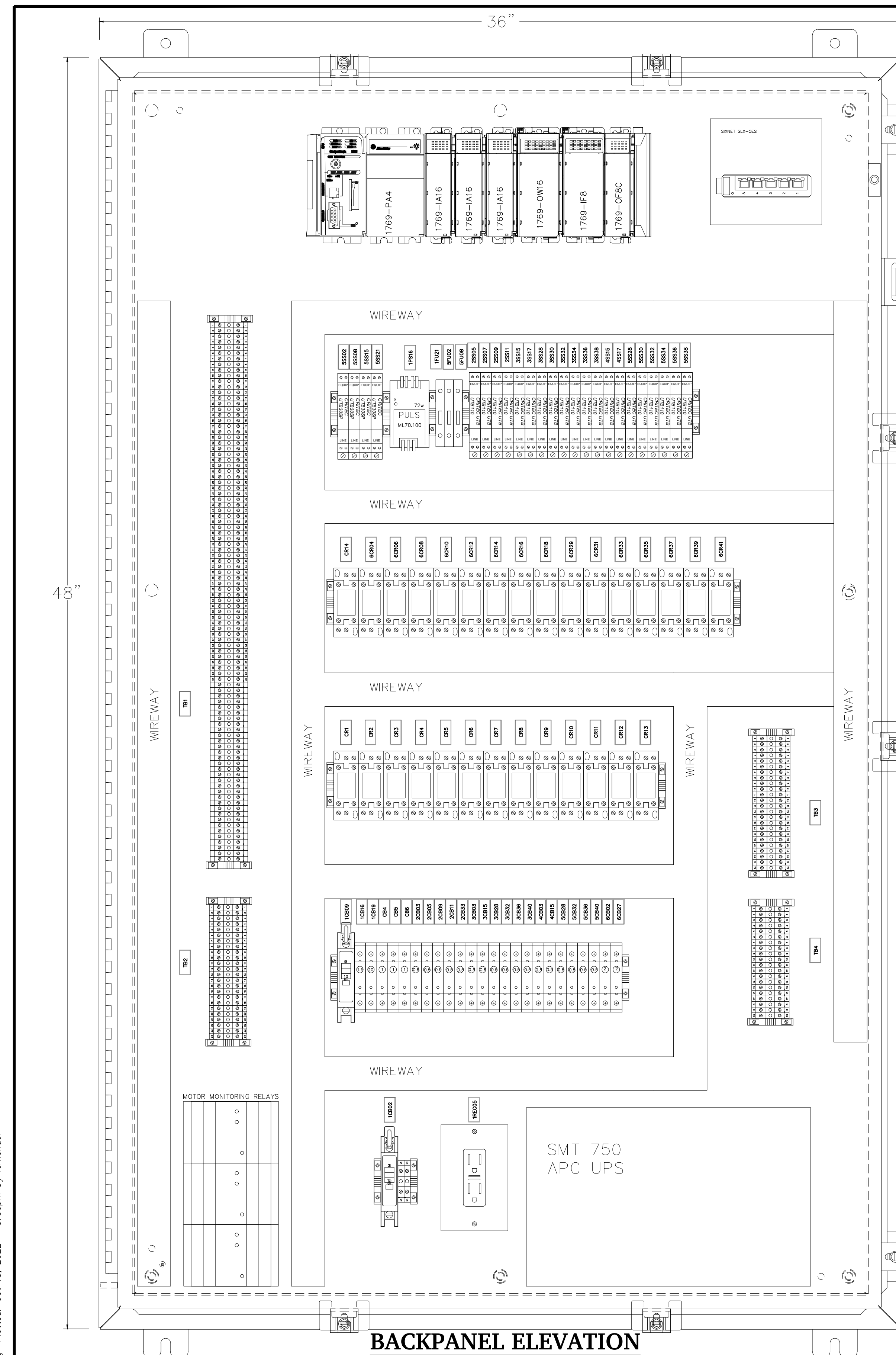
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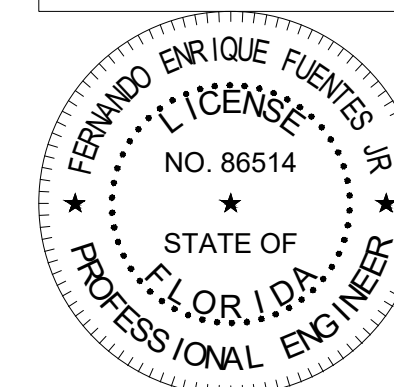
109



PANEL DEADFRONT ELEVATION

SIDE ELEVATION

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SOUTH WATER RECLAMATION FACILITY HEADWORKS

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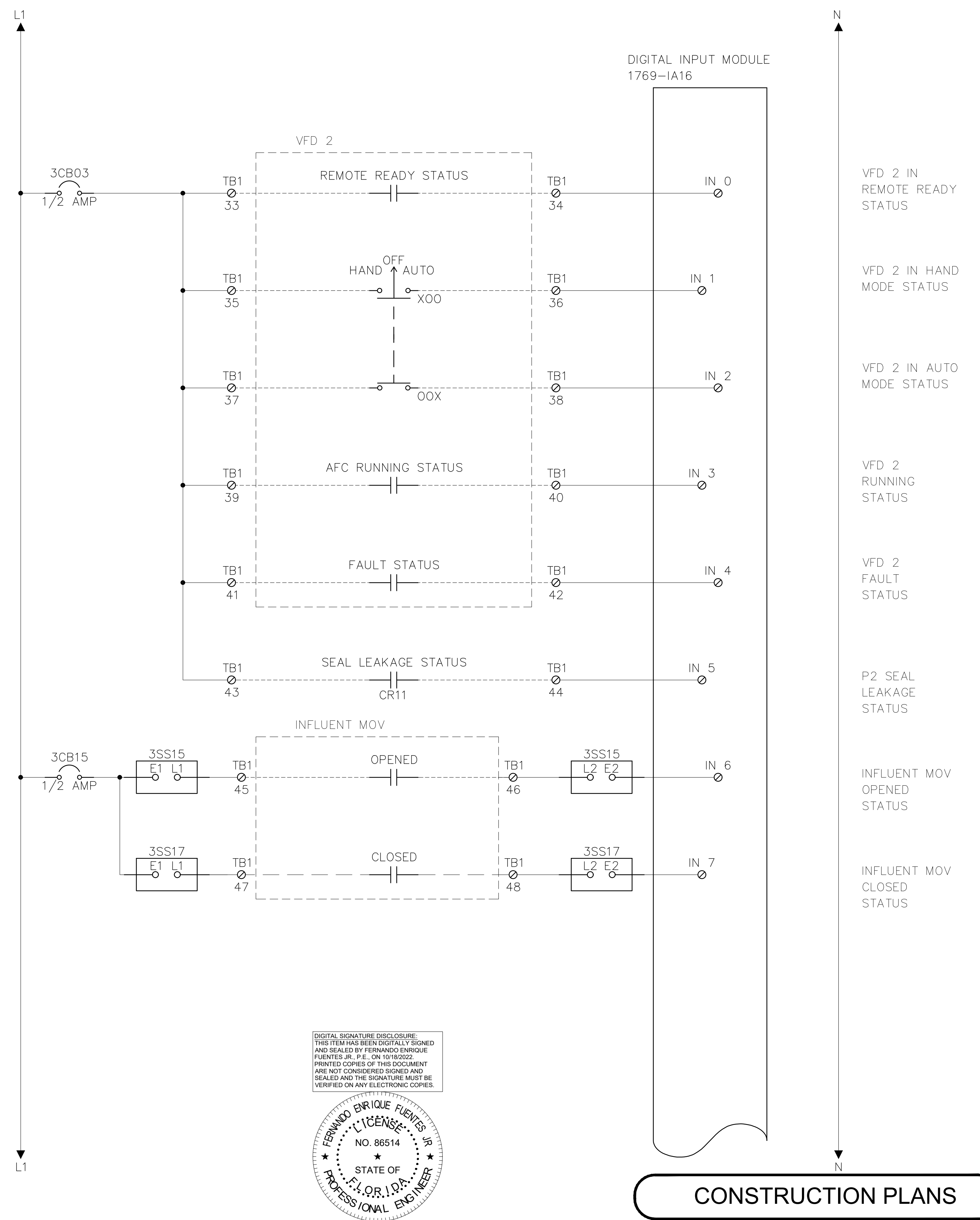
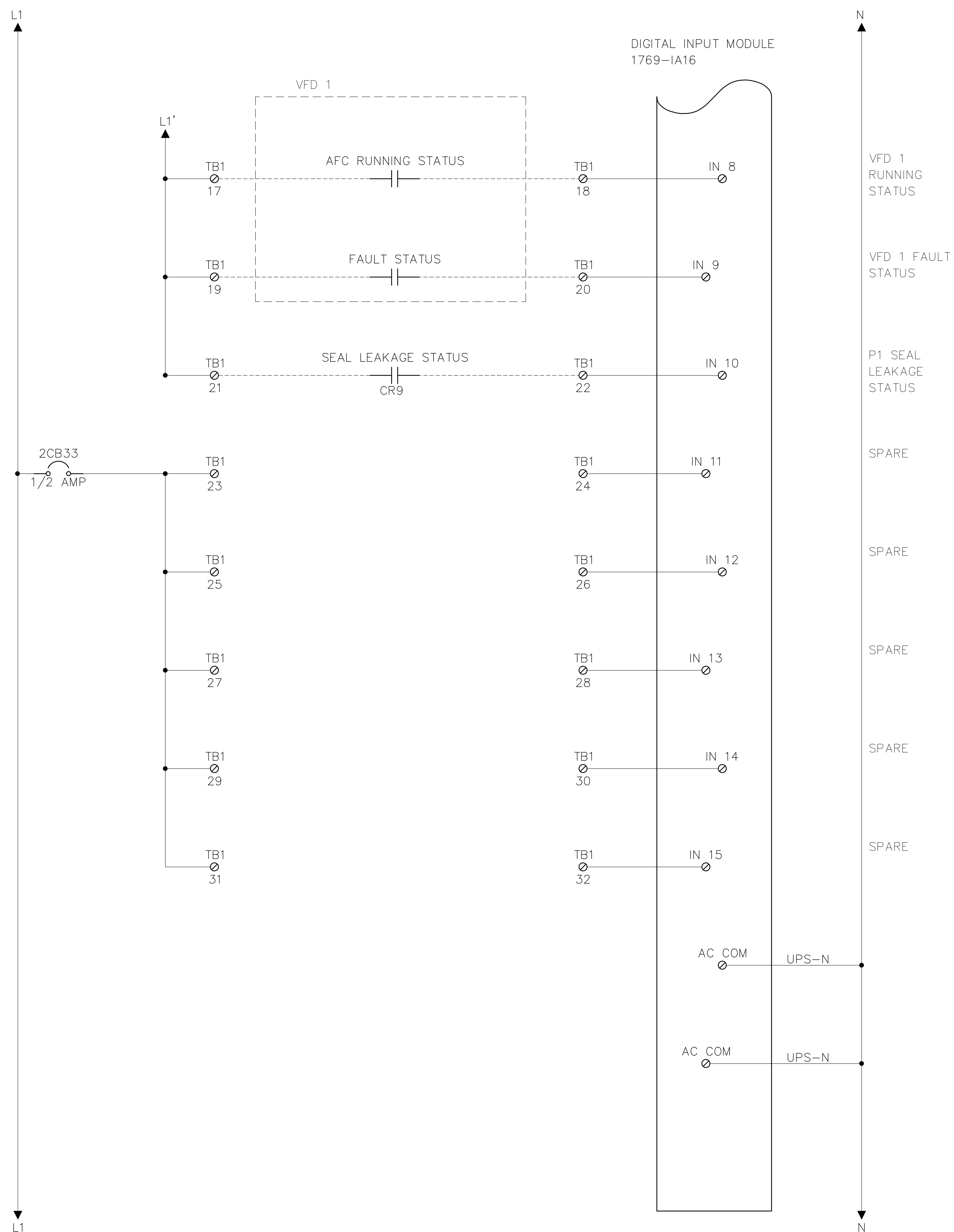


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MASTER INFLUENT LIFT STATION
PUMP CONTROL PANEL ELEVATION

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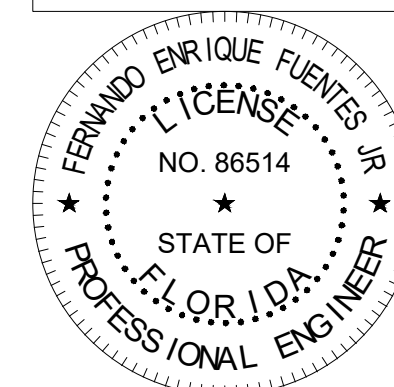
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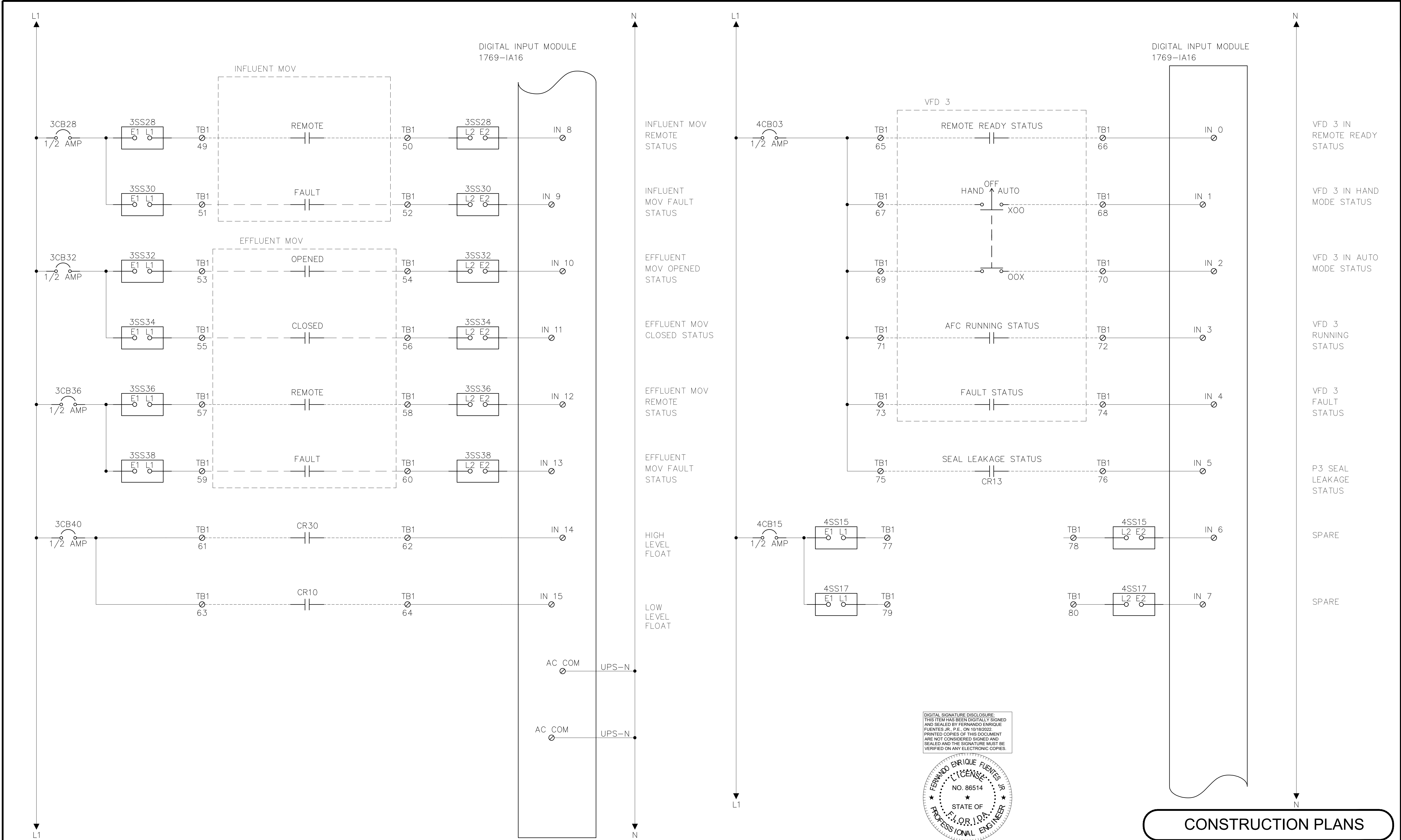
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MASTER INFLUENT LIFT STATION PUMP CONTROL PANEL ELEMENTARY DRAWING

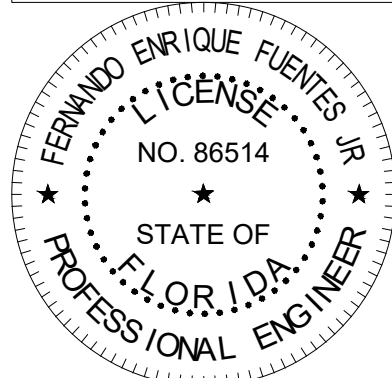
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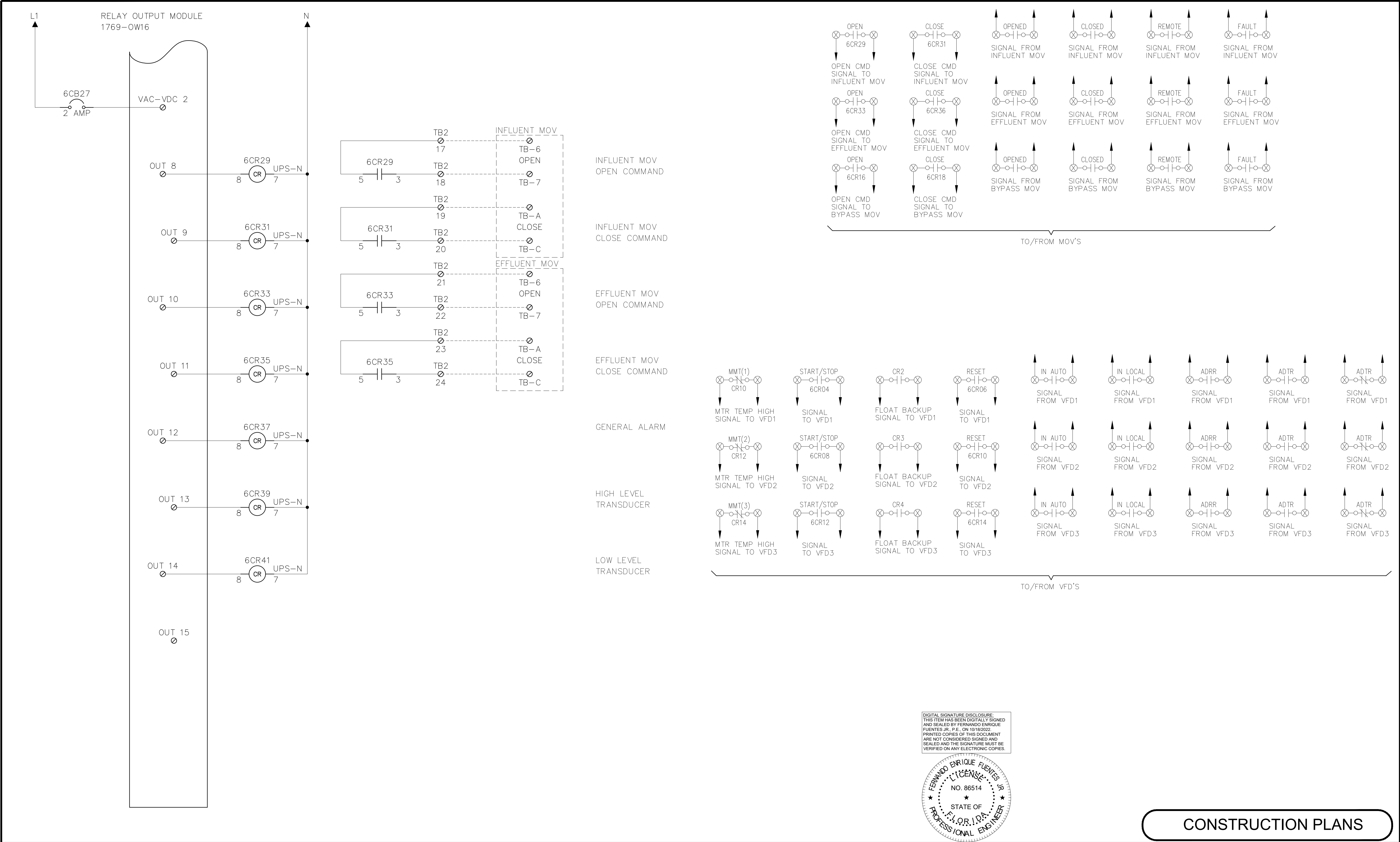
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PUMP CONTROL PANEL
ELEMENTARY DRAWING

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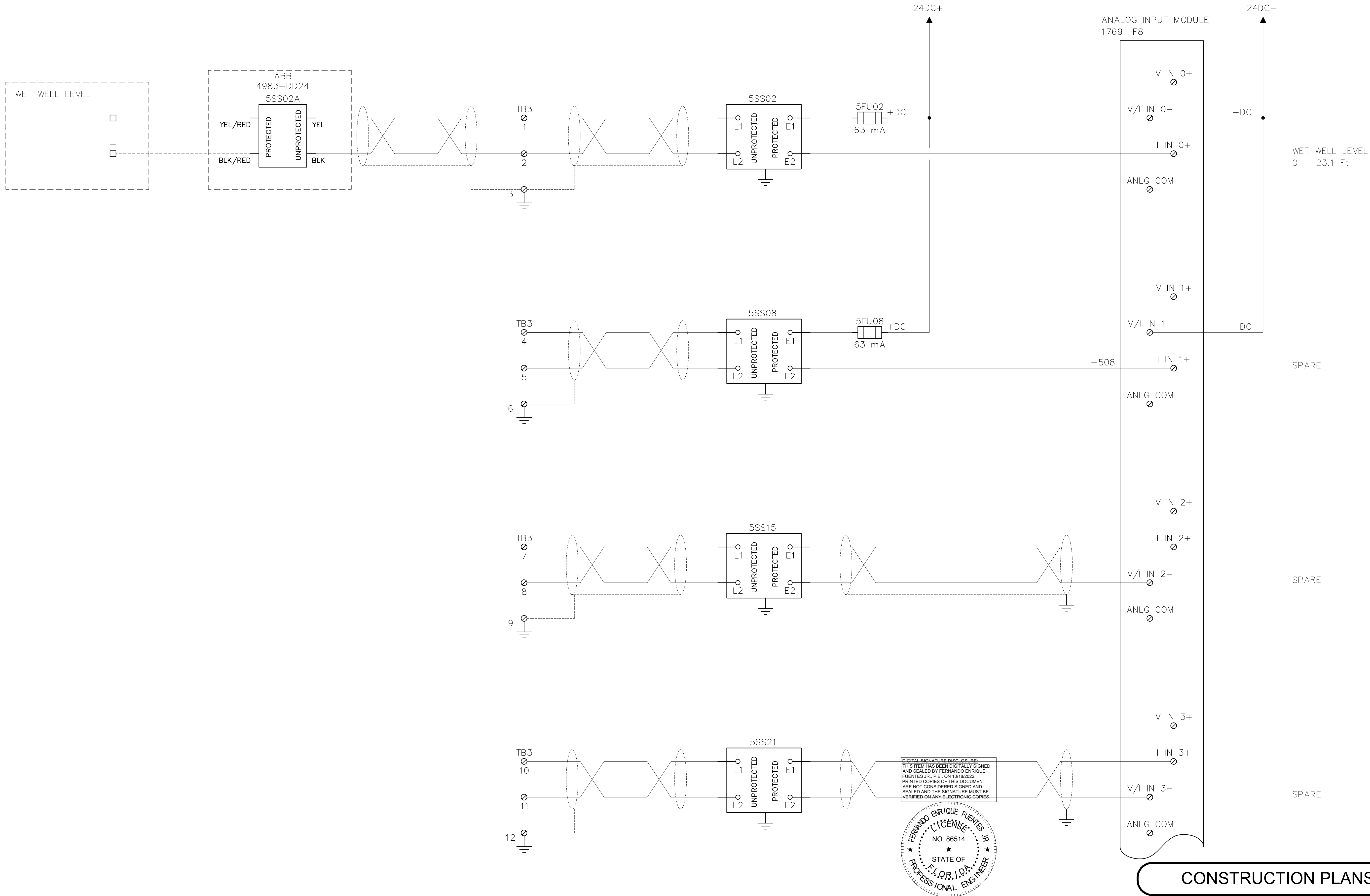
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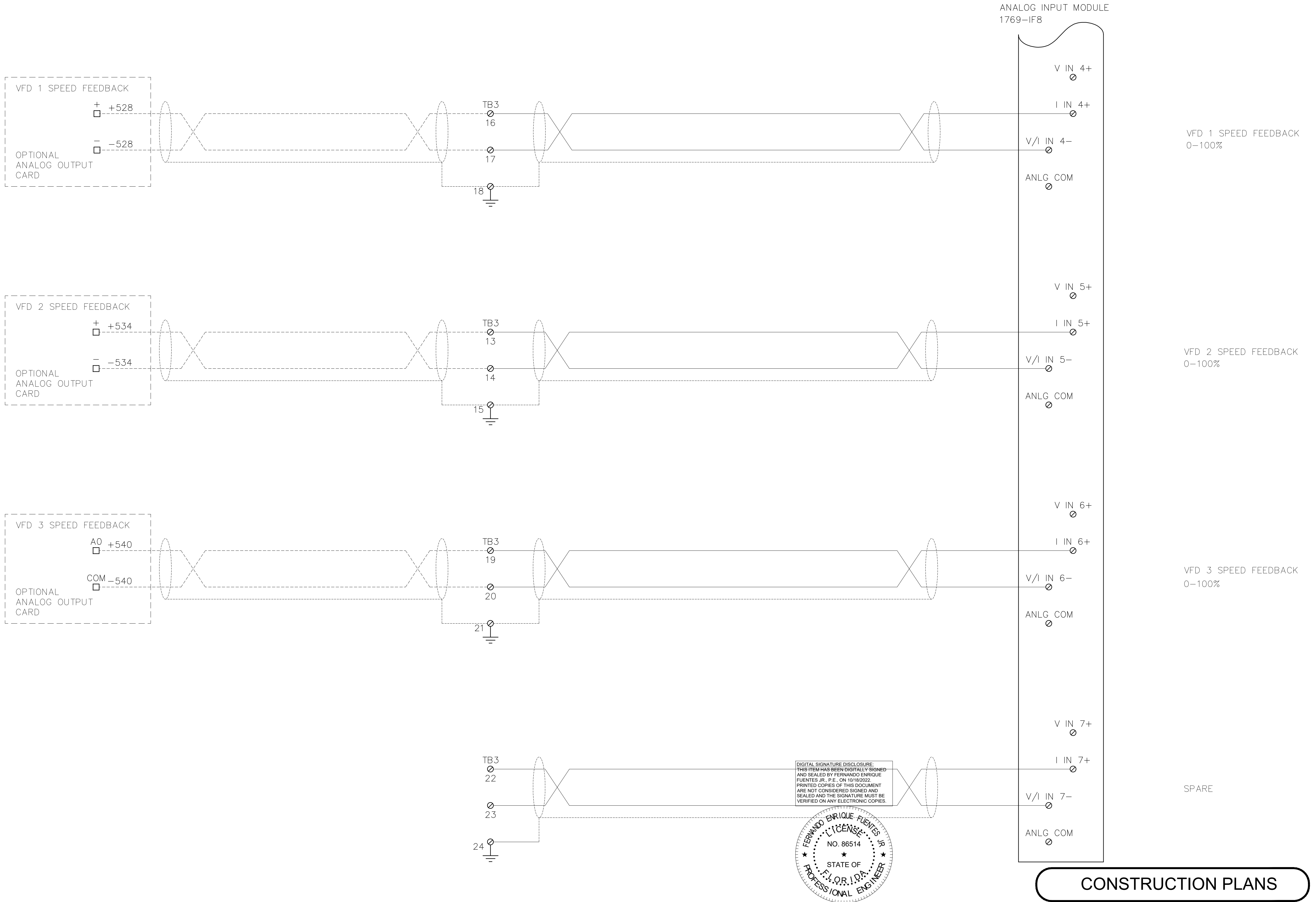
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239.481.6775 | Certificate of Authorization #8212

FERNANDO E. FUENTES JR., P.E. #86514 DATE

MASTER INFLUENT LIFT STATION
PUMP CONTROL PANEL
ELEMENTARY DRAWING

SHEET NUMBER
ID08

K:\Englewood Headworks\ID09.dwg Plotted: Oct 18, 2022 - 5:01pm by fernandof



No.	Revisions	By	Date



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PHONE: 239-271-2650
WWW.KIMLEY-HORN.COM REGISTRY No. 35106

KHA PROJECT
048104001

DATE
OCTOBER, 2022

SCALE: AS SHOWN

DESIGNED BY: F.E.F.JR.

DRAWN BY: F.E.F.JR.

CHECKED BY: T.M.P

SOUTH WATER RECLAMATION FACILITY
HEADWORKS

PREPARED FOR

ENGLEWOOD WATER DISTRICT

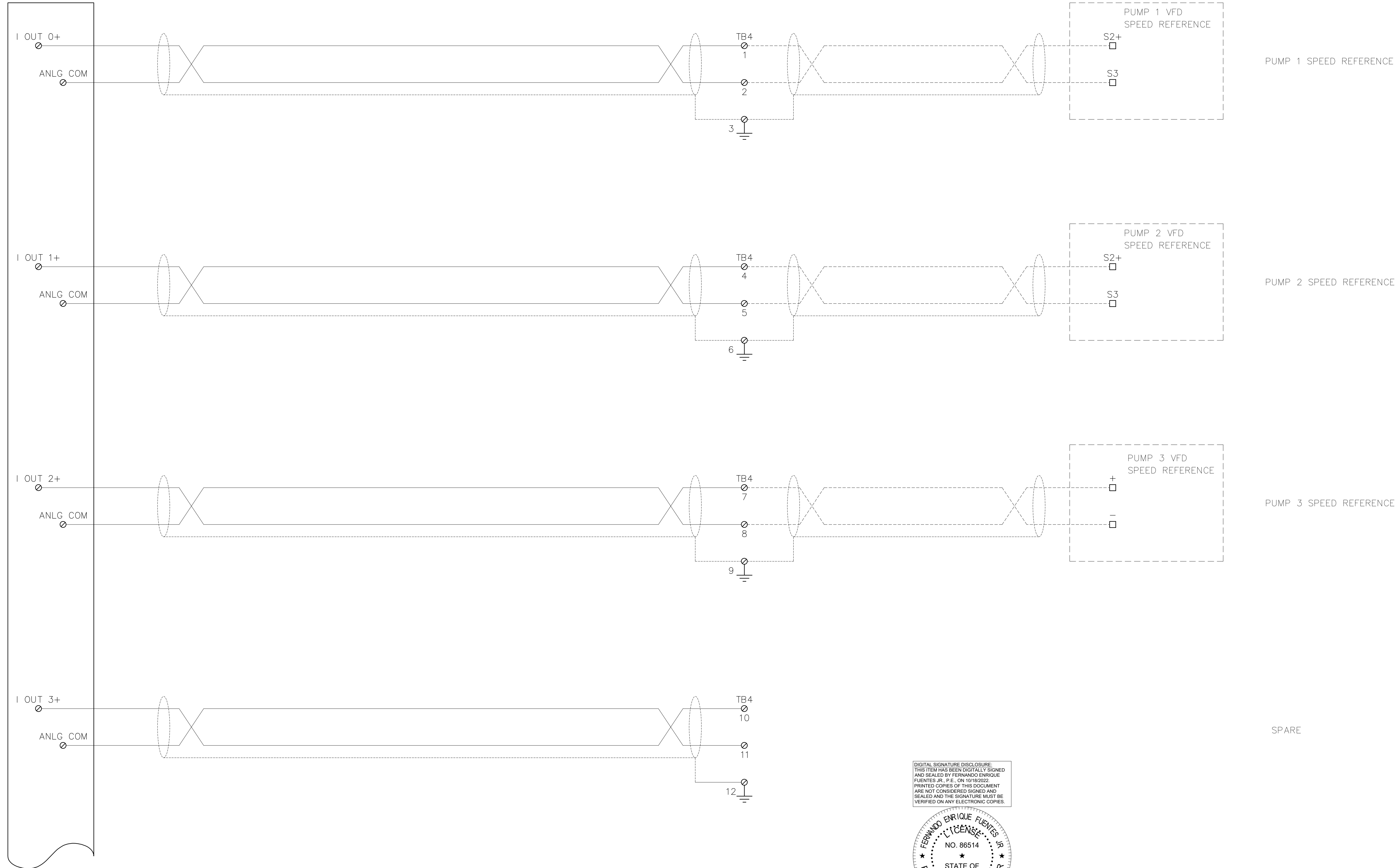
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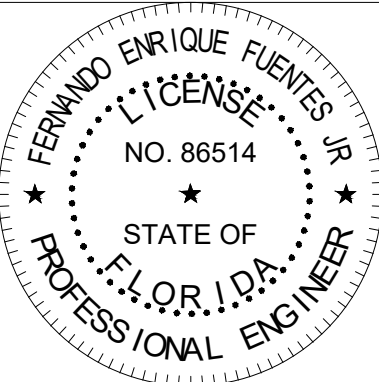
MASTER INFLUENT LIFT STATION
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PUMP CONTROL PANEL
ELEMENTARY DRAWING**

SHEET NUMBER

ID10

K:\Englewood Headworks\011.dwg Plotted: Oct 18, 2022 - 5:02pm by fernandof

ANALOG OUTPUT MODULE
1769-OF8C

I OUT 4+

ANLG COM

TB4

13

14

15

SPARE

I OUT 5+

ANLG COM

TB4

16

17

18

SPARE

I OUT 6+

ANLG COM

TB4

19

20

21

SPARE

I OUT 7+

ANLG COM

DC NEUT

+24V DC

TB4

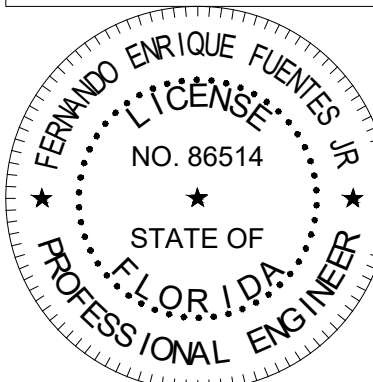
22

23

24

SPARE

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PUMP CONTROL PANEL
ELEMENTARY DRAWING**

SHEET NUMBER

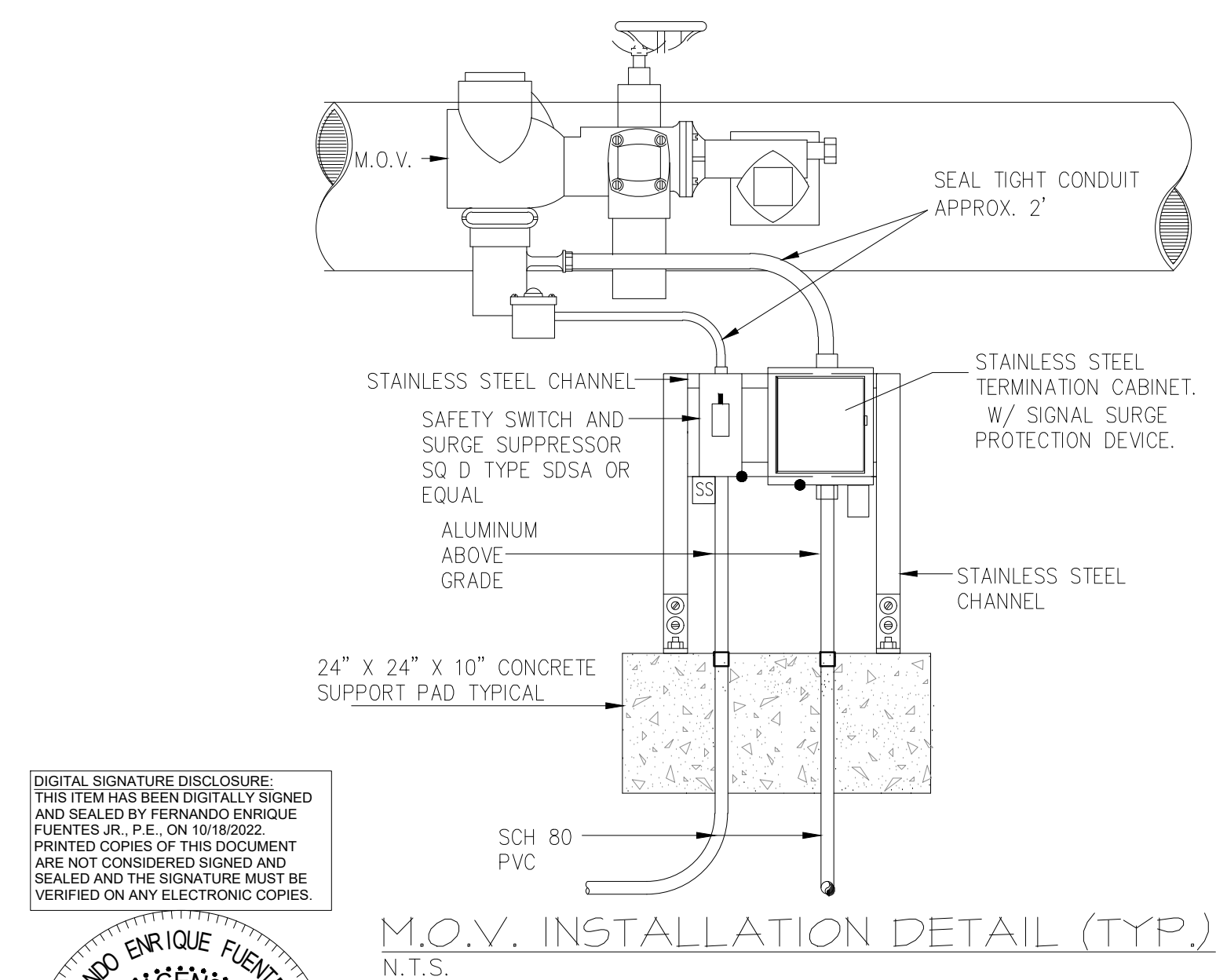
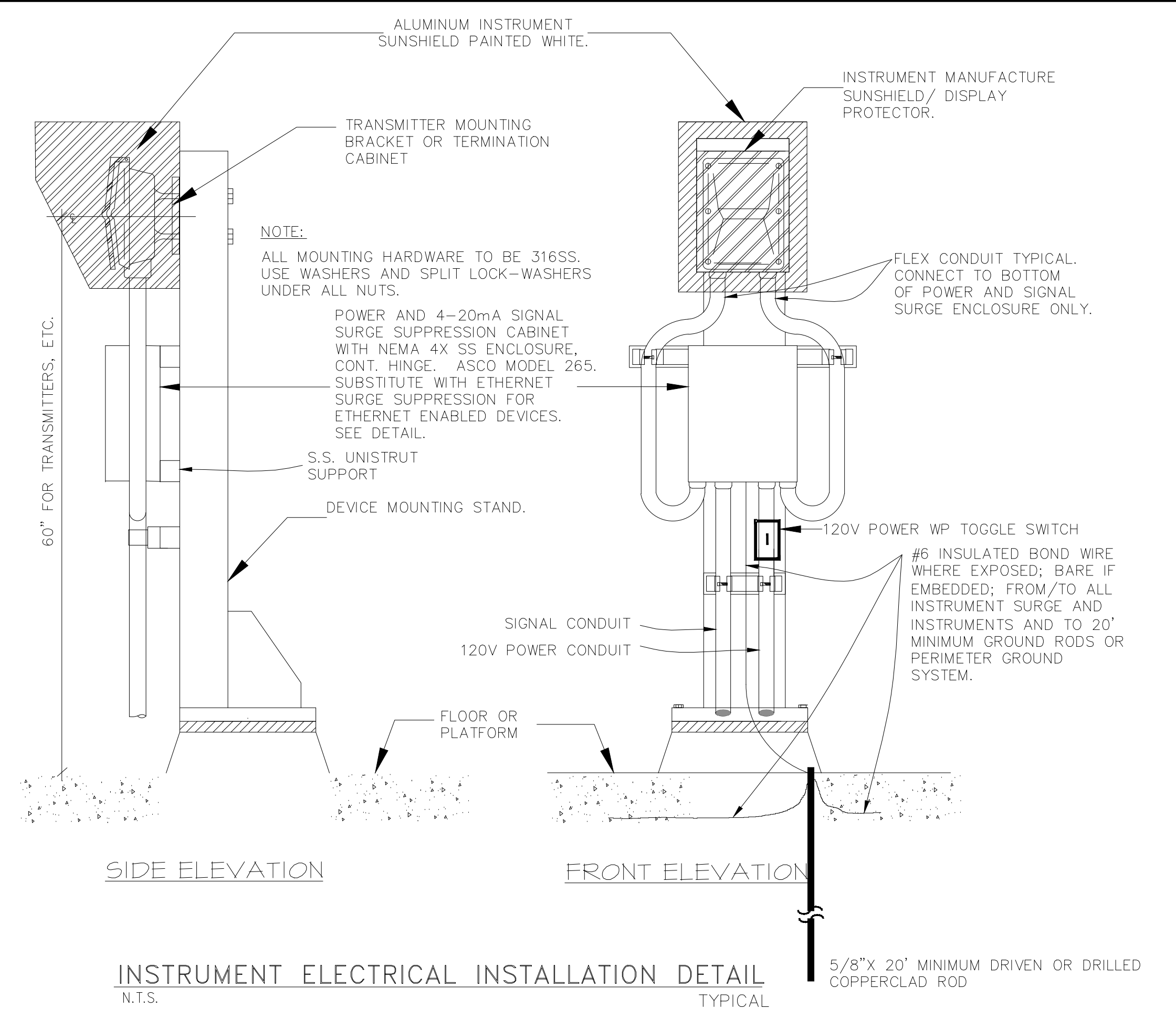
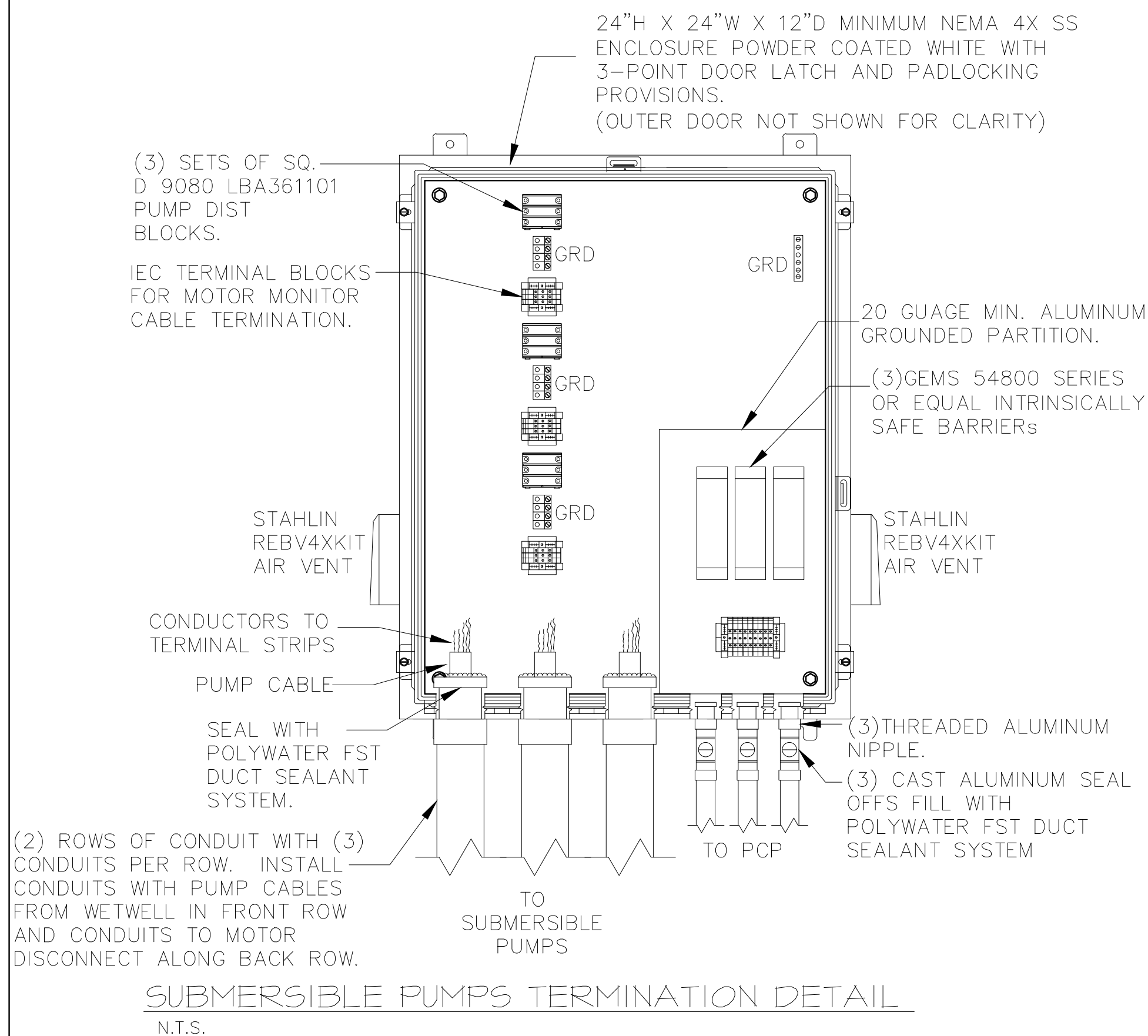
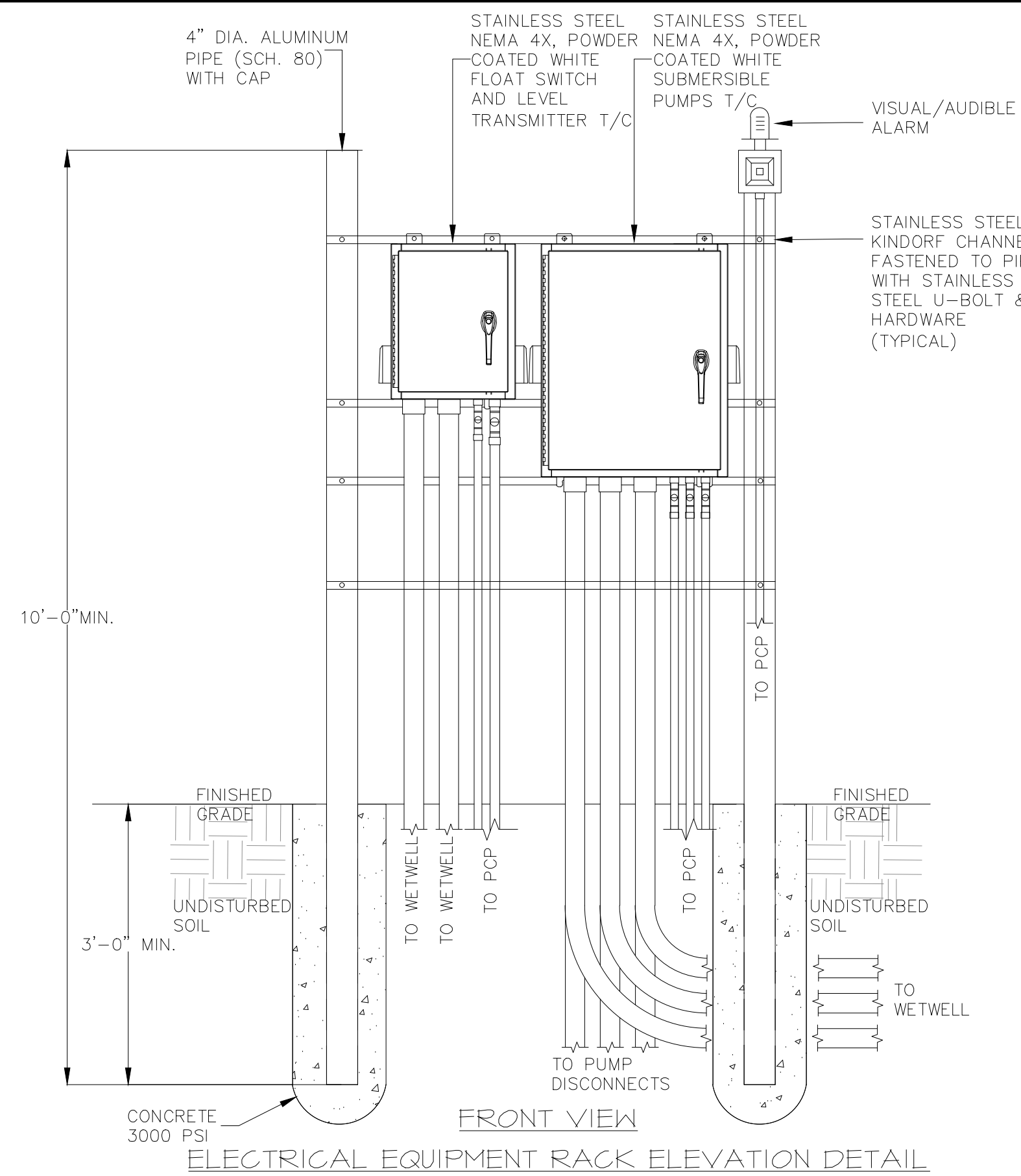
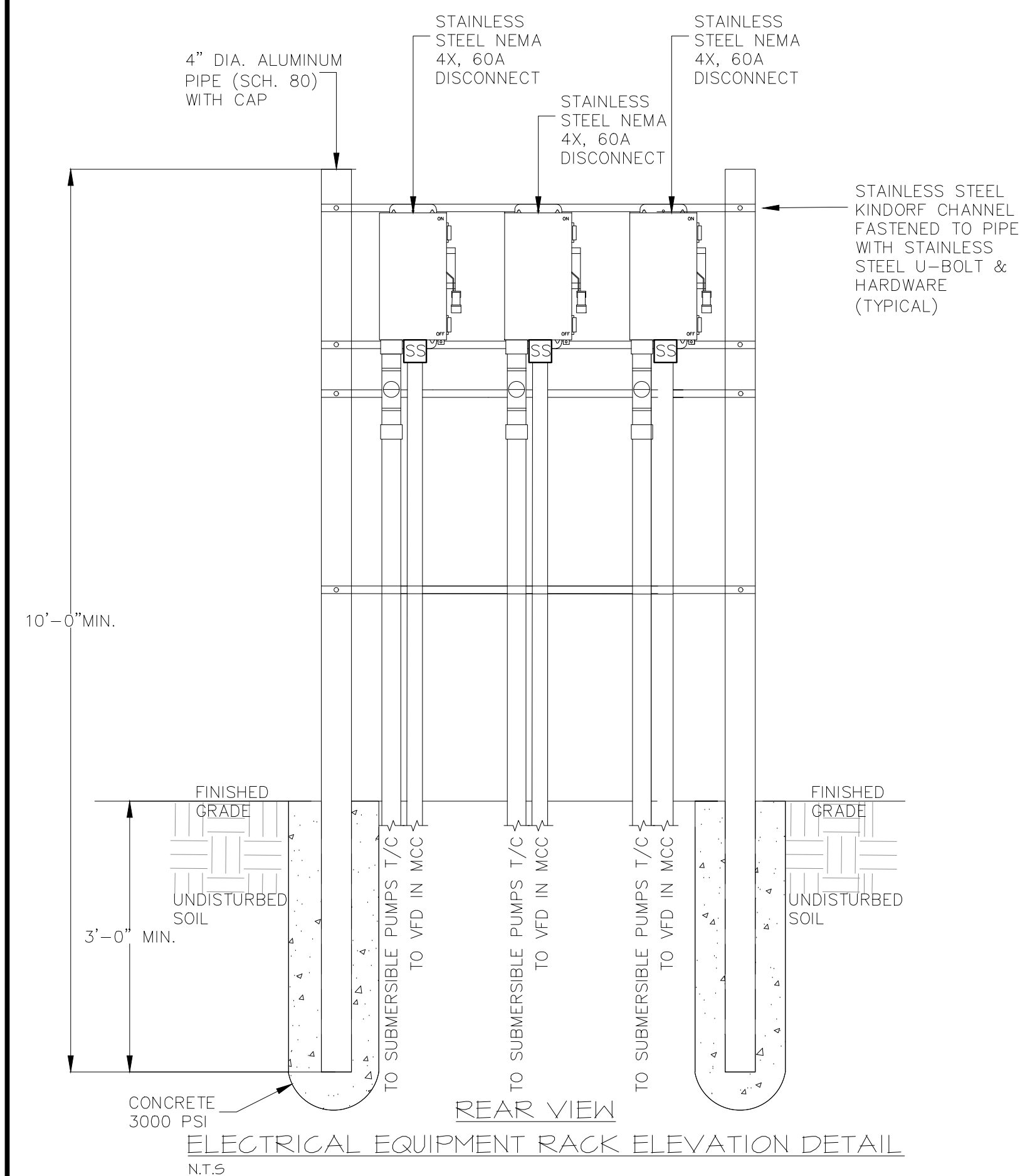
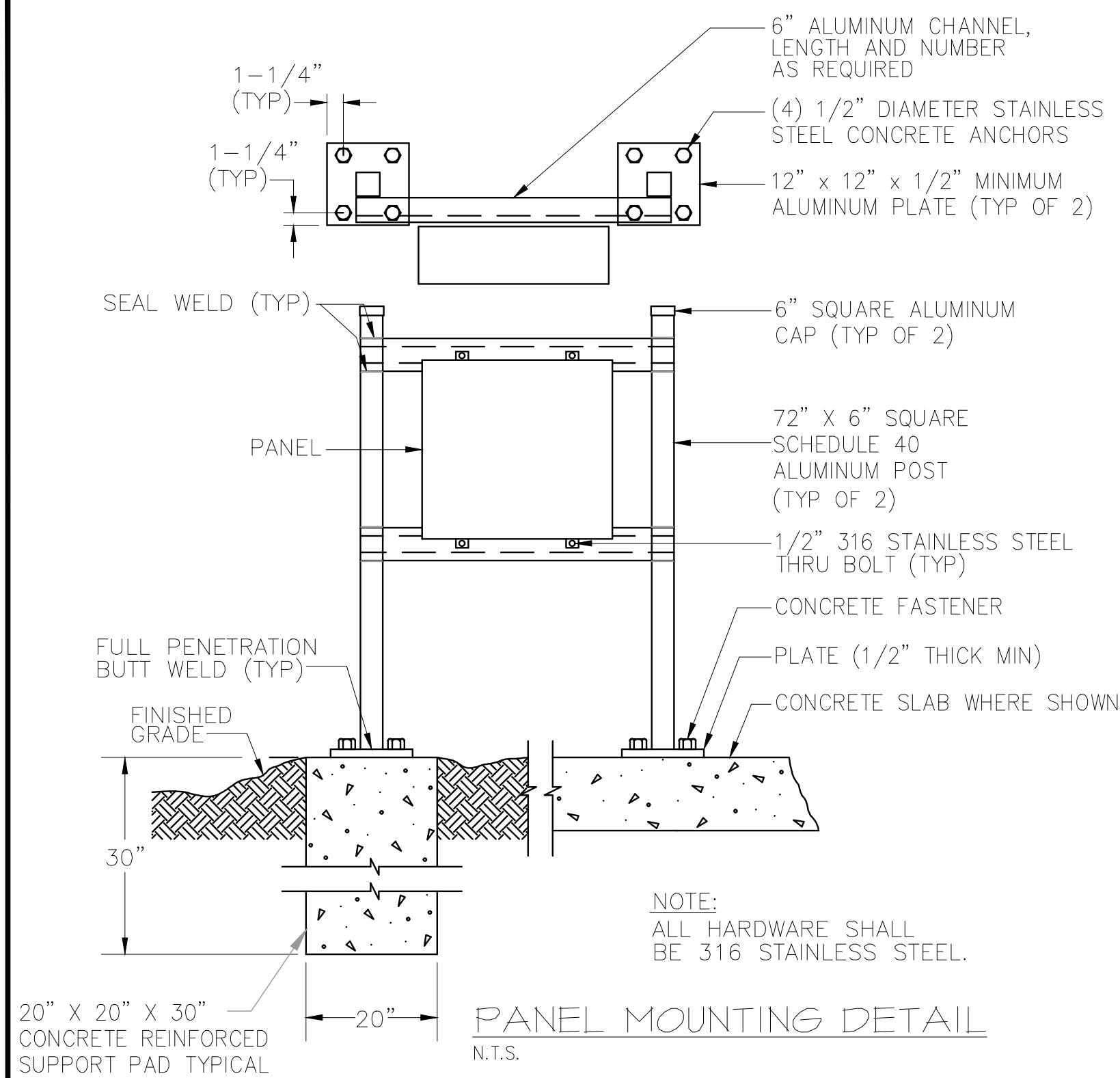
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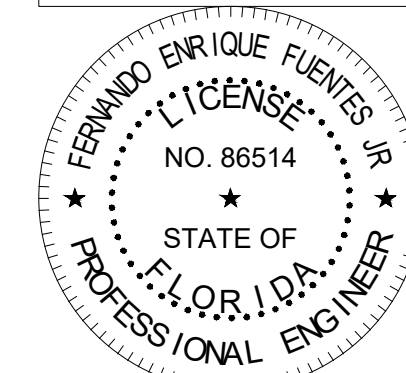
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By

Date



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PREPARED FOR

ENGLEWOOD WATER DISTRICT

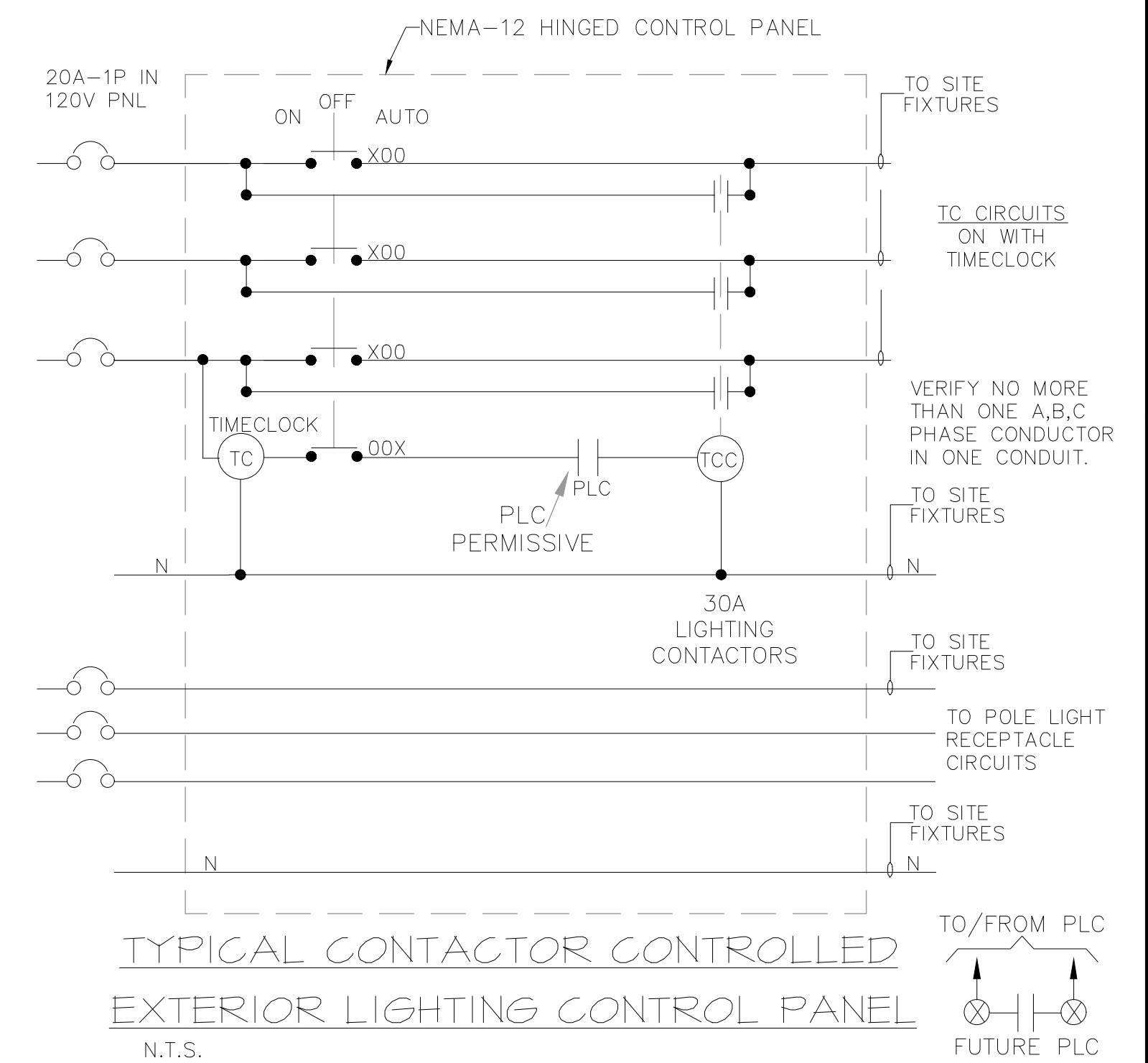
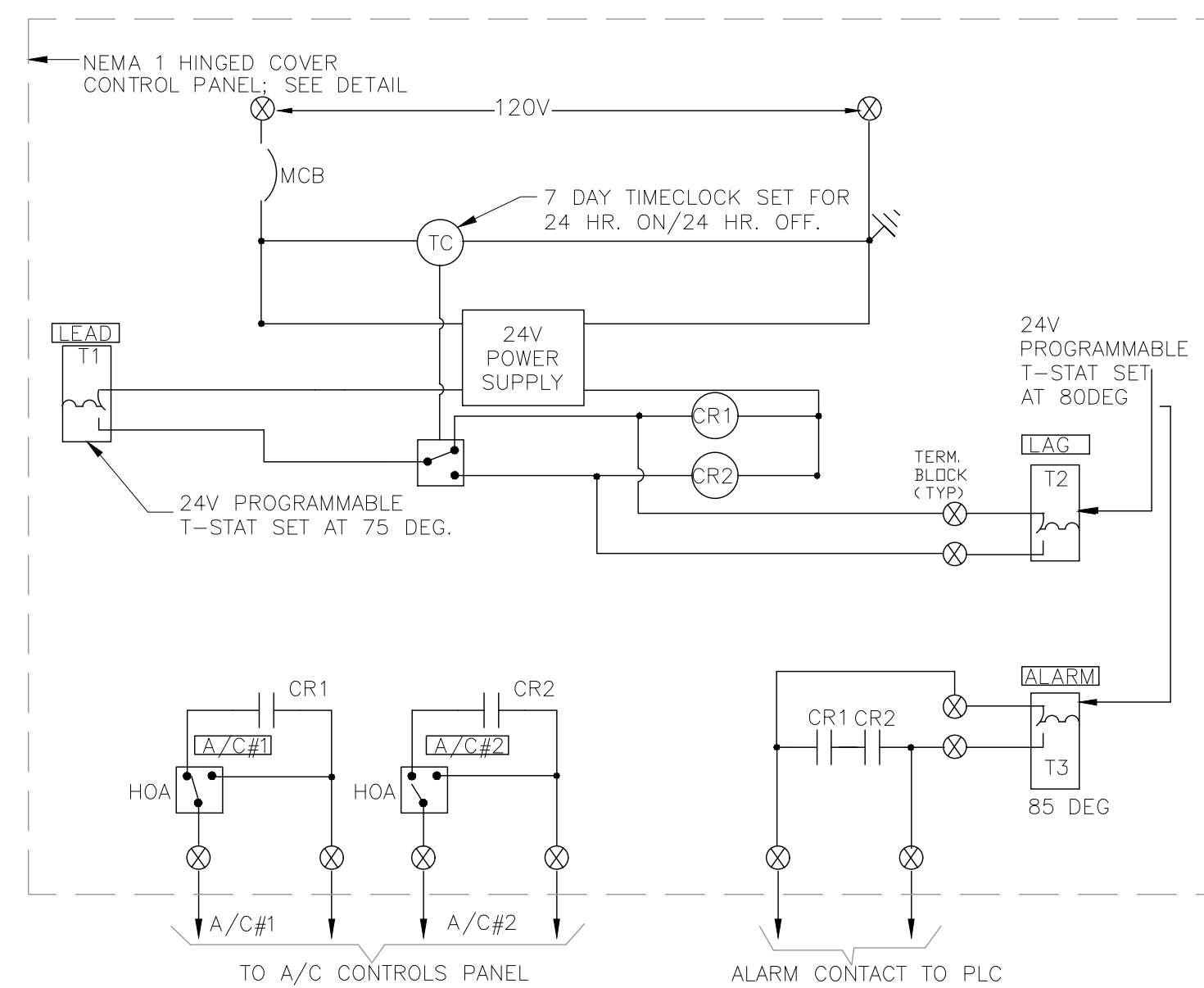
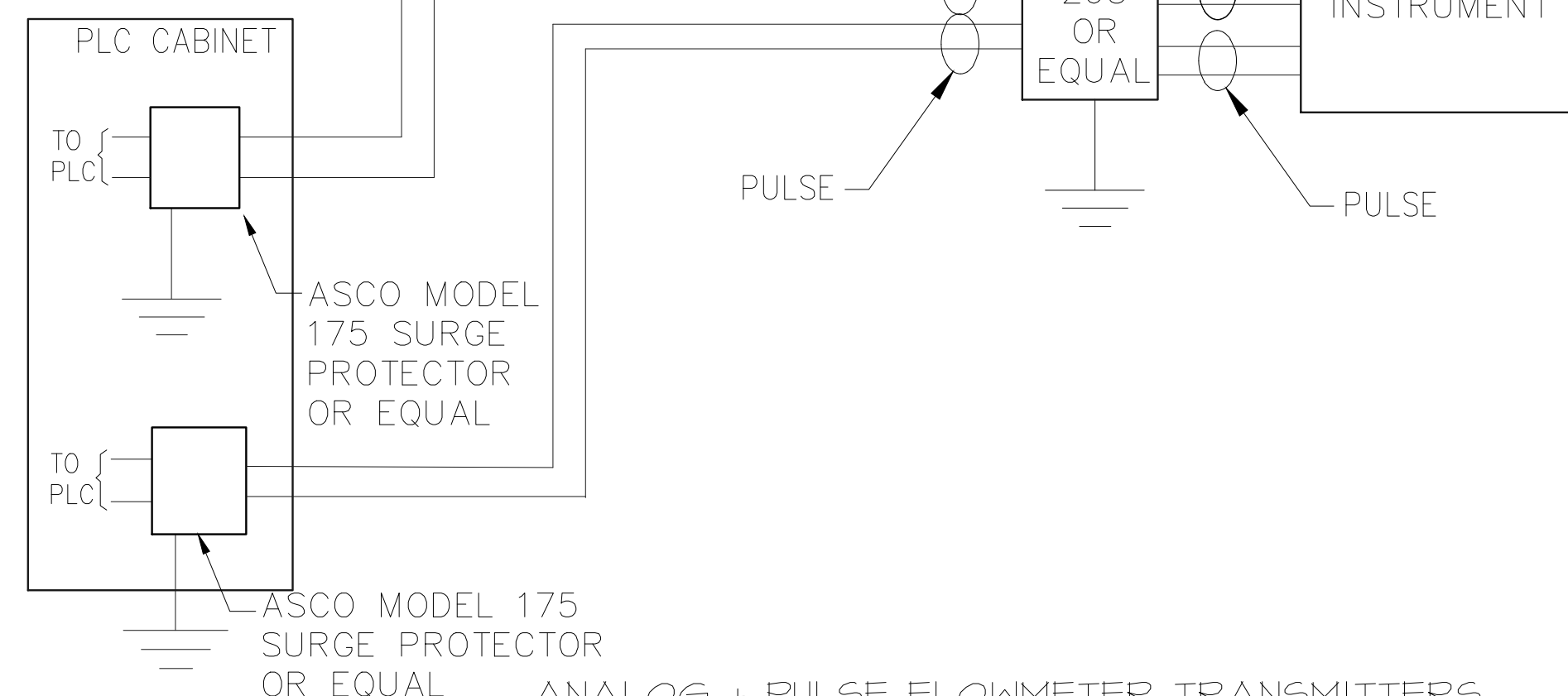
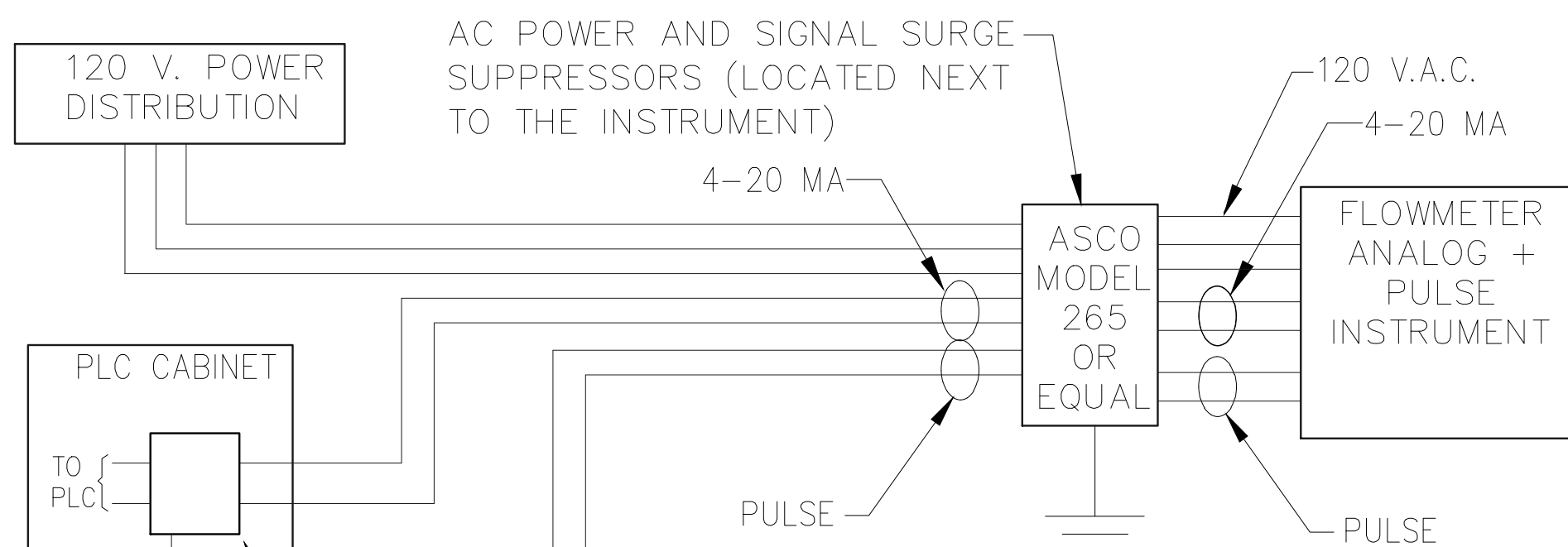
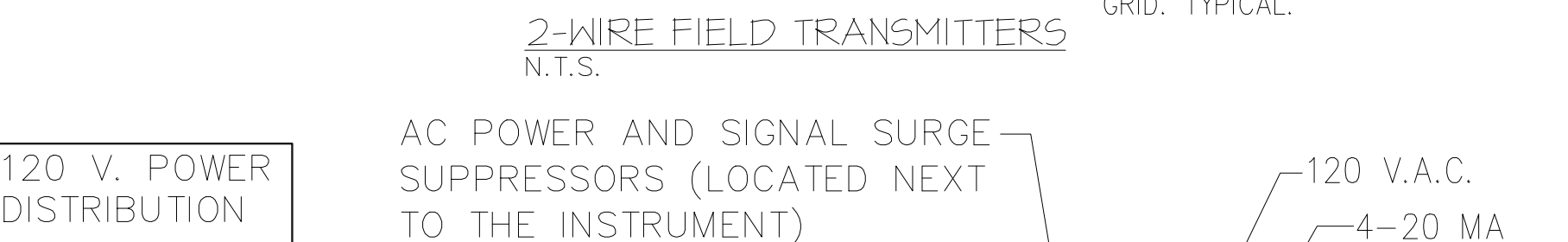
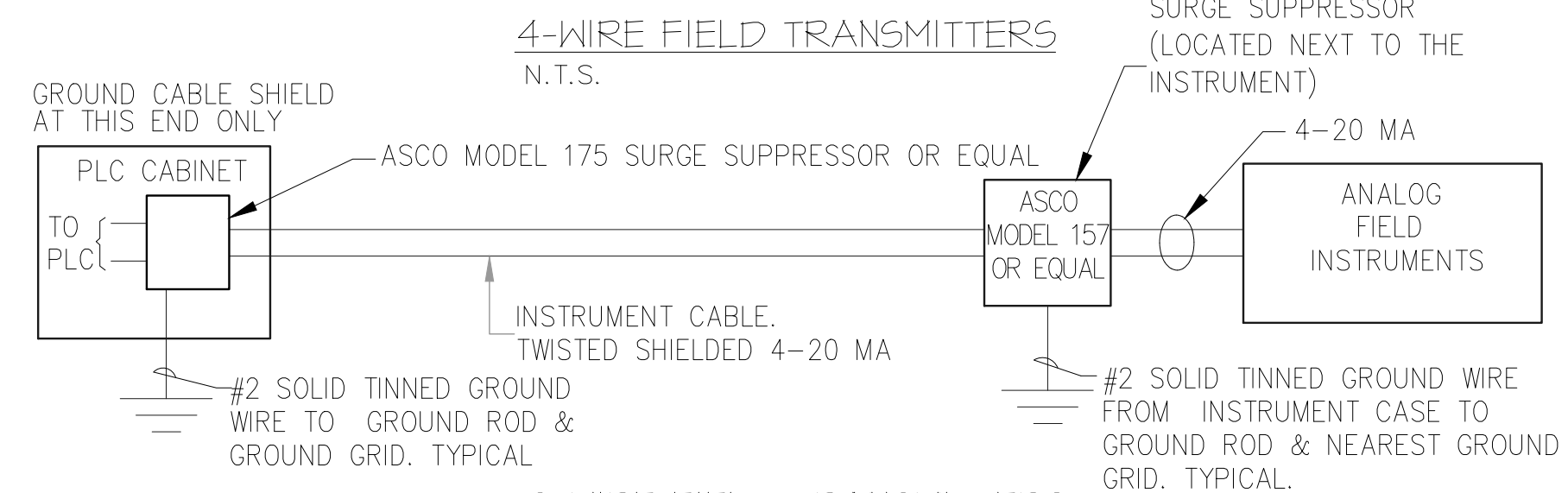
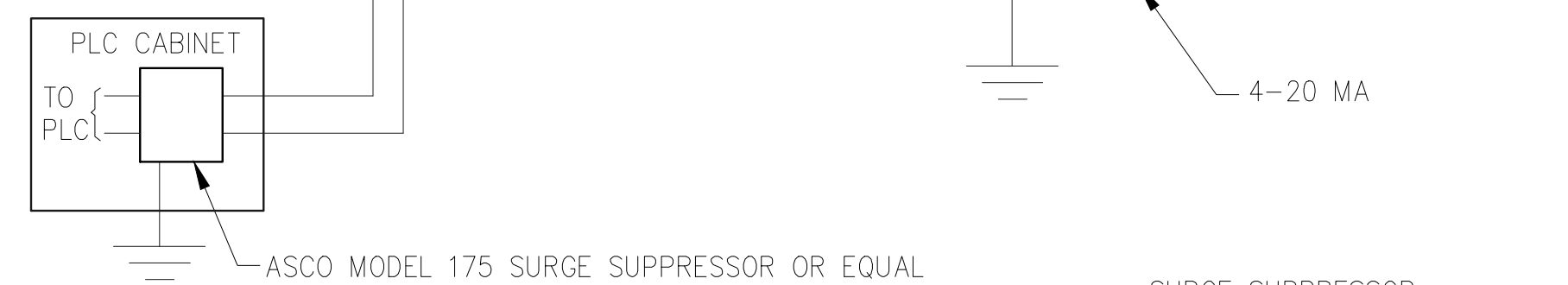
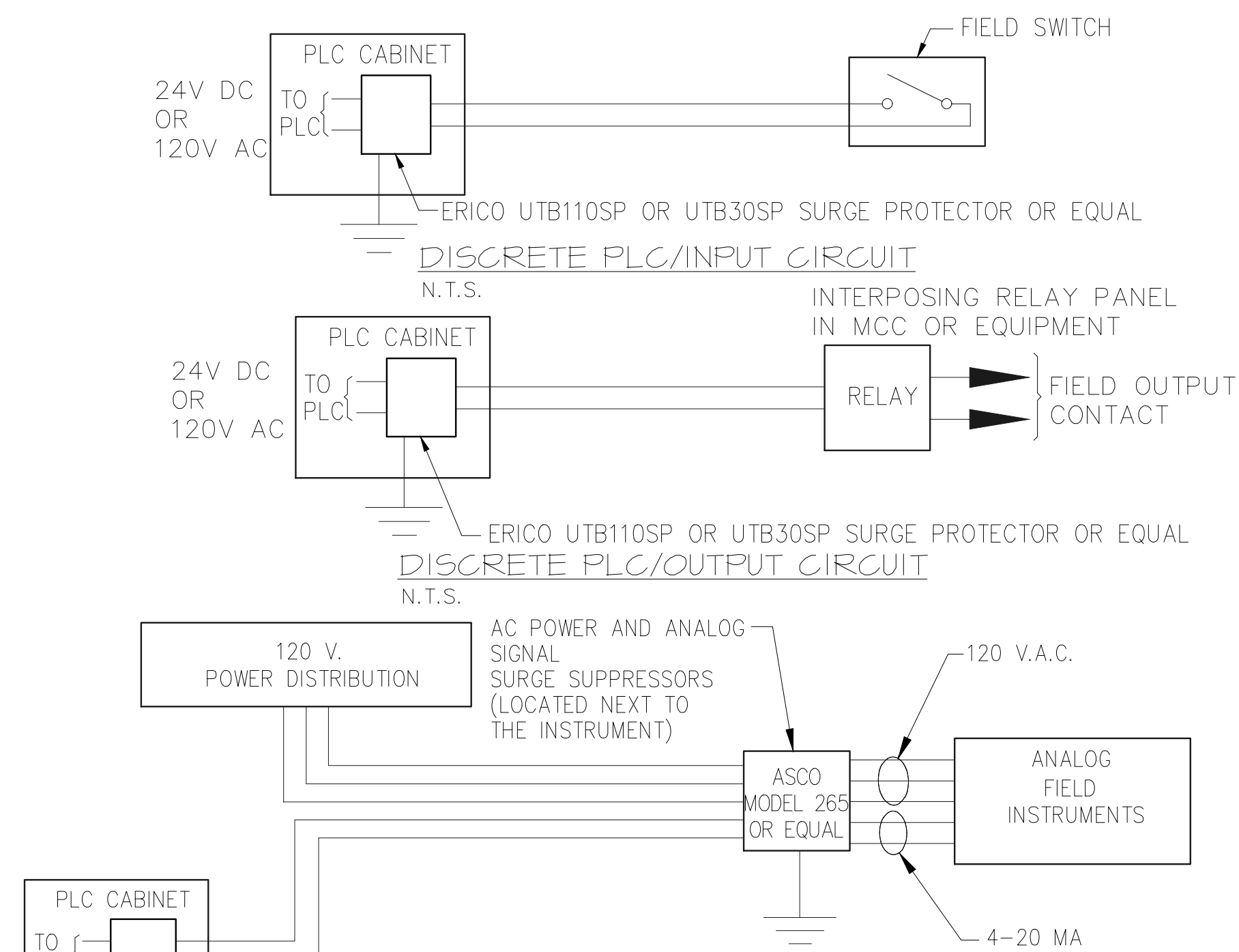
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FERNANDO E. FUENTES JR., P.E. #86514 DATE

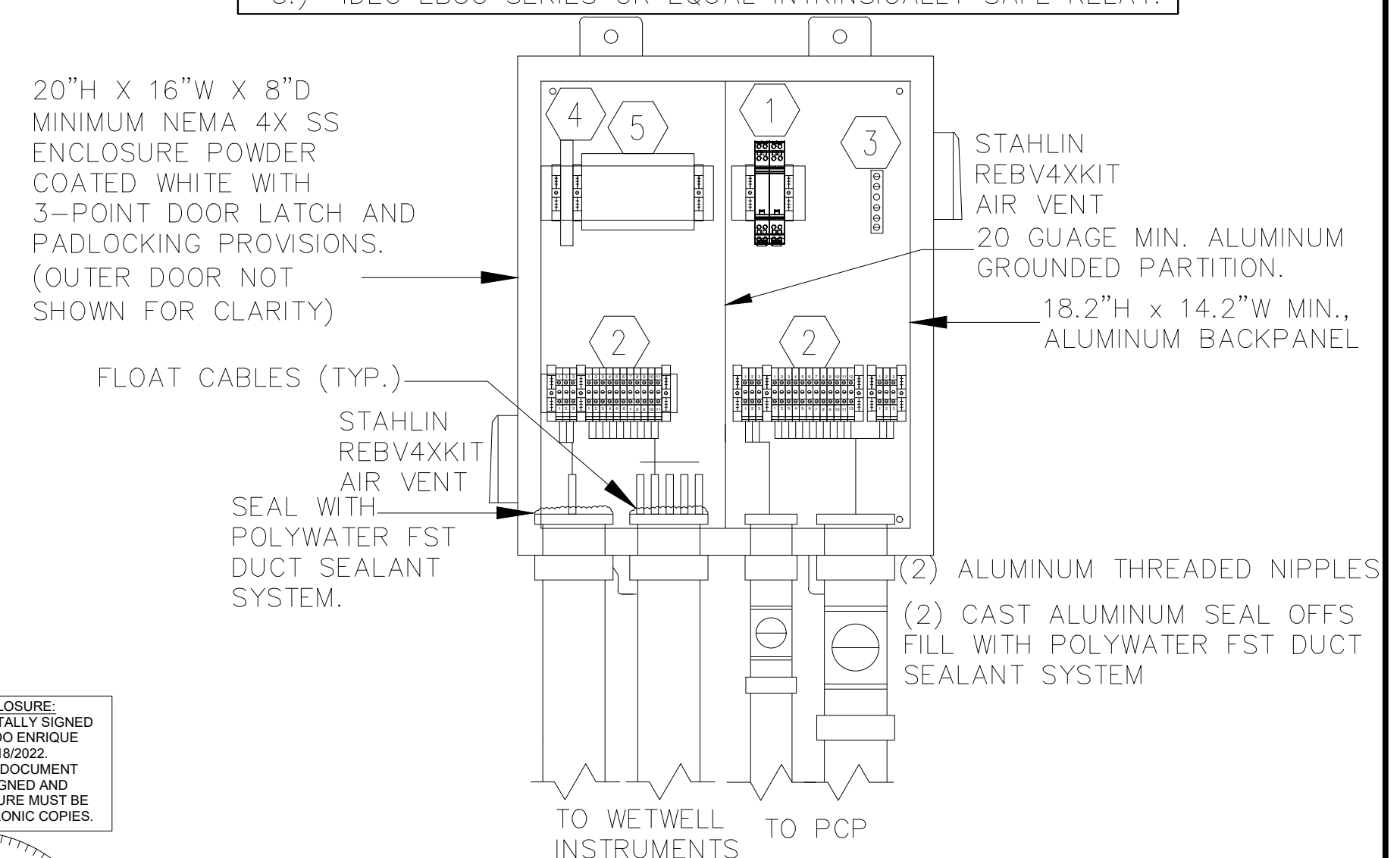
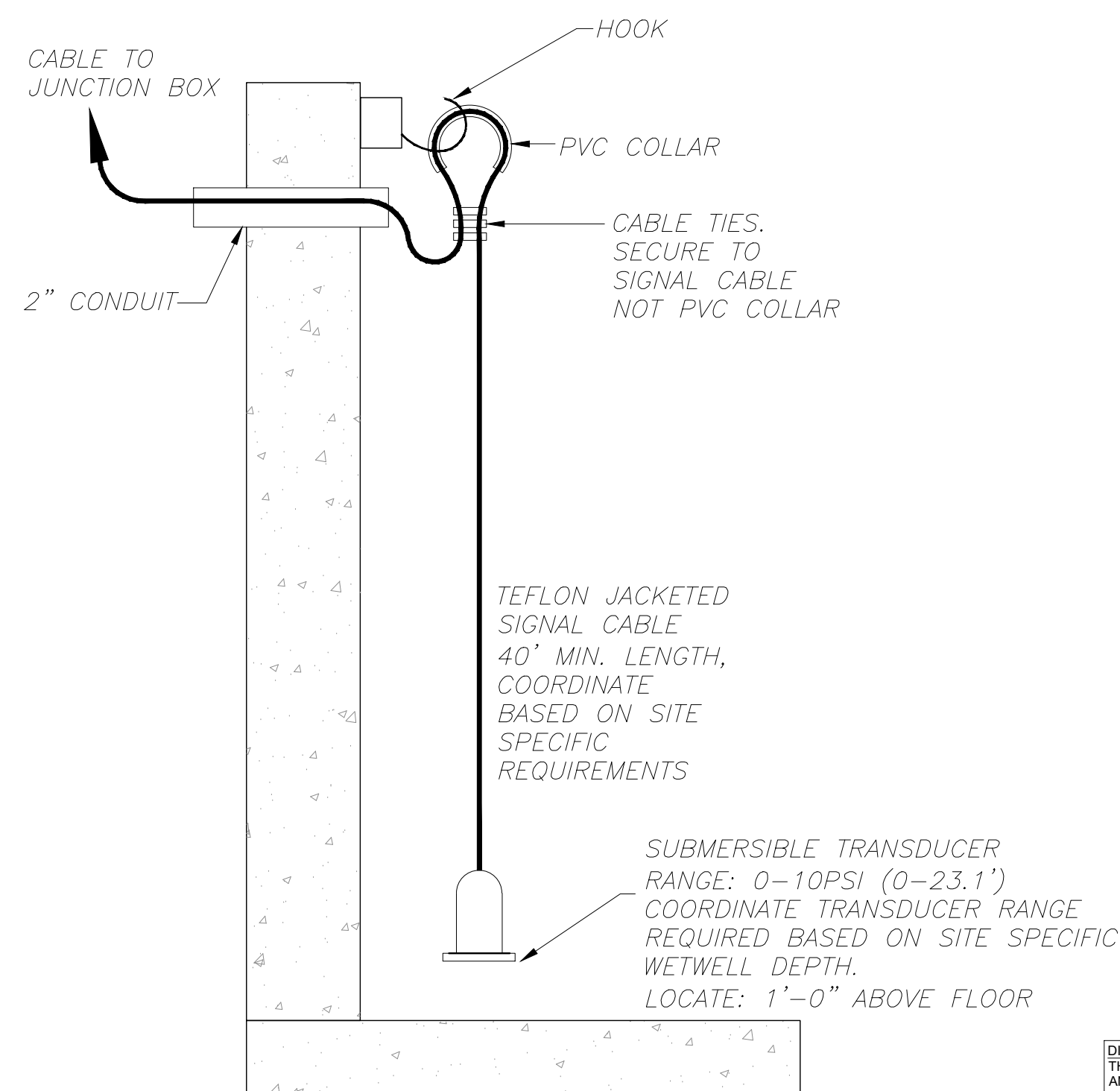
I&C DETAILS

SHEET NUMBER

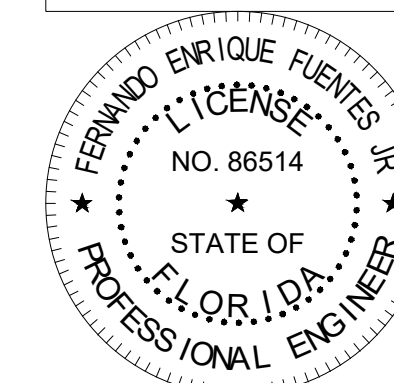
D13



- # # KEYNOTES
- 1.) ALLEN BRADLEY 4983-DD24 4-20mA DIN RAIL MOUNT SURGE SUPPRESSOR.
 - 2.) IEC TYPE ENCLOSED TERMINAL BLOCKS W/APPURTEANCES. TERMINATE ALL SPARE CONDUCTORS ON THE TERMINAL BLOCK.
 - 3.) GROUND BAR.
 - 4.) STAHL 9002 SERIES OR EQUAL INTRINSIC SAFE BARRIER.
 - 5.) IDEC EB3C SERIES OR EQUAL INTRINSICALLY SAFE RELAY.



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SOUTH WATER RECLAMATION FACILITY HEADWORKS

PREPARED FOR

ENGLEWOOD WATER DISTRICT

RIE CONSULTING ENGINEERS
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FERNANDO E. FUENTES JR., P.E. #86514 DATE: 01/20/2016

I&C DETAILS

SHEET NUMBER

ID14

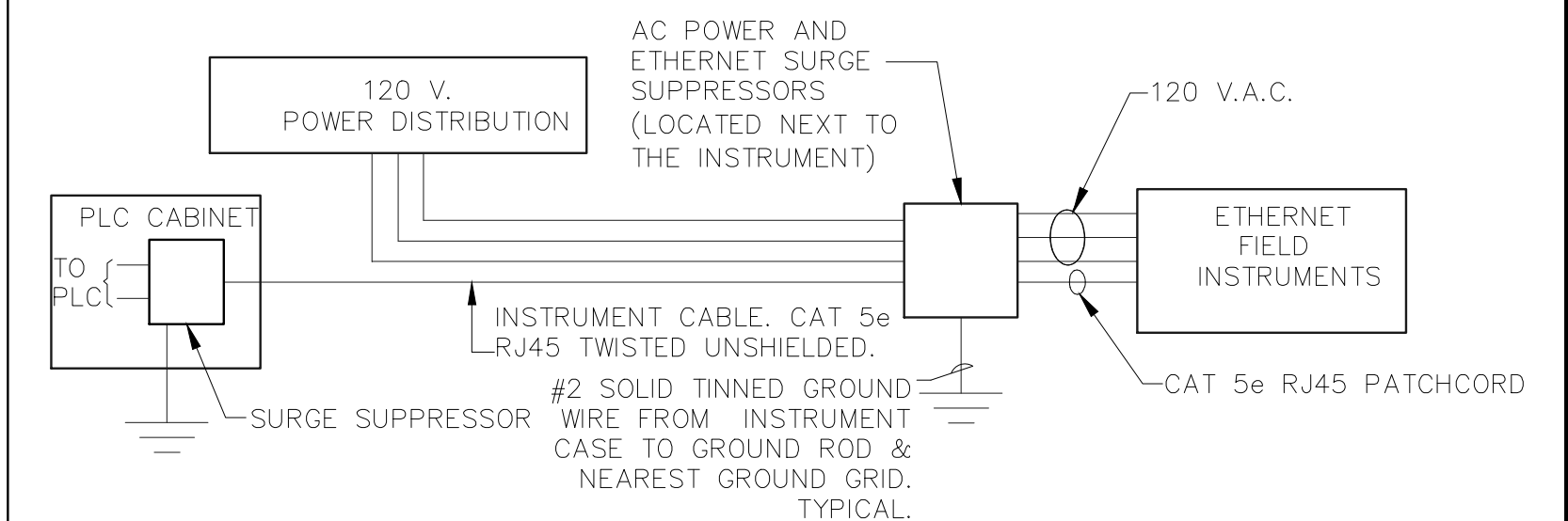
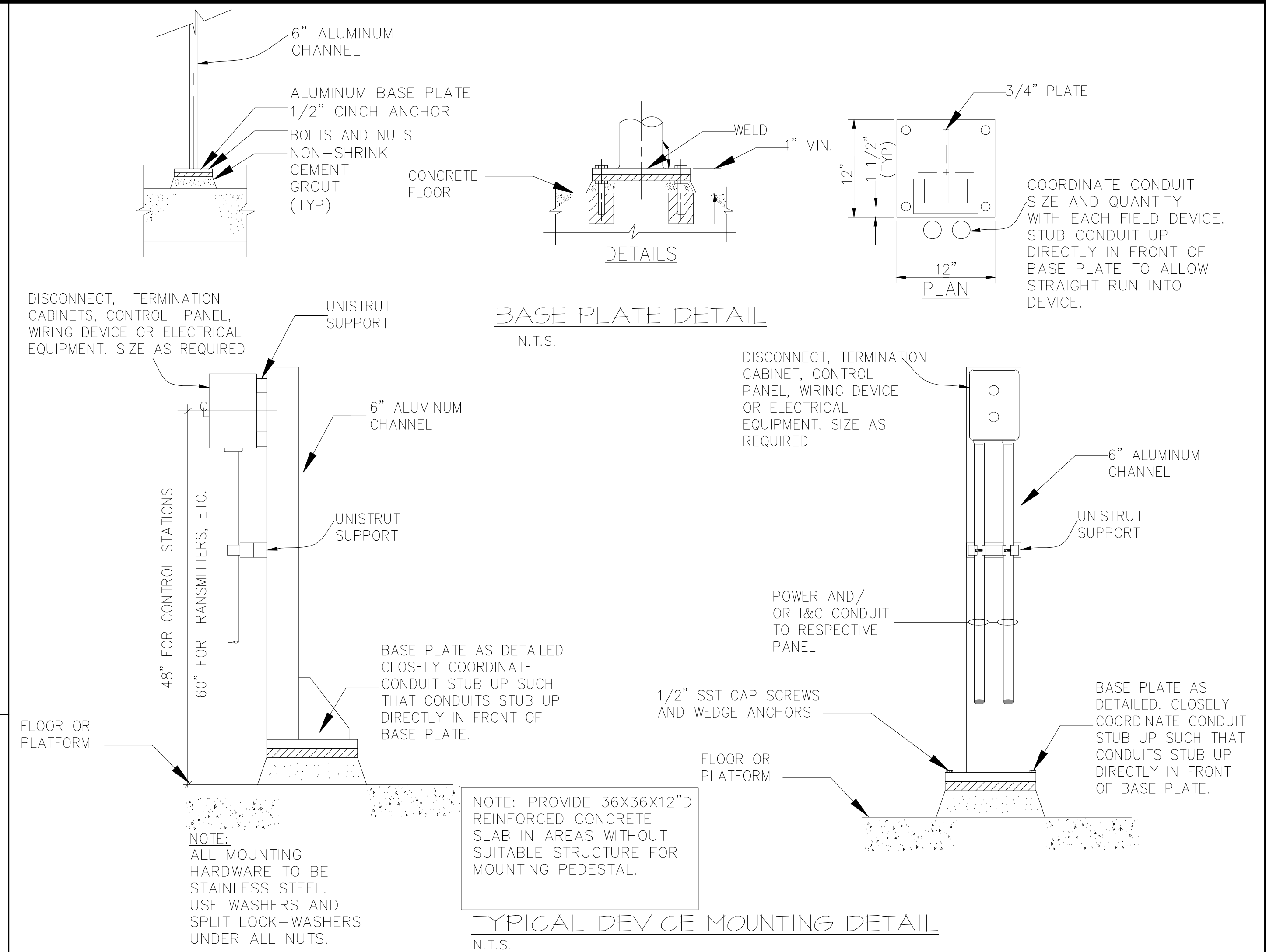
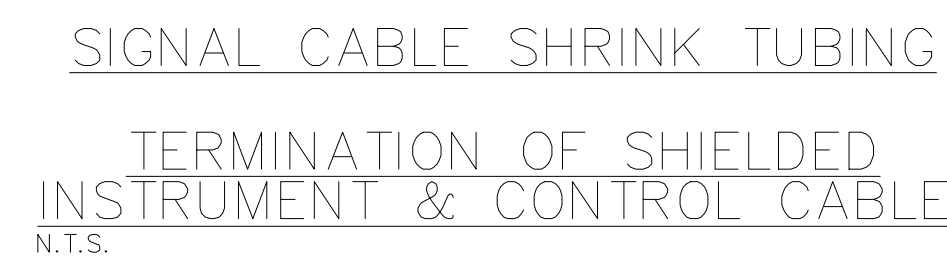
The diagram illustrates the operating range of a wetwell system, showing water level (EL.) on the vertical axis and pump control logic on the horizontal axis. The vertical axis ranges from EL. +9.0' to EL. -10.0'. The horizontal axis is divided into three main sections: LEAD PUMP (VFD), LAG1 PUMP (VFD), and LAG2 PUMP (VFD). The diagram shows the following control logic and water level ranges:

- LEAD PUMP (VFD):**
 - MIN-100% SPEED RANGE PROPORTIONAL CONTROL: Indicated by a diagonal line from EL. -7.0' to EL. +1.5'.
 - CONSTANT MINIMUM SPEED RANGE: 891GPM: Indicated by a vertical line from EL. -8.0' to EL. -7.0'.
- LAG1 PUMP (VFD):**
 - LAG1 PUMP SPEED MATCHED TO LEAD PUMP CONTROL RANGE: Indicated by a diagonal line from EL. -6.5' to EL. +1.5'.
- LAG2 PUMP (VFD):**
 - LAG2 PUMP SPEED MATCHED TO LEAD PUMP CONTROL RANGE: Indicated by a diagonal line from EL. -6.0' to EL. +1.5'.

Water Level Ranges and Events:

- EL. +9.0': TOP SLAB ELEVATION
- EL. +3.7': HIGH LEVEL START P3 (LS)
- EL. +3.2': HIGH LEVEL START P2 (LS)
- EL. +2.2': HIGH LEVEL ALARM & START P1 (LS, LSH)
- EL. +1.5': LAG PUMPS START AT +1.5
- EL. 0.0':
- EL. -6.0': LAG2 PUMP STOP
- EL. -6.5': LAG1 PUMP STOP
- EL. -7.0': LEAD PUMP START MIN SPEED
- EL. -8.0': MINIMUM WATER LEVEL ALL SUB-PUMPS STOP
- EL. -8.4': BACKUP PUMP CONTROL OFF (LSL)
- EL. -9.0': LEVEL TRANSMITTER ELEVATION (LIT)
- EL. -10.0': WETWELL FLOOR ELEVATION

WETWELL OPERATING RANGE
NTS



INSTRUMENTATION GROUNDING & SURGE PROTECTION
N.T.S.

SHEET NUMBER

ID15