

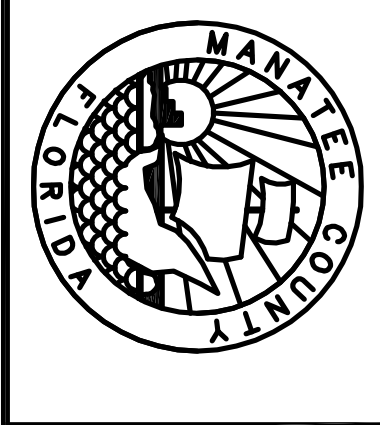
NOTES:  
 1. REFER TO PROPOSED SITE MAP & BYPASS PUMPING SPECIFICATIONS PRIOR TO COMMENCING DEMOLITION.  
 2. SITE LOCATED IN FLOOD ZONE "X" PER FEMA PANEL 120153 0354C (JULY 15, 1992).

LEGEND  
 TO BE REMOVED & DISPOSED OFF-SITE

**URS**  
 7650 West Courtney Campbell Causeway  
 Suite 700  
 Tampa, Florida 33607  
 Pp: (813) 286-1711 Fax: (813) 286-6867  
 Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION
REVISIONS			

URS JOB NUMBER	12007391
PM: C. OSMAWSKI	
ENG: C. OSMAWSKI	
DRW: J. SCHEUERMAN	
FILE SAVE DATE:	November 19, 2008



IMPROVEMENTS AT  
**TARA #20 MASTER LIFT STATION**  
 FOR  
 MANATEE COUNTY GOVERNMENT  
 MANATEE COUNTY, FLORIDA

**EXISTING SITE PLAN & DEMOLITION PLAN**

CPAC P. OSMAWSKI  
 FLORIDA P.E. NO. 48961

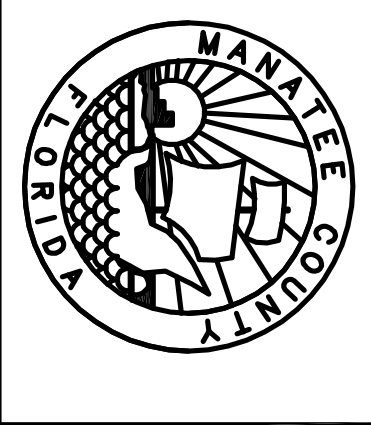
PROJECT STATUS  
 BID DOCUMENT  
**C-1**



7650 West Courtney Campbell Causeway  
 Suite 700  
 Tampa, Florida 33607  
 P: (813) 286-1711 Fax: (813) 286-6867  
 Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION
REVISIONS			

URS JOB NUMBER	12007391
PM:	C. OSMAWSKI
ENG:	C. OSMAWSKI
DRW:	J. SCHEURMAN
FILE SAVE DATE:	November 19, 2008

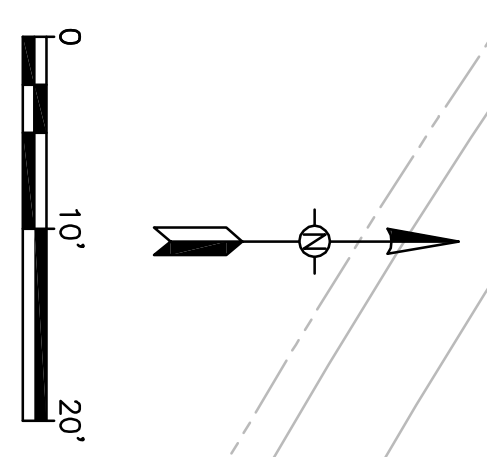
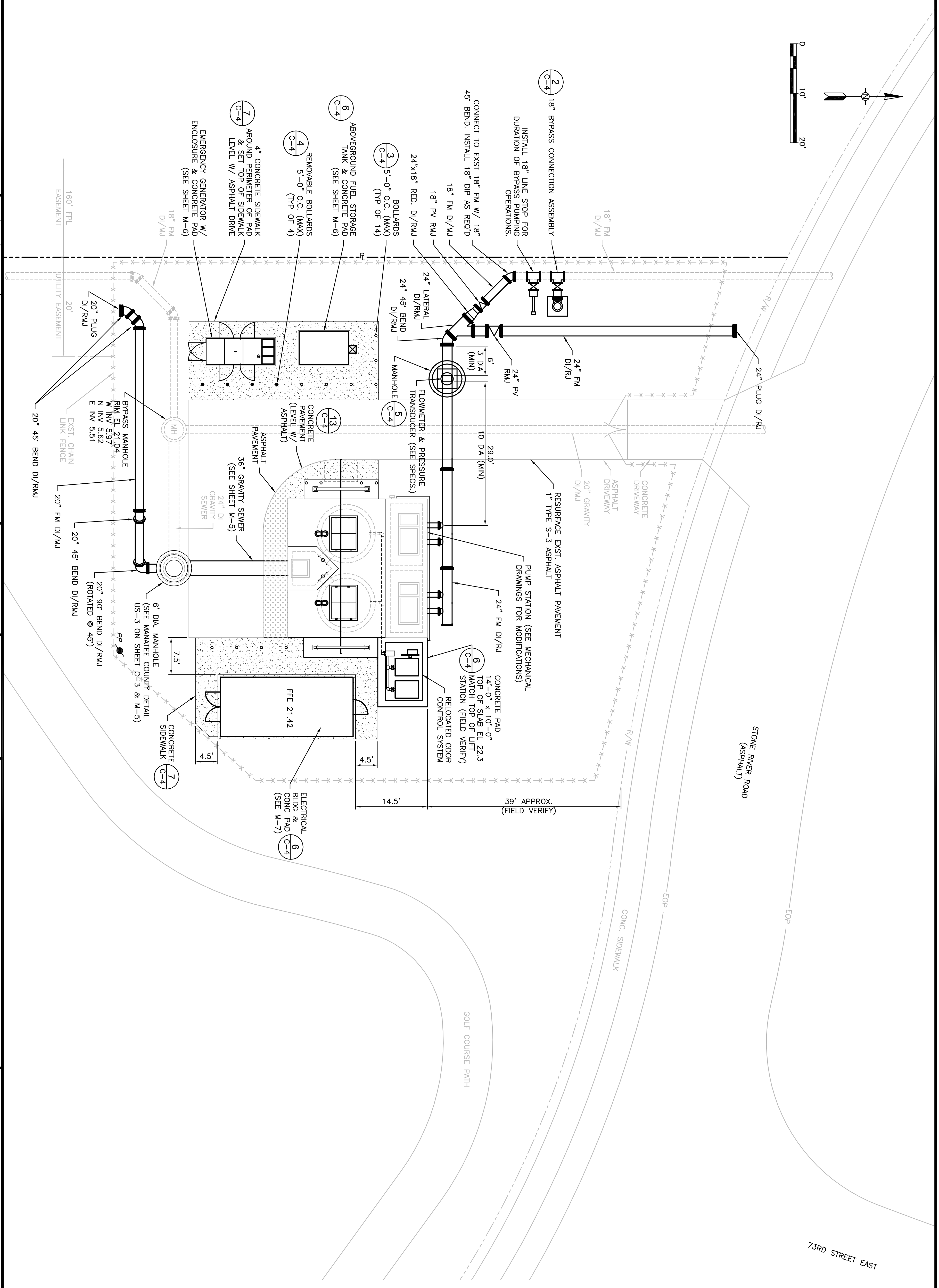


IMPROVEMENTS AT  
**TARA #20 MASTER LIFT STATION**  
 FOR  
 MANATEE COUNTY GOVERNMENT  
 MANATEE COUNTY, FLORIDA

**PROPOSED SITE PLAN**

CPAC P. OSMAWSKI  
 FLORIDA P.E. NO. 48961

PROJECT STATUS  
 BID DOCUMENT  
**C-2**



**CONSTRUCTION SEQUENCE**

1. INSTALL 18" BYPASS CONNECTION ASSEMBLY.
2. INSTALL 18" LINE STOP.
3. PLUG 24" SANITARY MAIN BETWEEN BYPASS MANHOLE AND MANHOLE BEING REPLACED.
4. PERFORM BYPASS PUMPING (REFER TO SPECIFICATION).
5. ONCE THE STATION IS BYPASSED, EMPTY WETWELL & BEGIN STATION REHABILITATION.
6. INSTALL NEW DROP MANHOLE, PIPING, & DOORHOUSE MANHOLE FOR STRAP-ON FLOWMETER.

**NOTE:**  
 1. PROVIDE TEMPORARY PIPE SUPPORT TO MAINTAIN VERTICAL & HORIZONTAL ALIGNMENTS WHEN EXCAVATING EXISTING PIPE.

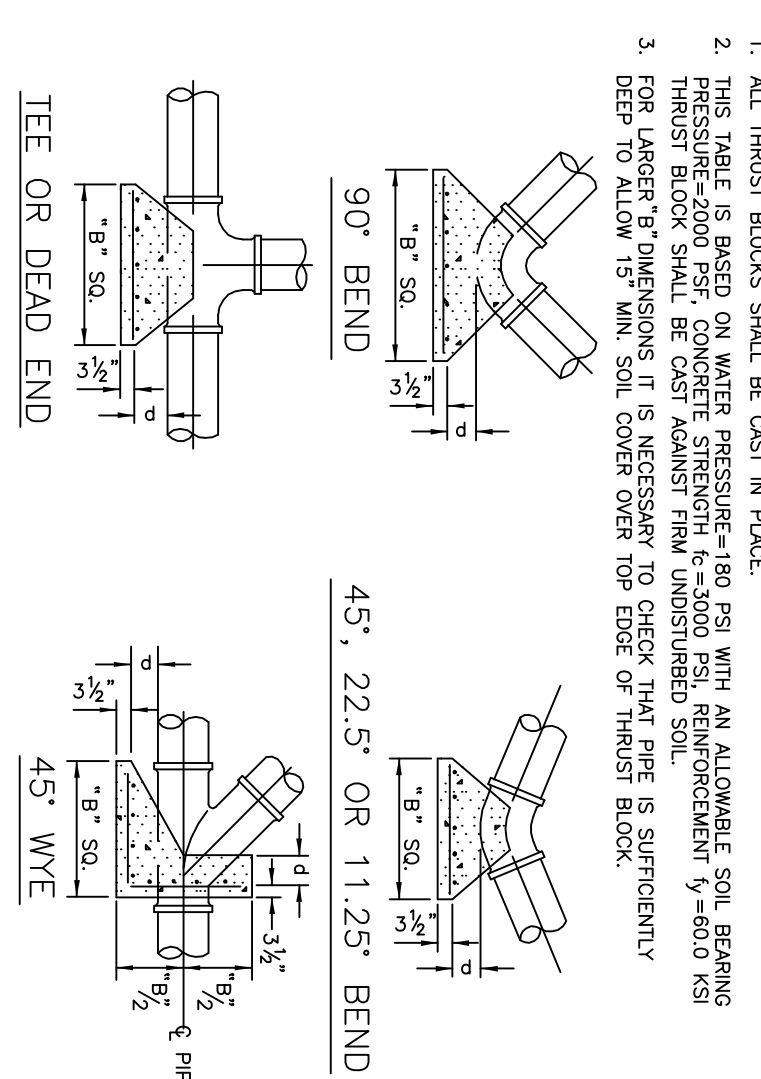
**PROPOSED EQUIPMENT ELEVATIONS:**  
 GENERATOR SYSTEM CONCRETE PAD (TOP) = EL 21.00  
 FUEL TANK (TOP) = EL 26.25  
 GENERATOR (BOTTOM) = EL 22.88

**SITE LOCATION:**  
 IN FLOOD "ZONE X" PER FIRM PANEL 120153 0354C (JULY 15, 1992)

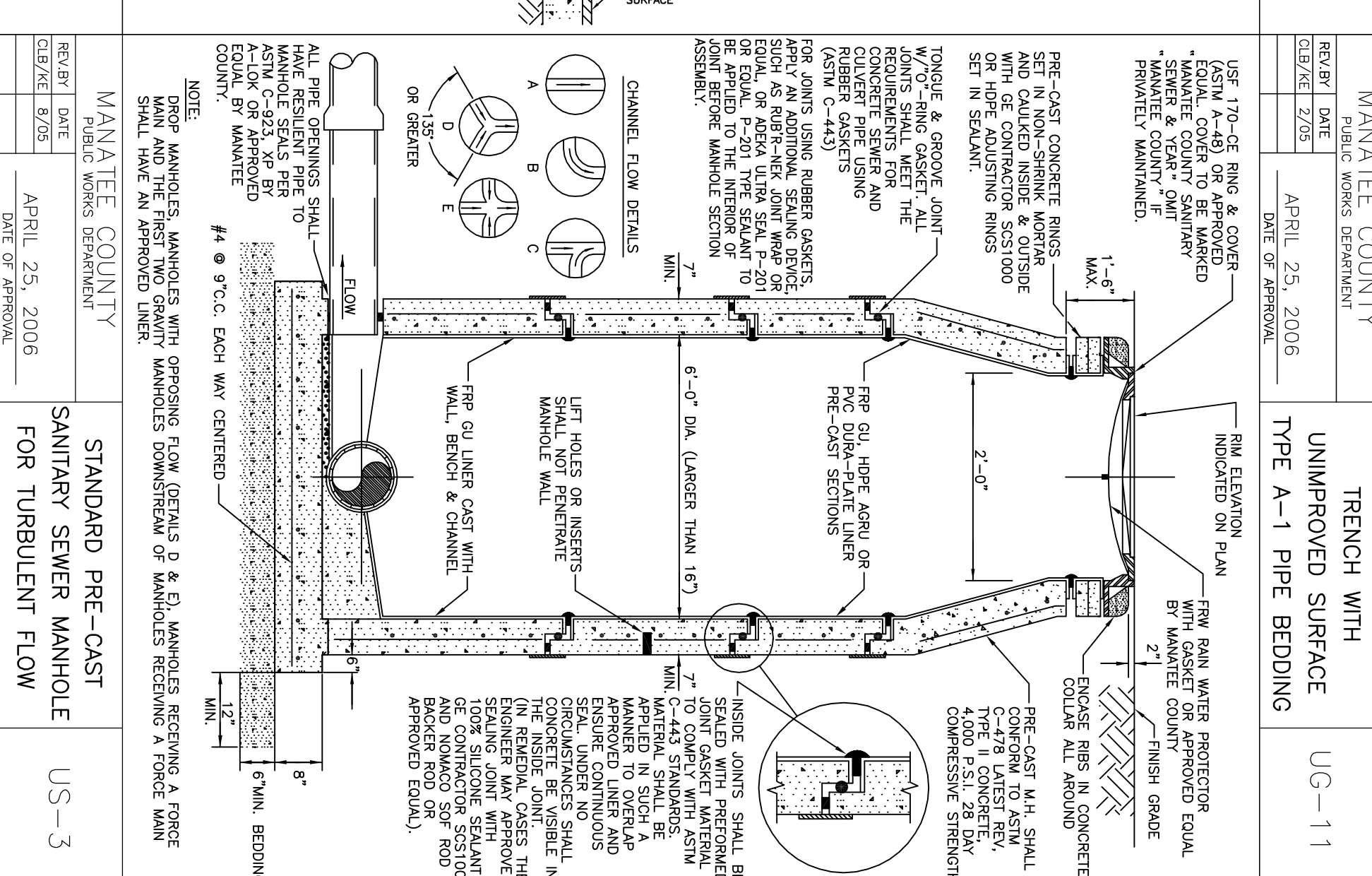
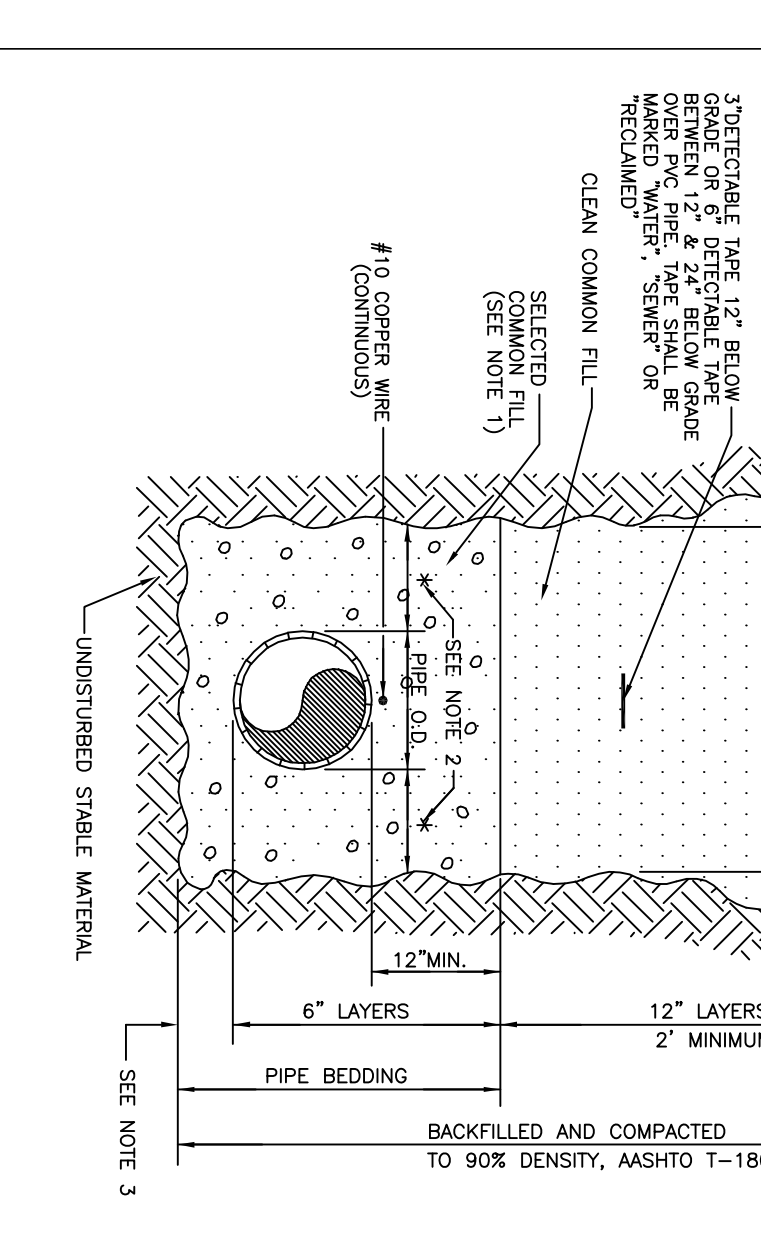
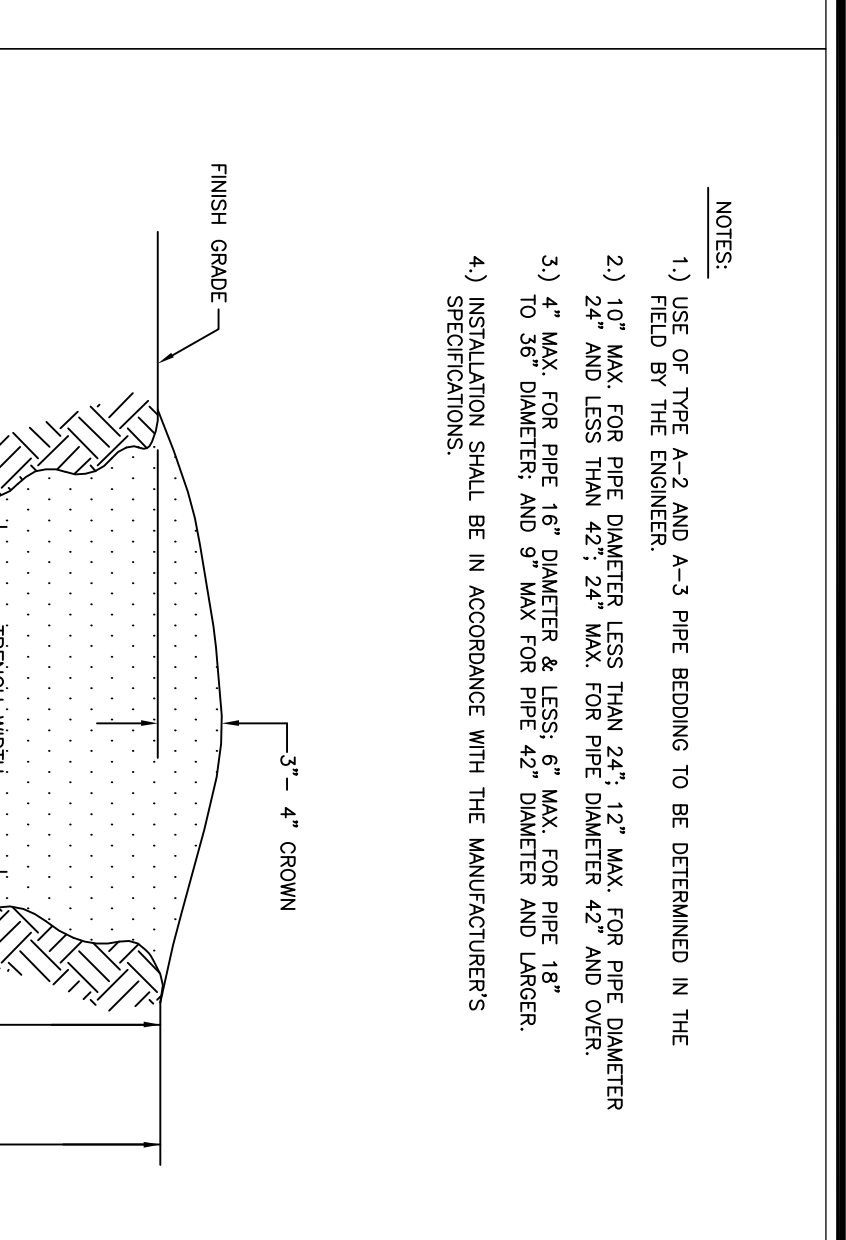
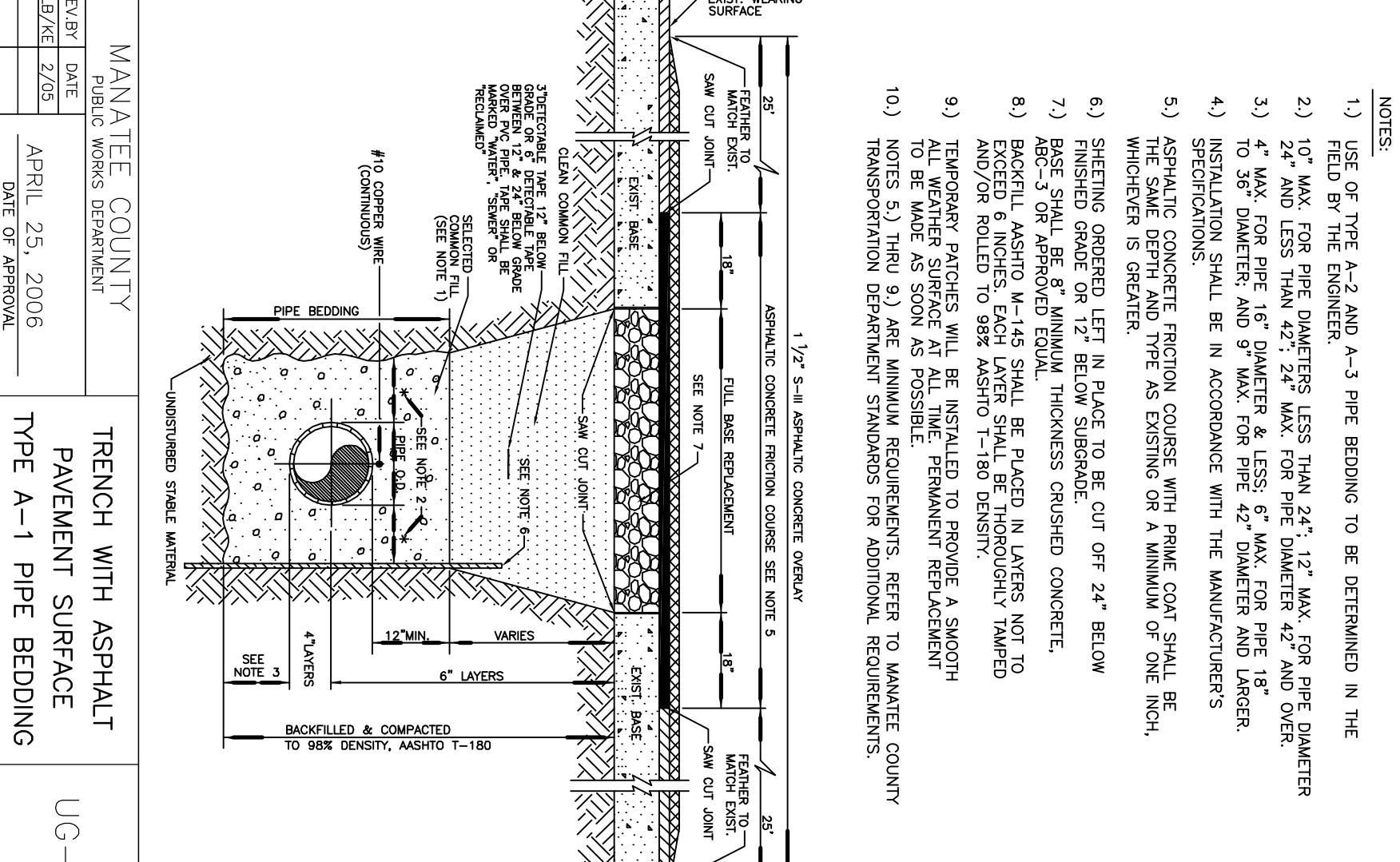
**THRUST BLOCK DIMENSIONS** B, D, F, & E INCHES

PIPE SIZE (IN)	90° BEND	45° BEND	11.25° BEND	B	D	F	E	45° WYE
4	1.5	3/4	0.8	3/2	0.6	3/2	1.3	3/2
6	2.2	5/4	1.6	3/2	0.8	3/2	1.9	1.6
8	2.9	7/4	2.1	5	1.5	3/2	2.4	2.0
10	3.5	8 1/2	2.8	6 1/4	1.9	4 1/2	3.0	2.5
12	4.2	10	3.1	7 1/2	2.2	5 1/4	3.6	3.0
14	4.9	11 1/2	3.8	8 3/4	2.8	6 1/4	4.1	3.4
16	5.5	13 1/2	4.1	9 3/4	2.9	7	4.7	3.9
18	6.2	15	4.8	11	3.3	8	5.2	4.4
20	6.9	16 1/2	5.0	12	3.6	8 3/4	5.8	4.9
24	8.2	19 1/2	6.0	14 1/2	4.3	10 1/4	6.8	5.8
30	10.1	24 1/2	7.5	18	5.3	12 3/4	8.5	7.2
36	12.1	29	8.9	21 1/4	6.4	15 1/4	10.2	8.6

REINFORCEMENT MAT SCHEDULE  
 FOR DIM. 'B' BETWEEN 5.75' & 11.5' USE #4 @ 8" EACH WAY  
 FOR DIM. 'B' LESS THAN 5.75' USE #3 @ 8" EACH WAY



MANATEE COUNTY  
 PUBLIC WORKS DEPARTMENT  
 CONCRETE THRUST BLOCKS  
 UG-7  
 APRIL 25, 2006  
 DATE OF APPROVAL



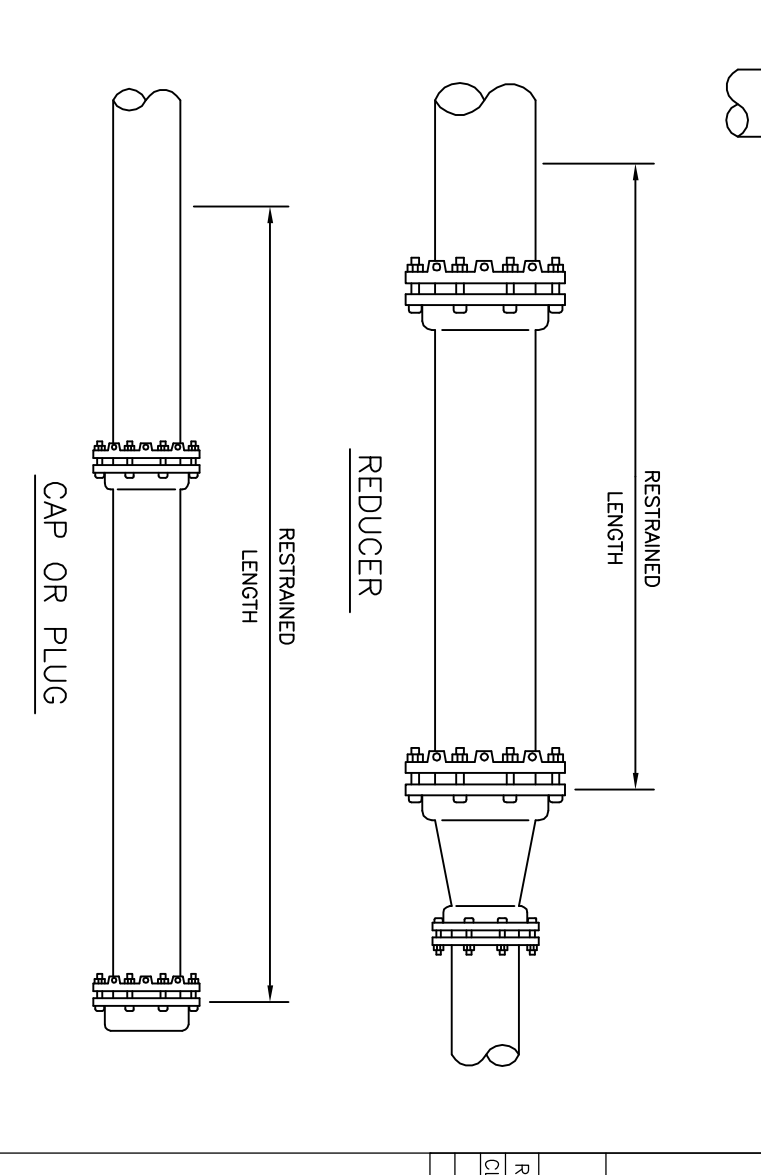
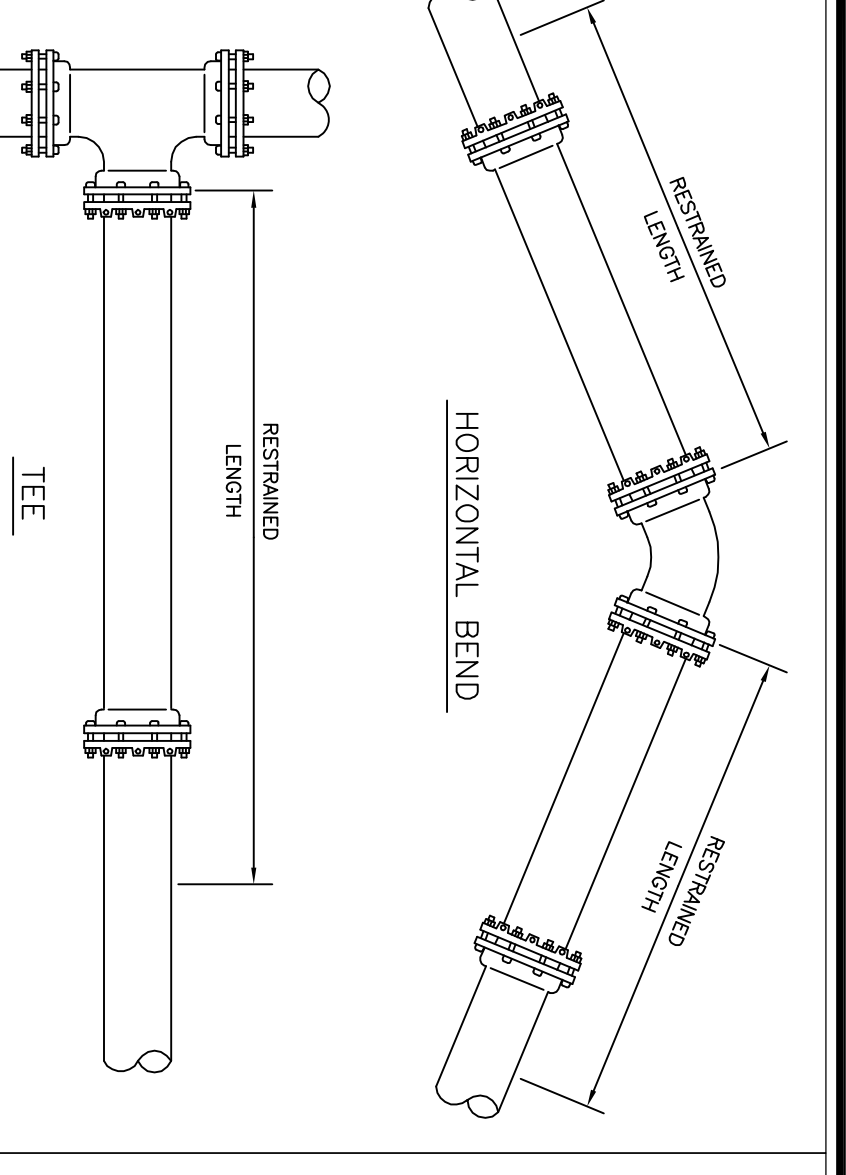
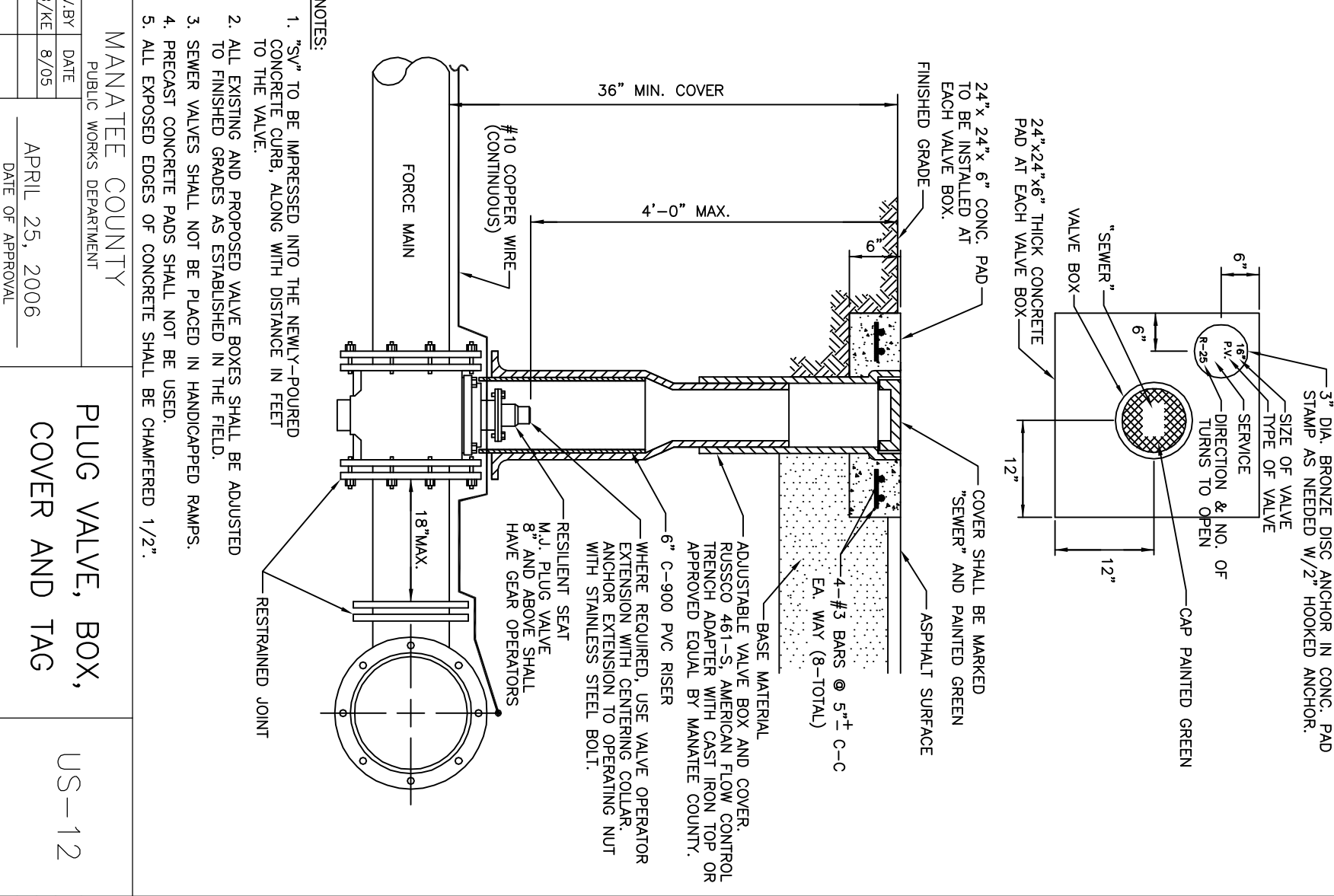
**REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (POLY-WRAPPED)**

MAIN PIPE SIZE	HORIZ. BENDS	TEES	REDUCERS	PLUGS
36	142	59	28	433
30	124	51	25	391
24	106	44	21	327
18	92	38	18	280
16	77	32	15	231
12	61	25	12	181
10	52	22	10	153
8	44	18	8	128
6	34	14	7	98
4	24	10	5	69

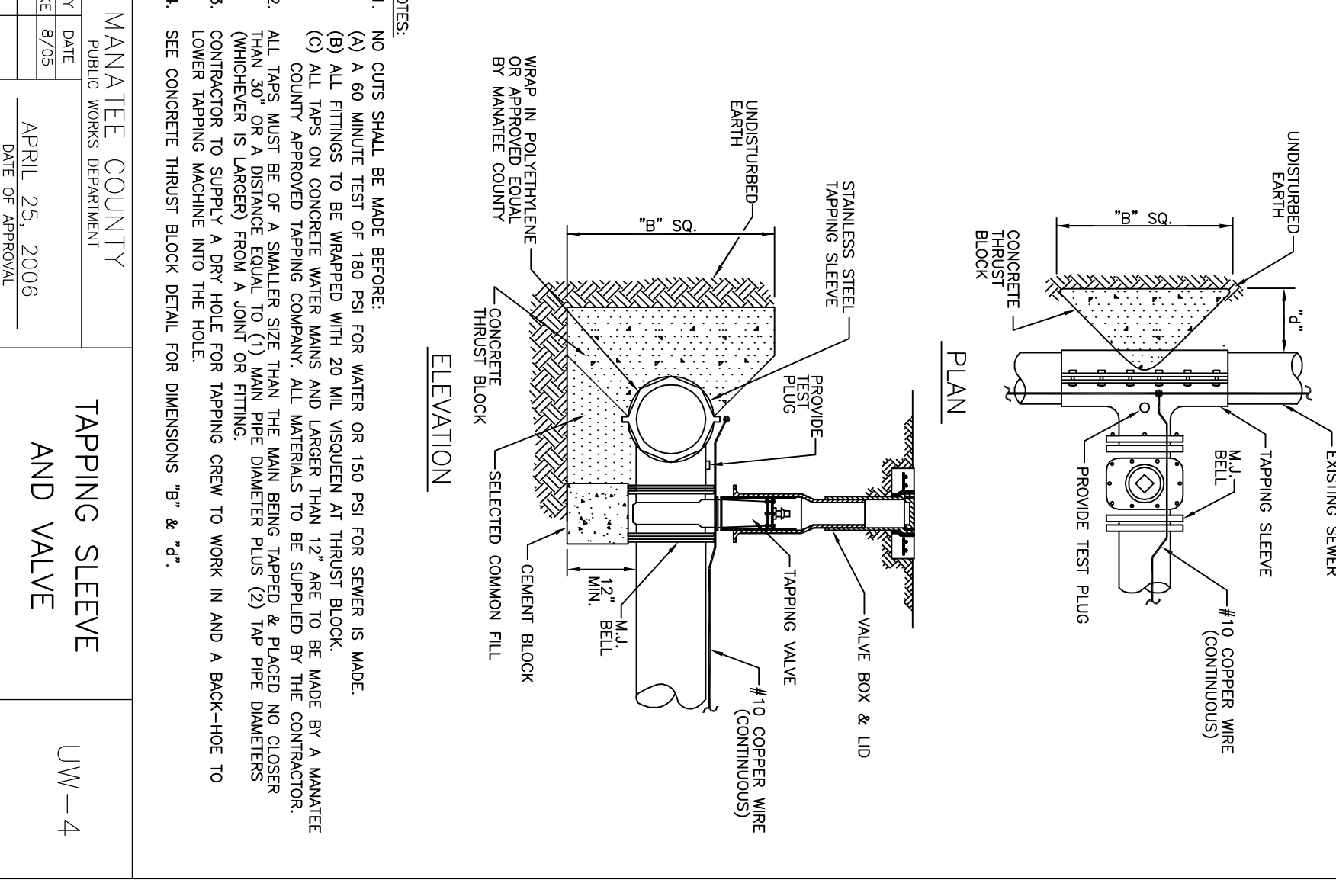
**REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (NON-WRAPPED)**

MAIN PIPE SIZE	HORIZ. BENDS	TEES	REDUCERS	PLUGS
36	100	42	20	188
30	88	37	18	162
24	75	31	15	135
18	65	27	13	116
16	54	22	11	96
12	43	18	8	75
10	37	15	7	63
8	30	13	6	53
6	24	10	5	41
4	17	7	3	29

MANATEE COUNTY  
 PUBLIC WORKS DEPARTMENT  
 RESTRAINED LENGTHS FOR DIP  
 UG-9  
 APRIL 25, 2006  
 DATE OF APPROVAL

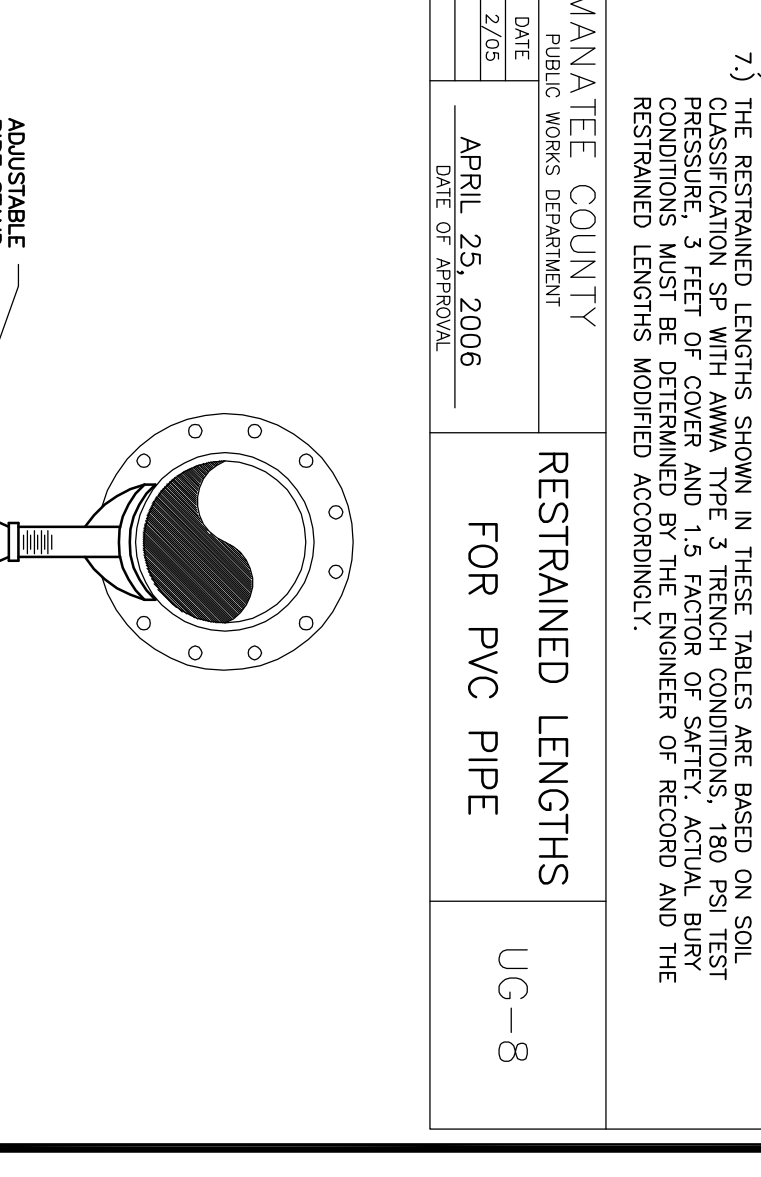


MANATEE COUNTY  
 PUBLIC WORKS DEPARTMENT  
 RESTRAINED LENGTHS FOR PIPE  
 UG-10  
 APRIL 25, 2006  
 DATE OF APPROVAL

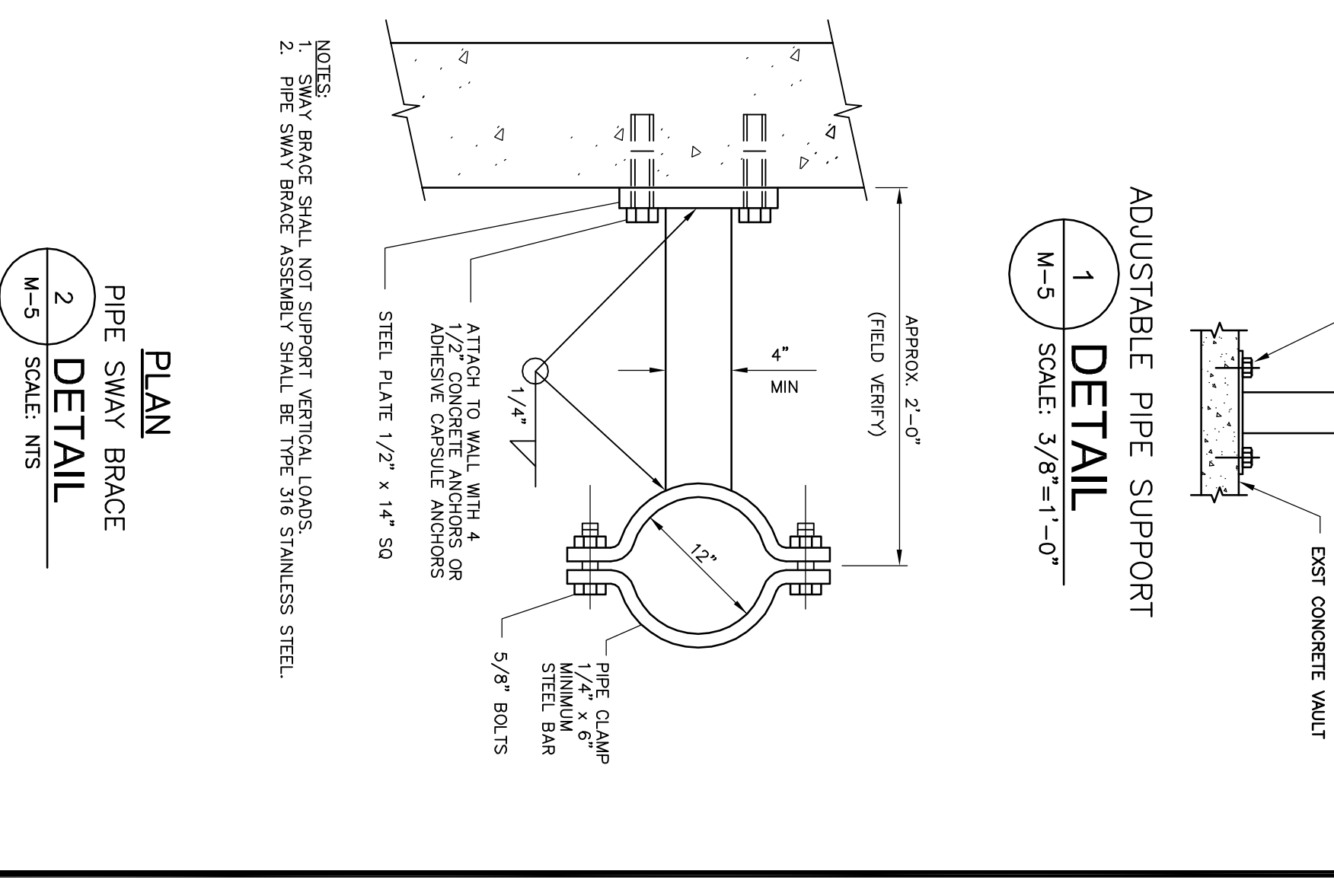


**REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DR-18 PVC PIPE**

MAIN PIPE SIZE	HORIZ. BENDS	TEES	REDUCERS	PLUGS
24	90	38	18	214
20	78	32	16	184
16	66	27	13	151
12	52	22	10	118
10	44	18	8	100
8	37	15	7	83
6	29	12	6	63
4	21	8	4	45



MANATEE COUNTY  
 PUBLIC WORKS DEPARTMENT  
 RESTRAINED LENGTHS FOR PVC PIPE  
 UG-8  
 APRIL 25, 2006  
 DATE OF APPROVAL



**URS**  
 7650 West Courtney Campbell Causeway  
 Suite 700  
 Tampa, Florida 33607  
 Pp: (813) 286-1711 Fax: (813) 286-6867  
 Florida Engineering Number: 000002

NO. BY DATE

DESCRIPTION

REVISIONS

NOVEMBER 19, 2008

FILE SAVE DATE:

NOVEMBER 19, 2008

DRW: J. SCHEUELMAN  
 ENG: C. OSMAWSKI  
 PM: C. OSMAWSKI

12007391

URS JOB NUMBER

**MANATEE COUNTY**  
 IMPROVEMENTS AT TARA #20 MASTER LIFT STATION FOR MANATEE COUNTY GOVERNMENT, MANATEE COUNTY, FLORIDA

**MANATEE COUNTY**  
 CIVIL DETAILS

PROJECT STATUS  
 BID DOCUMENT  
 C-3

CPAC P. OSMAWSKI  
 FLORIDA P.E. NO. 48961



















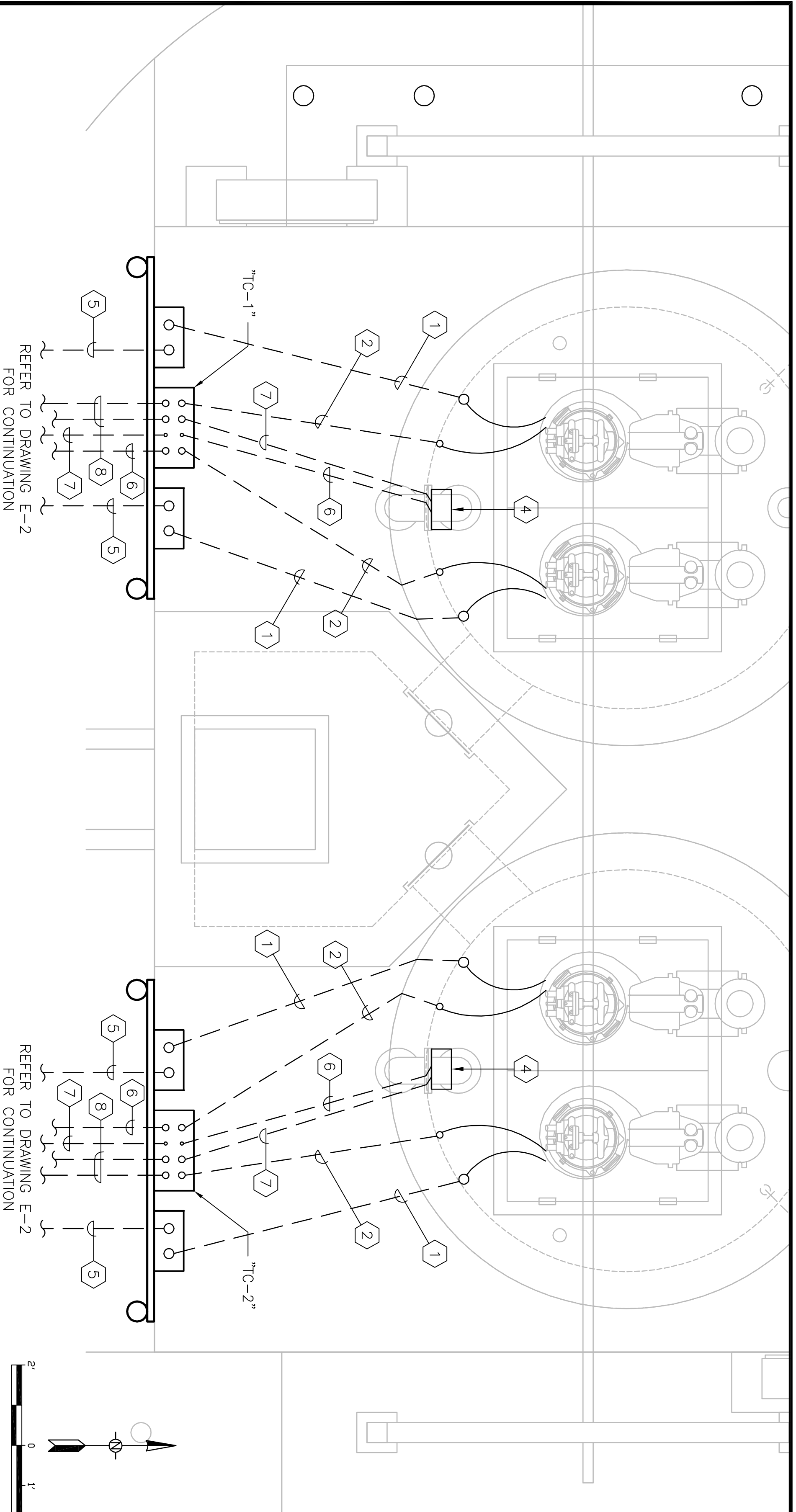








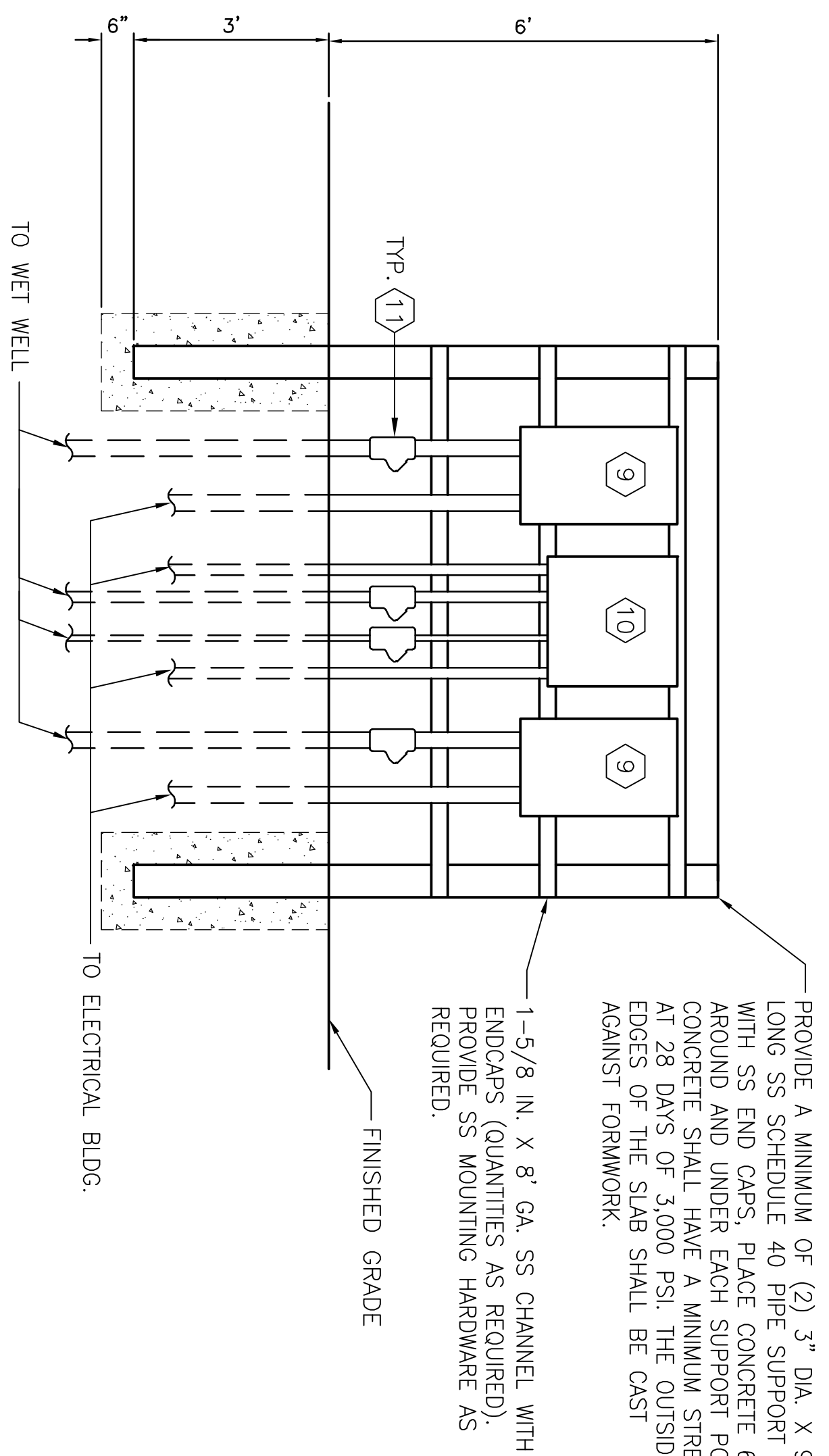




REFER TO DRAWING E-2 FOR CONTINUATION

REFER TO DRAWING E-2 FOR CONTINUATION

**1 PLAN**  
 WET WELLS  
 SCALE: 1/2"=1'-0"



**2 ELEVATION**  
 TYPICAL TERMINATION CABINET  
 SCALE: NTS

PROVIDE A MINIMUM OF (2) 3" DIA. X 9' LONG SS SCHEDULE 40 PIPE SUPPORT POST WITH SS END CAPS. PLACE CONCRETE 6" AROUND AND UNDER EACH SUPPORT POST. CONCRETE SHALL HAVE A MINIMUM STRENGTH AT 28 DAYS OF 3,000 PSI. THE OUTSIDE EDGES OF THE SLAB SHALL BE CAST AGAINST FORMWORK.

1-5/8 IN. X 8' GA. SS CHANNEL WITH ENDCAPS (QUANTITIES AS REQUIRED). PROVIDE SS MOUNTING HARDWARE AS REQUIRED.

FINISHED GRADE

TO WET WELL

TO ELECTRICAL BLDG.

**GENERAL NOTES:**

- REFER TO SINGLE LINE DIAGRAM FOR CONDUCTOR SIZES AND ADDITIONAL REQUIREMENTS.
- ALL PVC UNDERGROUND CONDUITS SHALL TRANSITION TO RIGID ALUMINUM CONDUIT PRIOR TO CONDUIT TRANSITION FROM HORIZONTAL TO VERTICAL. ALL EXTERIOR VERTICAL CONDUITS ARE RIGID ALUMINUM.
- PROVIDE TWO (2) THERMOPLASTIC VENTILATORS PROPERLY INSTALLED TO PROVIDE RAINPROOF VENTILATION AND 3/4 IN. TYPE 316 SS NEMA TYPE 4X BREATHER/DRAIN WITH CASTILLATED LOCKNUTS AND CAPTIVE "O" RING ON RECESS OF THE FACE FOR EACH STAINLESS STEEL CIRCUIT BREAKER ENCLOSURE.

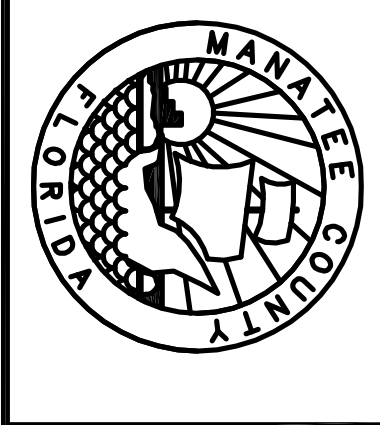
**REFERENCE NOTES:**

- PROVIDE ONE (1) 3IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN TERMINATION CABINET AND WET WELL PUMP FOR MANUFACTURER SUPPLIED MOTOR POWER CABLE.
- PROVIDE ONE (1) 2IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN TERMINATION CABINET AND WET WELL FOR PUMP MANUFACTURER SUPPLIED CONTROL WIRING CABLE.
- PROVIDE CONDUIT/CABLE HANGER FOR MANUFACTURER SUPPLIED CABLES. PROVIDE KELLEMS STAINLESS STEEL STRAIN RELIEF DROP GRIP OR APPROVED EQUAL.
- PROVIDE 12IN. SQ. BY 6IN. NEMA TYPE 4X 316L JUNCTION BOX FOR LEVEL TRANSMITTER AND FLOAT SWITCH CABLES. TERMINATE LEVEL TRANSMITTER CABLE AND FOUR(4) FLOAT CONTROL CABLES TO JUNCTION BOX USING APPROPRIATELY SIZED FLEXIBLE CABLE LIQUIDTIGHT STRAIN RELIEF CONNECTIONS WITH WIRE MESH GRIPS.
- PROVIDE ONE (1) 3IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN TERMINATION CABINET AND VFD ENCLOSURES FOR PUMP MOTOR POWER CONDUCTORS.
- PROVIDE ONE (1) 2IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN WET WELL JUNCTION BOX AND CONTROL CABINET FOR FLOAT CONTROL CABLES.
- PROVIDE ONE (1) 1IN. SCHEDULE 90 PVC CONDUIT UG BETWEEN WET WELL JUNCTION BOX AND CONTROL CABINET FOR LEVEL TRANSMITTER CONTROL CABLE.
- PROVIDE TWO (2) 2IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN TERMINATION CABINET AND CONTROL CABINET FOR PUMP MANUFACTURER'S MONITORING AND STATUS (MAS) CONTROL WIRING.
- PROVIDE NEMA TYPE 4X 316SS NON-FUSED LOCAL SAFETY SWITCH.
- PROVIDE CABINET WITH MINIMUM DIMENSIONS OF 24"H X 24"W X 12"D. PROVIDE TERMINATION BLOCK FOR CONDUCTORS WITH MINIMUM OF 25% SPARE CAPACITY.
- PROVIDE EXPLOSIONPROOF SEAL FITTING(S) LISTED BY THE MANUFACTURER AS SUITABLE FOR USE IN CL.1, DIV. 1 & 2, GROUPS ABCDE CLASSIFIED HAZARDOUS ENVIRONMENTS. LOCATE AT 18" ABOVE GRADE WHERE CONDUITS EMERGE FROM GRADE.

**URS**  
 7650 West Courtney Campbell Causeway  
 Suite 700  
 Tampa, Florida 33607  
 P: (813) 286-1711 Fax: (813) 286-6867  
 Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION
REVISIONS			

URS JOB NUMBER	12007391
PM: C. OSMAWSKI	
ENG: G. DAVIS	
DRW: G. DAVIS	
FILE SAVE DATE:	November 20, 2008



IMPROVEMENTS AT  
**TARA #20 MASTER LIFT STATION**  
 FOR  
 MANATEE COUNTY GOVERNMENT  
 MANATEE COUNTY, FLORIDA

**ELECTRICAL WET WELL PLAN**

GLENN H. DAVIS  
 FLORIDA P.E. NO. 66443

PROJECT STATUS  
 BID DOCUMENT  
**E-5**



7650 West Courtney Campbell Causeway  
 Suite 700  
 Tampa, Florida 33607  
 P: (813) 286-1711 Fax: (813) 286-6867  
 Florida Engineering Number: 000002

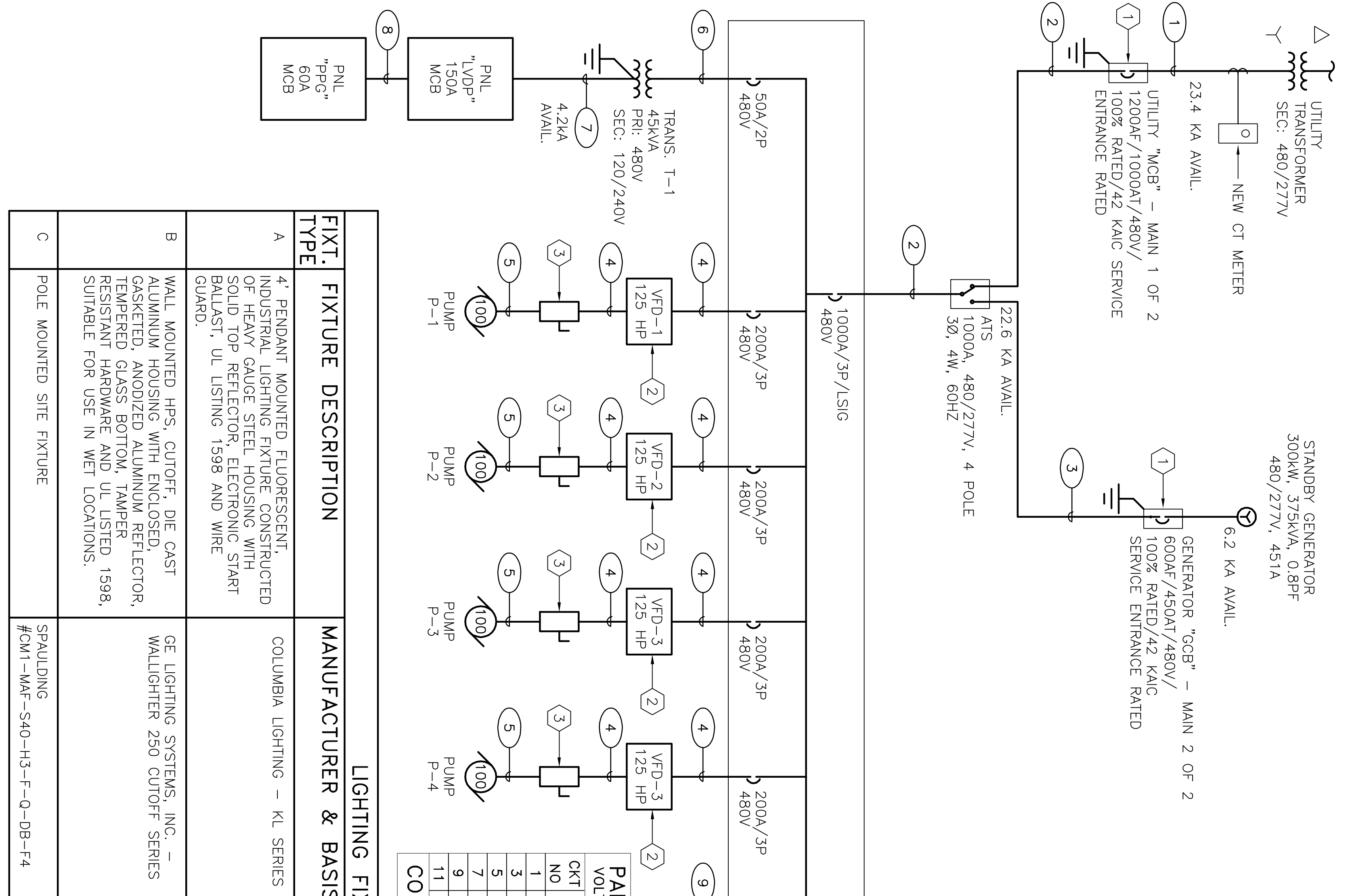
NO.	BY	DATE	DESCRIPTION
REVISIONS			



MANATEE COUNTY  
 FLORIDA

IMPROVEMENTS AT  
**TARA #20 MASTER LIFT STATION**  
 FOR  
 MANATEE COUNTY GOVERNMENT  
 MANATEE COUNTY, FLORIDA

PROJECT STATUS  
 BID DOCUMENT  
**E-6**



CT	DESCRIPTION/LOCATION	BREAKERS POLE AMPS	KVA	BREAKERS AMPS POLE	DESCRIPTION/LOCATION		
1	PANEL "PPG"	2	60	8.18	20	1	INTERIOR LIGHTS
2	SPARE	1	20	1.14	20	1	EXTERIOR LIGHTS VIA CONTACTOR
3	SPARE	1	20	20	20	1	SPARE
4	CONTROL CABINET VIA UPS	1	20	1.80	20	1	SPARE
5	SPARE	1	20	20	20	1	RECEPTACLES
6	SPARE	1	20	1.80	20	1	RECEPTACLES
7	SPARE	1	20	20	20	1	SPARE
8	SPARE	1	20	20	20	1	RECEPTACLES
9	SPARE	1	20	20	20	1	SPARE
10	SPARE	1	20	20	20	1	RECEPTACLES
11	SPARE	1	20	20	20	1	SPARE
12	SPARE	1	20	20	20	1	RECEPTACLES
13	SPARE	1	20	20	20	1	SPARE
14	SPARE	1	20	20	20	1	RECEPTACLES
15	SPARE	1	20	20	20	1	SPARE
16	SPARE	1	20	20	20	1	TANK INVENTORY SYSTEM CONTROLLER
17	SPARE	1	20	20	20	1	SPARE
18	SPARE	1	20	20	20	1	SPARE
19	SPARE	1	20	20	20	1	SPARE
20	SPARE	1	20	20	20	1	SPARE
21	SPARE	1	20	20	20	1	SPARE
22	SPARE	1	20	20	20	1	SPARE
23	SPARE	1	20	20	20	1	SPARE
24	SPARE	1	20	20	20	1	SPARE
25	SPARE	1	20	20	20	1	SPARE
26	SPARE	1	20	20	20	1	SPARE
27	SPARE	1	20	20	20	1	SPARE
28	SPARE	1	20	20	20	1	SPARE
29	SPARE	1	20	20	20	1	SPARE
30	SPARE	1	20	20	20	1	SPARE

- CONNECTED LOAD: 15.18 KVA**
- FEEDER SCHEDULE:**
- ① (3) SETS, (3) 500KCMIL PH. AND (1) 500KCMIL GROUNDED SERVICE CONDUCTOR IN 4IN. CONDUIT.
  - ② (3) SETS, (3) 500KCMIL PH., (1) 500KCMIL NEUT. AND (1) #2/0 AWG GND. IN 4IN. CONDUIT.
  - ③ (2) SETS, (3)#4/0 AWG PH., (1)#4/0 AWG NEUT. AND (1)#2 AWG GND. IN 3IN. CONDUIT.
  - ④ (3)#4/0 AWG PH., (1)#6 AWG GND. IN 2IN. CONDUIT.
  - ⑤ CABLE PROVIDED BY PUMP MANUFACTURER.
  - ⑥ (2)#1/0 AWG PH., (1)#6 AWG GND. IN 1-1/2" CONDUIT.
  - ⑦ (2)#4/0 AWG PH., (1)#4/0 AWG NEUT. AND (1)#6 AWG GND. IN 2IN. CONDUIT.
  - ⑧ (2)#4 AWG PH., (1)#4 AWG NEUT. AND (1)#10 AWG GND. IN 1-1/4IN. CONDUIT.
  - ⑨ (3)#12 AWG PH. AND (1)#12 AWG GND. IN 3/4 IN. CONDUIT.
  - ⑩ CONDUCTORS PROVIDED BY SPD MANUFACTURER.

**PANEL "LVDP"**  
 VOLTAGE: 240/120V PHASE: 1 WIRE: 3 60HZ  
 MAINS: MCB AMPS:150A MOUNTING: SURFACE  
 MIN. INTERRUPTING RATING: 10,000A NEMA: 12

CT NO	DESCRIPTION/LOCATION	BREAKERS POLE AMPS	KVA	BREAKERS AMPS POLE	DESCRIPTION/LOCATION			
1	JACKET WATER HEATER	1	30	2.50	30	1	LIGHTS	
3	EXHAUST FAN	1	20	1.50	20	1	RECEPTACLES	
5	WINDING HEATER	1	20	0.10	20	1	SPARE	
7	BATTERY CHARGER	1	20	1.50	0.20	20	1	TANK OVERFILL ALARM
9	SPARE	1	20	20	20	1	SPARE	
11	SPARE	1	30	30	20	1	SPARE	

**CONNECTED LOAD: 8.18 KVA**

**LIGHTING FIXTURE SCHEDULE**

FIXT. TYPE	FIXTURE DESCRIPTION	MANUFACTURER & BASIS OF DESIGN	NO. AND TYPE OF LAMPS	VOLT	MOUNTING	REMARKS
A	4' PENDANT MOUNTED FLUORESCENT INDUSTRIAL LIGHTING FIXTURE CONSTRUCTED OF HEAVY GAUGE STEEL HOUSING WITH SOLID TOP REFLECTOR, ELECTRONIC START BALLAST, UL LISTING 1598 AND WIRE GUARD.	COLUMBIA LIGHTING - KL SERIES	(2) 32W, T8	120	PENDANT	
B	WALL MOUNTED HPS, CUTOFF, DIE CAST ALUMINUM HOUSING, WITH ENCLOSED, GASKETED, ANODIZED ALUMINUM REFLECTOR, TEMPERED GLASS BOTTOM, TAMPER RESISTANT HARDWARE AND UL LISTED 1598, SUITABLE FOR USE IN WET LOCATIONS.	GE LIGHTING SYSTEMS, INC. - WALLIGHTER 250 CUTOFF SERIES	(1) 70W HPS	120	SURFACE	
C	POLE MOUNTED SITE FIXTURE	SPALDING #CMT-MAF-S40-H3-F-Q-DB-F4	(1) 250W HPS	120	25' MTG. HT./CONC. POLE	IESNA FULL CUTOFF LIGHTING CLASSIFICATION

**SERVICE LOAD SUMMARY**

LOAD DESCRIPTION:	LOAD (KVA)
EXISTING LIGHTING, POWER, AND SMALL MOTOR LOADS (45KVA @ 125%)	62.5
NEW PUMP/VFD-1 100HP (128.9KVA @ 125%)	161.1
NEW PUMP/VFD-2 100HP (128.9KVA @ 100%)	128.9
NEW PUMP/VFD-3 100HP (128.9KVA @ 100%)	128.9
NEW PUMP/VFD-4 100HP (128.9KVA @ 100%)	128.9
SUB-TOTAL KVA	610.3
FUTURE CAPACITY (610.3KVA @ 125%)	762.9
TOTAL CURRENT (A) @ 480V, 3PH.	918A

- REFERENCE NOTES:**
- ① PROVIDE NEUTRAL TO GROUND BOND. GROUNDING ELECTRODE CONDUCTOR (GEC) TO CONSIST OF #4/0 AWG FROM N-G BOND IN CIRCUIT BREAKER ENCLOSURE AND EXTENDED UNBROKEN TO TWO (2) 3/4" DIA. BY 10'-0" L COPPER CLAD STEEL VERTICALLY DRIVEN GROUND RODS IN ACCORDANCE WITH NEC 250.104. ROUTE EXTERIOR EXPOSED PORTIONS OF GEC IN PVC. ALL CONCEALED CONNECTIONS SHALL BE BY EXOTHERMIC WELD PROCESS.
  - ② PROVIDE 125 HP, 480V, PWM HEAVY DUTY USE RATED VFD IN A FREE STANDING, NEMA TYPE 12 ENCLOSURE.
  - ③ PROVIDE NEMA TYPE 4X 316SS NON-FUSED 200A LOCAL DISCONNECTS.
  - ④ PROVIDE SEPARATELY MOUNTED SURGE PROTECTIVE DEVICE (SPD) UNIT LISTED AS SUITABLE FOR INSTALLATION ON 480V/277V, 60HZ SUPPLY RATED FOR A MINIMUM OF 1600A PER PHASE AND 80KA PER MODE L-L, L-N, L-G AND N-G.

