VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING 0 1 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY

TARA #20 MASTER LIFT STATION IMPROVEMENTS, PROJECT NO. 6022087, MAY 2010, RECORD DRAWINGS

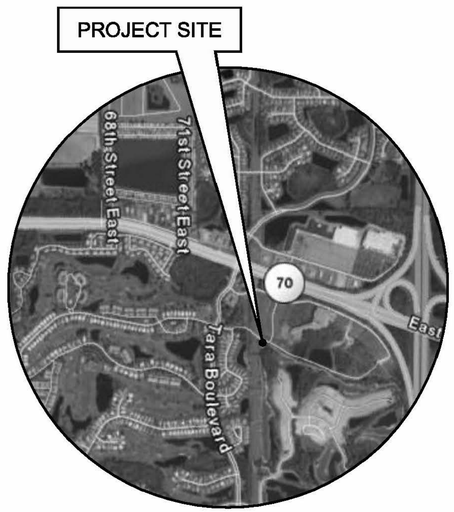
MANATEE COUNTY, FLORIDA

IMPROVEMENTS AT TARA #20 MASTER LIFT STATION

PROJECT NO. 6022087

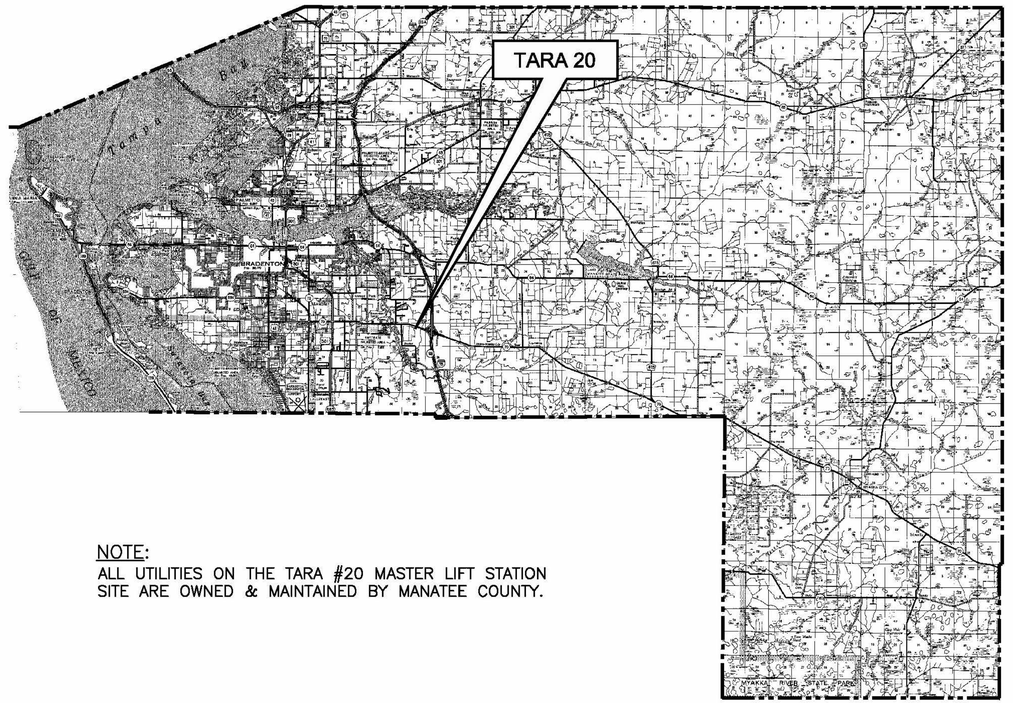
RECORD DRAWINGS

MAY 2010



PROJECT MAP

7211 STONE RIVER ROAD
BRADENTON, FLORIDA



NOTE:
ALL UTILITIES ON THE TARA #20 MASTER LIFT STATION SITE ARE OWNED & MAINTAINED BY MANATEE COUNTY.

RECORD DRAWING

URS
7650 West Courtney Campbell Causeway
Suite 700
Tampa, Florida 33607
Ph: (813) 286-1711 Fax: (813) 286-6587
Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION

REVISIONS

URS JOB NUMBER 12007391
PM: C. OSMANSKI
ENG: R. AVALOS
DRW: J. SCHEUERMAN
FILE SAVE DATE: May 14, 2010

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

COVER SHEET

CRAIG P. OSMANSKI
FLORIDA P.E. NO. 48961

PROJECT STATUS
RECORD DRAWINGS
MAY 2010

G-1

PLOTTED June 8, 2010 9:09 AM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007391 TARA # 20 MASTER LIFT STATION - WAA\CADD\G-1 COVER SHEET.DWG

VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY

INDEX TO SHEETS	
SHEET NUMBER	SHEET TITLE
GENERAL	
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C-1	EXISTING SITE PLAN & DEMOLITION PLAN
C-2	PROPOSED SITE PLAN
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MECHANICAL	
M-1	PUMP STATION DEMO UPPER PLAN
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M-4	PUMP STATION PROPOSED PLAN
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M-6	GENERATOR ENCLOSURE & FUEL TANK
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ELECTRICAL	
E-1	ELECTRICAL ABREVIATIONS, SYMBOLS LEGEND & NOTES
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E-5	ELECTRICAL WET WELL PLAN
E-6	SINGLE LINE DIAGRAM
E-7	PLC INPUT-OUTPUT SCHEDULE

GENERAL NOTES

1. LOCATION, ELEVATION, AND DIMENSIONS OF THE EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE AT TIME OF THE PREPARATION OF THESE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES AFFECTING THIS WORK PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL FIELD VERIFY ALL MEASUREMENTS AND SUBMIT ONLY EQUIPMENT THAT MEETS THE SPECIFICATIONS AND FITS IN THE SPACE AVAILABLE.
3. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN AREAS OF BURIED UTILITIES AND SHALL PROVIDE AT LEAST 48 HOURS NOTICE TO THE UTILITY COMPANIES PRIOR TO CONSTRUCTION TO OBTAIN FIELD LOCATIONS OF EXISTING UNDERGROUND UTILITIES. CALL SUNSHINE ONE CALL CENTER OF FLORIDA AT 1-800-432-4770 TO ARRANGE FIELD LOCATIONS. THE CONTRACTOR SHALL REPAIR ALL DAMAGES RESULTING FROM FAILURE TO COMPLY WITH THIS REQUIREMENT.
4. CONTRACTOR SHALL INVESTIGATE ALL AREAS OF THE WORK AND PREPARE AND PLAN FOR UNFORESEEN CONDITIONS LIKE EMERGENCY PUMPING, NEIGHBORHOOD NOTICES, BYPASS PUMPING AND CLOSURE NOTICES.
5. MAINTENANCE OF TRAFFIC, IF NECESSARY, WILL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE PREPARED PER FDOT STANDARDS. MOT PREPARER SHALL HOLD THE NEW WORK ZONE TRAFFIC CONTROL ADVANCED LEVEL TRAINING CERTIFICATION. A COPY OF THE CERTIFICATION SHALL BE SUBMITTED TO THE ENGINEER ALONG WITH THE MOT FOR APPROVAL BY FDOT. ALL WORK ZONES SHALL BE SET UP AND MAINTAINED BY SOMEONE WHO HAS WORK ZONE TRAFFIC CONTROL INTERMEDIATE LEVEL TRAINING. ACCESS TO EXISTING RESIDENCES AND BUSINESSES MUST BE MAINTAINED AT ALL TIMES.
6. UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS AND SPECIFICATIONS, THE CONTRACTOR SHALL PROVIDE SUITABLE BORROW MATERIAL, APPROVED BY THE ENGINEER, AND INSTALL SAID MATERIAL IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.
7. OVERALL CLEAN UP SHALL BE ACCOMPLISHED BY THE CONTRACTOR IN ACCORDANCE WITH COUNTY STANDARDS OR AS DIRECTED BY THE ENGINEER. ANY AND ALL EXPENSES INCURRED FOR THIS WORK SHALL BE INCLUDED IN THE BID PRICE.
8. THE CONTRACTOR SHALL ENDEAVOR TO PROTECT PRIVATE PROPERTY. ANY DAMAGE CAUSED BY THE CONTRACTOR IN THE PERFORMANCE OF HIS WORK SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE. PAYMENT SHALL NOT BE MADE FOR THIS WORK.
9. ANY DAMAGE TO STATE, COUNTY, OR LOCAL ROADS CAUSED BY THE CONTRACTOR'S HAULING OR EXCAVATION EQUIPMENT SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE COUNTY PROJECT ENGINEER. PAYMENT SHALL NOT BE MADE FOR THIS WORK.
10. ANY U.S.C. AND G.S. MONUMENT WITHIN LIMITS OF CONSTRUCTION IS TO BE PROTECTED. IF IN DANGER OF DAMAGE, THE CONTRACTOR SHALL NOTIFY. GEODETIC INFORMATION CENTER
    ATTN.: MARK MAINTENANCE CENTER
    ATTN.: N/CG-162
    6001 EXECUTIVE BLVD. ROCKVILLE,
    MARYLAND 20852
    PH (301)443-8319
11. THE CONTRACTOR(S) PERFORMING TRENCH EXCAVATION ON THIS CONTRACT, SHALL COMPLY WITH THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION'S (OSHA) TRENCH EXCAVATION SAFETY STANDARDS, 29 C.F.R., S.1926.650, SUBPART P, INCLUDING ALL SUBSEQUENT REVISIONS OR UPDATES TO THE STANDARDS AS ADOPTED BY THE DEPARTMENT OF LABOR AND EMPLOYMENT SECURITY (DLES).
12. UNLESS OTHERWISE SPECIFIED IN THE PLANS, ALL DISTURBED AREAS SHALL BE SADDLED.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL EXCESS MATERIAL AND THE PROPER DISPOSAL OF THE SAME.
14. CONTRACTOR IS TO PROVIDE EROSION CONTROL/SEDIMENTATION BARRIER (HAY BALES OR SILT FENCE) TO PREVENT SILTATION OF ADJACENT PROPERTY STREETS, STORM SEWERS, AND WATERWAYS. IF IN THE OPINION OF THE ENGINEER AND/OR LOCAL AUTHORITIES, EXCESSIVE QUANTITIES OF EARTH ARE TRANSPORTED OFF-SITE EITHER BY NATURAL DRAINAGE OR VEHICULAR TRAFFIC, THE CONTRACTOR IS TO REMOVE AND CLEAN SAID EARTH TO THE SATISFACTION OF THE ENGINEER AND/OR AUTHORITIES. THE MAINTENANCE OF EROSION CONTROL DEVICES AND THEIR COMPLETE REMOVAL ARE TO BE INCLUDED IN THE UNIT BID PRICE FOR EACH INDIVIDUAL ITEM.
15. THE CONTRACTOR SHALL PROVIDE ROUTINE MAINTENANCE OF PERMANENT AND TEMPORARY EROSION CONTROL FEATURES UNTIL THE PROJECT IS COMPLETE AND ALL BARED SOILS ARE STABILIZED.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE EXISTING DRAINAGE SYSTEM WITHIN THE LIMITS OF THE PROJECT AREA, FOR THE DURATION OF THE PROJECT. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE WORK INVOLVED.
17. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING FACILITIES, ABOVE OR BELOW GROUND THAT MAY OCCUR AS A RESULT OF THIS WORK PERFORMED IN THIS CONTRACT.
18. THE CONTRACTOR IS TO "PROTECT IN PLACE" THE FACILITIES THAT ARE NOT TO BE RELOCATED AND/OR REMOVED, BUT ARE TO REMAIN IN PLACE.
19. THE CONTRACTOR IS TO ADJUST OR RELOCATE ALL THE FACILITIES THAT FALL IN CONFLICT IN ACCORDANCE WITH COUNTY STANDARDS.
20. ALL UTILITY CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE LATEST VERSION OF THE MANATEE COUNTY UTILITIES STANDARDS.
21. ALL BURIED DUCTILE IRON PIPE SHALL BE POLYWRAPPED.
22. THE CONTRACTOR SHALL PROVIDE DETAILED RECORD DRAWINGS, ANY & ALL EXPENSES INCURRED FOR THIS WORK SHALL BE INCLUDED IN THE CONTRACTOR'S BID. REDLINE DRAWINGS SHALL BE CURRENT WITH EACH PAY APPLICATION & WILL BE CHECKED AS PART OF THE PAY APPLICATION REVIEW PROCESS.
23. ELEVATIONS SHOWN ON THE PLANS REFERENCE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 1929).

REFERENCE:

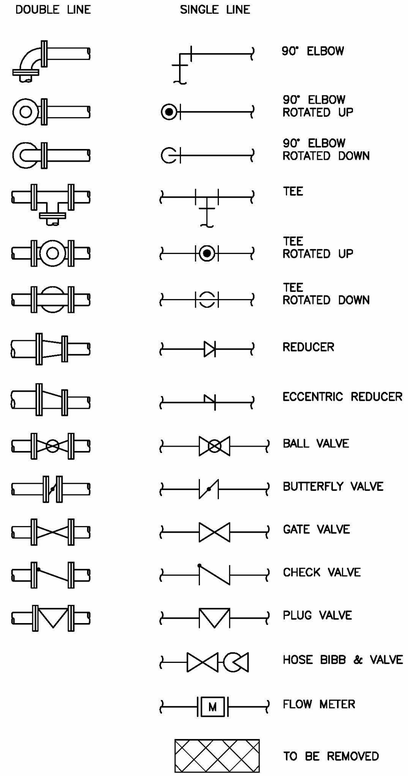
THE FOLLOWING RECORD DRAWINGS WERE USED IN CONJUNCTION WITH SITE VISITS TO PREPARE THE BASE SHEETS FOR THIS PROJECT. TO OBTAIN A COPY OF THE RECORD DRAWINGS, CONTACT OLGA ROSIER, MANATEE COUNTY UTILITIES, AT (914) 792-8811

1. SOUTHEAST SUBREGIONAL WASTEWATER TREATMENT FACILITIES - PROJECT 6049-32 BY CDM, OCTOBER 12, 1988
2. TARA NO. 20 (RTU #323) LIFT STATION UPGRADE - PROJECT 402-5102680 BY FRED C JONES PROFESSIONAL ENGINEER, JUNE 2002

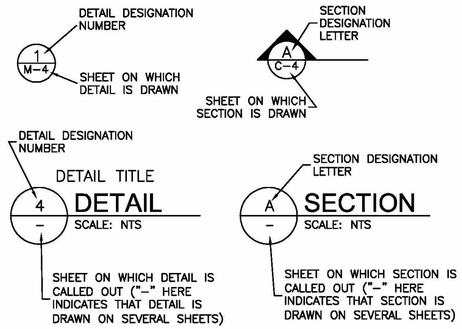
ABBREVIATIONS:

#	NUMBER
A/C	AIR CONDITIONER
AC	ASBESTOS CEMENT PIPE
ADDL	ADDITIONAL
ADJ	ADJUSTABLE
ADPT	ADAPTER
ALUM	ALUMINUM
APPROX	APPROXIMATE (LY)
ARV	AIR RELEASE VALVE
ASPH	ASPHALT
AUTO	AUTOMATIC
AUX	AUXILIARY
AVG	AVERAGE
BM	BENCHMARK
BV	BALL VALVE
BFV	BUTTERFLY VALVE
BLDG	BUILDING
BOT	BOTTOM
CATV	CABLE TV
CHKD	CHECKED
CL	CENTERLINE
CL2	CHLORINE
CI	CAST IRON
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNITS
CO	CLEAN OUT
CONC	CONCRETE
CONST	CONSTRUCTION
CPLG	COUPLING
CTR	CENTER (ED)
CV	CHECK VALVE
D	DRAIN
DEMO	DEMOLITION
DEPT	DEPARTMENT
DI	DUCTILE IRON
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DN	DOWN
EA	EACH
ECC	ECCENTRIC
EFF	EFFLUENT
EL	ELEVATION
EOP	EDGE OF PAVEMENT
EQ	EQUAL (LY)
EQIV	EQUIVALENT
EQUIP	EQUIPMENT
ESMT	EASEMENT
ETC	ETCETERA
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
FH	FIRE HYDRANT
FIG	FIGURE
FIN	FINISH (ED)
FLG	FLANGE
FLR	FLOOR
FM	FORCE MAIN
FRP	FIBERGLASS REINFORCED PIPE
FT	FOOT OR FEET
GAL	GALLON
GALV	GALVANIZED
GV	GATE VALVE
HB	HOSE BIBB
HDPE	HIGH DENSITY POLYETHYLENE
HORZ	HORIZONTAL
HT	HEIGHT
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
LF	LINER FEET
LT	LEFT
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MFD	MANUFACTURED
MFG	MANUFACTURING
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
O/E	OR EQUAL
PE	PLAIN END
PL	PROPERTY LINE
PP	POWER POLE
PROP	PROPOSED
PS	PUMP STATION
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE PIPE
PVMT	PAVEMENT
PW	POTABLE WATER
R/W	RIGHT-OF-WAY
RAD	RADIUS
RCP	REINFORCED CONCRETE PIPE
RCW	RECLAIMED WATER
RED	REDUCER
RMJ	RESTRAIN MECHANICAL JOINT
RR	RAILROAD
RT	RIGHT
RW	RAW WATER
SAN	SANITARY
SCH	SCHEDULE
SFM	SANITARY FORCE MAIN
SHC	SODIUM HYPOCHLORITE
SHT	SHEET
SQR	SQUARE
SS	SANITARY SEWER
SST	STAINLESS STEEL
STD	STANDARD
STL	STEEL
SW	SOLVENT WELD
SWLK	SIDEWALK
T&B	TOP AND BOTTOM
TBM	TEMPORARY BENCHMARK
TEL	TELEPHONE
THD	THREADED
THK	THICK (NESS)
TYP	TYPICAL
UD	UNDERDRAIN
VERT	VERTICAL
W/	WITH
WM	WATERMAIN OR WATER METER
WV	WATER VALVE
WWM	WOVEN WIRE MESH
XFMR	TRANSFORMER

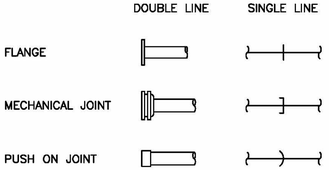
PIPE AND FITTING SYMBOLS



DETAIL & SECTION DESIGNATION



FITTING TYPE SYMBOLS



RECORD DRAWINGS LEGEND

DESIGN - INVERT ELEV. ~~24.80~~

RECORD - INVERT ELEV. **24.75**

RELOCATED OR REMOVED - X - X - PER AS-BUILT DRAWINGS

RECORD DRAWING

URS
7650 West Courtney Campbell Causeway
Suite 700
Tampa, Florida 33607
Ph: (813) 286-1711 Fax: (813) 286-6587
Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION
			REVISIONS

URS JOB NUMBER 12007391

PM: C. OSMANSKI
ENG: C. OSMANSKI
DRW: J. SCHEUERMAN
FILE SAVE DATE: June 7, 2010

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

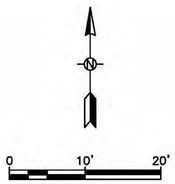
INDEX, GENERAL NOTES, SYMBOLS AND ABBREVIATIONS

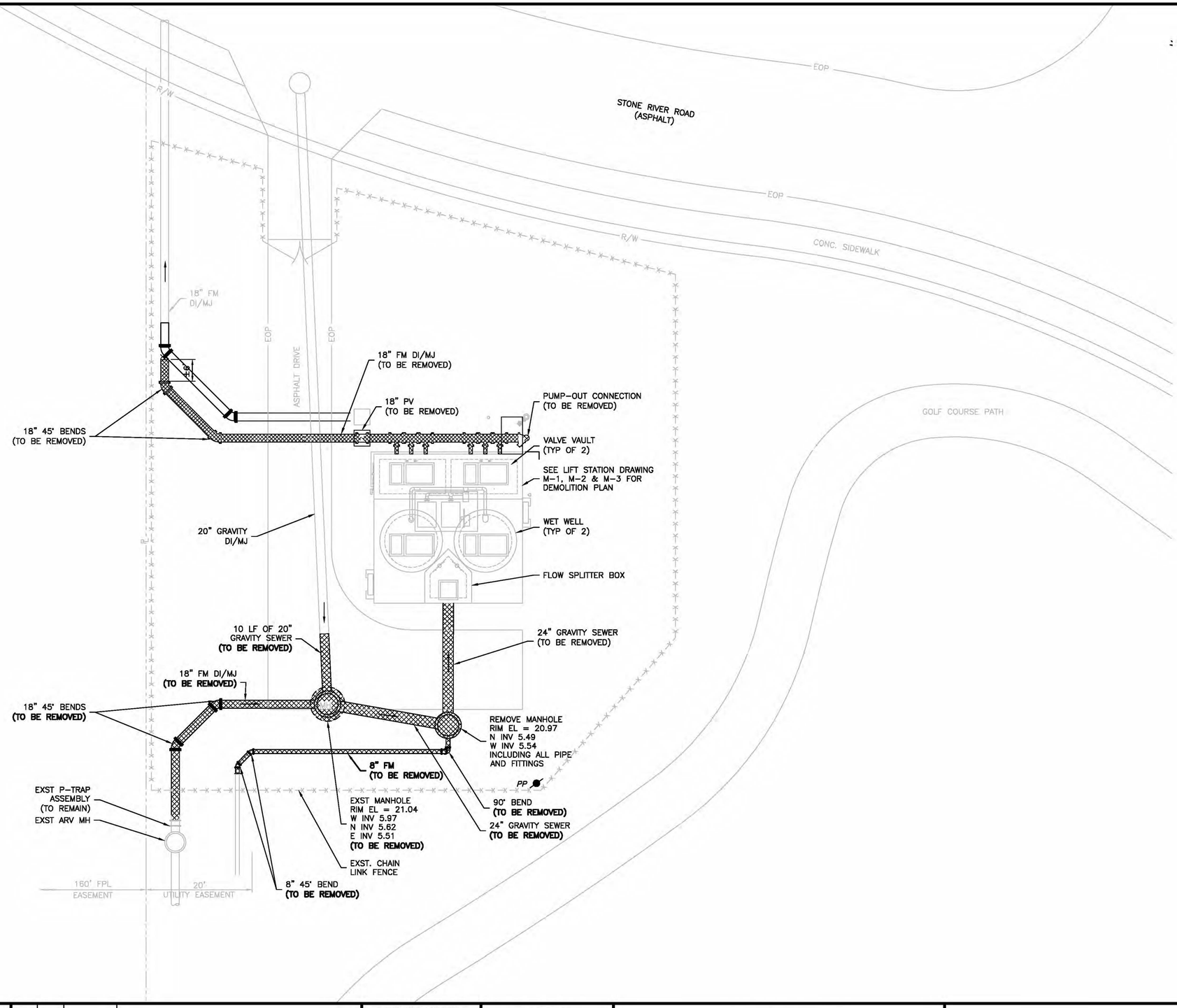
CRAIG P. OSMANSKI
FLORIDA P.E. NO. 48961

PROJECT STATUS
RECORD DRAWINGS
MAY 2010

G-2

PLOTTED June 8, 2010 9:10 AM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007391 TARA # 20 MASTER LIFT STATION - WWA\CADD\G-2 INDEX GENERAL NOTES SYMBOLS AND ABBREVIATIONS.DWG





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 OF OFF-SITE

RECORD DRAWING

URS
7650 West Courtney Campbell Causeway
Suite 700
Tampa, Florida 33607
Ph: (813) 286-1711 Fax: (813) 286-6587
Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION
			REVISIONS

URS JOB NUMBER 12007391
PM: C. OSMANSKI
ENG: C. OSMANSKI
DRW: J. SCHEUERMAN
FILE SAVE DATE: June 8, 2010

IMPROVEMENTS AT TARA #20 MASTER LIFT STATION

FOR

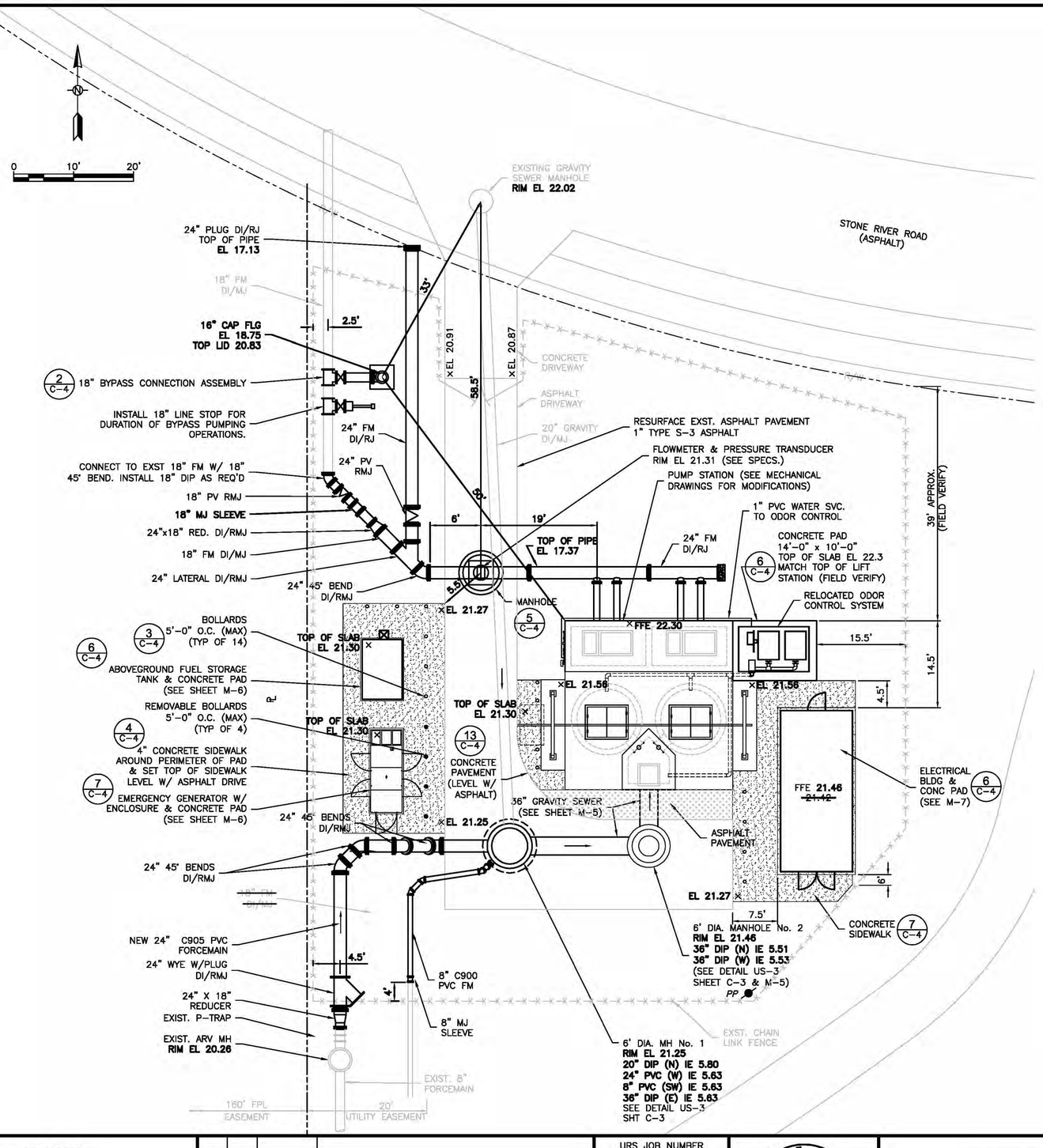
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

EXISTING SITE PLAN & DEMOLITION PLAN

CRAIG P. OSMANSKI
FLORIDA P.E. NO. 48961

PROJECT STATUS
RECORD DRAWINGS
MAY 2010

C-1



AS - BUILT DATA

SWING - TIE & ELEVATION SCHEDULE

FORCE MAIN OUT FLOW PIPING

FROM THE SOUTH (VALVE VAULT) TO THE NORTH

(FITTING)	is at (ELEVATION) & is	(FEET) from	(FIXED OBJECT)
24-Inch Header	17.00 (center line pipe)		
24" MJ 45° BEND	17.90 (top pipe)	22.01	N.W. Cor. Valve Vault
24" MJ 45° BEND	17.90 (top pipe)	9.1	N.E. Cor. Fuel Tank Pad
24" MJ 45° BEND	17.90 (top pipe)	7.1	Center of Flow Meter MH
24" MJ WYE	17.08 (top pipe)	30.7	N.W. Cor. Valve Vault
24" MJ WYE	17.08 (top pipe)	14.75	N.E. Cor. Fuel Tank Pad
24" MJ WYE	17.08 (top pipe)	15.25	Center of Flow Meter MH
24" PLUG VALVE	17.13 (top nut)	36.4	N.W. Cor. Valve Vault
24" PLUG VALVE	16.96 (top pipe)	20.75	N.E. Cor. Fuel Tank Pad
24" PLUG VALVE	16.96 (top pipe)	18.8	Center of Flow Meter MH
24" MJ CAP (END)	17.13 (top pipe)	57.7	N.E. Cor. Fuel Tank Pad
24" MJ CAP (END)	17.13 (top pipe)	51.7	Center of Flow Meter MH
24" MJ CAP (END)	17.13 (top pipe)	15.33	Center of San. MH in entrance
18" x 24" MJ REDUCER	16.51 (top pipe)	21	N.E. Cor. Fuel Tank Pad
18" x 24" MJ REDUCER	16.51 (top pipe)	38	N.W. Cor. Valve Vault
18" x 24" MJ REDUCER	16.51 (top pipe)	22.5	Center of Flow Meter MH
18" MJ SLEEVE	16.40 (top pipe)	53.7	N.W. Cor. Valve Vault
18" MJ SLEEVE	16.40 (top pipe)	36	Center of San. MH in entrance
18" PLUG VALVE	16.93 (top nut)	44.5	N.W. Cor. Valve Vault
18" PLUG VALVE	16.93 (top nut)	48	Center of San. MH in entrance
18" MJ 45° BEND	16.55 (top pipe)	47.5	N.W. Cor. Valve Vault
18" MJ 45° BEND	16.55 (top pipe)	46.5	Center of San. MH in entrance
16" Line Stop Cap	16.96 (top cap)	50.25	N.W. Cor. Valve Vault
16" Line Stop Cap	16.55 (top pipe)	43	Center of San. MH in entrance
16" TAPPING VALVE	18.66 (top nut)	53.7	N.W. Cor. Valve Vault
16" TAPPING VALVE	16.40 (top pipe)	36	Center of San. MH in entrance

AS - BUILT DATA

SWING - TIE & ELEVATION SCHEDULE

FORCE MAIN IN FLOW PIPING

FROM THE SOUTH (EXIST ARV) TO THE NORTH (S.S.M.H.#1)

(FITTING)	is at (ELEVATION) & is	(FEET) from	(FIXED OBJECT)
18" MJ SLEEVE	16.28 (top pipe)	13.8	Power Pole # 1 S.W. Cor.
18" MJ SLEEVE	16.28 (top pipe)	43.8	Sanitary Sewer M.H. # 1
18" MJ SLEEVE	16.28 (top pipe)	5.8	Existing Air Release M.H.
18" x 24" MJ REDUCER	16.33 (top pipe)	12.1	Power Pole # 1 S.W. Cor.
18" x 24" MJ REDUCER	16.33 (top pipe)	41.9	Sanitary Sewer M.H. # 1
18" x 24" MJ REDUCER	16.33 (top pipe)	8.4	Existing Air Release M.H.
24" MJ WYE (Plugged)	16.58 (top pipe)	10.2	Power Pole # 1 S.W. Cor.
24" MJ WYE (Plugged)	16.58 (top pipe)	38.8	Sanitary Sewer M.H. # 1
24" MJ WYE (Plugged)	16.58 (top pipe)	12.6	Existing Air Release M.H.
24" 45 BEND (#1)	18.07 (top pipe)	22.8	Power Pole # 1 S.W. Cor.
24" 45 BEND (#1)	18.07 (top pipe)	8.6	Sanitary Sewer M.H. # 1
24" 45 BEND (#1)	18.07 (top pipe)	35.6	Existing Air Release M.H.
24" 45 BEND (#2)	18.25 (top pipe)	27.8	Power Pole # 1 S.W. Cor.
24" 45 BEND (#2)	18.25 (top pipe)	22.8	Sanitary Sewer M.H. # 1
24" 45 BEND (#2)	18.25 (top pipe)	39.5	Existing Air Release M.H.
24" 45 BEND (#3)	18.33 (top pipe)	29.7	Power Pole # 1 S.W. Cor.
24" 45 BEND (#3)	18.33 (top pipe)	19.1	Sanitary Sewer M.H. # 1
24" 45 BEND (#3)	18.33 (top pipe)	43.2	Existing Air Release M.H.
24" 45 BEND (#4)	7.71 (top pipe)	37.8	Power Pole # 1 S.W. Cor.
24" 45 BEND (#4)	7.71 (top pipe)	8.6	Sanitary Sewer M.H. # 1
24" 45 BEND (#4)	7.71 (top pipe)	44.2	Existing Air Release M.H.
8" MJ SLEEVE	15.43 (top pipe)	22.5	Power Pole # 1 S.W. Cor.
8" MJ SLEEVE	15.43 (top pipe)	26.5	Sanitary Sewer M.H. # 1
8" MJ SLEEVE	15.43 (top pipe)	22	Existing Air Release M.H.
8" MJ 45 BEND (#5)	15.49 (top pipe)	26.8	Power Pole # 1 S.W. Cor.
8" MJ 45 BEND (#5)	15.49 (top pipe)	18	Sanitary Sewer M.H. # 1
8" MJ 45 BEND (#5)	15.49 (top pipe)	32.5	Existing Air Release M.H.
8" MJ 45 BEND (#6)	15.36 (top pipe)	29.6	Power Pole # 1 S.W. Cor.
8" MJ 45 BEND (#6)	15.36 (top pipe)	15.1	Sanitary Sewer M.H. # 1
8" MJ 45 BEND (#6)	15.36 (top pipe)	35	Existing Air Release M.H.
8" MJ 45 BEND (#7)	6.45 (top pipe)	40.1	Power Pole # 1 S.W. Cor.
8" MJ 45 BEND (#7)	6.45 (top pipe)	5	Sanitary Sewer M.H. # 10
8" MJ 45 BEND (#7)	6.45 (top pipe)	43.8	Existing Air Release M.H.

CONSTRUCTION SEQUENCE

1. INSTALL 18" X 16" BYPASS CONNECTION ASSEMBLY ON THE EXISTING 18-INCH FORCEMAIN.
2. COORDINATE WITH THE COUNTY AND PLUG THE EXISTING 20-INCH GRAVITY SEWER UPSTREAM OF THE WORK AREA DURING LOW FLOW CONDITIONS. ALSO, PLUG THE DOWNSTREAM 20-INCH GRAVITY SEWER AS REQUIRED TO PREVENT FORCEMAIN FLOW FROM ENTERING THE WORK AREA. THE GRAVITY SEWER CAN BE PLUGGED FOR FOUR (4) HOURS DURING LOW FLOW CONDITIONS.
3. INSTALL NEW 6 FOOT DIAMETER MANHOLE NO. 1 (NEW BYPASS MANHOLE) JUST NORTH OF THE EXISTING MANHOLE (OLD BYPASS MANHOLE). THE MANHOLE SHALL BE PRECAST WITH PIPE BOOTS TO ACCEPT THE 20-INCH GRAVITY SEWER (0 & 180 DEG.), 36-INCH DUCTILE IRON GRAVITY SEWER (90 DEG.), 24-INCH FORCEMAIN (270 DEG.) AND 8-INCH FORCEMAIN (180 DEG.) ABOVE THE EXISTING 20-INCH GRAVITY SEWER.
4. TEMPORARY PLUG THE 36-INCH, 24-INCH AND 8-INCH OPENINGS IN THE NEW MANHOLE AND REMOVE THE 20-INCH PIPE PLUG TO PUT THE 20-INCH GRAVITY SEWER BACK IN SERVICE.
5. INSTALL A SECTION OF THE NEW 36-INCH DUCTILE IRON GRAVITY SEWER FROM THE NEW BYPASS MANHOLE TO THE EAST TOWARDS THE EXISTING GRAVITY SEWER ENTERING THE FLOW SPLITTER BOX AND PLUG AT MANHOLE.
6. INSTALL THE NEW 8-INCH C900 PVC FORCEMAIN FROM THE NEW BYPASS MANHOLE TO A LOCATION NEAR THE EXISTING 8-INCH FORCEMAIN 45 DEGREE BEND.
7. INSTALL THE NEW 24-INCH C905 PVC FORCEMAIN FROM THE NEW BYPASS MANHOLE TO A LOCATION NEAR THE EXISTING 18-INCH FORCEMAIN 45 DEGREE BEND.
8. COORDINATE WITH THE COUNTY SUCH THAT THE COUNTY CAN SHUT DOWN THE PUMP STATION FEEDING THE 18-INCH FORCEMAIN FOR FOUR (4) HOURS DURING LOW FLOW CONDITIONS.
9. CUT IN A SECTION OF 24-INCH PVC FORCEMAIN WITH 24" X 18" REDUCER TO TIE THE NEW FORCEMAIN TO THE EXISTING FORCEMAIN JUST DOWNSTREAM OF THE EXISTING ARV MANHOLE AND P-TRAP. ALL JOINTS SHALL BE RESTRAINED. REMOVE SECTION OF THE 18-INCH FORCEMAIN AS REQUIRED TO INSTALL THE NEW 24-INCH FORCEMAIN.
10. COORDINATE WITH THE COUNTY SUCH THAT THE COUNTY CAN SHUT DOWN THE PUMP STATION FEEDING THE 8-INCH FORCEMAIN FOR FOUR (4) HOURS DURING LOW FLOW CONDITIONS.
11. CUT IN A SECTION OF 8-INCH PVC FORCEMAIN WITH 8-INCH 45 DEGREE BEND TO TIE THE NEW FORCEMAIN TO THE EXISTING. ALL JOINTS SHALL BE RESTRAINED. REMOVE SECTIONS OF THE EXISTING 18-INCH AND 8-INCH FORCEMAINS AS REQUIRED TO INSTALL THE NEW 8-INCH PVC FORCEMAIN.
12. SETUP, TEST AND START THE BYPASS SYSTEM FROM THE NEW BYPASS MANHOLE TO THE BYPASS CONNECTION ASSEMBLY LOCATED ON THE EXISTING 18-INCH FORCEMAIN.
13. ONCE THE BYPASS SYSTEM IS OPERATIONAL, PLUG THE EXISTING 20-INCH GRAVITY SEWER DOWNSTREAM OF THE NEW BYPASS MANHOLE.
14. REMOVE THE EXISTING 24-INCH GRAVITY SEWER FROM THE FLOW SPLITTER BOX TO THE FIRST UPSTREAM MANHOLE.
15. INSTALL A NEW 6 FOOT DIAMETER MANHOLE NO. 2 JUST SOUTH OF THE FLOW SPLITTER AND COMPLETE THE INSTALLATION OF THE NEW 36-INCH DUCTILE IRON GRAVITY SEWERS FROM THE FLOW SPLITTER BOX TO MANHOLE NO. 1 AND MANHOLE NO. 2.
16. PERMANENTLY BULKHEAD THE 20-INCH DOWNSTREAM OPENING IN THE NEW BYPASS MANHOLE AND INSTALL LINER OVER THE CONCRETE. REMOVE THE 20-INCH PLUG AND GO OFF BYPASS.
17. PUMP STATION IS NOW BACK TO NORMAL OPERATION.
18. REMOVE ALL REMAINING MANHOLES AND YARD PIPING NOT IN SERVICE. DISPOSE OF OFF-SITE.

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

PROPOSED EQUIPMENT ELEVATIONS:
GENERATOR SYSTEM CONCRETE PAD (TOP) = EL **21.30** ~~21.80~~
FUEL TANK (TOP) = EL **26.84** ~~26.25~~
GENERATOR (BOTTOM) = EL 22.88

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

RECORD DRAWING

VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY

PLOTTED June 15, 2006 3:51 PM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\2007391 TARA # 20 MASTER LIFT STATION - WAA\CADD\C-2 PROPOSED SITE PLAN.DWG

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7650 West Courtney Campbell Causeway
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Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION
			REVISIONS

URS JOB NUMBER 12007391
PM: C. OSMANSKI
ENG: C. OSMANSKI
DRW: J. SCHEUERMAN
FILE SAVE DATE: June 8, 2010

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

PROPOSED SITE PLAN

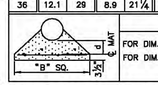
CRAIG P. OSMANSKI
FLORIDA P.E. NO. 48961

PROJECT STATUS
RECORD DRAWINGS
MAY 2010

C-2

VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY

THRUST BLOCK DIMENSIONS B ft. x d inches												
PIPE SIZE (IN.)	90°BEND		45°BEND		22.5°BEND		11.25°BEND		DEAD END & TEE		45° WYE	
	B	d	B	d	B	d	B	d	B	d	B	d
4	1.5	3½	1.1	3½	0.8	3½	0.6	3½	1.3	3½	1.1	3½
6	2.2	5¼	1.6	3¾	1.2	3½	0.8	3½	1.9	4½	1.6	3¾
8	2.9	7	2.1	5	1.5	3½	1.1	3½	2.4	5¾	2.0	4¾
10	3.5	8½	2.6	6¼	1.9	4½	1.3	3½	3.0	7¼	2.5	6
12	4.2	10	3.1	7½	2.2	5¼	1.6	3¾	3.5	8½	3.0	7¼
14	4.9	11¾	3.6	8¾	2.6	6¼	1.8	4¼	4.1	9¾	3.4	8¼
16	5.5	13¼	4.1	9¾	2.9	7	2.1	5	4.7	11¼	3.9	9¼
18	6.2	15	4.6	11	3.3	8	2.3	5½	5.2	12½	4.4	10½
20	6.9	16½	5.0	12	3.6	8¾	2.6	6¼	5.8	14	4.9	11¾
24	8.2	19¾	6.0	14½	4.3	10¼	3.1	7½	6.9	16½	5.8	14
30	10.1	24¼	7.5	18	5.3	12¾	3.8	9	8.5	20½	7.2	17¼
36	12.1	29	8.9	21¼	6.4	15¼	4.5	10¾	10.2	24½	8.6	20¾



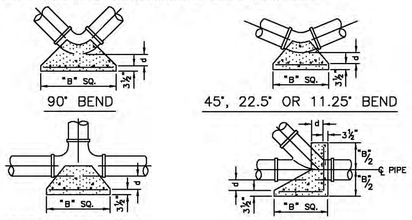
REINFORCEMENT MAT SCHEDULE

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

NOTES:

1. ALL THRUST BLOCKS SHALL BE CAST IN PLACE.
2. THIS TABLE IS BASED ON WATER PRESSURE=180 PSI WITH AN ALLOWABLE SOIL BEARING PRESSURE=2000 PSF, CONCRETE STRENGTH f'c=3000 PSI, REINFORCEMENT fy=60.0 KSI THRUST BLOCK SHALL BE CAST AGAINST FIRM UNDISTURBED SOIL.
3. FOR LARGER"B"DIMENSIONS IT IS NECESSARY TO CHECK THAT PIPE IS SUFFICIENTLY DEEP TO ALLOW 15" MIN. SOIL COVER OVER TOP EDGE OF THRUST BLOCK.



MANATEE COUNTY
PUBLIC WORKS DEPARTMENT

REV.BY	DATE
CLB/KE	2/05

APRIL 25, 2006
DATE OF APPROVAL

CONCRETE THRUST BLOCKS — UG-7

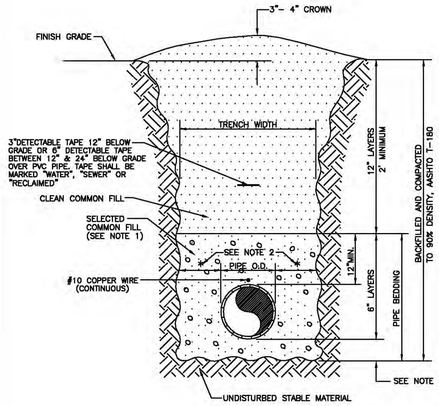
NOTES:

1.) USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

2.) 10" MAX. FOR PIPE DIAMETERS LESS THAN 24"; 12" MAX. FOR PIPE DIAMETER 24" AND LESS THAN 42"; 24" MAX. FOR PIPE DIAMETER 42" AND OVER.

3.) 4" MAX. FOR PIPE 16" DIAMETER & LESS; 6" MAX. FOR PIPE 18" TO 36" DIAMETER; AND 9" MAX. FOR PIPE 42" DIAMETER AND LARGER.

4.) INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.



NOTES:

1.) USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

2.) 10" MAX. FOR PIPE DIAMETER LESS THAN 24"; 12" MAX. FOR PIPE DIAMETER 24" AND LESS THAN 42"; 24" MAX. FOR PIPE DIAMETER 42" AND OVER.

3.) 4" MAX. FOR PIPE 16" DIAMETER & LESS; 6" MAX. FOR PIPE 18" TO 36" DIAMETER; AND 9" MAX. FOR PIPE 42" DIAMETER AND LARGER.

4.) INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

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PUBLIC WORKS DEPARTMENT

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APRIL 25, 2006
DATE OF APPROVAL

TRENCH WITH UNIMPROVED SURFACE TYPE A-1 PIPE BEDDING — UG-11

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

MAIN PIPE SIZE	HORIZ. BENDS		TEES							REDUCERS						PLUGS
			SIZE			LENGTH				SIZE			LENGTH			
	90°	45°	22.5°													
36	142	59	28	X36 393	X30 418	X24 232	X20 65	X16 84	X12 1	X30 137	X24 247	X20 309	X16 359			453
30	124	51	25	X30 333	X24 352	X20 89	X16 115	X12 23	X10 1	X24 137	X20 213	X16 276				391
24	106	44	21	X24 270	X20 111	X16 143	X12 61	X10 10	X8	X20 98	X16 178	X12 241				327
20	92	38	18	X20 225	X16 161	X12 85	X10 39	X8 1		X16 98	X12 176	X10 227				280
16	77	32	15	X16 177	X12 107	X10 65	X8 19	X6 1		X12 98	X10 163	X8 189				231
12	61	25	12	X12 127	X10 89	X8 50	X6 1			X10 88	X8 96	X6 131				181
10	52	22	10	X10 101	X8 64	X6 11				X8 51	X6 84	X4 125				153
8	44	18	9	X8 78	X6 30	X4 1				X6 54	X4 92					128
6	34	14	7	X6 46	X4 1					X4 50						98
4	24	10	5	X4 19												69

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

MAIN PIPE SIZE	HORIZ. BENDS		TEES							REDUCERS						PLUGS
			SIZE			LENGTH				SIZE			LENGTH			
	90°	45°	22.5°													
36	100	42	20	X36 63	X30 132	X24 96	X20 58	X16 35	X12 10	X30 57	X24 103	X20 128	X16 149			188
30	88	37	18	X30 38	X24 104	X20 78	X16 48	X12 10	X10 1	X24 57	X20 88	X16 114				162
24	75	31	15	X24 12	X20 87	X16 59	X12 25	X10 4	X8	X20 40	X16 74	X12 100				135
20	65	27	13	X20 93	X16 67	X12 35	X10 18	X8 1		X16 41	X12 73	X10 94				116
16	54	22	11	X16 73	X12 44	X10 27	X8 8	X6 1		X12 41	X10 68	X8 70				96
12	43	18	8	X12 53	X10 37	X8 21	X6 1			X10 37	X8 40	X6 54				75
10	37	15	7	X10 42	X8 26	X6 5				X8 21	X6 39	X4 52				63
8	30	13	6	X8 32	X6 12	X4 1				X6 22	X4 38					53
6	24	10	5	X6 19	X4 1					X4 21						41
4	17	7	3	X4 8												29

NOTE:

SEE "RESTRAINED LENGTHS FOR PVC PIPE" DETAIL FOR NOTES 1 THROUGH 7.

MANATEE COUNTY
PUBLIC WORKS DEPARTMENT

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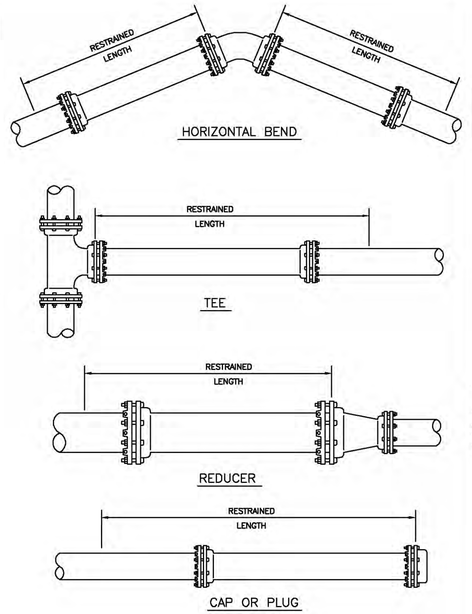
APRIL 25, 2006
DATE OF APPROVAL

RESTRAINED LENGTHS FOR DIP — UG-9



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RESTRAINED LENGTHS FOR PIPE — UG-10

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

MAIN PIPE SIZE	HORIZ. BENDS			TEES							REDUCERS						PLUGS
				SIZE			LENGTH				SIZE			LENGTH			
	90°	45°	22.5°														
24	90	38	18	X24 89	X20 139	X16 90	X12 38	X10 6			X20 84	X16 117	X12 158				214
20	78	32	16	X20 141	X16 101	X12 53	X10 24	X8 1			X16 65	X12 115	X10 149				184
16	66	27	13	X16 111	X12 67	X10 41	X8 12	X6 1			X12 64	X10 107	X8 111				151
12	52	22	10	X12 80	X10 56	X8 31	X6 1				X10 58	X8 62	X6 86				118
10	44	18	9	X10 63	X8 40	X6 7					X8 33	X6 61	X4 81				100
8	37	15	7	X8 49	X6 18	X4 1					X6 35	X4 60					83
6	29	12	6	X6 29	X4 1						X4 33						63
4	21	8	4	X4 12													45

NOTES:

1.) RESTRAIN 11.25° BENDS 50% OF LENGTH FOR 22.5° BENDS.
2.) ALL VALVES AND FITTINGS SHALL BE RESTRAINED TO THE CONNECTING SECTIONS OF PIPE.
3.) ALL VALVES MUST BE PROPERLY ANCHORED OR RESTRAINED TO RESIST A 180 PSI TEST PRESSURE IN EITHER DIRECTION.
4.) PIPE SIZES ARE GIVEN IN INCHES.
5.) RESTRAINED PIPE LENGTHS ARE GIVEN IN FEET.
6.) LENGTHS SHOWN ARE FOR A TEST PRESURE OF 180 PSI.
7.) THE RESTRAINED LENGTHS SHOWN IN THESE TABLES ARE BASED ON SOIL CLASSIFICATION SP WITH AWWA TYPE 3 TRENCH CONDITIONS, 180 PSI TEST PRESSURE, 3 FEET OF COVER AND 1.5 FACTOR OF SAFTEY. ACTUAL BURY CONDITIONS MUST BE DETERMINED BY THE ENGINEER OF RECORD AND THE RESTRAINED LENGTHS MODIFIED ACCORDINGLY.

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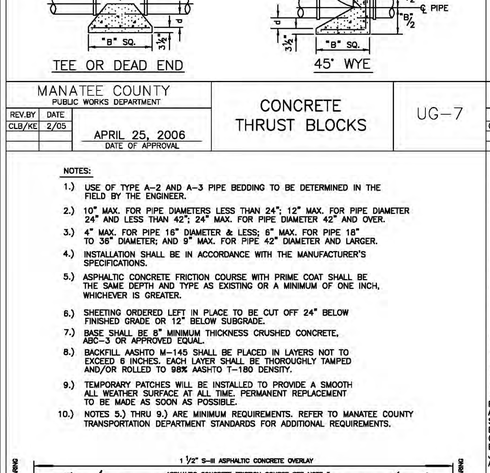
DATE OF APPROVAL

RESTRAINED LENGTHS FOR PVC PIPE — UG-8



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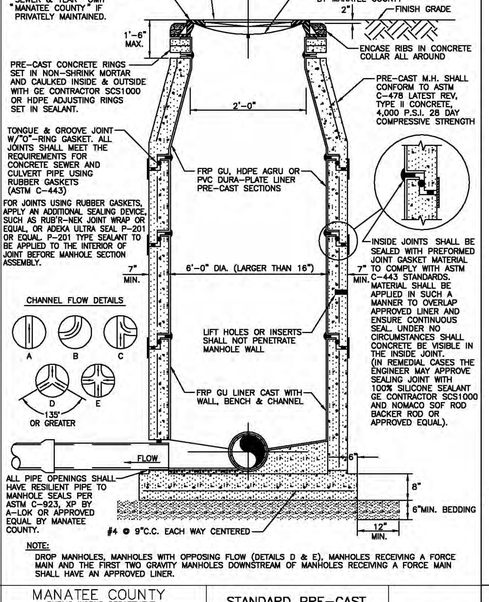
DATE OF APPROVAL

TRENCH WITH ASPHALT PAVEMENT SURFACE TYPE A-1 PIPE BEDDING — UG-12



NOTE:

DROP MANHOLES, MANHOLES WITH OPPOSING FLOW (DETAILS D & E), MANHOLES RECEIVING A FORCE MAIN AND THE FIRST TWO GRAVITY MANHOLES DOWNSTREAM OF MANHOLES RECEIVING A FORCE MAIN SHALL HAVE AN APPROVED LINER.

MANATEE COUNTY
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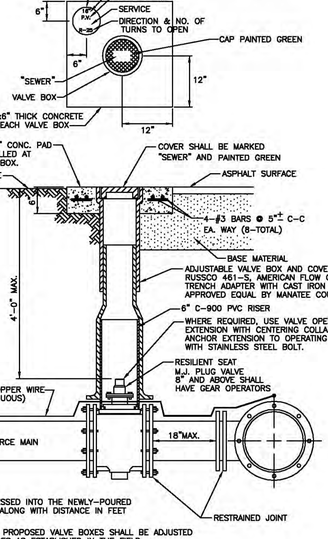
APRIL 25, 2006
DATE OF APPROVAL

STANDARD PRE-CAST SANITARY SEWER MANHOLE FOR TURBULENT FLOW — US-3



NOTES:

1. "SV" TO BE IMPRESSED INTO THE NEWLY-POURED CONCRETE CURB, ALONG WITH DISTANCE IN FEET TO THE VALVE.
2. ALL EXISTING AND PROPOSED VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADES AS ESTABLISHED IN THE FIELD.
3. SEWER VALVES SHALL NOT BE PLACED IN HANDICAPPED RAMPS.
4. PRECAST CONCRETE PADS SHALL NOT BE USED.
5. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1/2".

MANATEE COUNTY
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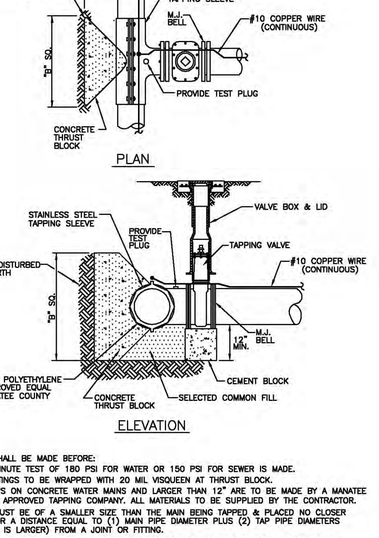
DATE OF APPROVAL

PLUG VALVE, BOX, COVER AND TAG — US-12



NOTES:

1. NO CUTS SHALL BE MADE BEFORE:
   (A) A 60 MINUTE TEST OF 180 PSI FOR WATER OR 150 PSI FOR SEWER IS MADE.
   (B) ALL FITTINGS TO BE WRAPPED WITH 20 MIL VISQUEEN AT THRUST BLOCK.
   (C) ALL TAPS ON CONCRETE WATER MAINS AND LARGER THAN 12" ARE TO BE MADE BY A MANATEE COUNTY APPROVED TAPPING COMPANY. ALL MATERIALS TO BE SUPPLIED BY THE CONTRACTOR.
2. ALL TAPS MUST BE OF A SMALLER SIZE THAN THE MAIN BEING TAPPED & PLACED NO CLOSER THAN 30" OR A DISTANCE EQUAL TO (1) MAIN PIPE DIAMETER PLUS (2) TAP PIPE DIAMETERS (WHICHEVER IS LARGER) FROM A JOINT OR FITTING.
3. CONTRACTOR TO SUPPLY A DRY HOLE FOR TAPPING CREW TO WORK IN AND A BACK-HOE TO LOWER TAPPING MACHINE INTO THE HOLE.
4. SEE CONCRETE THRUST BLOCK DETAIL FOR DIMENSIONS "B" & "d".

MANATEE COUNTY
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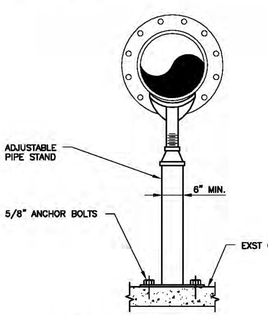
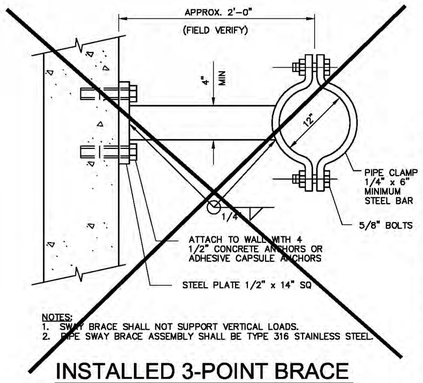
DATE OF APPROVAL

TAPPING SLEEVE AND VALVE — UW-4



ADJUSTABLE PIPE SUPPORT

1 / M-5 DETAIL — SCALE: 3/8"=1'-0"



NOTES:

1. SWAY BRACE SHALL NOT SUPPORT VERTICAL LOADS.
2. PIPE SWAY BRACE ASSEMBLY SHALL BE TYPE 316 STAINLESS STEEL.

INSTALLED 3-POINT BRACE

PLAN

~~PIPE SWAY BRACE~~

2 / M-5 DETAIL — SCALE: NTS

RECORD DRAWING

PLOTTED: June 8, 2010 9:10 AM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007391 TARA # 20 MASTER LIFT STATION - WWA\CADD\C-3 CIVIL DETAILS.DWG

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Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION

REVISIONS

URS JOB NUMBER
12007391

PM: C. OSMANSKI
ENG: C. OSMANSKI
DRW: J. SCHEUERMAN
FILE SAVE DATE:
May 14, 2010

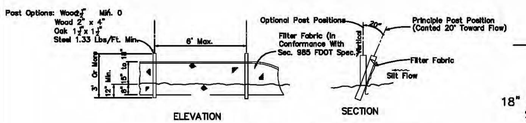
IMPROVEMENTS AT
TARA #20 MASTER LIFT STATION
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

CIVIL DETAILS

CRAIG P. OSMANSKI
FLORIDA P.E. NO. 48961

PROJECT STATUS
RECORD DRAWINGS
MAY 2010

C-3



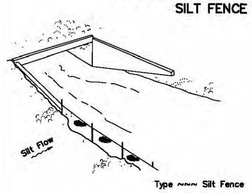
Note: Silt Fence to be paid for under the contract unit price for Staked Silt Fence (LF).

TYPE ~~~ SILT FENCE

Type ~~~ Silt Fence Protection Around Ditch Bottom Inlets.

Do not deploy in a manner that silt fences will act as a dam across permanent flowing watercourses. Silt fences are to be used at upland locations and turbidity barriers used at permanent bodies of water.

SILT FENCE APPLICATIONS



Type ~~~ Silt Fence

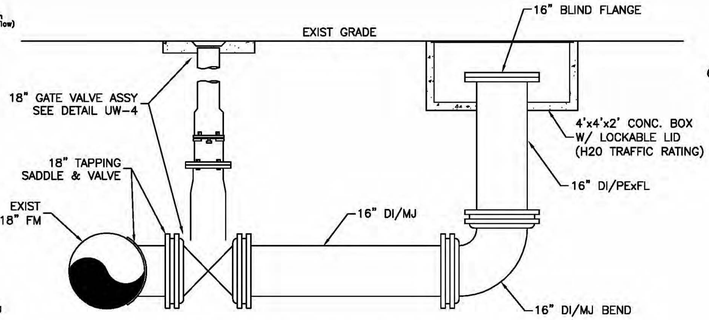
Note: Spacing for Type ~~~ Fence to be in accordance with Chart ~, Sheet 1 of 3 and ditch installations at drainage structures Sheet 2 of 3.

Type ~~~ Silt Fence

FDOT INDEX 102

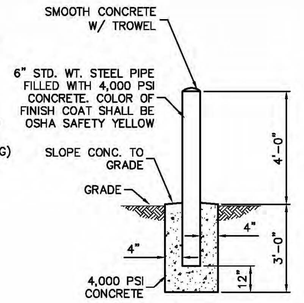
BALED HAY OR STRAW BARRIERS & SILT FENCES

1 / – DETAIL — SCALE: NTS



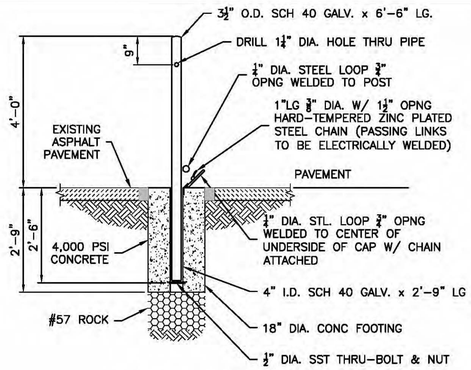
BYPASS CONNECTION ASSEMBLY

2 / C-2 DETAIL — SCALE: NTS



BOLLARD

3 / C-2 DETAIL — SCALE: NTS



REMOVABLE BOLLARD

4 / C-2 DETAIL — SCALE: NTS

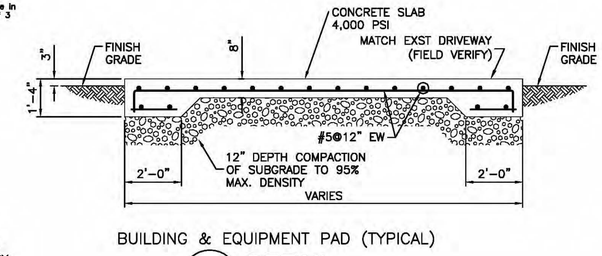
GENERAL STRUCTURAL NOTES:

A. BUILDING CODES
1. FLORIDA BUILDING CODE, 2007 EDITION 7
2. ACI 318-05 BUILDING CODE REQUIREMENTS FOR REINFORCING CONCRETE
3. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS, NINTH EDITION.
4. AWS STRUCTURAL WELDING CODE (2004 EDITION).

B. CONSTRUCTION MATERIALS
1. CAST-IN-PLACE CONCRETE COMPRESSIVE STRENGTH: 4000 PSI AT 28 DAYS
2. REINFORCING STEEL – ASTM A 615, GRADE 60 UNCOATED

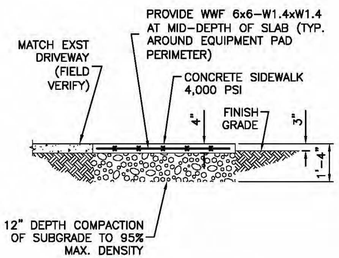
C. CONCRETE WORK NOTES:
1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH: ACI 347 "RECOMMENDED PRACTICE FOR CONCRETE FORMWORK" ACI 304 "RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE" ACI 309 "CONSOLIDATION OF CONCRETE"
2. THE PROPOSED CONCRETE MIX WITH CERTIFIED TEST RESULTS, SHALL BE SUBMITTED FOR THE OWNER'S APPROVAL AT LEAST 15 WORKING DAYS PRIOR TO ITS USE. PROTECT FRESHLY PLACED CONCRETE FROM PREMATURE DRYING AND EXCESSIVE COLD OR HOT TEMPERATURES. ANY DEFECTS IN WORKMANSHIP SHALL BE REPAIRED OR REPLACED TO THE OWNER'S SATISFACTION AT CONTRACTORS EXPENSE.
3. ALL REINFORCEMENT TO BE DETAILED AND FABRICATED IN ACCORDANCE WITH ACI 315-94.

D. COORDINATION
1. THE CONTRACTOR SHALL COORDINATE ALL PENETRATIONS THROUGH CONCRETE WITH THE CIVIL, MECHANICAL, ELECTRICAL, AND SPECIALTY SUB-CONTRACTORS SHOP DRAWINGS PRIOR TO PLACING CONCRETE. THE MECHANICAL SUB-CONTRACTORS SHALL PROVIDE SHOP DRAWINGS FOR ALL ANCHOR BOLT LOCATIONS.
2. THE STRUCTURAL DETAILS SHALL BE COORDINATED WITH THE CIVIL, MECHANICAL, AND ELECTRICAL SHEETS TO PROPERLY LOCATE PIPE SLEEVES, ANCHOR BOLTS, BLOCK-OUTS, ETC. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
3. THE STRUCTURAL DETAILS SHALL BE COORDINATED WITH THE PROJECT SPECIFICATIONS.



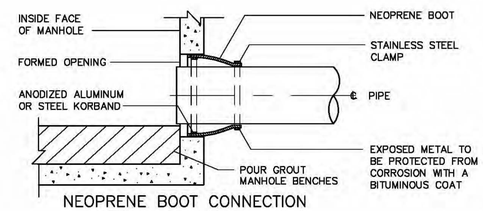
BUILDING & EQUIPMENT PAD (TYPICAL)

6 / C-2 DETAIL — SCALE: NTS



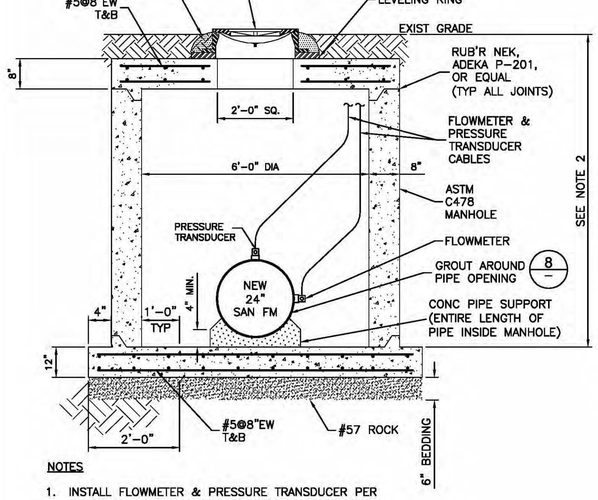
SIDEWALK (TYPICAL)

7 / C-2 DETAIL — SCALE: NTS



NEOPRENE BOOT CONNECTION

8 / M-5 DETAIL — SCALE: NTS

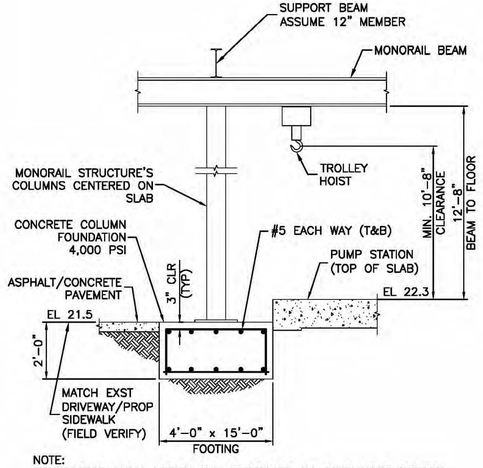


NOTES

1. INSTALL FLOWMETER & PRESSURE TRANSDUCER PER SPECIFICATIONS & MANUFACTURER'S INSTRUCTIONS.
2. DEPTH OF MANHOLE BASED ON ELEVATION OF EXISTING FORCEMAIN AT TIE-IN. CONTRACTOR TO FIELD VERIFY.

DOGHOUSE MANHOLE

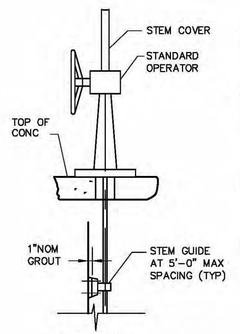
5 / C-2 DETAIL — SCALE: NTS



NOTE:
CONTRACTOR SHALL VERIFY AND CORRELATE ALL DIMENSIONS BEFORE PROCEEDING WITH FABRICATION AND CONSTRUCTION.

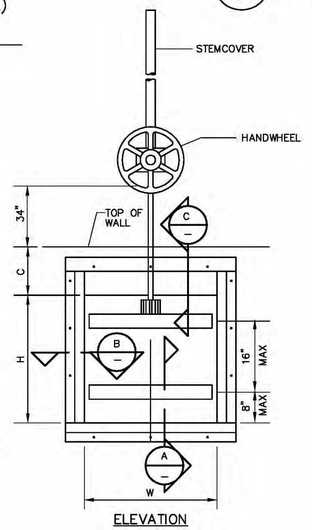
MONIRAIL HOIST FOUNDATION

9 / M-4 DETAIL — SCALE: NTS



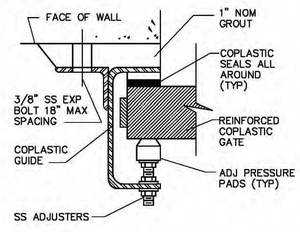
OVERHUNG OPERATOR

OVERHUNG OPERATOR

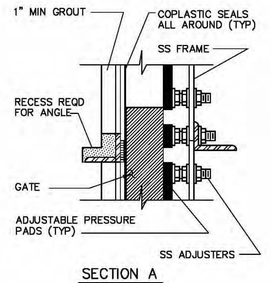


FACE MOUNTED SLUICE GATE

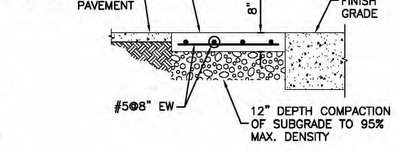
10 / M-4 DETAIL — SCALE: NTS



SECTION B

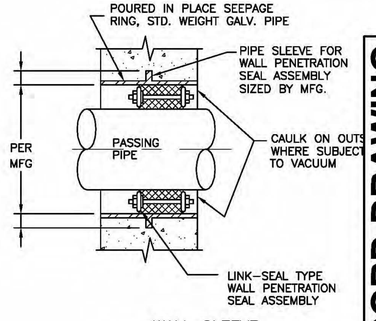


SECTION A



CONCRETE PAVEMENT

13 / C-4 DETAIL — SCALE: NTS



WALL SLEEVE

12 / M-4 DETAIL — SCALE: NTS

RECORD DRAWING

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7650 West Courtney Campbell Causeway
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Ph: (813) 286-1711 Fax: (813) 286-6587
Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION

REVISIONS

URS JOB NUMBER 12007391

PM: C. OSMANSKI
ENG: C. OSMANSKI
DRW: J. SCHEUERMAN
FILE SAVE DATE: November 19, 2008

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

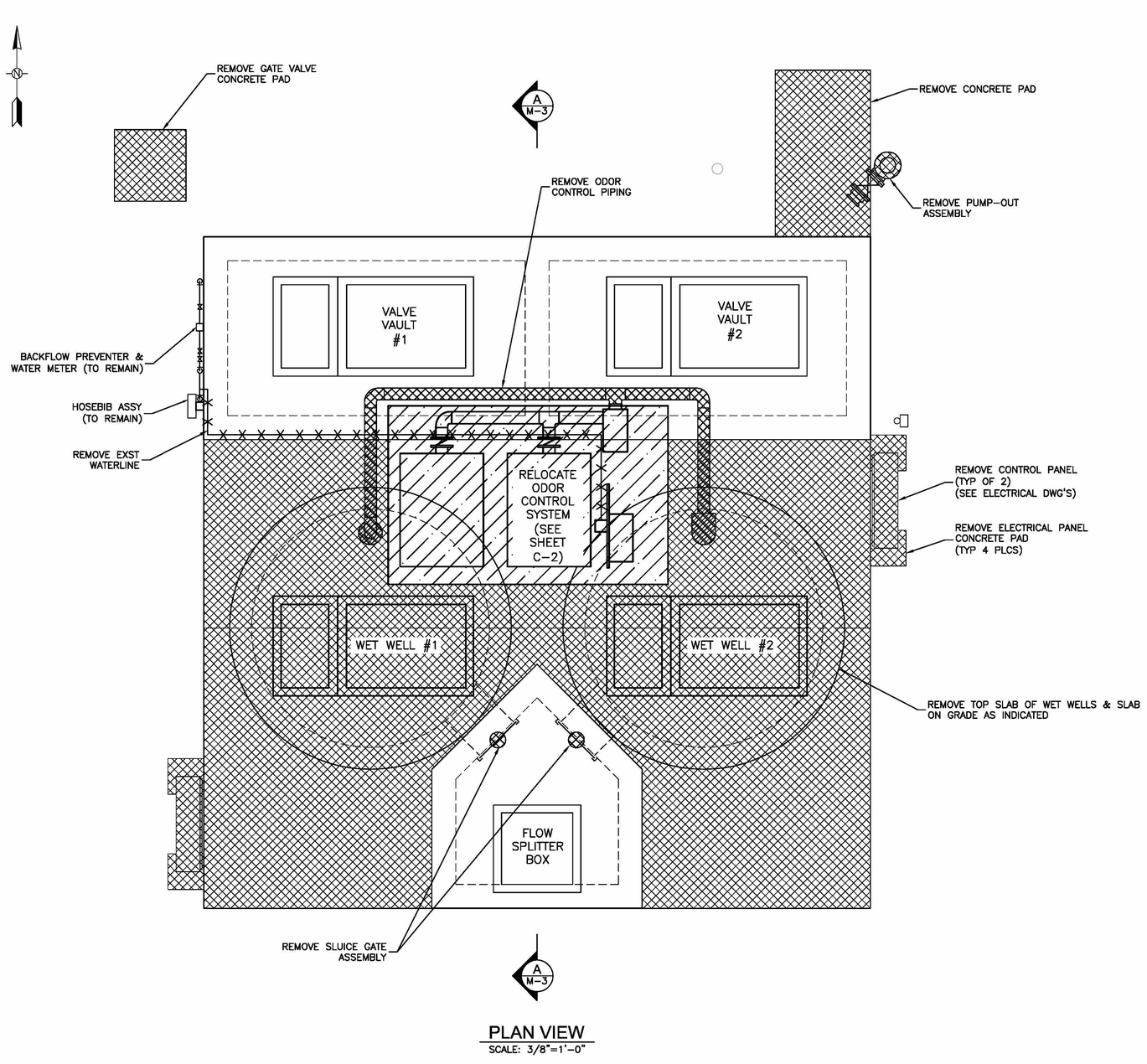
CIVIL DETAILS

CRAIG P. OSMANSKI
FLORIDA P.E. NO. 48961

PROJECT STATUS
RECORD DRAWINGS
MAY 2010

C-4

PLOTTED June 8, 2010 9:10 AM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007391 TARA # 20 MASTER LIFT STATION - WWA\CADD\C-4 CIVIL DETAILS.DWG



PLAN VIEW
SCALE: 3/8"=1'-0"

LEGEND

TO BE REMOVED

RECORD DRAWING

URS
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Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION

REVISIONS

URS JOB NUMBER 12007391

PM: C. OSMANSKI
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DRW: J. SCHEUERMAN
FILE SAVE DATE: September 10, 2008

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

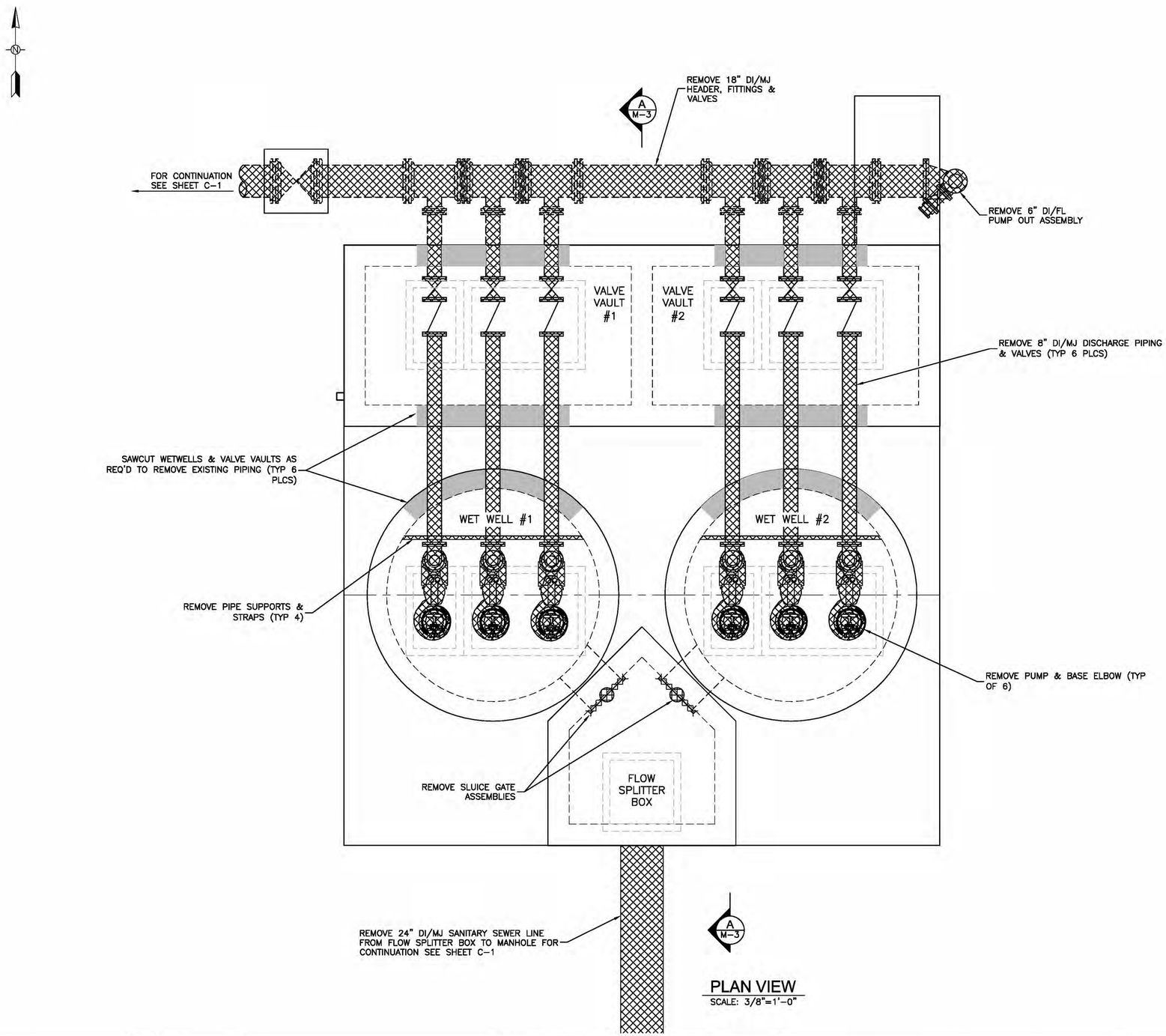
PUMP STATION DEMO UPPER PLAN

CRAIG P. OSMANSKI
FLORIDA P.E. NO. 48961

PROJECT STATUS
RECORD DRAWINGS
MAY 2010

M-1

PLOTTED June 15, 2008 3:51 PM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007391 TARA # 20 MASTER LIFT STATION - WWA\CADD\M-1 PUMP STATION DEMO UPPER PLAN.DWG



PLAN VIEW
SCALE: 3/8"=1'-0"

LEGEND

TO BE REMOVED

NOTE:
1. CONTRACTOR SHALL USE EXTREME CAUTION WHEN SAWCUTTING WETWELLS TO PREVENT DAMAGE TO THE FIBERGLASS LINER.

RECORD DRAWING

VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING 0 1 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY

PLOTTED June 15, 2006 3:51 PM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007391 TARA # 20 MASTER LIFT STATION - WAA\CADD\M-2 PUMP STATION DEMO LOWER PLAN.DWG

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NO.	BY	DATE	DESCRIPTION

REVISIONS

URS JOB NUMBER 12007391
PM: C. OSMANSKI
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DRW: J. SCHEUERMAN
FILE SAVE DATE: June 8, 2010

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

PUMP STATION DEMO LOWER PLAN

CRAIG P. OSMANSKI
FLORIDA P.E. NO. 48961

PROJECT STATUS
RECORD DRAWINGS
MAY 2010

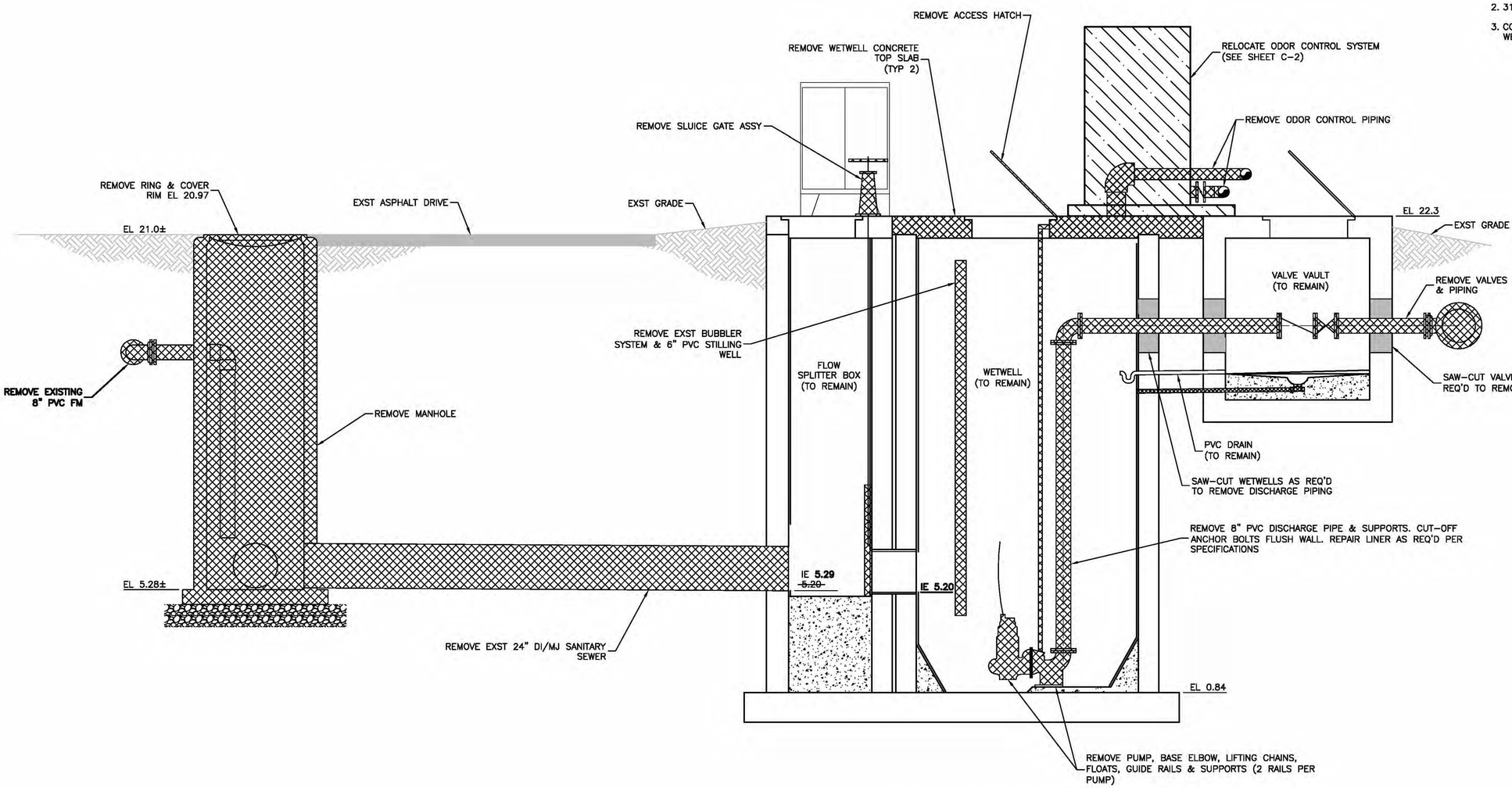
M-2

LEGEND

TO BE REMOVED

NOTES:

1. SAWCUT ANCHOR BOLTS FOR SLUICE GATES, PIPE SUPPORTS & PUMP BASE ELBOWS FLUSH WITH SURFACE. ANCHOR BOLTS FOR SLUICE GATES & VERTICAL PIPE SUPPORTS SHALL BE DRILLED OUT 1-INCH DEEP & THE HOLES PATCHED WTH NON-SHRINK GROUT. PATCH LINER TO MATCH EXISTING LINER. (REFER TO SPECIFICATIONS)
2. 316 SST LIFTING CHAINS TO BE RETURNED TO MANATEE COUNTY.
3. CONTRACTOR SHALL USE EXTREME CAUTION WHEN SAWCUTTING WETWELLS TO PREVENT DAMAGE TO THE FIBERGLASS LINER.



A / M-1/2 SECTION
SCALE: 3/8"=1'-0"

RECORD DRAWING

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Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION

REVISIONS

URS JOB NUMBER 12007391
PM: C. OSMANSKI
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FILE SAVE DATE: June 7, 2010

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

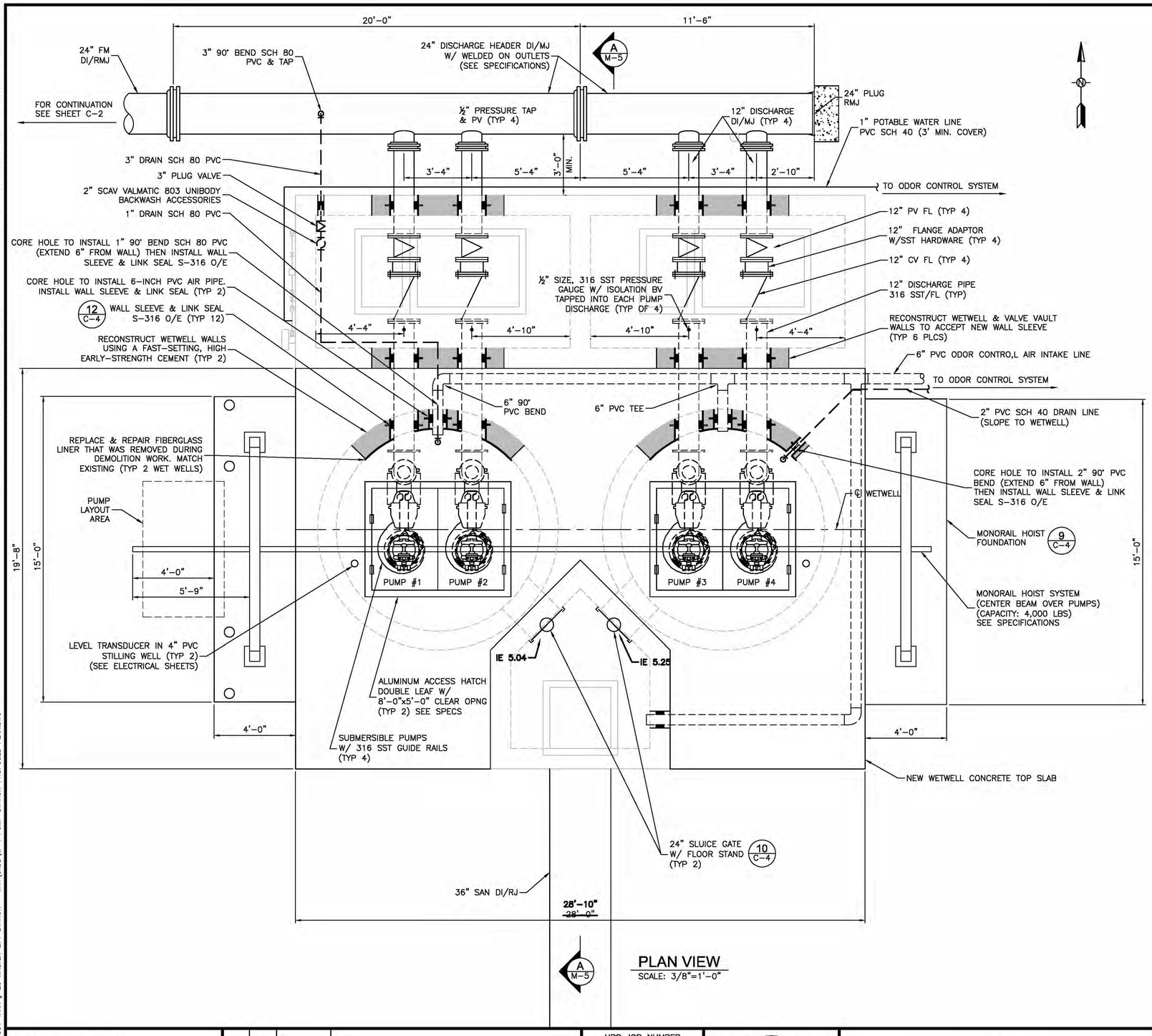
PUMP STATION DEMO SECTION

CRAIG P. OSMANSKI
FLORIDA P.E. NO. 48961

PROJECT STATUS
RECORD DRAWINGS
MAY 2010

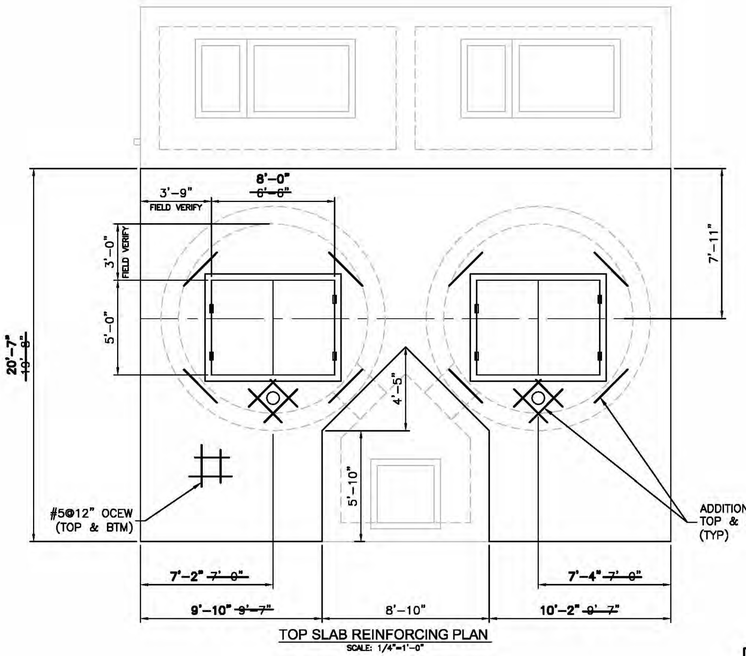
M-3

VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING 0 1 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY

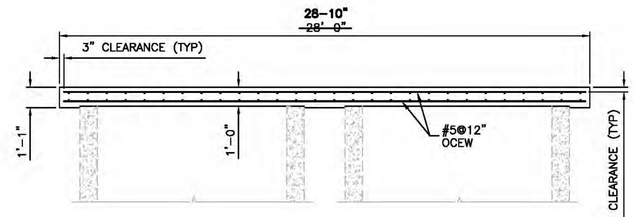


A M-5

PLAN VIEW
SCALE: 3/8"=1'-0"



TOP SLAB REINFORCING PLAN
SCALE: 1/4"=1'-0"



TOP SLAB REINFORCING SECTION
SCALE: 1/4"=1'-0"

RECORD DRAWING

PLOTTED June 15, 2006 3:51 PM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007391 TARA # 20 MASTER LIFT STATION - WAA\CADD\M-4 PUMP STATION PROPOSED PLAN.DWG

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Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION

REVISIONS

URS JOB NUMBER 12007391

PM: C. OSMANSKI
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DRW: J. SCHEUERMAN
FILE SAVE DATE: June 8, 2010

MANATEE COUNTY FLORIDA

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

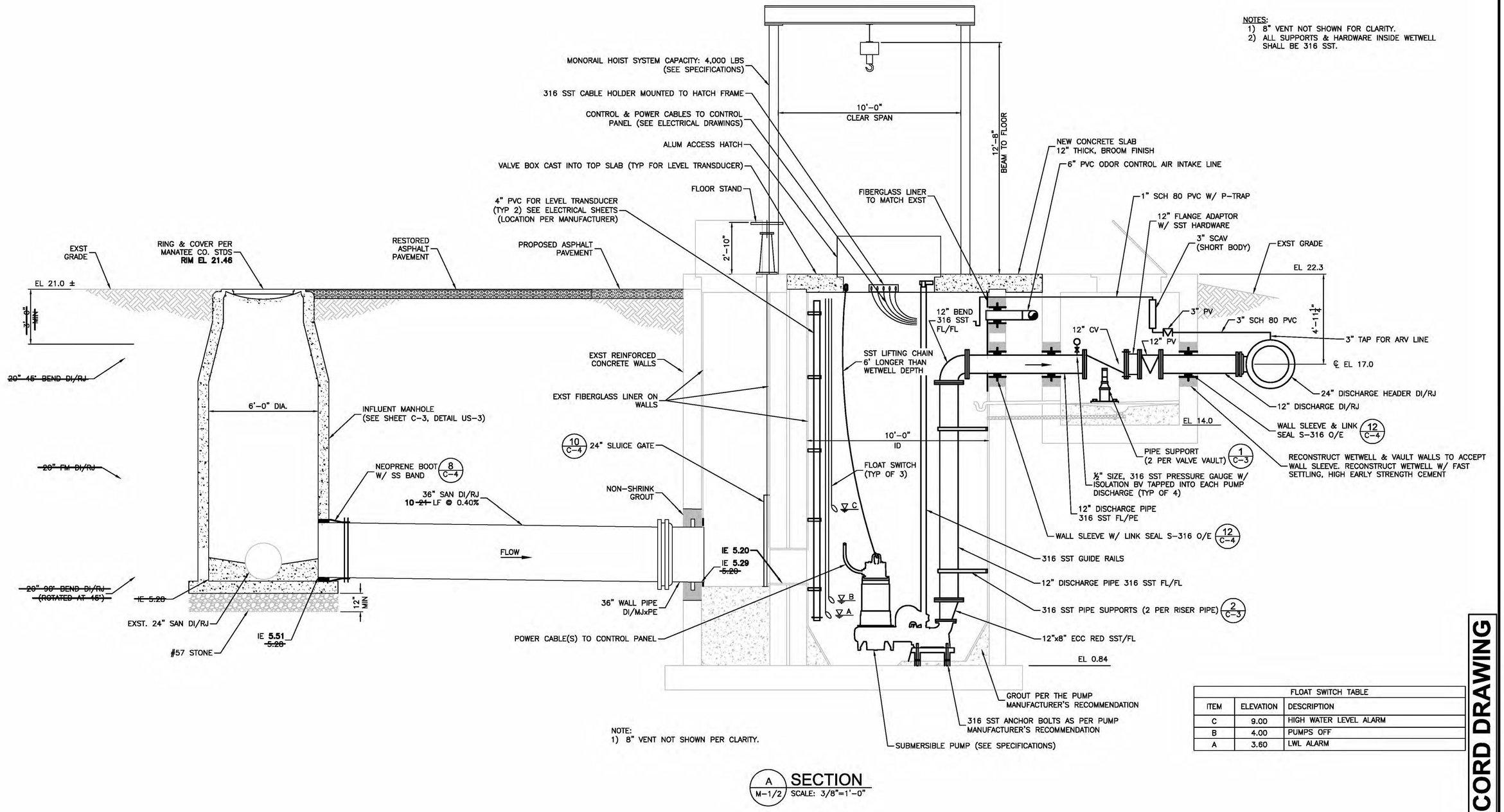
PUMP STATION PROPOSED PLAN

CRAIG P. OSMANSKI
FLORIDA P.E. NO. 48961

PROJECT STATUS
RECORD DRAWINGS
MAY 2010

M-4

NOTES:
1) 8" VENT NOT SHOWN FOR CLARITY.
2) ALL SUPPORTS & HARDWARE INSIDE WETWELL SHALL BE 316 SST.



NOTE:
1) 8" VENT NOT SHOWN PER CLARITY.

FLOAT SWITCH TABLE		
ITEM	ELEVATION	DESCRIPTION
C	9.00	HIGH WATER LEVEL ALARM
B	4.00	PUMPS OFF
A	3.60	LWL ALARM

(A/M-1/2) SECTION
SCALE: 3/8"=1'-0"

RECORD DRAWING

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Tampa, Florida 33607
Ph: (813) 286-1711 Fax: (813) 286-6587
Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION
			REVISIONS

URS JOB NUMBER 12007391
PM: C. OSMANSKI
ENG: C. OSMANSKI
DRW: J. SCHEUERMAN
FILE SAVE DATE: June 8, 2010

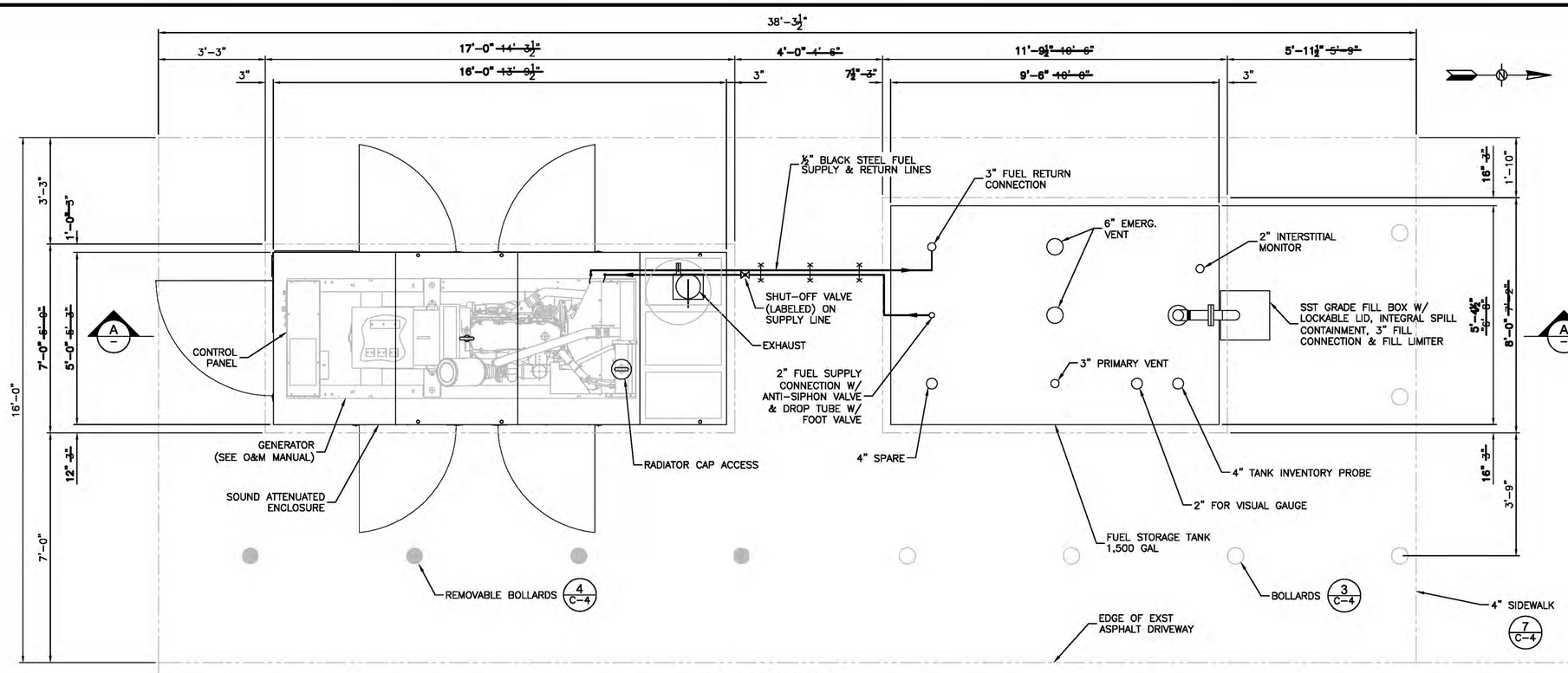
IMPROVEMENTS AT
TARA #20 MASTER LIFT STATION
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

PUMP STATION PROPOSED SECTION

CRAIG P. OSMANSKI
FLORIDA P.E. NO. 48961

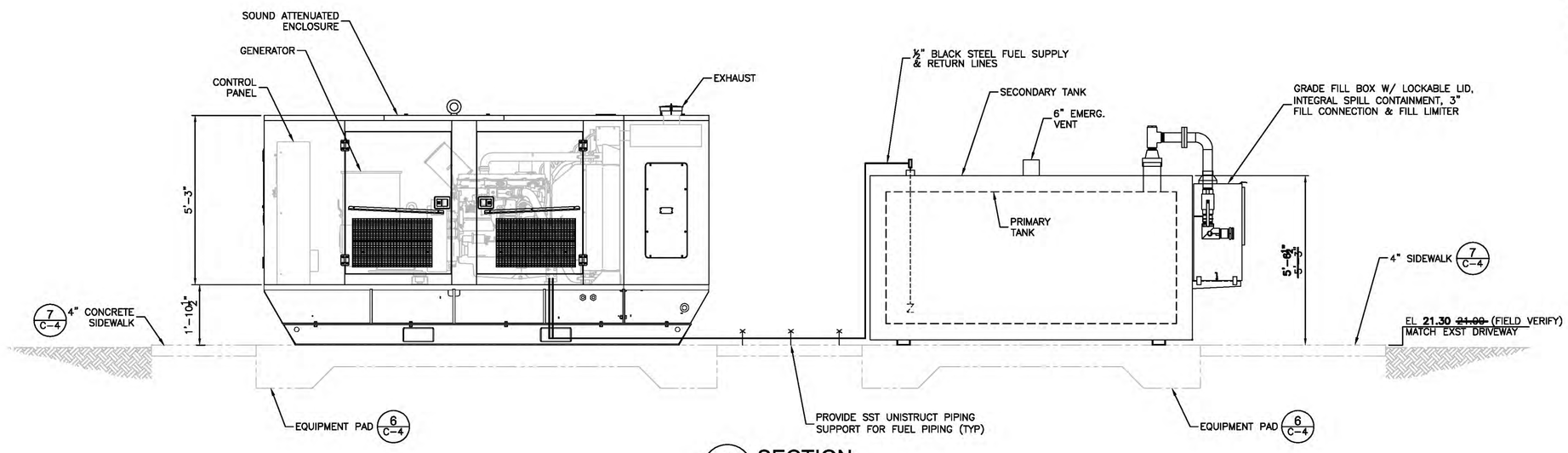
PROJECT STATUS
RECORD DRAWINGS
MAY 2010

M-5



PLAN VIEW

SCALE: 1/2"=1'-0"



A/– SECTION

SCALE: 1/2"=1'-0"

GENERAL NOTES:

1. ALL WORK SHALL CONFORM TO ALL APPLICABLE CODES & APPLICABLE REVISIONS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. CODES INCLUDE, BUT ARE NOT LIMITED TO, THE FLORIDA BUILDING CODES, FBC MECHANICAL CODE, FBC PLUMBING CODE, NEC, AND NFPA 30.
2. ADEQUATELY SUPPORT ALL PIPING & EQUIPMENT USING HANGER RODS, UNISTRUT OR OTHER PREMANUFACTURED SUPPORT SYSTEM DESIGNED SPECIFICALLY FOR SUPPORTING MECHANICAL SYSTEMS.
3. REFER TO SPECIFICATIONS FOR THE INSTALLATION OF EQUIPMENT, DEVICES & PIPING.
4. PRIOR TO FABRICATION & CONSTRUCTION OF FUEL PIPING & FUEL SYSTEM CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL BY ENGINEER. CONTRACTOR SHALL NOT COMMENCE WORK WITHOUT APPROVED SHOP DRAWINGS ON CONSTRUCTION SITE. CONTRACTOR SHALL COORDINATE FUEL PIPING, TANKS & SYSTEMS WITH CIVIL, ELECTRICAL & STRUCTURAL DISCIPLINES. FUEL SYSTEMS & AST TANK SHALL MEET THE STATE OF FLORIDA ADMINISTRATIVE CODE CHAPTER 62-762.
5. **FOR EMERGENCY GENERATOR & FUEL TANK, SEE OPERATION & MAINTENANCE DATA.**

~~**BASIS OF DESIGN IS CATERPILLAR C9-300KW IF CONTRACTOR ELECTS TO SUPPLY DIFFERENT EQUIPMENT, HE IS RESPONSIBLE FOR ANY DESIGN MODIFICATIONS.**~~

NOTES

1. GENSET: **STAMFORD** ~~CATERPILLAR~~
   a) MODEL: **M08A300043-03** ~~09-300 kW~~
   b) WEIGHT: 5,235 LBS. (DRY)
   c) DIMENSIONS: 125"L X 44"W X 78"H
   d) PROVIDE VIBRATION ISOLATORS IN QUANTITY REQUIRED FOR ACTUAL SIZE WEIGHT OF GENSET BEING PROVIDED
2. ENCLOSURE: **STAMFORD** ~~CATERPILLAR~~
   a) WEIGHT: 3,380 LBS.
   b) DIMENSIONS: 16'-0"L x 5'-0"W x 7'-6"H
   c) SOUND ATTENUATION LEVEL: 72 DBA AT 23 METERS
   d) ENCLOSURE SHALL BE DESIGNED & BUILT FOR 130 MPH WINDLOAD
3. FUEL TANK: **GENERAL INDUSTRIES** ~~PHOENIX PRODUCTS~~
   a) MODEL: **FIREGUARD** ~~EV-1500~~
   b) CAPACITY: 1,500 GALLONS
   c) WEIGHT EMPTY: 9,500 LBS
   d) WEIGHT WET: 20,600 LBS
   e) PRIMARY TANK DIMENSIONS: 8'-6"L x 4'-9"W x 4'-7"H
   f) SECONDARY TANK DIMENSIONS: 9'-6"L x 5'-5"W x 5'-7"H
   g) ATTACH TANK TO CONCRETE PAD WITH REDHEADS "TRUBOLTS" WEDGE ANCHORS, MIN. ⅝" DIA. SST EMBEDDED MIN. OF 2¾" IN 4,000 PSI CONCRETE (10 REQUIRED).
   h) ALL FITTINGS TO BE STAINLESS STEEL THREADED PIPE (UNLESS OTHERWISE NOTED).
   i) TANKS SHALL BE SECONDARY CONTAINED & PROTECTED, UL2085 LISTED AND LABELED TANK.
   j) FUEL LINES SHALL BE PAINTED OSHA RED PER SPECIFICATION SECTION 09941.

RECORD DRAWING

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Ph: (813) 286-1711 Fax: (813) 286-6587
Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION
			REVISIONS

URS JOB NUMBER 12007391
PM: C. OSMANSKI
ENG: C. OSMANSKI
DRW: J. SCHEUERMAN
FILE SAVE DATE: June 8, 2010

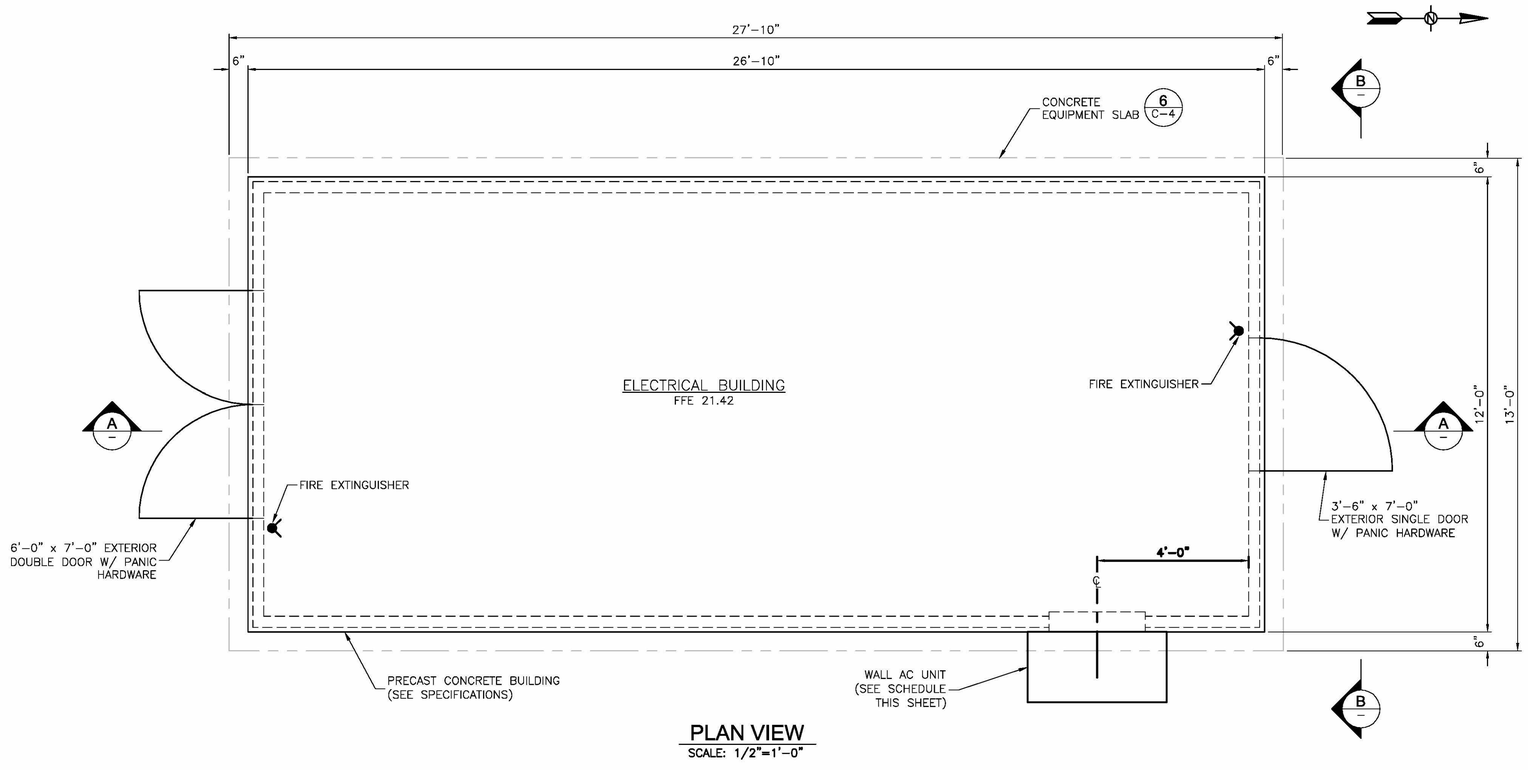
IMPROVEMENTS AT
TARA #20 MASTER LIFT STATION
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

GENERATOR ENCLOSURE & FUEL TANK

CRAIG P. OSMANSKI
FLORIDA P.E. NO. 48961

PROJECT STATUS
RECORD DRAWINGS
MAY 2010

M-6

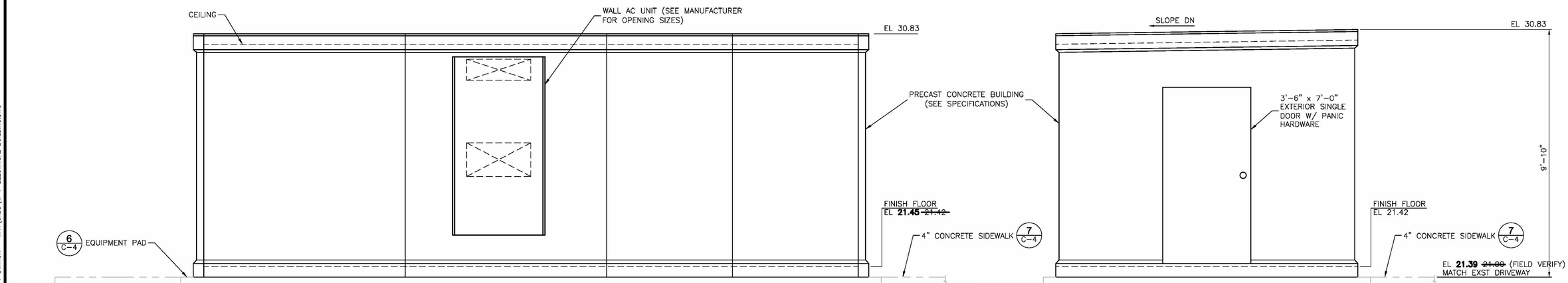


PLAN VIEW
SCALE: 1/2"=1'-0"

PACKAGED AIR CONDITIONING UNIT SCHEDULE		
EQUIPMENT TAG		PTAC-1
TOTAL CAPACITY (BTU/HR)		47,500
SENSIBLE CAPACITY (BTU/HR)		37,400
MINIMUM SYSTEM SEER		11.0
TOTAL SUPPLY AIR FLOW (CFM)		1,550
OUTSIDE AIR FLOW (CFM)		0
AIR TEMP. (F °) DB/WB	ENTERING	80/67
	LEAVING	55/54
FILTER TYPE		1" THROWAWAY
BLOWER HORSEPOWER		1/2
COMPRESSOR RATED LOAD AMPS		6.2
CONDENSER FAN MOTOR FLA		1.3
MINIMUM CIRCUIT AMPS/FUSE		13/15
RATED OUTDOOR TEMP. (F °)		95°
ELEC. SERVICE (VOLTS/PHASE/HERTZ)		460/3/60
WEIGHT (LBS)		500
REFERENCE MANUFACTURER		BARD
REFERENCE MODEL NO.		WA484-C
NOTES		1, 2, 3, 4, 5, 6

NOTES:

1. CAPACITY RATINGS AS TESTED IN ACCORDANCE WITH ARI STANDARD 210/240.
2. PROVIDE WITH FACTORY NON-PROGRAMMABLE SINGLE STAGE THERMOSTAT.
3. PROVIDE WITH FACTORY COMPRESSOR CONTROL MODULE AND LOW AMBIENT CONTROL.
4. PROVIDE WITH FACTORY SUPPLY AIR GRILLE AND RETURN AIR GRILLE WITH FILTER.
5. PROVIDE WITH SINGLE POINT POWER CONNECTION.
6. INSTALL PER MANUFACTURERS GUIDELINES AND RECOMMENDATIONS.



A SECTION
SCALE: 1/2"=1'-0"

B SECTION
SCALE: 1/2"=1'-0"

RECORD DRAWING

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Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION

REVISIONS

URS JOB NUMBER 12007391

PM: C. OSMANSKI
ENG: C. OSMANSKI
DRW: J. SCHEUERMAN
FILE SAVE DATE: June 8, 2010

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

ELECTRICAL BUILDING

CRAIG P. OSMANSKI
FLORIDA P.E. NO. 48961

PROJECT STATUS
RECORD DRAWINGS
MAY 2010

M-7

VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY

PLOTTED June 8, 2010 9:11 AM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007391 TARA # 20 MASTER LIFT STATION - WWA\CADD\M-7 ELECTRICAL BUILDING.DWG

ABBREVIATIONS:

A	AMPS, AMPERE
AC	ALTERNATING CURRENT
AF	AMP FRAME, AMP FUSE
AFF	ABOVE FINISHED FLOOR
AL	ALUMINUM
ALT.	ALTERNATE
AM	AMMETER
AMPS	AMPERES
APPROX.	APPROXIMATE
ASPH.	ASPHALT
AST	ABOVEGROUND STORAGE TANK
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUX.	AUXILIARY
AUTO.	AUTOMATIC
AVG.	AVERAGE
AWG	AMERICAN WIRE GAUGE
&	AND
@	AT
BATT.	BATTERY
BC	BARE COPPER, BOLT CIRCLE
BET.	BETWEEN
BIS	BITS PER SECOND
BIL	BASIC IMPULSE LEVEL
BLDG	BUILDING
BKR	BREAKER
BNC	BAYONET-NIELL-CONCELMAN
BOT.	BOTTOM
C	CONDUIT, CONDUCTOR
CAB.	CABINET
CAT.	CATALOG
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER, CATCH BASIN
CEM.	CEMENT
CF	CUBIC FOOT
CIP	CAST-IN-PLACE
CKT	CIRCUIT
CLR	CLEAR
CL	CLASS, CENTERLINE, CURRENT LIMITING
CLG	CEILING
COL.	COLUMN
CMH	COMMUNICATIONS MANHOLE
COMM.	COMMUNICATION(S)
CONC.	CONCRETE
COND.	CONDUIT
CONN.	CONNECTION
CONST.	CONSTRUCTION
CONT.	CONTINUED
CONTR	CONTRACTOR
COORD.	COORDINATE
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CRS	PVC COATED RIGID STEEL CONDUIT
CS	CONTROL STATION
CT	CURRENT TRANSFORMER
CTR	CENTER
CTRL	CONTROL
CU	COPPER
DB	DIRECT BURIED
dB	DECIBELS
DC	DIRECT CURRENT
DED.	DEDICATED
DEG.	DEGREES
DET.	DETAIL
DIA.	DIAMETER
DIV.	DIVISION
DIFF.	DIFFERENTIAL
DIM.	DIMENSIONS
DWG.	DRAWING
EA.	EACH
ELEC.	ELECTRIC, ELECTRICAL
EL.	ELEVATION
EMBT	EMBEDMENT
EMT	ELECTRICAL METALLIC TUBING
ENCL.	ENCLOSURE, ENCLOSED
ENGR	ENGINEER
EPO	EMERGENCY POWER OFF
EPR	ETHYLENE PROPYLENE RUBBER
EQ.	EQUAL
EQUIP.	EQUIPMENT
EQUIV.	EQUIVALENT
EXIST.	EXISTING
EXP.	EXPOSED

ABBREVIATIONS:

EXT.	EXTERIOR
F	FUSE
FA	FIRE ALARM
FAA	FUTURE FORCED AIR
FACP	FIRE ALARM CONTROL PANEL
FACS	FIRE ALARM CONTROL SYSTEM
FC	FOOT-CANDLE
FND	FOUNDATION
FDR	FEEDER
FHP	FRACTIONAL HORSEPOWER
FIN.	FINISHED
FIN. FL.	FINISHED FLOOR
FIXT.	FIXTURE
FLEX.	FLEXIBLE
FLR	FLOOR
FLUOR.	FLUORESCENT
FO	FIBER OPTIC
FT	FOOT, FEET
FTG	FOOTING
FU	FUSE
FUT.	FUTURE
FV	FULL VOLTAGE
FVR	FULL VOLTAGE REVERSING
FVNR	FULL VOLTAGE NON-REVERSING
GA	GAUGE
GALV.	GALVANIZED
GEN.	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
GRS	GALVANIZED RIGID STEEL
H	HEIGHT
HD	HEAVY DUTY
HDPE	HIGH DENSITY POLYETHYLENE
HH	HANDHOLE
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTOMATIC
HORIZ.	HORIZONTAL
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HR	HOUR
HZ	HERTZ
I.D.	INSIDE DIMENSION
IE	INVERT ELEVATION
IEEE	INSTITUTE OF ELECTRICAL & ELECTRONIC ENGINEERS
IES	ILLUMINATING ENGINEERING SOCIETY
IN.	INCH(ES)
INCL.	INCLUDING
INST.	INSTANTANEOUS
INSTR.	INSTRUMENT, INSTRUMENTATION
IMH	INSTRUMENTATION MANHOLE
INV.	INVERT
J, JB	JUNCTION BOX
JCT	JUNCTION
JT	JOINT
K	KIRK KEY INTERLOCK
KA	KILO AMPERES
KAIC	KILO AMPS INTERRUPTING CAPACITY
KCMIL	ONE THOUSAND CIRCULAR MILS
KV	KILOVOLTS
KVA	KILOVOLT AMPERES
KVAR	KILOVOLT AMPERES REACTIVE
KW	KILOWATTS
KWH	KILOWATT HOURS
KWHD	KILOWATT HOURS DEMAND
L	LENGTH
LB	POUND
LBS	POUNDS
LC	LOAD CENTER
LED	LIGHT EMITTING DIODE
LF	LINEAR FEET
LFMC	LIQUID-TIGHT FLEXIBLE METAL CONDUIT
LIN.	LINEAR
LOC	LOCATIONS
LPS	LIGHTNING PROTECTION SYSTEM
LS	LIMIT SWITCH
LT	LIGHT
LTG	LIGHTING
LTS	LIGHTS
LV	LOW VOLTAGE
LVMH	LOW VOLTAGE MANHOLE
L-G	LINE-TO-GROUND
L-L	LINE-TO-LINE

ABBREVIATIONS:

M	MOTOR
MAX.	MAXIMUM
MCM	ONE THOUSAND CIRCULAR MILS
MCOV	MAXIMUM CIRCUIT OPERATING VOLTAGE
MECH.	MECHANICAL
MEMB.	MEMBRANE
MFR	MANUFACTURER
MH	MANHOLE
MIN.	MINIMUM
MISC.	MISCELLANEOUS
MOV	METAL OXIDE VARISTOR
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTR	MOTOR
MV	MEDIUM VOLTAGE
MVA	MEGAVOLT AMPERES
N	NEUTRAL
NC	NORMALLY CLOSED
NE	NORTH EAST
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURES ASSOCIATION
NEUT.	NEUTRAL
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NO.	NUMBER
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NPT	NOMINAL PIPE THREAD
NTS	NOT TO SCALE
O.C.	ON CENTER(S)
O.D.	OUTSIDE DIAMETER
OH	OVERHEAD
OL	OVERLOADS
OPP.	OPPOSITE
OPER.	OPERATOR
OWS	OIL WATER SEPARATOR
P	POLE
PB	PULL BOX, PUSH BUTTON
PE	PHOTOELECTRIC DEVICE
PF	POWER FACTOR
PH OR ø	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PLCS	PLACES
PM	POWER METER
PMH	PRIMARY MANHOLE
PNL	PANEL
PNLBD	PANEL BOARD
PR	PAIR
PRI.	PRIMARY
PROJ.	PROJECT
PS	PRESSURE SENSOR, POWER SUPPLY
PSI	POUNDS PER SQUARE INCH
PT	POTENTIAL TRANSFORMER, PRESSURE TRANSMITTER
PVC	POLYVINYL CHLORIDE
PWR	POWER
%	PERCENT
QTY	QUANTITY
RECP.	RECEPTACLE
REF.	REFERENCE
REINF.	REINFORCEMENT
REQD	REQUIRED
REV.	REVISION, REVISED
RF	RATING FACTOR
RGS	RIGID GALVANIZED STEEL
RMS	ROOT-MEAN-SQUARE
RVAT	REDUCED VOLTAGE AUTO TRANSFORMER
RVNR	REDUCED VOLTAGE NON-REVERSING
R/W	RIGHT-OF-WAY
SA	SURGE ARRESTER
SCH.	SCHEDULE
SEC.	SECONDARY, SECOND(S)
SECT.	SECTION
SF	SQUARE FOOT, SQUARE FEET
SHLD	SHIELDED
SHT	SHEET
SI	SQUARE INCH, SQUARE INCHES
SIM.	SIMILAR
SMH	SECONDARY MANHOLE
SPDT	SINGLE POLE DOUBLE THROW
SPEC	SPECIFICATION(S)
SQ.	SQUARE
SS	STAINLESS STEEL
ST.	STREET

ABBREVIATIONS:

STA.	STATION
STD	STANDARD
STL	STEEL
STR	STRANDED
SW.	SWITCH
SWBD	SWITCHBOARD
SYM.	SYMMETRICAL
SYNC.	SYNCHRONOUS
SY	SQUARE YARD, SQUARE YARDS
SYS.	SYSTEM
TB	TERMINAL BLOCK
TBD	TO BE DETERMINED
TD	TIME DELAY
TELE.	TELEPHONE
TEMP.	TEMPORARY, TEMPERATURE
TERM.	TERMINAL
THHN	HEAT RESISTANT THERMOPLASTIC INSULATION
THK	THICK
THWN	HEAT AND MOISTURE RESISTANT THERMOPLASTIC INSULATION
THRU	THROUGH
T.O.S.	TOP OF STEEL, TOP OF SLAB
TYP.	TYPICAL
TSP	TWISTED SHIELDED PAIR
UBC	UNIFORM BUILDING CODE
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTABLE POWER SUPPLY
UTP	UNSHIELDED TWISTED PAIR
UVIR	ULTRAVIOLET INFRARED
V	VOLTS, VOLTAGE
VAR	VOLT AMPERES REACTIVE
VERT.	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VM	VOLT METER
VOL.	VOLUME
VT	VOLTAGE TRANSFORMER
W	WATT, WIDE, WIDTH, WIRE
WF	WASTE FUEL
WH	WATT-HOUR
WM	WATT-HOUR METER
W/O	WITHOUT
WP	WEATHERPROOF
WT	WEIGHT
WWF	WELDED WIRE FABRIC
W/	WITH
X	REACTANCE
XFMR	TRANSFORMER
XHHW	HEAT AND MOISTURE RESISTANT CROSS LINKED SYNTHETIC POLYMER
XP	EXPLOSION PROOF
Z	IMPEDANCE

GENERAL NOTES:

1. REFER TO MECHANICAL DRAWINGS FOR PROJECT LOCATION, TANK LOCATIONS AND LOCATIONS OF BUILDINGS ON SITE PLAN.

LEGEND:

(#)	REFERENCE NOTE TAG
(#)	DEMOLITION NOTE TAG
(#)	FEEDER NOTE TAG
⏚	DRIVEN GROUNDING ROD ELECTRODE
•	CONNECTION POINT
———	CONDUIT.
- - - - -	CONDUIT UNDERGROUND.
A	2 X 32W FLUORESCENT LAMP PENDANT MOUNTED LIGHT FIXTURE, REFER TO LIGHTING FIXTURE SCHEDULE ON E-6.
B	HPS WALL MOUNT LIGHT FIXTURE, REFER TO LIGHTING FIXTURE SCHEDULE ON E-6.
$#T	LIGHT SWITCH, "#" INDICATES NUMBER OF WAYS FOR SWITCH, "T" INDICATES SWITCH INCLUDES TIME DELAYED AUTOMATIC SHUTOFF.
GFCI WP	DUPLEX RECEPTACLE, NEMA 5-20R, INDUSTRIAL SPECIFICATION GRADE. "GFCI" INDICATES THAT RECEPTACLE INCLUDES GROUND FAULT CIRCUIT INTERRUPTER. "WP" INDICATES RECEPTACLE IS WEATHERPROOF RATED.
	HPS POLE MOUNT LIGHT FIXTURE, REFER TO LIGHTING FIXTURE SCHEDULE ON E-6 AND DETAIL ON E-2.
	CIRCUITING SYMBOLOGY FEEDER. REFER TO SINGLE-LINE DIAGRAM FOR CONDUIT AND WIRE SPECIFICATION.
	HOMERUNS TO PANEL. PANEL & CIRCUIT DESIGNATIONS AS INDICATED. NO TICK MARKS INDICATE THREE (3) CONDUCTORS, TICK MARKS INDICATE NUMBER OF CONDUCTORS IF THERE IS MORE THAN THREE (3) CONDUCTORS; ( ) INDICATES PHASE CONDUCTOR, ( ) INDICATES NEUTRAL CONDUCTOR, ( ) INDICATES GROUND CONDUCTOR
(P)	PHOTO CELL
JB	JUNCTION BOX

RECORD DRAWING

NO. BY DATE DESCRIPTION	REVISIONS

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Florida Engineering Number: 000002

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

MANATEE COUNTY FLORIDA

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

ELECTRICAL ABBREVIATIONS, SYMBOLS, LEGEND & NOTES

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

PROJECT STATUS: RECORD DRAWINGS MAY 2010

E-1

VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING 0 1 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY

X:\MANATEE PROJECTS\12007391 TARA # 20 MASTER LIFT STATION - WA4\CADD\E-1 ELECTRICAL ABREVIATIONS,SYMBOLS LEGEND & NOTES.DWG

GENERAL NOTES:

1. REFER TO SINGLE LINE DIAGRAM FOR CONDUCTOR SIZES AND ADDITIONAL REQUIREMENTS.
2. ALL PVC UNDERGROUND CONDUITS SHALL TRANSITION TO RGS CONDUIT PRIOR TO CONDUIT TRANSITION FROM HORIZONTAL TO VERTICAL. ALL EXTERIOR VERTICAL CONDUITS ARE RGS.

REFERENCE NOTES:

(1) COORDINATE WITH UTILITY FOR TERMINATION IN UTILITY HANDHOLE.

(2) PROVIDE THREE (3) 4 IN. SCHEDULE 80 PVC CONDUITS BETWEEN UTILITY HANDHOLE AND 'MCB' IN ELECTRICAL BUILDING.

(3) PROVIDE THE FOLLOWING IN SCHEDULE 80 PVC CONDUIT UG BETWEEN WETWELL TERMINATION CABINETS AND ELECTRICAL BUILDING:

TWO (2) 3 IN. FOR PUMP MOTOR POWER CONDUCTORS.

ONE (1) 2 IN. FOR FLOAT CONTROL CABLES.

ONE (1) **2** ~~1~~ IN. FOR LEVEL TRANSMITTER CONTROL CABLE.

TWO (2) 2 IN. FOR PUMP MANUFACTURER'S MONITORING AND STATUS (MAS) CONTROL WIRING.

REFERENCE NOTES CONTINUED:

(4) PROVIDE TWO (2) 1 IN. ~~CONCRETE ENCASED~~ PVC CONDUIT UG BETWEEN GENERATOR FUEL TANK AND ELECTRICAL BUILDING.

(5) PROVIDE ONE (1) 2 IN. ~~CONCRETE ENCASED~~ PVC CONDUIT UG BETWEEN GENERATOR CONTROL PANEL IN GENERATOR ENCLOSURE AND CONTROL CABINET IN ELECTRICAL BUILDING. **ADD ONE (1) 1–INCH SPARE TO ATS IN BUILDING**

(6) PROVIDE THE FOLLOWING ~~CONCRETE ENCASED~~ PVC CONDUIT UG BETWEEN GENERATOR ENCLOSURE AND ELECTRICAL BUILDING:

TWO (2) 3 IN. FOR GENERATOR POWER CONDUCTORS.
ONE (1) 1–INCH FROM GENERATOR TO ATS (REMOVE START CONTROL WIRING)
ONE (1) 1–1/4 IN. FOR PANEL 'FPG' IN GENERATOR ENCLOSURE POWER CONDUCTORS.

(7) PROVIDE ONE 1 IN. ~~CONCRETE ENCASED~~ SCHEDULE **80** ~~40~~ PVC CONDUIT UG BETWEEN PUMP CONTROL CABINET AND JUNCTION BOX IN DOGHOUSE MANHOLE FOR FLOW METER AND PRESSURE TRANSDUCER/TRANSMITTER CONTROL WIRING.

(8) PROVIDE GROUND RODS ON MAXIMUM 100 FT. CENTERS BETWEEN DUCTBACK TERMINATIONS AT MANHOLES/HANDHOLES AND BUILDINGS. BOND COUNTERPOISE GROUNDING CONDUCTOR TO GROUND ROD VIA EXOTHERMIC WELDING PROCESS.

REFERENCE NOTES CONTINUED:

(9) "FINAL GRADE" SHALL BE UNDERSTOOD TO REFER TO THE "FINAL EARTHEN GRADE" OR "TOP OF PAVEMENT SURFACE", WHICHEVER ORIGINAL CONDITION IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT GOVERNING SURFACE RESTORATION.

(10) PROVIDE ONE (1) 2 IN. CONCRETE ENCASED PVC CONDUIT UG BETWEEN GENERATOR CONTROL PANEL IN GENERATOR ENCLOSURE AND CONTROL CABINET REINFORCING STEEL SHALL BE DEFORMED BARS OF NEW BILLET STEEL MEETING THE REQUIREMENTS OF ASTM A 615, GRADE 60, UNCOATED.

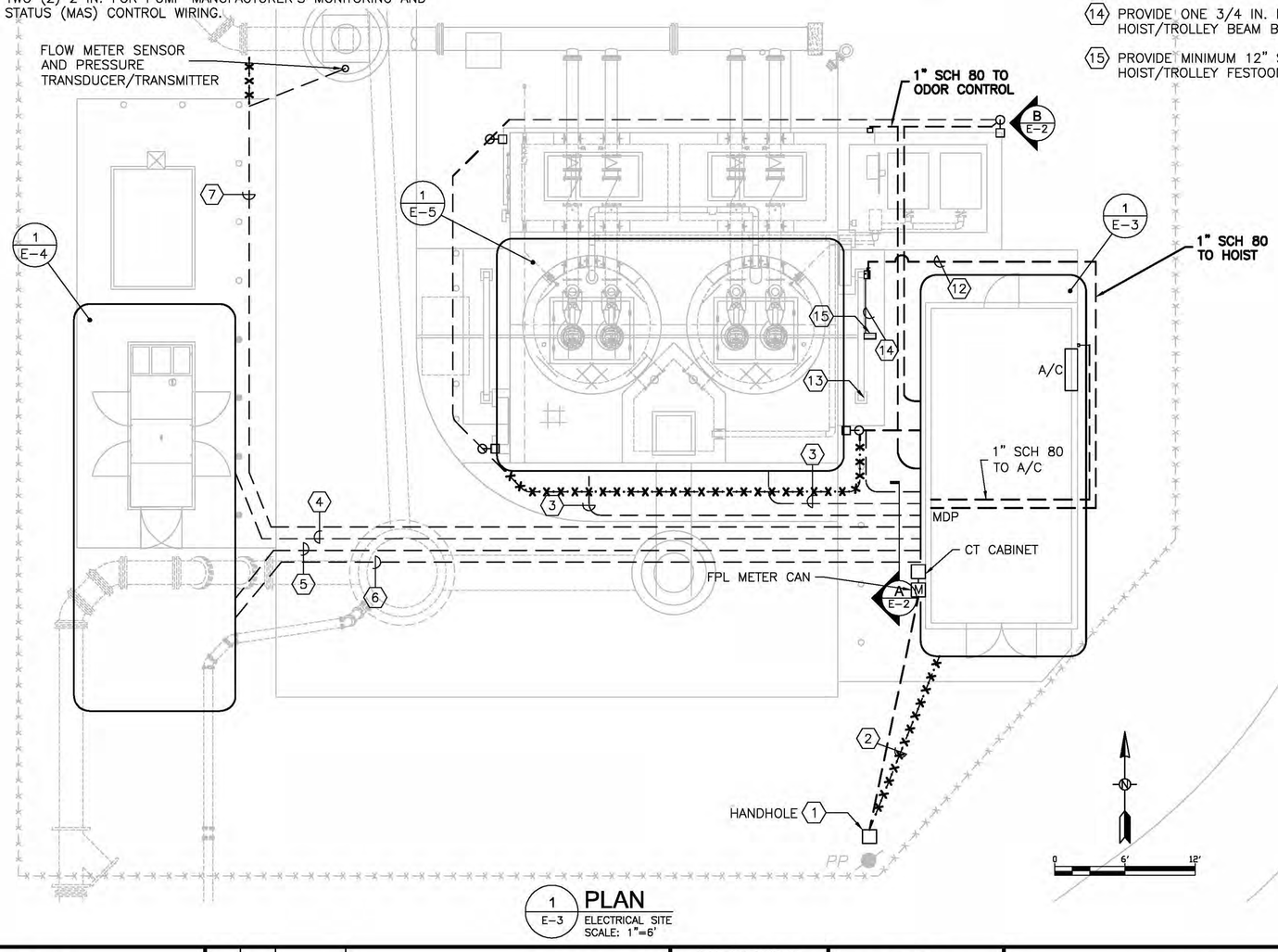
(11) CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI IN 28 DAYS AS DETERMINED BY TEST CYLINDERS MADE IN ACCORDANCE WITH ASTM C 31 AND TESTED IN ACCORDANCE WITH ASTM C 39. CONCRETE SHALL CONTAIN NOT LESS THAN 470 LBS OF CEMENT PER CUBIC YARD. CONCRETE SHALL CONTAIN 5 PERCENT OF ENTRAINED AIR, PLUS OR MINUS 1 PERCENT, AS DETERMINED BY ASTM C 231 AND SHALL HAVE A SLUMP OF NOT MORE THAN 4" AS DETERMINED BY ASTM C 143.

(12) PROVIDE ONE 3/4 IN. DIRECT BURIED SCHEDULE 80 PVC CONDUIT UG BETWEEN 'MDP' AND LOCAL DISCONNECT FOR HOIST/TROLLEY POWER CONDUCTORS.

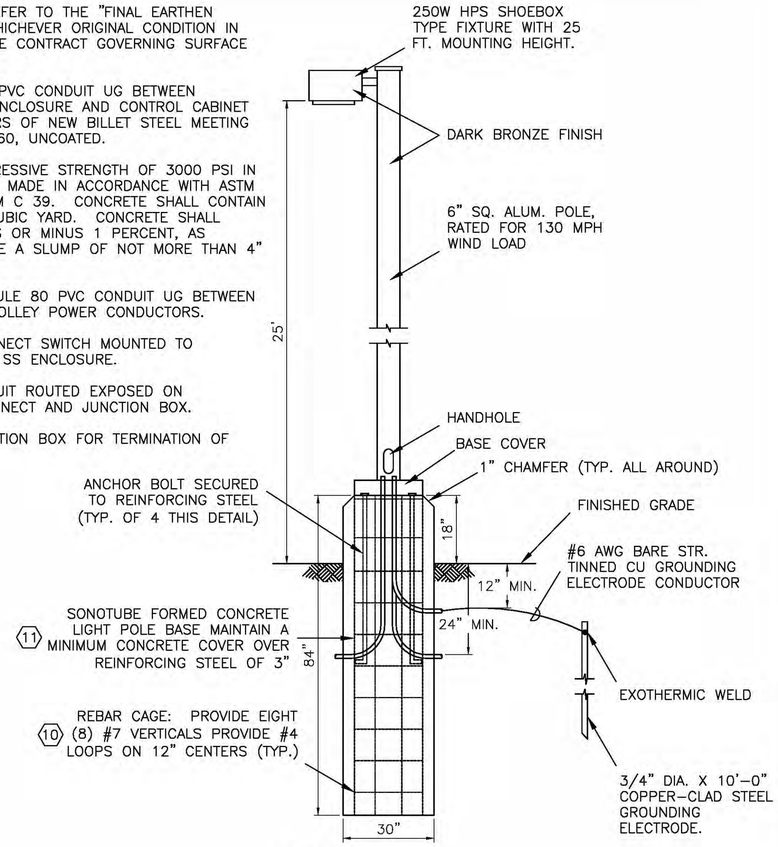
(13) PROVIDE HEAVY DUTY 30A NONFUSED DISCONNECT SWITCH MOUNTED TO HOIST/TROLLEY COLUMN IN A NEMA TYPE 4X SS ENCLOSURE.

(14) PROVIDE ONE 3/4 IN. RIGID ALUMINUM CONDUIT ROUTED EXPOSED ON HOIST/TROLLEY BEAM BETWEEN LOCAL DISCONNECT AND JUNCTION BOX.

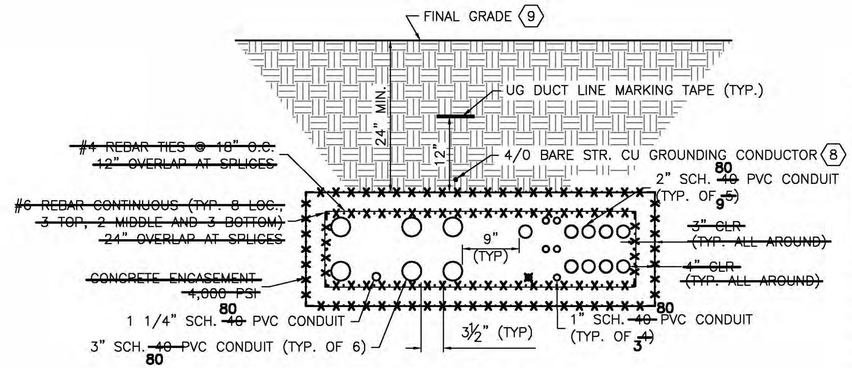
(15) PROVIDE MINIMUM 12" SQ. BY 6" DEEP JUNCTION BOX FOR TERMINATION OF HOIST/TROLLEY FESTOON CABLING.



1 / E-3 **PLAN**
ELECTRICAL SITE
SCALE: 1"=6'



B / E-2 **DETAIL**
POLE MOUNTED AREA LUMINAIRE
SCALE: NTS



A / E-3 **SECTION**
DUCT BANK
SCALE: NTS

RECORD DRAWING

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NO.	BY	DATE	DESCRIPTION
1	GHD	9/26/09	HOIST/TROLLEY, ELECTRICAL

REVISIONS

URS JOB NUMBER 12007391
PM: C. OSMANSKI
ENG: G. DAVIS
DRW: G. DAVIS
FILE SAVE DATE: June 8, 2010

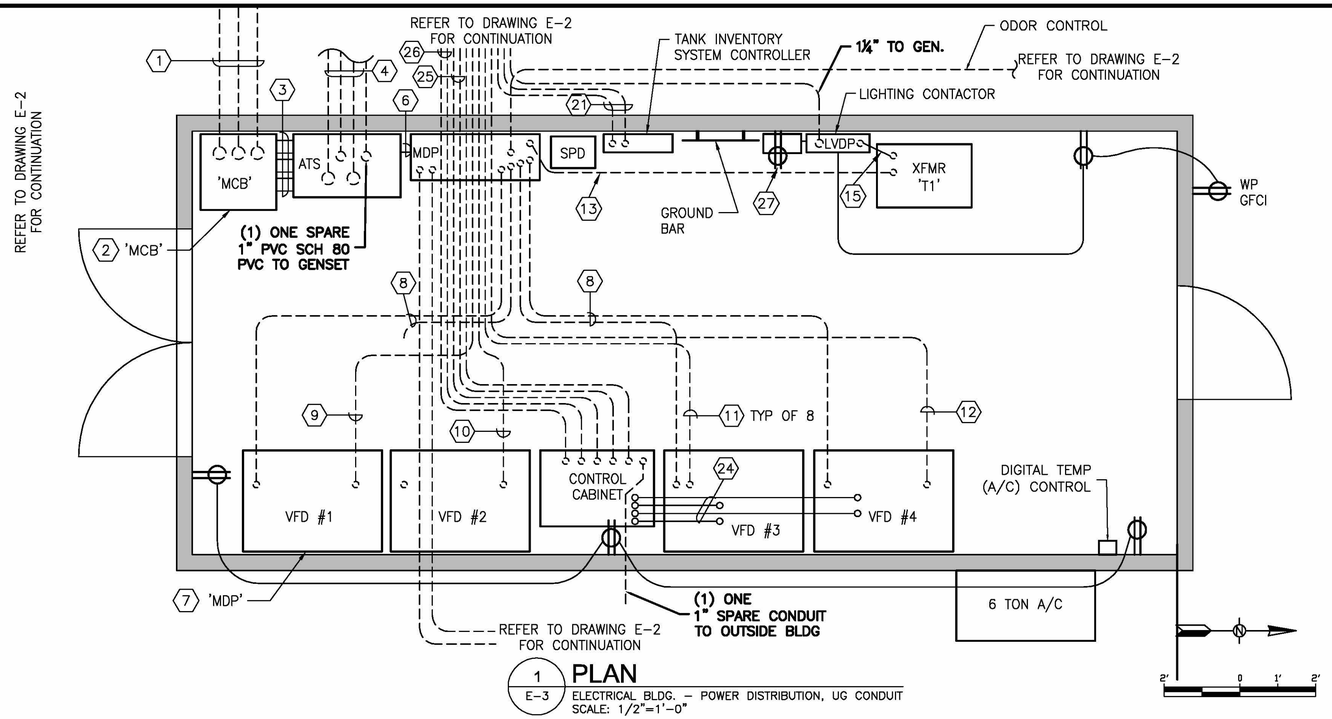
IMPROVEMENTS AT
TARA #20 MASTER LIFT STATION
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

ELECTRICAL SITE PLAN

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

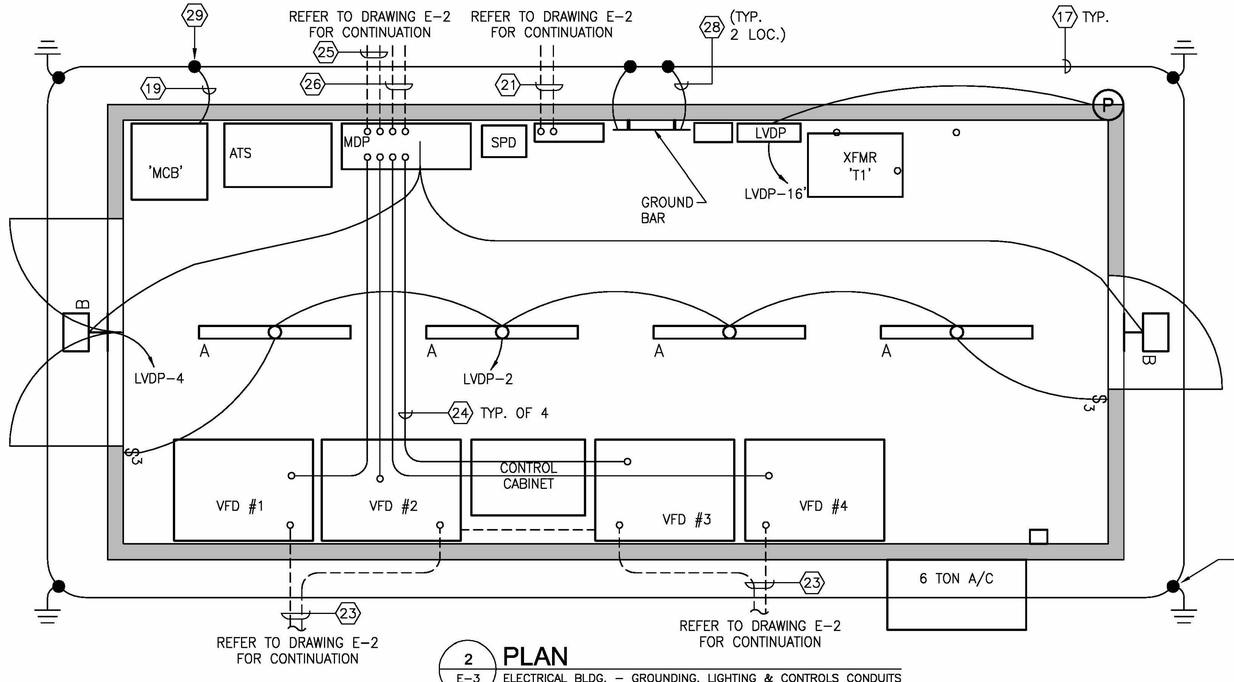
PROJECT STATUS
RECORD DRAWINGS
MAY 2010

E–2



1 E-3 **PLAN**

ELECTRICAL BLDG. – POWER DISTRIBUTION, UG CONDUIT
SCALE: 1/2"=1'-0"



2 E-3 **PLAN**

ELECTRICAL BLDG. – GROUNDING, LIGHTING & CONTROLS CONDUITS
SCALE: 1/2"=1'-0"

GENERAL NOTES:

1. REFER TO SINGLE LINE DIAGRAM FOR CONDUCTOR SIZES AND ADDITIONAL REQUIREMENTS.
2. ALL PVC UNDERGROUND CONDUITS SHALL TRANSITION TO RGS CONDUIT PRIOR TO CONDUIT TRANSITION FROM HORIZONTAL TO VERTICAL. ALL EXTERIOR VERTICAL CONDUITS ARE RGS.

REFERENCE NOTES:

1. PROVIDE THREE (3) 4IN. SCHEDULE 80 PVC CONDUITS UG, 2 ACTIVE, 1 SPARE BETWEEN THE UTILITY HANDHOLE AND 'MCB'.
2. PROVIDE 1200A 'MCB' IN A FLOOR MOUNT NEMA TYPE 12 ENCLOSURE. PROVIDE PERMANENT PLAQUE MOUNTED TO ENCLOSURE WITH CONTRASTING COLORS AND MINIMUM OF 2IN. HIGH LETTERING THAT STATES "SERVICE 1 OF 2: SERVICE NO. 2 'GCB' IS LOCATED IN GENERATOR ENCLOSURE".
3. PROVIDE THREE (3) 4IN. RGS CONDUIT EXPOSED BETWEEN 'MCB' AND THE ATS.
4. PROVIDE TWO (2) 3IN. ~~CONCRETE ENCASED~~ SCHEDULE **80** ~~40~~ PVC CONDUITS UG BETWEEN 'GCB' IN GENERATOR ENCLOSURE AND ATS IN ELECTRICAL BUILDING. **PROVIDE (2) 1-INCH (ONE FOR REMOVE START CONTROL WIRING FROM GENERATOR TO ATS & ONE SPARE FROM GENERATOR TO ATS IN BUILDING.**
5. PROVIDE 1000A ATS ON 4IN. HOUSEKEEPING PAD IN A NEMA TYPE 12 ENCLOSURE.
6. PROVIDE THREE (3) 4IN. ~~CONCRETE ENCASED~~ SCHEDULE **80** ~~40~~ PVC CONDUITS UG, 2 ACTIVE, 1 SPARE BETWEEN THE ATS AND 'MDP'.
7. PROVIDE 1200A SURFACE MOUNTED PANELBOARD IN A NEMA TYPE 12 ENCLOSURE.
8. PROVIDE ONE 2IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN PANEL 'MDP' AND VFD.
9. PROVIDE ONE 2IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN 'VFD-1' AND TERMINATION CABINET 'TC-1' ADJACENT TO WET WELL #1.
10. PROVIDE ONE 2IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN 'VFD-2' AND TERMINATION CABINET 'TC-1' ADJACENT TO WET WELL #1.
11. PROVIDE ONE 2IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN 'VFD-3' AND TERMINATION CABINET 'TC-2' ADJACENT TO WET WELL #2.
12. PROVIDE ONE 2IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN 'VFD-4' AND TERMINATION CABINET 'TC-2' ADJACENT TO WET WELL #2.
13. PROVIDE ONE 1-1/2IN. LFMC BETWEEN PANEL 'MDP' AND TRANSFORMER 'T1'.
14. PROVIDE 45kVA GENERAL PURPOSE FLOOR MOUNTED TRANSFORMER ON A 4IN. HOUSEKEEPING PAD.
15. PROVIDE ONE 2IN. LFMC BETWEEN TRANSFORMER 'T1' AND PANEL 'LVDP'.
16. PROVIDE 225A SURFACE MOUNTED PANELBOARD IN A NEMA TYPE 12 ENCLOSURE.
17. PROVIDE #4/0 AWG BARE STRANDED TINNED COPPER COUNTERPOISE GROUNDING ELECTRODE CONDUCTOR DIRECT BURIED A MINIMUM OF 30IN. BELOW FINISHED GRADE.
18. PROVIDE GROUND ROD. INSTALL GROUND ROD SO THAT TOP IS A MINIMUM OF 30IN. BELOW FINISHED GRADE. BOND GROUND ROD TO GROUNDING ELECTRODE CONDUCTOR VIA THE EXOTHERMIC WELDING PROCESS.
19. PROVIDE #4/0 AWG BARE STRANDED TINNED COPPER GROUNDING CONDUCTOR IN PVC CONDUIT BETWEEN 'MCB' AND COUNTERPOISE GROUNDING ELECTRODE CONDUCTOR. BOND GROUNDING CONDUCTOR TO 'MCB' GROUND BUS.
20. PROVIDE TANK INVENTORY SYSTEM CONTROLLER.
21. PROVIDE TWO (2) 1IN. ~~CONCRETE ENCASED~~ PVC CONDUIT, ONE BETWEEN TANK INVENTORY SYSTEM CONTROLLER AND INTERSTITIAL MONITOR, ONE BETWEEN TANK INVENTORY SYSTEM CONTROLLER AND TANK INVENTORY PROBE.
22. OWNER FURNISHED CONTROL CABINET.
23. PROVIDE FOUR (4) 2 IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN CONTROL CABINET AND TERMINATION CABINETS (TC-1 & TC-2). PROVIDE 12 #4 AWG CONTROL WIRING AND 1 #12 GND IN EACH CONDUIT FOR PUMP MANUFACTURER'S MONITORING AND STATUS (MAS).
24. PROVIDE ONE 2IN. EMT ROUTED EXPOSED BETWEEN CONTROL CABINET AND VFD ENCLOSURE FOR CONTROL WIRING. **IN ADDITION, PROVIDE ONE 1¼" EMT FOR PUMP MAS CONTROL WIRING.**
25. PROVIDE TWO (2) 2IN. SCHEDULE 80 PVC CONDUIT BETWEN CONTROL CABINET AND TERMINATION CABINETS (TC-1 & TC-2) FOR FLOAT CONTROL CABLES.
26. PROVIDE TWO (2) 2IN. SCHEDULE 80 PVC CONDUIT BETWEN CONTROL CABINET AND TERMINATION CABINETS (TC-1 & TC-2) FOR LEVEL TRANSMITTER CONTROL CABLES.
27. PROVIDE UPS WITH RATED TO PROVIDE 20A AT 120V FOR A MINIMUM OF 20 MINUTES. INSTALL UPS BETWEEN DEDICATED RECEPTACLE AND CONTROL CABINET.
28. PROVIDE #4/0 AWG. BARE STRANDED TINNED COPPER GROUNDING CONDUCTOR IN PVC CONDUIT BETWEEN GROUND BAR AND COUNTERPOISE LOOP.
29. EXOTHERMICALLY WELD GROUND CONNECTIONS TO COUNTERPOISE LOOP.

RECORD DRAWING

VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING 0 1 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY

PLOTTED June 15, 2006 3:51 PM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007391 TARA # 20 MASTER LIFT STATION – WWA\CADD\E-3 ELECTRICAL BUILDING PLAN.DWG

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REVISIONS

URS JOB NUMBER 12007391
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ENG: G. DAVIS
DRW: G. DAVIS
FILE SAVE DATE: June 8, 2010

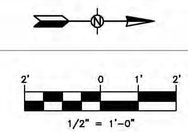
IMPROVEMENTS AT
TARA #20 MASTER LIFT STATION
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

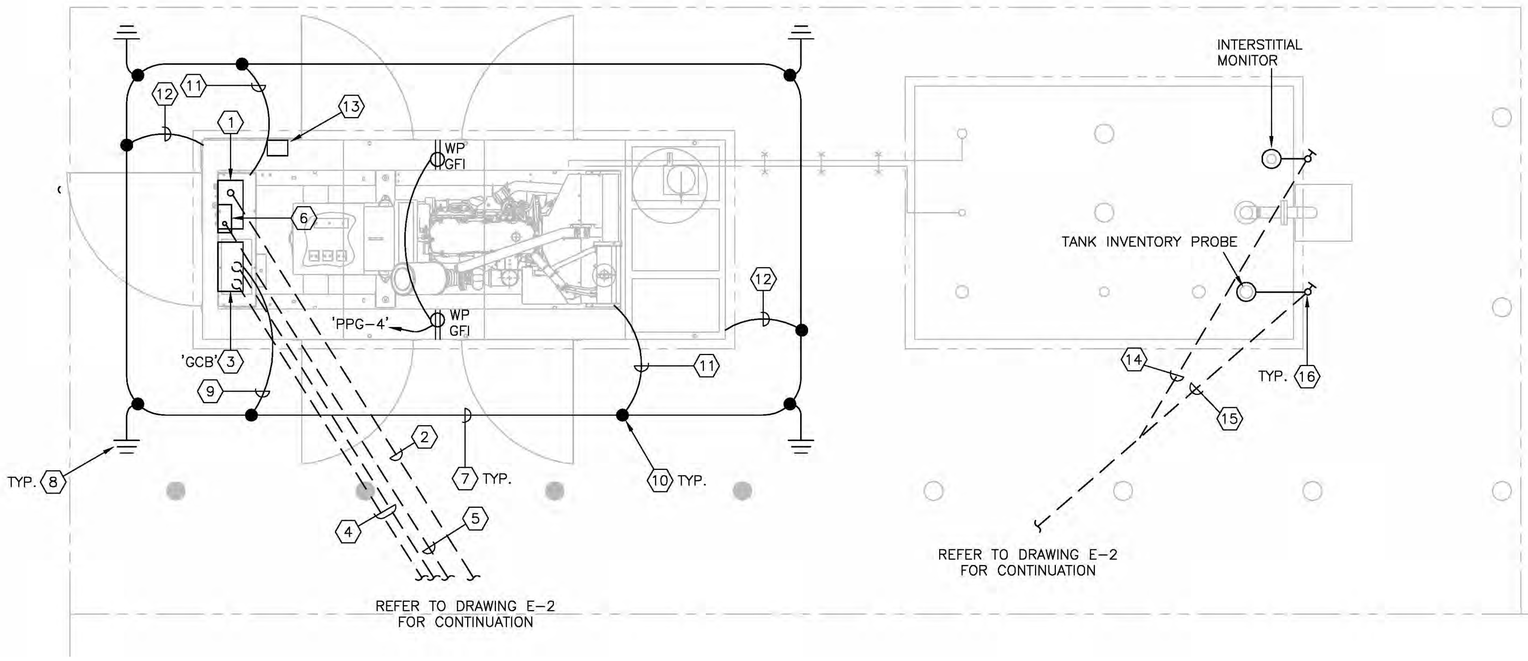
ELECTRICAL BUILDING PLAN

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

PROJECT STATUS
RECORD DRAWINGS
MAY 2010

E-3





1 E-4 **PLAN**
GENERATOR ENCLOSURE
SCALE: 1/2" = 1'-0"

REFERENCE NOTES:

1. PROVIDE GENERATOR CONTROL PANEL MOUNTED IN GENERATOR ENCLOSURE.
2. PROVIDE ONE (1) 2 IN. ~~CONCRETE ENCASED~~ PVC CONDUIT UNDERGROUND BETWEEN GENERATOR CONTROL PANEL AND CONTROL CABINET IN ELECTRICAL ROOM.
3. PROVIDE GENERATOR CIRCUIT BREAKER 'GCB' IN GENERATOR ENCLOSURE. PROVIDE PERMANENT PLAQUE MOUNTED TO ENCLOSURE WITH CONTRASTING COLORS AND MINIMUM OF 2IN. HIGH LETTERING THAT STATES "SERVICE 2 OF 2: SERVICE NO. 1 'MCB' IS LOCATED IN ELECTRICAL BUILDING".
4. PROVIDE TWO (2) 3IN. ~~CONCRETE ENCASED~~ PVC CONDUIT UNDERGROUND BETWEEN 'GCB' AND THE ATS LOCATED IN THE ELECTRICAL BUILDING.
5. **PROVIDE ONE (1) 1-INCH PVC TO ATS FOR GENSET REMOTE START CONTROL.** PROVIDE ONE (1) 1-1/4IN. ~~CONCRETE ENCASED~~ PVC CONDUIT UNDERGROUND BETWEEN PANEL 'PPG' AND PANEL 'LVDP' LOCATED IN THE ELECTRICAL BUILDING. **PROVIDE ONE (1) 1-INCH PVC SPARE TO ATS (FROM GENSET).**
6. PROVIDE 100A, 208Y/120V, 3PH., 4W, 12 CIRCUIT LOAD CENTER WITH 60A MAIN CIRCUIT BREAKER IN A NEMA TYPE 3R ENCLOSURE.
7. PROVIDE #4/0 AWG BARE STRANDED TINNED COPPER COUNTERPOISE GROUNDING ELECTRODE CONDUCTOR DIRECT BURIED A MINIMUM OF 30IN. BELOW FINISHED GRADE.
8. PROVIDE GROUND ROD. INSTALL GROUND ROD SO THAT TOP IS A MINIMUM OF 30IN. BELOW FINISHED GRADE. BOND GROUND ROD TO GROUNDING ELECTRODE CONDUCTOR VIA THE EXOTHERMIC WELDING PROCESS.
9. PROVIDE #4/0 AWG BARE STRANDED TINNED COPPER GROUNDING CONDUCTOR IN PVC CONDUIT BETWEEN 'GCB' AND COUNTERPOISE GROUNDING ELECTRODE CONDUCTOR. BOND GROUNDING CONDUCTOR TO 'GCB' GROUND BUS.
10. EXOTHERMICALLY WELD GROUNDING CONDUCTOR TO COUNTERPOISE GROUNDING ELECTRODE CONDUCTOR.
11. PROVIDE #2/0 AWG BARE STRANDED TINNED COPPER GROUNDING CONDUCTOR IN PVC CONDUIT BETWEEN GENERATOR SKID AND COUNTERPOISE GROUNDING ELECTRODE CONDUCTOR. EXOTHERMICALLY WELD GROUNDING CONDUCTOR TO GENERATOR SKID.
12. PROVIDE #2/0 AWG BARE STRANDED TINNED COPPER GROUNDING CONDUCTOR EXPOSED BETWEEN ENCLOSURE STRUCTURE AND COUNTERPOISE GROUNDING ELECTRODE CONDUCTOR. EXOTHERMIC ALLY WELD GROUNDING CONDUCTOR TO ENCLOSURE STRUCTURE.
13. LOCATE BATTERY CHARGER ON SAME SIDE OF GENERATOR AS BATTERY TRAY. LOCATION SHOWN FOR BATTERY CHARGER ON PLAN IS FOR DIAGRAMMATIC PURPOSES ONLY.
14. PROVIDE ONE (1) 1 IN. ~~CONCRETE ENCASED~~ PVC CONDUIT UNDERGROUND BETWEEN INTERSTITIAL MONITOR ON FUEL TANK AND TANK INVENTORY SYSTEM CONTROLLER IN ELECTRICAL ROOM. CONDUCTORS ARE TO MAINTAIN INTRINSICALLY SAFE REQUIREMENTS AS PER NEC ARTICLE 504.
15. PROVIDE ONE (1) 1 IN. ~~CONCRETE ENCASED~~ PVC CONDUIT UNDERGROUND BETWEEN TANK INVENTORY PROBE ON FUEL TANK AND TANK INVENTORY SYSTEM CONTROLLER IN ELECTRICAL ROOM. CONDUCTORS ARE TO MAINTAIN INTRINSICALLY SAFE REQUIREMENTS AS PER NEC ARTICLE 504.
16. 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.

RECORD DRAWING

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

GENERATOR ENCLOSURE PLAN

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

PROJECT STATUS
RECORD DRAWINGS
MAY 2010

E-4

PLOTTED June 15, 2006 3:51 PM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007391 TARA # 20 MASTER LIFT STATION - WAA\CADD\E-4 GENERATOR ENCLOSURE PLAN.DWG

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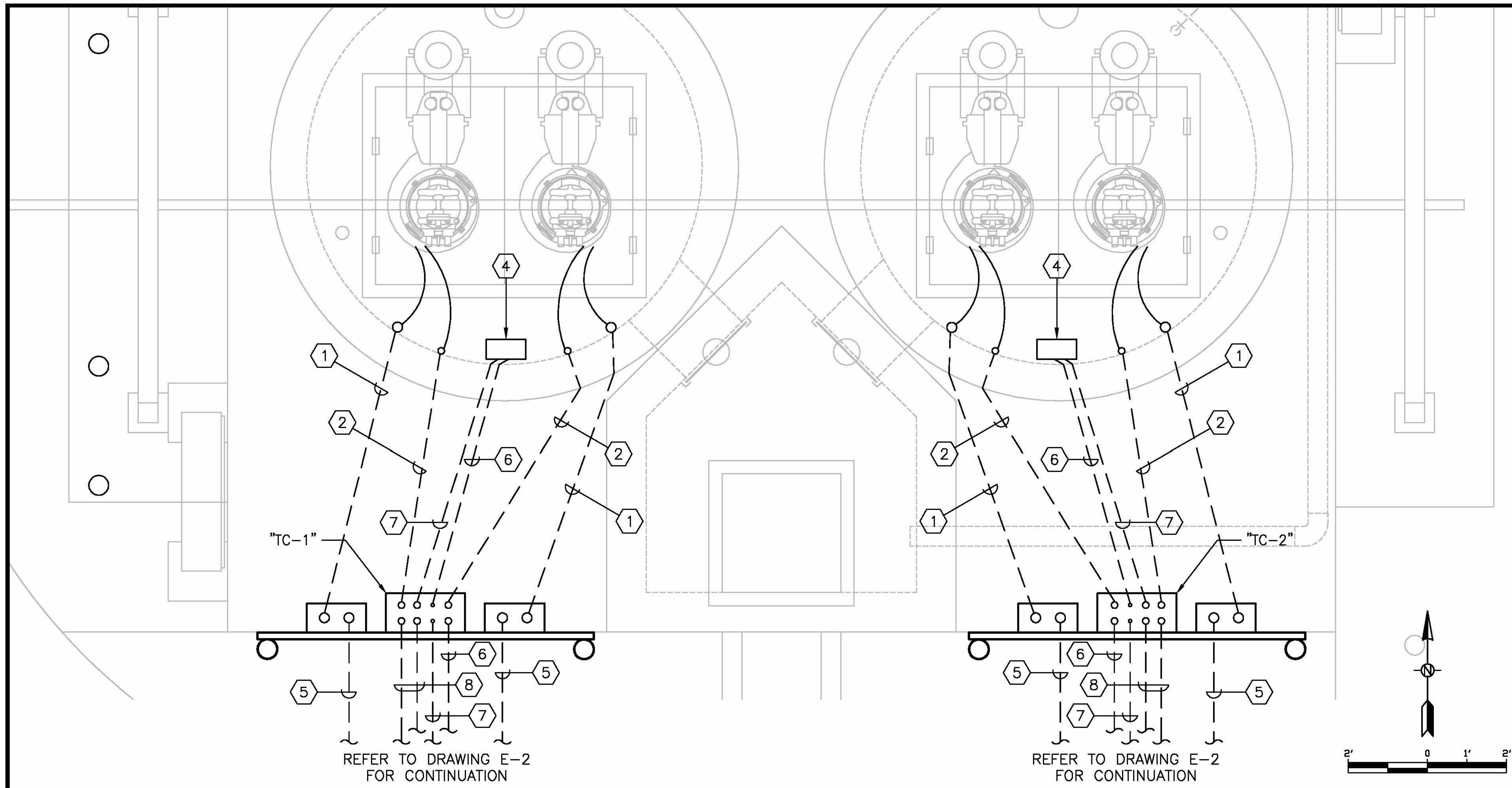
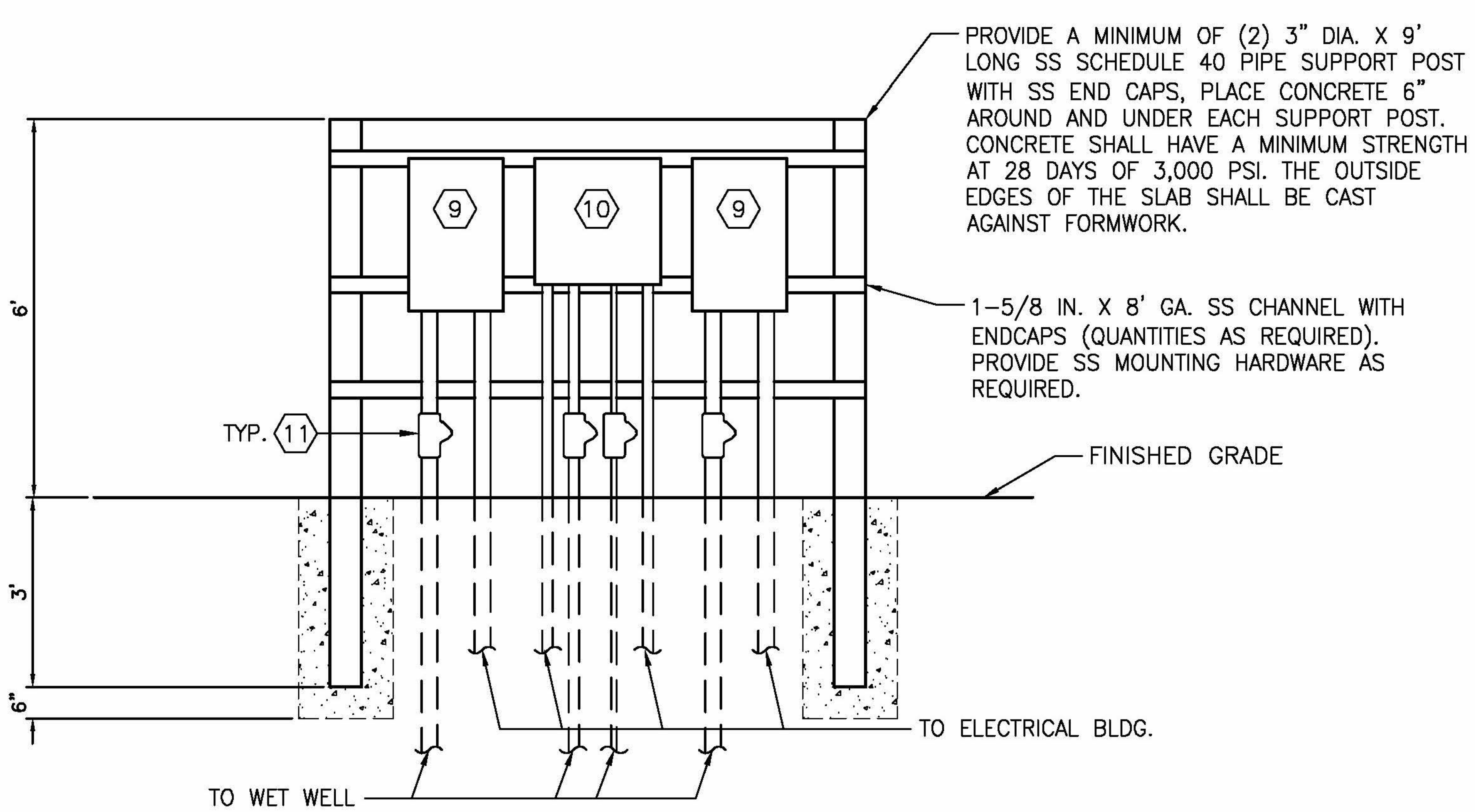


1 E-3 **PLAN**
WET WELLS
SCALE: 1/2"=1'-0"



2 E-3 **ELEVATION**
TYPICAL TERMINATION CABINET
SCALE: NTS

GENERAL NOTES:

1. REFER TO SINGLE LINE DIAGRAM FOR CONDUCTOR SIZES AND ADDITIONAL REQUIREMENTS.
2. 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.
3. PROVIDE TWO (2) THERMOPLASTIC VENTILATORS PROPERLY INSTALLED TO PROVIDE RAINPROOF VENTILATION AND 3/4 IN., TYPE 316 SS NEMA TYPE 4X BREATHER/DRAIN WITH CASTELLATED LOCKNUTS AND CAPTIVE "O" RING ON RECESS OF THE FACE FOR EACH STAINLESS STEEL CIRCUIT BREAKER ENCLOSURE.

REFERENCE NOTES:

(1) PROVIDE ONE 3IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN TERMINATION CABINET AND WET WELL PUMP FOR MANUFACTURER SUPPLIED MOTOR POWER CABLE.

(2) PROVIDE ONE 2IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN TERMINATION CABINET AND WET WELL FOR PUMP MANUFACTURER SUPPLIED CONTROL WIRING CABLE.

(3) PROVIDE CONDUIT/CABLE HANGER FOR MANUFACTURER SUPPLIED CABLES. PROVIDE KELLEMS STAINLESS STEEL STRAIN RELIEF DROP GRIP OR APPROVED EQUAL.

(4) 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.

(5) PROVIDE ONE 3IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN TERMINATION CABINET AND VFD ENCLOSURES FOR PUMP MOTOR POWER CONDUCTORS.

(6) PROVIDE ONE 2IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN WET WELL JUNCTION BOX AND CONTROL CABINET FOR FLOAT CONTROL CABLES.

(7) PROVIDE ONE 1IN. SCHEDULE 90 PVC CONDUIT UG BETWEEN WET WELL JUNCTION BOX AND CONTROL CABINET FOR LEVEL TRANSMITTER CONTROL CABLE.

(8) 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.

(9) PROVIDE NEMA TYPE 4X 316SS NON-FUSED LOCAL SAFETY SWITCH.

(10) 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.

(11) 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.

RECORD DRAWING

X:\MANATEE PROJECTS\12007391 TARA # 20 MASTER LIFT STATION - WA4\CADD\E-5 DETAILS.DWG

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FILE SAVE DATE: May 14, 2010

MANATEE COUNTY FLORIDA

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

ELECTRICAL WET WELL PLAN

GLENN H. DAVIS
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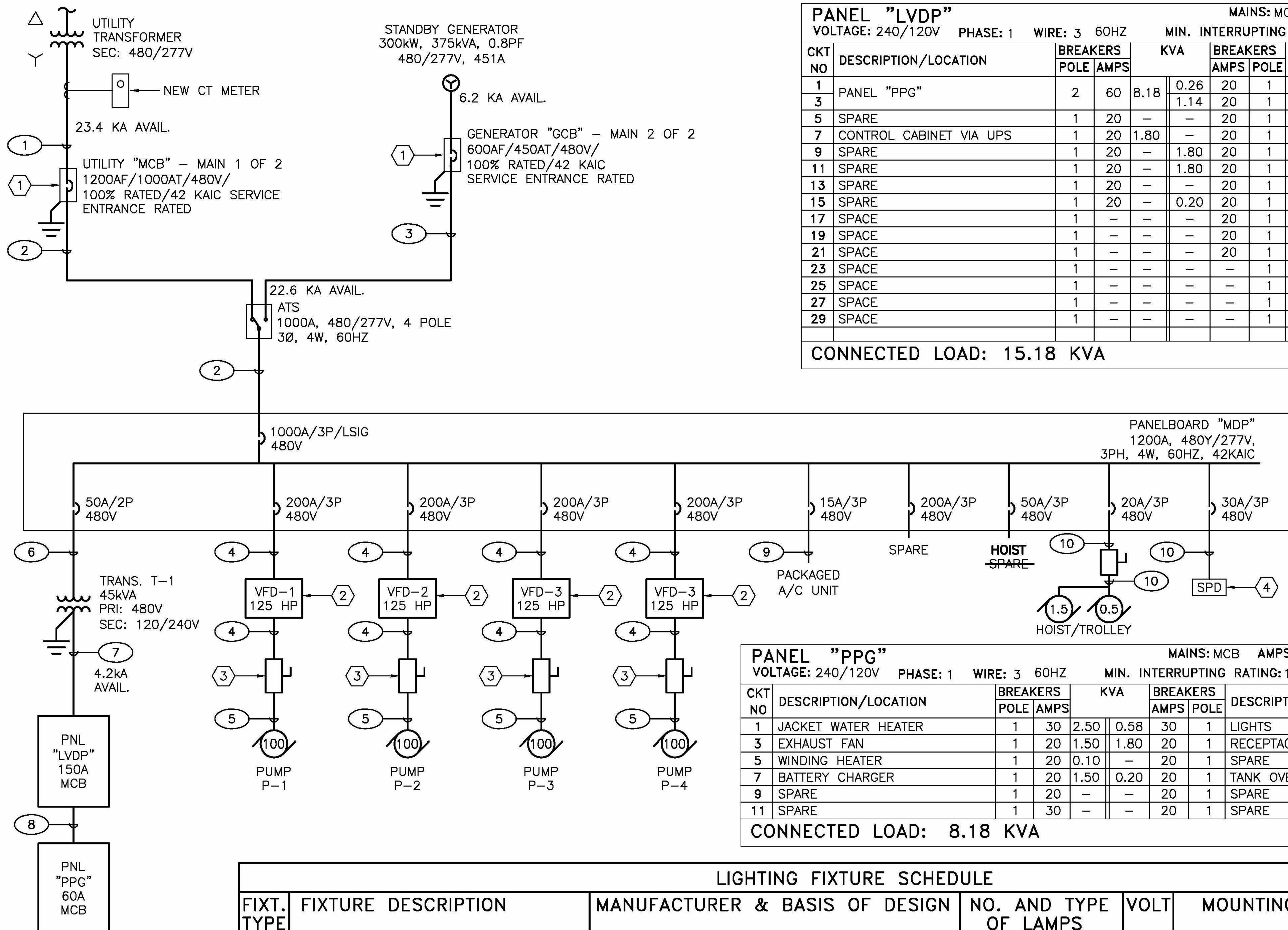
PROJECT STATUS
RECORD DRAWINGS
MAY 2010

E-5



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

CKT NO	DESCRIPTION/LOCATION	BREAKERS POLE	BREAKERS AMPS	KVA	KVA	BREAKERS AMPS	BREAKERS POLE	DESCRIPTION/LOCATION	CKT NO
1	PANEL "PPG"	2	60	8.18	0.26	20	1	INTERIOR LIGHTS	2
3					1.14	20	1	EXTERIOR LIGHTS VIA CONTACTOR	4
5	SPARE	1	20	–	–	20	1	SPARE	6
7	CONTROL CABINET VIA UPS	1	20	1.80	–	20	1	SPARE	8
9	SPARE	1	20	–	1.80	20	1	RECEPTACLES	10
11	SPARE	1	20	–	1.80	20	1	RECEPTACLES	12
13	SPARE	1	20	–	–	20	1	SPARE	14
15	SPARE	1	20	–	0.20	20	1	TANK INVENTORY SYSTEM CONTROLLER	16
17	SPACE	1	–	–	–	20	1	SPARE	18
19	SPACE	1	–	–	–	20	1	SPARE	20
21	SPACE	1	–	–	–	20	1	SPARE	22
23	SPACE	1	–	–	–	–	1	SPACE	24
25	SPACE	1	–	–	–	–	1	SPACE	26
27	SPACE	1	–	–	–	–	1	SPACE	28
29	SPACE	1	–	–	–	–	1	SPACE	30

CONNECTED LOAD: 15.18 KVA

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

CKT NO	DESCRIPTION/LOCATION	BREAKERS POLE	BREAKERS AMPS	KVA	KVA	BREAKERS AMPS	BREAKERS POLE	DESCRIPTION/LOCATION	CKT NO
1	JACKET WATER HEATER	1	30	2.50	0.58	30	1	LIGHTS	2
3	EXHAUST FAN	1	20	1.50	1.80	20	1	RECEPTACLES	4
5	WINDING HEATER	1	20	0.10	–	20	1	SPARE	6
7	BATTERY CHARGER	1	20	1.50	0.20	20	1	TANK OVERFILL ALARM	8
9	SPARE	1	20	–	–	20	1	SPARE	10
11	SPARE	1	30	–	–	20	1	SPARE	12

CONNECTED LOAD: 8.18 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 MANURACTURER.
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.

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 SEPERATELY MOUNTED SURGE PROTECTIVE DEVICE (SPD) UNIT LISTED AS SUITABLE FOR INSTALLATION ON 480Y/277V, 60HZ, SUPPLY RATED FOR A MINIMUM OF 160kA PER PHASE AND 80kA PER MODE L-L, L-N, L-G AND N-G.

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	SPAULDING #CM1-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)
LIGHTING, POWER, AND SMALL MOTOR LOADS (50kVA @ 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

RECORD DRAWING

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FILE SAVE DATE: June 8, 2010

MANATEE COUNTY FLORIDA

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

SINGLE LINE DIAGRAM

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

PROJECT STATUS
RECORD DRAWINGS
MAY 2010

E-6

VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING 0 1 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY

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PLC I/O SCHEDULE – TARA 20

I/O DESIGNATION	DEVICE TYPE / DESCRIPTION	INDICATION TYPE	INDICATION VOLTAGE	ASSOCIATED EQUIPMENT and/or LOCATION	REMARKS
PUMP 1 RUNNING	STOPPED/RUNNING	DI	24VDC	VFD 1	
PUMP 2 RUNNING	STOPPED/RUNNING	DI	24VDC	VFD 2	
PUMP 3 RUNNING	STOPPED/RUNNING	DI	24VDC	VFD 3	
PUMP 4 RUNNING	STOPPED/RUNNING	DI	24VDC	VFD 4	
PUMP 1 S/S	STOP/START	DO	–	VFD 1	DRY CONTACT
PUMP 2 S/S	STOP/START	DO	–	VFD 2	DRY CONTACT
PUMP 3 S/S	STOP/START	DO	–	VFD 3	DRY CONTACT
PUMP 4 S/S	STOP/START	DO	–	VFD 4	DRY CONTACT
PUMP 1 IN AUTO	H–O–A SW LOCAL/REMOTE	DI	24VDC	PUMP 1 H–O–A SW ON CONTROL CABINET	
PUMP 2 IN AUTO	H–O–A SW LOCAL/REMOTE	DI	24VDC	PUMP 2 H–O–A SW ON CONTROL CABINET	
PUMP 3 IN AUTO	H–O–A SW LOCAL/REMOTE	DI	24VDC	PUMP 3 H–O–A SW ON CONTROL CABINET	
PUMP 4 IN AUTO	H–O–A SW LOCAL/REMOTE	DI	24VDC	PUMP 4 H–O–A SW ON CONTROL CABINET	
VFD 1 SPEED CONTROL	VFD 1 SPEED CONTROL 0–100%	AO	–		4–20 mA
VFD 2 SPEED CONTROL	VFD 2 SPEED CONTROL 0–100%	AO	–		4–20 mA
VFD 3 SPEED CONTROL	VFD 3 SPEED CONTROL 0–100%	AO	–		4–20 mA
VFD 4 SPEED CONTROL	VFD 4 SPEED CONTROL 0–100%	AO	–		4–20 mA
VFD 1 SPEED RUNNING	VFD 1 SPEED RUNNING 0–100%	AI	–		4–20 mA
VFD 2 SPEED RUNNING	VFD 2 SPEED RUNNING 0–100%	AI	–		4–20 mA
VFD 3 SPEED RUNNING	VFD 3 SPEED RUNNING 0–100%	AI	–		4–20 mA
VFD 4 SPEED RUNNING	VFD 4 SPEED RUNNING 0–100%	AI	–		4–20 mA
WELL 1 LEVEL	WELL 1 LEVEL TRANSMITTER	AI	–		4–20 mA
WELL 2 LEVEL	WELL 2 LEVEL TRANSMITTER	AI	–		4–20 mA
DISCHARGE PRESSURE	PRESSURE TRANSMITTER	AI	–		4–20 mA
FLOW SENSOR	FLOW TRANSMITTER	AI	–		4–20 mA
GEN RUNNING	GENERATOR RUN STATUS CONTACTS	DI	24VDC	GENERATOR CONTROL PANEL	
GEN ALARM	GENERATOR SUMMARY ALARM	DI	24VDC	GENERATOR CONTROL PANEL	
WELL 1 HIGH LEVEL	FLOAT CONTACT	DI	24VDC	WELL 1 HIGH LEVEL FLOAT	
WELL 1 LOW LEVEL	FLOAT CONTACT	DI	24VDC	WELL 1 LOW LEVEL FLOAT	
WELL 2 HIGH LEVEL	FLOAT CONTACT	DI	24VDC	WELL 2 HIGH LEVEL FLOAT	
WELL 2 LOW LEVEL	FLOAT CONTACT	DI	24VDC	WELL 2 LOW LEVEL FLOAT	
ATS LOSS OF POWER	ATS LOSS OF POWER CONTACT	DI	24VDC	ATS CONTROLLER	
ATS – NORMAL	ATS IN NORMAL POSITION CONTACT	DI	24VDC	ATS CONTROLLER	
ATS – EMERGENCY	ATS IN EMERGENCY POSITION CONTACT	DI	24VDC	ATS CONTROLLER	
GEN FUEL TANK LOW	GEN FUEL TANK LOW CONTACT	DI	24VDC	TANK GAUGING CONTROLLER	SET AT <25%
GEN FUEL TANK LEAK	GEN FUEL TANK LEAK CONTACT	DI	24VDC	TANK GAUGING CONTROLLER	
PUMP 1 FAULT	PUMP FAULT	DI	24VDC	PUMP 1 MAS CONTROLLER/VFD	
PUMP 2 FAULT	PUMP FAULT	DI	24VDC	PUMP 2 MAS CONTROLLER/VFD	
PUMP 3 FAULT	PUMP FAULT	DI	24VDC	PUMP 3 MAS CONTROLLER/VFD	
PUMP 4 FAULT	PUMP FAULT	DI	24VDC	PUMP 4 MAS CONTROLLER/VFD	

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RECORD DRAWING

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FILE SAVE DATE: November 19, 2008

MANATEE COUNTY FLORIDA

IMPROVEMENTS AT
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FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

PLC INPUT–OUTPUT SCHEDULE

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PROJECT STATUS
RECORD DRAWINGS
MAY 2010

E–7