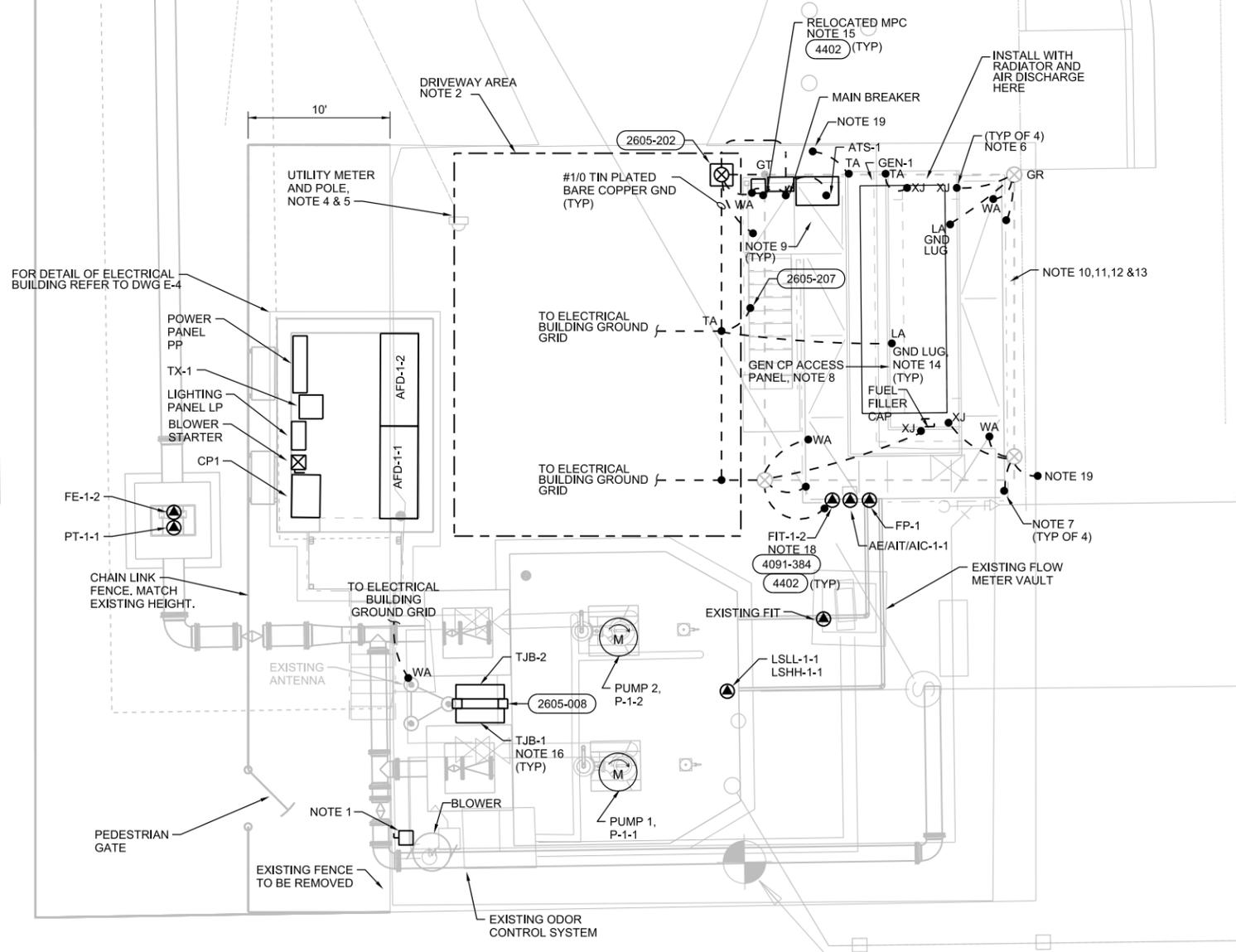




28

ARCHER DRIVE



**HAZARDOUS LOCATION NOTES:**

1. PER NFPA 820, TABLE 4.2 ROW 15, LINE A, THE WET WELL IS CLASSIFIED AS A HAZARDOUS LOCATION AS FOLLOWS:
  - a. THE AREA INSIDE THE WET WELL AND WITHIN A 3'-0" RADIUS AROUND VENT OPENINGS ARE CONSIDERED CLASS 1, DIVISION 1, GROUP C AND D LOCATIONS.
  - b. THE AREA WITHIN A 5'-0" RADIUS AROUND VENT OPENINGS AND AN ENVELOPE 18" ABOVE HATCHES AND 3'-0" FROM THE EDGE OF HATCHES ARE CONSIDERED CLASS 1, DIVISION 2, GROUP C AND D LOCATIONS.
2. PER NFPA 820, TABLE 4.2, ROW 31, LINE A AND ROW 36, LINE A, THE VALVE AND METER VAULTS ARE CLASSIFIED AS HAZARDOUS LOCATIONS AS FOLLOWS:
  - a. THE AREA INSIDE THE VAULT IS CONSIDERED CLASS 1, DIVISION 2, GROUP C AND D LOCATIONS.
3. PROVIDE SUITABLE WIRING METHODS AND MATERIALS FOR HAZARDOUS LOCATION PER NFPA 70 (NEC).

**NOTES:**

1. DISCONNECT SWITCH MOUNTED 5'-0" AFG. PER DETAIL (2608-008)
2. ALL UNDERGROUND RACEWAYS INSTALLED IN THE DRIVEWAY AREA SHALL BE CONCRETE ENCASED PER DETAIL (2605-400a). ALL OTHER UNDERGROUND RACEWAYS SHALL BE INSTALLED PER DETAIL (2605-423b). REFER TO DRAWING E-3 FOR PUMP STATION RISER DIAGRAM, SHOWING REQUIRED RACEWAY AND CONDUCTOR SIZES.
3. NOT USED.
4. FURNISH AND INSTALL NEW RISER CONDUCTORS AND RACEWAYS FROM EXISTING UTILITY POLE-MOUNTED REVENUE METER TO NEW MAIN CIRCUIT BREAKER INSTALLED ON GENERATOR PLATFORM AS SHOWN. COORDINATE UTILITY POWER SHUTDOWN WITH KEYS ENERGY.
5. COORDINATE THE NEW PUMP STATION CONNECTED LOAD AND UTILITY TRANSFORMER SIZE WITH KEYS ENERGY.
6. EXOTHERMICALLY BOND STRUCTURAL STEEL IN PLATFORM FOUNDATION WITH GROUNDING ELECTRODE SYSTEM IN 4 PLACES.
7. MECHANICALLY BOND RAILING WITH GROUNDING ELECTRODE SYSTEM IN 4 PLACES AS SHOWN.
8. INSTALL GENERATOR ON PLATFORM WITH GENERATOR CONTROL PANEL ACCESS PANEL FACING DIRECTION SHOWN. PROVIDE MINIMUM 4'-0" NEC WORKING CLEARANCE IN FRONT OF GENERATOR CONTROL PANEL ACCESS.
9. MECHANICALLY BOND GROUND BUSES FOR MAIN CIRCUIT BREAKER, ATS-1 AND MPC TO GROUNDING ELECTRODE SYSTEM, AS SHOWN.
10. INTERCONNECTING POWER AND CONTROL CIRCUITS RACEWAYS TO BE ROUTED ALONG THE UNDERSIDE OF THE SUPPORT PLATFORM, AND NOT ALONG RAILINGS. REFER TO DETAIL (2605-300). DO NOT EMBED RACEWAYS IN CONCRETE FOR PLATFORM OR SLAB.
11. TANK AND GENERATOR SHALL BE ELEVATED IN THE INSTALLATION. VERIFY BASE SUPPORT POINTS OF GENERATOR/TANK SET AND MATCH STRUCTURAL SUPPORT.
12. ENSURE ALL CLEARANCES SATISFY 2011 NEC REQUIREMENTS, AND ARE SATISFACTORY TO ALLOW FULL RANGE OF MOTION FOR DOORS AND PLATFORM-MOUNTED EQUIPMENT, ADVISE ENGINEER OF ANY CONFLICTS.
13. CONNECT ALL MOUNTING RACKS TO GROUNDING ELECTRODE SYSTEM.
14. CONNECT GENERATOR ENCLOSURE TO GROUNDING ELECTRODE SYSTEM IN TWO PLACES, AS SHOWN.
15. RACK-MOUNT MAIN BREAKER AND MPC WITH TOP OF ENCLOSURE A MINIMUM OF 5'-0" ABOVE PLATFORM FLOOR.
16. MOUNT TERMINAL JUNCTION BOXES WITH THE BOTTOM OF THE ENCLOSURES A MINIMUM OF 2'-0" ABOVE FINISHED GRADE.
17. NO SPLICING OF CONDUCTORS ALLOWED, EXCEPT WHERE NOTED.
18. RACK-MOUNT FIT-1-2, AIC-1-1 AND FP-1 WITH TOP OF RAIN HOOD A MINIMUM 4'-6" ABOVE PLATFORM FLOOR.
19. MECHANICALLY BOND FENCE TO GROUNDING ELECTRODE SYSTEM, AS SHOWN.
20. ALL RACEWAYS TO BE PVC-COATED RSG, EXCEPT WHERE REQUIRED FOR VIBRATION MITIGATION. REFER TO SPECIFICATION SECTION 26 05 01, ELECTRICAL. MAINTAIN 12" CLEARANCE FROM CONFLICTING UNDERGROUND UTILITIES.

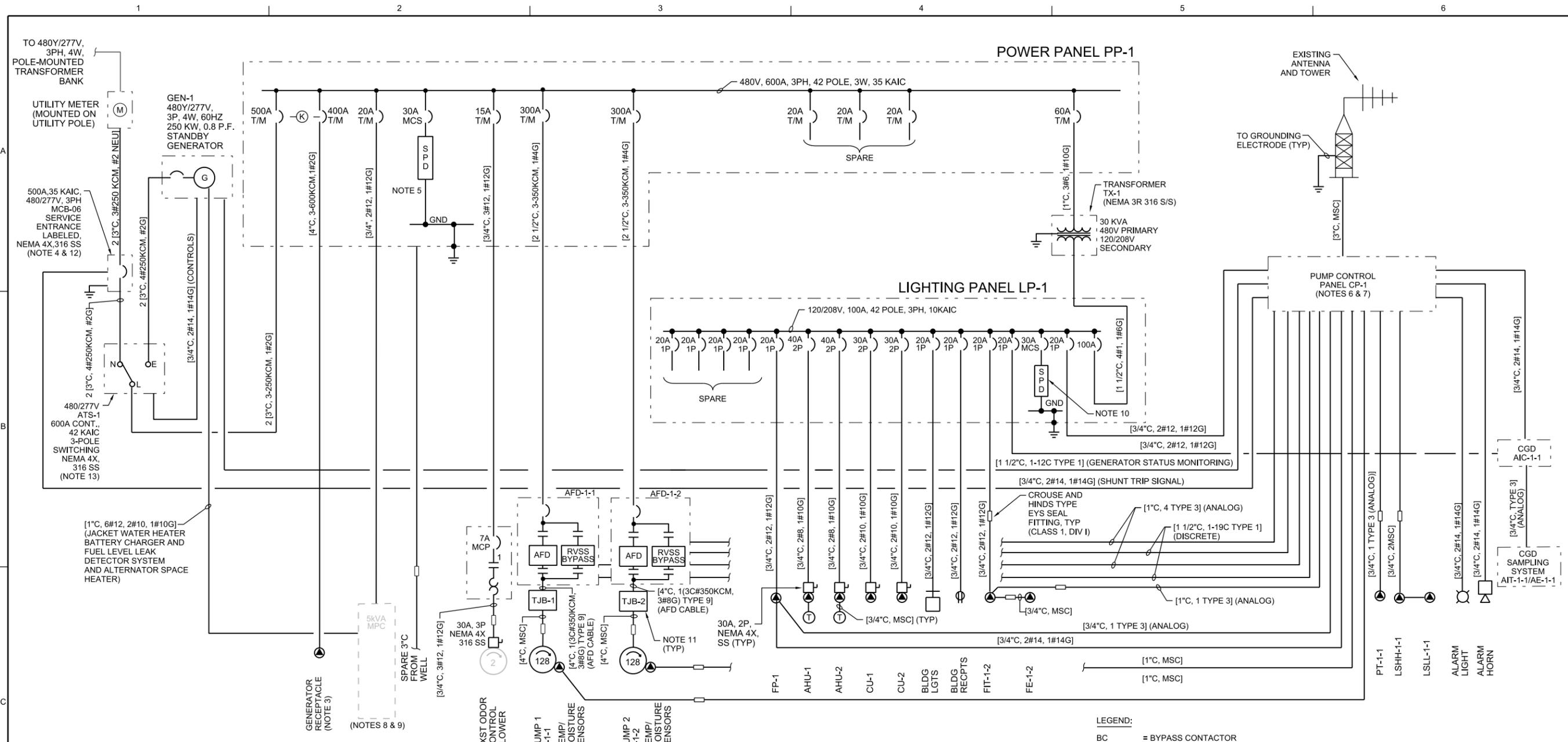
**OVERALL PLAN**  
3/16"=1'-0"

APVD	D. NICHOLSON
CHK	PY. KESKAR
DR	A. CLOUGH
DGN	D. NICHOLSON

3011 S.W. WILLSTON ROAD  
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E80000072 / AAC001992  
David C. Nicholson PE 60201

PUMP STATION F  
CITY OF KEY WEST  
KEY WEST, FLORIDA

<b>CH2MHILL</b>	
ELECTRICAL	
PUMP STATION MODIFICATIONS OVERALL SITE PLAN	
3/16" = 1'-0"	
VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	AUGUST 2014
PROJ	406518
DWG	E-2
SHEET	17 of 30



- NOTES**
- ALL RACEWAYS TO BE PVC-COATED RGS, EXCEPT WHERE REQUIRED FOR VIBRATION MITIGATION. REFER TO SPECIFICATION SECTION 26 05 01, ELECTRICAL. MAINTAIN 12" CLEARANCE FROM CONFLICTING UNDERGROUND UTILITIES.
  - THE AREAS INSIDE WET WELL AND WITHIN A 3'-0" RADIUS AROUND VENT OPENINGS ARE HAZARDOUS CLASS I, DIV 1. GROUP C & D LOCATIONS. THE AREA INSIDE VALVE VAULTS, METER VAULTS AND WITHIN A 5'-0" RADIUS AROUND VENT OPENINGS AND AN ENVELOPE 18" ABOVE HATCHES AND 3'-0" FROM THE EDGE OF HATCHES ARE HAZARDOUS, CLASS 1, DIV II, GROUP D LOCATIONS.
  - PROVIDE 400A, 600V GENERATOR RECEPTACLE WITH JUNCTION BOX AND ANGLE ADAPTER, RUSSELL STOLL: DS 4404MRA00, NO SUBSTITUTIONS.
  - PROVIDE MAIN CIRCUIT BREAKER WITH SHUNT TRIP OPTION. BREAKER SHALL OPEN UPON RECEIPT OF SHUNT TRIP COMMAND FROM RTU.
  - PROVIDE CATEGORY C, 6-MODE, 20 kA NOMINAL DISCHARGE CURRENT, SPD WITH SINE-WAVE TRACKING, INSTALL IN POWER PANEL AS SHOWN AND ON THE NORMAL/UTILITY LINE SIDE OF THE TRANSFER SWITCH.
  - PUMP CONTROL PANEL SHALL BEAR A LABEL FROM A NATIONALLY RECOGNIZED TESTING LABORATORY INDICATING ITS LISTING/LABELING IN ACCORDANCE WITH UL-508, INDUSTRIAL CONTROL PANELS.
  - PUMP CONTROL PANEL SHALL BEAR A UNIT SHORT CIRCUIT CURRENT RATING LABEL BY A NATIONALLY RECOGNIZED TESTING LABORATORY INDICATING ITS SUITABILITY FOR USE WITHIN A POWER DISTRIBUTION SYSTEM WITH AN AVAILABLE FAULT CURRENT OF 10KA SYMMETRICAL AT 120V AC.
  - EXISTING 5kVA, 480-240V, 1-PHASE MINI POWER CENTER.
  - USE EXISTING 20A/1P CIRCUIT BRAKES TO POWER THE BATTERY CHARGER, ALTERNATOR SPACE HEATER AND FUEL LEVEL/LEAK DETECTION SYSTEM. PROVIDE A NEW 20A/2P CIRCUIT BREAK TO POWER THE JACKET WATER HEATER.

- PROVIDE CATEGORY B, 10-MODE, 20kA NOMINAL DISCHARGE CURRENT SPD WITH SINE-WAVE TRACKING. INSTALL IN LIGHTING PANEL AS SHOWN.
- BOND THE SERVICE NEUTRAL TO THE GROUNDING ELECTRODE CONDUCTOR IN THE MAIN BREAKER ONLY.
- PRVIDE ATS-1 WITH A NEUTRAL BUS TO BOND THE SERVICE NEUTRAL AND GENERATOR NEUTRAL FOR A NON-SEPARATELY DERIVED SYSTEM. NEUTRAL BUS SHALL NOT BE BONDED TO THE GROUND BUS.

**PUMP STATION RISER DIAGRAM**  
NTS

- LEGEND:**
- BC = BYPASS CONTACTOR
  - CGD = COMBUSTIBLE GAS DETECTOR
  - CPT = CONTROL POWER TRANSFORMER
  - E = STANDBY SOURCE
  - GND = GROUND BUS
  - L = LOAD SIDE OF AUTOMATIC TRANSFER SWITCH
  - LE = LEVEL TRANSDUCER (ULTRASONIC)
  - LSH = LEVEL SWITCH HIGH
  - LSL = LEVEL SWITCH LOW
  - N = NORMAL SOURCE
  - NEU = NEUTRAL BUS
  - MCB = MAIN CIRCUIT BREAKER
  - MCP = MAGNETIC-ONLY CIRCUIT BREAKER
  - MCS = MOLDED CASE SWITCH
  - MSC = MANUFACTURER SUPPLIED CABLE
  - SPD = SURGE PROTECTIVE DEVICE
  - PMR = POWER MONITORING RELAY
  - T/M = THERMAL MAGNETIC CIRCUIT BREAKER
- (K) = MECHANICAL KEY INTERLOCK

**PP-1 CONNECTED LOAD SUMMARY**

DESCRIPTION	KVA
PUMP NO.1	138
PUMP NO.2	138
BLOWER	2
MPC	5
LIGHTING PANEL	30
<b>SUBTOTAL</b>	<b>313</b>
25% OF LARGEST MOTOR	34.5
<b>SERVICE RATING</b>	<b>347.5</b>

\*ALL LOADS ASSUMED NON-CONTINUOUS

**LP-1 CONNECTED LOAD SUMMARY**

DESCRIPTION	VA
AHU-1	347
AHU-2	347
CU-1	4368
CU-2	4368
BLDG LIGHTS	200
RECEP	360
FIT-1-2	50
CP-1	3000
FP-1	300
AIC	100
<b>SUBTOTAL</b>	<b>13,440</b>
25% OF CONTINUOUS LOADS	1,177
<b>SERVICE RATING</b>	<b>14,619</b>

\*ALL LOADS ASSUMED NON-CONTINUOUS

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David C. Nicholson PE 60201

PUMP STATION F  
CITY OF KEY WEST  
KEY WEST, FLORIDA

**CH2MHILL**

ELECTRICAL

**PUMP STATION MODIFICATIONS  
RISER DIAGRAM**

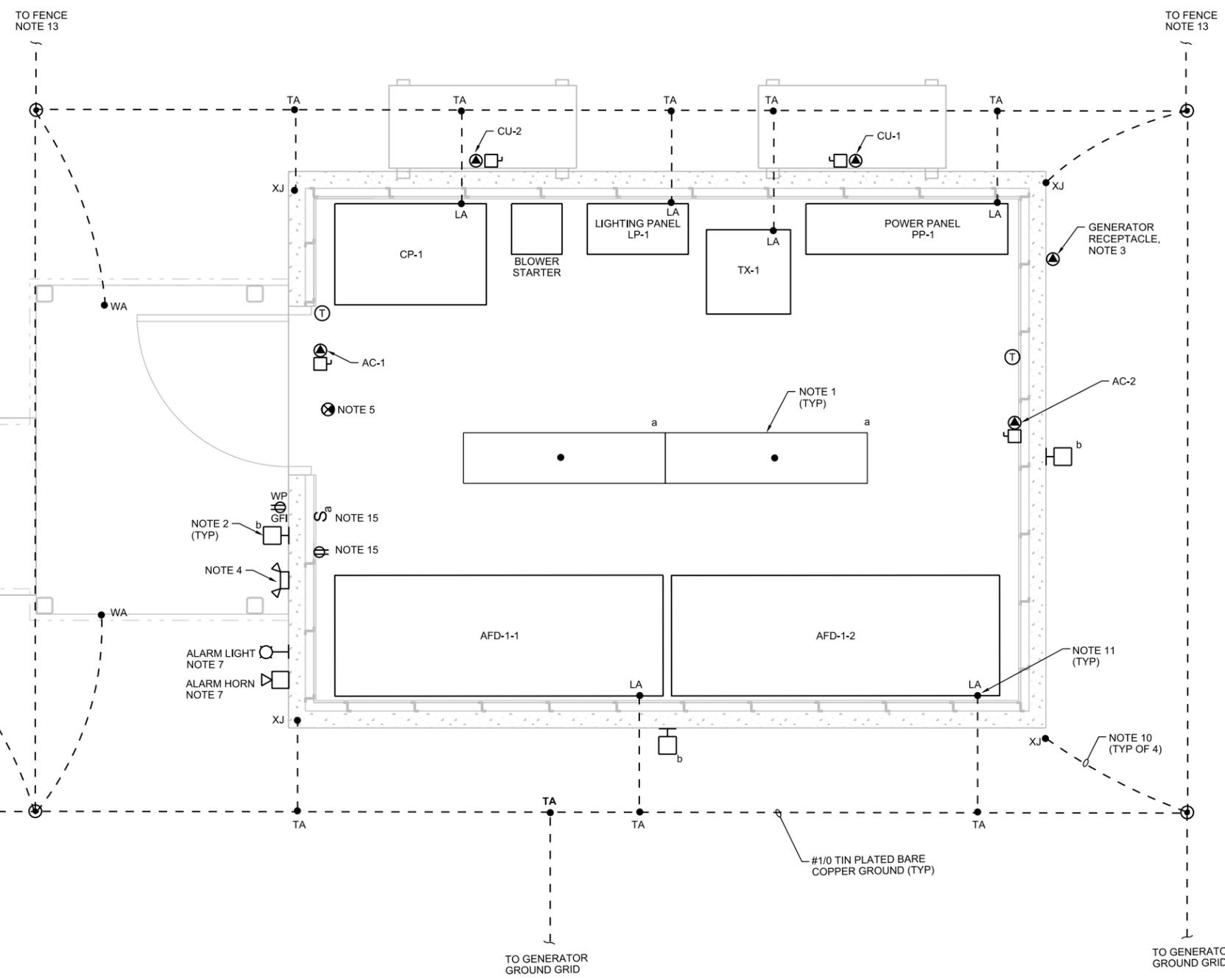
D. NICHOLSON  
D. NICHOLSON  
PY. KESKAR  
A. CLOUGH  
DR  
CHK  
APVD

DATE: AUGUST 2014  
PROJ: 406518  
DWG: E-3  
SHEET: 18 of 30

VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.  
1" = X'

1 2 3 4 5 6

A  
B  
C  
D



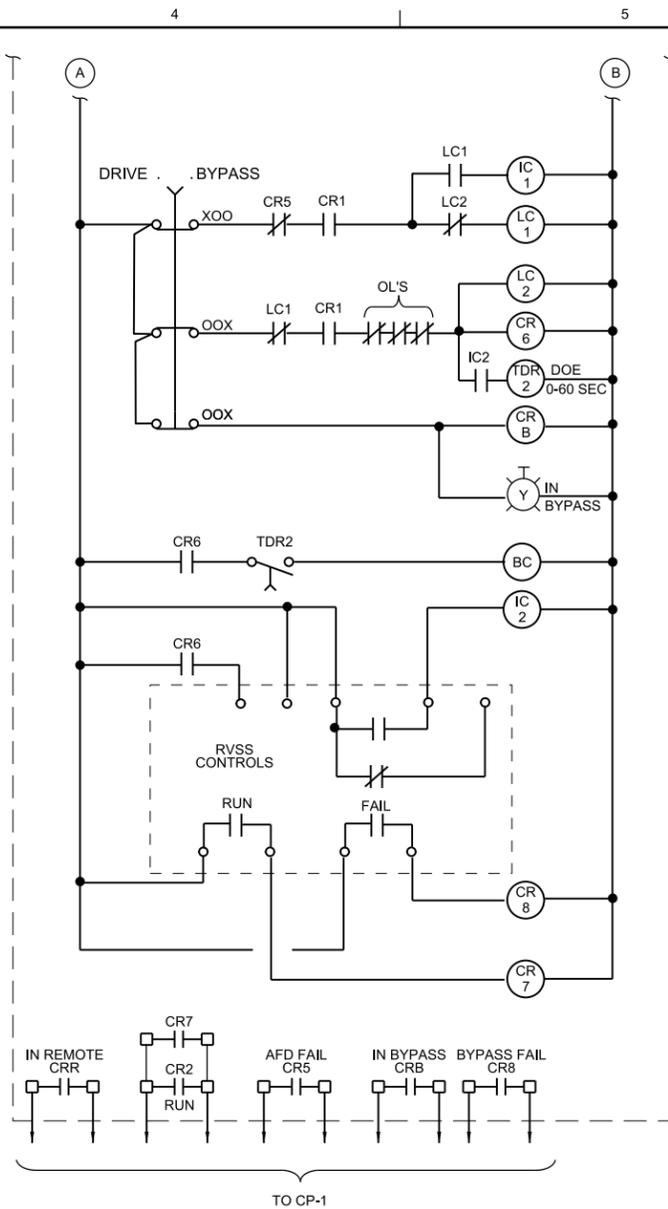
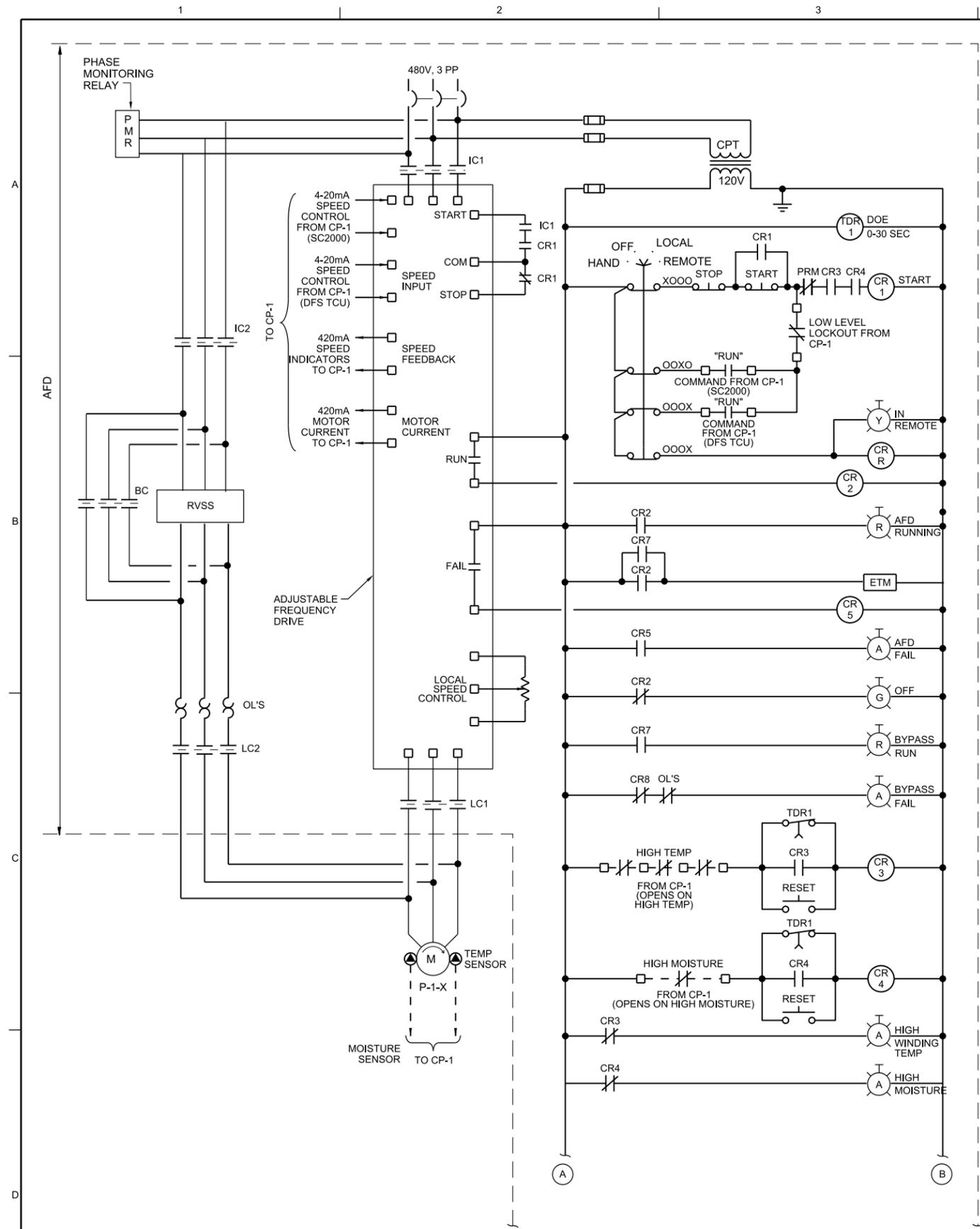
- NOTES:**
- 4'-0" LONG FLUORESCENT FIXTURE WITH 2-32 WATT T-8 LAMPS, FULLY-GASKETED REINFORCED POLYESTER HOUSING, HIGH IMPACT ACRYLIC DIFFUSER, STAINLESS STEEL CAM-ACTION LATCHES, UL LISTED FOR WET LOCATIONS, 120V ELECTRONIC BALLAST WITH EMERGENCY BATTERY PACK, LITHONIA DMW SERIES, CEILING MOUNTED.
  - MINI WALL-PAK WITH POLYCARBONATE REFRACTOR, FULL CUTOFF OPTICS, UL LISTED FOR WET LOCATIONS, 42 TRT COMPACT FLUORESCENT LAMP, 120V ELECTRONIC BALLAST, DARK BRONZE FINISH, LITHONIA TWAC SERIES, MOUNTED AT 14'-0" ABOVE FINISHED GRADE.
  - GENERATOR RECEPTACLE MOUNTED 5'-0" AFG.
  - EMERGENCY LIGHT, 25 WATT LAMPS, 120V FULLY GASKETED REINFORCED POLYESTER HOUSING, WITH STAINLESS STEEL HARDWARE, SOLID STATE BATTERY CHARGER, INTEGRAL 90 MIN. MAINTENANCE FREE SEALED NICKLE CADMIUM EMERGENCY BATTERY BACKUP, SELF TEST DIAGNOSTIC WITH INDICATOR LIGHT AND SEALED TEST SWITCH, NEMA 4X AND NFPA 101, HOLOPHANE DESOTO M70 SERIES. WIRED TO THE LINE SIDE OF THE SWITCH, MOUNTED AT 14'-0" ABOVE FINISHED GRADE.
  - EXIT SIGN, FULLY GASKETED REINFORCED POLYESTER HOUSING, WITH STAINLESS STEEL HARDWARE, RED LETTERS, INTEGRAL 90 MINUTES MAINTENANCE FREE SEALED NICKLE CADMIUM EMERGENCY BATTERY BACKUP, SELF TEST DIAGNOSTIC WITH INDICATOR LIGHT, UL LISTED, NEMA 4X AND NFPA 101. HOLOPHANE DELEON HD SERIES. WIRED TO THE LINE SIDE OF THE SWITCH. MOUNTED ABOVE DOOR.
  - LUMINARIES AND RECEPTACLES POWERED FROM LIGHTING PANEL LP-1. PROVIDE [3/4"C, 2#12, 1#12G] ENTIRE LENGTH OF RUN.
  - ALARM HORN AND LIGHT MOUNTED AT 14'-0" ABOVE FINISHED GRADE.
  - REFER TO SPECIFICATION SECTION 26 41 00 FOR FACILITY LIGHTING PROTECTION REQUIREMENTS.
  - DO NOT EMBED RACEWAYS IN CONCRETE WALLS, SLAB OR FOUNDATION, ROUTE EXPOSED INSIDE OR THE UNDERSIDE OF THE BUILDING, REFER TO DETAIL (2605-300).
  - EXOTHERMICALLY BOND STRUCTURAL STEEL IN BUILDING FOUNDATION WITH GROUNDING ELECTRODE SYSTEM IN 4 PLACES.
  - MECHANICALLY BOND GROUND BUSES FOR POWER PANEL PP-2, TRANSFORMER TX-1, LIGHTING PANEL LP-1, ADJUSTABLE FREQUENCY DRIVES AFD-1-1, AFD-1 2 AND CP-1 TO GROUNDING ELECTRODE SYSTEM AS SHOWN.
  - NO SPLICING OF CONDUCTORS ALLOWED, EXCEPT WHERE NOTED.
  - MECHANICALLY BOND FENCE TO GROUNDING ELECTRODE SYSTEM.
  - ALL RACEWAYS TO BE PVC-COATED RGS, EXCEPT WHERE REQUIRED FOR VIBRATION MITIGATION. REFER TO SPECIFICATION SECTION 26 05 01, ELECTRICAL.
  - WALL SWITCHES AND RECEPTACLES RATED: 20A, 120 VOLTS. MEETING THE REQUIREMENTS OF NEMA WD1 AND FS W-S-896F/W-C-596G. MOUNT WALL SWITCHES 48 INCHES ABOVE FINISHED FLOOR, INTERIOR RECEPTACLES 15 INCHES ABOVE FINISHED FLOOR, AND EXTERIOR RECEPTACLES 24 INCHES ABOVE FINISHED FLOOR.

**ELECTRICAL BUILDING PLAN**  
3/4"=1'-0"

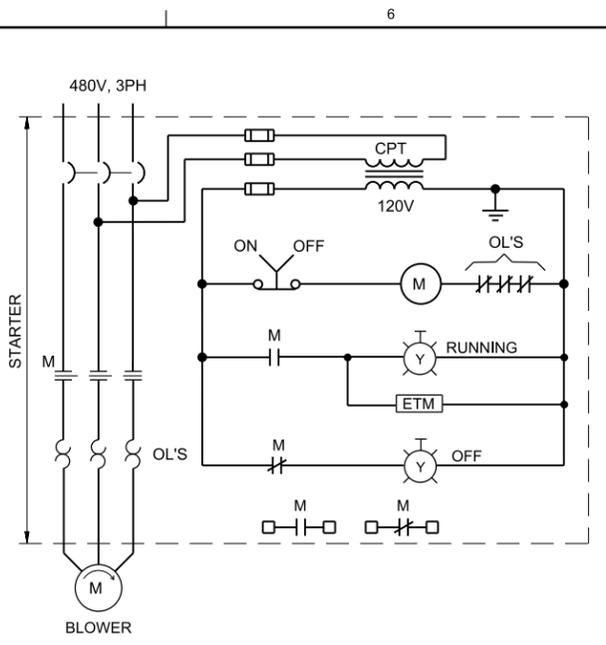


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<b>CH2MHILL</b>		ELECTRICAL ELECTRICAL BUILDING PLAN		D. NICHOLSON D. NICHOLSON P. OAKES PY. KESKAR APVD	
1" = X'		VERIFY SCALE		BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	AUGUST 2014	PROJ	406518	DWG	E-4
SHEET	19 of 30				

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**PUMP AFD-1-X**  
X= 1, 2



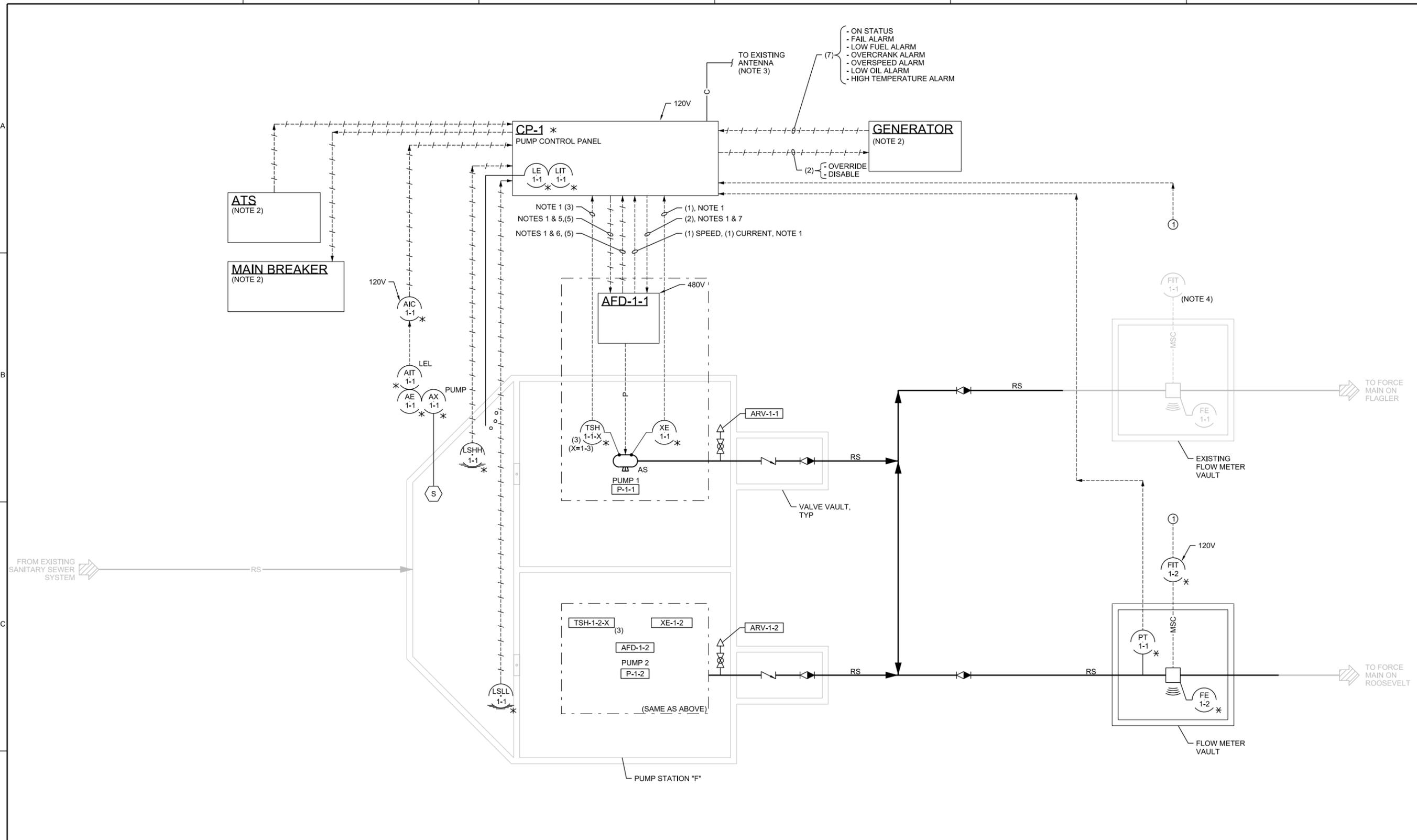
**ODOR CONTROL BLOWER**

3011 S.W. WILLISTON ROAD GAINESVILLE, FLORIDA 32608 E80000072 AAC001992 David C. Nicholson PE 60201	PUMP STATION F	CITY OF KEY WEST KEY WEST, FLORIDA
D. NICHOLSON D. CLOUGH A. CLOUGH PY. KESKAR APVD	DR	CHK
DSGN		

3011 S.W. WILLISTON ROAD GAINESVILLE, FLORIDA 32608 E80000072 AAC001992 David C. Nicholson PE 60201	PUMP STATION F	CITY OF KEY WEST KEY WEST, FLORIDA
D. NICHOLSON D. CLOUGH A. CLOUGH PY. KESKAR APVD	DR	CHK
DSGN		

<b>CH2MHILL</b>	ELECTRICAL	MOTOR CONTROL DIAGRAMS
1" = X'	VERIFY SCALE	BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE	AUGUST 2014	
PROJ	406518	
DWG	E-5	
SHEET	20 of 30	

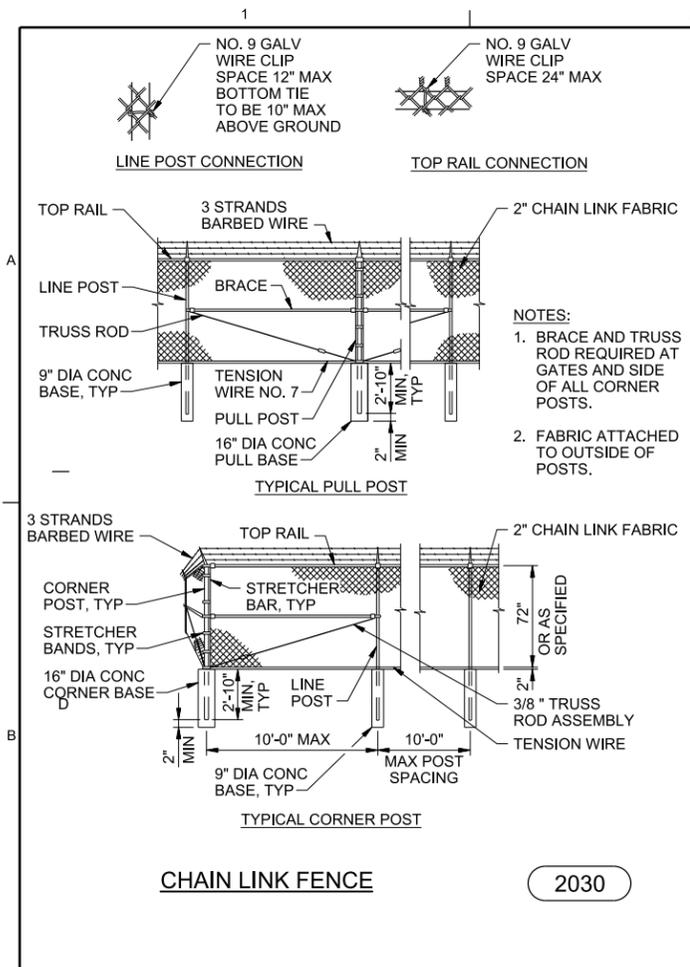
A  
B  
C  
D



- NOTES:**
1. SIGNALS SHOWN ARE PER PUMP.
  2. PROVIDED BY ELECTRICAL.
  3. REFER TO CIVIL AND ELECTRICAL FOR ANTENNA LOCATION.
  4. MONITORING OF EXISTING FLOW METER FROM RTU NOT REQUIRED.
  5. LOW LEVEL, MOISTURE, TEMPERATURE ALARM, RUN COMMAND 1, RUN COMMAND 2.
  6. IN REMOTE, ON STATUS, AFD FAIL, IN BYPASS, BYPASS FAIL.
  7. SPEED COMMAND 1, SPEED COMMAND 2.

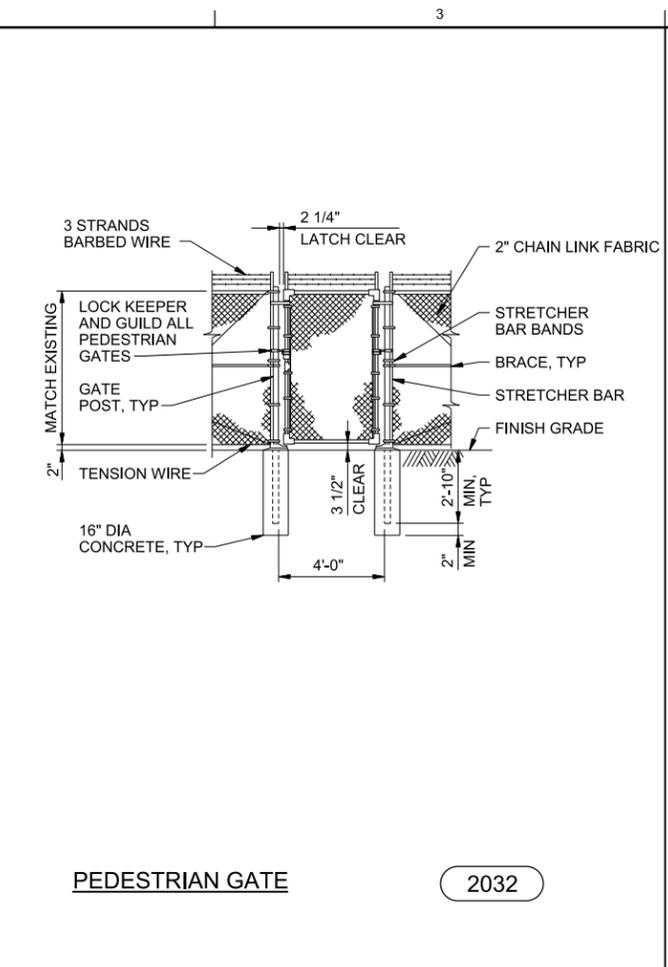
<b>CH2MHILL</b> INSTRUMENTATION AND CONTROL P&ID PUMP STATION F		PUMP STATION F CITY OF KEY WEST KEY WEST, FLORIDA	
		3011 S.W. WILLISTON ROAD GAINESVILLE, FLORIDA 32608 EB0000072 / AAC001992 Jessica R. Knight, PE 72450	J. KNIGHT DR A. CLOUGH CHK P. KESKAR APVD J. KNIGHT
1" = X' VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.		DATE: AUGUST 2014 PROJ: 406518 DWG: I-1 SHEET: 21 of 30	

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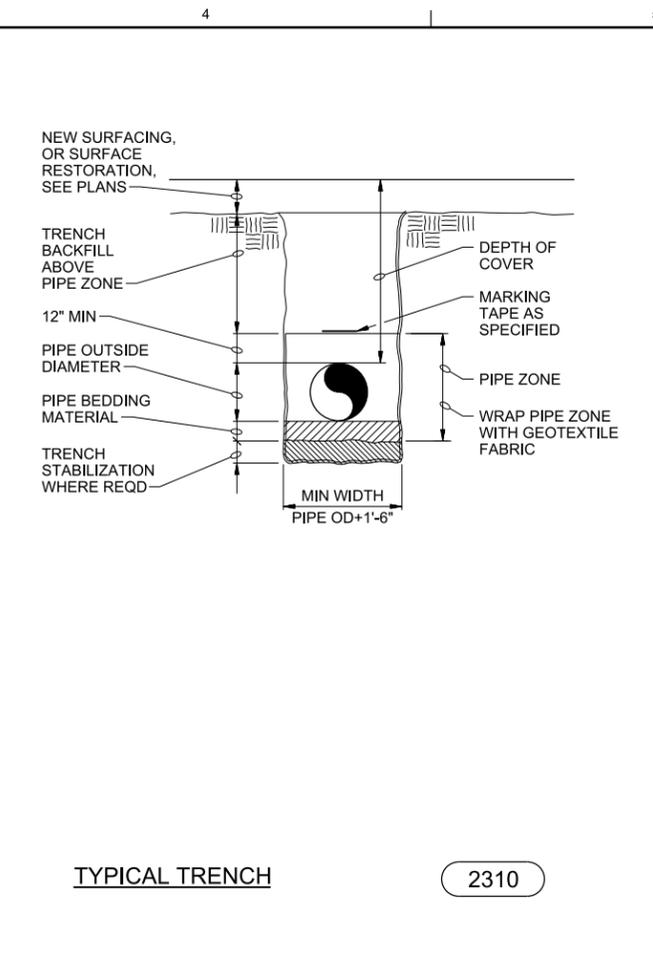
**CHAIN LINK FENCE**

2030



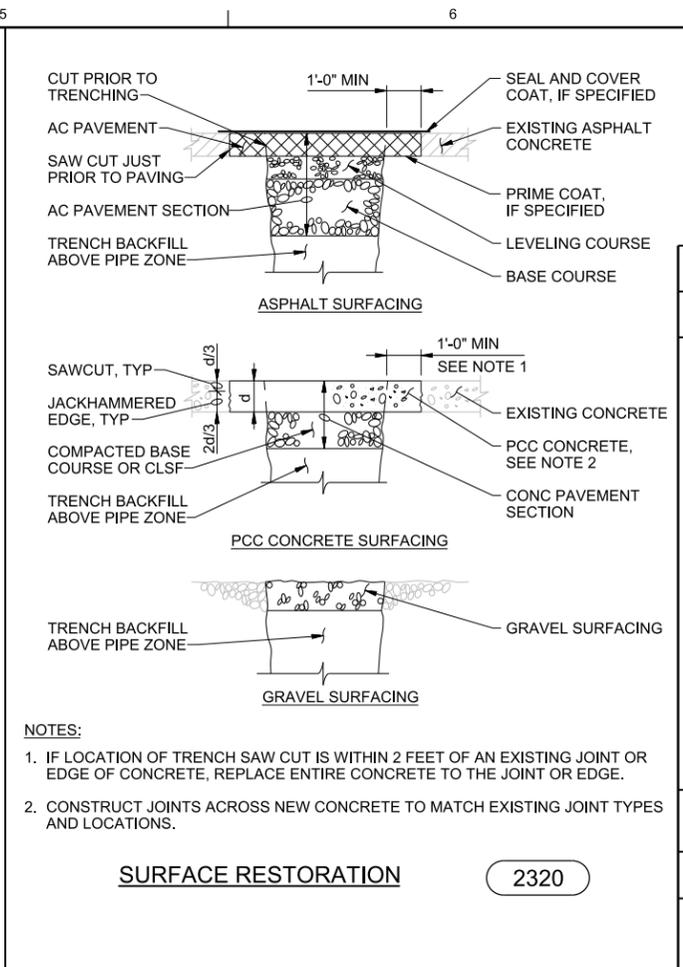
**PEDESTRIAN GATE**

2032



**TYPICAL TRENCH**

2310



**SURFACE RESTORATION**

2320

APVD	A SMYTH	D GARCIA
CHK	C CHILDRESS	
DR	A MALONE	
DSGN		

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 EB0000072 AAC001992  
 Anthony Marcus Malone PE 67406

PUMP STATION F  
 CITY OF KEY WEST  
 KEY WEST, FLORIDA

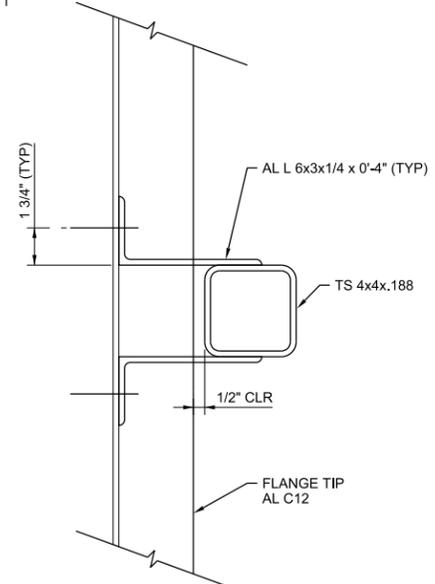
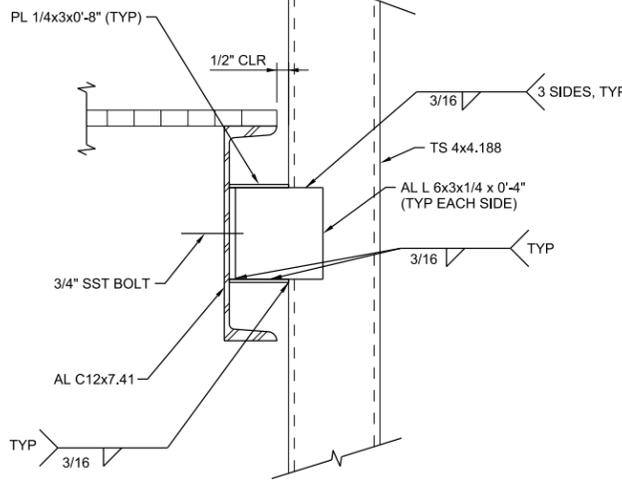
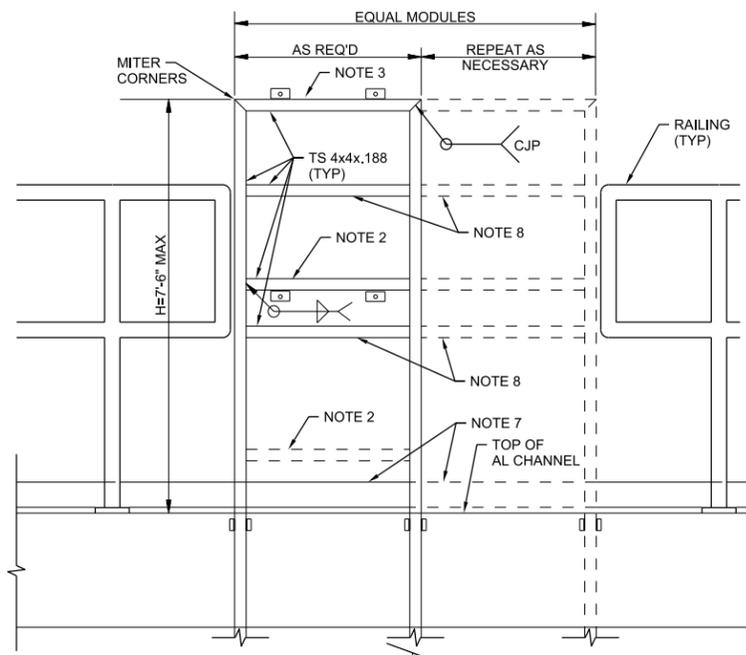
**CH2MHILL**  
 CIVIL  
 STANDARD DETAILS

DATE	AUGUST 2014
PROJ	406518
DWG	SD-1
SHEET	22 of 30

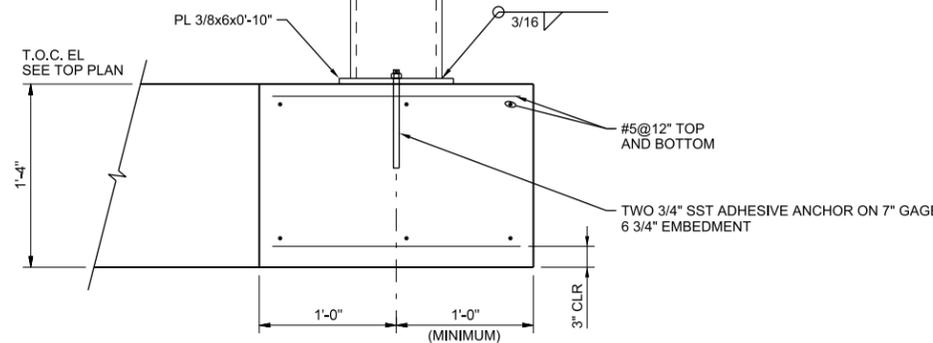
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- NOTES:
- TOTAL WEIGHT OF PANEL(S) SHALL NOT EXCEED 750 LB IN EACH MODULE.
  - FOR PANELS WITH "H" GREATER THAN 4'-0", ONE HORIZONTAL MEMBER MUST BE LOCATED WITHIN THE MIDDLE THIRD OF THE FRAME HEIGHT. PROVIDE ADD'L MEMBERS AS NECESSARY FOR PANEL MOUNTING.
  - PROVIDE L 2 1/2" x 2 1/2" x 1/4" x 0'-3" WELD ALL AROUND TO TS: TYP AT EACH PANEL MOUNT.
  - GRIND ALL WELDS AND SHARP CORNERS SMOOTH.
  - FOR OUTDOOR APPLICATIONS, PROVIDE RAINHOOD/ SOLAR SHIELD AS PER DETAIL (4091-384).
  - FRAME MEMBERS AND PLATES SHALL BE ALUMINUM.
  - TOE BOARD, 1/4" x 4" ALUMINUM PLATE WELDED TO POST AT MOUNTING RACK ONLY.
  - HORIZONTAL MEMBER SHALL MATCH HEIGHT OF ADJACENT RAILING.
  - COAT SURFACES OF ALUMINUM IN CONTACT WITH CONCRETE. SEE SPECIFICATION 09 90 00.
  - ALL ALUMINUM SHALL BE ANODIZED.

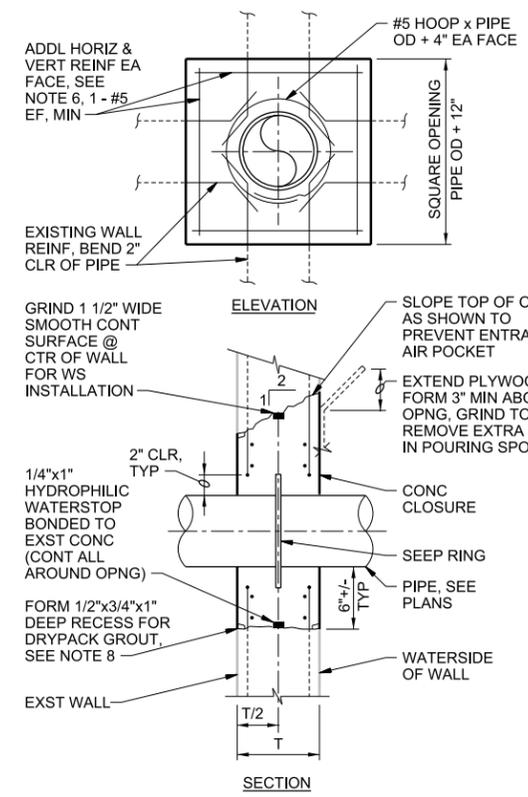


PLAN



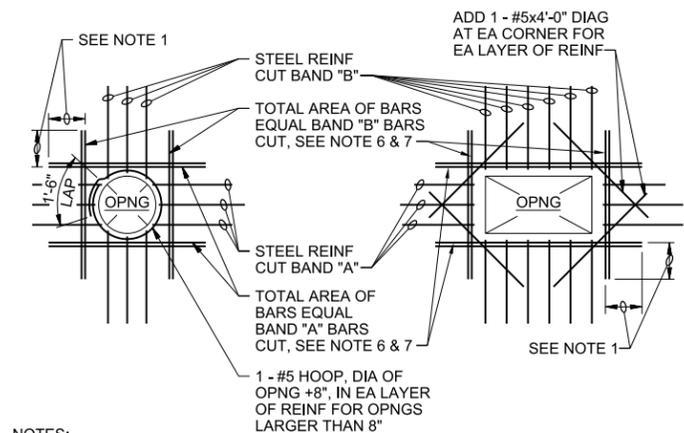
SECTION

PANEL MOUNTING RACK  
NTS  
4402



PIPE PENETRATION - EXISTING WALL  
NTS

- NOTES:
- SAW-CUT 1-INCH DEEP x PIPE OD + 12" SQUARE SCORE LINE ON EACH FACE OF WALL. (VERIFY DEPTH OF CUT TO CLEAR REINFORCING.) (INCREASE HEIGHT AS NOTED AT TOP ON WATERSIDE FACE FOR POURING.)
  - CHIP TO REMOVE THE CONCRETE WITHIN THE SCORE LINE, WHILE PRESERVING THE EXISTING WALL REINFORCING.
  - CUT EXISTING REINFORCING AT CENTER OF OPENING AND BEND TO CLEAR PIPE.
  - GRIND 1 1/2" WIDE x CONT SMOOTH SURFACE ALL AROUND THE OPENING AT CENTER OF WALL. CLEAN SURFACES AND BOND CONTINUOUS HYDROPHILIC WATERSTOP IN PLACE.
  - INSTALL WALL PIPE. (COAT CONCRETE ENCASED PORTION OF PIPE WITH SPECIFIED COATING SYSTEM.)
  - INSTALL ADDITIONAL REINFORCING EACH FACE, EACH SIDE, ABOVE AND BELOW PIPE. HORIZONTAL REINFORCING TO HAVE COMBINED AREA EQUAL TO AREA OF HORIZONTAL REINFORCING CUT. VERTICAL REINFORCING TO HAVE COMBINED AREA EQUAL TO AREA OF VERTICAL REINFORCING CUT.
  - SOAK CONCRETE SURFACES AND WITHIN 15-MINUTES CAST CONCRETE CLOSURE. (CONCRETE CLOSURE MUST BE CAST BEFORE HYDROPHILIC WATERSTOP EXPANDS.) FORM GROOVE ON ALL SIDES OF OPENING EXCEPT AT TOP ON THE POUR SIDE.
  - CLEAN SURFACES OF FORMED GROOVE WITH POWER WIRE BRUSH OR SANDBLASTING AND DRY-PACK WITH NON-SHRINK GROUT AFTER NEW CONCRETE MIN 28-DAYS OLD.



- NOTES:
- PROVIDE MINIMUM LAP, SEE GENERAL STRUCTURAL NOTES.
  - TYPICAL FOR ALL OPENINGS IN CONCRETE WALLS OF BELOW GRADE AND HYDRAULIC STRUCTURES AND ALL STRUCTURAL CONCRETE SLABS UNLESS INDICATED OTHERWISE ON PLANS.
  - DO NOT WELD REINFORCEMENT TO PIPE SLEEVES AND INSERTS.
  - PROVIDE A MINIMUM OF 2 "A" BARS AND 2 "B" BARS EACH SIDE OF OPENING (1 EACH FACE).
  - FOR OPENINGS LARGER THAN 8'-0", REINFORCE SAME AS FOR 8'-0" OPENINGS.
  - SPACE AT 3 BAR DIAMETERS (OR 3" MINIMUM) ON CENTER. LOCATE HALF OF TOTAL AREA ON EACH SIDE OF OPENING.
  - AT OPENINGS WITHIN 12" OF AN INTERSECTING WALL OR SLAB, PROVIDE ONLY THE EXTRA REINFORCEMENT WHICH WILL FIT, AT THE BAR SPACING IN NOTE 6.

OPENING REINFORCING  
NTS

3301

DR	D LANGE	J THORNTON	CHK	M CHRZANOWSKI	APVD	D LANGE
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E80000072 AAC001992  
Dalayne Lange PE 70194

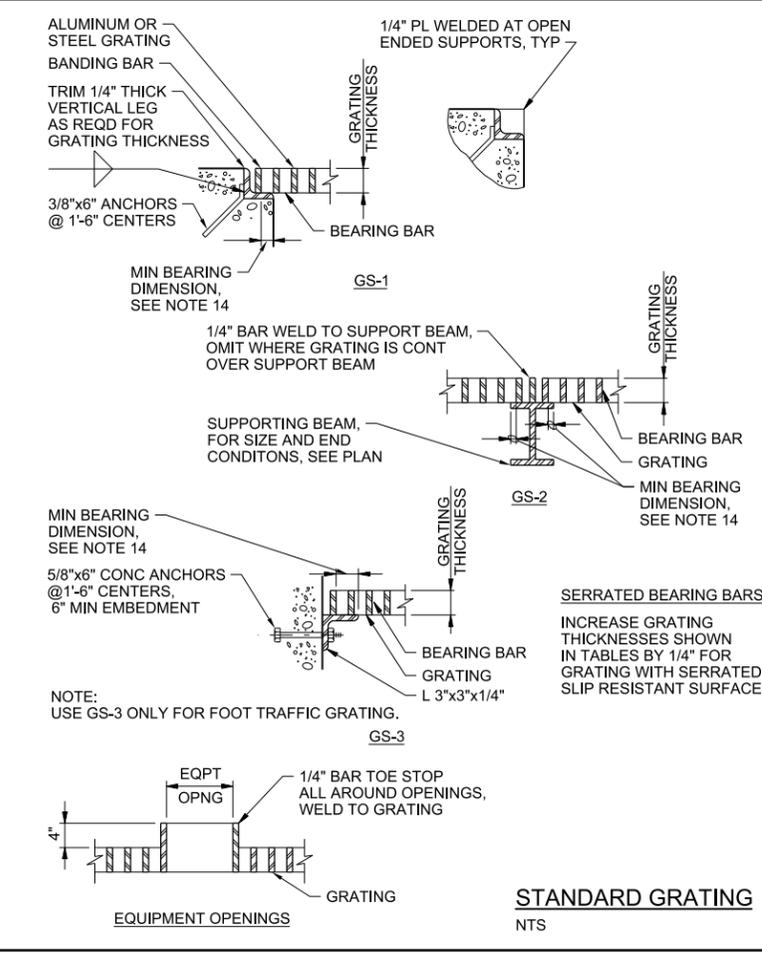
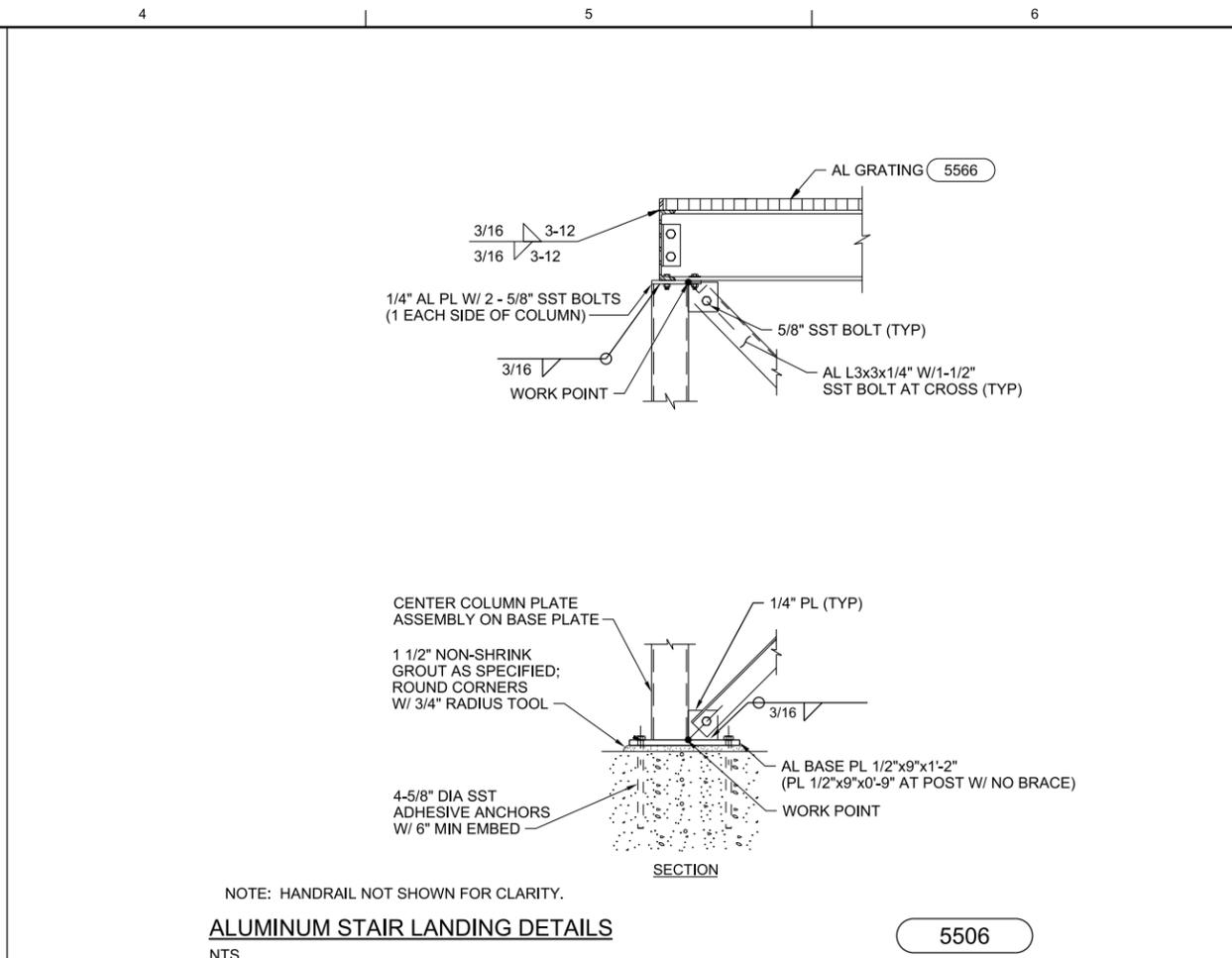
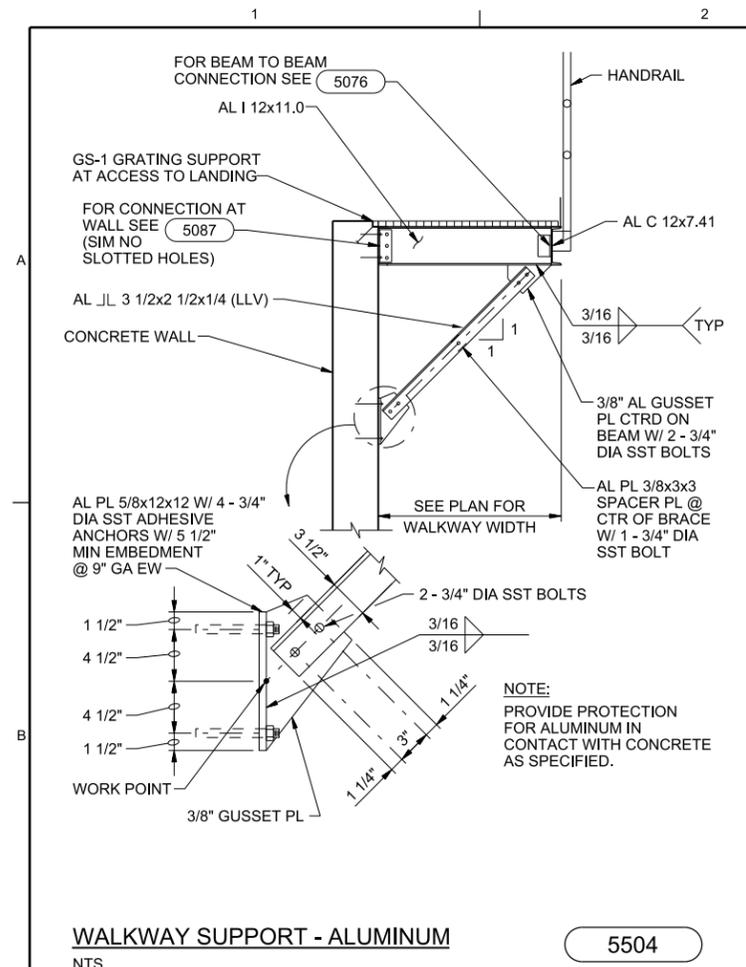
PUMP STATION F  
CITY OF KEY WEST  
KEY WEST, FLORIDA

STRUCTURAL  
STANDARD DETAILS

1" = X'  
VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE AUGUST 2014  
PROJ 406518  
DWG SD-3  
SHEET 24 of 30





3011 S.W. WILLISTON ROAD  
GAINESVILLE, FLORIDA 32608  
E0000072 AAC001992  
Dalayne Lange PE 70194

PUMP STATION F  
CITY OF KEY WEST  
KEY WEST, FLORIDA

STRUCTURAL  
STANDARD DETAILS

1" = X'  
VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE AUGUST 2014  
PROJ 406518  
DWG SD-5  
SHEET 26 of 30

FILENAME: 010-SD-2005\_406518.dgn PLOT DATE: 8/5/2014 PLOT TIME: 7:34:43 AM

FOR BEAM TO BEAM CONNECTION SEE 5076  
AL I 12x11.0  
HANDRAIL  
GS-1 GRATING SUPPORT AT ACCESS TO LANDING  
FOR CONNECTION AT WALL SEE 5087 (SIM NO SLOTTED HOLES)  
AL C 12x7.41  
AL JL 3 1/2x2 1/2x1/4 (LLV)  
CONCRETE WALL  
3/16 TYP  
3/16  
3/8" AL GUSSET PL CTRD ON BEAM W/ 2 - 3/4" DIA SST BOLTS  
AL PL 5/8x12x12 W/ 4 - 3/4" DIA SST ADHESIVE ANCHORS W/ 5 1/2" MIN EMBEDMENT @ 9" GA EW  
SEE PLAN FOR WALKWAY WIDTH  
AL PL 3/8x3x3 SPACER PL @ CTR OF BRACE W/ 1 - 3/4" DIA SST BOLT  
2 - 3/4" DIA SST BOLTS  
1 1/2"  
4 1/2"  
4 1/2"  
1 1/2"  
3/8" GUSSET PL  
1 1/2"  
3"  
1 1/4"  
1 1/4"  
NOTE: PROVIDE PROTECTION FOR ALUMINUM IN CONTACT WITH CONCRETE AS SPECIFIED.

AL GRATING 5566  
3/16 3-12  
3/16 3-12  
1/4" AL PL W/ 2 - 5/8" SST BOLTS (1 EACH SIDE OF COLUMN)  
5/8" SST BOLT (TYP)  
AL L3x3x1/4" W/1-1/2" SST BOLT AT CROSS (TYP)  
WORK POINT

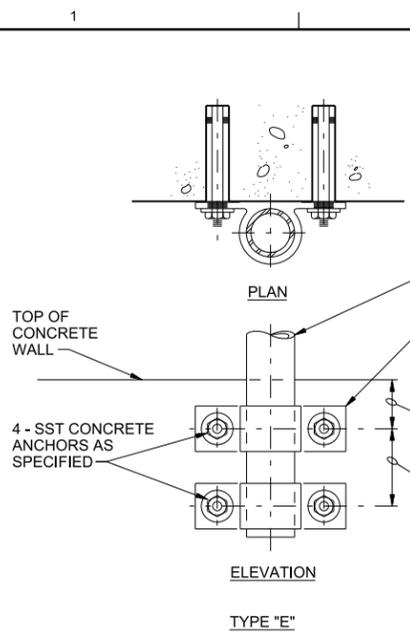
CENTER COLUMN PLATE ASSEMBLY ON BASE PLATE  
1 1/2" NON-SHRINK GROUT AS SPECIFIED; ROUND CORNERS W/ 3/4" RADIUS TOOL  
1/4" PL (TYP)  
3/16  
AL BASE PL 1/2"x9"x1-2" (PL 1/2"x9"x0-9" AT POST W/ NO BRACE)  
4-5/8" DIA SST ADHESIVE ANCHORS W/ 6" MIN EMBED  
WORK POINT  
SECTION

NOTE: HANDRAIL NOT SHOWN FOR CLARITY.

ALUMINUM OR STEEL GRATING  
BANDING BAR  
TRIM 1/4" THICK VERTICAL LEG AS REQD FOR GRATING THICKNESS  
3/8"x6" ANCHORS @ 1'-6" CENTERS  
MIN BEARING DIMENSION, SEE NOTE 14  
GS-1  
1/4" PL WELDED AT OPEN ENDED SUPPORTS, TYP  
GRATING THICKNESS  
BEARING BAR  
1/4" BAR WELD TO SUPPORT BEAM, OMIT WHERE GRATING IS CONT OVER SUPPORT BEAM  
GRATING THICKNESS  
SUPPORTING BEAM, FOR SIZE AND END CONDITONS, SEE PLAN  
GS-2  
BEARING BAR  
GRATING  
MIN BEARING DIMENSION, SEE NOTE 14  
MIN BEARING DIMENSION, SEE NOTE 14  
5/8"x6" CONC ANCHORS @ 1'-6" CENTERS, 6" MIN EMBEDMENT  
BEARING BAR  
GRATING  
L 3"x3"x1/4"  
SERRATED BEARING BARS:  
INCREASE GRATING THICKNESSES SHOWN IN TABLES BY 1/4" FOR GRATING WITH SERRATED SLIP RESISTANT SURFACES.  
NOTE: USE GS-3 ONLY FOR FOOT TRAFFIC GRATING.  
GS-3  
EQPT OPNG  
1/4" BAR TOE STOP ALL AROUND OPENINGS, WELD TO GRATING  
GRATING  
EQUIPMENT OPENINGS

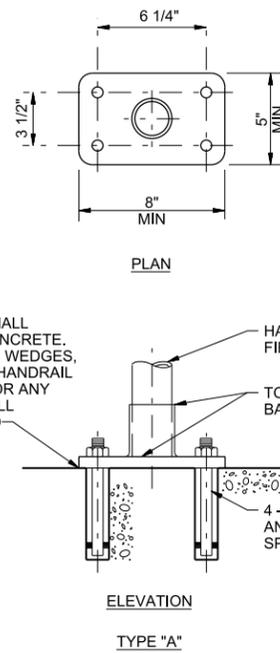
D LANGE J THORNTON M CHRZANOWSKI  
APVD  
CHK  
DR  
D LANGE  
DSGN

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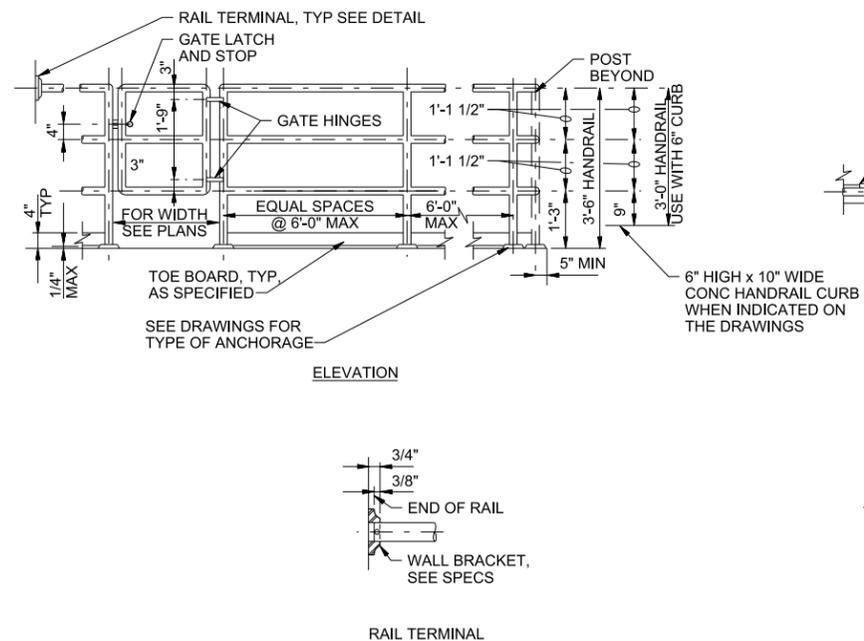
- NOTES:**
1. PROVIDE PROTECTION FOR DISSIMILAR METALS AND CONCRETE PER SPECIFICATIONS.
  2. USE SIDE MOUNTED HANDRAIL BRACKET AS A TEMPLATE FOR THE ANCHOR BOLTS.

**HANDRAIL POST ANCHORAGE-ALUMINUM**



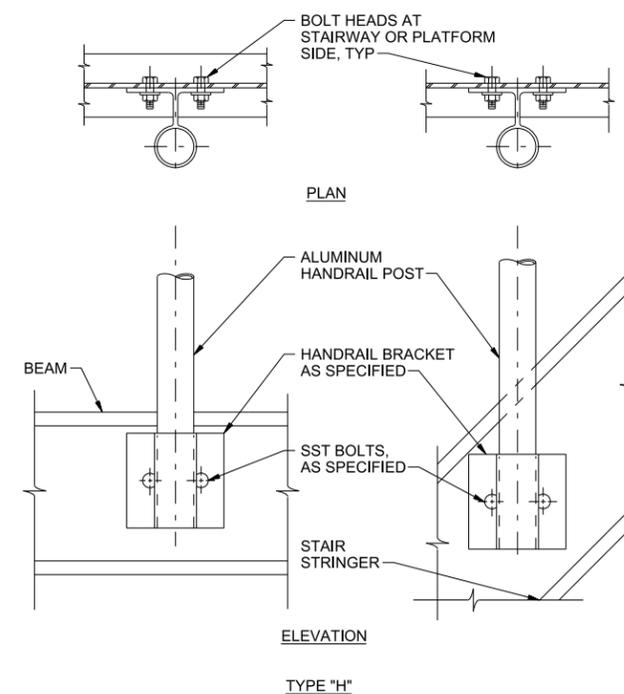
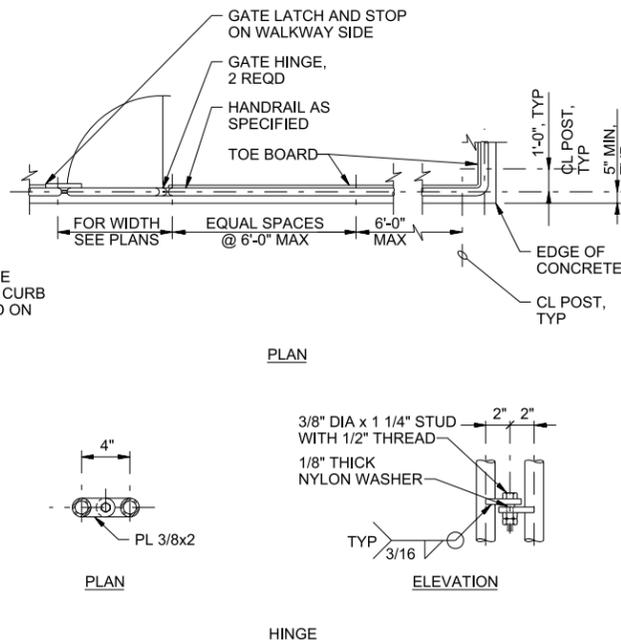
- NOTE:**
- PROVIDE PROTECTION FOR DISSIMILAR METALS AND CONCRETE PER SPECIFICATIONS.

**HANDRAIL POST ANCHORAGE-ALUMINUM**



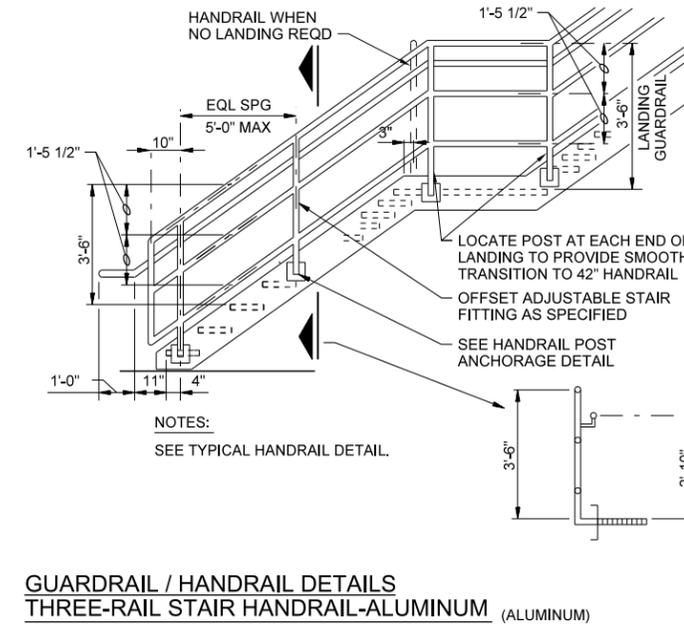
- NOTES:**
1. FASTEN RAIL TO WALL BRACKET PER MANUFACTURERS RECOMMENDATIONS.
  2. WALL FLANGE TO BE MOUNTED TO WALL WITH 2 - 3/8" DIA SST WEDGE ANCHORS.

**THREE-RAIL HANDRAIL-ALUMINUM**



- NOTE:**
- PROVIDE PROTECTION FOR DISSIMILAR METALS AND CONCRETE PER SPECIFICATIONS.

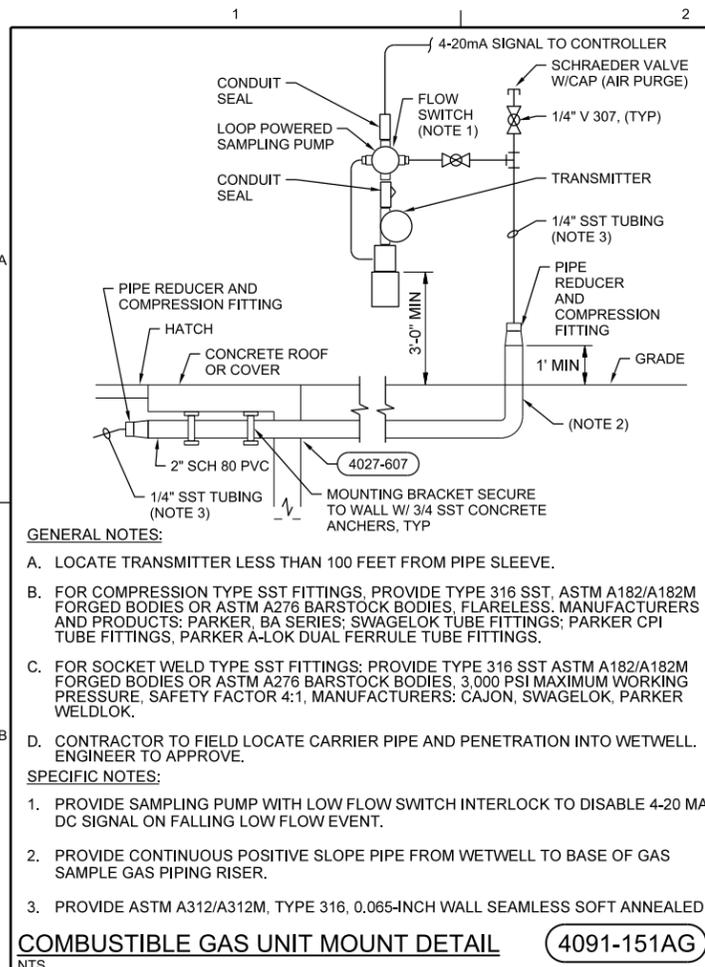
**HANDRAIL POST ANCHORAGE-ALUMINUM**



**GUARDRAIL / HANDRAIL DETAILS**  
**THREE-RAIL STAIR HANDRAIL-ALUMINUM** (ALUMINUM)

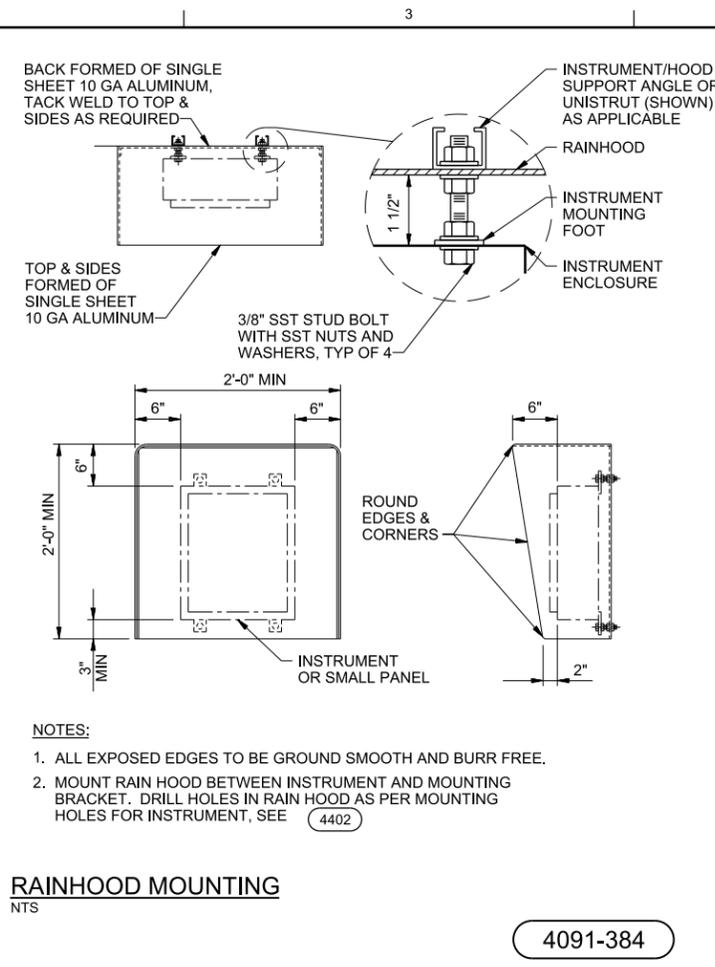
3011 S.W. WILLISTON ROAD GAINESVILLE, FLORIDA 32608 E80000072 / AAC001992 Dalayne Lange PE 70194		PUMP STATION F		CITY OF KEY WEST KEY WEST, FLORIDA	
STRUCTURAL		STANDARD DETAILS		1" = X'	
VERIFY SCALE		BAR IS ONE INCH ON ORIGINAL DRAWING.		DATE AUGUST 2014	
PROJECT		PROJ 406518		DWG SD-6	
SHEET		27 of 30		521	
DR	D LANGE	CHK	J THORNTON	APVD	M CHRZANOWSKI
D LANGE					





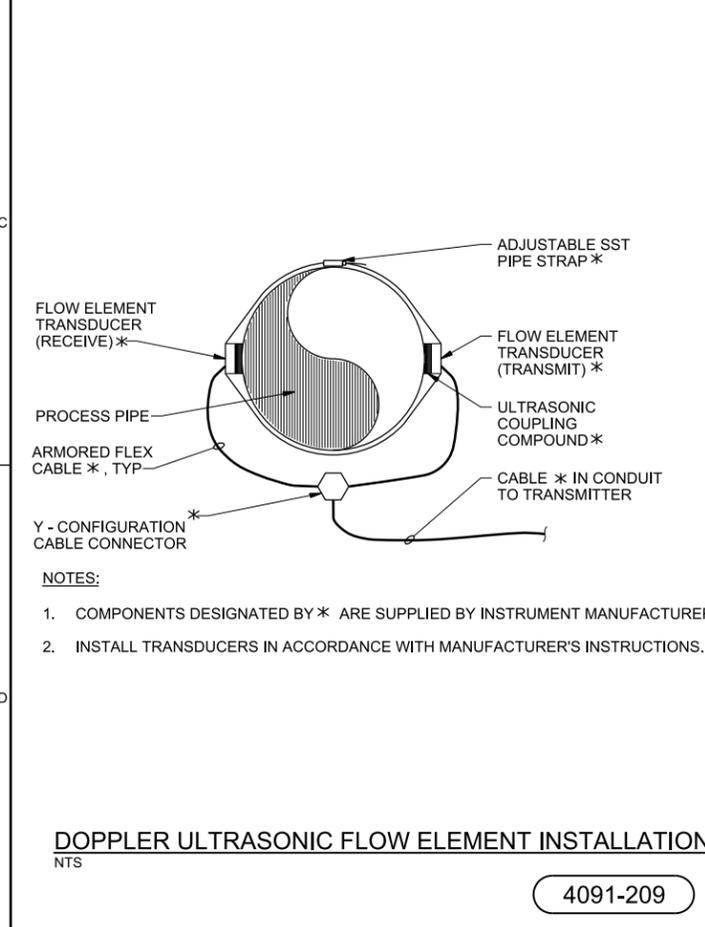
- GENERAL NOTES:**
- A. LOCATE TRANSMITTER LESS THAN 100 FEET FROM PIPE SLEEVE.
  - B. FOR COMPRESSION TYPE SST FITTINGS, PROVIDE TYPE 316 SST, ASTM A182/A182M FORGED BODIES OR ASTM A276 BARSTOCK BODIES, FLARELESS, MANUFACTURERS AND PRODUCTS: PARKER, BA SERIES; SWAGelok TUBE FITTINGS; PARKER CPI TUBE FITTINGS, PARKER A-LOK DUAL FERRULE TUBE FITTINGS.
  - C. FOR SOCKET WELD TYPE SST FITTINGS: PROVIDE TYPE 316 SST ASTM A182/A182M FORGED BODIES OR ASTM A276 BARSTOCK BODIES, 3,000 PSI MAXIMUM WORKING PRESSURE, SAFETY FACTOR 4:1, MANUFACTURERS: CAJON, SWAGelok, PARKER WELDLOK.
  - D. CONTRACTOR TO FIELD LOCATE CARRIER PIPE AND PENETRATION INTO WETWELL. ENGINEER TO APPROVE.
- SPECIFIC NOTES:**
- 1. PROVIDE SAMPLING PUMP WITH LOW FLOW SWITCH INTERLOCK TO DISABLE 4-20 MA DC SIGNAL ON FALLING LOW FLOW EVENT.
  - 2. PROVIDE CONTINUOUS POSITIVE SLOPE PIPE FROM WETWELL TO BASE OF GAS SAMPLE GAS PIPING RISER.
  - 3. PROVIDE ASTM A312/A312M, TYPE 316, 0.065-INCH WALL SEAMLESS SOFT ANNEALED.

**COMBUSTIBLE GAS UNIT MOUNT DETAIL** 4091-151AG



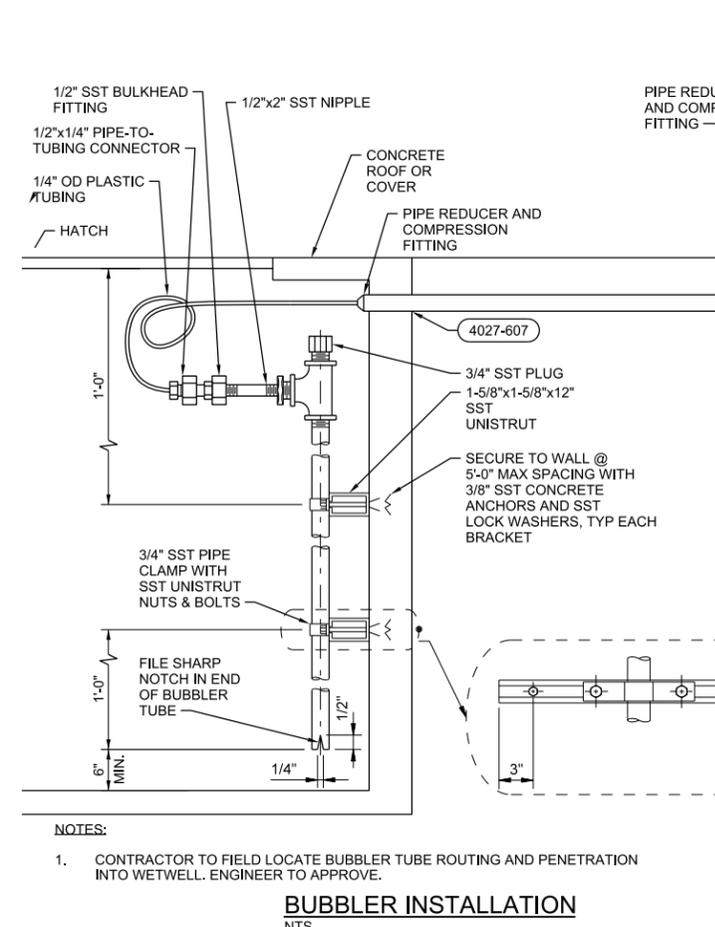
- NOTES:**
- 1. ALL EXPOSED EDGES TO BE GRIND SMOOTH AND BURR FREE.
  - 2. MOUNT RAIN HOOD BETWEEN INSTRUMENT AND MOUNTING BRACKET. DRILL HOLES IN RAIN HOOD AS PER MOUNTING HOLES FOR INSTRUMENT, SEE 4402

**RAINHOOD MOUNTING** 4091-384



- NOTES:**
- 1. COMPONENTS DESIGNATED BY \* ARE SUPPLIED BY INSTRUMENT MANUFACTURER.
  - 2. INSTALL TRANSDUCERS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

**DOPPLER ULTRASONIC FLOW ELEMENT INSTALLATION** 4091-209



- NOTES:**
- 1. CONTRACTOR TO FIELD LOCATE BUBBLER TUBE ROUTING AND PENETRATION INTO WETWELL. ENGINEER TO APPROVE.

**BUBBLER INSTALLATION** 4091-241

J. KNIGHT	A. CLOUGH	DR	CHK	PY. KESKAR	APVD	J. KNIGHT	© CH2M HILL 2014. ALL RIGHTS RESERVED.
3011 S.W. WILLISTON ROAD GAINESVILLE, FLORIDA 32608 E80000072 / AAC001992 Jessica R. Knight, PE 72450		PUMP STATION F		CITY OF KEY WEST KEY WEST, FLORIDA		INSTRUMENTATION AND CONTROL STANDARD DETAILS	
1" = X'							
VERIFY SCALE							
BAR IS ONE INCH ON ORIGINAL DRAWING.							
DATE	AUGUST 2014						
PROJ	406518						
DWG	SD-8						
SHEET	29 of 30						

