

5TH CLARIFIER AT THE SOUTHWEST WATER RECLAMATION FACILITY

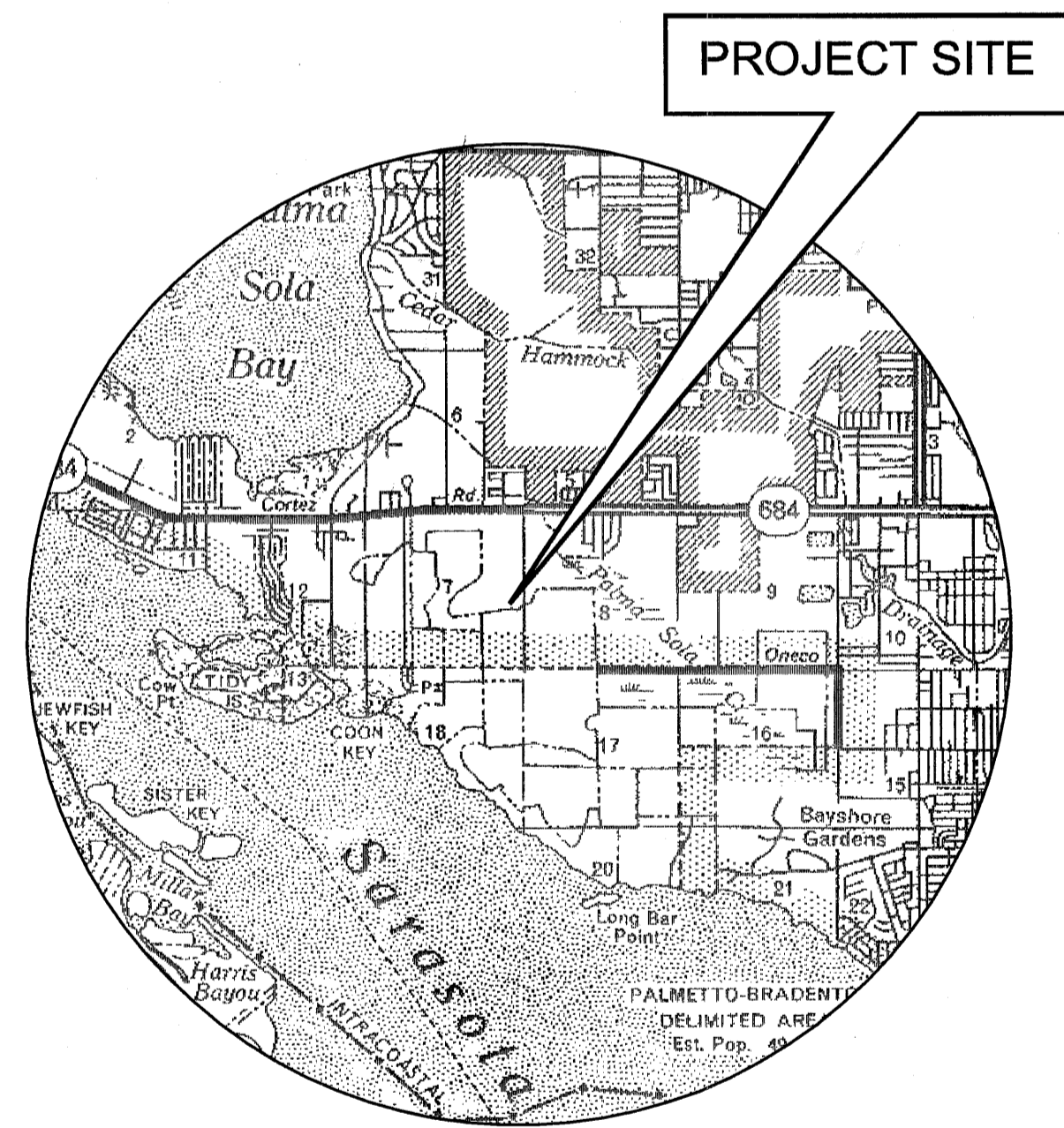
MANATEE COUNTY PROJECT NO. 6037282

DECEMBER 2009

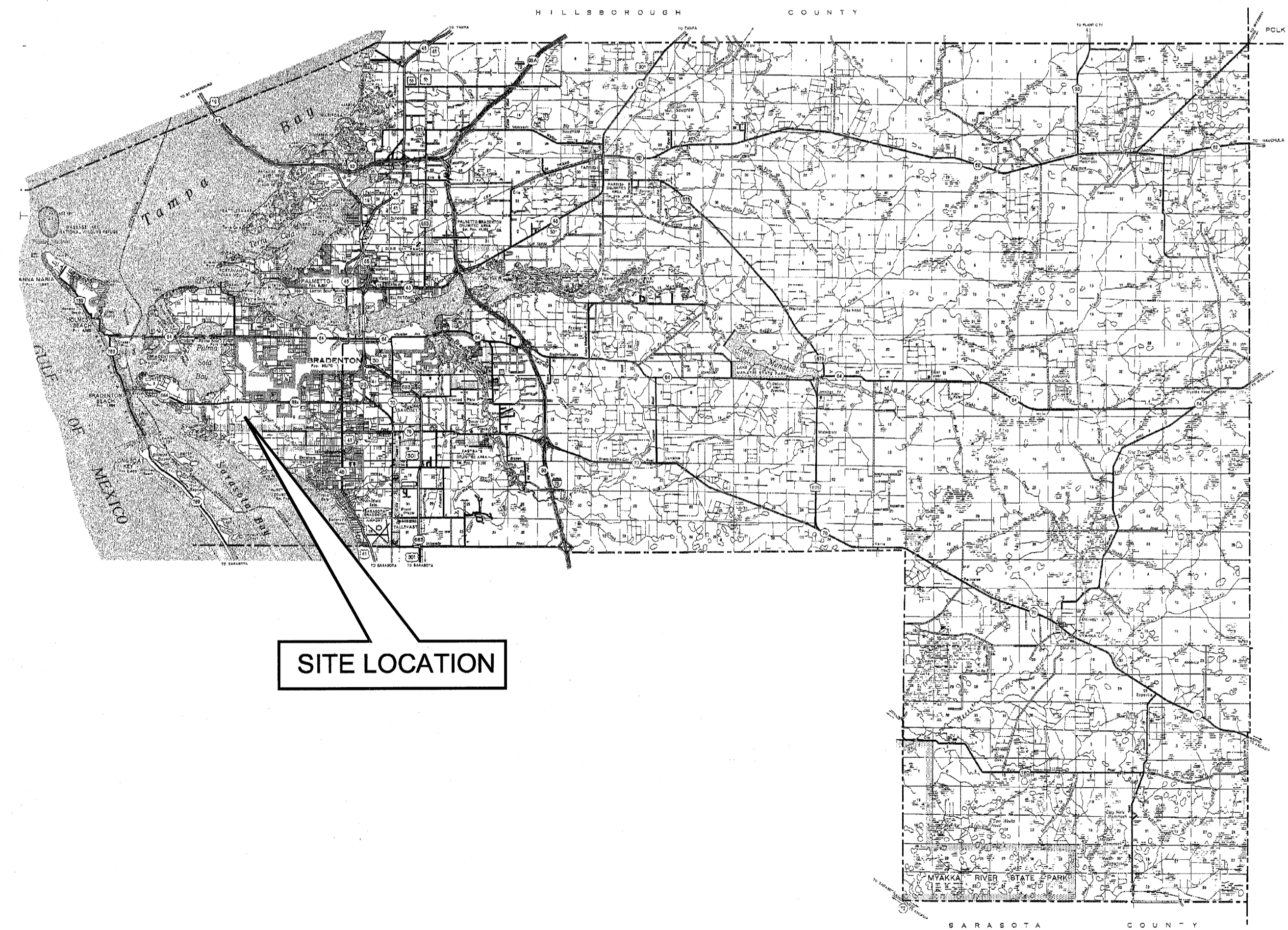
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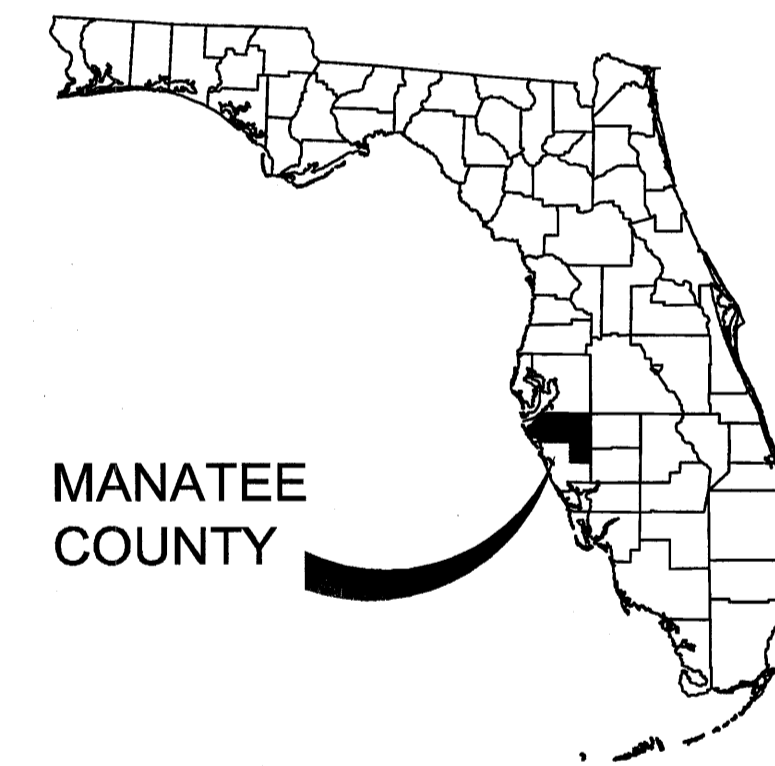
MANATEE COUNTY, FLORIDA
5TH CLARIFIER AT THE SOUTHWEST WATER RECLAMATION FACILITY, PROJECT NO. 6037282, DECEMBER 2009, BID SET



PROJECT MAP
N.T.S.



SITE LOCATION



MANATEE COUNTY

DEC 9 2009

PLOTTED December 3, 2009 1:20 PM PLOTTED BY: SONNENBERG, TERRY
X:\MANATEE PROJECTS\12008492_SWWRF_5TH CLARIFIER\DWG\PLANS\G-1 COVER SHEET.DWG

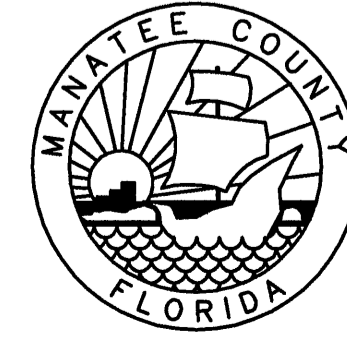


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URS JOB NUMBER
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ENG: REBECCA AVALOS
DRW: TERRY SONNENBERG
FILE SAVE DATE:
December 2, 2009

David Wilcox
3/11/09
3/24/09
DAVID A. WILCOX
FLORIDA P.E. NO. 34942



5TH CLARIFIER AT THE
SOUTHWEST WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

COVER SHEET

PROJECT STATUS
BID SET
DECEMBER 2009

G-1

GENERAL NOTES

- ELEVATIONS SHOWN ON THE PLANS REFERENCE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (N.G.V.D. - 1929). HORIZONTAL DATUM IS NAD 83.
- 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.
- 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 IN PUBLIC RIGHT-OF-WAYS. 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. THE CONTRACTOR SHALL PROVIDE 48 HOUR NOTICE TO PLANT PERSONNEL PRIOR TO CONSTRUCTION TO OBTAIN FIELD LOCATIONS OF EXISTING UNDERGROUND UTILITIES ON COUNTY / PLANT PROPERTY.
- THE CONTRACTOR SHALL VERIFY THE LOCATION, ELEVATION, AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES AFFECTING HIS WORK AND SHALL COMPLY WITH ALL STATE, COUNTY, AND LOCAL ORDINANCES AND OBTAIN ANY NECESSARY WORK PERMITS THAT MAY BE REQUIRED PRIOR TO CONSTRUCTION.
- 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.
- 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 LUMP SUM PRICE BID FOR MISCELLANEOUS WORK & CLEANUP.
- 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.
- 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.
- 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
- 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).
- UNLESS OTHERWISE SPECIFIED IN THE PLANS, EXISTING SOD, DISTURBED BY CONSTRUCTION, SHALL BE REPLACED IN KIND (OR BETTER, AS APPROVED BY THE COUNTY'S PROJECT MANAGER.)
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL EXCESS MATERIAL AND THE PROPER DISPOSAL OF THE SAME.
- CONTRACTOR IS TO PROVIDE EROSION CONTROL/SEDIMENTATION BARRIER (HAY BALES OR SILTATION CURTAIN) TO PREVENT SILTATION OF ADJACENT PROPERTY STREETS, STORM SEWERS AND DRAINAGE DITCHES, 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 LUMP SUM BID PRICE.
- THE CONTRACTOR SHALL PROVIDE ROUTINE MAINTENANCE OF PERMANENT AND TEMPORARY EROSION CONTROL FEATURES UNTIL THE PROJECT IS COMPLETE AND ALL BARED SOILS ARE STABILIZED.
- 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.
- 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.
- A MINIMUM OF 18 INCHES OF VERTICAL CLEARANCE SHALL BE PROVIDED FOR POTABLE WATER MAINS, RECLAIMED WATER MAINS, GRAVITY SANITARY SEWER MAINS, AND FORCEMAINS THAT CROSS ANY POTABLE WATER, RECLAIMED WATER, GRAVITY SEWER MAINS, FORCEMAINS, AND STORM SEWERS. THIS VERTICAL CLEARANCE MAY BE REDUCED AS FOLLOWS:
A) THE VERTICAL CLEARANCE MAY BE REDUCED TO 6 INCHES IF THE POTABLE WATER MAIN OR THE RECLAIMED WATER MAIN IS DUCTILE IRON; OR
B) THE VERTICAL CLEARANCE MAY BE REDUCED IF ONE OF THE MAINS IS ENCASED IN A WATERTIGHT CASING PIPE AS FOLLOWS:
1) FOR RECLAIMED WATER MAINS OR SANITARY FORCEMAINS THAT ARE WITHIN A WATERTIGHT CASING PIPE, THE TOP OF THE CASING PIPE SHALL BE AT LEAST 3 INCHES BELOW THE BOTTOM OF THE POTABLE WATER MAIN, OR
2) FOR SANITARY FORCEMAINS THAT ARE WITHIN A WATERTIGHT CASING PIPE, THE TOP OF THE CASING PIPE SHALL BE AT LEAST 3 INCHES BELOW THE BOTTOM OF THE RECLAIMED WATER MAIN.
- A MINIMUM HORIZONTAL SEPARATION OF RECLAIMED WATER OR FORCEMAINS TO STORM SEWERS IS 5 FEET. A MINIMUM HORIZONTAL SEPARATION OF POTABLE WATER MAINS OR GRAVITY SANITARY SEWER MAINS TO STORM SEWERS IS 10 FEET. IF NOT FEASIBLE, REFER TO CURRENT MANATEE COUNTY UTILITY STANDARDS SECTION 9.07, I FOR ALLOWABLE EXCEPTIONS.
- ALL PROPOSED MAINS SHALL HAVE A MINIMUM OF 36 INCHES OF COVER UNLESS OTHERWISE SHOWN.
- ALL COMPONENTS OF THE NEW YARD PRESSURE PIPING SYSTEM SHALL BE PRESSURE TESTED PER THE SPECIFICATIONS PRIOR TO ACCEPTANCE BY THE ENGINEER. CONTRACTOR TO NOTIFY OWNER'S ENGINEER AT (813) 286-1711 48 HOURS IN ADVANCE OF PERFORMING TESTS.
- THE CONTRACTOR IS TO "PROTECT IN PLACE" THE FACILITIES THAT ARE NOT TO BE RELOCATED AND/OR REMOVED, BUT ARE TO REMAIN IN PLACE.
- THE CONTRACTOR IS TO ADJUST OR RELOCATE ALL THE FACILITIES THAT FALL IN CONFLICT IN ACCORDANCE WITH COUNTY STANDARDS.
- THE CONTRACTOR SHALL PROVIDE DETAILED RECORD DRAWINGS, ANY AND ALL EXPENSES INCURRED FOR THIS WORK SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR MISCELLANEOUS WORK AND CLEANUP. RED-LINE DRAWINGS SHALL BE CURRENT WITH EACH PAY APP SUBMITTED AND WILL BE CHECKED AS PART OF THE PAY APPLICATION REVIEW PROCESS.
- ALL UTILITY CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE LATEST VERSION OF THE MANATEE COUNTY UTILITY STANDARDS.
- SEE BELOW FOR CONSTRUCTION PHASING.
- ALL PLANT PROCESS YARD PIPING SHALL BE RESTRAINED JOINT. SEE SPECIFICATIONS.
- ONLY PLANT PERSONNEL SHALL OPERATE EXISTING VALVES, SLIDE GATES, ETC.

- ANY EXISTING WELLS DISCOVERED DURING CONSTRUCTION SHALL BE KEPT IN A WATERTIGHT MANNER AND BE PROTECTED DURING ALL CONSTRUCTION ACTIVITIES.
 - ALL EXOTIC NUISANCE PLANT SPECIES ENCOUNTERED DURING CONSTRUCTION SHALL BE REMOVED PER SECTION 715.4 OF THE LDC.
- 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
- SOUTHWEST REGIONAL WASTEWATER TREATMENT PLANT EXPANSION DATED 12/06/1988, ENGINEER-CDM.
- FINAL SITE PLAN NOTES**
- THE PROJECT SITE IS WITHIN THE MANATEE COUNTY SOUTHWEST WATER RECLAMATION FACILITY (SWWRF), A WASTEWATER TREATMENT PLANT.
 - THIS PROJECT PROPOSES CONSTRUCTION OF A NEW 105 FOOT DIAMETER (8,660 SF) SECONDARY CLARIFIER No. 5 (I.E., "5TH CLARIFIER") IN PLACE OF THE EXISTING 140 FOOT DIAMETER ABOVEGROUND CONCRETE FOUNDATION FROM THE PREVIOUS 2.0 MG WASTEWATER TREATMENT PACKAGE PLANT. THE 5TH CLARIFIER IS AN OPEN TOP TANK SITTING AT 7.5 FEET ABOVE GRADE. A NEW SIDEWALK AND STAIRS WILL BE ADDED FOR ACCESS TO THE TANK. A NEW RAS/WAS PUMP STATION WILL BE BUILT ADJACENT TO THE 5TH CLARIFIER (25'W X 50'L X 13'H, 1,250 SF). THE RAS/WAS PUMP STATION IS AN UNOCCUPIED ROOFOVER STRUCTURE WITH NO WALLS, CONTAINING WASTEWATER PUMPING EQUIPMENT. THE EXISTING AERATION BASIN EFFLUENT CHANNEL WILL BE EXTENDED BY 5'W X 5'L (25 SF), MATCHING THE EXISTING CHANNEL HEIGHT OF 7.5'. ADDITIONAL WORK INCLUDES UNDERGROUND UTILITIES FOR RECLAIMED WATER, SEWER, AND ELECTRICITY.
- NO NEW EMPLOYEES ARE ASSOCIATED WITH THE PROJECT. NO NEW PARKING OR PAVEMENT IS PROPOSED. NO NEW LANDSCAPING OR IRRIGATION IS PROPOSED SINCE CLEAR ACCESS AROUND THE TANK AND PUMP STATION MUST BE MAINTAINED FOR OPERATION, MAINTENANCE, AND REPAIRS. NO NEW STORMWATER IS PROPOSED SINCE THE TOTAL IMPERVIOUS AREA AND RUNOFF WILL BE REDUCED BY THE OPEN TOP TANK REPLACING EXISTING IMPERVIOUS AREA. THE EXISTING GRADING WILL BE REPLICATED.
- THE PROJECT WORK AREA IS 2.60 ACRES AND LIES WITHIN THE SOUTHWEST WATER RECLAMATION FACILITY. THE SWWRF LIES WITHIN A 329 ACRE PARCEL (#5182410109) THAT ALONG WITH AN ADDITIONAL 39.8 ACRE PARCEL (#5182410208) ALSO CONTAIN A COUNTY GOLF COURSE, LAB BUILDING, MAINTENANCE AREA, AND OFFICES.
 - EXISTING ZONING FOR THE PARCEL IS PDPI. FUTURE LAND USE IS P/SP-1.
 - ELEVATIONS ARE BASED ON THE TEMPORARY BENCHMARK (TBM) INDICATED AND ARE SHOWN IN FEET.
 - THE PROJECT AREA LIES IN FLOOD ZONE C, AS IDENTIFIED ON FEMA FLOOD MAP PANEL 120153 0328 B. THE PROJECT IS NOT LOCATED WITHIN A 100-YEAR FLOODPLAIN OR FLOODWAY.
 - PROPOSED PROJECT LIGHTING AT THE 5TH CLARIFIER CONSISTS OF FIVE (5) 12 FOOT TALL, POLE MOUNTED SHOEBOX TYPE LIGHT FIXTURES (WITH FULL CUTOFF) THAT MATCH THE LIGHTING AT THE EXISTING CLARIFIERS. ADDITIONAL CEILING MOUNTED LIGHTING IS PROVIDED IN THE ROOFOVER STRUCTURE FOR THE NEW RAS/WAS PUMP STATION AT THE 5TH CLARIFIER.
 - ALL OPEN SPACE WILL BE MAINTAINED BY MANATEE COUNTY.
 - THE PROJECT IS LOCATED WITHIN AN EXISTING COUNTY WASTEWATER TREATMENT PLANT. THERE ARE NO WETLANDS WITHIN 100 FEET OF THE PROJECT LIMITS.
 - THERE CURRENTLY IS NO CERTIFIED BOUNDARY SURVEY FOR THIS SITE. THE SWWRF LIES WITHIN A 329 ACRE COUNTY OWNED PARCEL (#5182410109) THAT ALONG WITH AN ADDITIONAL 39.8 ACRE COUNTY OWNED PARCEL (#5182410208) CONTAINS A COUNTY GOLF COURSE, LAB BUILDING, MAINTENANCE AREA, AND OFFICES. REFER TO SHEET G-4, AERIAL SITE PLAN FOR PARCEL INFORMATION. BOUNDARY INFORMATION SHOWN ON THE DRAWINGS IS FOR INFORMATIONAL PURPOSES ONLY AND DOES NOT CONSTITUTE A LEGAL BOUNDARY SURVEY.
 - THERE ARE NO PERENNIAL STREAMS ON SITE.
 - THERE ARE NO EASEMENTS, RESERVATIONS, OR DEDICATIONS PROPOSED FOR THIS PROJECT.
 - THERE ARE NO KNOWN WELLS WITHIN THE PROJECT LIMITS. EXISTING WELLS THAT ARE DISCOVERED SHALL BE KEPT IN A WATERTIGHT MANNER AND BE PROTECTED DURING ALL CONSTRUCTION ACTIVITIES.
 - THERE ARE NO ENVIRONMENTALLY SENSITIVE AREAS ON THIS SITE.
 - THERE ARE NO KNOWN HISTORIC SITES OR STRUCTURES ON SITE.
 - THERE ARE NO EXISTING OR PROPOSED PUBLIC USE AREAS ON THE PROJECT SITE.
 - NO STREETS, TRAVELWAYS, BIKEWAYS, OR DRIVEWAYS ARE PROPOSED
 - NO SIGNS ARE PROPOSED.
 - NO STORMWATER TREATMENT IS REQUIRED SINCE THE PROPOSED OPEN-TOPPED TANK WILL REDUCE STORMWATER RUNOFF FROM THE PROJECT AREA. THE SWWRF PERMIT EXEMPTION IS ATTACHED.
 - NO TRAFFIC CONTROL PLAN OR FOOT RESPONSE IS REQUIRED. NO NEW SITE ACCESS IS PROPOSED AND NO NEW TRAFFIC IS ASSOCIATED WITH THIS PROJECT.
 - THE PROJECT DOES NOT REQUIRE POTABLE WATER OR SEWERAGE. FIRE PROTECTION IS NOT REQUIRED SINCE THE STRUCTURE IS A CONCRETE TANK FILLED WITH WATER. STORMWATER MANAGEMENT IS NOT REQUIRED SINCE THE PROPOSED OPEN-TOPPED TANK WILL REDUCE STORMWATER RUNOFF FROM THE PROJECT AREA.
 - THERE ARE NO PRIVATELY CONTROLLED AREAS INCLUDED IN THE PROJECT.
 - STATEMENT OF SCHOOL NEEDS - NO RESIDENTIAL UNITS ARE INCLUDED IN THE PROJECT.
 - NO ADDITIONAL EMPLOYEES OR VEHICLES ARE ASSOCIATED WITH THIS PROJECT. NO NEW PARKING AND/OR LOADING AREAS ARE PROPOSED.
 - THERE ARE NO TREES, LANDSCAPING, WATERCOURSES OR SIGNIFICANT NATURAL FEATURES IN THE PROJECT AREA, ONLY THE EXISTING CONCRETE FOUNDATION TO BE DEMOLISHED AND REGULARLY MOWED GRASS COVER.
 - NO LANDSCAPING OR IRRIGATION ARE PROPOSED. THE PROPOSED 5TH CLARIFIER TANK STRUCTURE AND RAS/WAS PUMP STATION STRUCTURE REQUIRE A CLEAR AREA AROUND THEM FOR OPERATION, MAINTENANCE, AND REPAIRS.
 - NO SCREENING OR BUFFERING ARE REQUIRED SINCE THE PROJECT LOCATION IS IN THE INTERIOR OF THE EXISTING WASTEWATER TREATMENT PLANT AND NOT ADJACENT TO A PROPERTY LINE.
 - NO WASTE WILL BE GENERATED FROM THE 5TH CLARIFIER. THE PROPOSED RAS/WAS PUMP STATION MAY INCLUDE A GARBAGE CAN FOR PERSONNEL USE. THE PLANT HAS INTERNAL GARBAGE COLLECTION WITH TRANSFER TO ON-SITE DUMPSTERS PRIOR TO REMOVAL BY WASTE MANAGEMENT.
 - THERE ARE NO PUBLIC AREAS OR RECREATION ON THE SITE.
 - THE CURRENT PLANT GDP IS PDPI-09-11.
- CONSTRUCTION SCHEDULE**
ESTIMATED START DATE: FEBRUARY 2010
ESTIMATED END DATE: FEBRUARY 2011

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CONSTRUCTION PHASING

- PHASE 1
- CONSTRUCT CLARIFIER NO. 5 AND ASSOCIATED RAS/WAS PUMP STATION AND ACCESSORIES.
 - TEST, RECEIVE COUNTY APPROVAL AND MAKE OPERATIONAL CLARIFIER NO. 5 AND ASSOCIATED COMPONENTS.
- PHASE 2
- COORDINATE WITH OPERATIONS STAFF TO TAKE CLARIFIERS NO. 1 AND 2 OUT OF SERVICE.
 - PERFORM WORK ON RAS/WAS PUMPS AND PIPING SYSTEM.
 - PLACE RAS/WAS PUMP STATION BACK IN OPERATION.

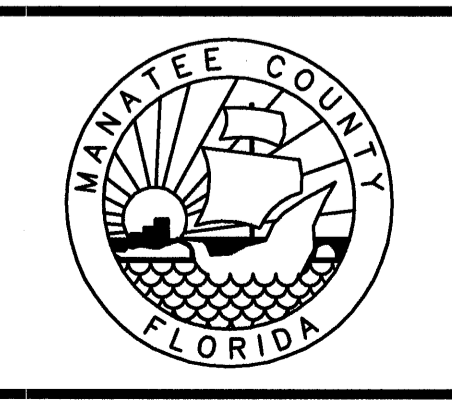
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REVISIONS			

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DRW: TERRY SONNENBERG
FILE SAVE DATE: December 2, 2009

David Wilcox
 3-4-10
 12/2/09
 DAVID A. WILCOX
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GENERAL NOTES AND
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PROJECT STATUS
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 PLOTTED December 3, 2009 1:23 PM PLOTTED BY: SONNENBERG, TERRY
 X:\MANATEE PROJECTS\12008492_SWRP_5TH CLARIFIER\MANATEE\PLANS\G-3 SYMBOLS AND ABBREVIATIONS.DWG

PIPE AND FITTING SYMBOLS

DOUBLE LINE	SINGLE LINE	
		90° ELBOW
		90° ELBOW ROTATED UP
		90° ELBOW ROTATED DOWN
		TEE
		TEE ROTATED UP
		TEE ROTATED DOWN
		REDUCER
		ECCENTRIC REDUCER
		BALL VALVE
		BUTTERFLY VALVE
		GATE VALVE
		CHECK VALVE
		PLUG VALVE
		HOSE BIBB & VALVE
		FLANGED JOINT
		MECHANICAL JOINT
		PUSH ON JOINT
		TO BE REMOVED
		GROUND WATER FLOW

FITTING TYPE SYMBOLS

	DOUBLE LINE	SINGLE LINE
FLANGE		
MECHANICAL JOINT		
PUSH ON JOINT		

LEGEND OF SYMBOLS

TYPICAL EXISTING SYMBOLS

TYPICAL PROPOSED SYMBOLS

CONCRETE (stippled pattern) = CONCRETE
ASPHALT (cross-hatched pattern) = ASPHALT
CONCRETE PAVERS (brick pattern) = CONCRETE PAVERS
BRICK (brick pattern) = BRICK

+ 25.25 = POINT OF ELEVATION
 25.2' = DIMENSION FROM BUILDING TO BOUNDARY / RIGHT-OF-WAY LINE

STORM CURB INLETS

CHAIN LINK FENCE (X pattern) = CHAIN LINK FENCE
CHANNEL OUTLINE (dashed line) = CHANNEL OUTLINE
CONTOUR (dashed line) = CONTOUR
OVERHEAD UTILITY (dashed line with OHC) = OVERHEAD UTILITY
TOE OF SLOPE (dashed line with TOS) = TOE OF SLOPE
TOP OF BANK (dashed line with TOB) = TOP OF BANK
WOOD FENCE (square pattern) = WOOD FENCE

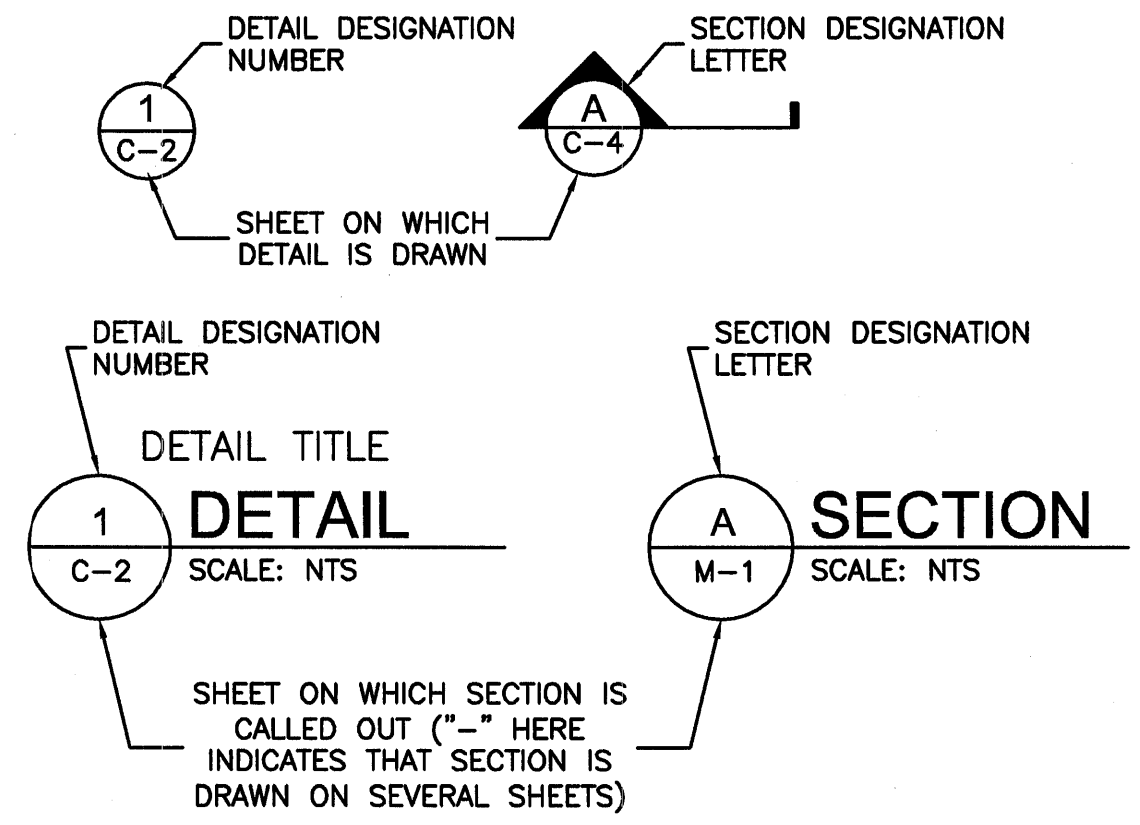
UG CABLE (dashed line with UGC) = UG CABLE
UG ELECTRIC (dashed line with UGE) = UG ELECTRIC
UG FIBER OPTIC (dashed line with UGFO) = UG FIBER OPTIC
UG GAS (dashed line with UGG) = UG GAS
UG IRRIGATION (dashed line with UGI) = UG IRRIGATION
UG RECLAME WATER (dashed line with UGR) = UG RECLAME WATER
UG SANITARY FORCEMAIN (dashed line with UGF) = UG SANITARY FORCEMAIN
UG SANITARY SEWER (dashed line with UGS) = UG SANITARY SEWER
UG STORM SEWER (dashed line with UGST) = UG STORM SEWER
UG TELEPHONE (dashed line with UGT) = UG TELEPHONE
UG WATER MAIN (dashed line with UGW) = UG WATER MAIN

SILT FENCE (dashed line with S) = SILT FENCE
RIGHT-OF-WAY LINE (dashed line with R) = RIGHT-OF-WAY LINE
EASEMENT BOUNDARY (dashed line with E) = EASEMENT BOUNDARY
SECTION LINE (dashed line with S) = SECTION LINE

ABBREVIATIONS:

#	NUMBER	FDOT	FLORIDA DEPARTMENT OF TRANSPORTATION	RAS	RETURN ACTIVATED SLUDGE
ABW	AUTOMATIC BACKWASH	FFC	FINISHED FLOOR ELEVATION	RCCP	REINFORCED CONCRETE CYLINDER PIPE
A/C	AIR CONDITIONER	FH	FIRE HYDRANT	R/W	RIGHT-OF-WAY
AC	ACRES OR ASBESTOS CEMENT PIPE	FIG	FIGURE	RAD	RADIUS
ADDL	ADDITIONAL	FIN	FINISH (ED)	RCP	REINFORCED CONCRETE PIPE
ADJ	ADJUSTABLE	FLG	FLANGE	RCW	RECLAIMED WATER
ADPT	ADAPTER	FLR	FLOOR	RED	REDUCER
ALUM	ALUMINUM	FM	FORCE MAIN	RMJ	RESTRAIN MECHANICAL JOINT
APPROX	APPROXIMATE (LY)	FRP	FIBERGLASS REINFORCED PIPE	RML	RETURN MIXED LIQUOR
ARV	AIR RELEASE VALVE	FT	FOOT OR FEET	RR	RAILROAD
ASPH	ASPHALT	GAL	GALLON	RT	RIGHT
AUTO	AUTOMATIC	GALV	GALVANIZED	RW	REUSE WATER
AUX	AUXILIARY	GS	GALVANIZED STEEL (PIPE)	S	SOUTH
AVG	AVERAGE	GV	GATE VALVE	SAN	SANITARY
BM	BENCHMARK	HB	HOSE BIBB	SC	SCUM
BV	BALL VALVE	HDPE	HIGH DENSITY POLYETHYLENE	SCH	SCHEDULE
BFV	BUTTERFLY VALVE	HORZ	HORIZONTAL	SE	SOUTHEAST
BLDG	BUILDING	HT	HEIGHT	SFM	OR SECONDARY EFFLUENT SANITARY FORCE MAIN
BOT	BOTTOM	ID	INSIDE DIAMETER	SHC	SODIUM HYPOCHLORITE
BWF	BARBED WIRE FENCE	IE	INVERT ELEVATION	SHT	SHEET
CATV	CABLE TV	LF	LINER FEET	SMH	SANITARY MANHOLE
CHKD	CHECKED	LR	LONG RADIUS	SO	SQUARE
CL	CENTERLINE	LT	LEFT	SST	STAINLESS STEEL
CLF	CHAINLINK FENCE	ML	MISCELLANEOUS MIXED LIQUOR	STD	STANDARD
CLG	CHLORINE GAS	MATL	MATERIAL	STL	STEEL
CLW	CLARIFIED WATER	MAX	MAXIMUM	SW	SOLVENT WELD OR SOUTHWEST SIDEWALK
CI	CAST IRON	MECH	MECHANICAL	T&B	TOP AND BOTTOM
CMP	CORRUGATED METAL PIPE	MFD	MANUFACTURED	TBM	TEMPORARY BENCHMARK
CMU	CONCRETE MASONRY UNITS	MFG	MANUFACTURING	TEL	TELEPHONE
CO	CLEAN OUT	MFR	MANUFACTURER	THD	THREADED
CONC	CONCRETE	MH	MANHOLE	THK	THICK (NESS)
CONST	CONSTRUCTION	MIN	MINIMUM	TOW	TOP OF WALL
COR	CORNER	MISC	MISCELLANEOUS	TYP	TYPICAL
CPLG	COUPLING	ML	MISCELLANEOUS MIXED LIQUOR	UD	UNDERDRAIN
CTR	CENTER (ED)	N	NORTH	UG	UNDERGROUND
CV	CHECK VALVE	NE	NORTHEAST	VERT	VERTICAL
D	DRAIN	NW	NORTHWEST	W	WELD OR WELDED OR WEST
DEMO	DEMOLITION	NTS	NOT TO SCALE	WAS	WASTE ACTIVATED SLUDGE
DEPT	DEPARTMENT	OC	ON CENTER	W/	WITH
DI	DUCTILE IRON	OD	OUTSIDE DIAMETER	WM	WATERMAIN OR WATER METER
DIP	DUCTILE IRON PIPE	O/E	OR EQUAL	WV	WATER VALVE
DIAM	DIAMETER	OVFL	OVERFLOW	WW	WASTEWATER
DIAG	DIAGONAL	OVRT	OVERFLOW RETURN	WWF	WOVEN WIRE FABRIC
DIM	DIMENSION	PCCP	PRESTRESSED CONCRETE CYLINDER PIPE	WWM	WOVEN WIRE MESH
DN	DOWN	PE	PLAIN END OR POLYETHYLENE	XFMR	TRANSFORMER
DR	DIMENSION RATIO	PL	PROPERTY LINE		
E	EAST	PP	POWER POLE		
EA	EACH	PR	PRESSURE RELIEF		
ECC	ECCENTRIC	PROP	PROPOSED		
EFF	EFFLUENT	PS	PUMP STATION		
EL	ELEVATION	PSI	POUNDS PER SQUARE INCH		
EOP	EDGE OF PAVEMENT	PVC	POLYVINYL CHLORIDE PIPE		
EQ	EQUAL (LY)	PVMT	PAVEMENT		
EQUIP	EQUIPMENT	PW	POTABLE WATER		
ESMT	EASEMENT				
ETC	ETCETERA				
EW	EACH WAY				
EXIST	EXISTING				
EXP	EXPANSION				

DETAIL & SECTION DESIGNATION

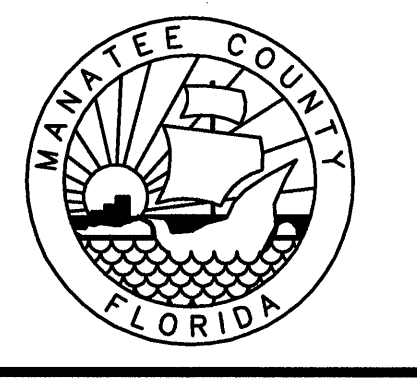


URS
 7650 West Courtney Campell Causeway
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 Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION

URS JOB NUMBER	12008492
PM:	DAVID WILCOX
ENG:	REBECCA AVALOS
DRW:	TERRY SONNENBERG
FILE SAVE DATE:	October 21, 2009

DAVID A. WILCOX
 FLORIDA P.E. NO. 34942



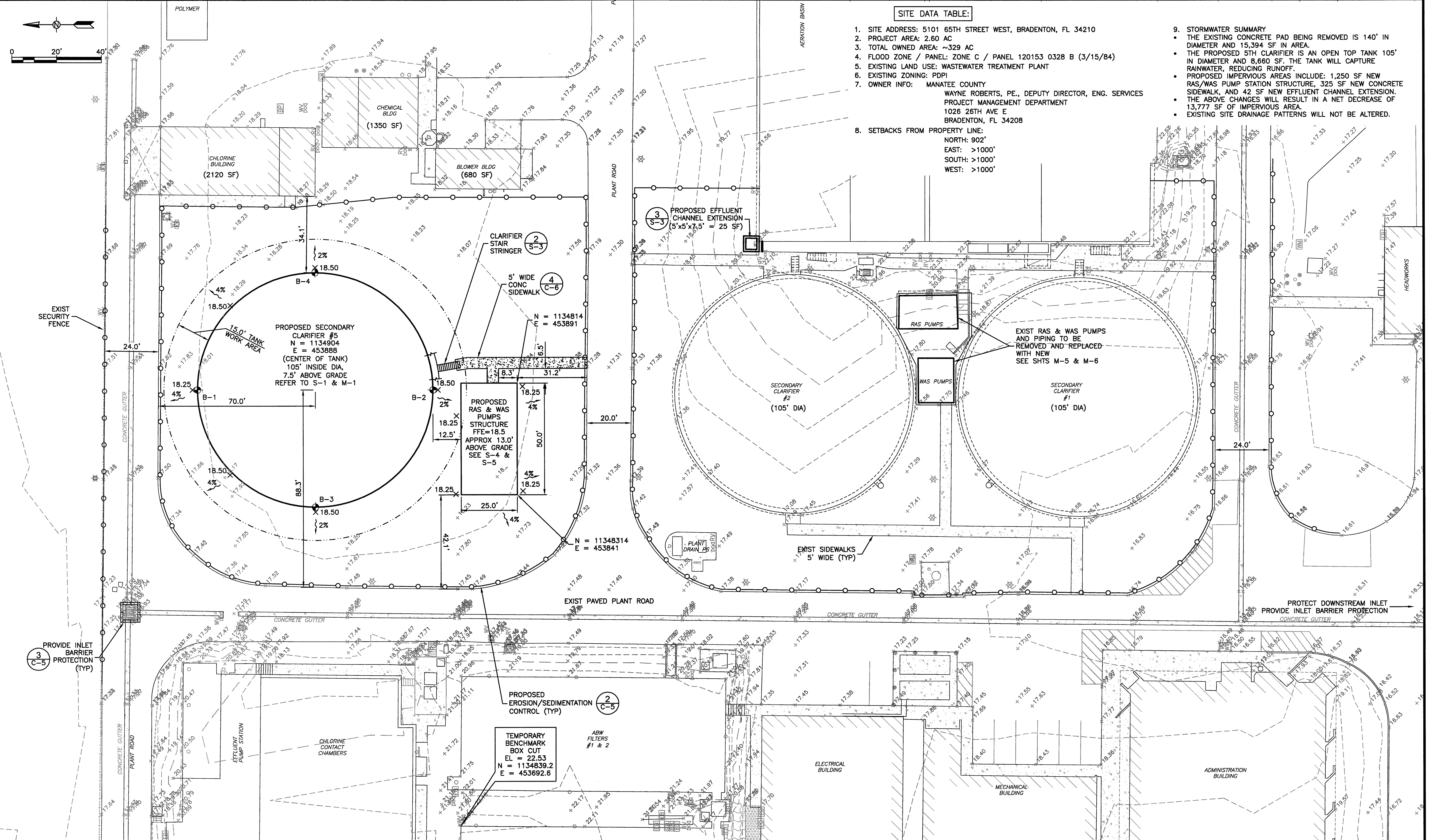
5TH CLARIFIER AT THE
 SOUTHWEST WATER RECLAMATION FACILITY
 FOR
 MANATEE COUNTY GOVERNMENT
 MANATEE COUNTY, FLORIDA

PROJECT STATUS
 BID SET
 DECEMBER 2009

SYMBOLS AND ABBREVIATIONS

G-3

PLOTTED December 3, 2009 1:24 PM PLOTTED BY: SONNENBERG, TERRY
 X:\MANATEE PROJECTS\12008492_SWWRF_5TH CLARIFIER WAERS(CADD)\PLANS\C-2 GRADING & DRAINAGE PLANS AND HORIZONTAL CONTROL.DWG
 VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING 0 1 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY



SITE DATA TABLE:

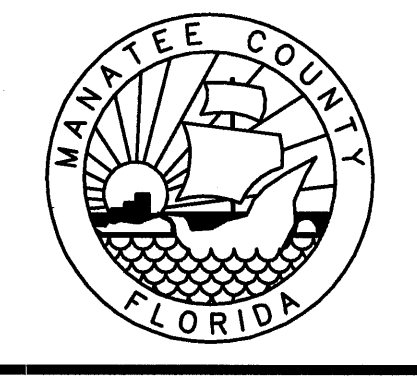
1. SITE ADDRESS: 5101 65TH STREET WEST, BRADENTON, FL 34210
2. PROJECT AREA: 2.60 AC
3. TOTAL OWNED AREA: ~329 AC
4. FLOOD ZONE / PANEL: ZONE C / PANEL 120153 0328 B (3/15/84)
5. EXISTING LAND USE: WASTEWATER TREATMENT PLANT
6. EXISTING ZONING: PDP1
7. OWNER INFO: MANATEE COUNTY
 WAYNE ROBERTS, PE., DEPUTY DIRECTOR, ENG. SERVICES
 PROJECT MANAGEMENT DEPARTMENT
 1026 26TH AVE E
 BRADENTON, FL 34208
8. SETBACKS FROM PROPERTY LINE:
 NORTH: 902'
 EAST: >1000'
 SOUTH: >1000'
 WEST: >1000'
9. STORMWATER SUMMARY
 - THE EXISTING CONCRETE PAD BEING REMOVED IS 140' IN DIAMETER AND 15,394 SF IN AREA.
 - THE PROPOSED 5TH CLARIFIER IS AN OPEN TOP TANK 105' IN DIAMETER AND 8,660 SF. THE TANK WILL CAPTURE RAINWATER, REDUCING RUNOFF.
 - PROPOSED IMPERVIOUS AREAS INCLUDE: 1,250 SF NEW RAS/WAS PUMP STATION STRUCTURE, 325 SF NEW CONCRETE SIDEWALK, AND 42 SF NEW EFFLUENT CHANNEL EXTENSION.
 - THE ABOVE CHANGES WILL RESULT IN A NET DECREASE OF 13,777 SF OF IMPERVIOUS AREA.
 - EXISTING SITE DRAINAGE PATTERNS WILL NOT BE ALTERED.

URS
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 Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION
REVISIONS			

URS JOB NUMBER
 12008492
 PM: DAVID WILCOX
 ENG: REBECCA AVALOS
 DRW: TERRY SONNENBERG
 FILE SAVE DATE:
 November 6, 2009

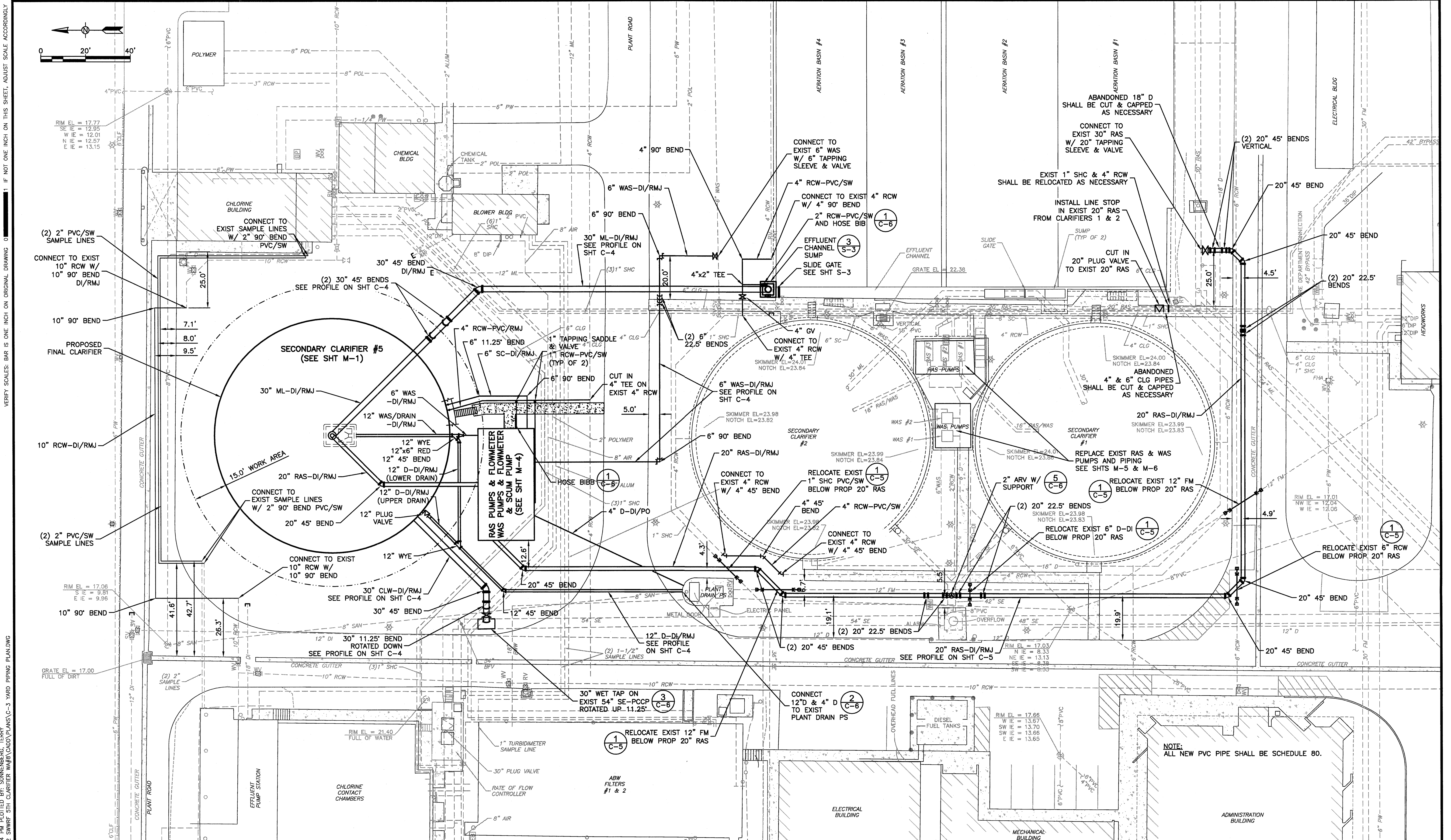
DAVID A. WILCOX
 FLORIDA P.E. NO. 34942



**5TH CLARIFIER AT THE
 SOUTHWEST WATER RECLAMATION FACILITY**
 FOR
 MANATEE COUNTY GOVERNMENT
 MANATEE COUNTY, FLORIDA

**GRADING & DRAINAGE PLANS AND
 HORIZONTAL CONTROL**

PROJECT STATUS
 BID SET
 DECEMBER 2009
C-2



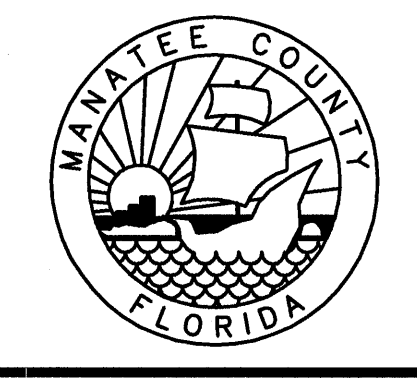
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 X:\MANATEE PROJECTS\12208492 SWRF 5TH CLARIFIER YARD PIPING PLAN\ANS-C-3 YARD PIPING PLAN.DWG

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

URS JOB NUMBER
 12008492
 PM: DAVID WILCOX
 ENG: REBECCA AVALOS
 DRW: TERRY SONNENBERG
 FILE SAVE DATE:
 October 21, 2009

David Wilcox
 12/3/09
 DAVID A. WILCOX
 FLORIDA P.E. NO. 34942

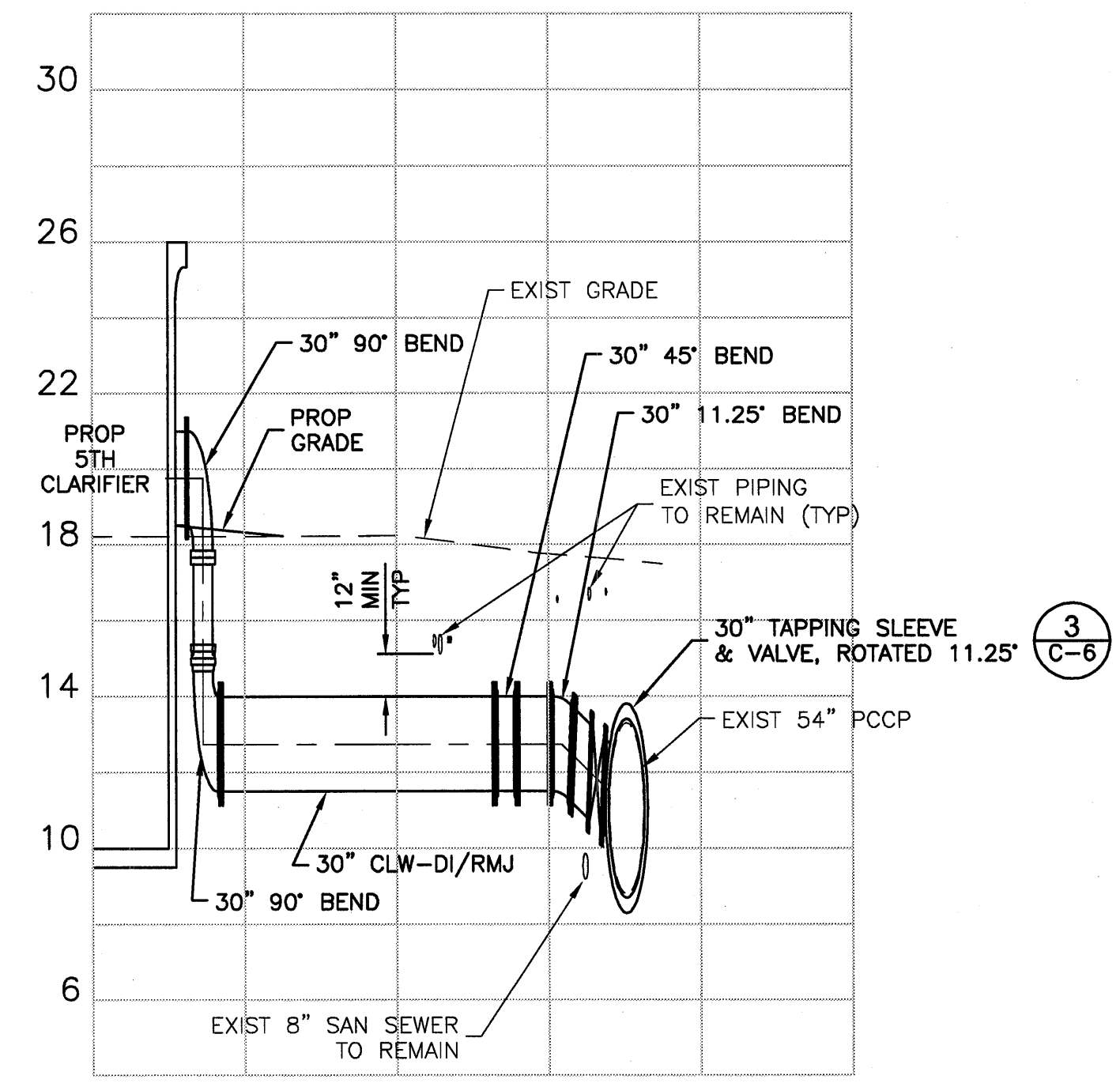


5TH CLARIFIER AT THE
 SOUTHWEST WATER RECLAMATION FACILITY
 FOR
 MANATEE COUNTY GOVERNMENT
 MANATEE COUNTY, FLORIDA

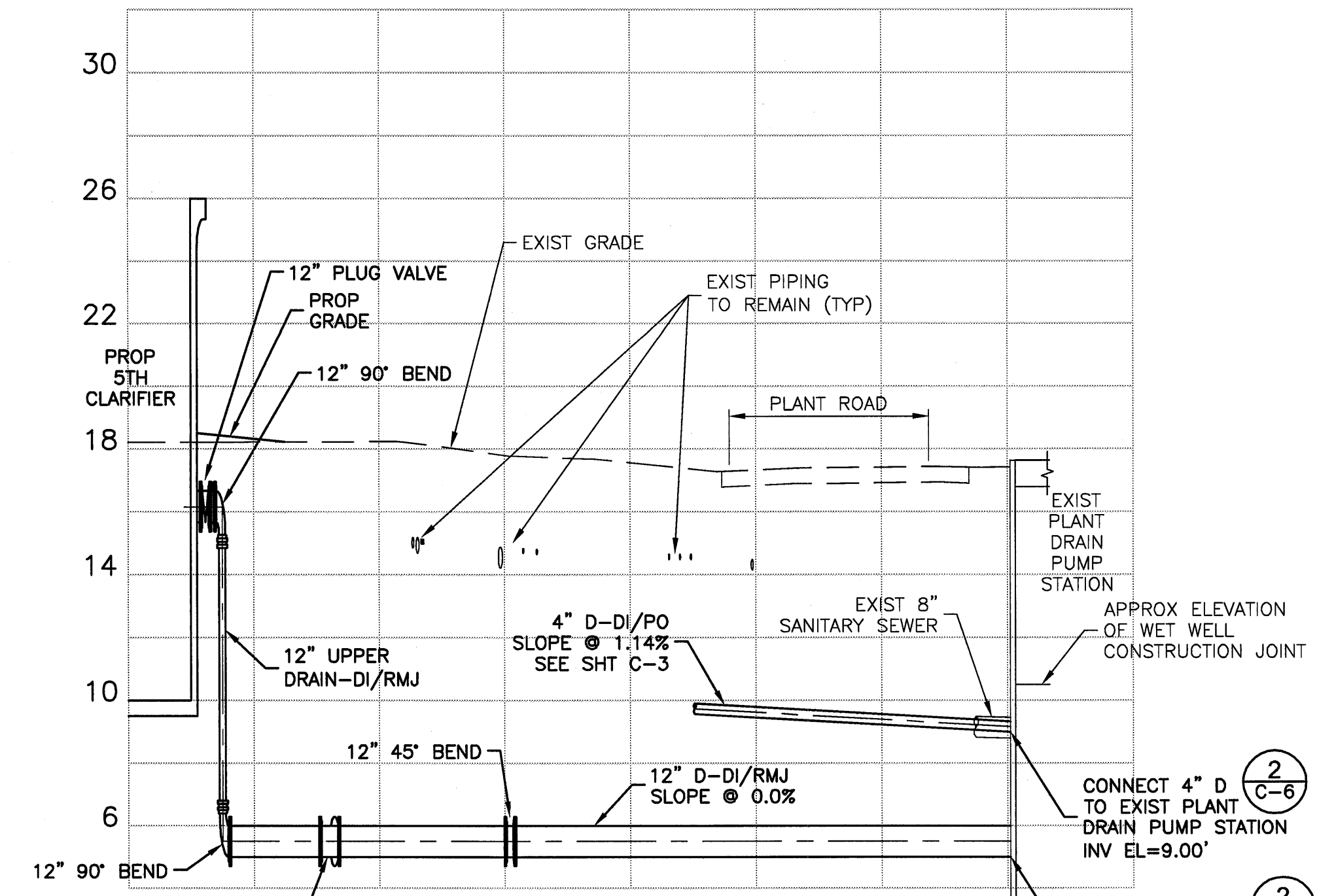
PROJECT STATUS
 BID SET
 DECEMBER 2009
 YARD PIPING PLAN
 C-3

NOTE:
 ALL NEW PVC PIPE SHALL BE SCHEDULE 80.

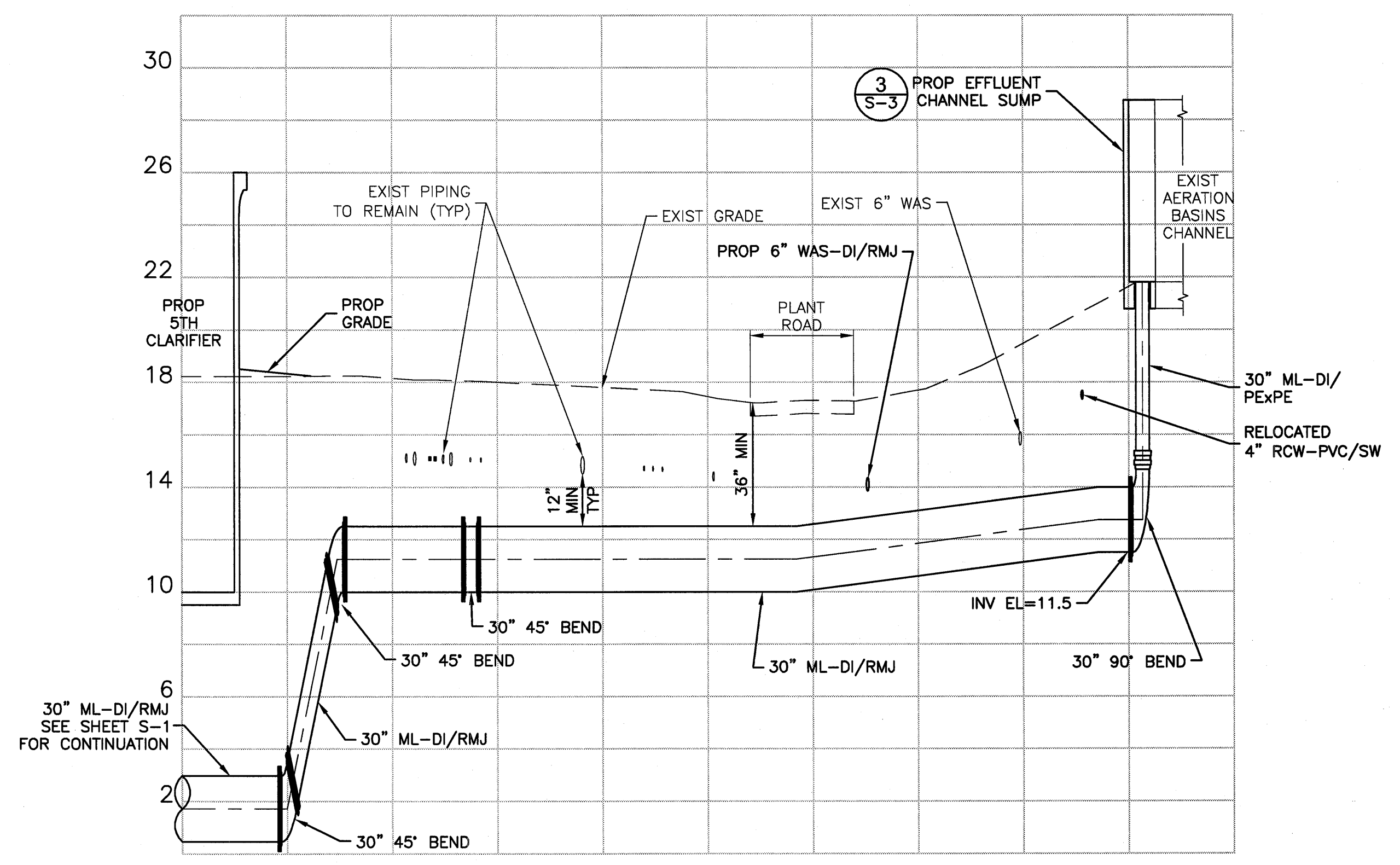
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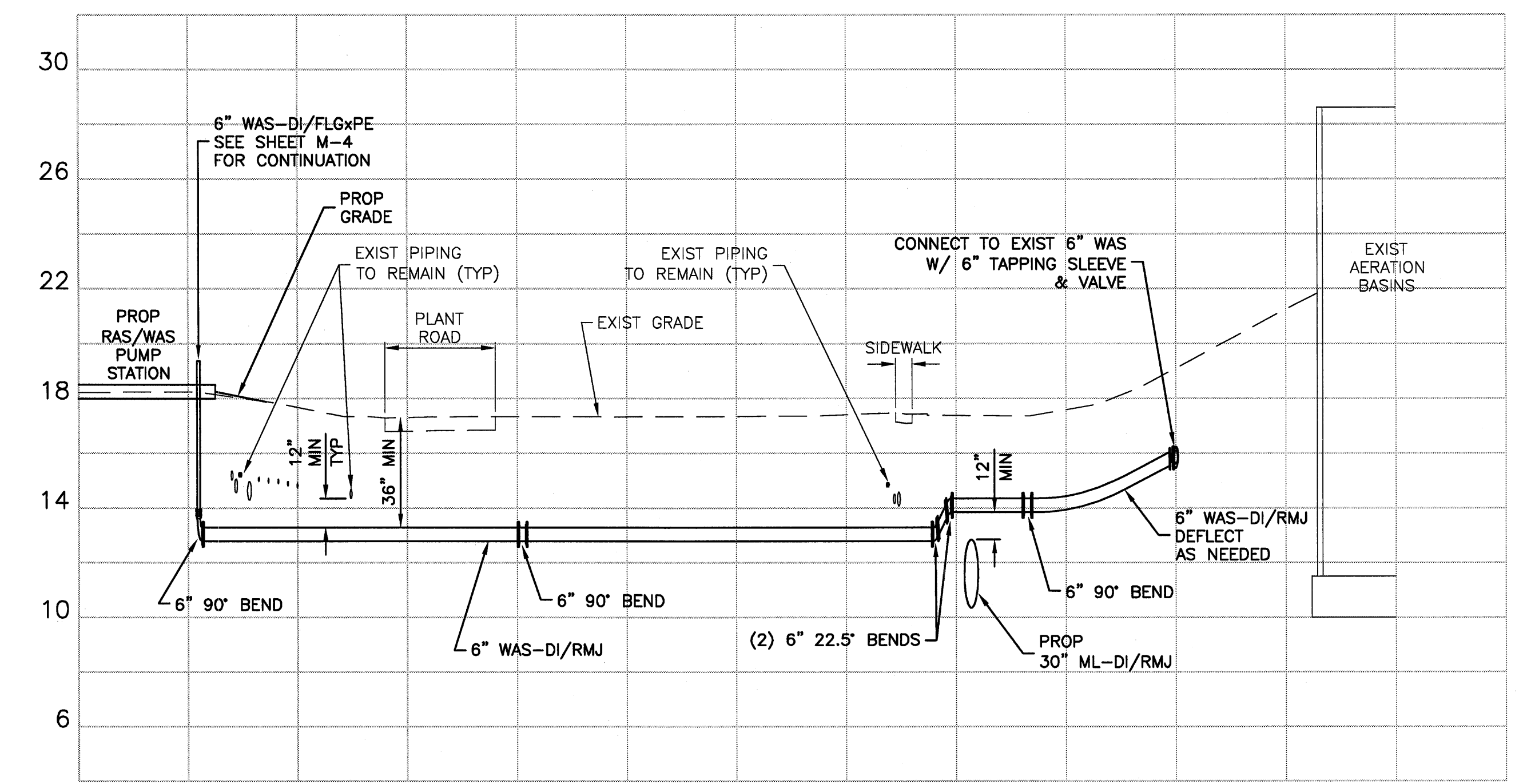
PROFILE OF 30\"/>



PROFILE OF 12\"/>



PROFILE OF 30\"/>



PROFILE OF 6\"/>

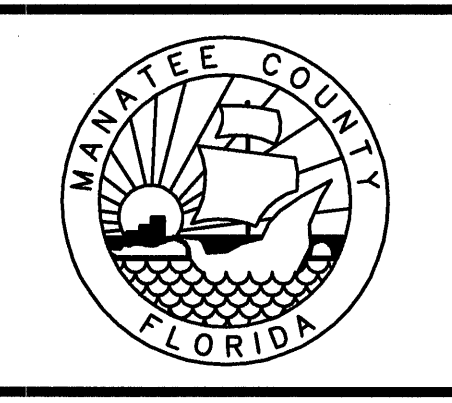
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NO.	BY	DATE	DESCRIPTION

URS JOB NUMBER
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 PM: DAVID WILCOX
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 FILE SAVE DATE:
 October 6, 2009

David Wilcox
 DAVID A. WILCOX
 FLORIDA P.E. NO. 34942

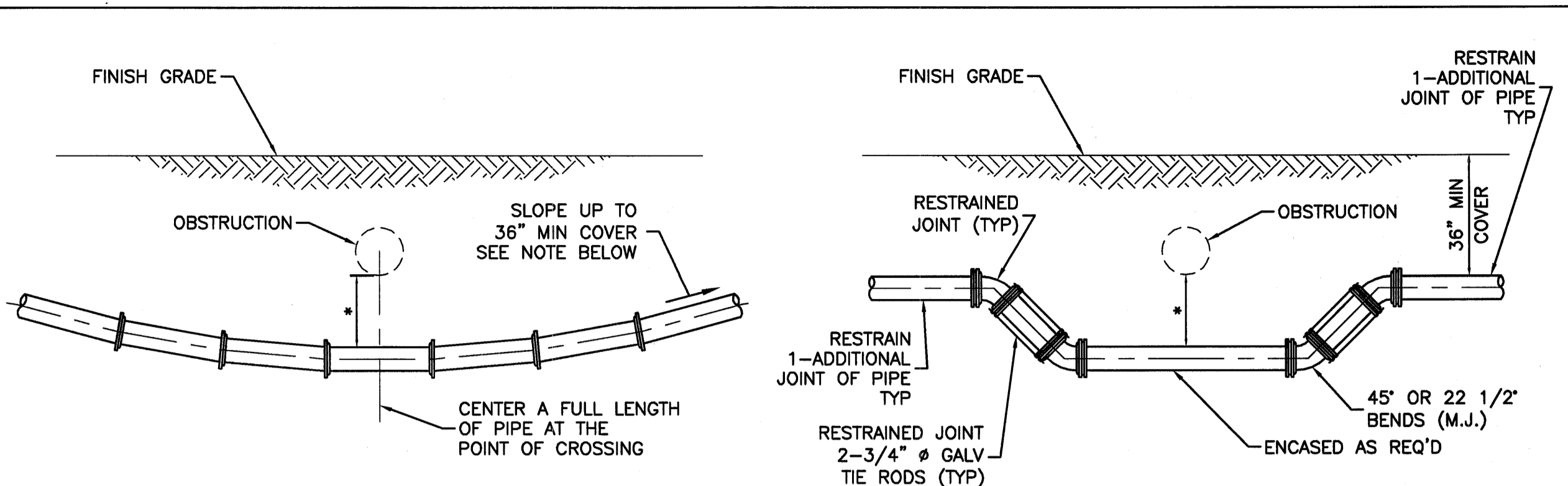


5TH CLARIFIER AT THE
 SOUTHWEST WATER RECLAMATION FACILITY
 FOR
 MANATEE COUNTY GOVERNMENT
 MANATEE COUNTY, FLORIDA

YARD PIPING PROFILES

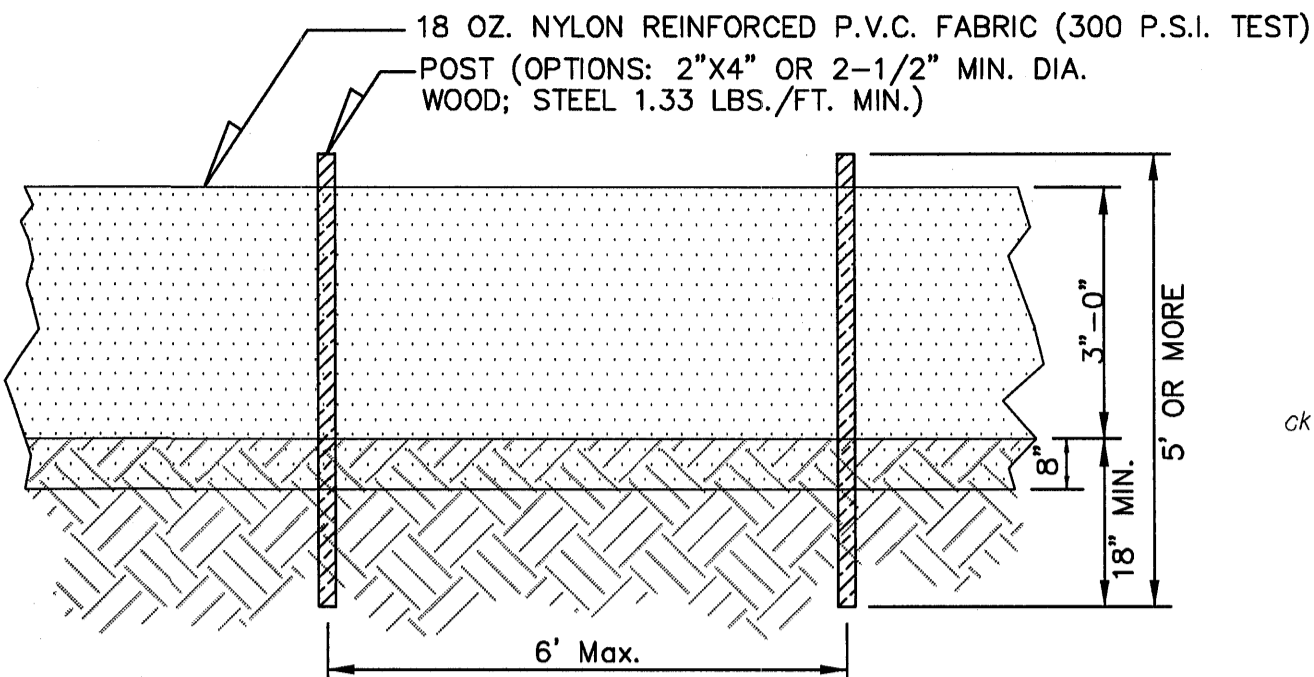
PROJECT STATUS
 BID SET
 DECEMBER 2009
C-4

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



- STANDARD UTILITY CROSSING - DEFLECTION TYPE**
NTS
- THE DEFLECTION TYPE CROSSING SHALL BE USED WHERE EVER POSSIBLE. ONLY UNDER SPECIFIC ORDERS BY THE ENGINEER SHALL THE FITTING TYPE CROSSING BE ALLOWED.
 - CONSTRUCT STANDARD CROSSING USING 75% OF MANUFACTURERS MAXIMUM JOINT DEFLECTION (MAX).
 - COAT TIE RODS WITH A COAL TAR ENAMEL AFTER ASSEMBLY. (2 COATS MIN).
 - TIE RODS MAY BE OMITTED WHEN OTHER APPROVED METHODS OF RESTRAINING ARE UTILIZED.
 - SUPPORT OBSTRUCTION AS REQUIRED.
- SPECIAL UTILITY CROSSING - FITTING TYPE**
NTS
- * 18" MIN CLEARANCE REQUIRED FOR WATER AND SEWER MAIN CROSSINGS. 12" MIN CLEARANCE REQUIRED FOR OTHER TYPE UTILITIES CROSSINGS. SEE WATER AND SEWER SEPARATION STATEMENT ON SHEET G-2.
- THE "FITTING TYPE" DETAIL SHOULD ONLY BE USED WHEN "DEFLECTION TYPE" DETAIL IS NOT POSSIBLE.

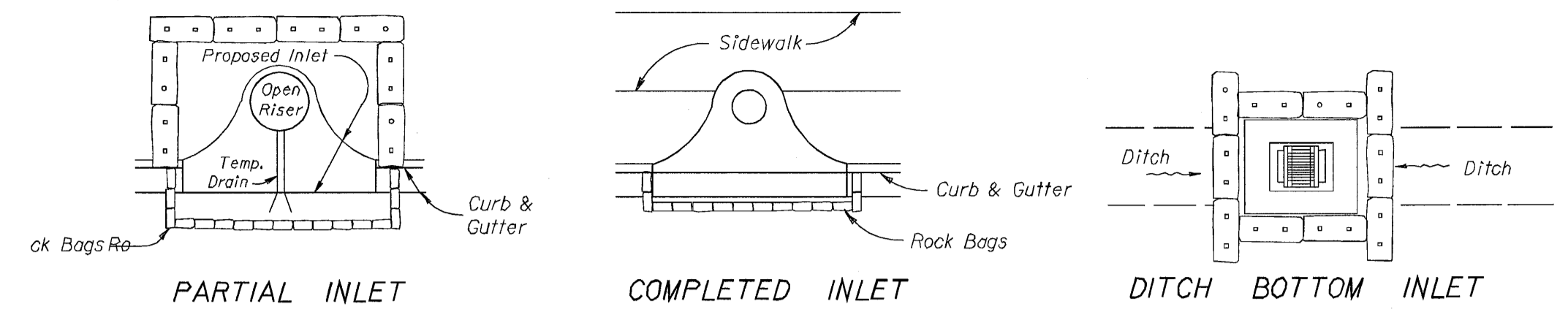
UTILITY CROSSING
1 DETAIL
SCALE: NTS



NOTE: REFER TO LATEST EDITION OF F.D.O.T. "ROADWAY AND TRAFFIC DESIGN STANDARDS" INDEX NO. 103 FOR ADDITIONAL DETAILS AND SPECIFICATIONS.

- NOTES:
- CONTRACTOR SHALL INSTALL EROSION CONTROL DEVICES PRIOR TO ANY OTHER CONSTRUCTION ACTIVITIES. THE DEVICE SHALL BE INSTALLED IN THE LOCATIONS ON THE DRAWINGS AND ANYWHERE ELSE THERE IS A POTENTIAL FOR EROSION AS SEDIMENT TO EXIT THE WORK AREA.
 - CONTRACTOR SHALL INSPECT INSTALLED EROSION CONTROL DEVICE WEEKLY DURING CONSTRUCTION AND AFTER HEAVY RAINS FOR DAMAGE. MAINTENANCE SHALL INCLUDE CLEANING BUILT-UP SEDIMENT BEHIND THE BARRIERS AND/OR REPLACING DAMAGED SECTIONS.
 - THE EROSION CONTROL DEVICE SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL A PERMANENT STAND OF GRASS (OR OTHER PERMANENT STABILIZATION) IS ESTABLISHED.
 - IN NO CASE SHOULD HAY BALES BE USED AS EROSION CONTROL.

EROSION/SEDIMENTATION CONTROL DEVICE
2 DETAIL
SCALE: NTS



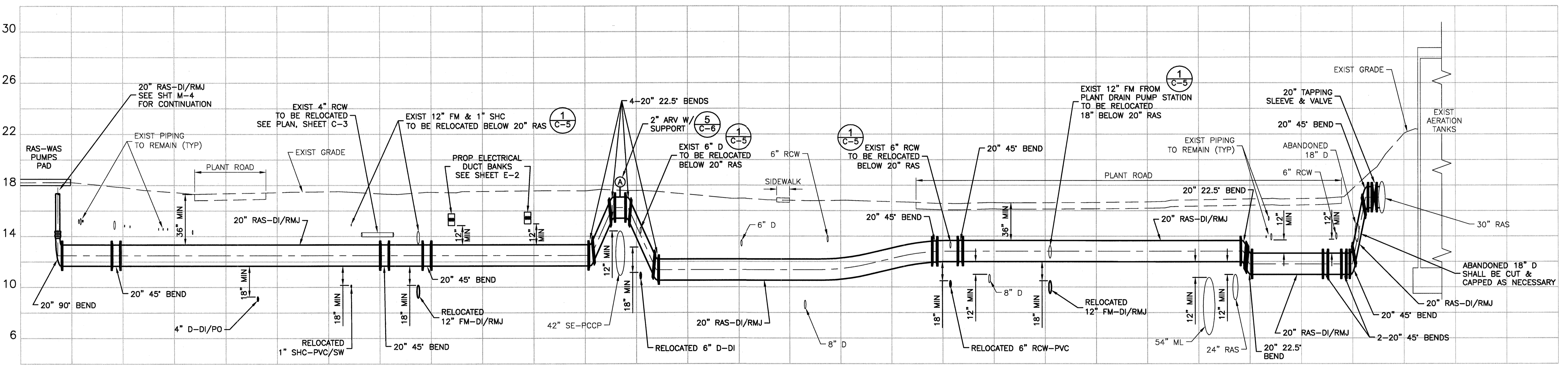
PROTECTION AROUND INLETS OR SIMILAR STRUCTURES

NOTES FOR BAILED HAY OR STRAW BARRIERS

- Type I and II Barriers should be spaced in accordance with Chart I, Sheet 1.
- Hay bales shall be trenched 3" to 4" and anchored with 2 - 1" x 2" (or 1" dia.) x 4" wood stakes. Stakes of other material or shape providing equivalent strength may be used if approved by the Engineer. Stakes other than wood shall be removed upon completion of the project.
- Rails and posts shall be 2" x 4" wood. Other materials providing equivalent strength may be used if approved by the engineer.
- Adjacent bales shall be butted firmly together. Unavoidable gaps shall be plugged with hay or straw to prevent silt from passing.
- Where used in conjunction with silt fence, hay bales shall be placed on the upstream side of the fence.
- Bales to be paid for under the contract unit price for Baled Hay or Straw, EA. The unit price shall include the cost of filter fabric for Type I and II Barriers. Sand bags shall be paid for under the unit price for Sandbagging, CY. Rock bags to be paid for under the contract unit price for Rock Bags, EA.

NOTE: REFER TO LATEST EDITION OF F.D.O.T. "ROADWAY AND TRAFFIC DESIGN STANDARDS" INDEX NO. 102 FOR ADDITIONAL DETAILS AND SPECIFICATIONS.

INLET BARRIER PROTECTION
3 DETAIL
SCALE: NTS



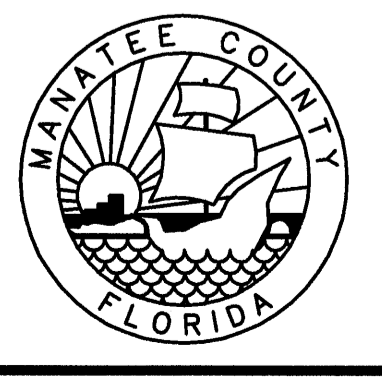
PROFILE OF 20" RAS
SCALE: 1" = 20' HORIZONTAL
1" = 4' VERTICAL

URS
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Suite 700
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Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION
REVISIONS			

URS JOB NUMBER
12008492
PM: DAVID WILCOX
ENG: REBECCA AVALOS
DRW: TERRY SONNENBERG
FILE SAVE DATE:
October 9, 2009

DAVID A. WILCOX
FLORIDA P.E. NO. 34842

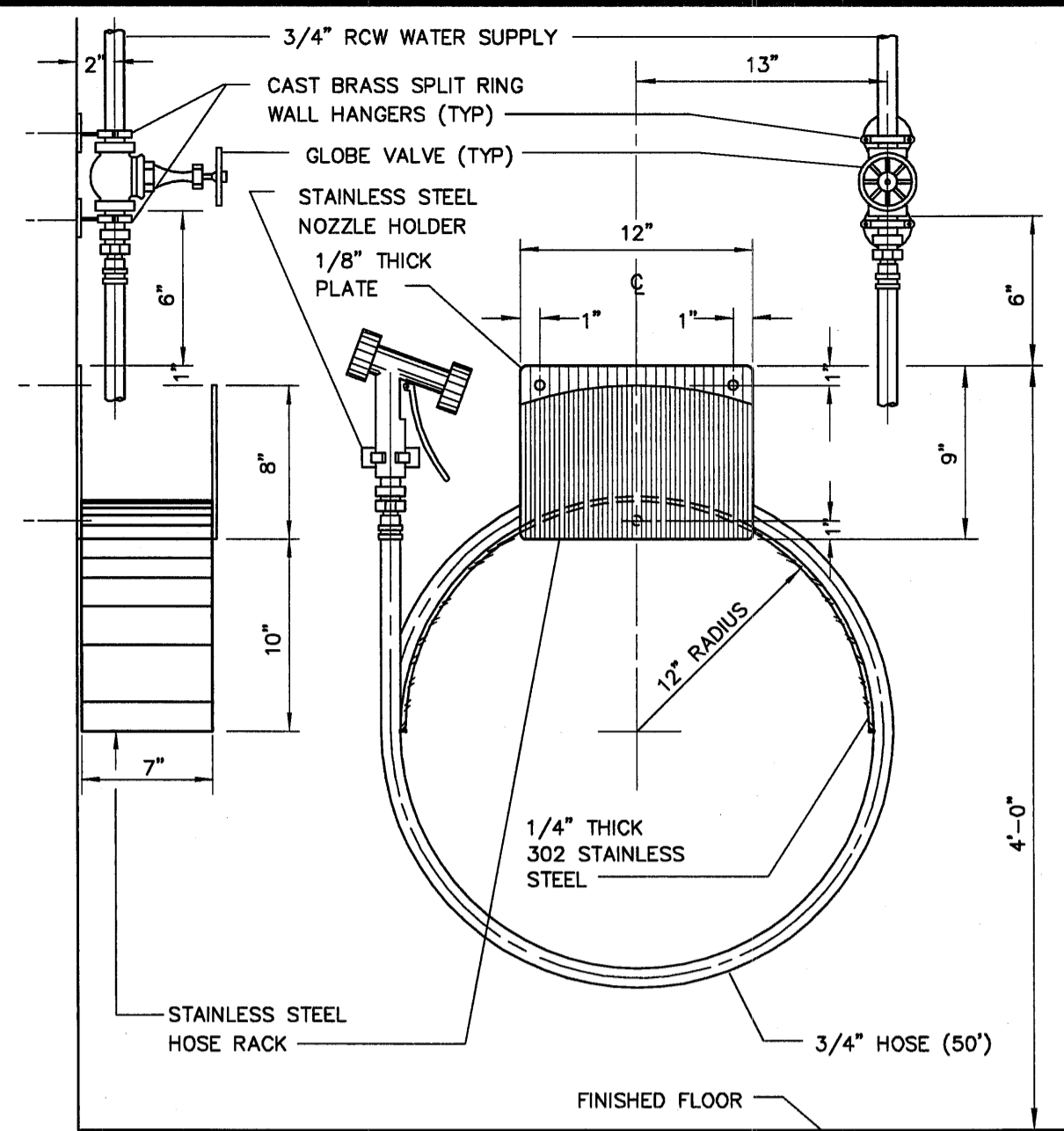


5TH CLARIFIER AT THE
SOUTHWEST WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

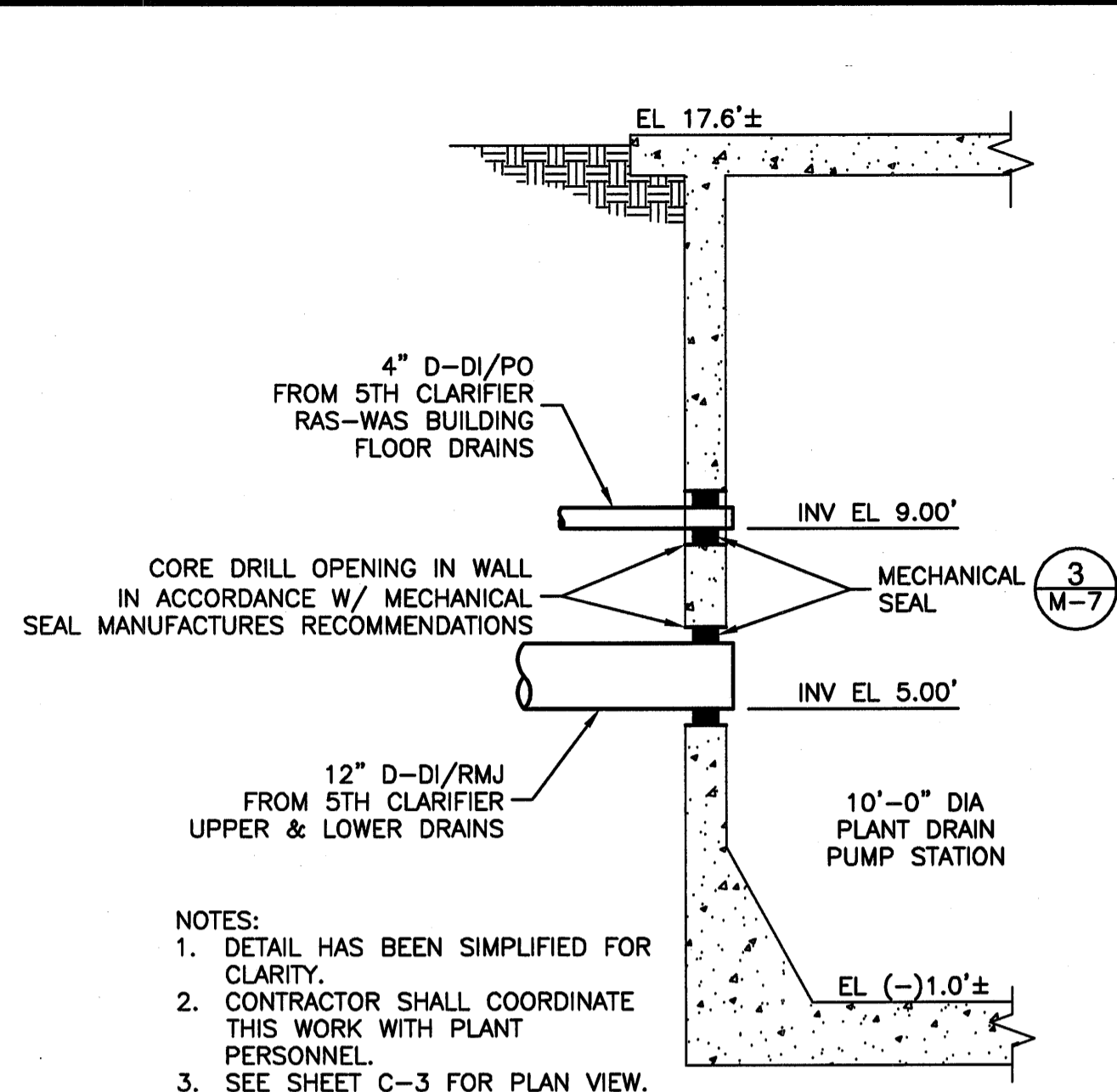
YARD PIPING PROFILES
AND CIVIL DETAILS

PROJECT STATUS
BID SET
DECEMBER 2009
C-5

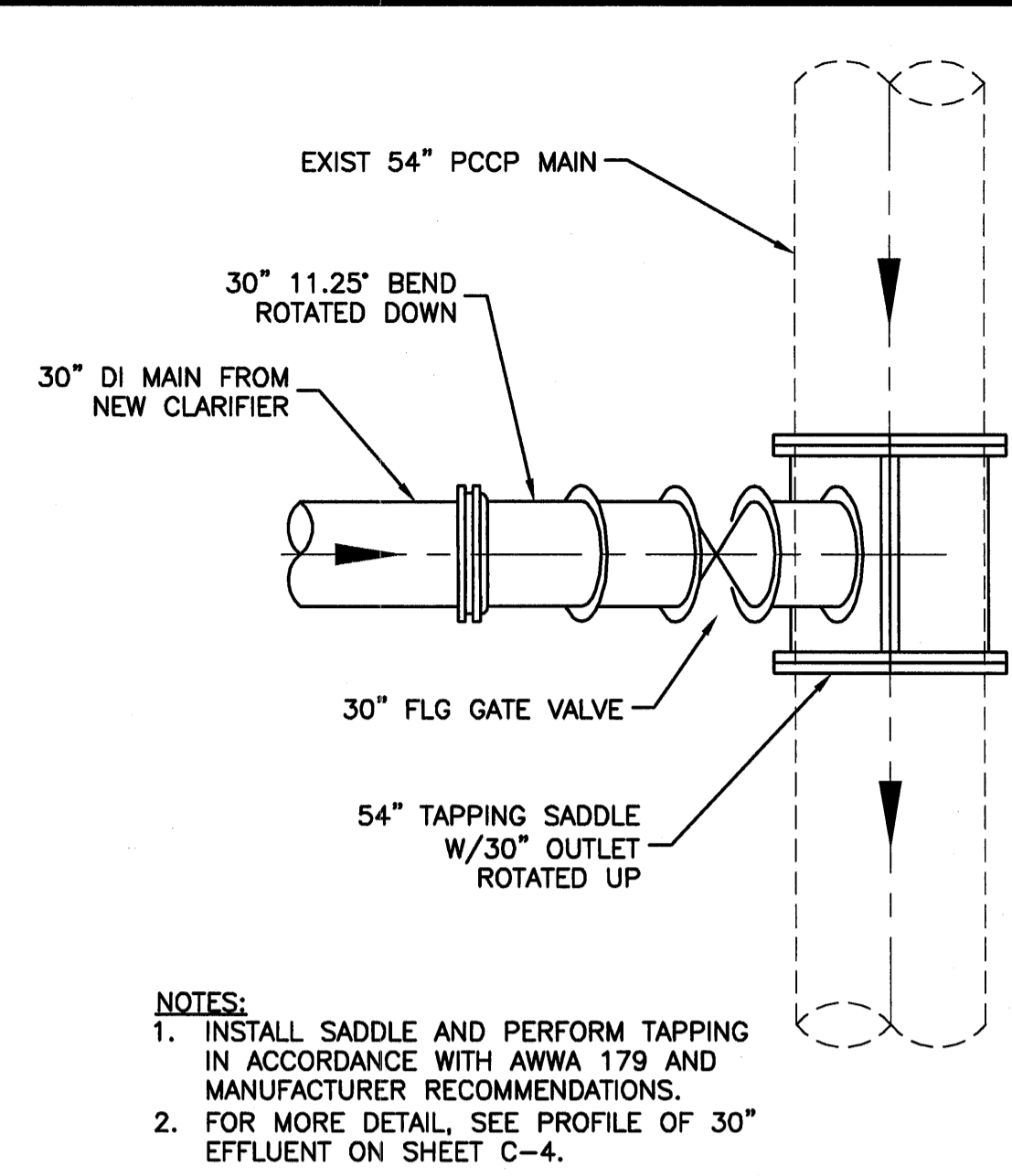
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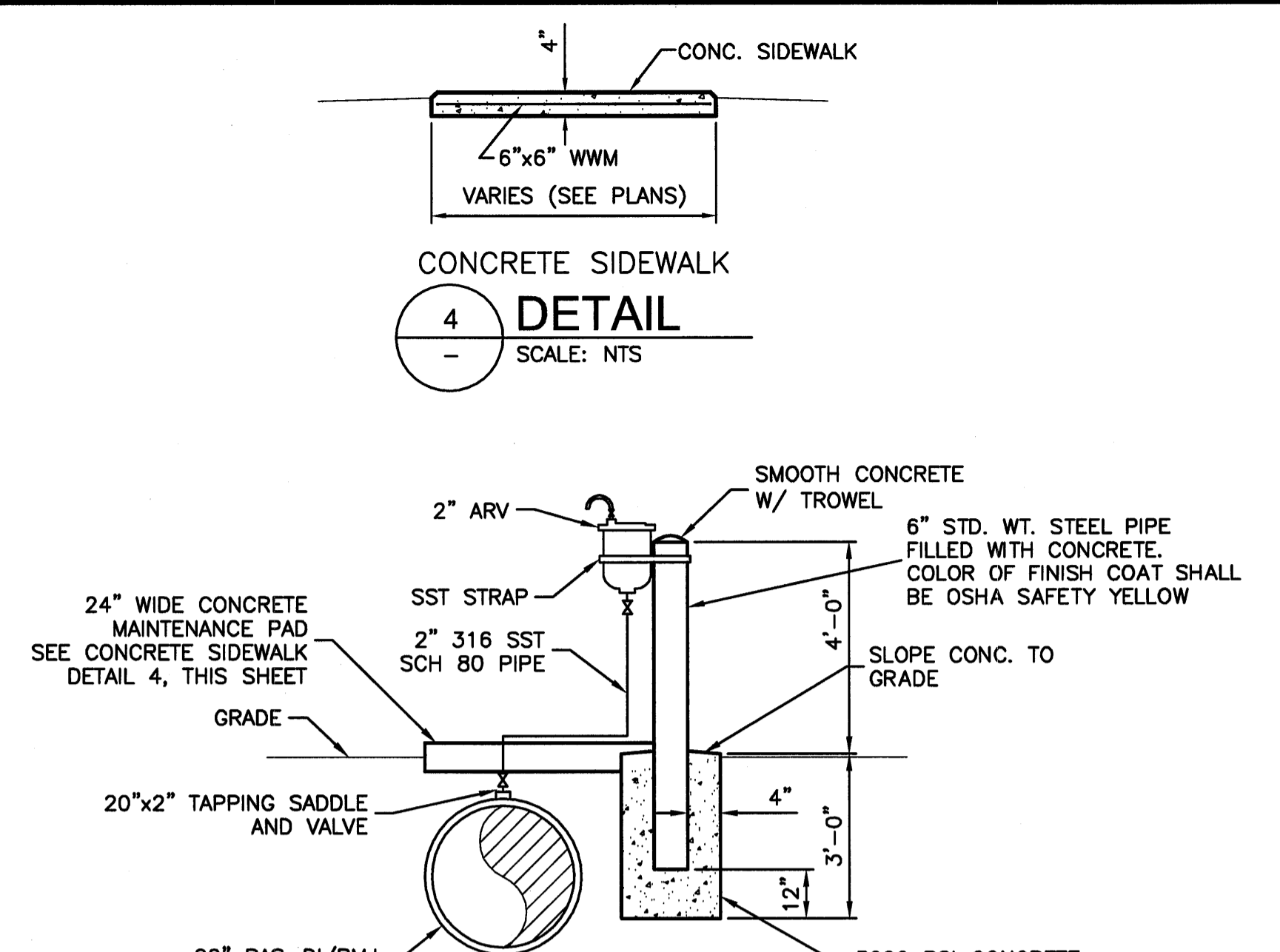
1
DETAIL
SCALE: NTS



2
DETAIL
SCALE: NTS



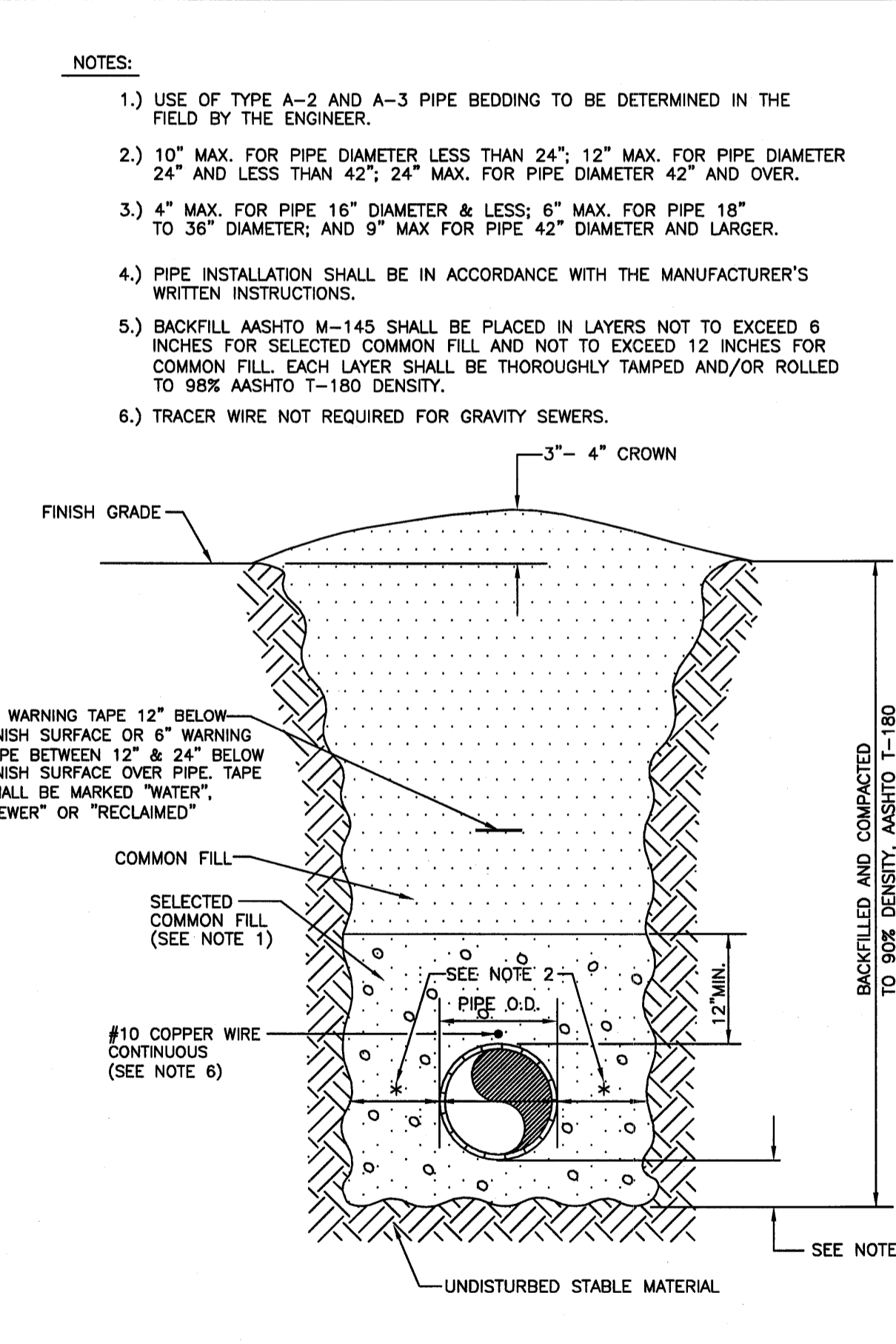
3
DETAIL
SCALE: NTS



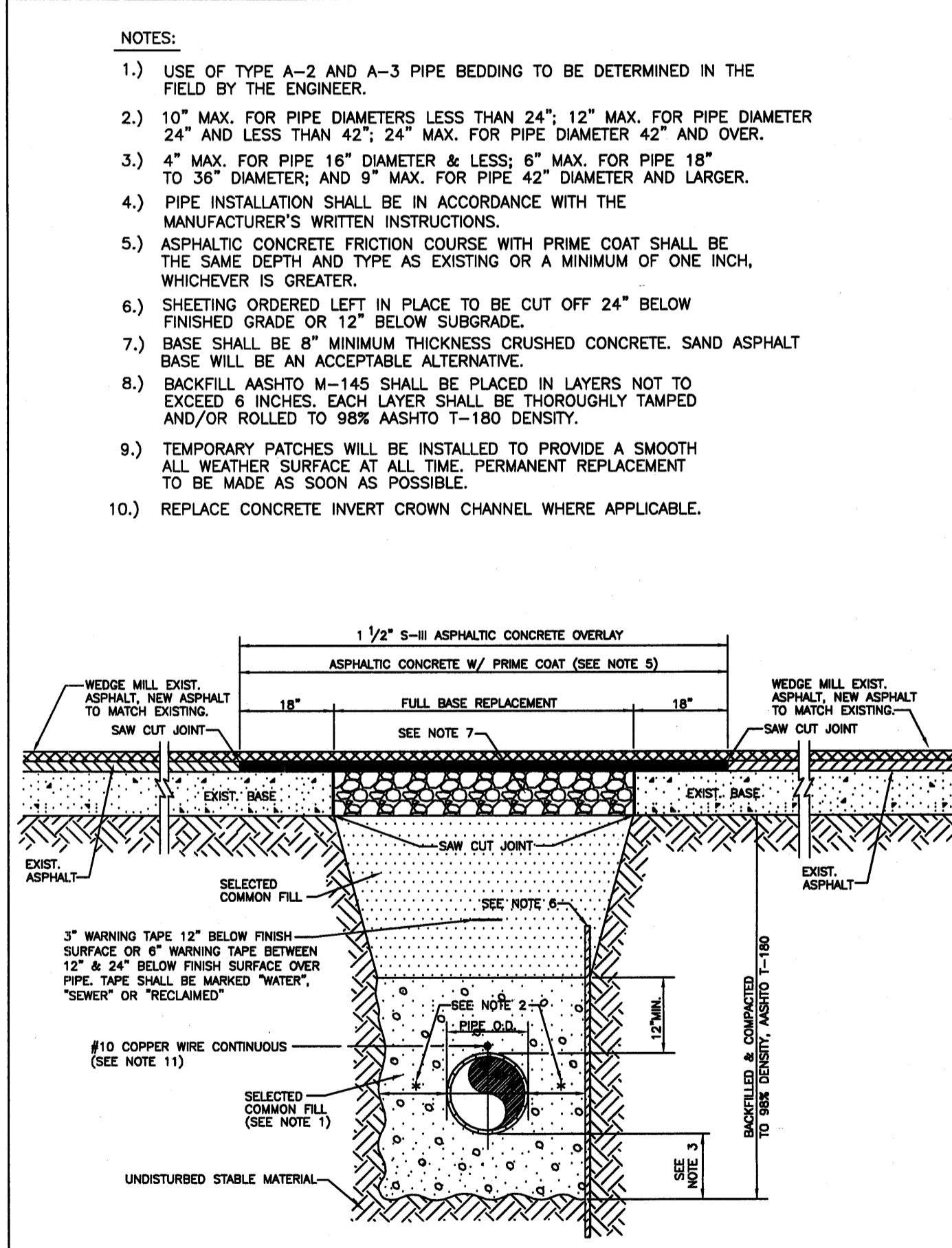
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DETAIL
SCALE: NTS



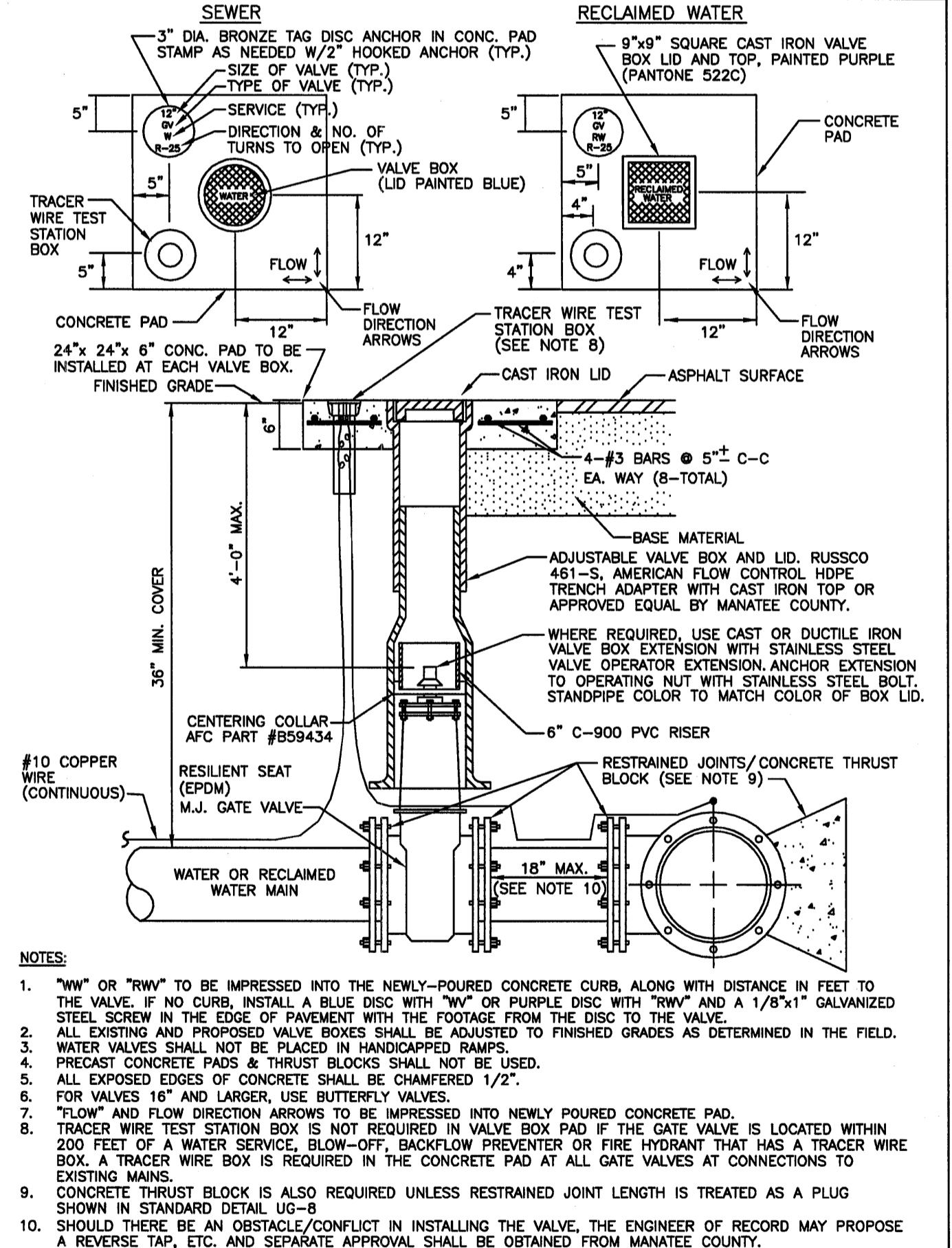
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DETAIL
SCALE: NTS



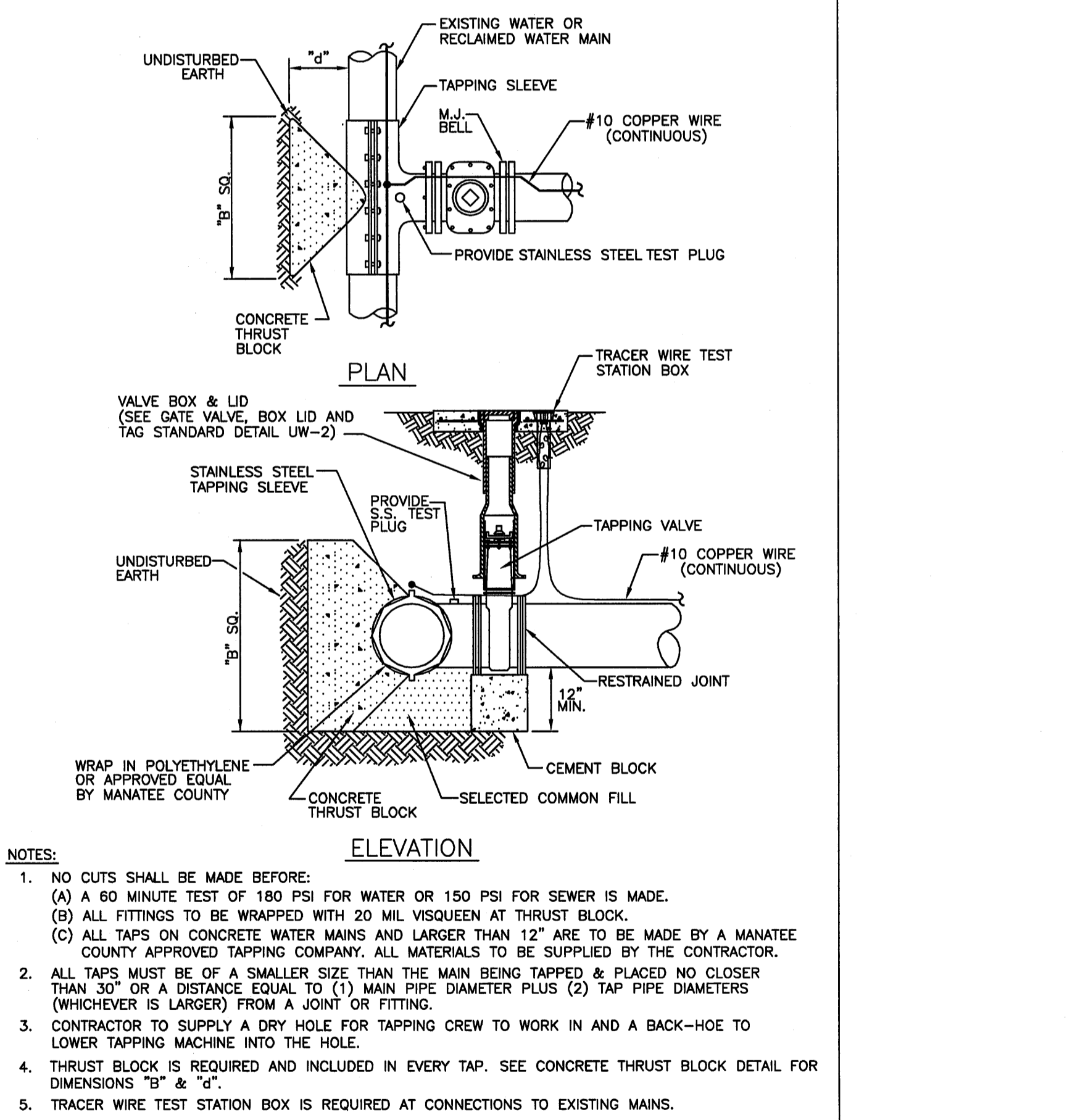
MANATEE COUNTY
PUBLIC WORKS DEPARTMENT
TRENCH WITH UNIMPROVED SURFACE TYPE A-1 PIPE BEDDING
UG-11
REV. BY DATE: MARCH 17, 2009
DATE OF APPROVAL



MANATEE COUNTY
PUBLIC WORKS DEPARTMENT
TRENCH WITH ASPHALT PAVEMENT SURFACE TYPE A-1 PIPE BEDDING
UG-12
REV. BY DATE: MARCH 17, 2009
DATE OF APPROVAL



MANATEE COUNTY
PUBLIC WORKS DEPARTMENT
GATE VALVE, BOX, LID AND TAG
UW-2
REV. BY DATE: MARCH 17, 2009
DATE OF APPROVAL



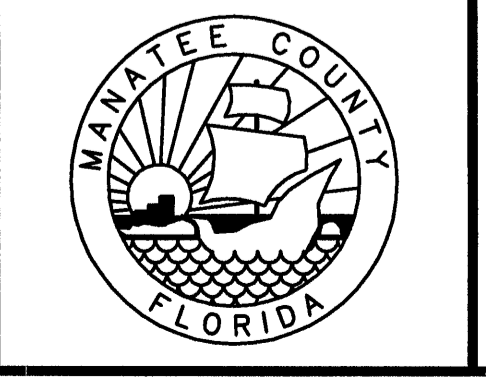
MANATEE COUNTY
PUBLIC WORKS DEPARTMENT
TAPPING SLEEVE AND VALVE
UW-4
REV. BY DATE: MARCH 17, 2009
DATE OF APPROVAL

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

NO.	BY	DATE	DESCRIPTION

URS JOB NUMBER
12008492
PM: DAVID WILCOX
ENG: REBECCA AVALOS
DRW: TERRY SONNENBERG
FILE SAVE DATE:
October 13, 2009

DAVID A. WILCOX
FLORIDA P.E. NO. 34842



5TH CLARIFIER AT THE
SOUTHWEST WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

CIVIL DETAILS

PROJECT STATUS
BID SET
DECEMBER 2009
C-6

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

PLOTTED December 3, 2009 1:28 PM PLOTTED BY: SONNENBERG, TERRY
X:\MANATEE PROJECTS\12008492 SWRF 5TH CLARIFIER WAF\A\SOILBORING\PLANS\C-7 SOIL BORING LOGS.DWG

SOIL SYMBOLS

	SAND		VOID/CAVITY		PEAT, MUCK, ORGANIC SOILS
	CLAYEY SAND		WEATHERED LIMESTONE		MISCELLANEOUS FILL, TOPSOIL, ETC.
	SILTY SAND		LIMESTONE		SHELL
	SANDY CLAY		GRAVEL, COBBLES, BOULDERS		
	SANDY SILT				
	CLAY, SILTY, SILTY CLAY, CLAYEY SILT				

PARTICLE SIZE IDENTIFICATION

Boulders - 8 inch diameter or more
Cobbles - 3 to 8 inch diameter
Gravel - 4.7mm to 3 inches
Sand - Course 2.00 to 4.75mm (dia. of pencil lead)
 - Medium 0.42 to 2.00mm (dia. of brown straw)
 - Fine 0.074 to 0.42mm (dia. of human hair)
Silt - 0.074 to 0.002mm (cannot see particles)
Clay - Smaller than 0.002mm

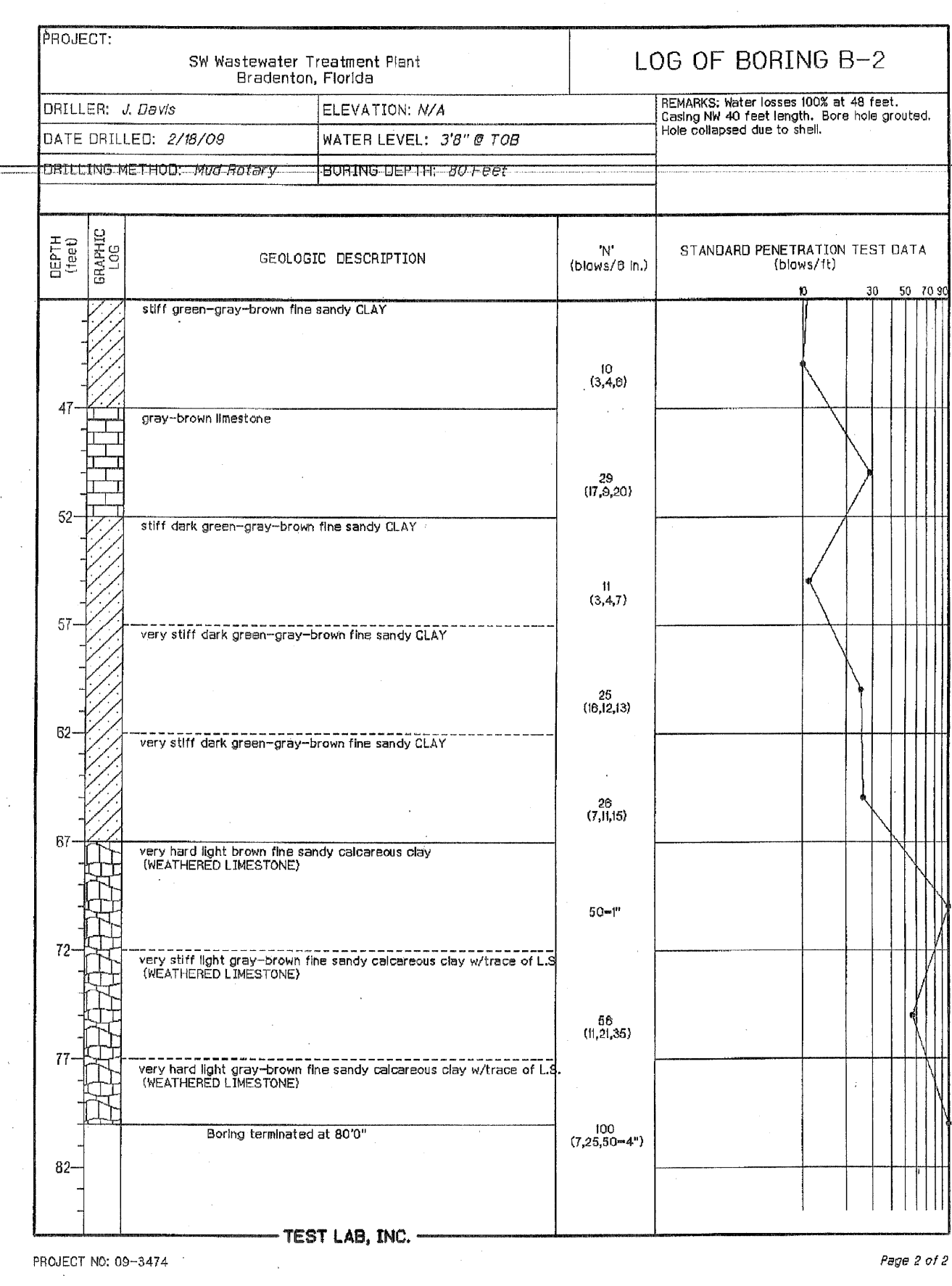
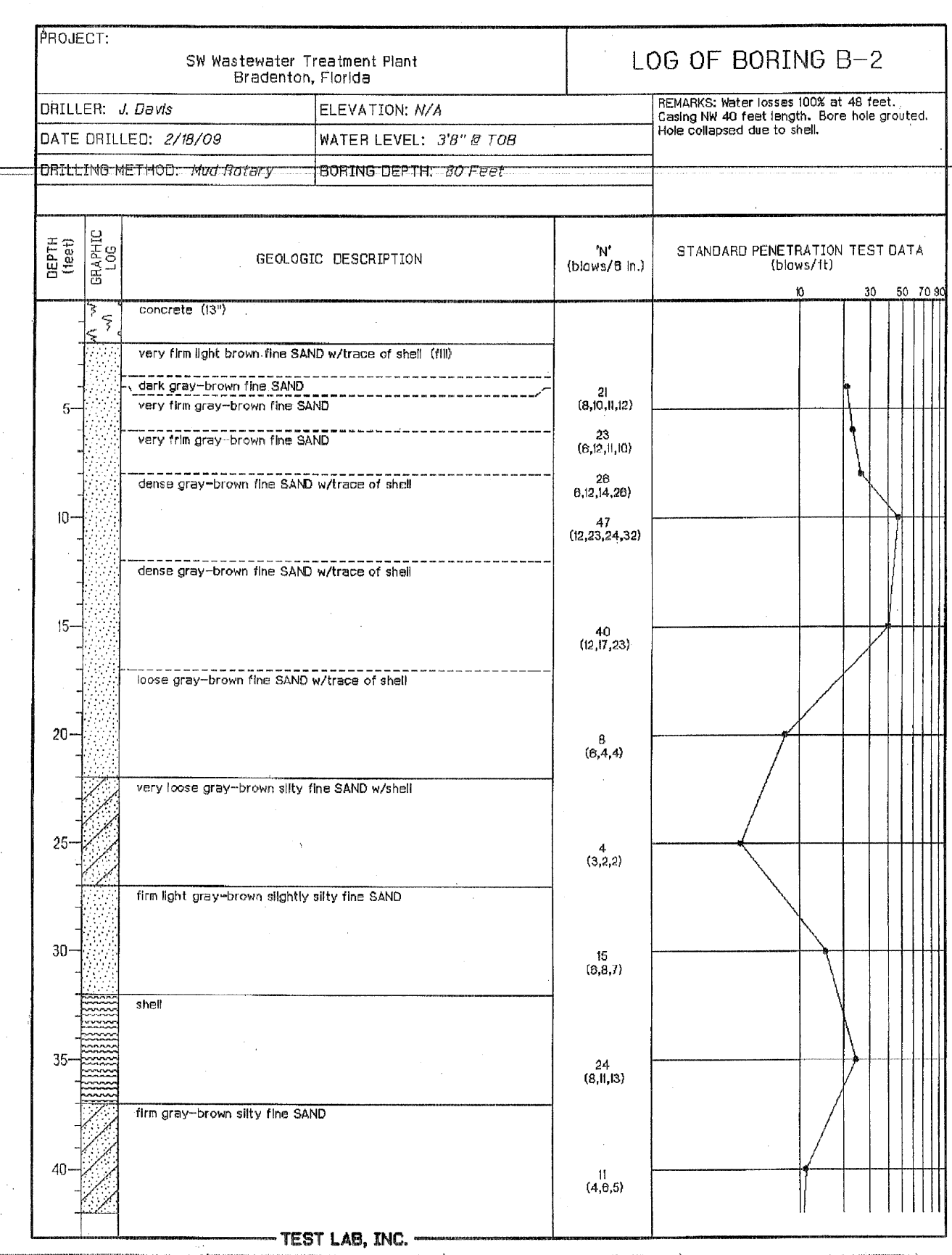
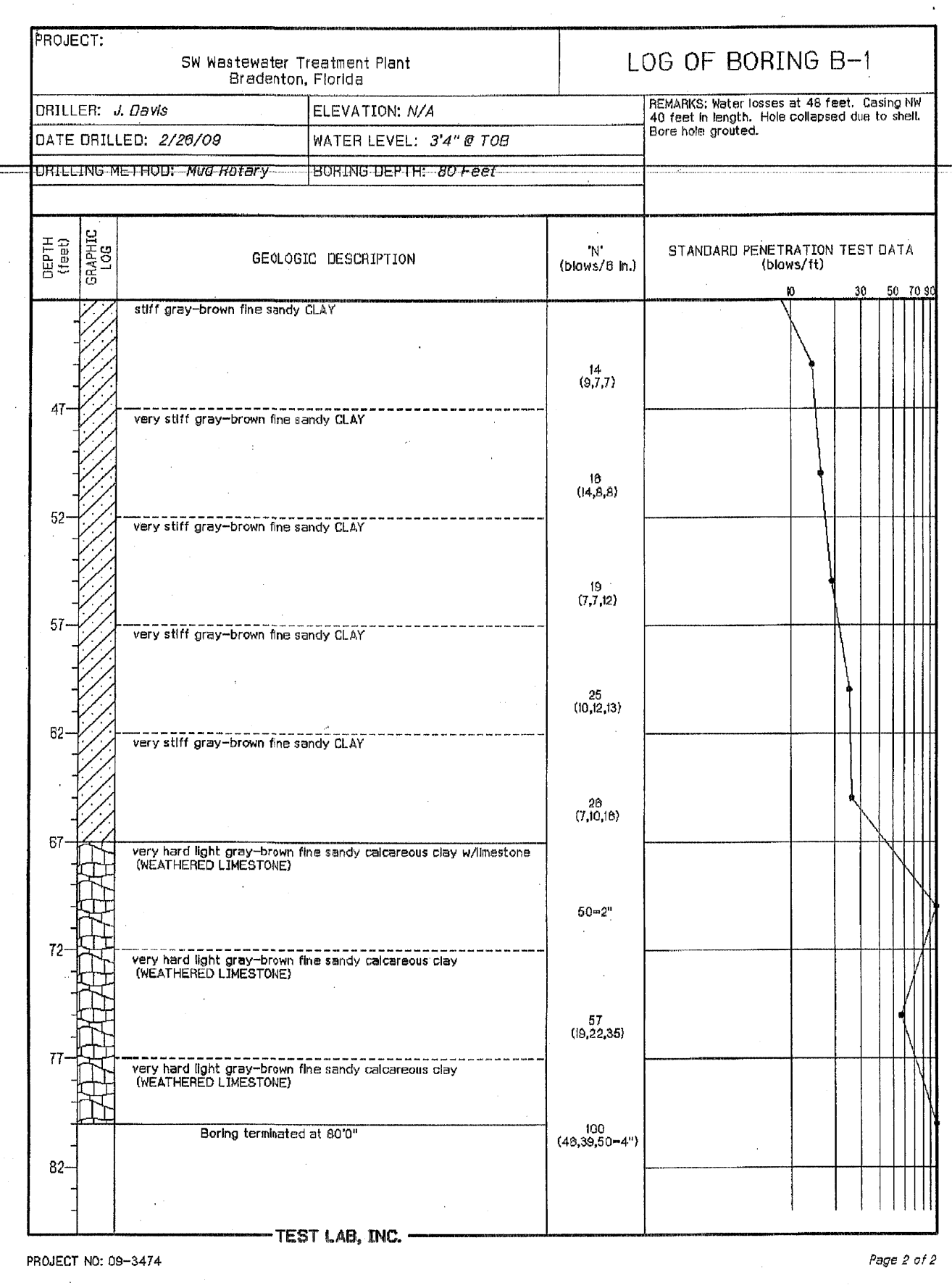
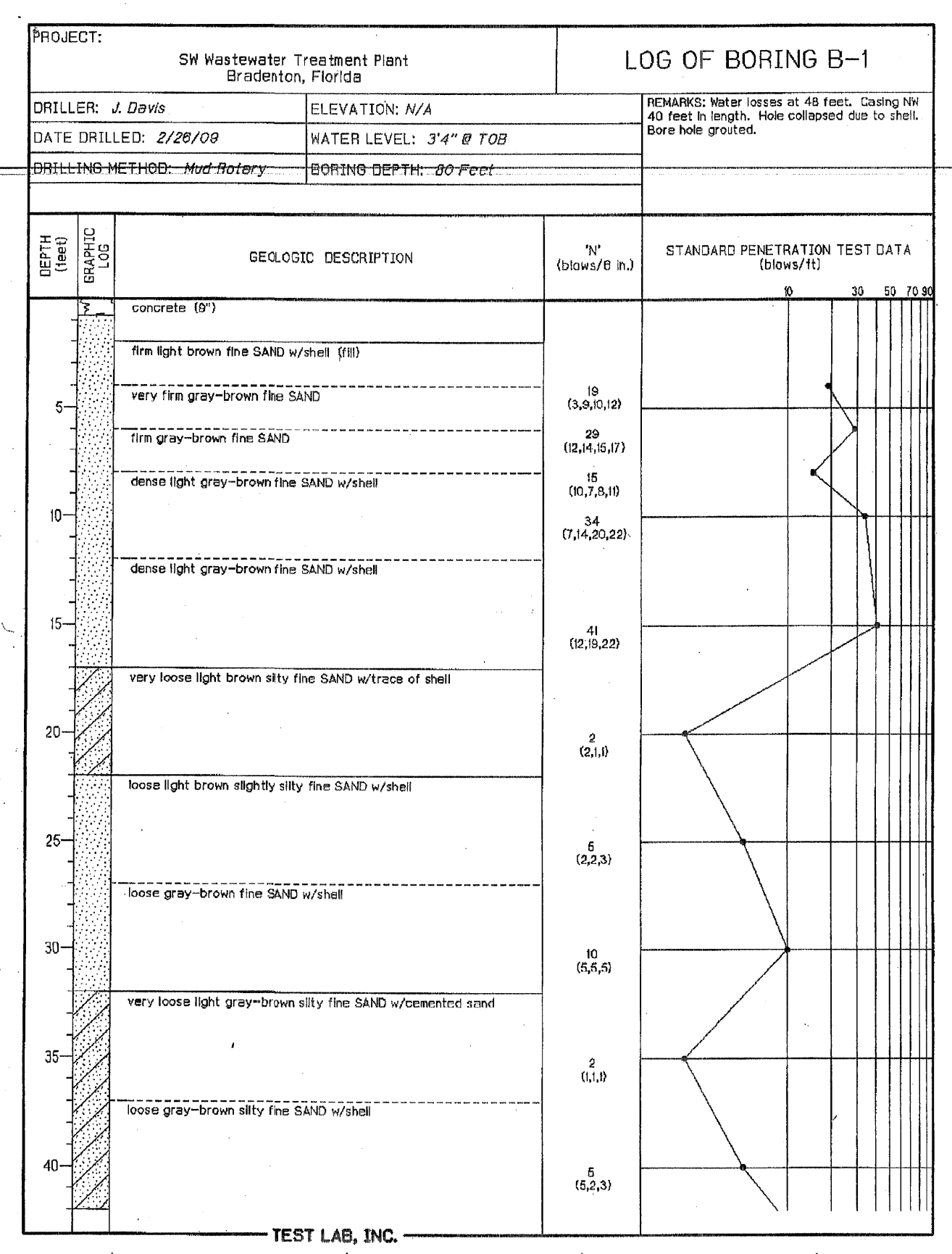
CONSISTENCY

COHESIONLESS SOIL (sand)		COHESIVE SOIL (clay, silt)	
Very Loose	0 - 4 Blows/FL	Very Soft	0 - 2 Blows/FL
Loose	5 - 10 Blows/FL	Soft	3 - 4 Blows/FL
Firm	11 - 20 Blows/FL	Medium Stiff	5 - 8 Blows/FL
Very Firm	21 - 30 Blows/FL	Stiff	9 - 15 Blows/FL
Dense	31 - 50 Blows/FL	Very Stiff	16 - 30 Blows/FL
Very Dense	51 - UP Blows/FL	Hard	31 - 50 Blows/FL
		Very Hard	51 - UP Blows/FL

Strata Changes - In the column "Soil Descriptions" on the drill log the horizontal lines represent strata changes. A solid line (—) represents an actually observed change, a dashed line (- -) represents an estimated change.

Ground Water - Observations were made at the times indicated. Porosity of soil strata, weather conditions, site topography, etc. may cause changes in the water levels indicated on the logs.

SOIL LEGEND



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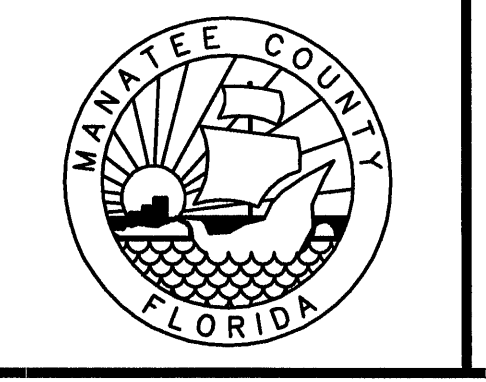
NO.	BY	DATE	DESCRIPTION

URS JOB NUMBER
12008492

PM: DAVID WILCOX
 ENG: REBECCA AVALOS
 DRW: TERRY SONNENBERG

FILE SAVE DATE:
September 17, 2009

DAVID A. WILCOX
 FLORIDA P.E. NO. 34942



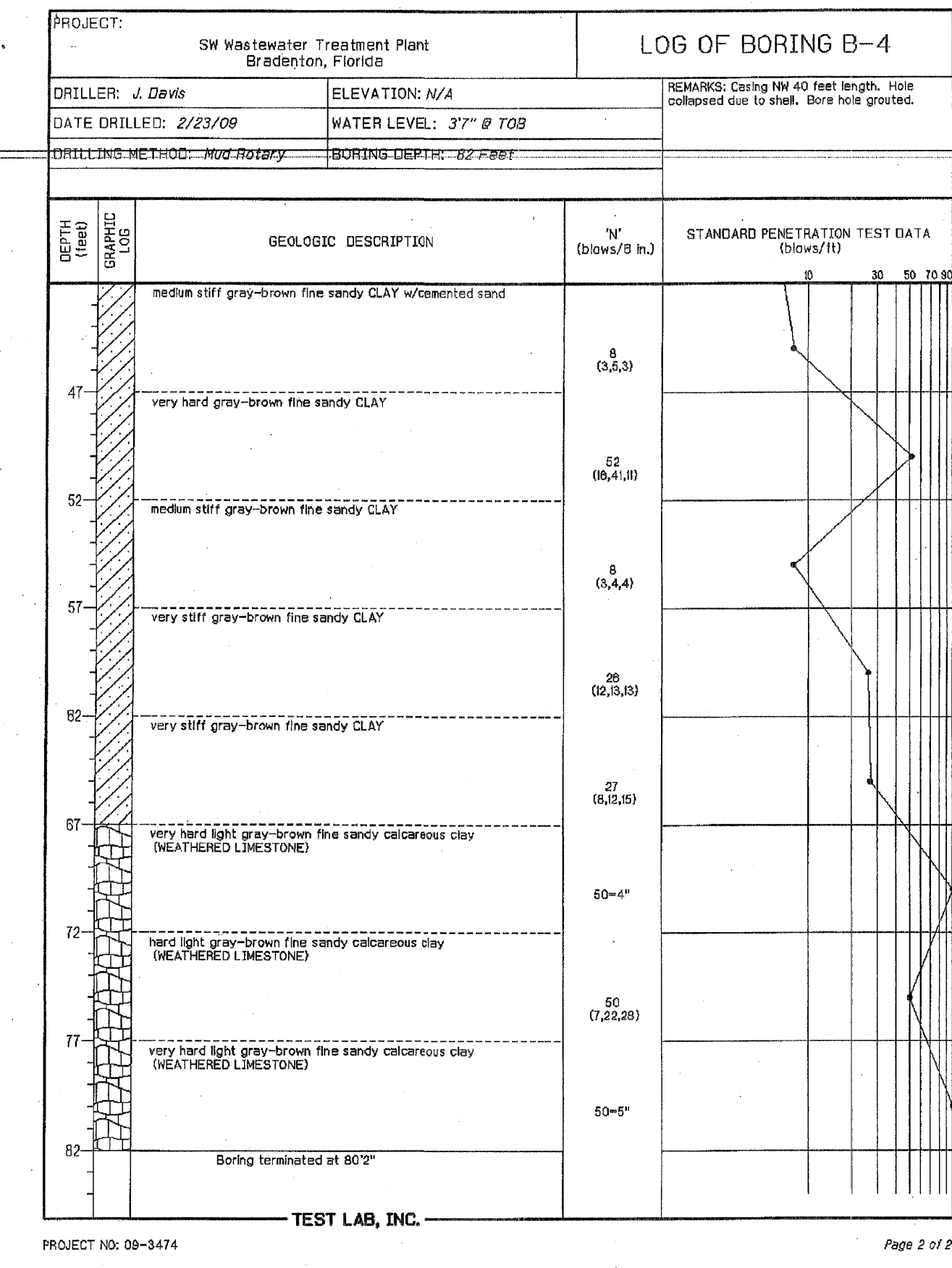
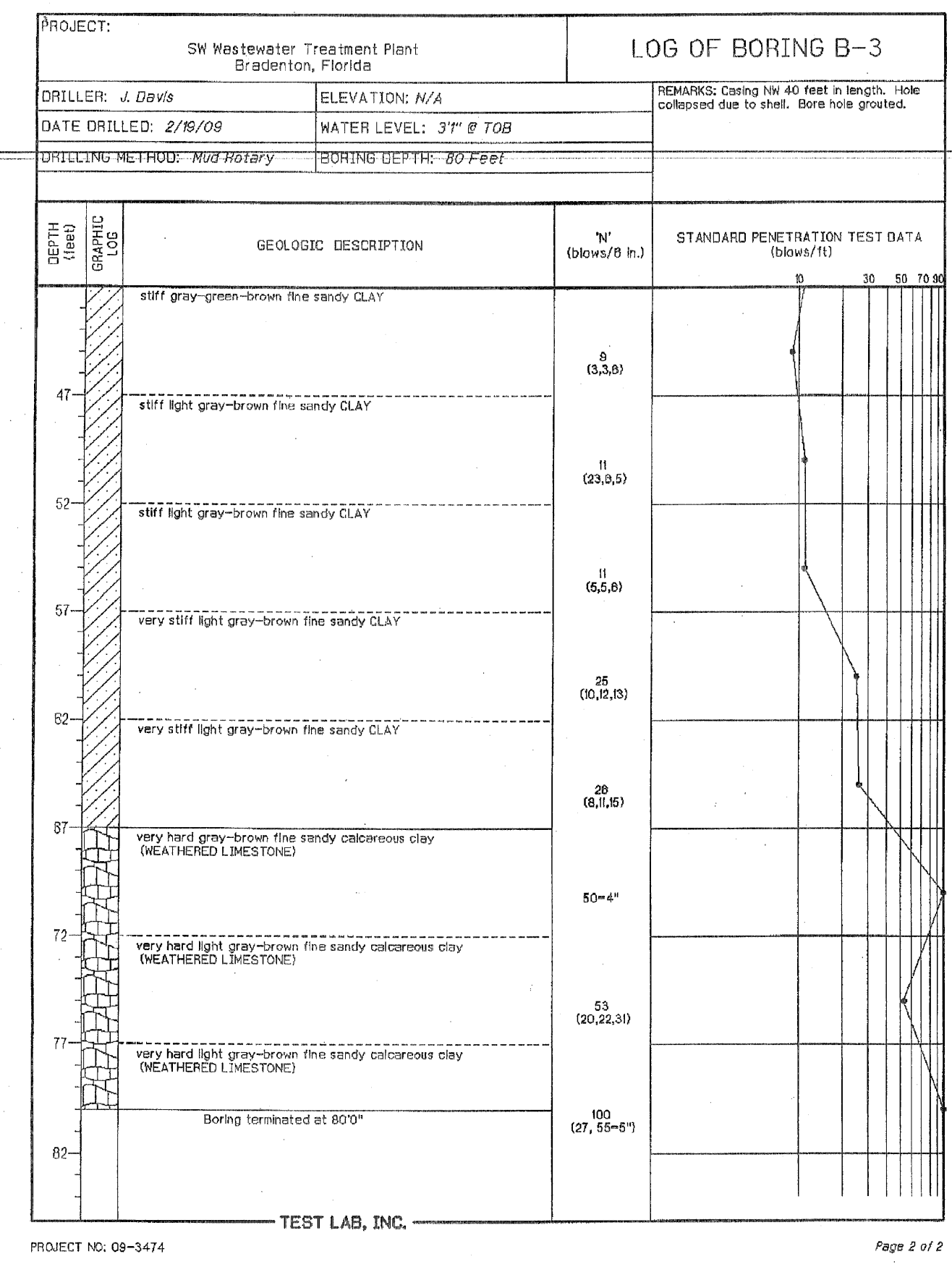
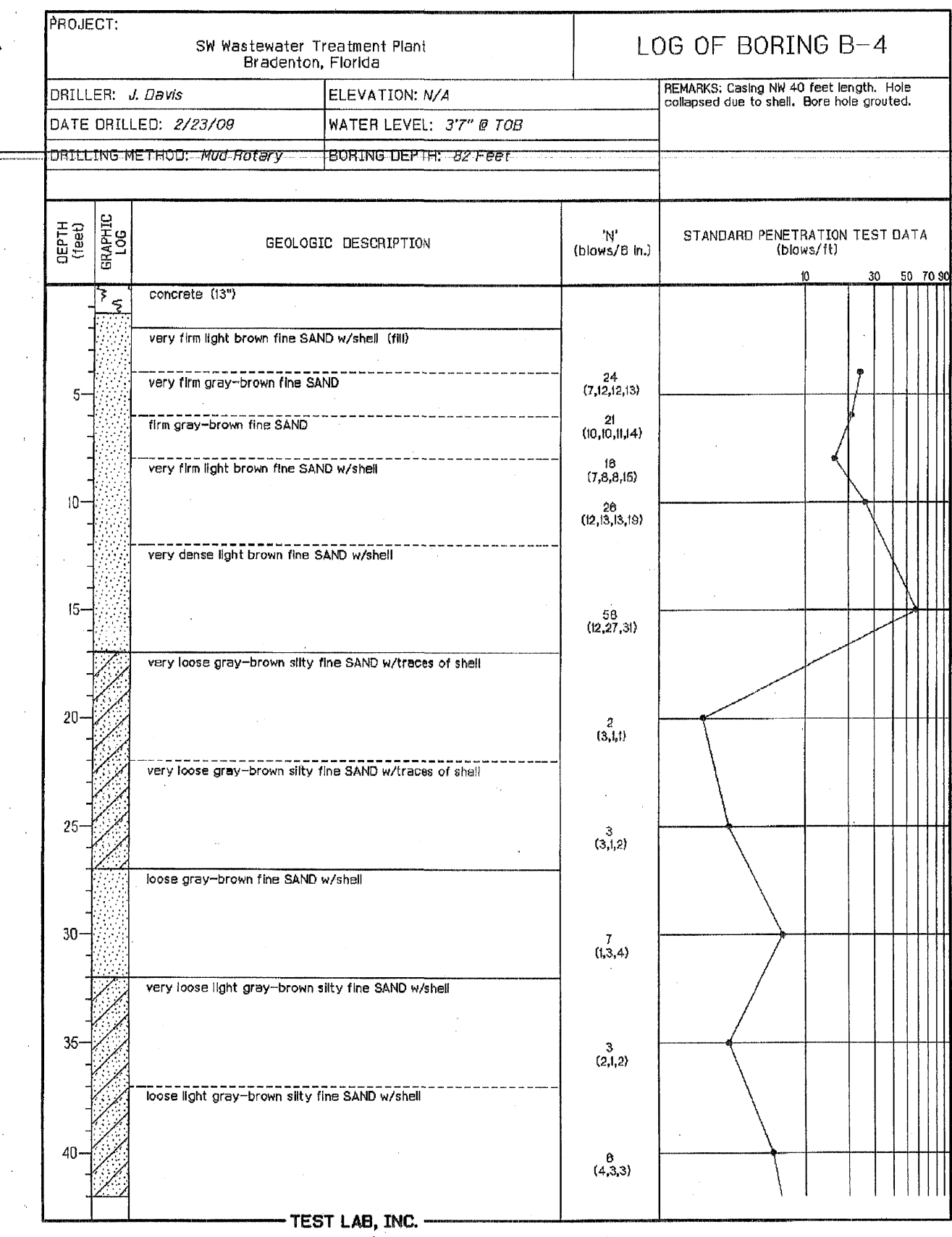
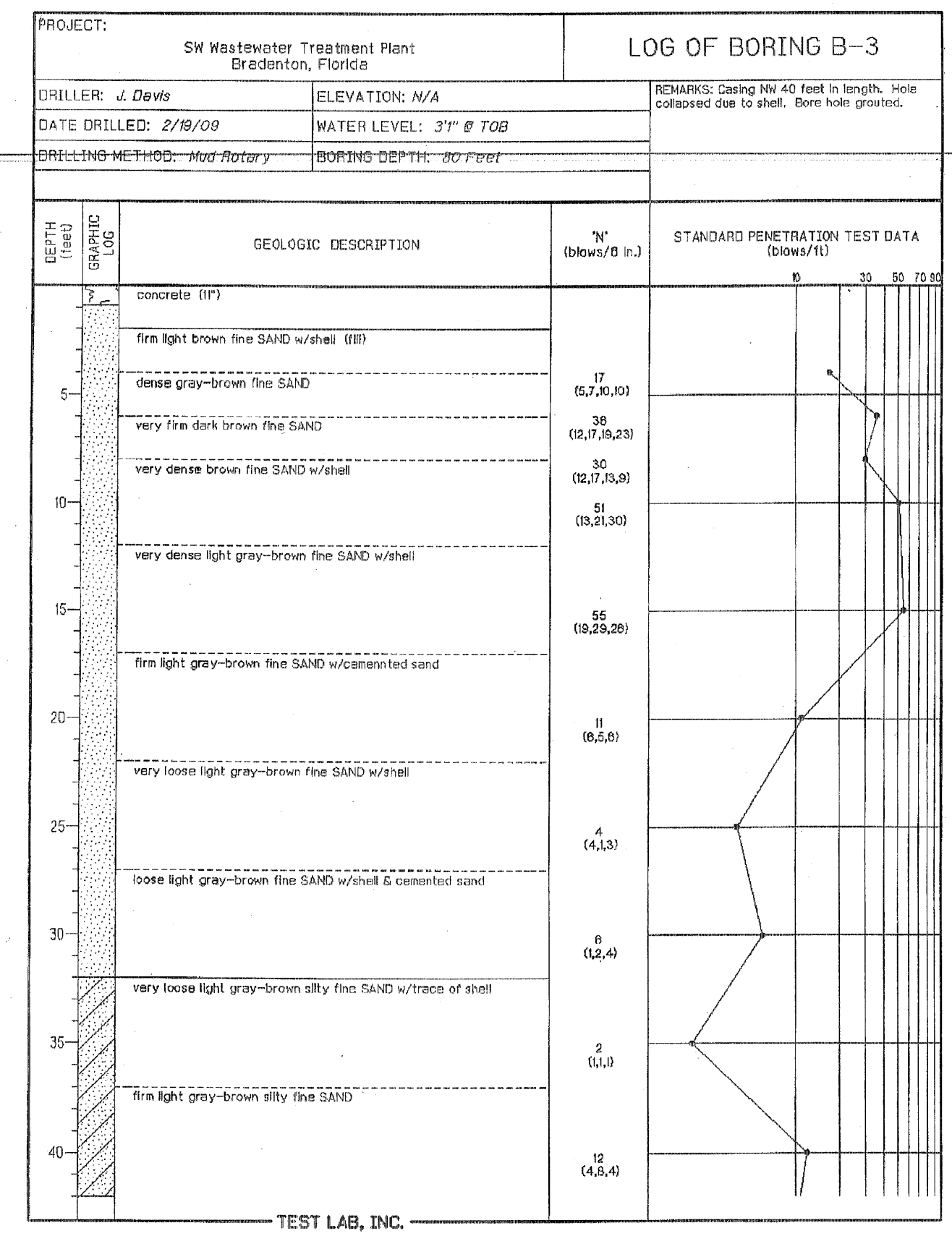
**5TH CLARIFIER AT THE
 SOUTHWEST WATER RECLAMATION FACILITY**
 FOR
 MANATEE COUNTY GOVERNMENT
 MANATEE COUNTY, FLORIDA

SOIL BORING LOGS

PROJECT STATUS
 BID SET
 DECEMBER 2009

C-7

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



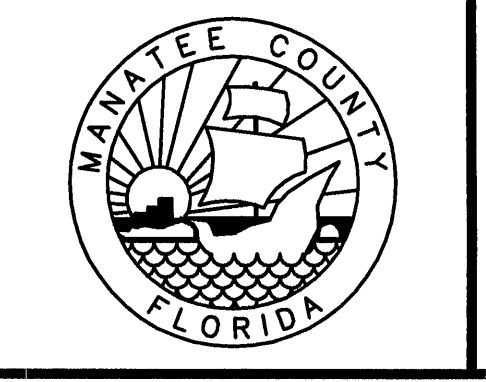
PLOTTED December 3, 2009 1:29 PM PLOTTED BY: SONNENBERG, TERRY
X:\MANATEE PROJECTS\12008492 SWRF 5TH CLARIFIER WA\FACAD\PLANS\C-8 SOIL BORING LOGS.DWG

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

URS JOB NUMBER
12008492
PM: DAVID WILCOX
ENG: REBECCA AVALOS
DRW: TERRY SONNENBERG
FILE SAVE DATE:
September 15, 2009

DAVID A. WILCOX
FLORIDA P.E. NO. 34942



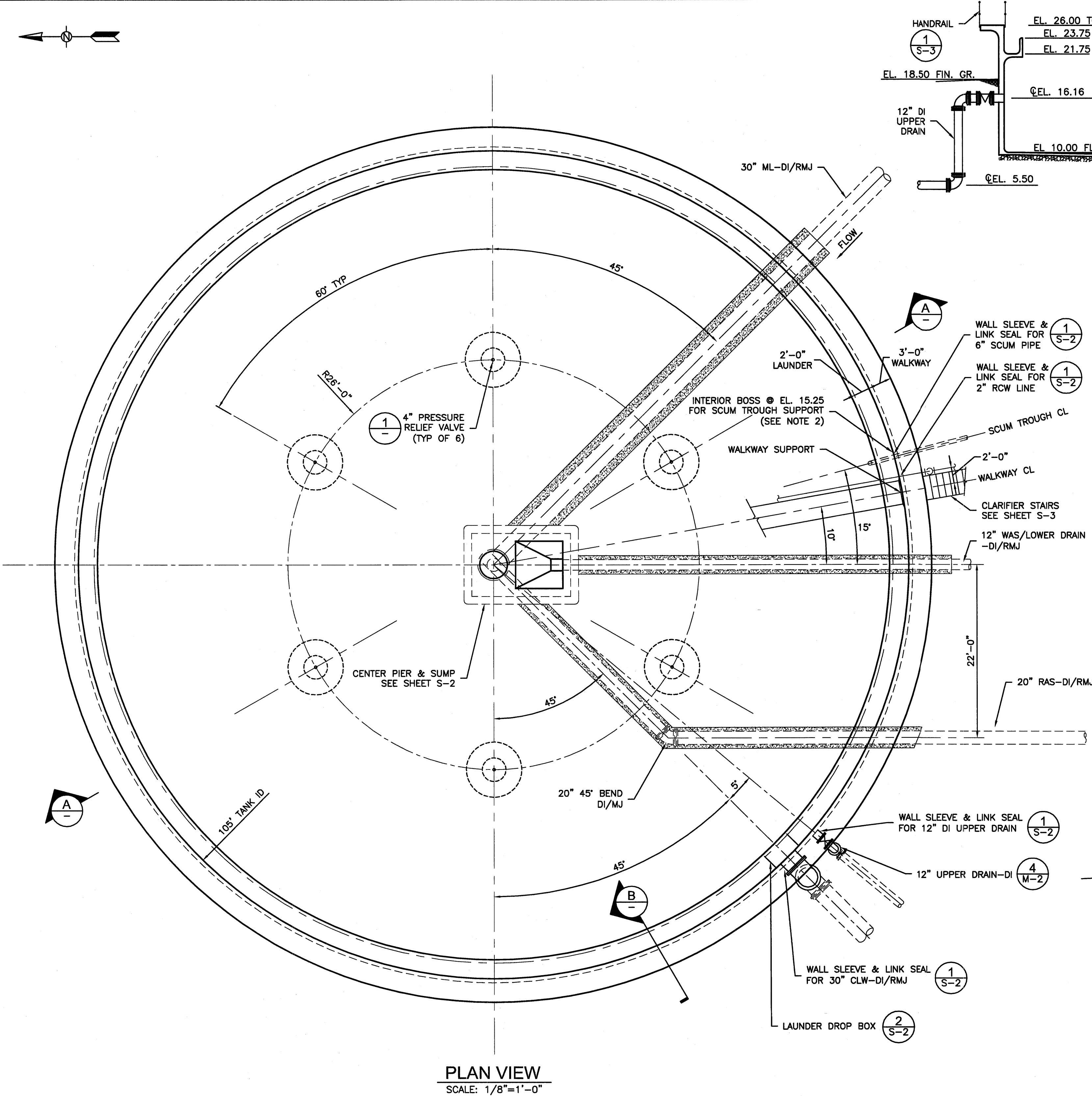
5TH CLARIFIER AT THE
SOUTHWEST WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

PROJECT STATUS
BID SET
DECEMBER 2009

SOIL BORING LOGS

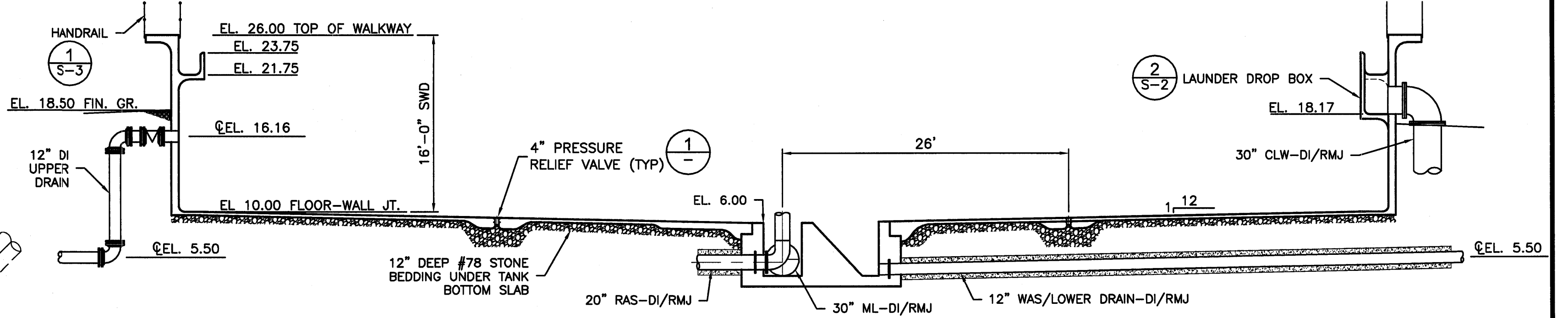
C-8

PLOTTED December 3, 2009 1:25 PM PLOTTED BY: SONNENBERG, TERRY
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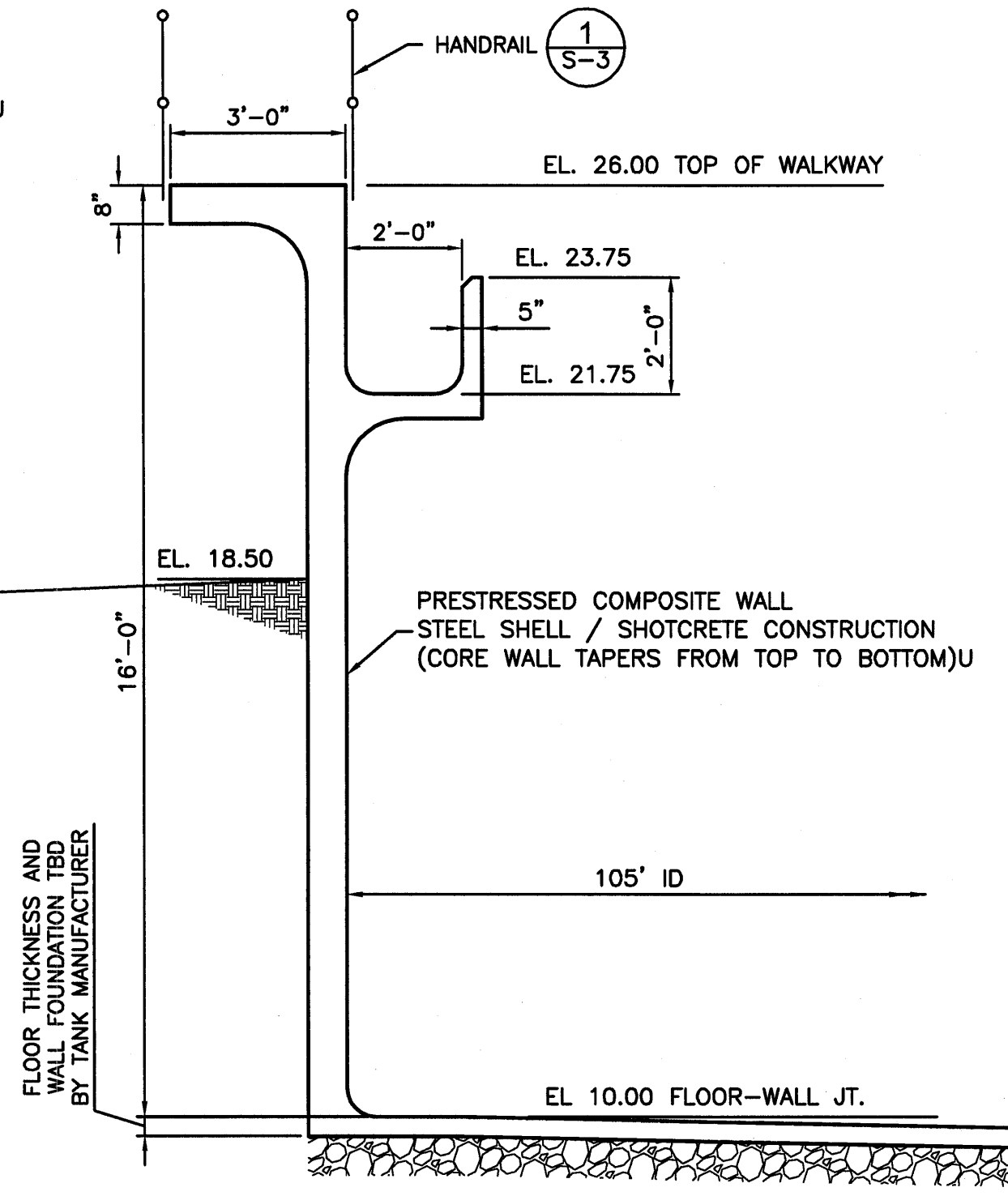


PLAN VIEW
SCALE: 1/8"=1'-0"

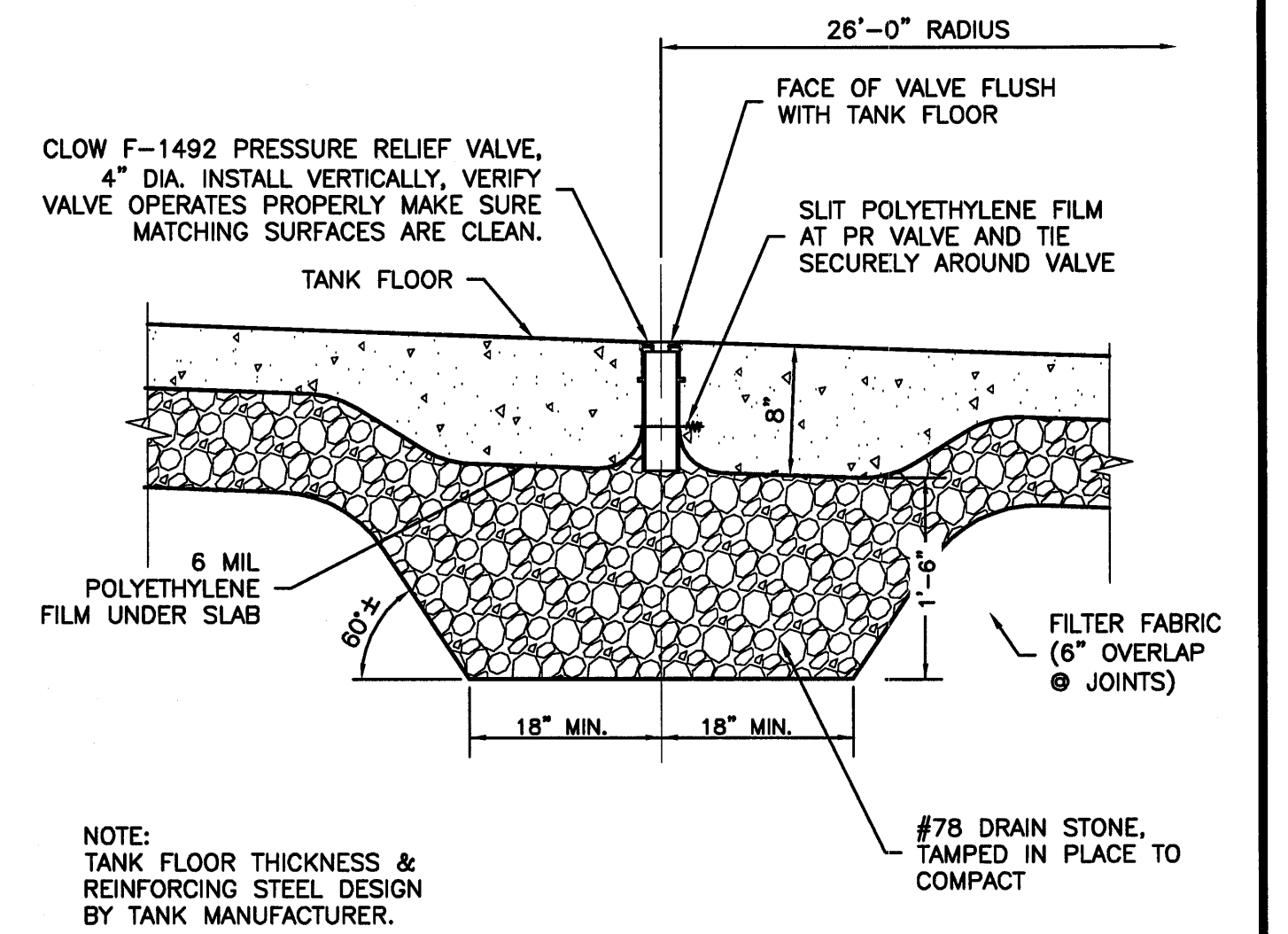
- NOTE:
- TANK TO BE DESIGNED BY TANK MANUFACTURER PER THE SPECIFICATION REQUIREMENT.
 - SCUM TROUGH SUPPORT CONNECTIONS TO TANK SHALL BE COORDINATED BETWEEN CLARIFIER EQUIPMENT & TANK MANUFACTURERS.
 - ALL PIPES UNDER CLARIFIER SHALL HAVE A MINIMUM CONCRETE ENCASEMENT OF 6" FOR PIPES SMALLER THAN 30" AND 12" FOR PIPES 30" & LARGER. PIPE ENCASEMENT SHALL EXTEND 5'-0" BEYOND FOOTER.



ILLUSTRATIVE SECTION A
SCALE: NTS



SECTION B
SCALE: NTS



1 DETAIL
SCALE: NTS

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

NO.	BY	DATE	DESCRIPTION

URS JOB NUMBER 12008492
PM: DAVID WILCOX
ENG: REBECCA AVALOS
DRW: TERRY SONNENBERG
FILE SAVE DATE: October 12, 2009

DAVID A. WILCOX
FLORIDA P.E. NO. 34942



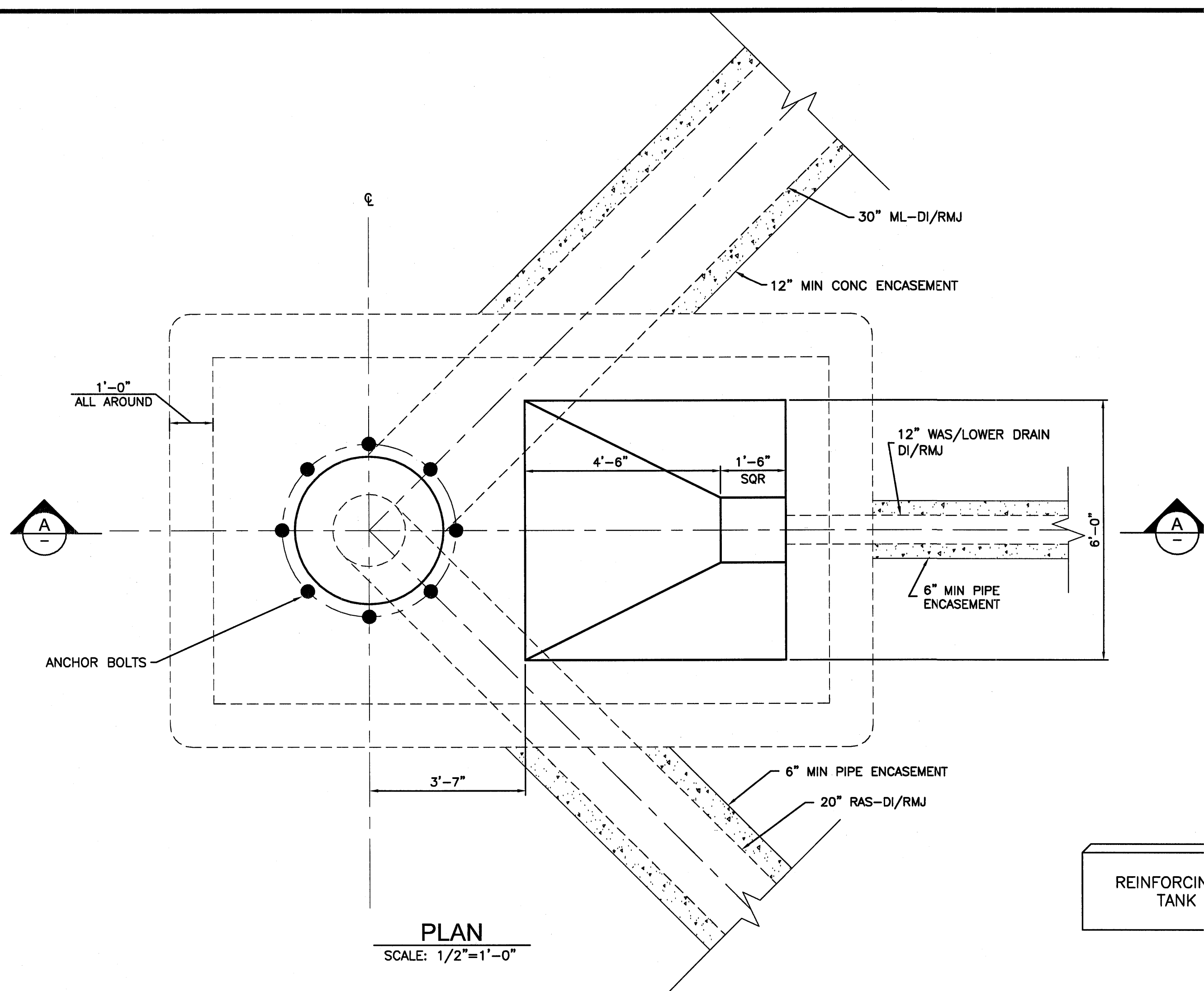
**5TH CLARIFIER AT THE
SOUTHWEST WATER RECLAMATION FACILITY**
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

CLARIFIER PLAN AND SECTIONS

PROJECT STATUS
BID SET
DECEMBER 2009
S-1

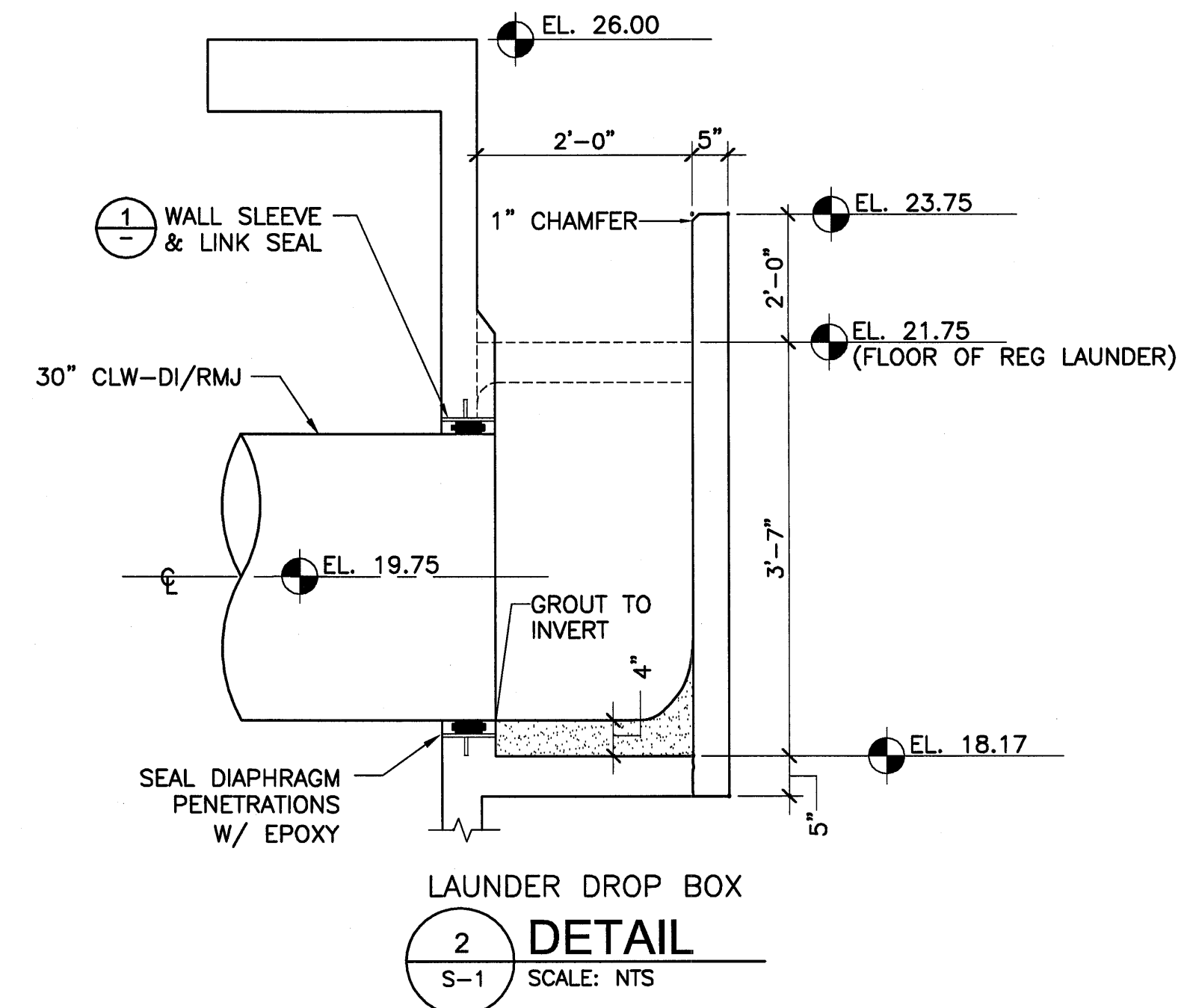
VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

PLOTTED December 3, 2009 1:29 PM PLOTTED BY: SONNENBERG, TERRY
X:\MANATEE PROJECTS\12008492 SWRF 5TH CLARIFIER MANATEE\PLANS-2 CLARIFIER DETAILS.DWG

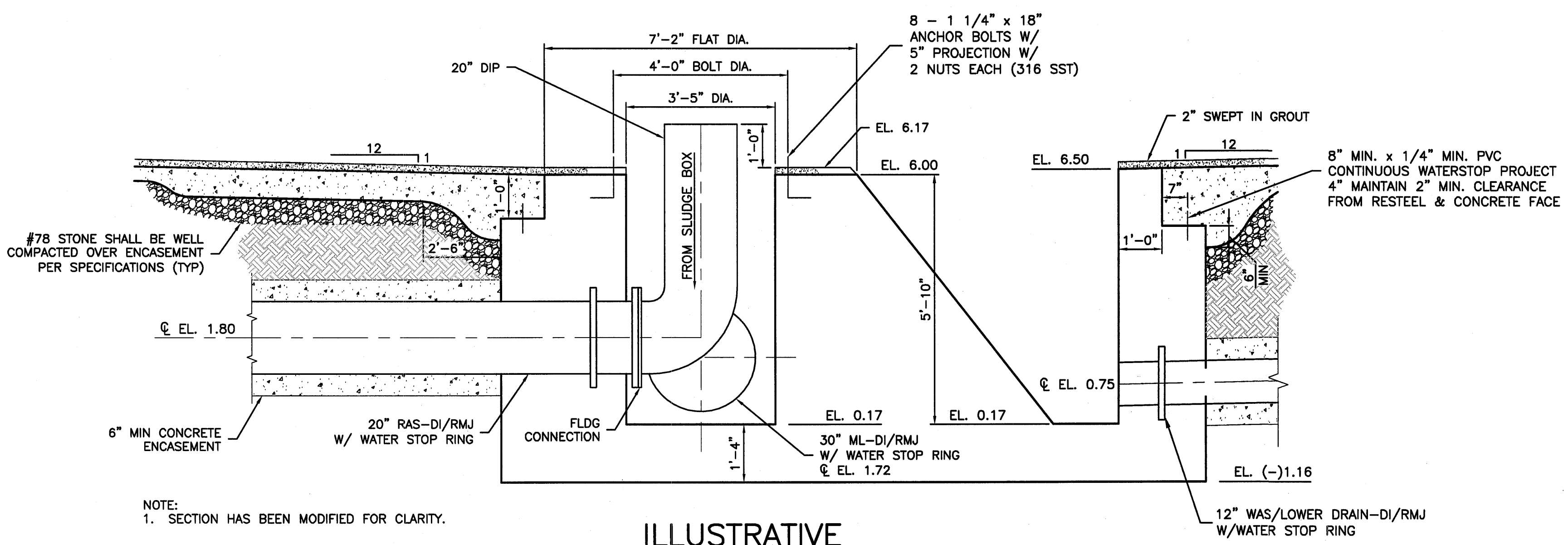


PLAN
SCALE: 1/2"=1'-0"

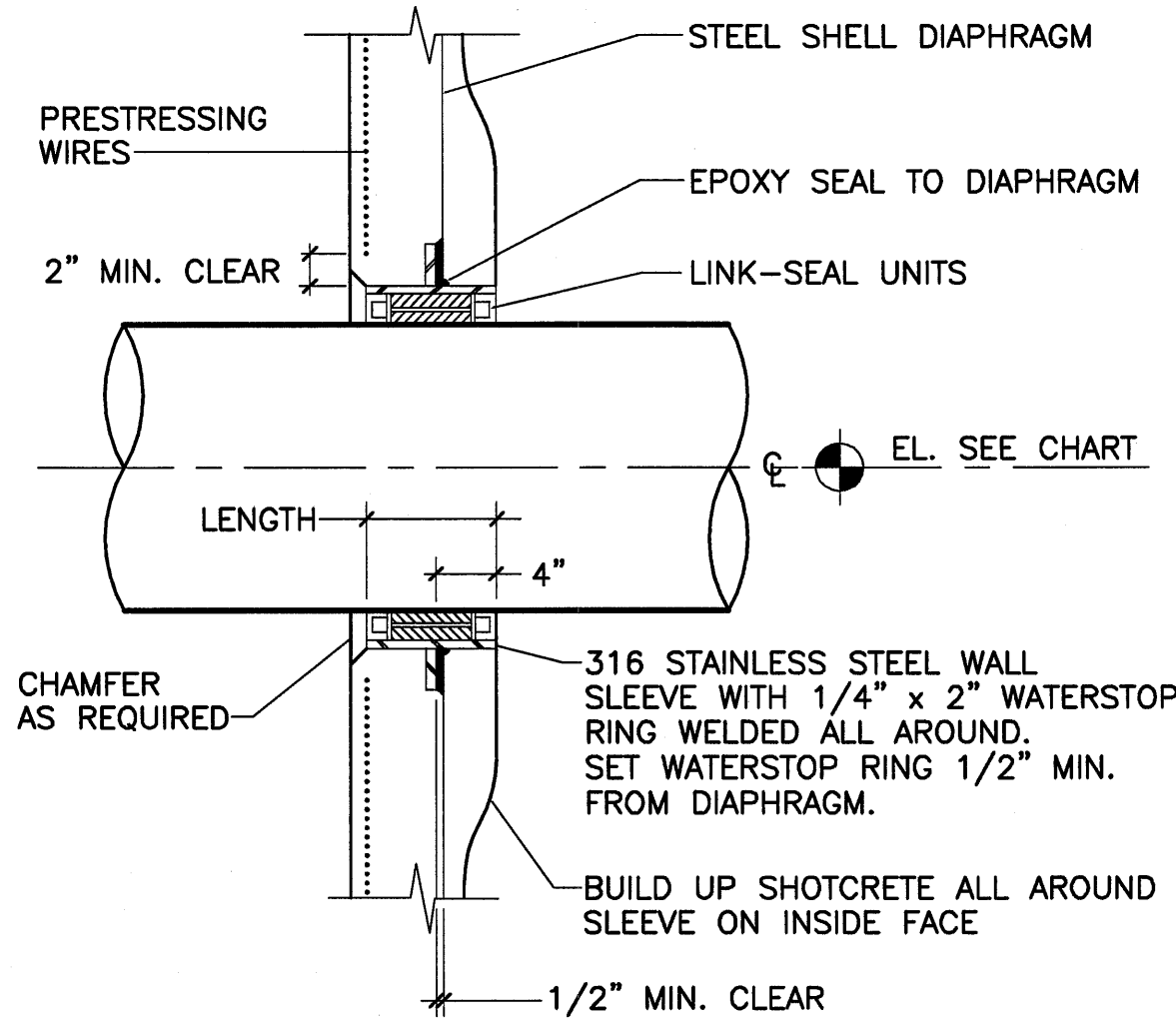
REINFORCING STEEL DESIGN BY
TANK MANUFACTURER.



2 **DETAIL**
S-1 SCALE: NTS



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



PIPE DESCRIPTION	OD	CL EL.	LINK-SEAL/#	SLEEVE:		
				ID	WALL	LENGTH
30" DIP EFFLUENT (CLW)	32.00"	19.75	LS-400-S/29	35.25"	0.375"	8"
12" DIP UPPER DRAIN LINE	13.20"	16.16	LS-425-S/18	15.25"	0.375"	8"
6" DIP SCUM LINE	6.90"	20.08	LS-475-S/10	10.02"	0.1875"	8"
2" PVC RCW LINE	2.375"	24.50	LS-200-S/8	3.55"	0.1875"	8"

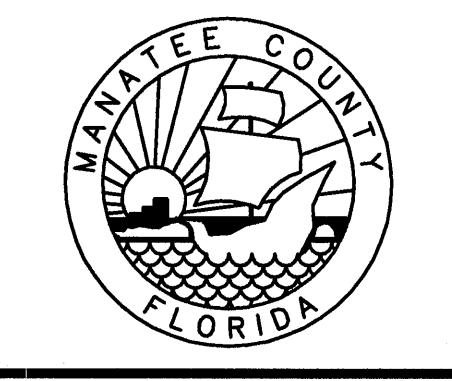
TYPICAL WALL SLEEVES & LINK SEALS
1 **DETAIL**
SCALE: NTS

URS
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
12008492
PM: DAVID WILCOX
ENG: REBECCA AVALOS
DRW: TERRY SONNENBERG
FILE SAVE DATE:
October 12, 2009

DAVID A. WILCOX
FLORIDA P.E. NO. 34942



5TH CLARIFIER AT THE
SOUTHWEST WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

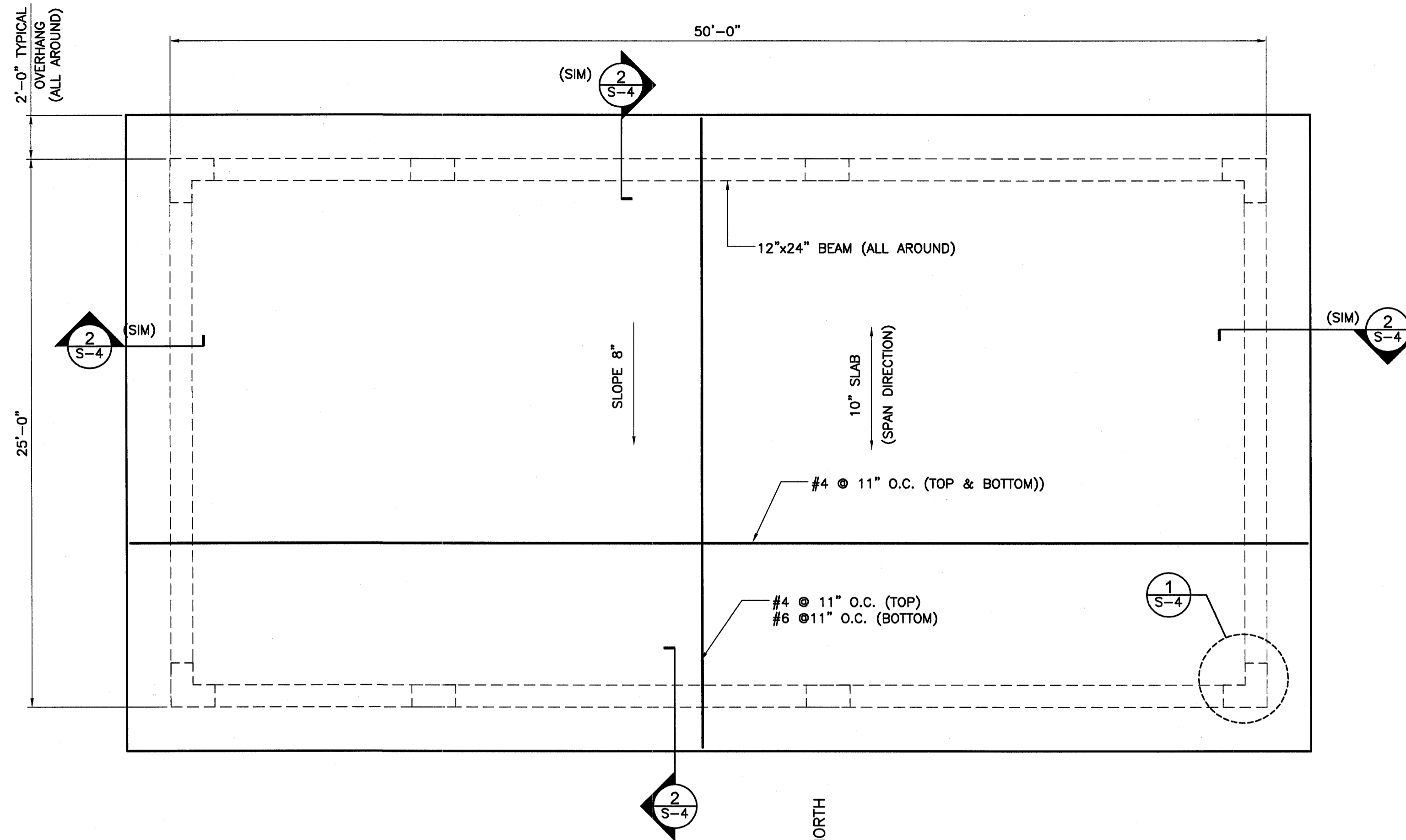
CLARIFIER DETAILS

PROJECT STATUS
BID SET
DECEMBER 2009
S-2

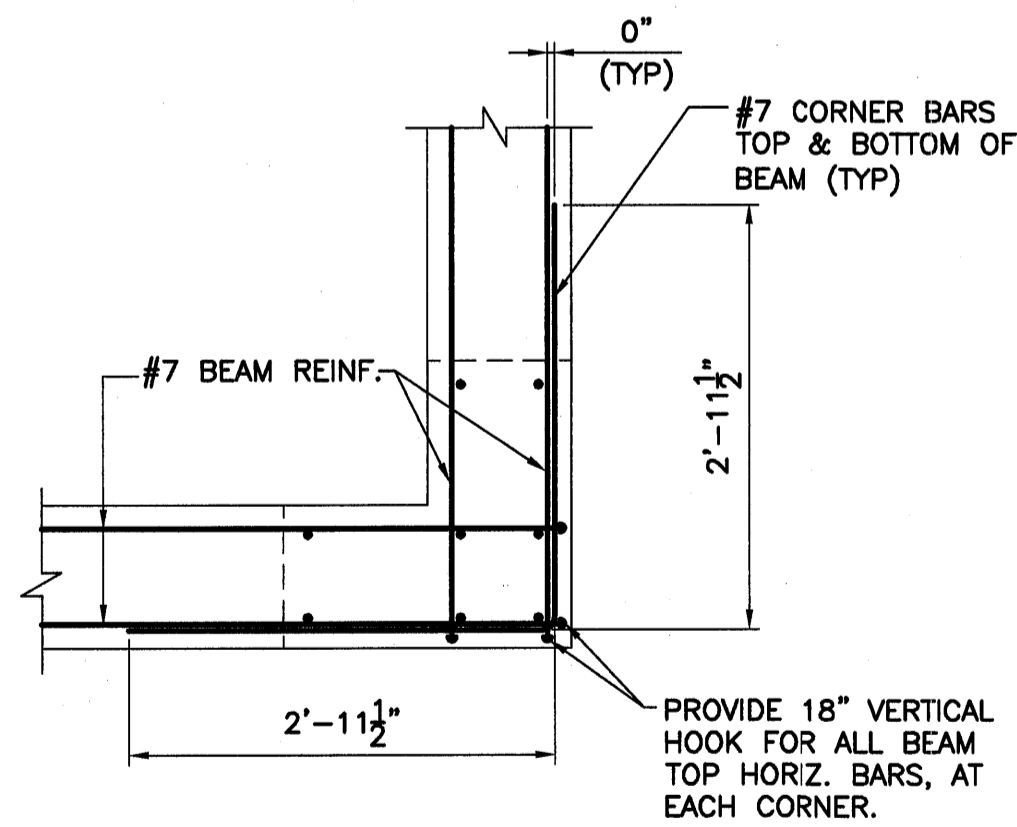
STRUCTURAL GENERAL NOTES:

- A. BUILDING CODES:**
1. FLORIDA BUILDING CODE 2007 EDITION.
 2. ACI 318-05 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
- B. DESIGN CRITERIA:**
1. WIND LOADS AS PER ASCE 7-05 FOR A BASIC WIND SPEED OF 130 MPH;
WIND IMPORTANCE FACTOR: 1.15
BUILDING CATEGORY: IV
EXPOSURE "C"
 2. ALLOWABLE SOIL PRESSURE - 2000 PSF (NET)
 3. ROOF LIVE LOAD - 20 PSF
- C. CONSTRUCTION MATERIALS:**
1. CAST-IN-PLACE CONCRETE COMPRESSIVE STRENGTH: 4000 PSI AT 28 DAYS
 2. REINFORCING STEEL - ASTM A 615, GRADE 60 UNCOATED
- D. FOUNDATIONS / SITEWORK:**
1. ALL EARTHWORK AND COMPACTION FOR STRUCTURES SHALL BE AS NOTED IN THE SPECIFICATIONS.
- E. GENERAL NOTES:**
1. CONTRACTOR SHALL VERIFY AND CORRELATE ALL DIMENSIONS BEFORE PROCEEDING WITH FABRICATION AND CONSTRUCTION.
 2. ALL REINFORCEMENT TO BE DETAILED AND FABRICATED IN ACCORDANCE WITH ACI 315-94. ALL CONSTRUCTION JOINTS, WITH REINFORCING PASSING THROUGH THE JOINT, SHALL BE ROUGHENED TO A FULL AMPLITUDE OF APPROXIMATELY 1/4" INCH, UNLESS NOTED OTHERWISE.
- F. COORDINATION:**
1. THE STRUCTURAL SHEETS SHALL BE COORDINATED WITH THE MECHANICAL AND CIVIL SHEETS. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER BEFORE PROCEEDING WITH THE WORK.
- G. SUBMITTAL:**
1. SUBMIT FOR OWNER REVIEW SHOP DRAWINGS FOR THE FOLLOWING ITEMS:
REINFORCING STEEL
HANDRAIL/KICK PLATE/GRATING
 2. SUBMIT TWO COPIES OF MANUFACTURER'S LITERATURE FOR ALL MATERIALS AND PRODUCTS USED IN CONSTRUCTION OF THE PROJECT.

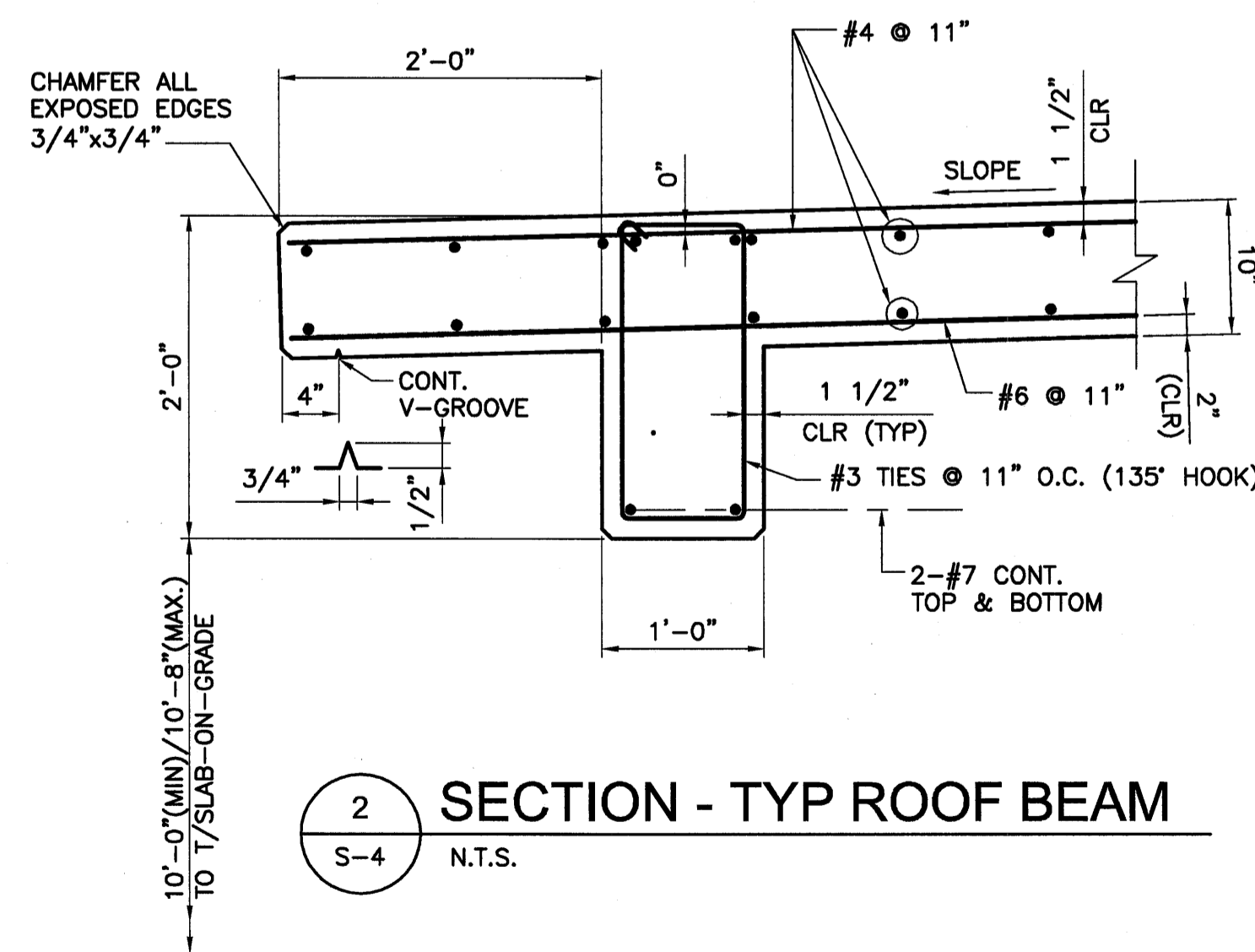
CONTRACTOR SHALL EXPECT TO PERFORM / MAINTAIN DEWATERING TO ALLOW CONSTRUCTION / CURING OF THE WORK IN THE DRY.



ROOF SLAB PLAN
N.T.S.



1 TYP CORNER BAR REINFORCING DETAIL
N.T.S.



2 SECTION - TYP ROOF BEAM
N.T.S.

PLOTTED December 3, 2009 1:30 PM PLOTTED BY: SONNENBERG, TERRY
 X:\MANATEE PROJECTS\12008492 SWRF 5TH CLARIFIER WAFS\LOAD\PLANS\S-4 STRUCTURAL GENERAL NOTES, ROOF PLAN, SECTION AND DETAIL.DWG
 VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING 0 1 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY

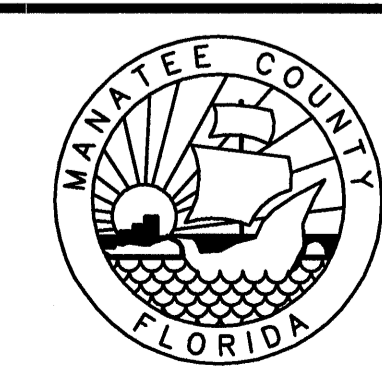


7650 West Courtney Campbell Causeway
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Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION
REVISIONS			

URS JOB NUMBER
12008492
PM: DAVID WILCOX
ENG: WILLIAM N. HAUSHEER
DRW: EMIL J. CHAVERIAT
FILE SAVE DATE:
September 21, 2009

W. Hausheer 12/1/09
WILLIAM NICHOLAS HAUSHEER
FLORIDA P.E. NO. 31715

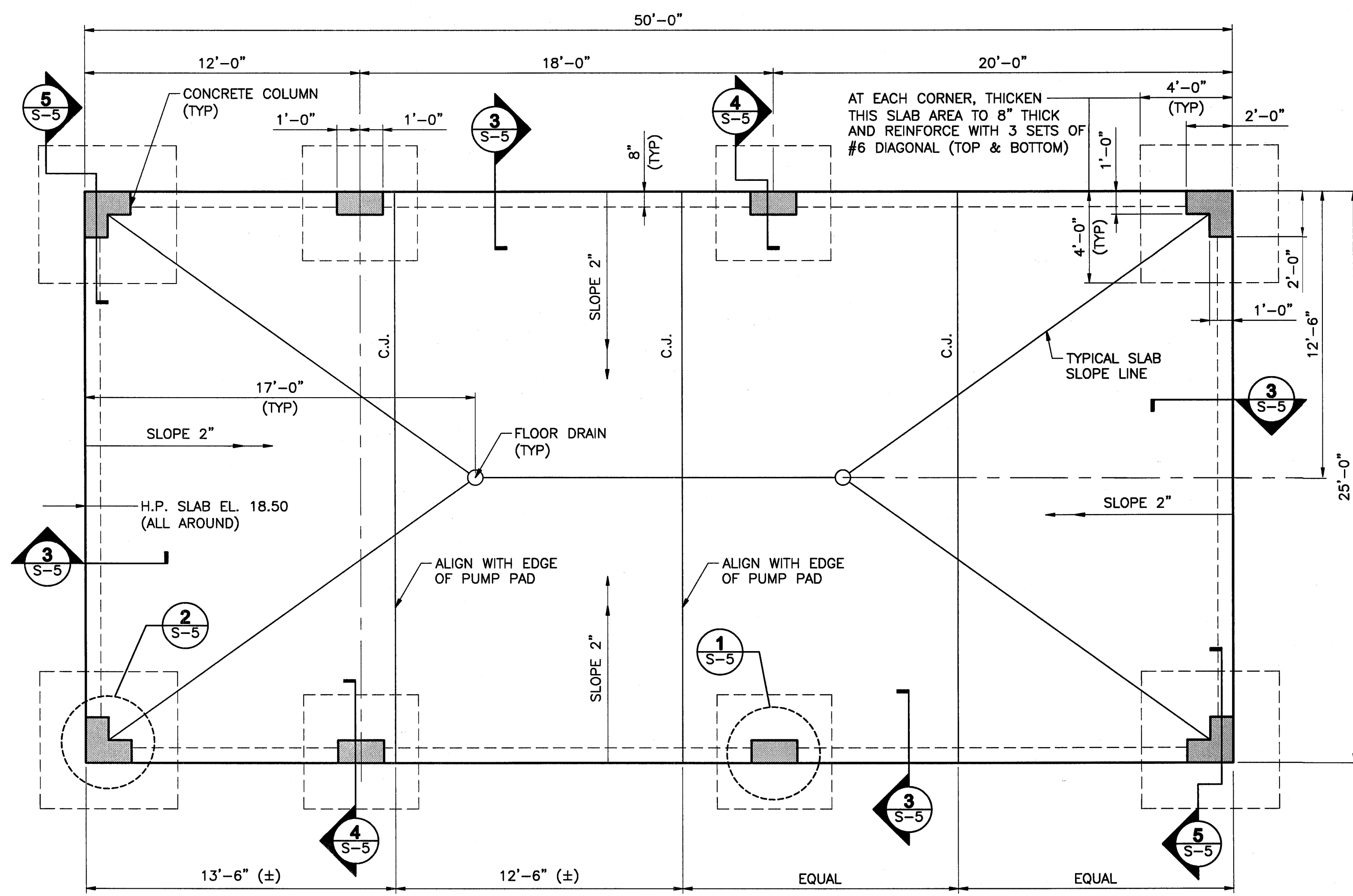


5TH CLARIFIER AT THE
SOUTHWEST WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

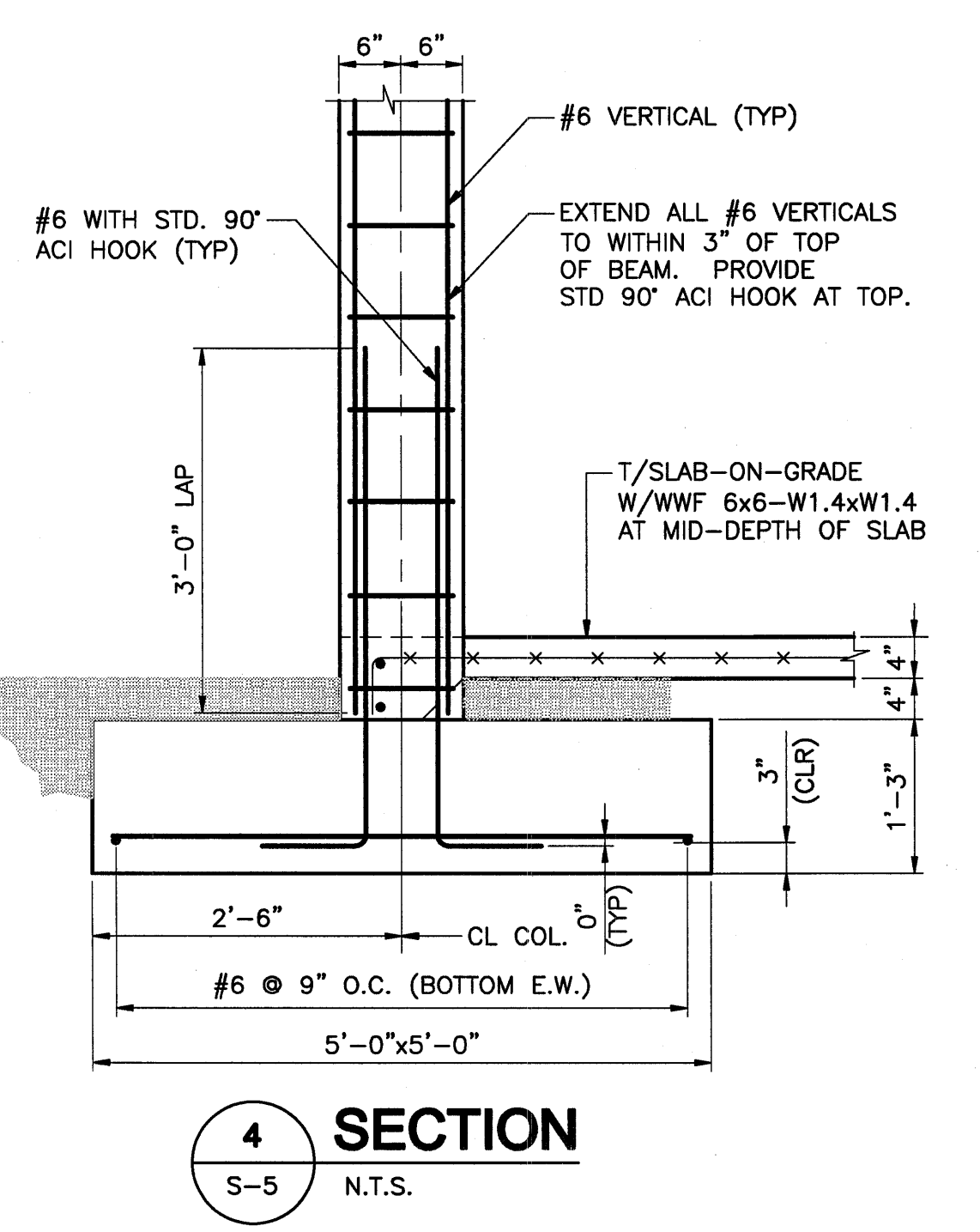
STRUCTURAL GENERAL NOTES,
ROOF PLAN, SECTION AND DETAIL

PROJECT STATUS
BID SET
DECEMBER 2009
S-4

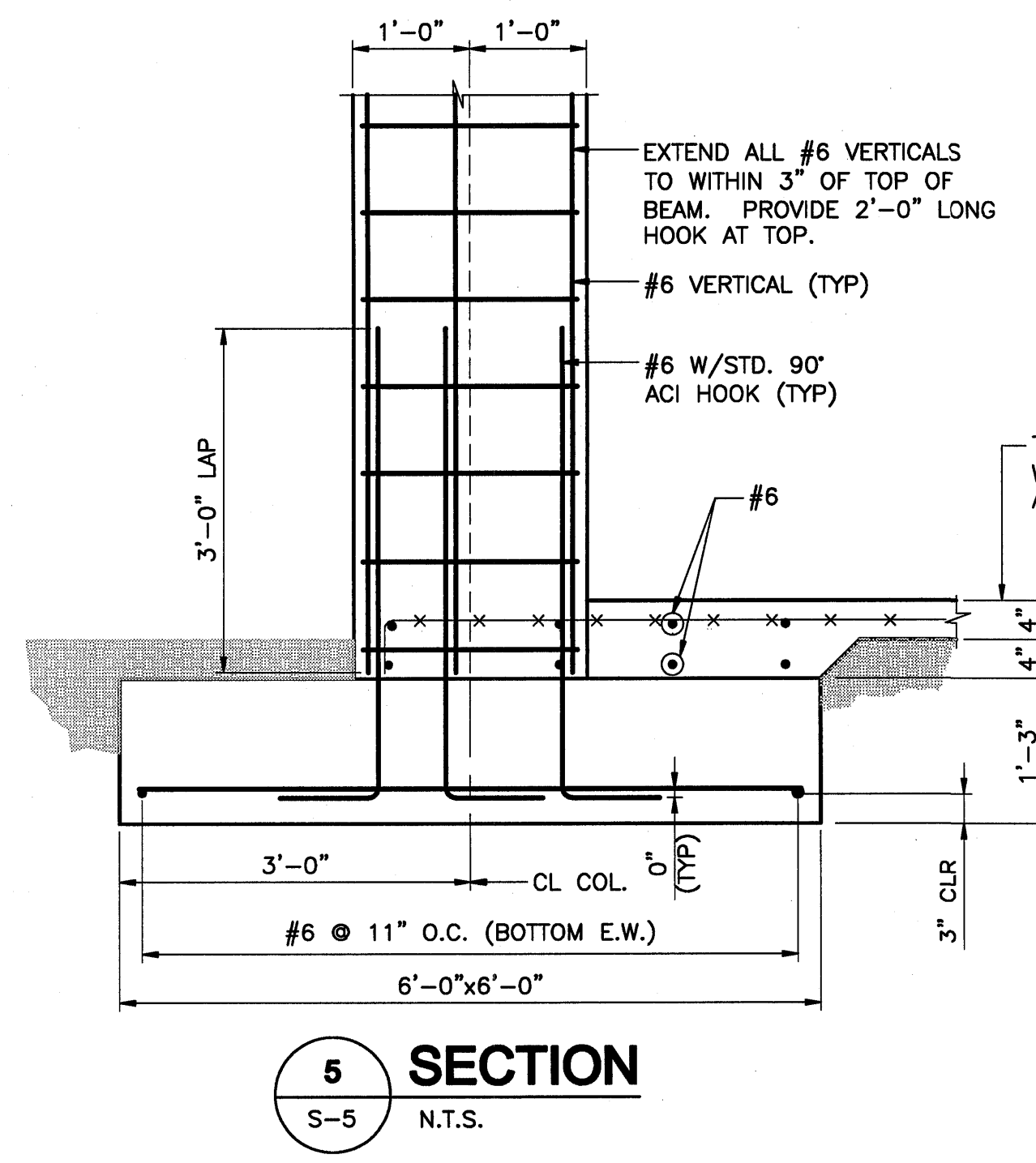
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 VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING 0 1 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY



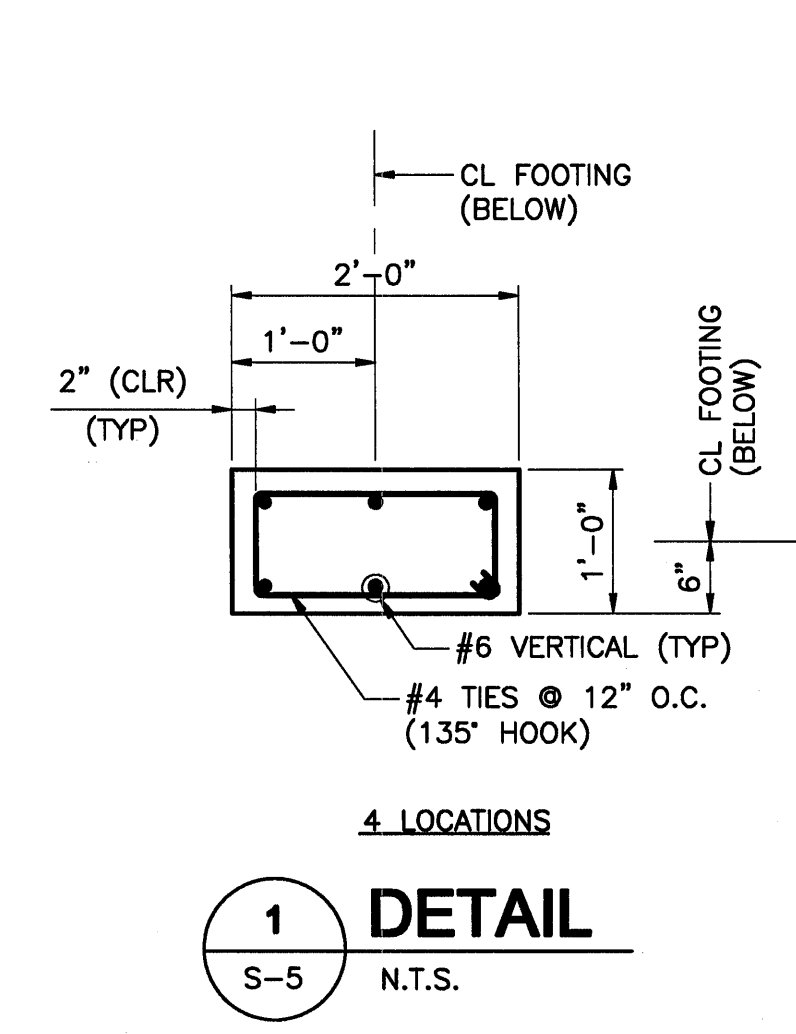
SLAB - ON - GRADE / FOUNDATION PLAN
N.T.S.



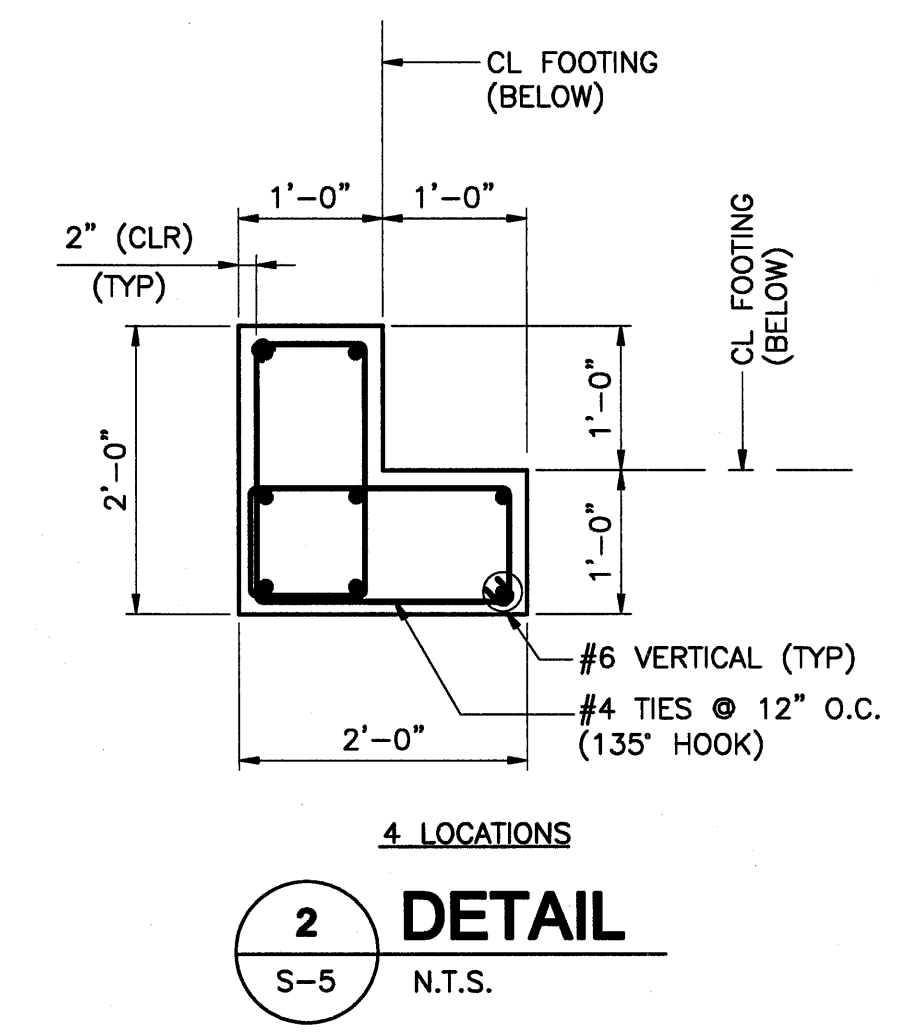
4 SECTION
S-5 N.T.S.



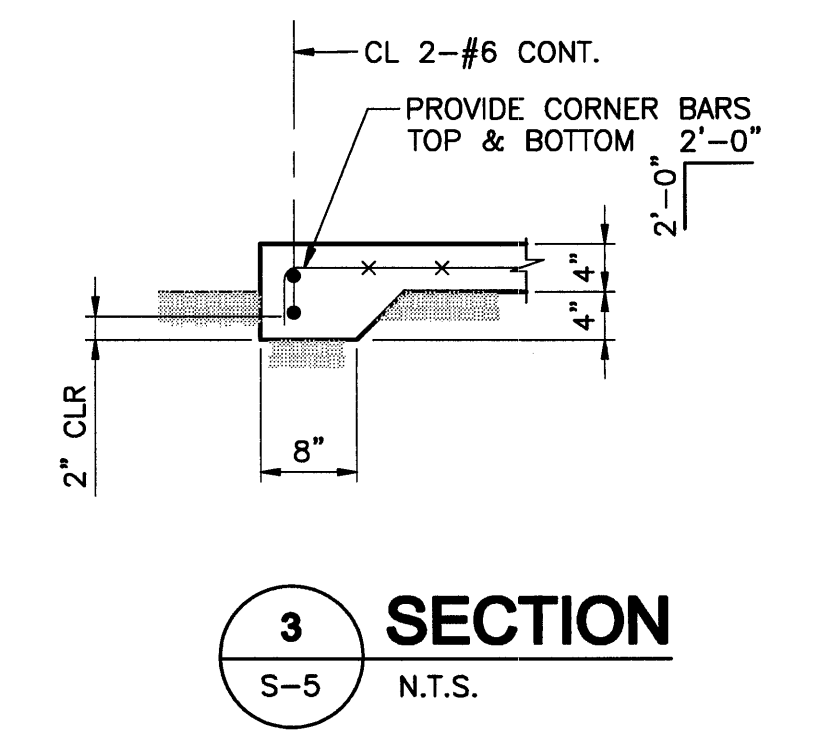
5 SECTION
S-5 N.T.S.



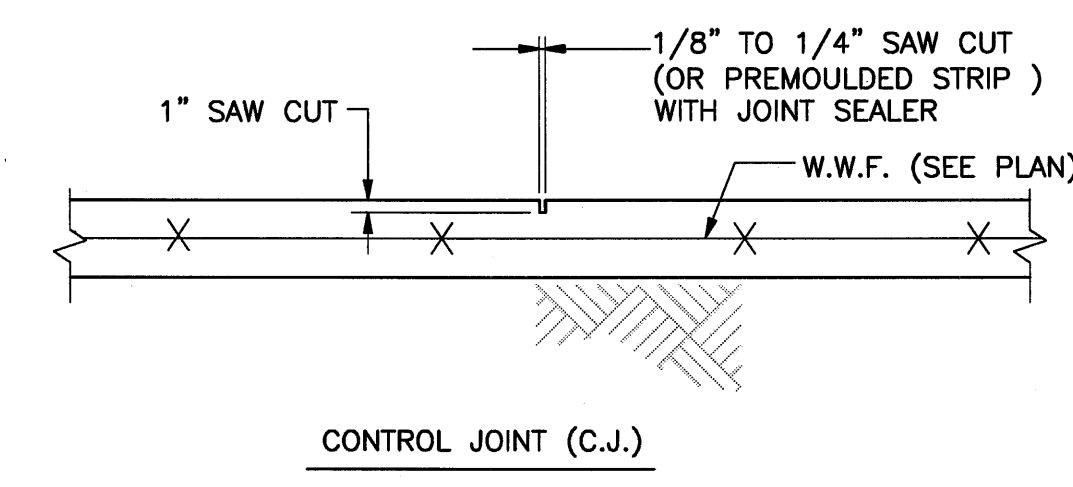
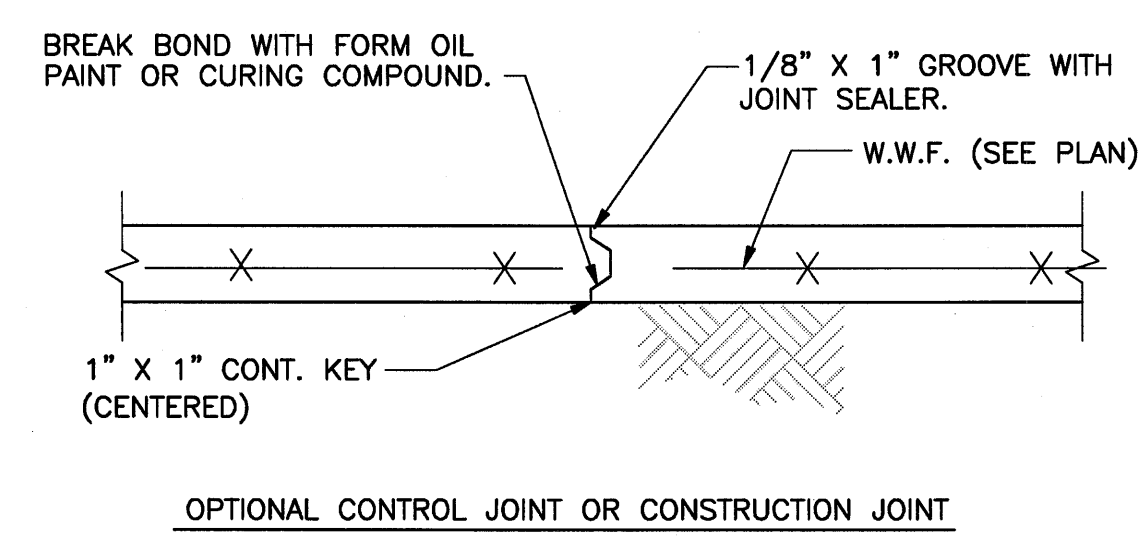
1 DETAIL
S-5 N.T.S.



2 DETAIL
S-5 N.T.S.



3 SECTION
S-5 N.T.S.



- SAW CONTROL JOINT NOTES:**
1. MAKE SAW CUT AS SOON AS SLAB IS ABLE TO SUPPORT WEIGHT OF WORKERS AND SAWING EQUIPMENT WITHOUT DAMAGE TO FINISH SURFACE OF SLAB. BEGIN SAW CUTTING OF SLAB WITHIN 8 HOURS OF SLAB BEING FINISHED.
 2. CLEAN JOINT PRIOR TO FILLING, WITH JOINT SEALER

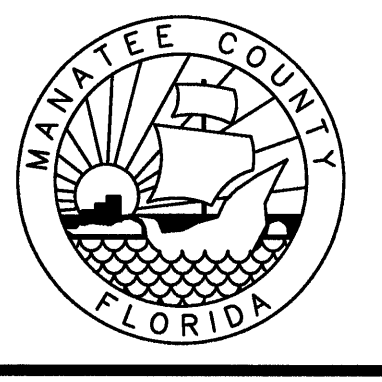
TYPICAL SLAB JOINTS
N.T.S.

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

NO.	BY	DATE	DESCRIPTION

URS JOB NUMBER 12008492
PM: DAVID WILCOX
ENG: WILLIAM N. HAUSHEER
DRW: EMIL J. CHAVERIAT
FILE SAVE DATE: October 22, 2009

W. Hausheer 10/21/09
WILLIAM NICHOLAS HAUSHEER
FLORIDA P.E. NO. 31715

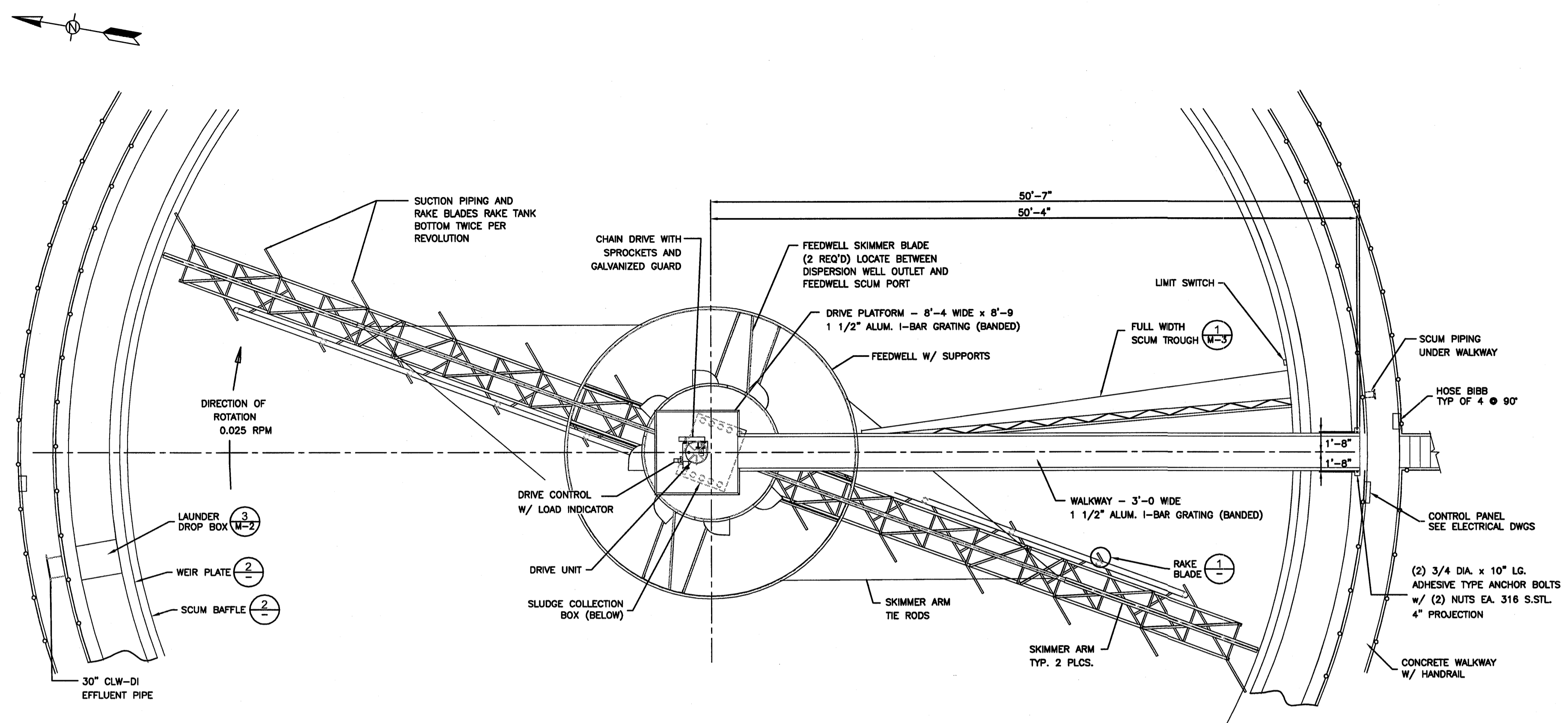


5TH CLARIFIER AT THE
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FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

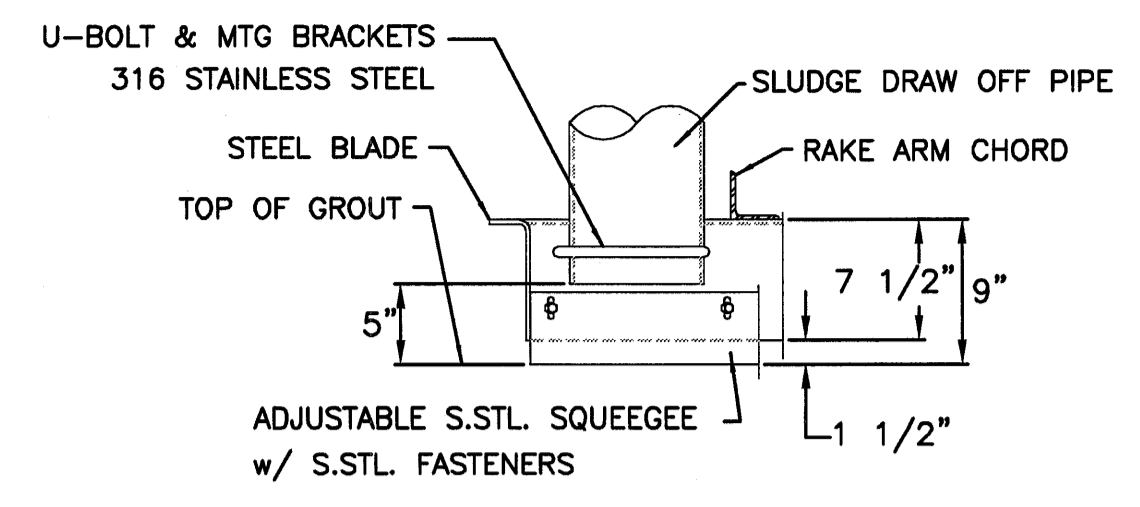
RAS/WAS BUILDING
SLAB-FOUNDATION PLAN,
SECTIONS AND DETAILS

PROJECT STATUS
BID SET
DECEMBER 2009
S-5

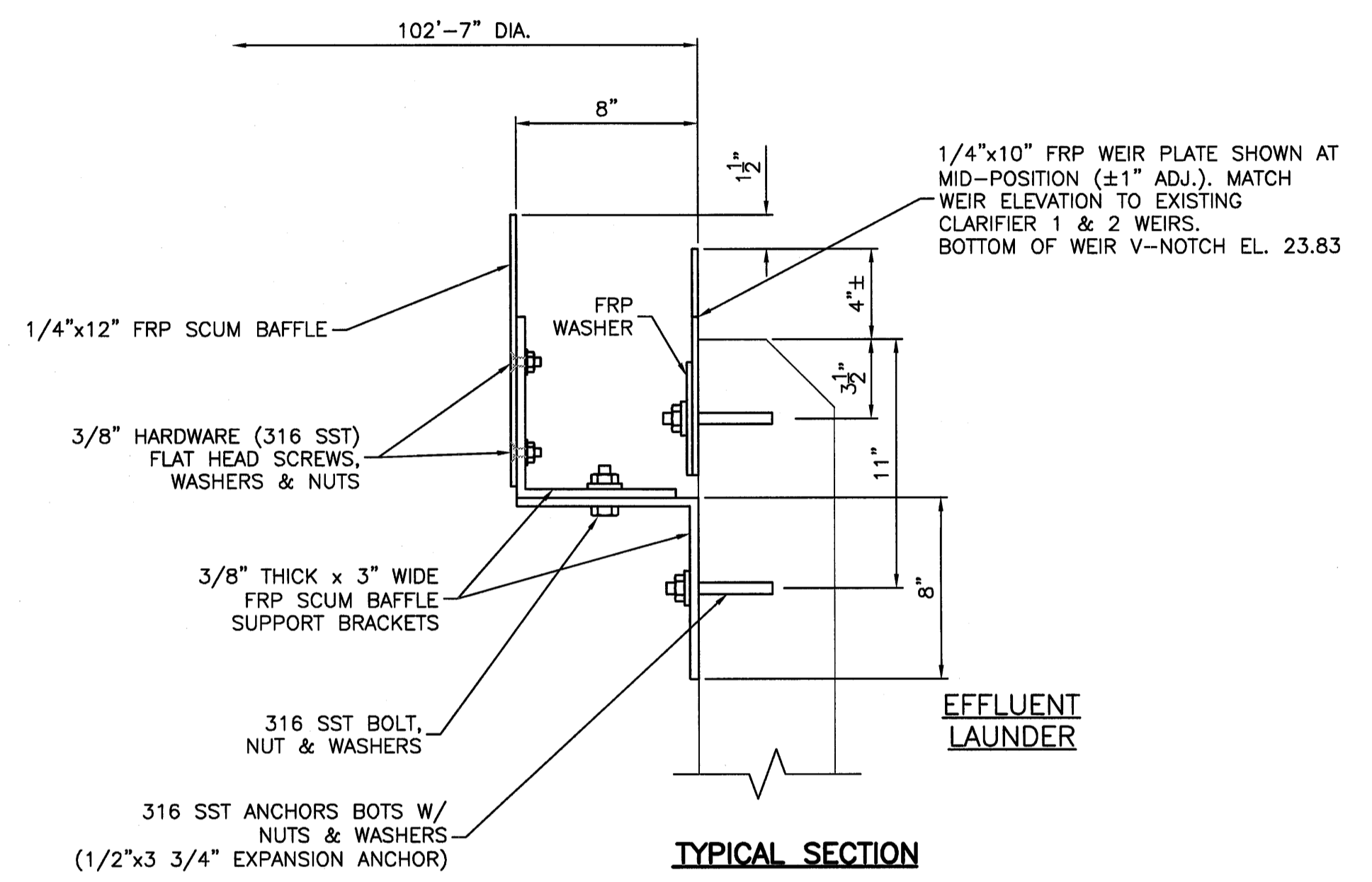
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 VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING. 0 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.



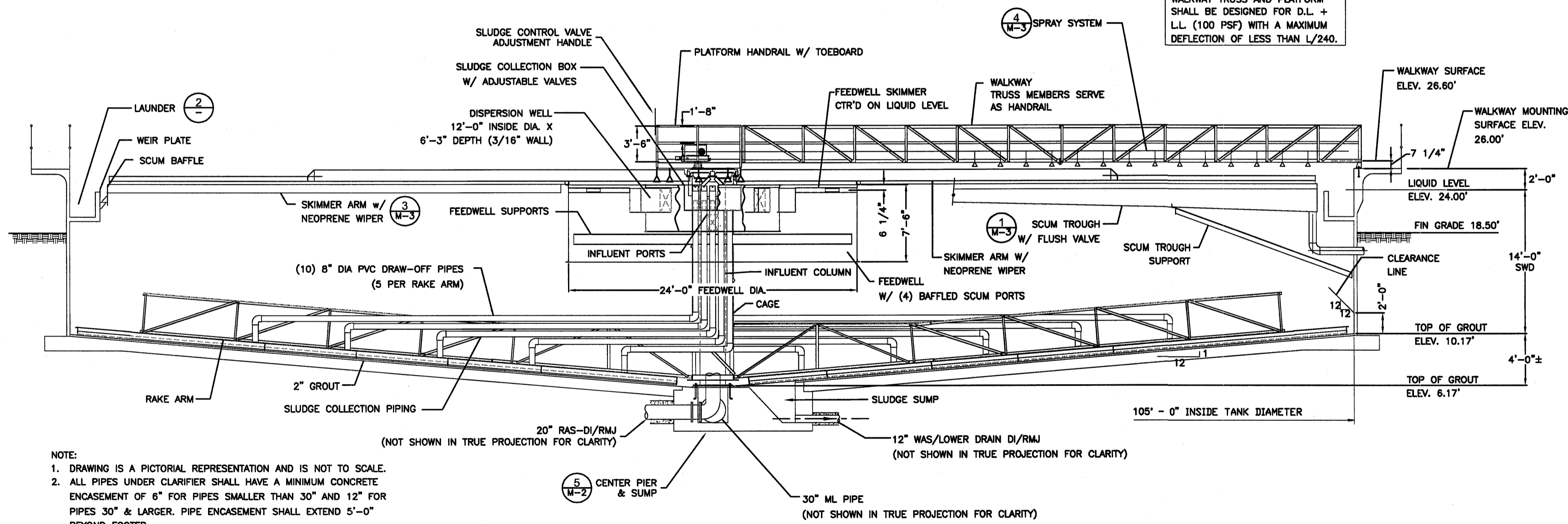
PLAN VIEW
SCALE: NTS



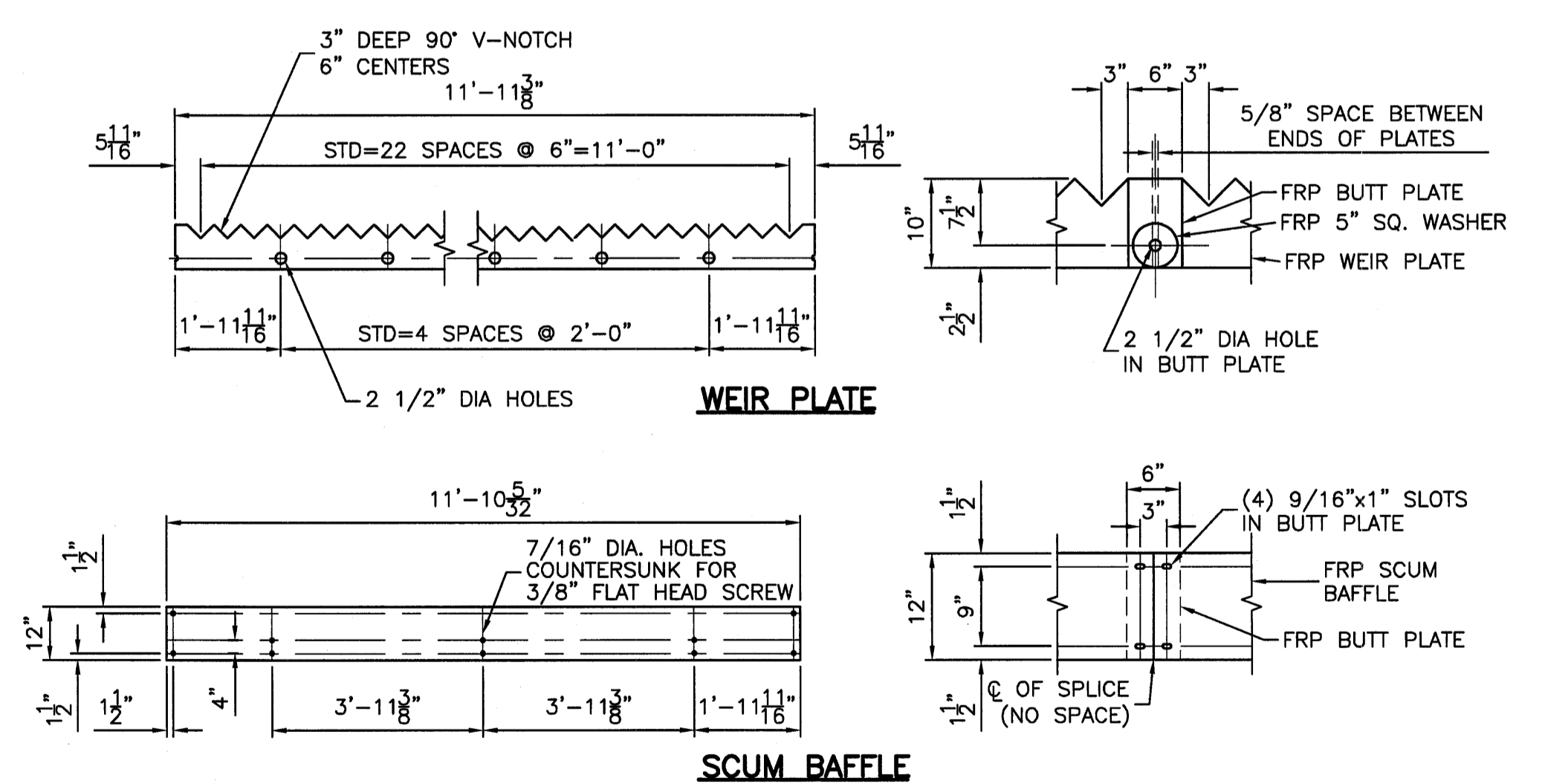
RAKE BLADE DETAIL
SCALE: NTS



TYPICAL SECTION



ILLUSTRATIVE ELEVATION
SCALE: NTS



WEIR PLATE

SCUM BAFFLE

LAUNDRER, WEIR & BAFFLE DETAIL
SCALE: NTS

NOTE:
 1. DRAWING IS A PICTORIAL REPRESENTATION AND IS NOT TO SCALE.
 2. ALL PIPES UNDER CLARIFIER SHALL HAVE A MINIMUM CONCRETE ENCASEMENT OF 6" FOR PIPES SMALLER THAN 30" AND 12" FOR PIPES 30" & LARGER. PIPE ENCASEMENT SHALL EXTEND 5'-0" BEYOND FOOTER.

WALKWAY TRUSS AND PLATFORM SHALL BE DESIGNED FOR D.L. + L.L. (100 PSF) WITH A MAXIMUM DEFLECTION OF LESS THAN L/240.

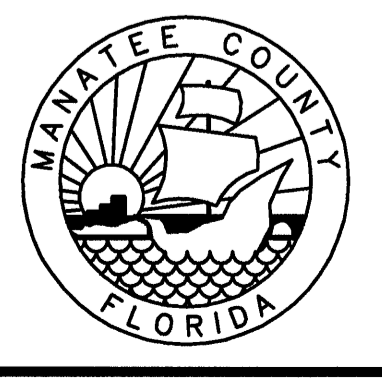


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URS JOB NUMBER
 12008492
 PM: DAVID WILCOX
 ENG: REBECCA AVALOS
 DRW: TERRY SONNENBERG
 FILE SAVE DATE:
 October 13, 2009

DAVID A. WILCOX
 FLORIDA P.E. NO. 34942

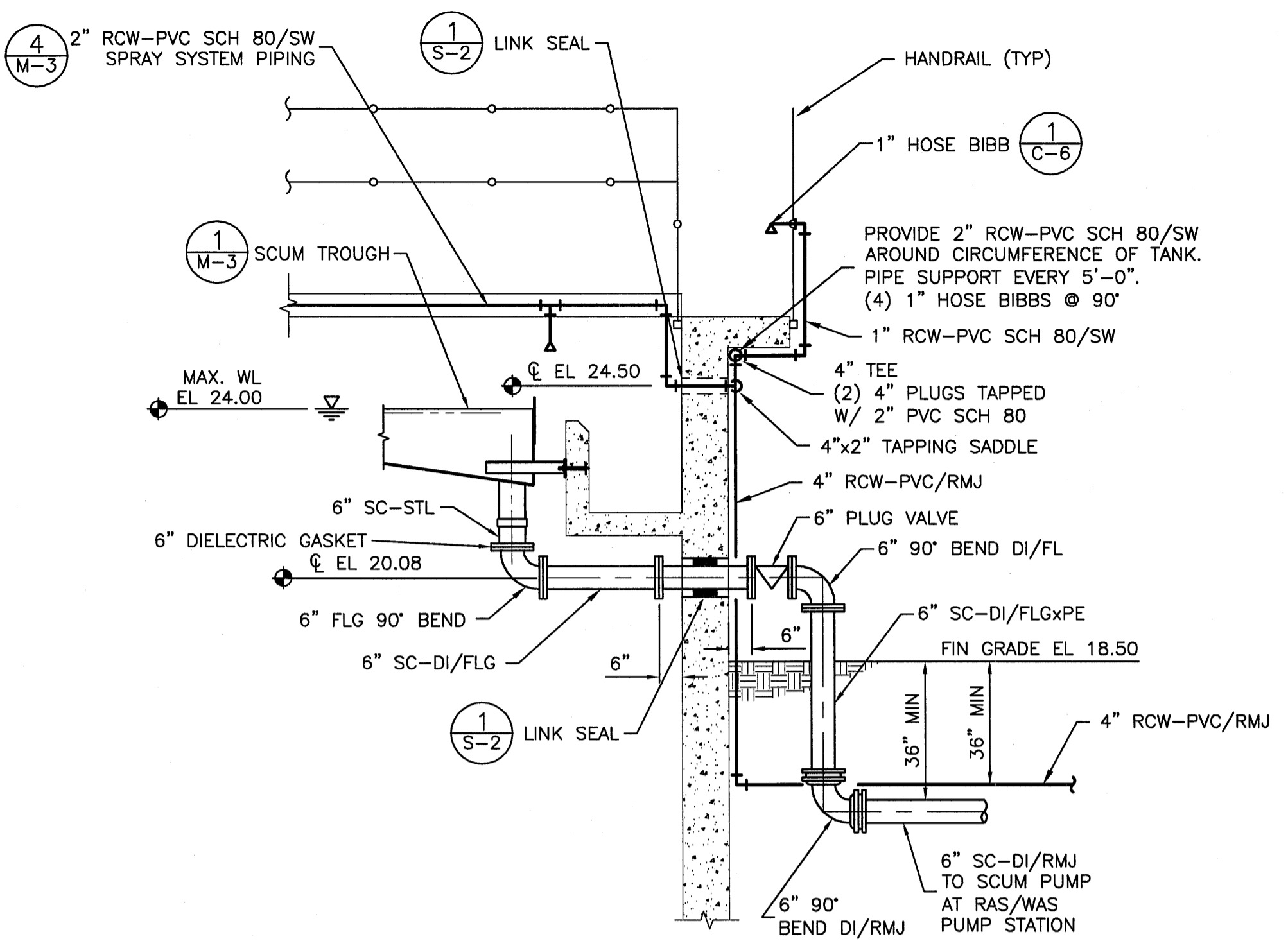


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 MANATEE COUNTY, FLORIDA

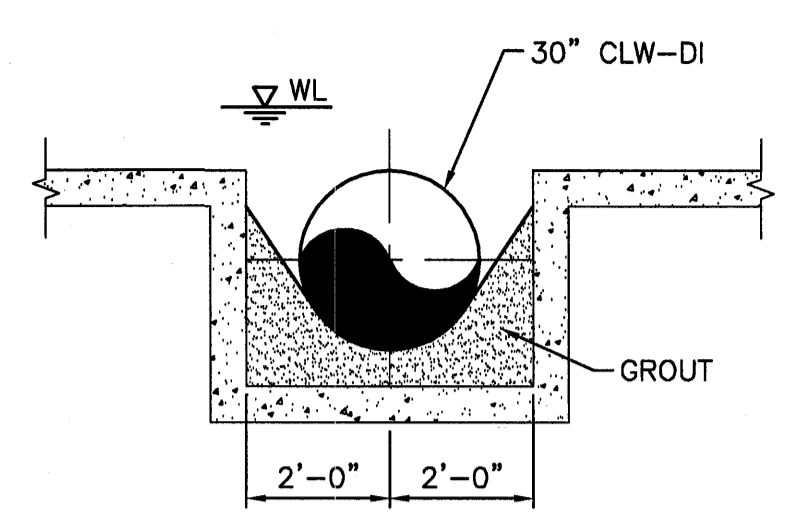
CLARIFIER PLAN, SECTION AND
 DETAILS

PROJECT STATUS
 BID SET
 DECEMBER 2009
 M-1

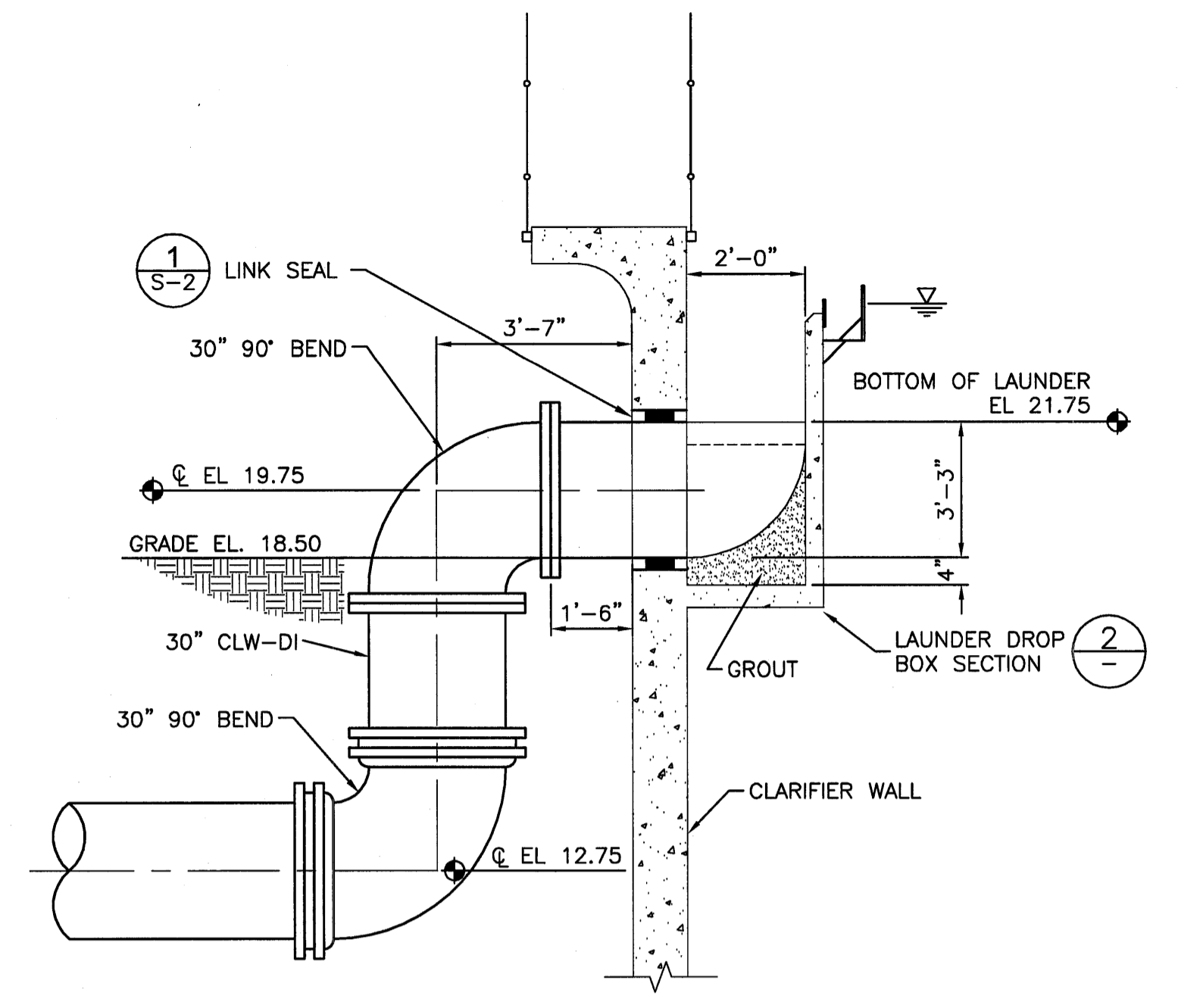
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1 DETAIL
 M-1 SCALE: 3/8"=1'-0"

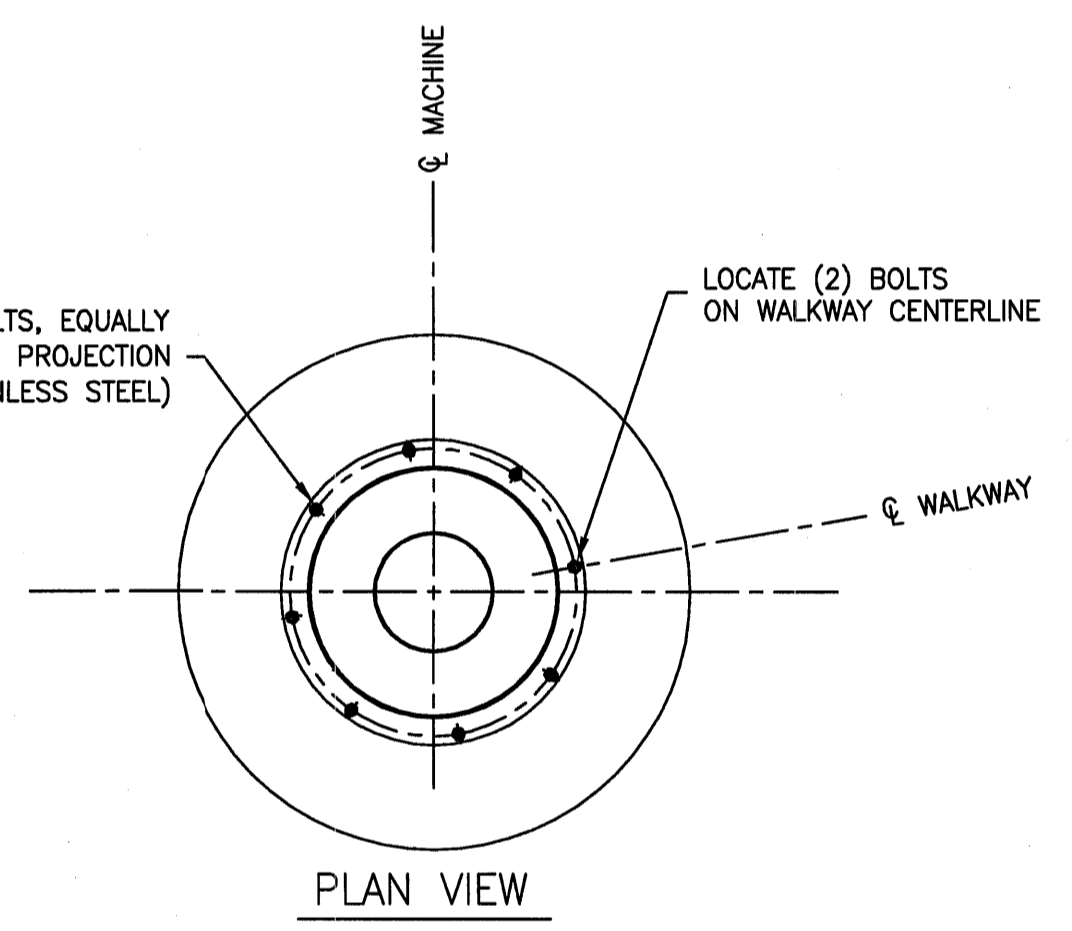


2 DETAIL
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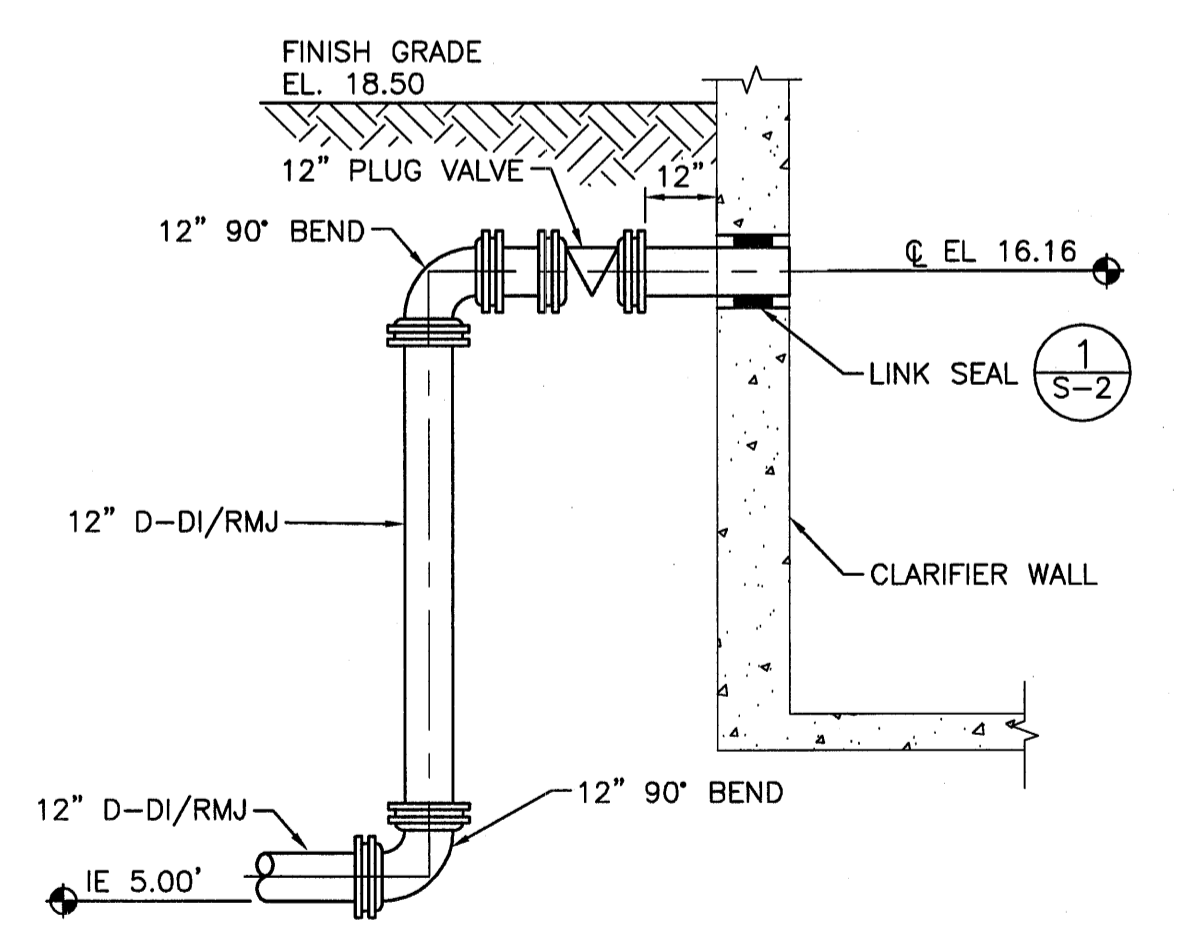


3 DETAIL
 M-1 SCALE: NTS

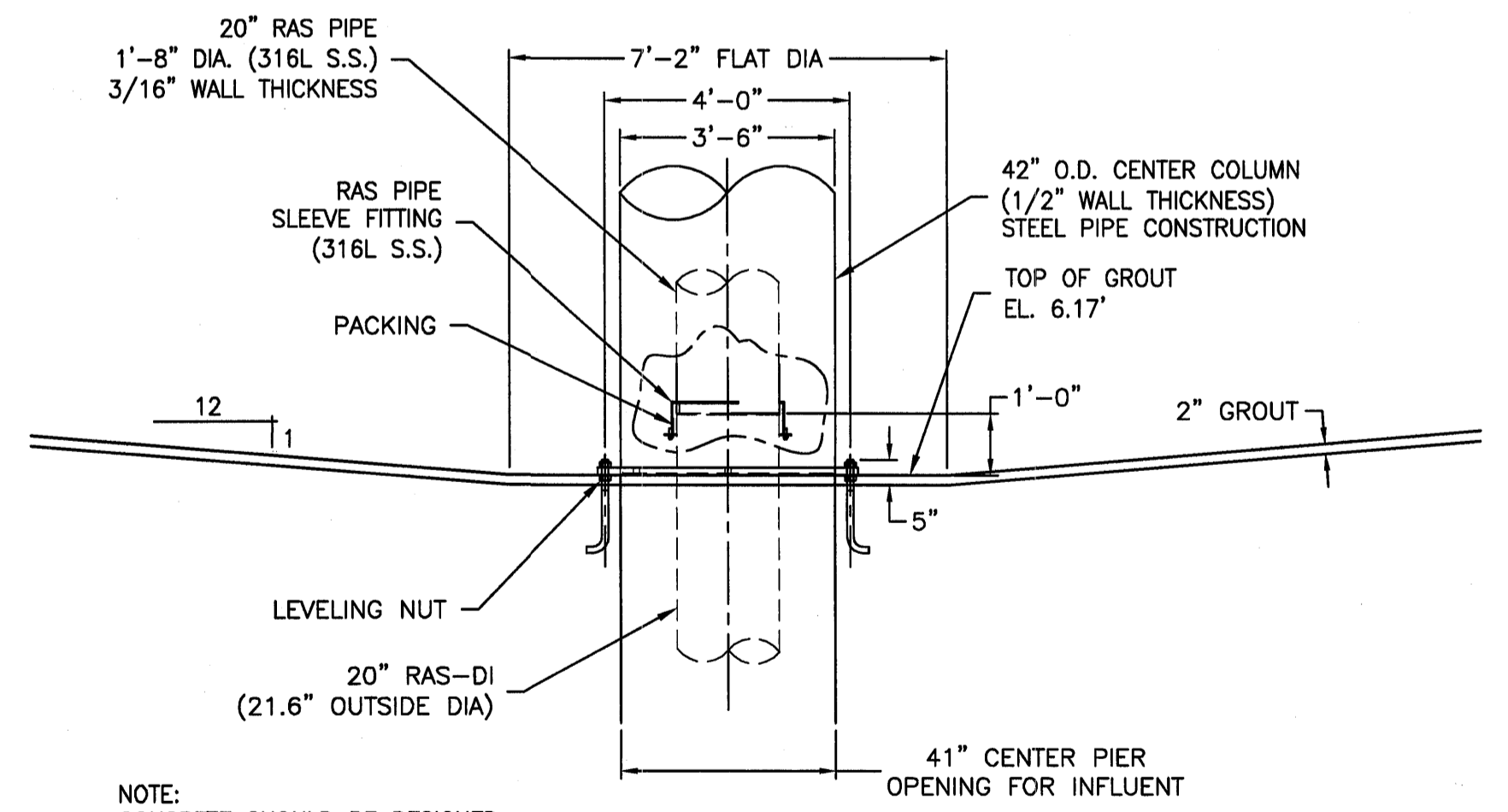
(8) 1 1/4 DIA X 18" ANCHOR BOLTS, EQUALLY SPACED ON 4'-0" B.C. @ 45°, 5" PROJECTION WITH (2) NUTS EACH (316 STAINLESS STEEL)



PLAN VIEW



4 DETAIL
 S-1 SCALE: NTS



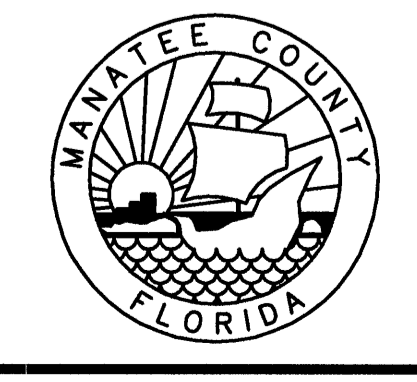
5 DETAIL
 M-1 SCALE: NTS

URS
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DRW: TERRY SONNENBERG
FILE SAVE DATE: October 12, 2009

DAVID A. WILCOX
 FLORIDA P.E. NO. 34942

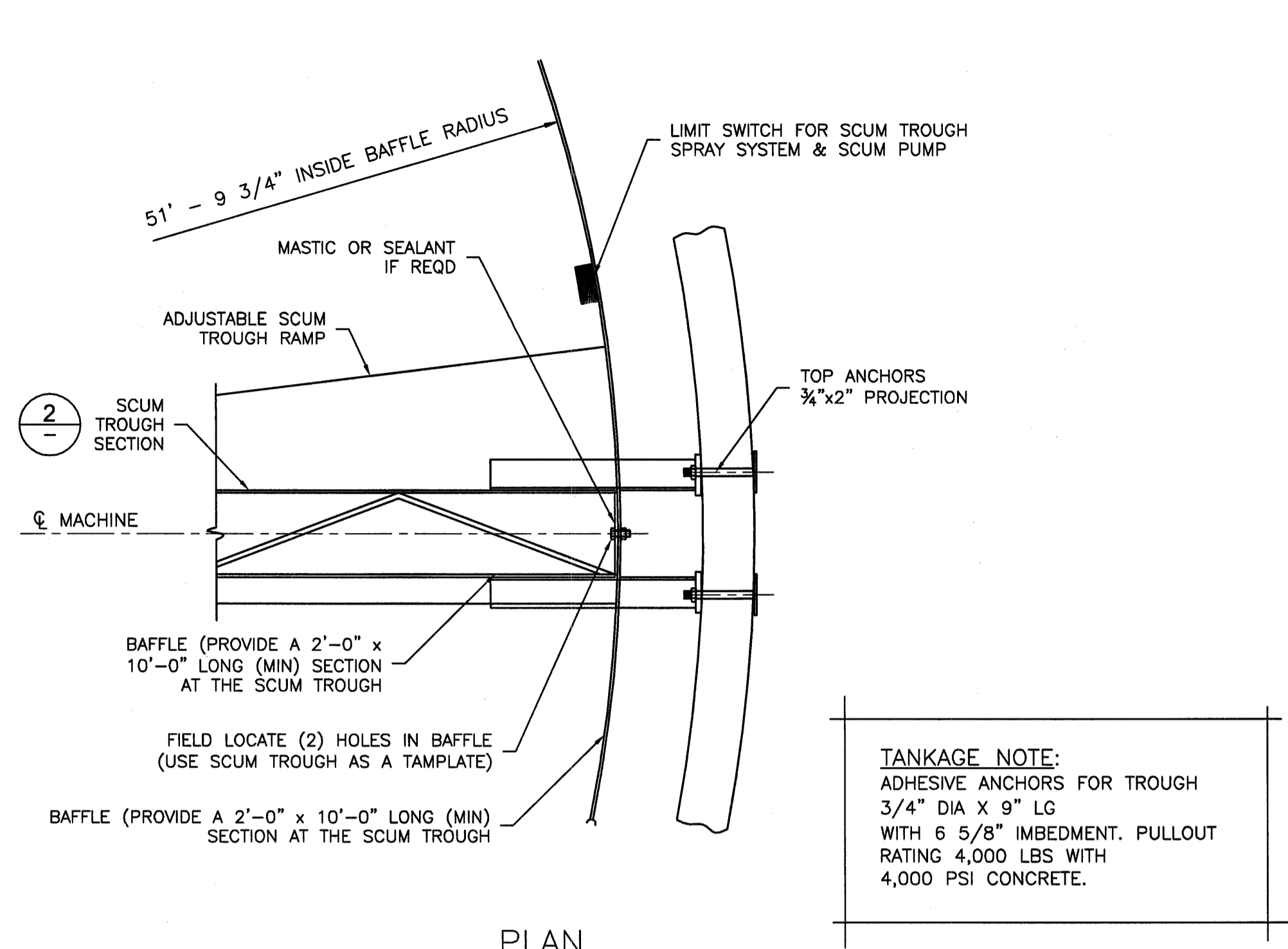


5TH CLARIFIER AT THE
 SOUTHWEST WATER RECLAMATION FACILITY
 FOR
 MANATEE COUNTY GOVERNMENT
 MANATEE COUNTY, FLORIDA

CLARIFIER DETAILS
 M-2

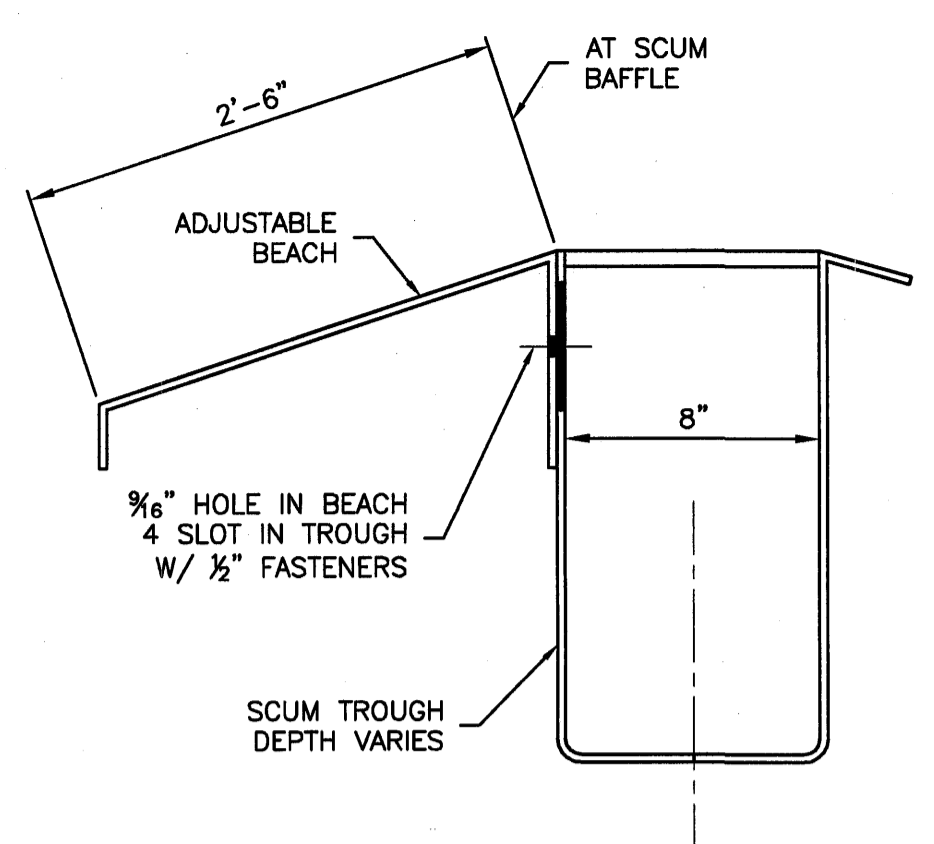
PROJECT STATUS
 BID SET
 DECEMBER 2009

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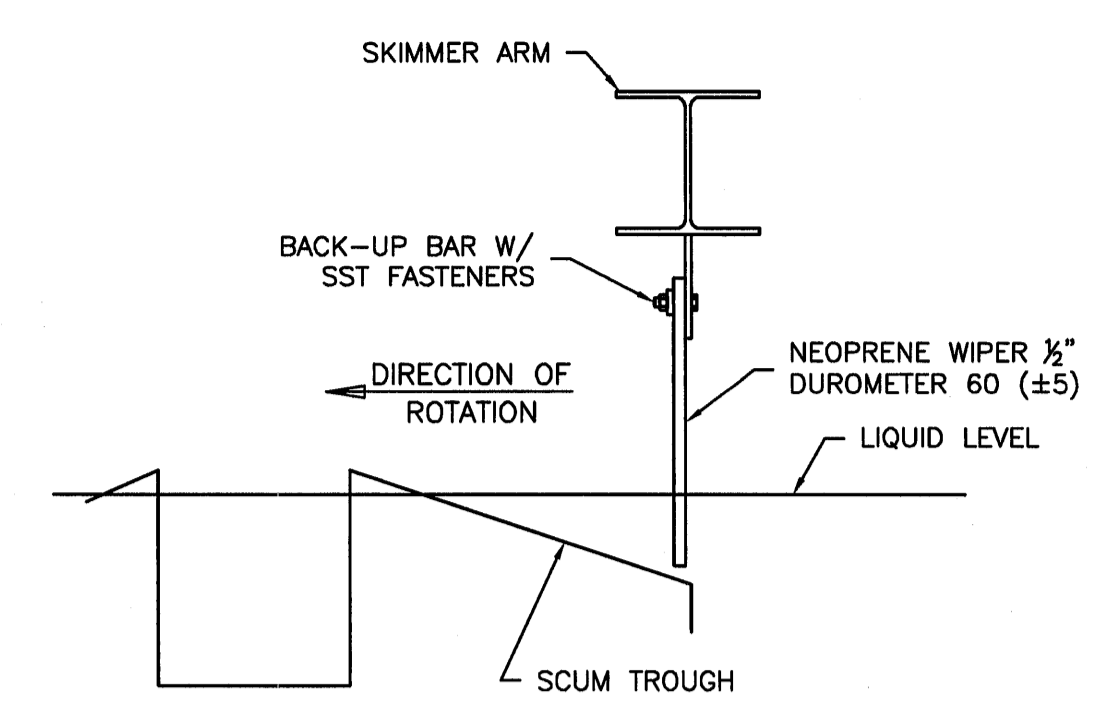


PLAN

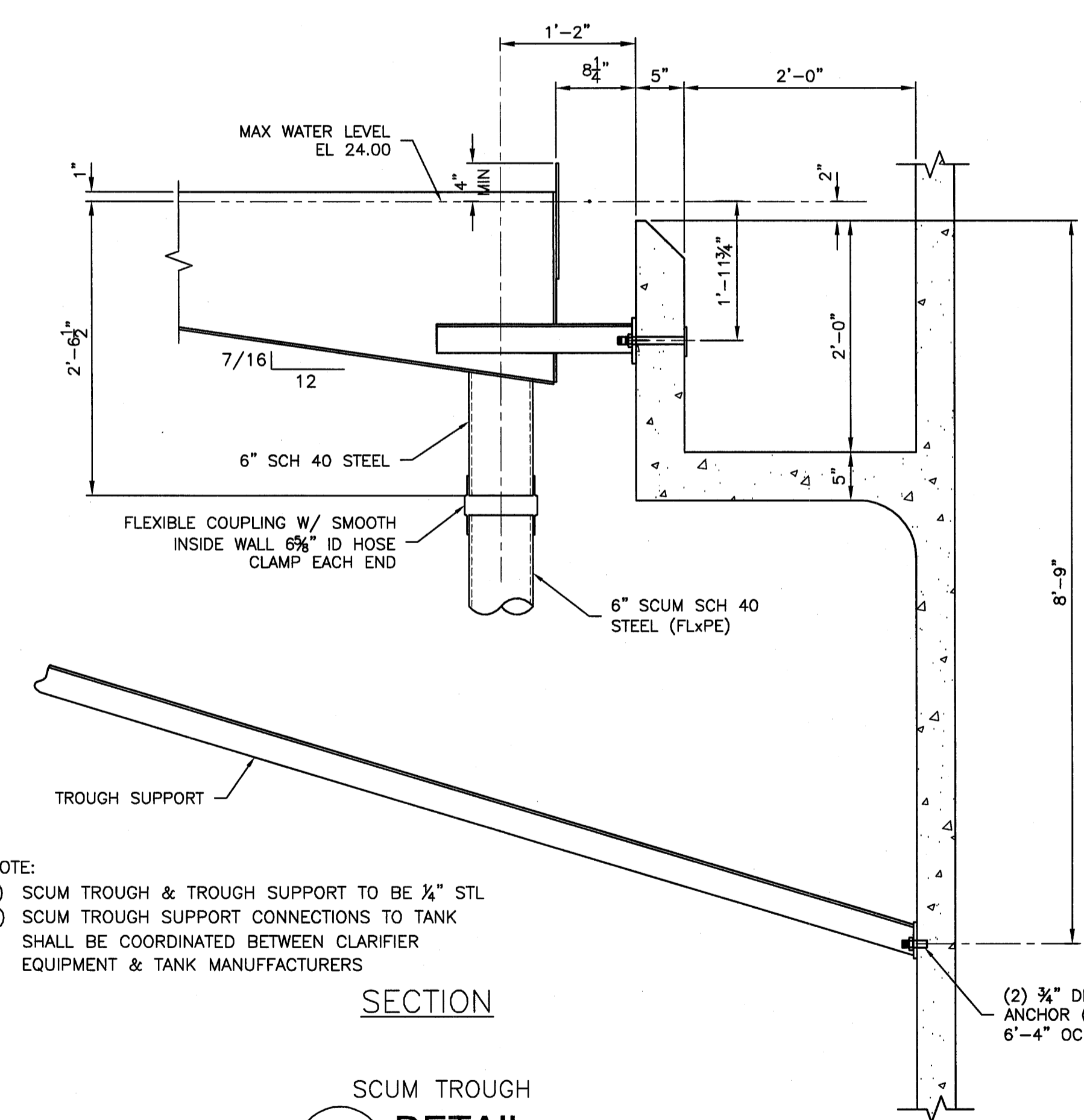
TANKAGE NOTE:
ADHESIVE ANCHORS FOR TROUGH
3/4" DIA X 9" LG
WITH 6 5/8" IMBEDMENT. PULLOUT
RATING 4,000 LBS WITH
4,000 PSI CONCRETE.



SCUM TROUGH SECTION
2
SCALE: NTS



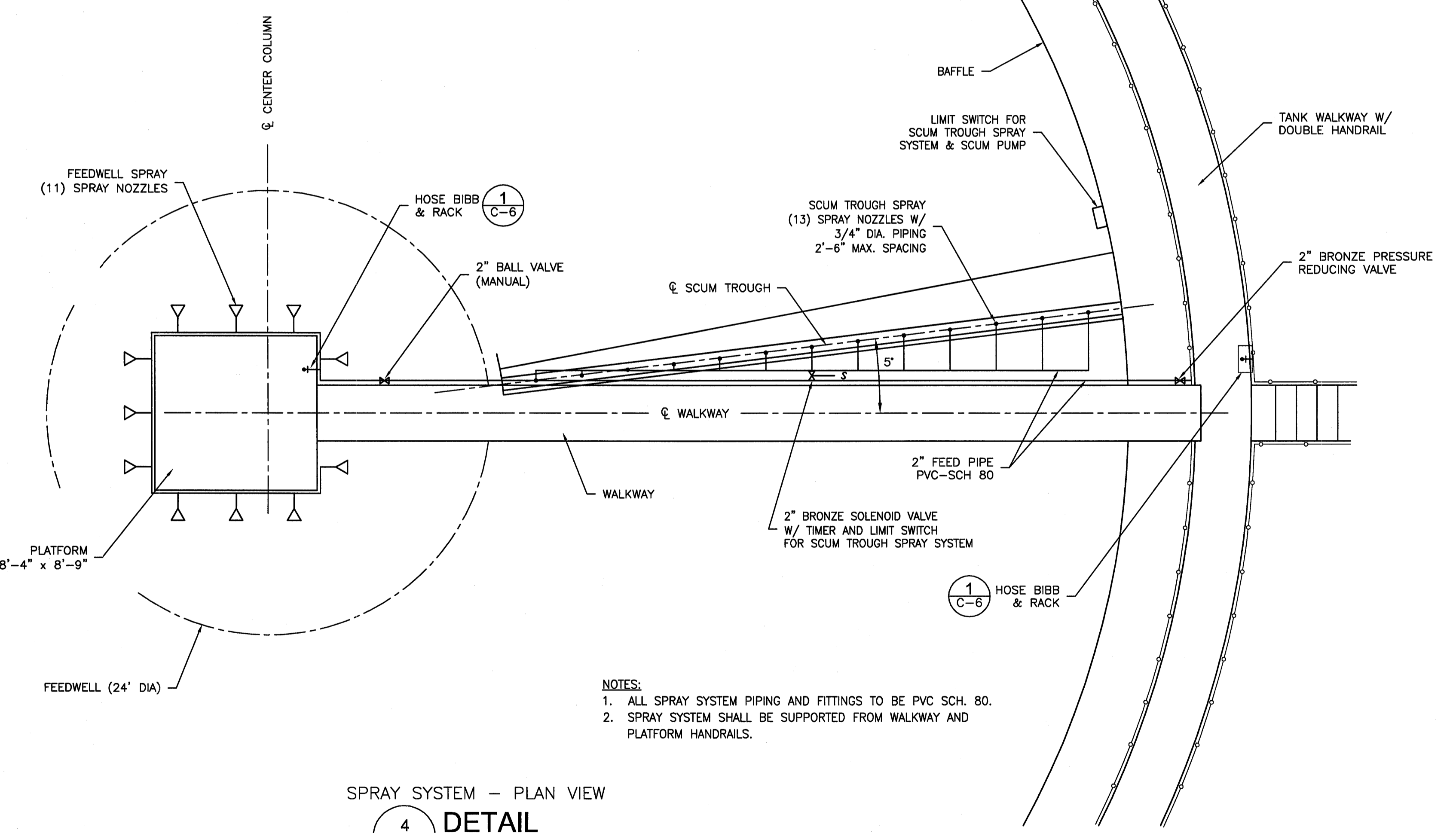
SKIMMER ARM
3
SCALE: NTS



SECTION

NOTE:
1) SCUM TROUGH & TROUGH SUPPORT TO BE 1/4" STL
2) SCUM TROUGH SUPPORT CONNECTIONS TO TANK SHALL BE COORDINATED BETWEEN CLARIFIER EQUIPMENT & TANK MANUFACTURERS

SCUM TROUGH
1
SCALE: NTS



SPRAY SYSTEM - PLAN VIEW

4
SCALE: NTS

NOTES:
1. ALL SPRAY SYSTEM PIPING AND FITTINGS TO BE PVC SCH. 80.
2. SPRAY SYSTEM SHALL BE SUPPORTED FROM WALKWAY AND PLATFORM HANDRAILS.

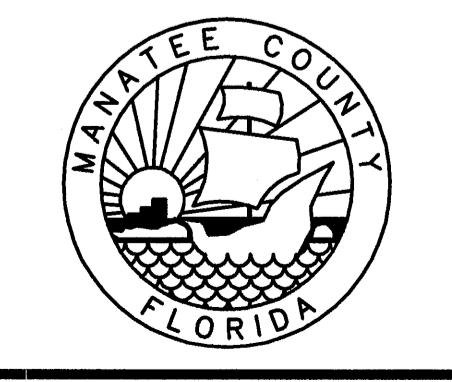
PLOTTED December 3, 2009 1:32 PM PLOTTED BY: SONNENBERG, TERRY X:\MANATEE PROJECTS\12008492 SWRF 5TH CLARIFIER WA\A\CADD\PLANS\M-3 CLARIFIER DETAILS.DWG

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NO.	BY	DATE	DESCRIPTION
REVISIONS			

URS JOB NUMBER
12008492
PM: DAVID WILCOX
ENG: REBECCA AVALOS
DRW: T. SONNENBERG
FILE SAVE DATE:
October 12, 2009

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FLORIDA P.E. NO. 34942

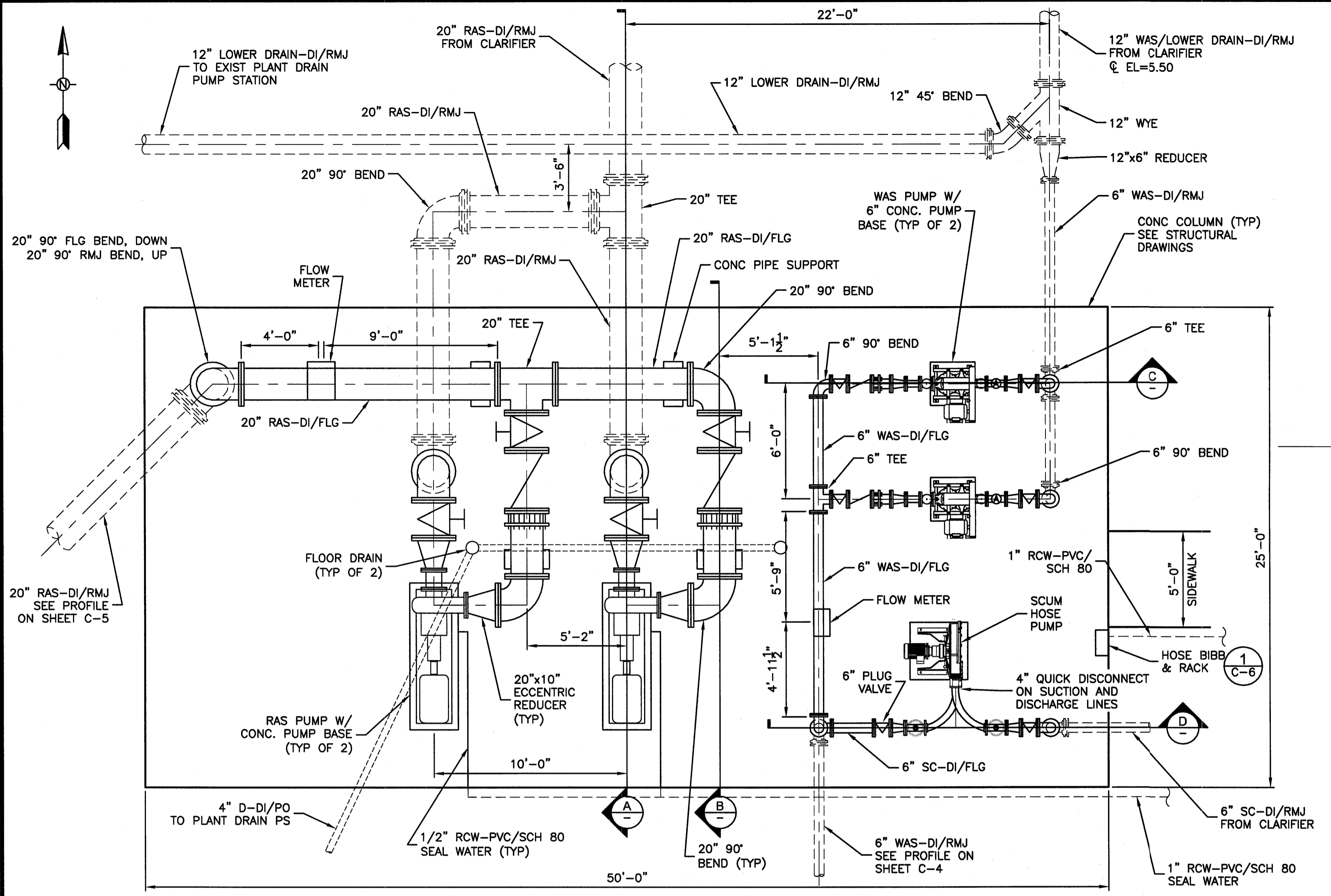


5TH CLARIFIER AT THE
SOUTHWEST WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

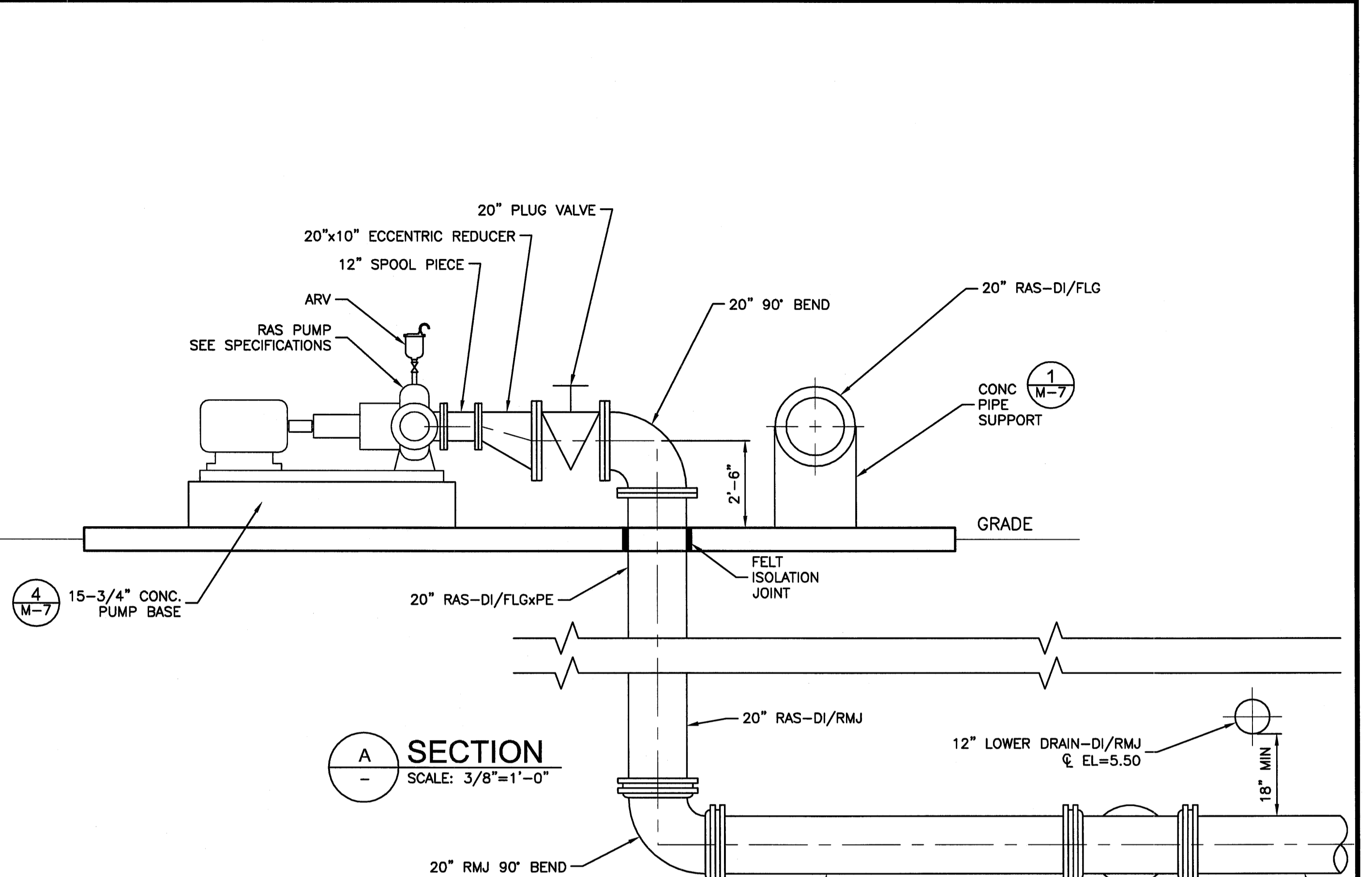
CLARIFIER DETAILS

PROJECT STATUS
BID SET
DECEMBER 2009
M-3

PLOTTED December 3, 2009 1:32 PM PLOTTED BY: SONNENBERG, TERRY
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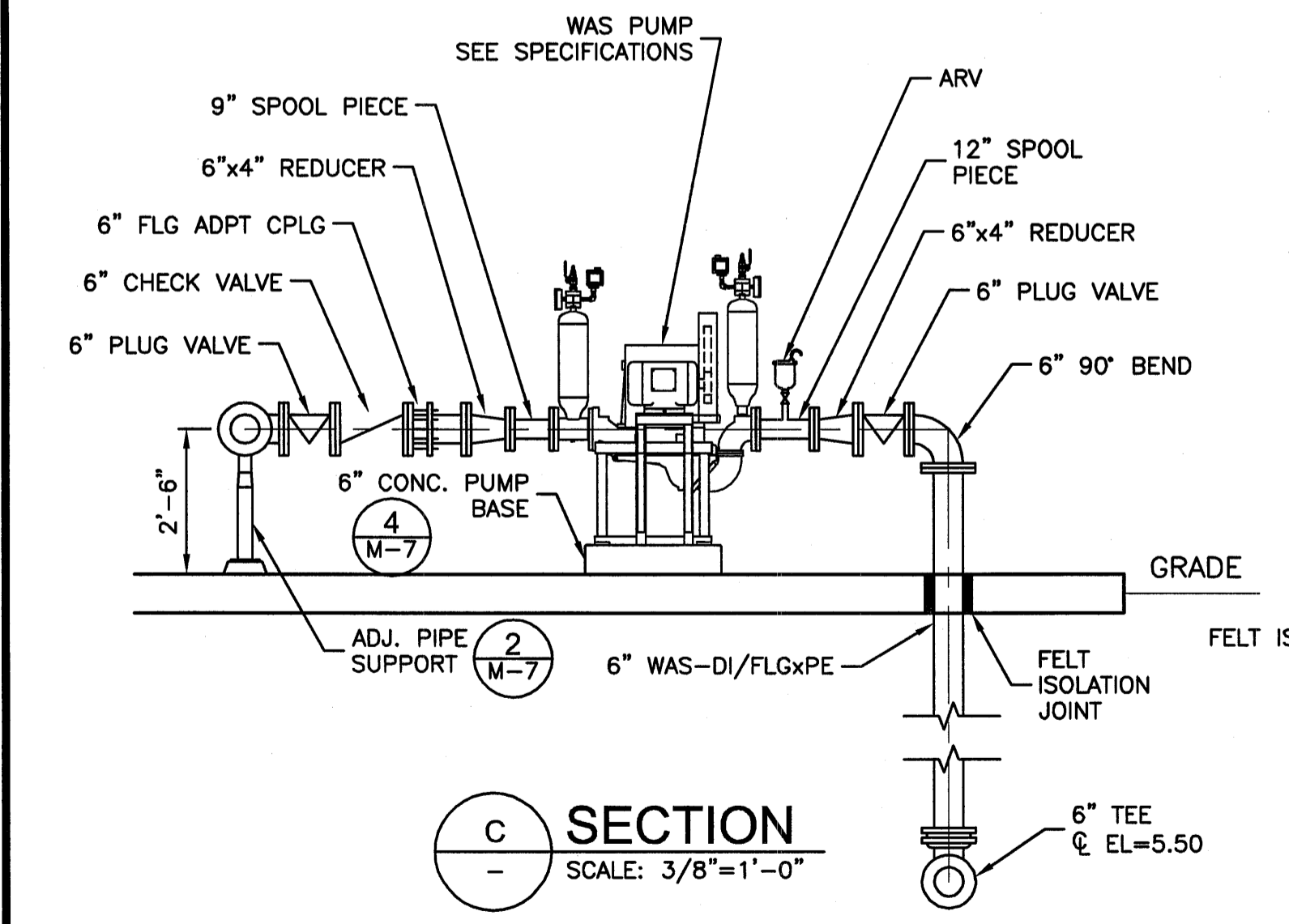


PLAN VIEW
SCALE: 1/4"=1'-0"

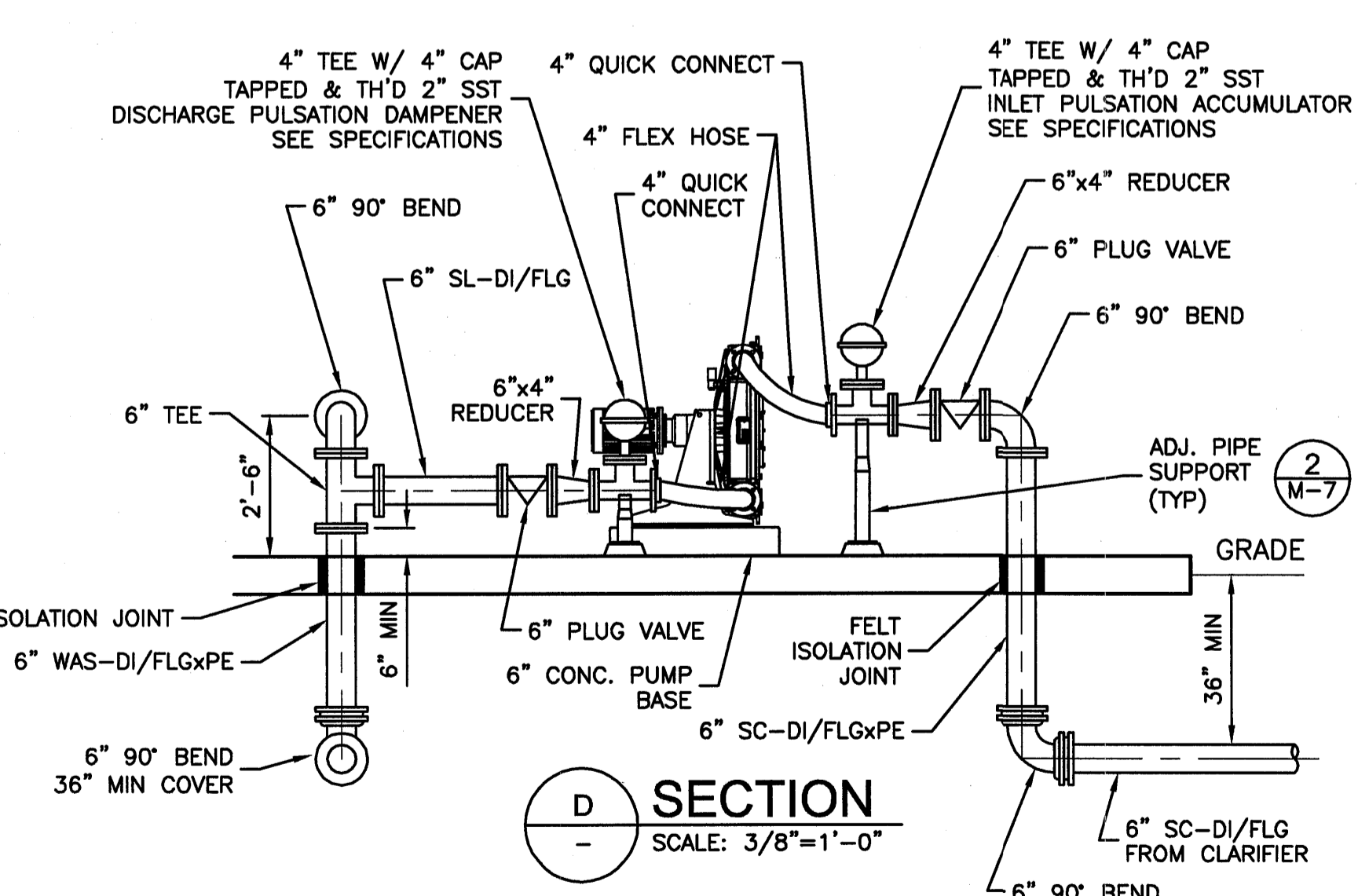


SECTION A
SCALE: 3/8"=1'-0"

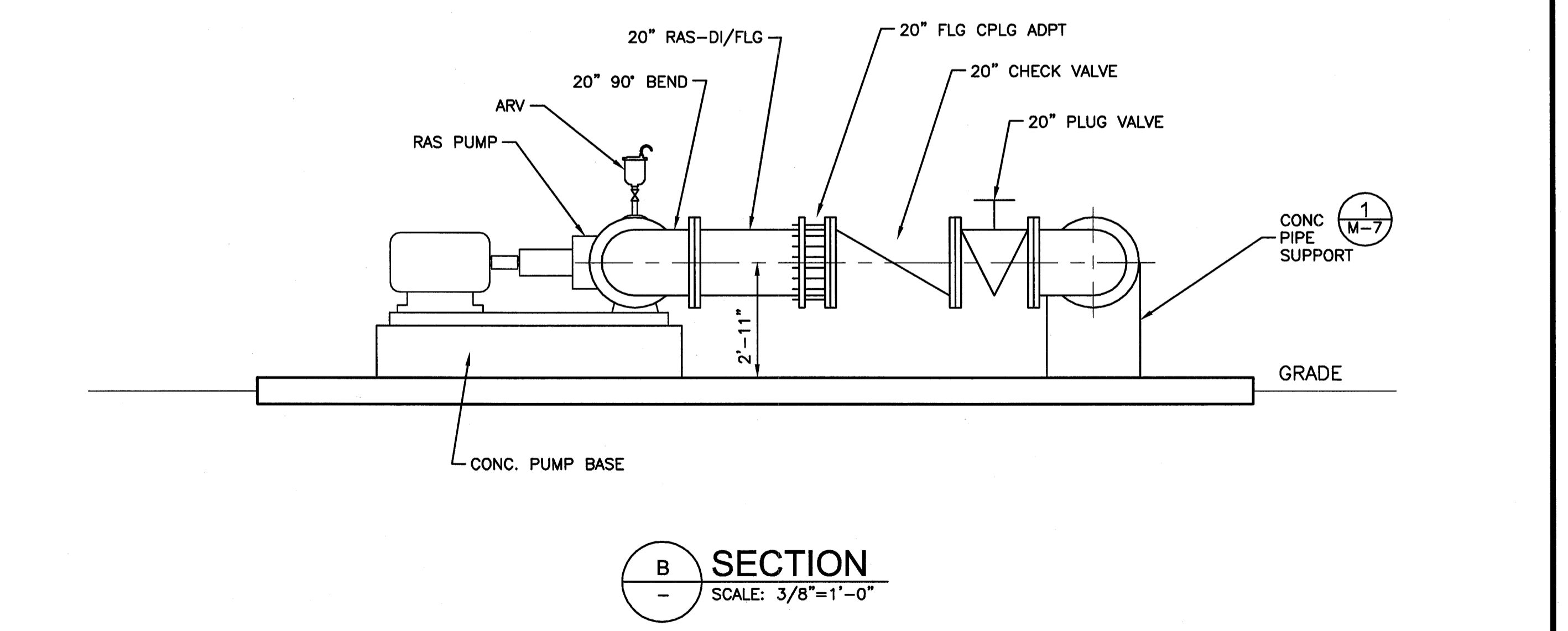
NOTES:
1. CONNECT NEW 1/2" PVC-SCH 80 SEAL WATER SYSTEM TO NEW RAS PUMPS. PROVIDE ISOLATION VALVES.



SECTION C
SCALE: 3/8"=1'-0"



SECTION D
SCALE: 3/8"=1'-0"



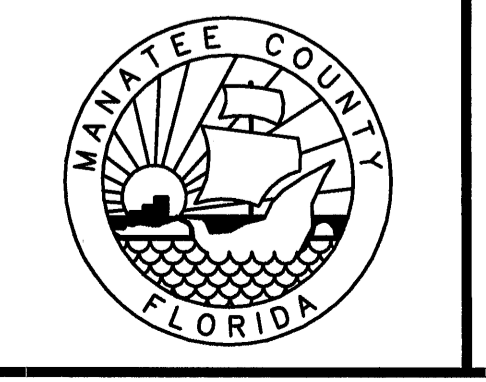
SECTION B
SCALE: 3/8"=1'-0"

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REVISIONS			

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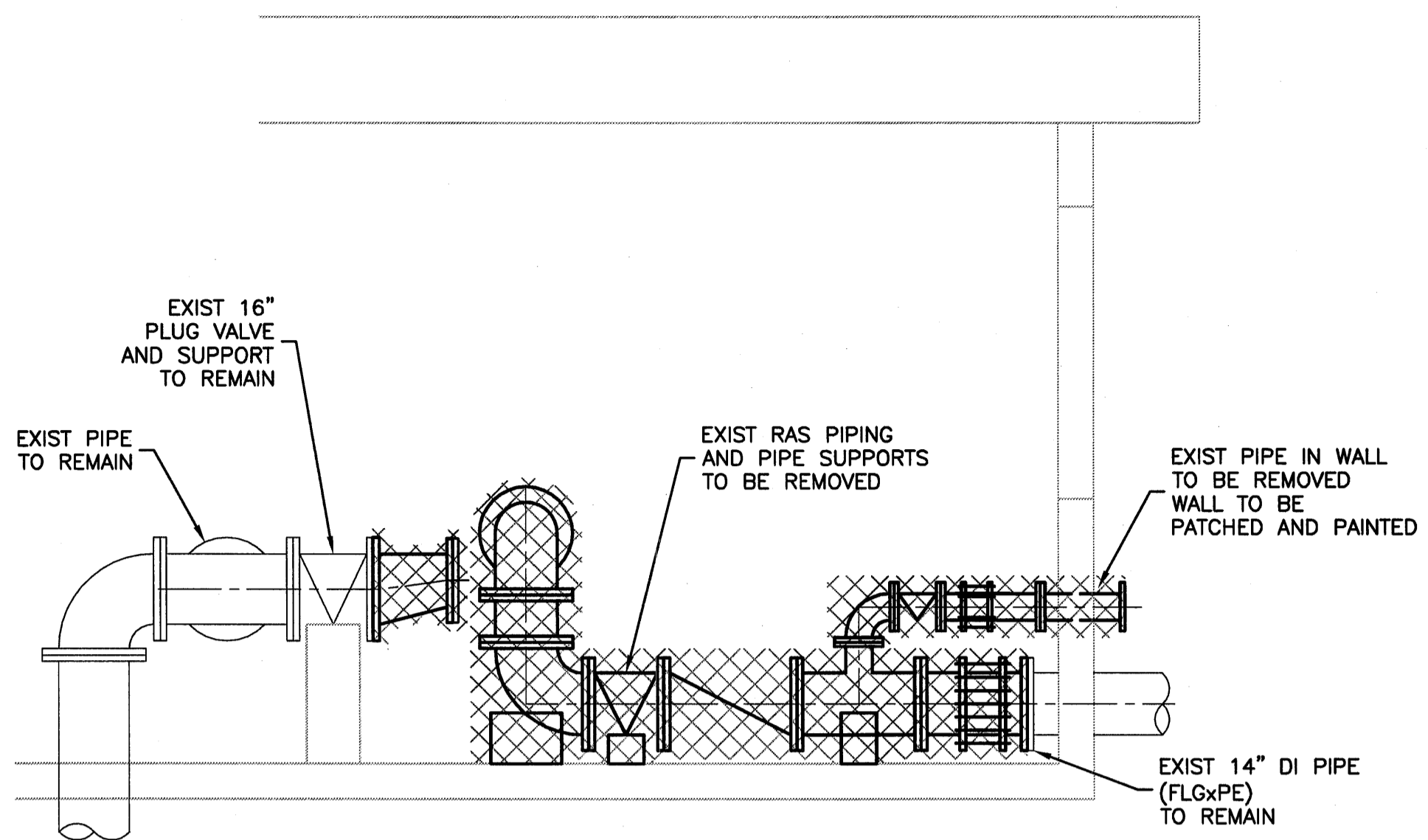
5TH CLARIFIER AT THE
SOUTHWEST WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

RAS/WAS PUMPS PLAN AND
SECTIONS

PROJECT STATUS
BID SET
DECEMBER 2009
M-4

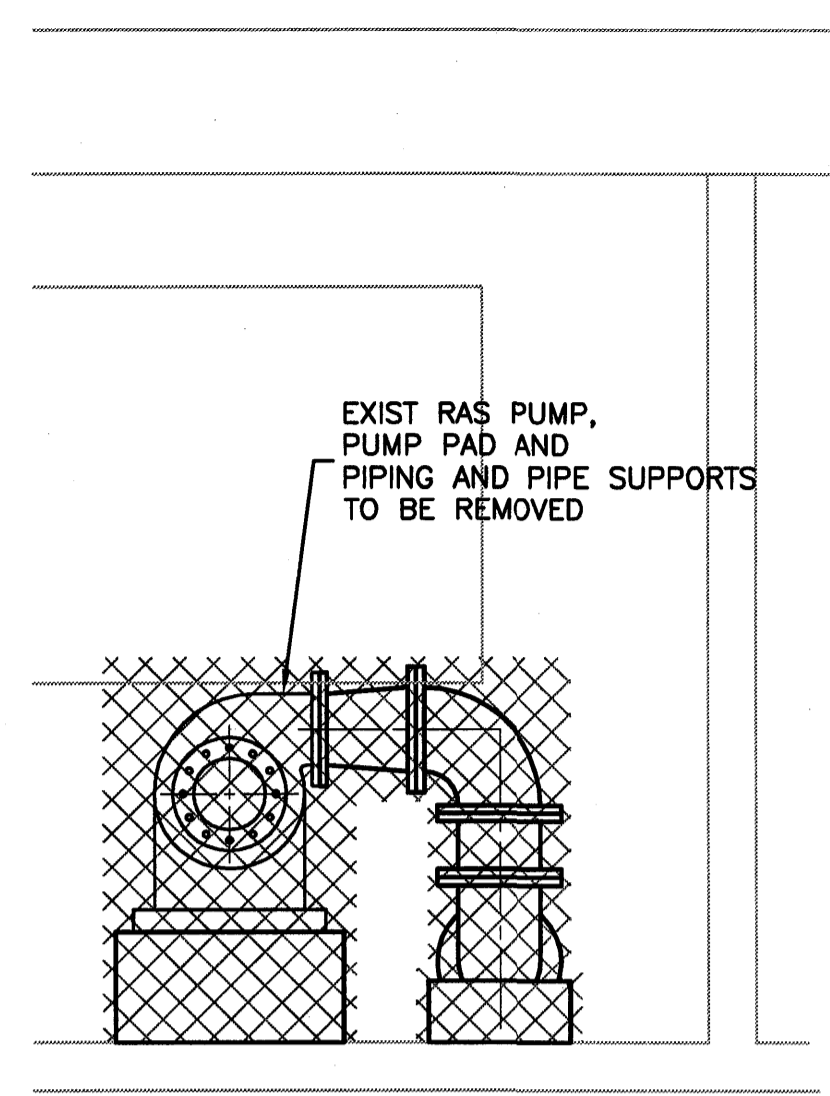
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 X:\MANATEE PROJECTS\2008492 SWRF 5TH CLARIFIER WAJ\CAO\PLANS\M-5 PUMP DEMOLITION PLAN & SECTIONS.DWG

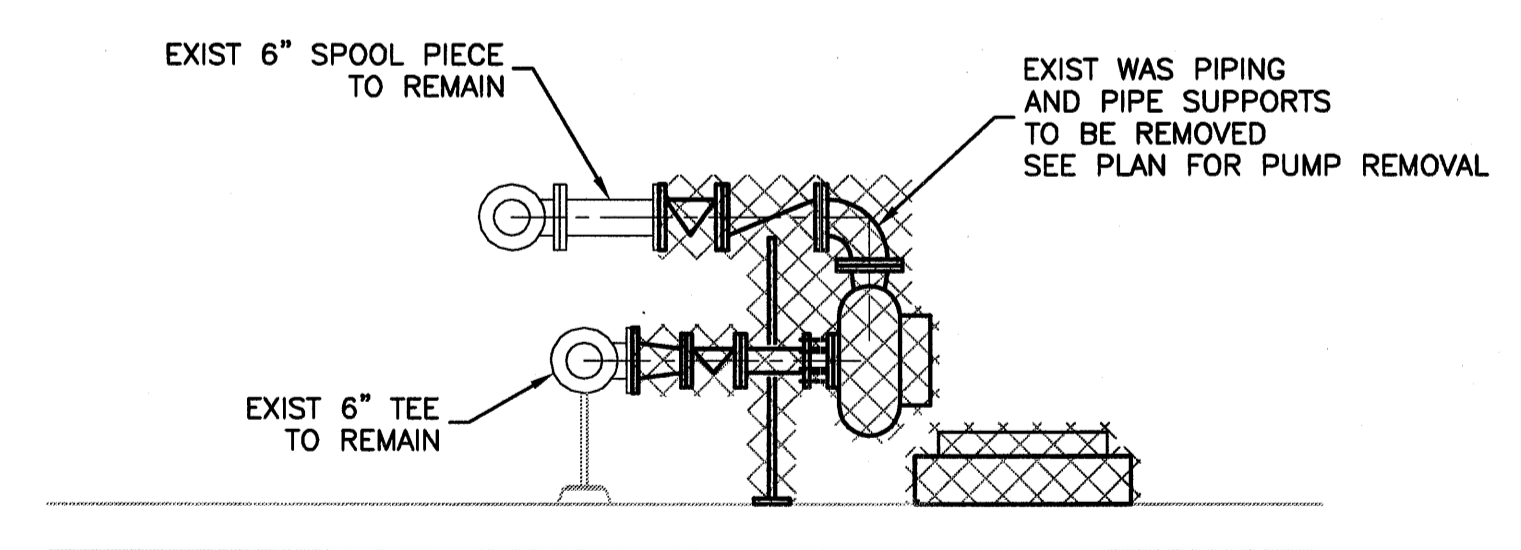


A SECTION
 SCALE: 3/8"=1'-0"

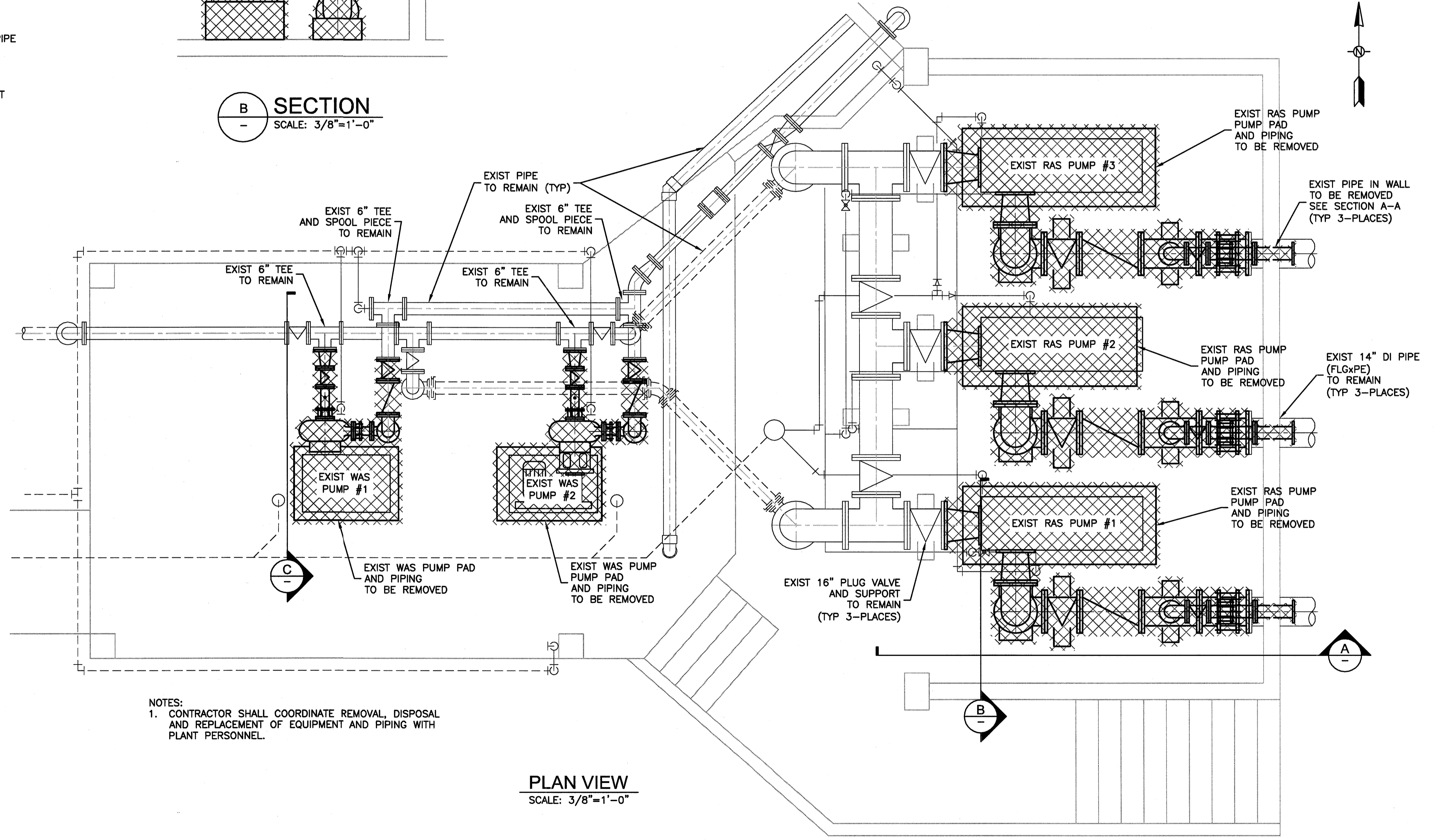
NOTES:
 1. RAS PUMP AND PUMP PAD NOT SHOWN FOR CLARITY.



B SECTION
 SCALE: 3/8"=1'-0"



C SECTION
 SCALE: 3/8"=1'-0"



NOTES:
 1. CONTRACTOR SHALL COORDINATE REMOVAL, DISPOSAL AND REPLACEMENT OF EQUIPMENT AND PIPING WITH PLANT PERSONNEL.

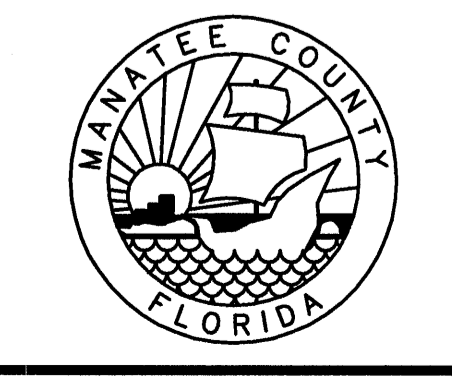
PLAN VIEW
 SCALE: 3/8"=1'-0"

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NO.	BY	DATE	DESCRIPTION
REVISIONS			

URS JOB NUMBER
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 FILE SAVE DATE:
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David Wilcox
 DAVID A. WILCOX
 FLORIDA P.E. NO. 34942

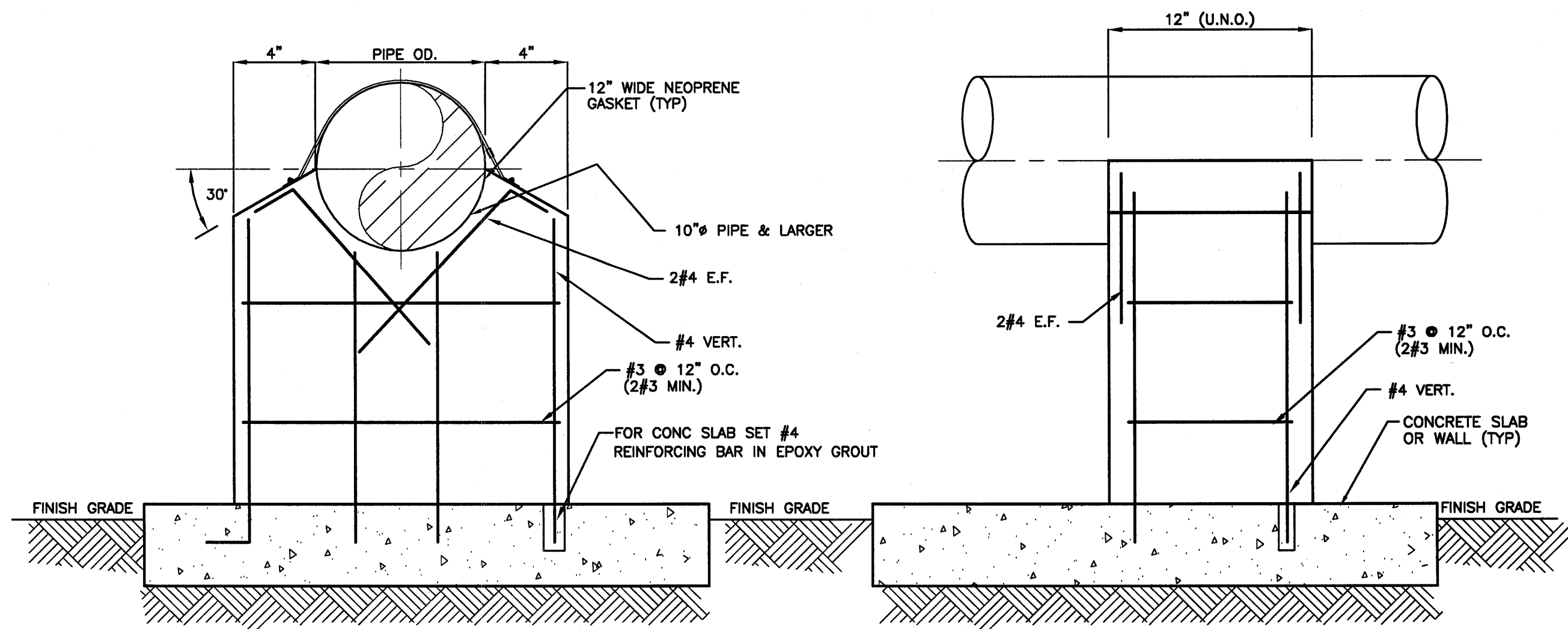


5TH CLARIFIER AT THE
 SOUTHWEST WATER RECLAMATION FACILITY
 FOR
 MANATEE COUNTY GOVERNMENT
 MANATEE COUNTY, FLORIDA

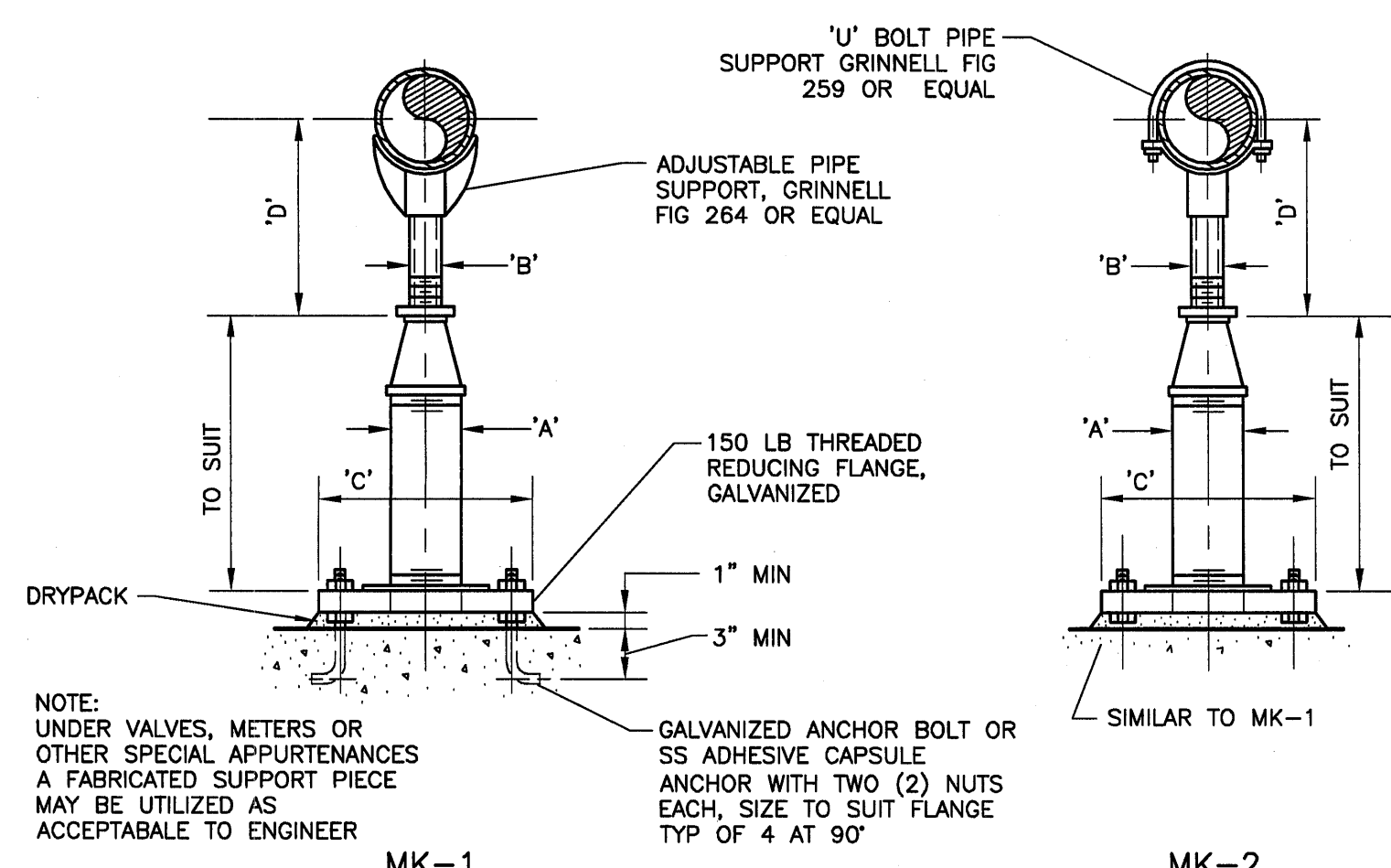
EXISTING CLARIFIERS 1 & 2
 RAS/WAS PUMP DEMOLITION PLAN
 & SECTIONS

PROJECT STATUS
 BID SET
 DECEMBER 2009
 M-5

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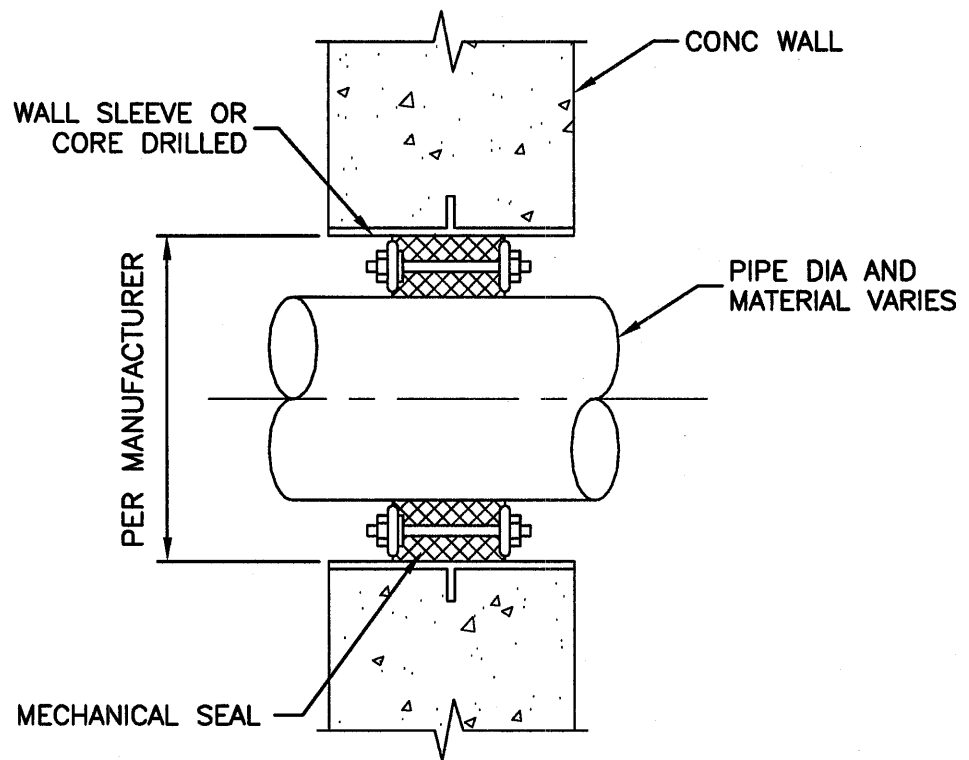


CONC PIPE SUPPORT
1 DETAIL
 SCALE: NTS

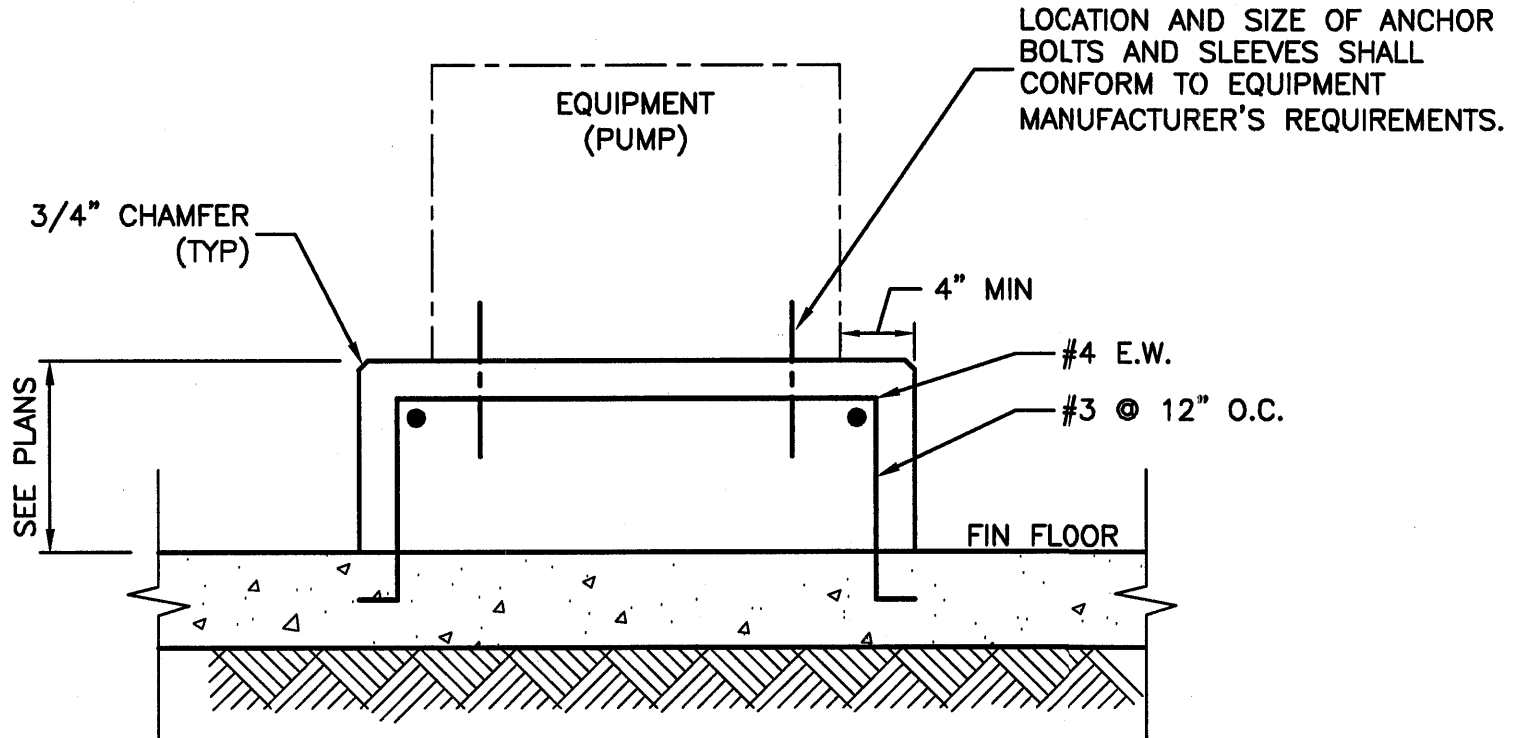


ADJUSTABLE PIPE SUPPORT
2 DETAIL
 SCALE: NTS

ADJUSTABLE PIPE SUPPORT APPROX DIMENSIONS IN INCHES					
PIPE SIZE	A	B	C	D MIN	D MAX
2 1/2	2 1/2	1 1/2	9	8	13
3	2 1/2	1 1/2	9	8 1/4	13 1/4
3 1/2	3 1/2	1 1/2	9	8 1/2	12
4	3	2 1/2	9	9 1/4	14
6	3	2 1/2	9	10 1/4	15 1/4
8	3	2 1/2	9	11 3/4	16 1/2
10	3	2 1/2	9	13 1/2	18 1/4
12	3	2 1/2	9	15	19 3/4
14	4	3	11	16 1/4	20 3/4
16	4	3	11	17 3/4	22 1/4
18	6	3 1/2	13 1/2	19 1/2	24
20	6	3 1/2	13 1/2	21	25 1/2
24	6	4	13 1/2	23 3/4	28 1/4
30	6	4	13 1/2	27	31 1/2
32	6	4	13 1/2	28 1/4	32 3/4
36	6	4	13 1/2	30 1/4	34 3/4



MECHANICAL SEAL
3 DETAIL
 SCALE: NTS



CONCRETE PUMP BASE
4 DETAIL
 SCALE: NTS

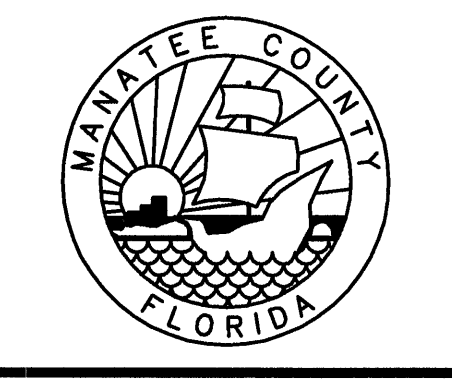
PLOTTED December 3, 2009 1:34 PM PLOTTED BY: SONNENBERG, TERRY X:\MANATEE PROJECTS\12008492 SWRF 5TH CLARIFIER WA\F\GDD\PLANS\A-7 MISCELLANEOUS DETAILS.DWG

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 DRW: TERRY SONNENBERG
 FILE SAVE DATE:
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5TH CLARIFIER AT THE
 SOUTHWEST WATER RECLAMATION FACILITY
 FOR
 MANATEE COUNTY GOVERNMENT
 MANATEE COUNTY, FLORIDA

MISCELLANEOUS DETAILS
 M-7

PROJECT STATUS
 BID SET
 DECEMBER 2009

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

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	HOOR
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, PHASE FAILURE RELAY
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
SUBST.	SUBSTATION
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 THICK
THWN	HEAT AND MOISTURE RESISTANT THERMOPLASTIC INSULATION THROUGH
THRU	TOP OF STEEL, TOP OF SLAB
T.O.S.	TYPICAL
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, AND EQUIPMENT LOCATION.

LEGEND:

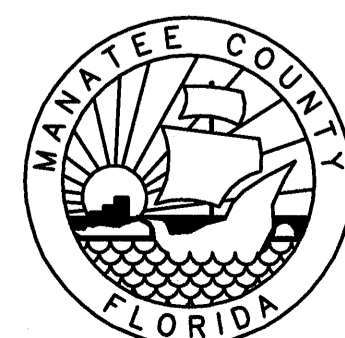
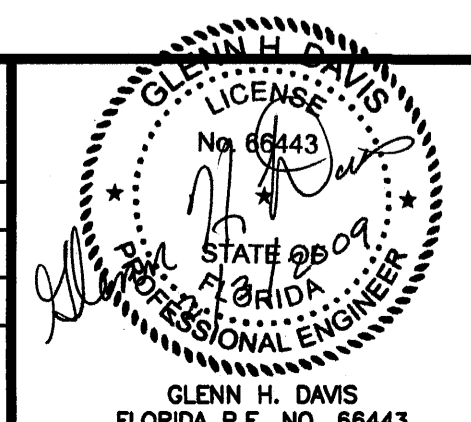
	REFERENCE NOTE TAG
	DEMOLITION NOTE TAG
	FEEDER NOTE TAG
	DRIVEN GROUNDING ROD ELECTRODE
	CONNECTION POINT
	CONDUIT.
	CONDUIT UNDERGROUND.
	CONDUIT EXISTING
	CONDUIT TO BE REMOVED
	CIRCUIT BREAKER
	COMBINATION STARTER
	MOTOR, # REPRESENTS HP RATING
	TRANSFORMER
	CIRCUITING SYMBOLLOGY FEEDER. REFER TO SINGLE-LINE DIAGRAM FOR CONDUIT AND WIRE SPECIFICATION.
	JUNCTION BOX
	FUSE
	NON-FUSED DISCONNECT
	NORMALLY CLOSED PUSH BUTTON
	RELAY
	PILOT LIGHT. 'X' INDICATES COLOR R=RED G=GREEN A=AMBER B=BLUE
	ELASPED TIME METER
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
	NORMALLY CLOSED THERMAL SWITCH
	NORMALLY OPEN TIMED CLOSED CONTACT
	NORMALLY CLOSED TIMED CLOSED CONTACT
	FULL CUTOFF LIGHT FIXTURE, POLE STANDARD AND RECEPTACLE. "WP" INDICATES THAT RECEPTACLE IS WEATHERPROOF RATED. "GFI" INDICATES THAT RECEPTACLE INCLUDES GROUND FAULT CIRCUIT INTERRUPTER. # INDICATES LIGHT DISTRIBUTION TYPE. REFER TO LIGHTING FIXTURE SCHEDULE AND DETAILS ON DWGS. E-9 AND E-12.
	FULL CUTOFF WALLPACK LIGHT FIXTURE, REFER TO LIGHTING FIXTURE SCHEDULE ON DWG. E-9.



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DRW:	J. SCHEUERMAN
FILE SAVE DATE:	October 30, 2009

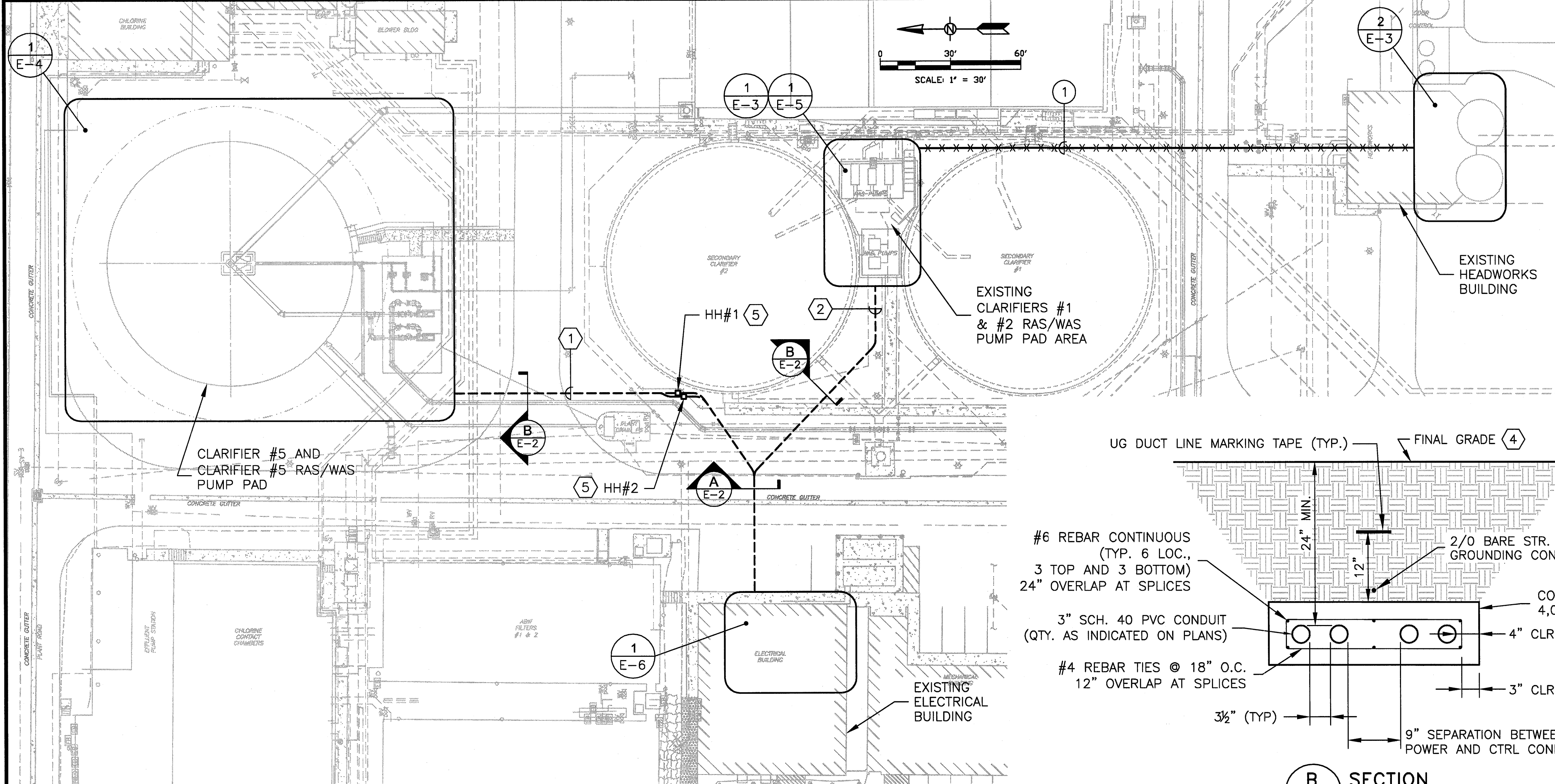


5TH CLARIFIER AT THE
 SOUTHWEST WATER RECLAMATION FACILITY
 FOR
 MANATEE COUNTY GOVERNMENT
 MANATEE COUNTY, FLORIDA

**ELECTRICAL ABBREVIATIONS,
 SYMBOLS LEGEND & NOTES**

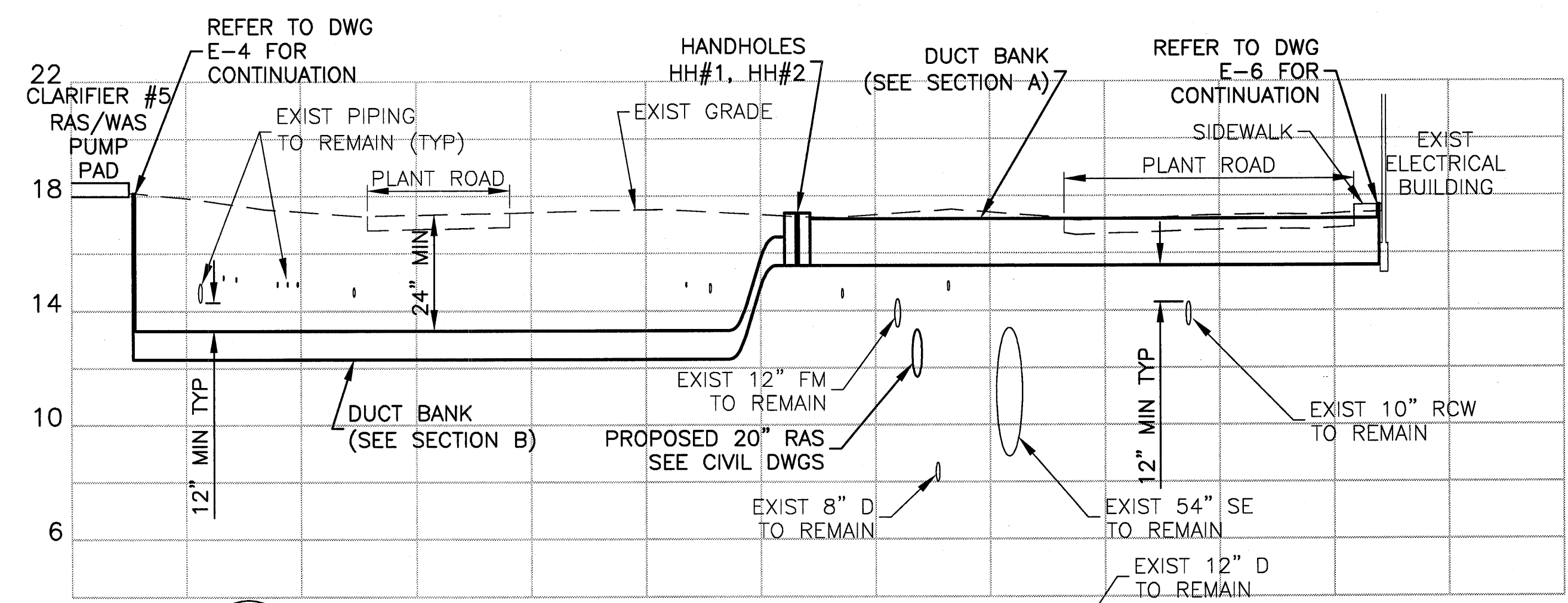
PROJECT STATUS	BID SET DECEMBER 2009
E-1	

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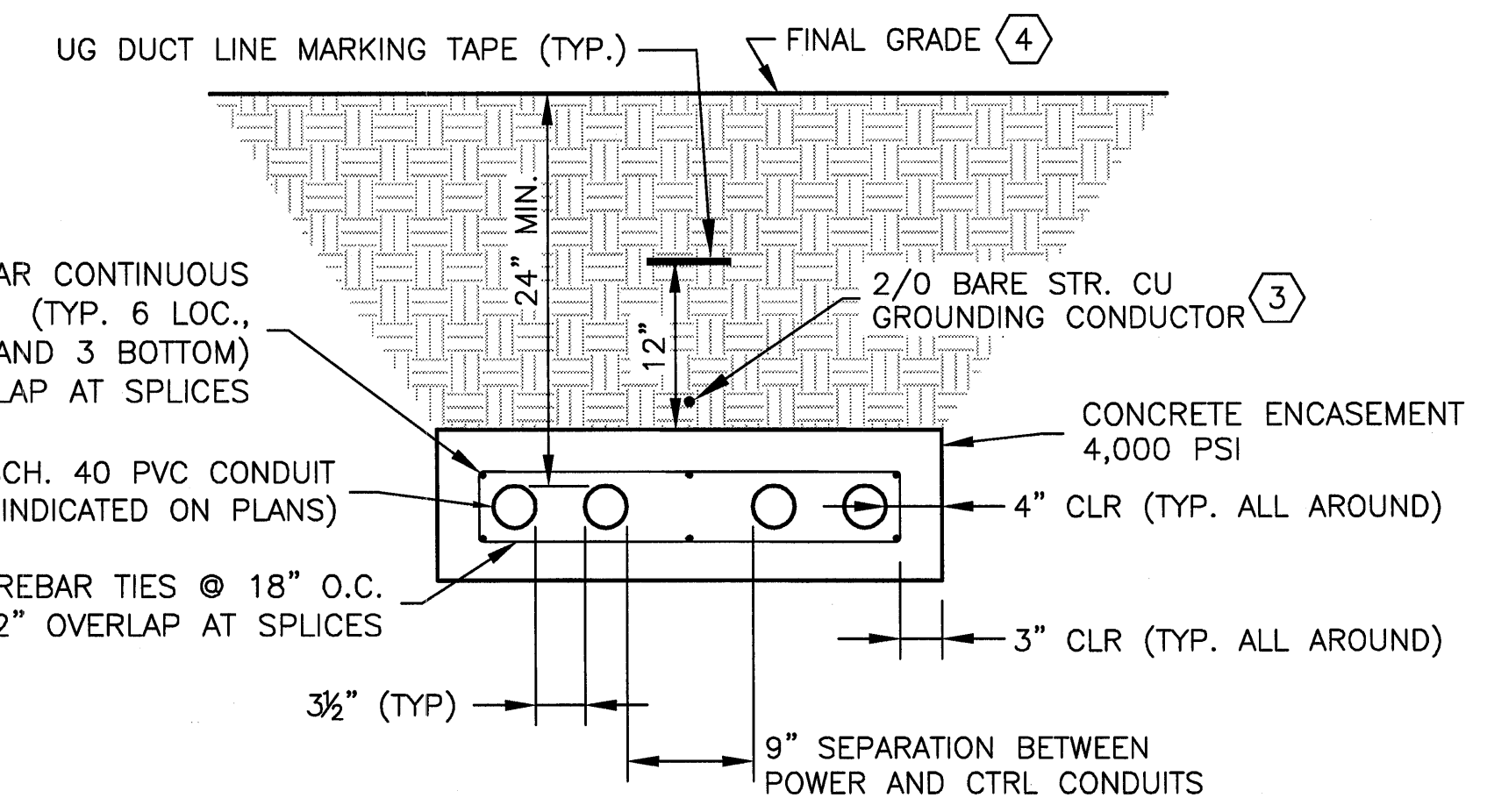


1 PLAN
E-2 ELECTRICAL SITE
SCALE: 1" = 30'

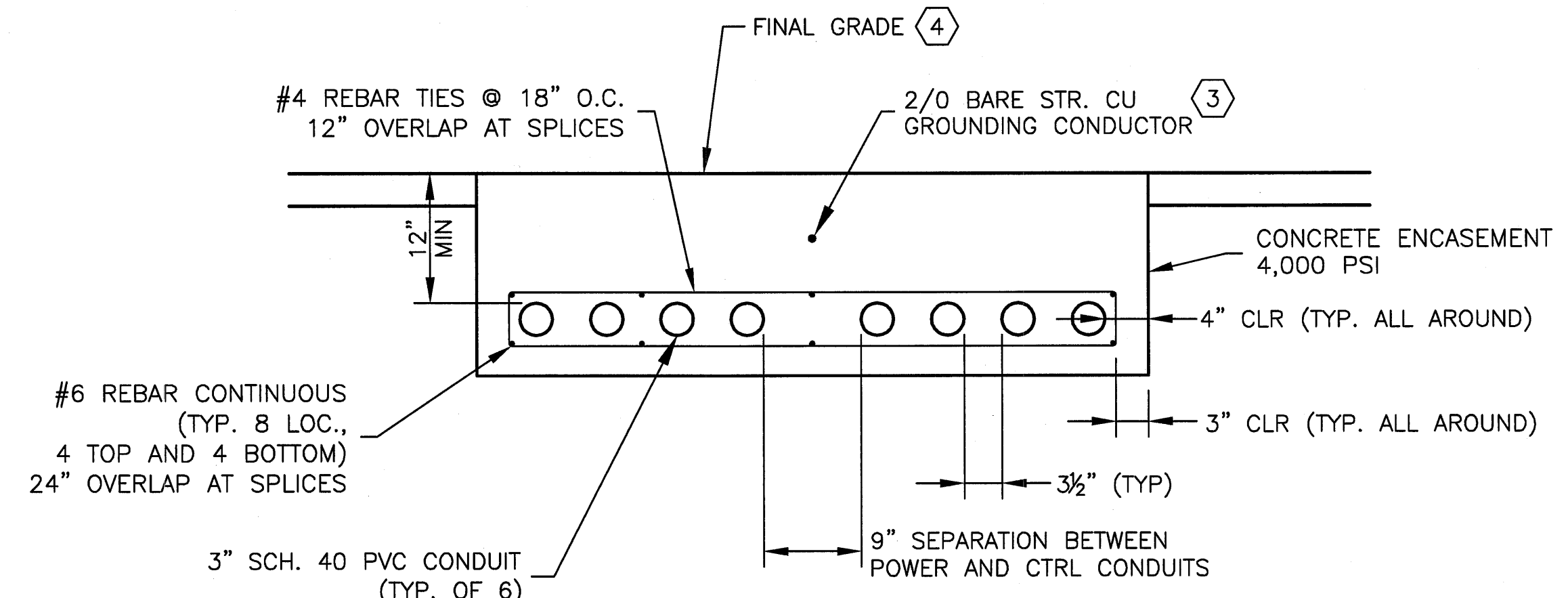
3, 2009, 1:34 PM PLOTTED BY: SONNENBERG, TERRY
K:\MANATEE PROJECTS\12008492 SWRF SITE CLARIFIER WORK\CAD\PLANS\E-2 ELECTRICAL SITE PLAN.DWG



2 PROFILE
E-2 DUCTBANK BETWEEN ELECTRICAL BLDG. AND CLARIFIER #5 RAS/WAS PUMP PAD
SCALE: 1" = 20' HORIZONTAL
1" = 4" VERTICAL



B SECTION
E-2 DUCT BANK
SCALE: NTS



A SECTION
E-2 DUCT BANK
SCALE: NTS

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.

REFERENCE NOTES:

- PROVIDE FOUR (4) 3 IN. CONCRETE ENCASED SCHEDULE 40 PVC CONDUITS UG BETWEEN ELECTRICAL BUILDING AND CLARIFIER #5.
- PROVIDE TWO (2) 3 IN. CONCRETE ENCASED SCHEDULE 40 PVC CONDUITS UG BETWEEN ELECTRICAL BUILDING AND CLARIFIERS #1 AND #2 RAS/WAS PUMP PAD.
- PROVIDE GROUND RODS ON MAXIMUM 100 FT. CENTERS BETWEEN DUCTBANK TERMINATIONS AT MANHOLES/HANDHOLES AND STRUCTURES. BOND GROUNDING CONDUCTOR TO GROUND SYSTEMS AT EACH END OF DUCT BANK VIA EXOTHERMIC WELDING PROCESS.
- "FINAL GRADE" SHALL BE UNDERSTOOD TO REFER TO THE "FINAL EARTHEN GRADE" OR "TOP OF PAVEMENT SURFACE", WHICHEVER CONDITION IS IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT GOVERNING SURFACE RESTORATION.
- PROVIDE 30IN. SQ. BY 24IN. HIGH MINIMUM INSIDE DIMENSIONS CLOSED BOTTOM CONCRETE HANDHOLE WITH 30IN. SQ. GALVANIZED STEEL LID FRAME AND GALVANIZED STEEL DIAMOND PLATE LID. CONCRETE HANDHOLE AND GALVANIZED STEEL LID FRAME/LID SHALL ALL BE HS-20-44 TRAFFIC LOAD RATED. CONCRETE HANDHOLE SHALL BE PRE-CAST. PROVIDE CAST-IN-PLACE END BELLS FOR ALL CONDUITS SPECIFIED TO BE TERMINATED AT HANDHOLE. PROVIDE SUMP RECESS IN HANDHOLE FLOOR. PROVIDE CAST-IN-PLACE 1-1/2IN. PVC CONDUIT SLEEVE THROUGH HANDHOLE FLOOR FOR INSTALLATION OF GROUND ROD AND GROUNDING IN ACCORDANCE WITH TYPICAL HANDHOLE DETAILS. HANDHOLE LID SHALL HAVE BEAD WELD RAISED LETTER LEGEND IDENTIFYING HANDHOLE SERVICE AS "ELECTRIC".

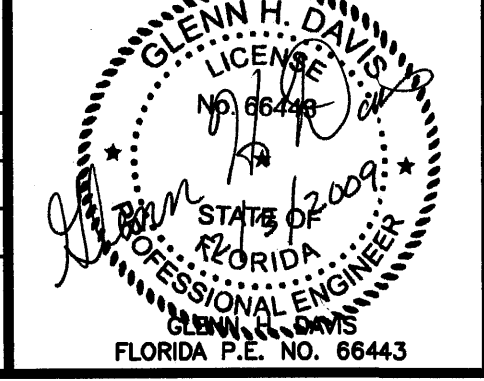
DEMOLITION NOTES:

- DISCONNECT, REMOVE AND PROPERLY DISPOSE OF ABOVE GRADE CONDUIT AND CONDUCTORS; DISCONNECT AND ABANDON IN PLACE ALL UNDERGROUND CONDUIT AND CONDUCTORS. UNDERGROUND CONDUIT SHALL BE CUT BELOW GRADE AND RESURFACED TO MATCH SURROUNDINGS.

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URS JOB NUMBER
12008492
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DRW: J. SCHEURMAN
FILE SAVE DATE:
October 29, 2009



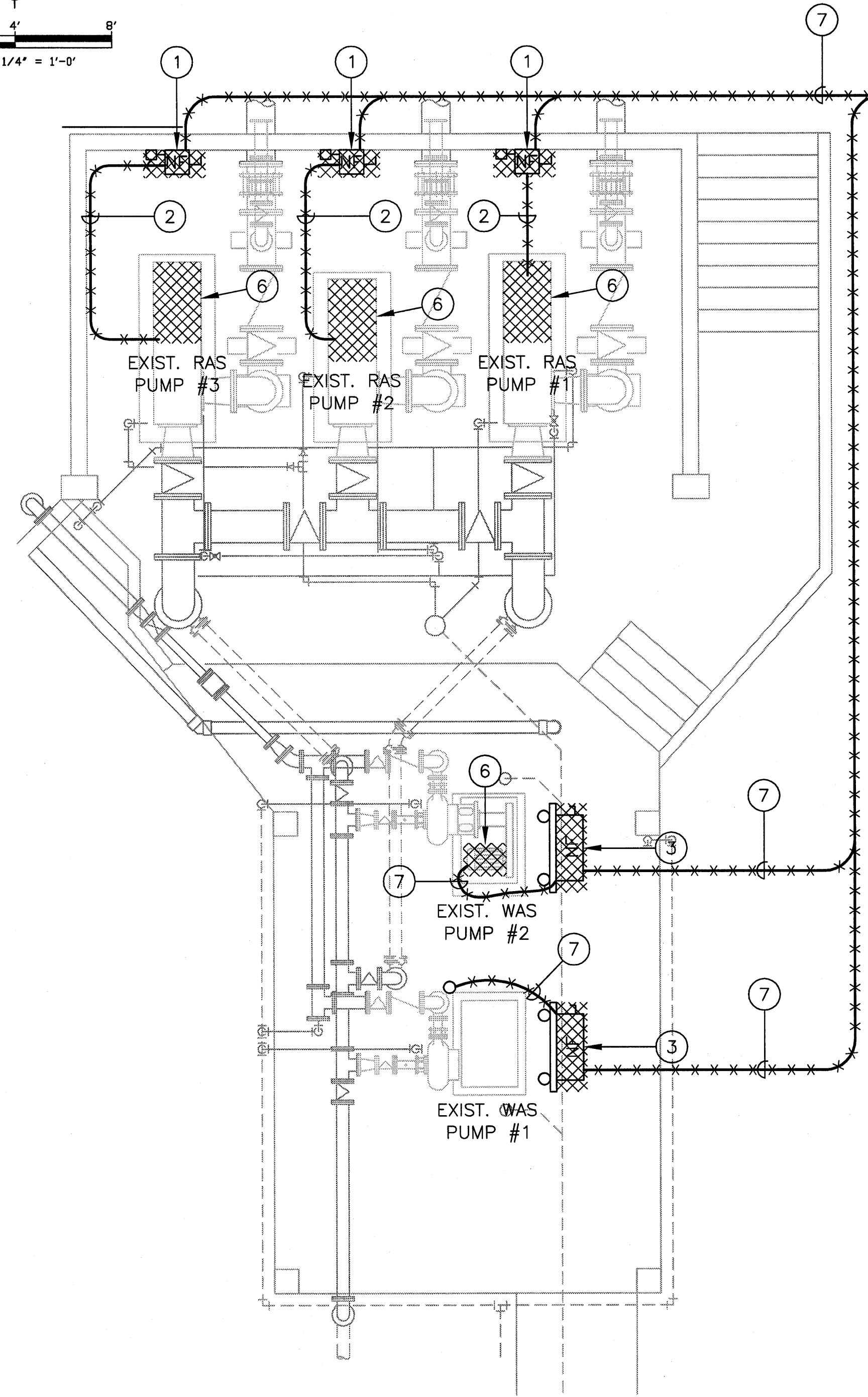
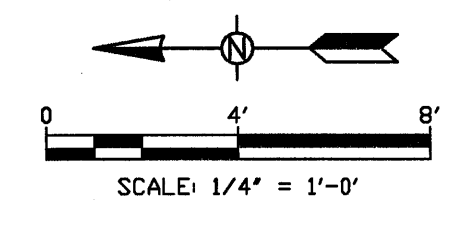
5TH CLARIFIER AT THE
SOUTHWEST WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

ELECTRICAL SITE PLAN

PROJECT STATUS
BID SET
DECEMBER 2009
E-2

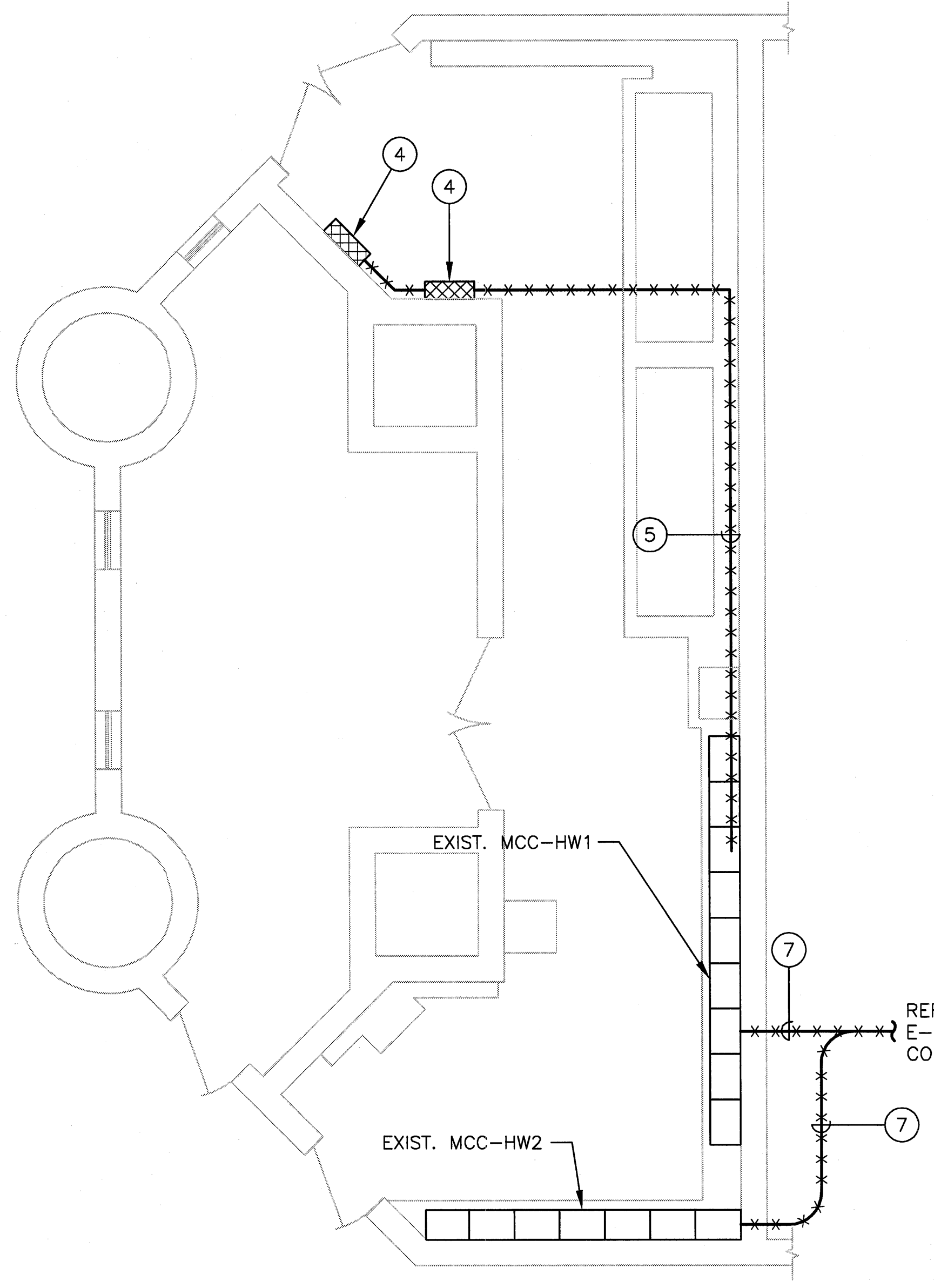
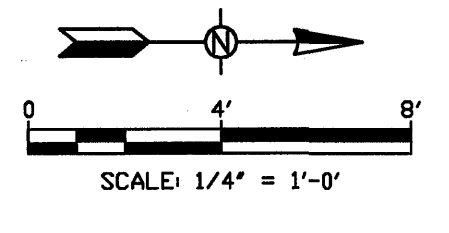
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PLOTTED December 3, 2009 1:35 PM PLOTTED BY: SONNENBERG, TERRY
X:\MANATEE\PROJECTS\12008492_SWWRF_5TH CLARIFIER\WAS\CAD\PLANS\E-3 ENLARGED DEMOLITION PLAN.DWG



REFER TO DWG. E-2 FOR CONTINUATION

1 PLAN
E-2 CLARIFIERS #1 & #2 RAS/WAS PUMP PAD DEMOLITION
SCALE: 1/4" = 1'-0"



REFER TO DWG. E-2 FOR CONTINUATION

2 PLAN
E-2 HEADWORKS DEMOLITION
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. NOT ALL ELECTRICAL EQUIPMENT, CONDUIT, ETC. ARE INDICATED IN DEMOLITION PLANS. THIS DRAWING ONLY INDICATES ELECTRICAL ITEMS RELATED TO THIS PROJECT.
2. ELECTRICAL EQUIPMENT INDICATED AND ROUTING OF CONDUITS ARE DIAGRAMATIC. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS.

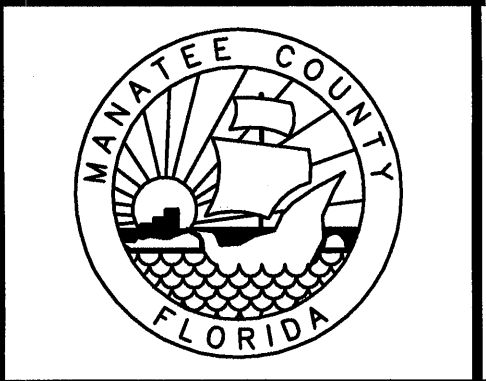
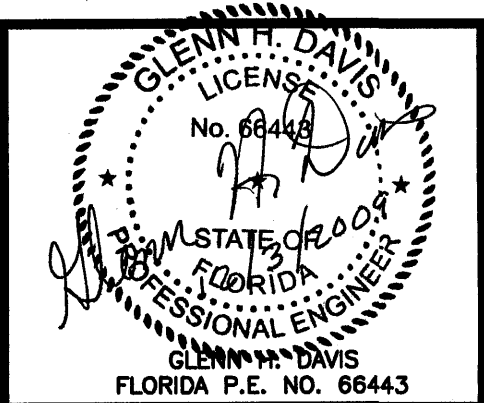
DEMOLITION NOTES:

- ① DISCONNECT, REMOVE AND PROPERLY DISPOSE OF EXISTING RAS PUMP LOCAL DISCONNECT AND ADJACENT START/STOP SWITCH.
- ② DISCONNECT, REMOVE AND PROPERLY DISPOSE OF EXISTING CONDUIT AND CONDUCTORS BETWEEN RAS PUMP LOCAL DISCONNECT AND RAS PUMP.
- ③ DISCONNECT, REMOVE AND PROPERLY DISPOSE OF EXISTING WAS PUMP LOCAL DISCONNECT. LEAVE SUPPORT STRUCTURE INTACT FOR FUTURE USE.
- ④ DISCONNECT, REMOVE AND PROPERLY DISPOSE OF EXISTING RAS PUMP VFDS.
- ⑤ DISCONNECT, REMOVE AND PROPERLY DISPOSE OF EXISTING CONDUIT AND CONDUCTORS BETWEEN RAS PUMP VFD'S AND MCC-HW-1.
- ⑥ DISCONNECT, REMOVE AND PROPERLY DISPOSE OF EXISTING MOTOR.
- ⑦ DISCONNECT, REMOVE AND PROPERLY DISPOSE OF ABOVE GRADE CONDUIT AND CONDUCTORS; DISCONNECT AND ABANDON IN PLACE ALL UNDERGROUND CONDUIT AND CONDUCTORS. UNDERGROUND CONDUIT SHALL BE CUT BELOW GRADE AND RESURFACED TO MATCH SURROUNDINGS.

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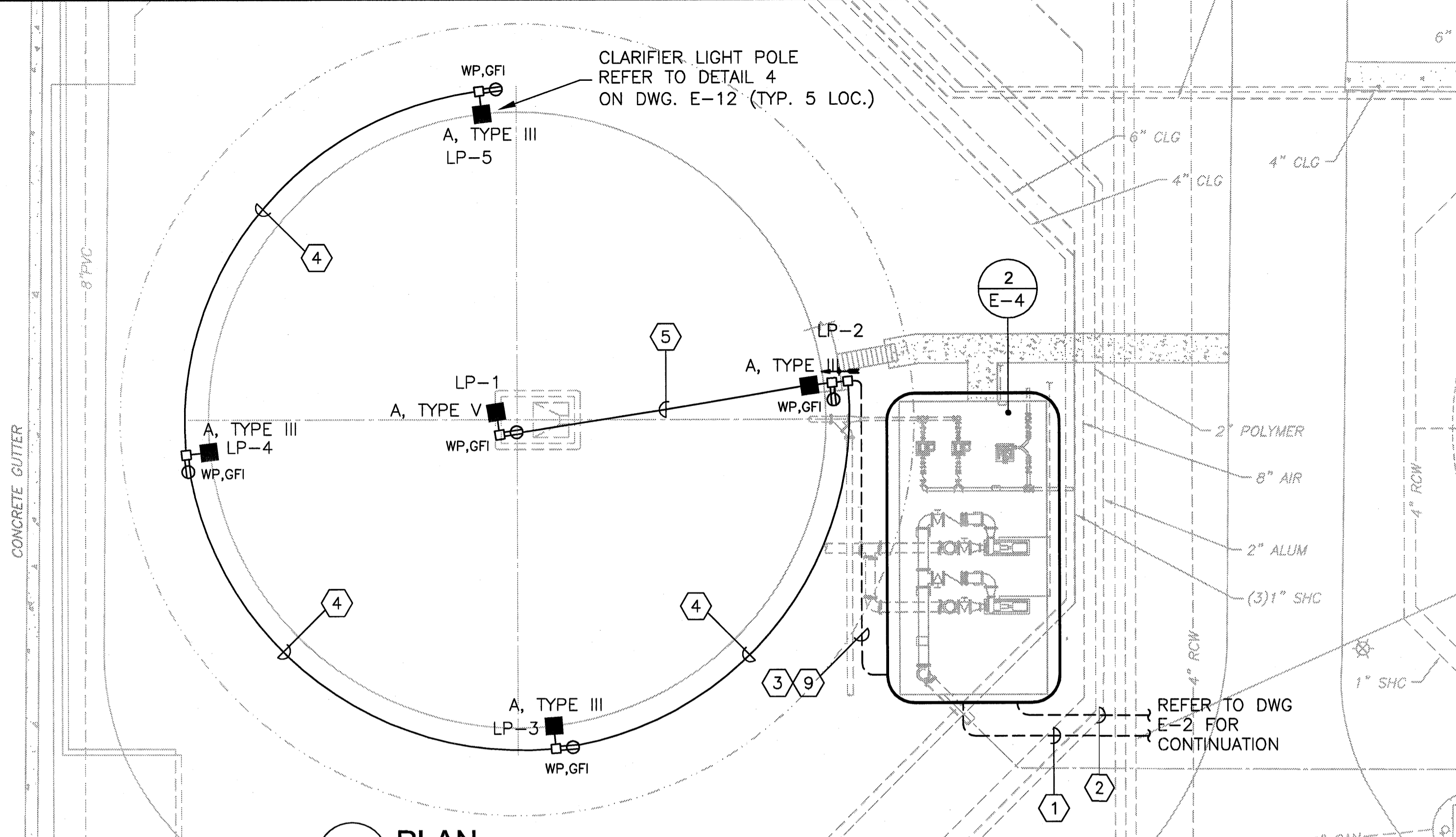
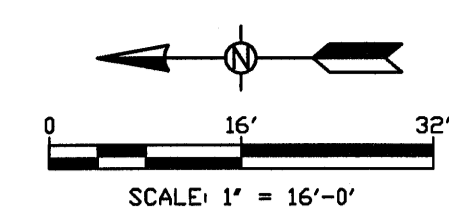
5TH CLARIFIER AT THE
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FOR
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MANATEE COUNTY, FLORIDA

PROJECT STATUS
BID SET
DECEMBER 2009

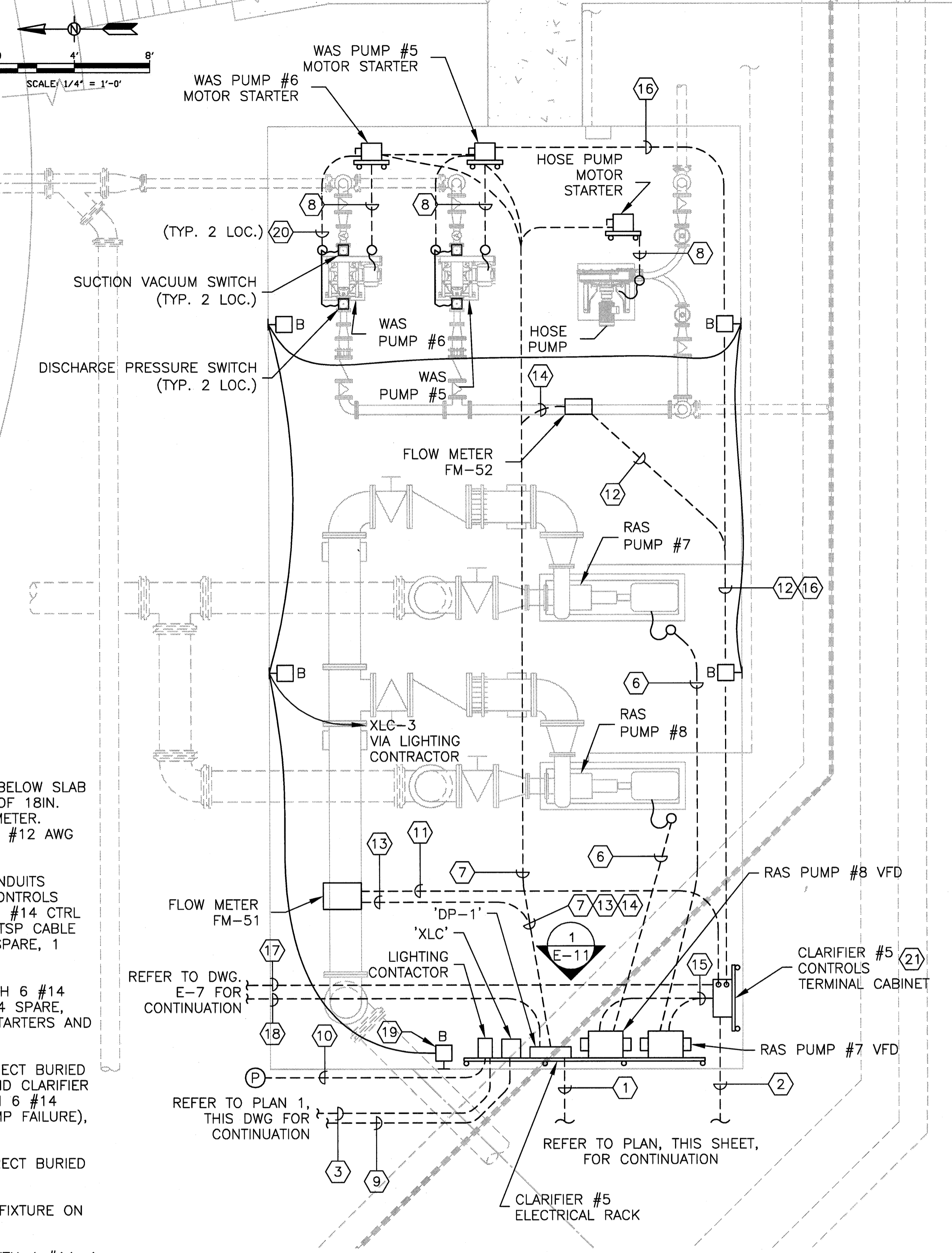
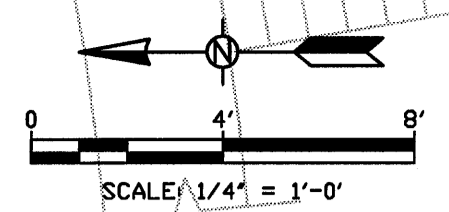
ENLARGED DEMOLITION PLANS

E-3

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



1 PLAN
E-2 CLARIFIER #5 & CLARIFIER #5 RAS/WAS PUMP PAD
SCALE: 1" = 16'-0"



2 PLAN
E-4 CLARIFIER #5 RAS/WAS PUMP PAD
SCALE: 1/4" = 1'-0"

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 BITUMASTIC COATING ON ALL BELOW GRADE RIGID ALUMINUM CONDUIT, EXTEND COATING TO A MINIMUM OF SIX INCHES ABOVE GRADE.

REFERENCE NOTES:

- PROVIDE TWO (2) 3 IN. CONCRETE ENCASED SCHEDULE 40 PVC CONDUITS, ONE ACTIVE, ONE SPARE, UG BETWEEN ELECTRICAL BUILDING AND DP-1 FOR POWER.
- PROVIDE TWO (2) 3 IN. CONCRETE ENCASED SCHEDULE 40 PVC CONDUITS, ONE ACTIVE, ONE SPARE, UG BETWEEN ELECTRICAL BUILDING AND CLARIFIER #5 CONTROLS TERMINAL BOX. INSTALL 28 #14 CTRL, 6-2/C #16 TSP CABLE, 28 #14 SPARE AND 6-2/C #16 TSP SPARE, 1 #12 GND. IN ACTIVE CONDUIT.
- PROVIDE ONE 1 IN. SCHEDULE 80 PVC CONDUIT DIRECT BURIED BETWEEN CLARIFIER #5 ELECTRICAL RACK AND 'LP-2' HANDHOLE FOR SITE LIGHTING.
- PROVIDE ONE 1 IN. SCHEDULE 40 PVC CONDUIT ROUTED IN TANK STRUCTURE BETWEEN LIGHT POLES FOR LIGHTING AND RECEPTACLE POWER.
- PROVIDE ONE 1 IN. RIGID ALUMINUM CONDUIT ROUTED EXPOSED UNDER CATWALK BETWEEN LP-1 AND LP-2 FOR LIGHTING AND RECEPTACLE POWER.
- PROVIDE ONE 1 IN. SCHEDULE 80 PVC CONDUIT BELOW SLAB BETWEEN VFDs AND RAS PUMPS. PROVIDE 24 IN. LENGTH OF LFMC (ALUMINUM) ADJACENT TO MOTOR HOUSING.

REFERENCE NOTES CONT:

- PROVIDE THREE (3) 1 IN. SCHEDULE 80 PVC CONDUIT BELOW SLAB BETWEEN 'DP-1' AND MOTOR STARTERS.
- PROVIDE ONE 3/4 IN. SCHEDULE 80 PVC CONDUIT BELOW SLAB BETWEEN MOTOR AND MOTOR STARTER. PROVIDE 24 IN. LENGTH OF LFMC (ALUMINUM) ADJACENT TO MOTOR HOUSING.
- PROVIDE ONE 1 IN. SCHEDULE 80 PVC CONDUIT DIRECT BURIED BETWEEN 'DP-1' AND LP-2 HANDHOLE FOR RECEPTACLE POWER.
- PROVIDE ONE 3/4 IN. SCHEDULE 80 PVC CONDUIT DIRECT BURIED BETWEEN LIGHTING CONTACTOR AND PHOTOCELL MOUNTED ON NORTHWEST CORNER OF CANOPY. ROUTE CONDUIT EXPOSED ON NORTHWEST COLUMN, MOUNT PHOTOCELL ON 4 IN. SQUARE WEATHERPROOF BOX FACING NORTH AND ADJUST SENSOR SLIDE SHIELD FOR OPTIMAL PERFORMANCE AS DIRECTED BY THE OWNER OR ENGINEER.
- PROVIDE ONE 1 IN. SCHEDULE 80 PVC CONDUIT UNDER SLAB BETWEEN CLARIFIER #5 CONTROLS TERMINAL BOX AND FLOW METER FM-51. PROVIDE MINIMUM OF 18 IN. LENGTH OF LFMC (ALUMINUM) ADJACENT TO FLOW METER. INCLUDE 2/C #16 SHLD. CABLE.
- PROVIDE ONE 1 IN. SCHEDULE 80 PVC CONDUIT UNDER SLAB BETWEEN CLARIFIER #5 CONTROLS TERMINAL BOX AND FLOW METER FM-52. PROVIDE MINIMUM OF 18 IN. LENGTH OF LFMC (ALUMINUM) ADJACENT TO FLOW METER. INCLUDE 2/C #16 SHLD. CABLE.
- PROVIDE ONE 3/4 IN. SCHEDULE 80 PVC CONDUIT BELOW SLAB BETWEEN 'DP-1' AND 'FM-51'. PROVIDE MINIMUM OF 18IN. LENGTH OF LFMC (ALUMINUM) ADJACENT TO FLOW METER. INCLUDE 1 #12 AWG PH., 1 #12 AWG NEUT. AND 1 #12 AWG GND.

REFERENCE NOTES CONT:

- PROVIDE ONE 3/4 IN. SCHEDULE 80 PVC CONDUIT BELOW SLAB BETWEEN 'DP-1' AND 'FM-52'. PROVIDE MINIMUM OF 18IN. LENGTH OF LFMC (ALUMINUM) ADJACENT TO FLOW METER. INCLUDE 1 #12 AWG PH., 1 #12 AWG NEUT. AND 1 #12 AWG GND.
- PROVIDE TWO (2) 1 1/2 IN. SCHEDULE 80 PVC CONDUITS DIRECT BURIED BETWEEN VFDs AND CLARIFIER #5 CONTROLS TERMINAL CABINET. EACH CONDUIT SHALL CONTAIN 6 #14 CTRL (START/STOP, RUN STATUS & ALARM), 2-2/C #16 TSP CABLE (4-20MA SPEED CONTROL & INDICATION), 10 #14 SPARE, 1 #12 GND.
- PROVIDE ONE 1 IN. SCHEDULE 80 PVC CONDUIT WITH 6 #14 CTRL (START/STOP, RUN STATUS & ALARM), 10 #14 SPARE, 1-#12 GND. DIRECT BURIED BETWEEN WAS PUMP STARTERS AND CLARIFIER #5 CONTROLS TERMINAL CABINET.
- PROVIDE ONE 2 IN. SCHEDULE 80 PVC CONDUIT DIRECT BURIED BETWEEN CLARIFIER #5 CONTROLS TERMINAL BOX AND CLARIFIER #5 LOCAL CONTROL PANEL. CONDUIT SHALL CONTAIN 6 #14 CTRL (MOTOR RUN, HIGH TORQUE STAUS, HOSE PUMP FAILURE), 8 #14 SPARE AND 1 #12 GND.
- PROVIDE ONE 1 IN. SCHEDULE 80 PVC CONDUIT DIRECT BURIED BETWEEN 'DP-1' AND CENTER ASSEMBLY STARTER.
- FIXTURE SHOWN OFF-CENTER FOR CLARITY, MOUNT FIXTURE ON CENTER OF WEST ROOF BEAM.
- PROVIDE ONE 1 IN. SCHEDULE 80 PVC CONDUIT WITH 4 #14, 1 #12 GND. DIRECT BURIED BETWEEN SUCTION VACUUM SWITCH, DISCHARGE PRESSURE SWITCH AND MOTOR STARTER. PROVIDE JUNCTION BOX, RIGID ALUMINUM FOR ABOVE GRADE PORTION, LFMC (AL) FOR MIN. OF 12 IN. ADJACENT TO SWITCHES.
- CLARIFIER #5 CONTROLS TERMINAL CABINET NEMA 4X, SS WITH BACK PANEL, DIN RAIL MOUNTED TERMINAL BLOCKS, PROVIDE QUANTITY AS REQUIRED TO TERMINATE SPARE CONDUCTORS. SIZE AS REQUIRED PER NEC.

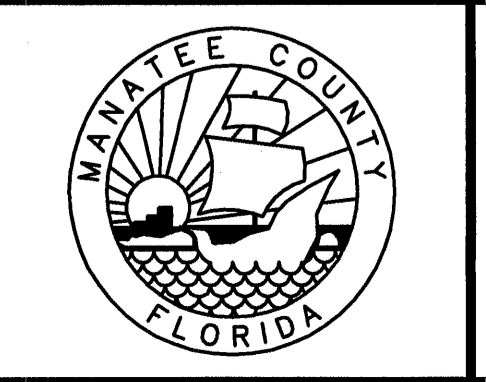
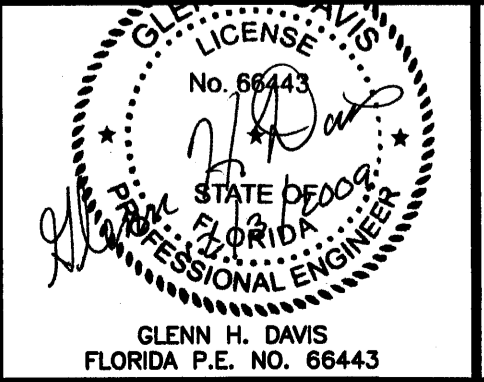
PLOTTED December 3, 2009 1:35 PM PLOTTED BY: SONNENBERG, TERRY
X:\MANATEE PROJECTS\12008492 SWRF 5TH CLARIFIER\WAS\PLANS\E-4 CLARIFIER #5 AND CLARIFIER #5 RAS WAS PUMP PAD PLANS.DWG

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NO.	BY	DATE	DESCRIPTION

URS JOB NUMBER
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FILE SAVE DATE:
December 2, 2009



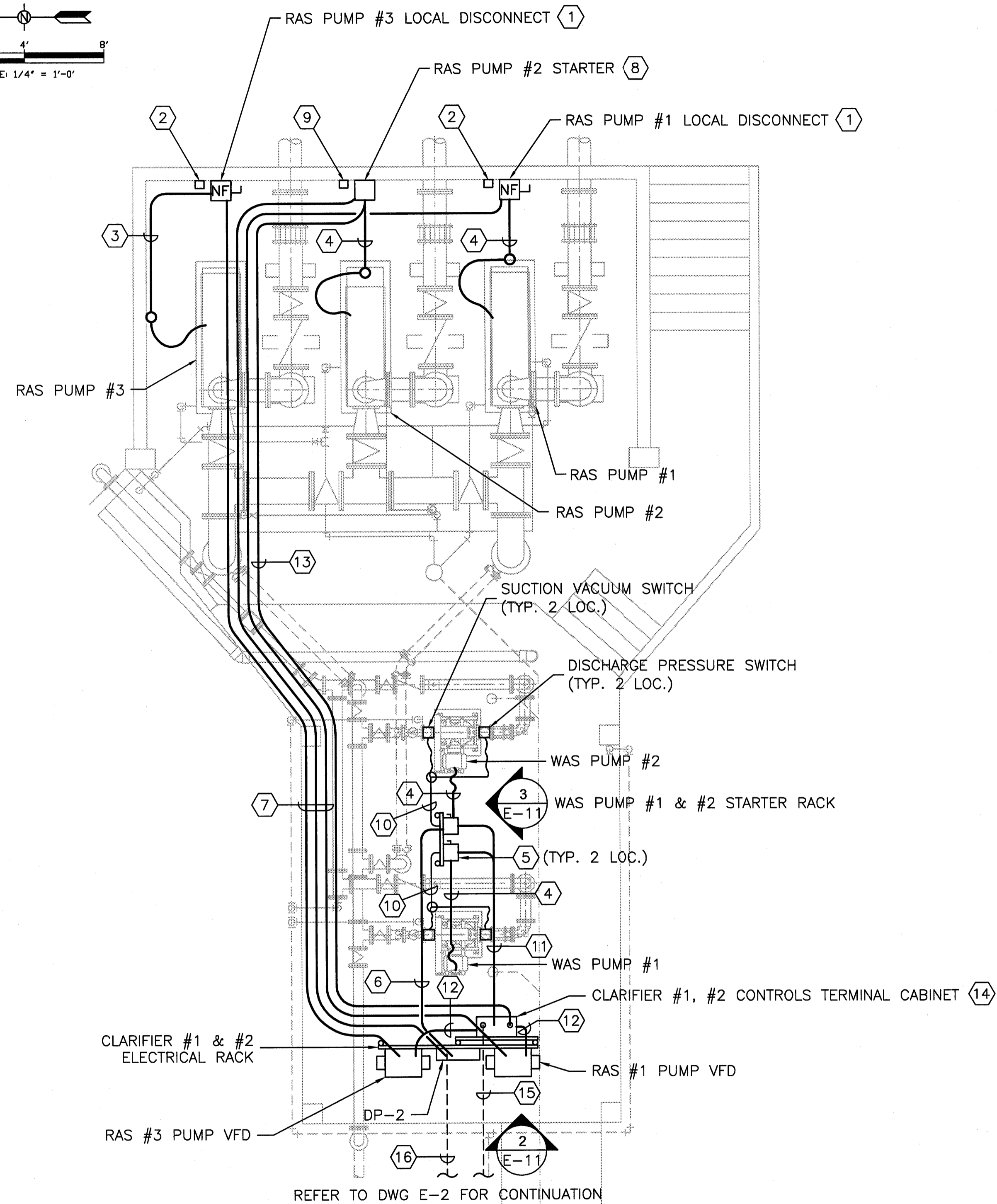
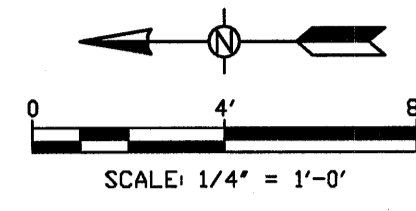
5TH CLARIFIER AT THE
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FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

CLARIFIER #5 AND CLARIFIER #5
RAS/WAS PUMP PAD PLANS

PROJECT STATUS
BID SET
DECEMBER 2009

E-4

PLOTTED December 3, 2009 1:36 PM PLOTTED BY: SONNENBERG, TERRY
 X:\MANATEE PROJECTS\12008492 SWRF 5TH CLARIFIER WA#1\CADD\PLANS\E-5 ENLARGED PLAN CLARIFIERS.DWG
 VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING 0
 1 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY



1 PLAN
 E-2 ENLARGED CLARIFIERS #1 & #2 RAS/WAS PUMP PAD
 SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. REFER TO SINGLE LINE DIAGRAM FOR CONDUCTOR SIZES AND ADDITIONAL REQUIREMENTS.
2. CONDUIT ROUTING IS SHOWN FOR DIAGRAMIC PURPOSES ONLY THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATION BETWEEN LOCATION OF ELECTRICAL EQUIPMENT AND ALL OTHER TRADES.

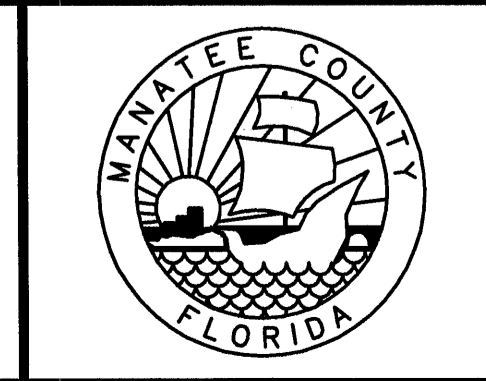
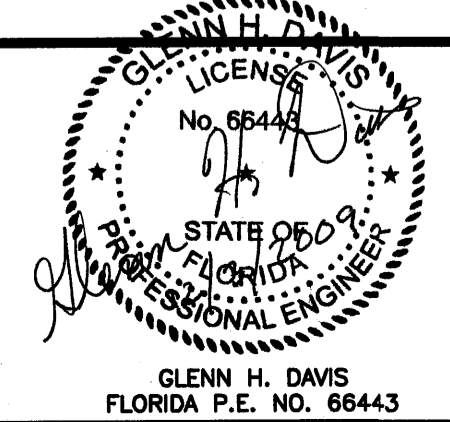
REFERENCE NOTES:

- 1 PROVIDE 60A NON-FUSED LOCAL DISCONNECT IN NEMA 4X STAINLESS STEEL ENCLOSURE.
- 2 PROVIDE WEATHERPROOF MAINTAINED CONTACT MUSHROOM HEAD E-STOP PUSHBUTTON. PROVIDE 1 IN. RIGID ALUMINUM NIPPLE BETWEEN 4 IN. SQ. BOX BEHIND PUSHBUTTON AND LOCAL DISCONNECT SWITCH. PROVIDE 2#12 AWG CTRL CONDUCTORS BETWEEN E-STOP AND VFD FOR PERMISSIVE CONTROL.
- 3 PROVIDE ONE 1 IN. RIGID ALUMINUM CONDUIT ROUTED EXPOSED ON WALL BETWEEN LOCAL DISCONNECT AND RAS PUMP #3 MOTOR TERMINATION BOX. TRANSITION TO LFMC(AL) FOR MINIMUM 18 IN. OF CONDUIT RUN ADJACENT TO MOTOR TERMINATION BOX.
- 4 PROVIDE ONE 1 IN. RIGID ALUMINUM CONDUIT ROUTED EXPOSED ALONG GROUND ON SS STRUT BETWEEN MOTOR STARTER/LOCAL DISCONNECT AND MOTOR TERMINATION BOX. TRANSITION TO LFMC(AL) FOR 24 IN. OF CONDUIT RUN ADJACENT TO MOTOR TERMINATION BOX.
- 5 PROVIDE COMBINATION STARTER IN NEMA TYPE 4X 304SS ENCLOSURE.
- 6 PROVIDE ONE 1 IN. RIGID ALUMINUM CONDUIT ROUTED EXPOSED BETWEEN DP-2 AND WAS PUMP #1 & #2 STARTER RACK. INSTALL BOTH CIRCUITS FOR WAS PUMP STARTERS IN COMMON CONDUIT. PROVIDE JUNCTION BOX MOUNTED ON WAS PUMP #1 & #2 STARTER RACK TO SEPERATE CIRCUITS PRIOR TO ENTERING STARTER ENCLOSURES.
- 7 PROVIDE RIGID ALUMINUM CONDUIT ROUTED EXPOSED FROM EXISTING CEILING BETWEEN CLARIFIERS #1 & #2 ELECTRICAL RACK AND LOCAL DISCONNECT SWITCHES. INSTALL CONDUIT AND SUPPORT STRUCTURES SO THAT NO PART OF THE ELECTRICAL SYSTEM CAUSES INTERFERENCE WITH THE EXISTING SWING ARM 1 TON CRANE.
- 8 PROVIDE COMBINATION STARTER IN NEMA TYPE 4X 304 SS ENCLOSURE. MOUNT ON EXISTING BLOCK WALL WITH STAINLESS STEEL HARDWARE.
- 9 PROVIDE WEATHERPROOF MAINTAINED CONTACT MUSHROOM HEAD E-STOP PUSHBUTTON. PROVIDE 1 IN. RIGID ALUMINUM NIPPLE BETWEEN 4 IN. SQ. BOX BEHIND PUSHBUTTON AND RAS PUMP #2 STARTER. PROVIDE 2#12 AWG CTRL CONDUCTORS BETWEEN E-STOP AND STARTER FOR PERMISSIVE CONTROL.
- 10 PROVIDE ONE 1 IN. RIGID ALUMINUM CONDUIT ROUTED EXPOSED BETWEEN SUCTION VACUUM SWITCH, DISCHURE PRESSURE SWITCH AND MOTOR STARTER. PROVIDE JUNCTION BOX, RIGID ALUMINUM FOR ABOVE GRADE PORTION, LFMC (AL) FOR MIN. OF 12 IN. ADJACENT TO SWITCHES.
- 11 PROVIDE ONE 1 IN. RIGID ALUMINIUM CONDUIT WITH 8#14 CTRL (START/STOP-1-2 AND RUN STATUS-1-2), 8#14 SPARE AND 1#12 GND ROUTED EXPOSED BETWEEN WAS PUMP STARTERS AND CLARIFIER #1, #2 CONTROLS TERMINAL CABINET.
- 12 PROVIDE 1-1/2IN. RIGID ALUMINUM CONDUIT ROUTED EXPOSED BETWEEN VFD ENCLOSURES AND CLARIFIER #1, #2 CONTROLS TERMINAL CABINET. EACH CONDUIT SHALL CONTAIN 6#14 CTRL (START/STOP, RUN STATUS & ALARM), 2-2/C#16 TSP (4-20mA SPEED CONTROL AND INDICATION), 10#14 SPARE AND 1#12 GND.
- 13 PROVIDE ONE 1IN. RIGID ALUMINUM CONDUIT ROUTED EXPOSED BETWEEN RAS PUMP #2 STARTER AND CLARIFIER #1, #2 CONTROLS TERMINAL CABINET. CONDUIT SHALL CONTAIN 6#14 CTRL (START/STOP, RUN STATUS & ALARM), 10#14 SPARE AND 1#12 GND.
- 14 CLARIFIER #1, #2 CONTROLS TERMINAL CABINET NEMA 4XSS WITH BACK PANEL, DIN RAIL MOUNTED TERMINAL BLOCKS, PROVIDE QUANTITY AS REQUIRED TO TERMINATE CONDUCTORS INCLUDING SPARE. SIZE AS REQUIRED PER NEC.
- 15 PROVIDE TWO (2) 3 IN. CONCRETE ENCASED SCHEDULE 40 PVC CONDUITS, ONE ACTIVE ONE SPARE, UG BETWEEN ELECTRICAL BUILDING AND CLARIFIER #1, #2 CONTROLS TERMINAL CABINET. INSTALL 22#14 CTRL, 4-2/C#16 TSP CABLE, 34#14 SPARE, 4-2/C#16 TSP SPARE CABLE AND 1#12 GND.
- 16 PROVIDE TWO (2) 3 IN. CONCRETE ENCASED SHCEDULE 40 PVC CONDUITS, ONE ACTIVE, ONE SPARE, UG BETWEEN ELECTRICAL BUILDING AND DP-2 FOR POWER.

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PM: DAVID WILCOX
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FILE SAVE DATE: December 2, 2009

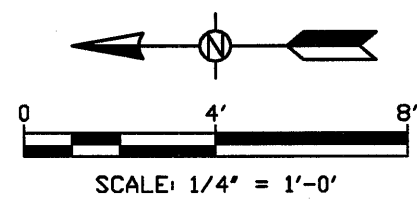
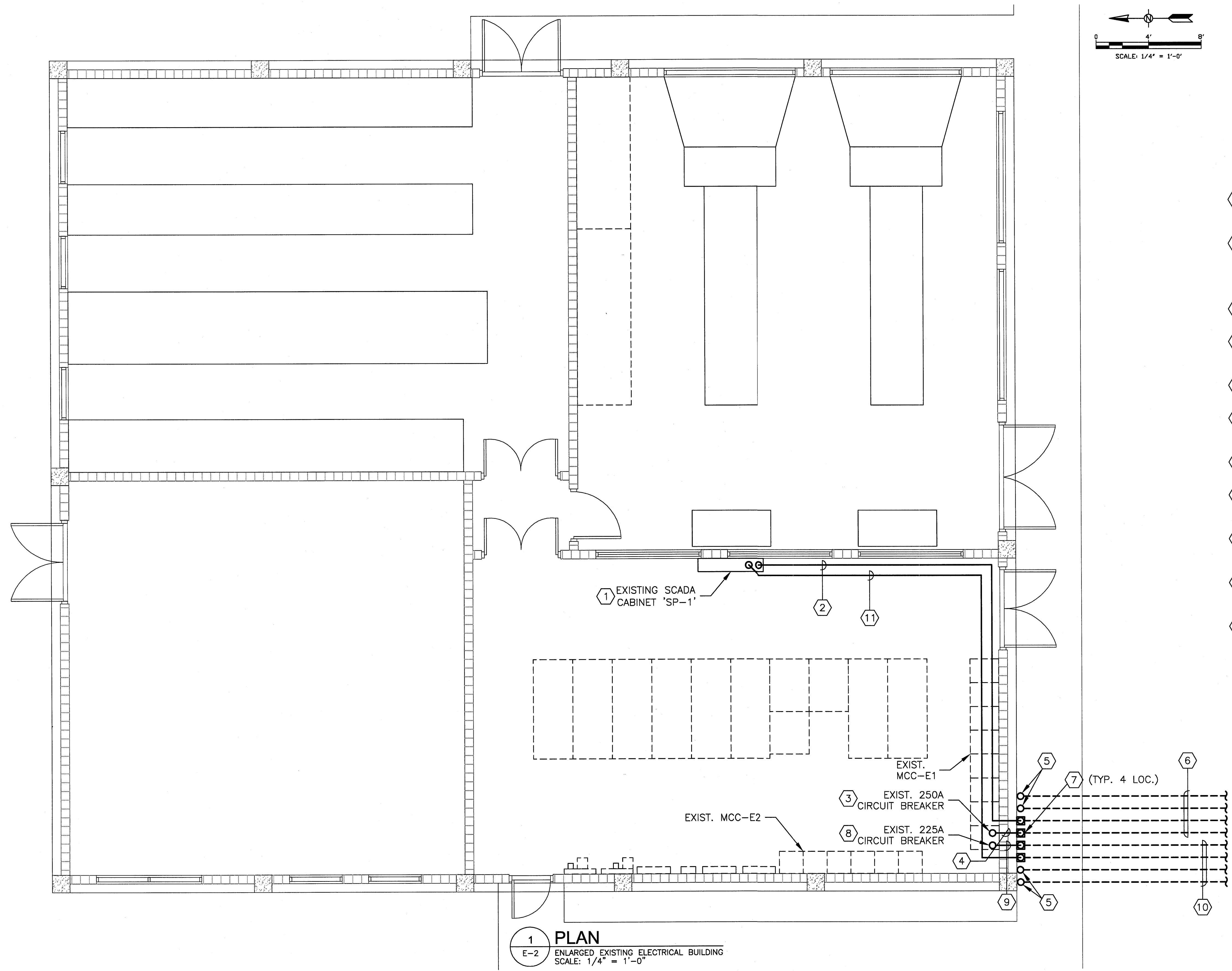


**5TH CLARIFIER AT THE
 SOUTHWEST WATER RECLAMATION FACILITY**
 FOR
 MANATEE COUNTY GOVERNMENT
 MANATEE COUNTY, FLORIDA

**ENLARGED PLAN CLARIFIERS #1 &
 #2 RAS/WAS PUMP PAD**

PROJECT STATUS
 BID SET
 DECEMBER 2009
E-5

PLOTTED December 3, 2009 1:35 PM PLOTTED BY: SONNENBERG, TERRY
 X:\MANATEE PROJECTS\12008492 SWRF 5TH CLARIFIER WWS\CADD\PLANS\E-6 ENLARGED PLAN EXISTING ELECTRICAL BUILDING.DWG
 VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING 0 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY



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. CONDUIT IS SHOWN DIAGRAMMATICALLY, CONTRACTOR SHALL COORDINATE WITH EXISTING CONDITIONS FOR FINAL CONDUIT ROUTING.

REFERENCE NOTES:

- 1 TERMINATE NEW CONTROL WIRING TO EXISTING TERMINAL STRIPS IN EXISTING SCADA CABINET 'SP-1' PER MONITORING AND CONTROL WIRING TERMINATION DIAGRAMS ON DWG. E-9.
- 2 PROVIDE ONE 3 IN. RGS CONDUIT ROUTED EXPOSED ABOVE FALSE CEILING BETWEEN EXISTING SCADA CABINET 'SP-1' AND EXTERIOR OF ELECTRICAL BUILDING FOR CLARIFIER #5 CONTROL WIRING. CONDUIT TO CONTAIN 28#14 CTRL, 6-2/C#16 TSP, 28#14 CTRL SPARE, 6-2/C#16 TSP SPARE AND 1#12 GND.
- 3 TERMINATE NEW CONDUCTORS FOR CLARIFIER #5 POWER TO EXISTING 250A/3P CIRCUIT BREAKER IN EXISTING 'MCC-E1'.
- 4 PROVIDE ONE 3 IN. RGS CONDUIT ROUTED EXPOSED BETWEEN EXISTING 'MCC-E1' AND EXTERIOR OF ELECTRICAL BUILDING FOR CLARIFIER #5 POWER CONDUCTORS.
- 5 EXTEND SPARE 3 IN. CONDUITS SIX (6) INCHES ABOVE GRADE AND COVER WITH RGS CONDUIT CAP.
- 6 PROVIDE FOUR (4) 3 IN. CONCRETE ENCASED SCHEDULE 40 PVC CONDUITS, TWO ACTIVE, TWO SPARE, UG BETWEEN ELECTRICAL BUILDING AND CLARIFIER #5.
- 7 PROVIDE LB CONDUIT FITTINGS ON EXTERIOR OF ELECTRICAL BUILDING.
- 8 TERMINATE NEW CONDUCTORS FOR CLARIFIER #1 & #2 RAS/WAS PUMP POWER TO EXISTING 225A/3P CIRCUIT BREAKER IN EXISTING 'MCC-E1'.
- 9 PROVIDE ONE 3 IN. RGS CONDUIT ROUTED EXPOSED BETWEEN EXISTING 'MCC-E1' AND EXTERIOR OF ELECTRICAL BUILDING FOR 'DP-2' POWER CONDUCTORS.
- 10 PROVIDE FOUR (4) 3 IN. CONCRETE ENCASED SCHEDULE 40 PVC CONDUITS, TWO ACTIVE, TWO SPARE, UG BETWEEN ELECTRICAL BUILDING AND CLARIFIERS #1 & #2 RAS/WAS PUMP PAD.
- 11 PROVIDE ONE 3 IN. RGS CONDUIT ROUTED EXPOSED ABOVE FALSE CEILING BETWEEN EXISTING SCADA CABINET 'SP-1' AND EXTERIOR OF ELECTRICAL BUILDING FOR CLARIFIERS #1 & #2 RAS/WAS PUMP CONTROL WIRING. CONDUIT TO CONTAIN 22#14 CTRL, 4-2/C#16 TSP, 34#14 CTRL SPARE, 4-2/C#16 TSP SPARE AND 1#12 GND.

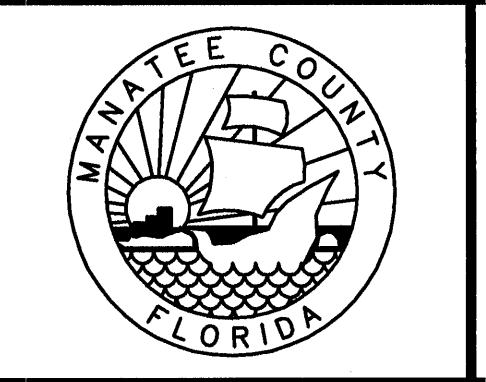
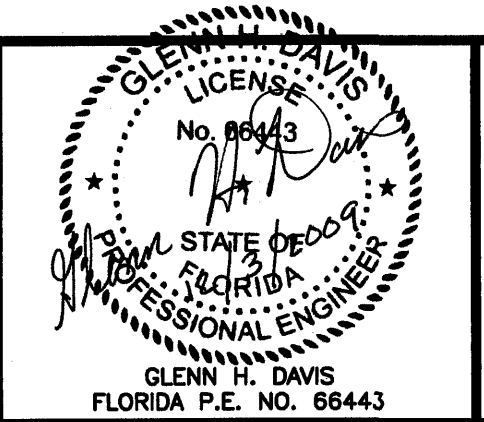
1 PLAN
 E-2 ENLARGED EXISTING ELECTRICAL BUILDING
 SCALE: 1/4" = 1'-0"

REFER TO DWG E-2 FOR CONTINUATION

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 DRW: J. SCHEURMAN
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 October 30, 2009

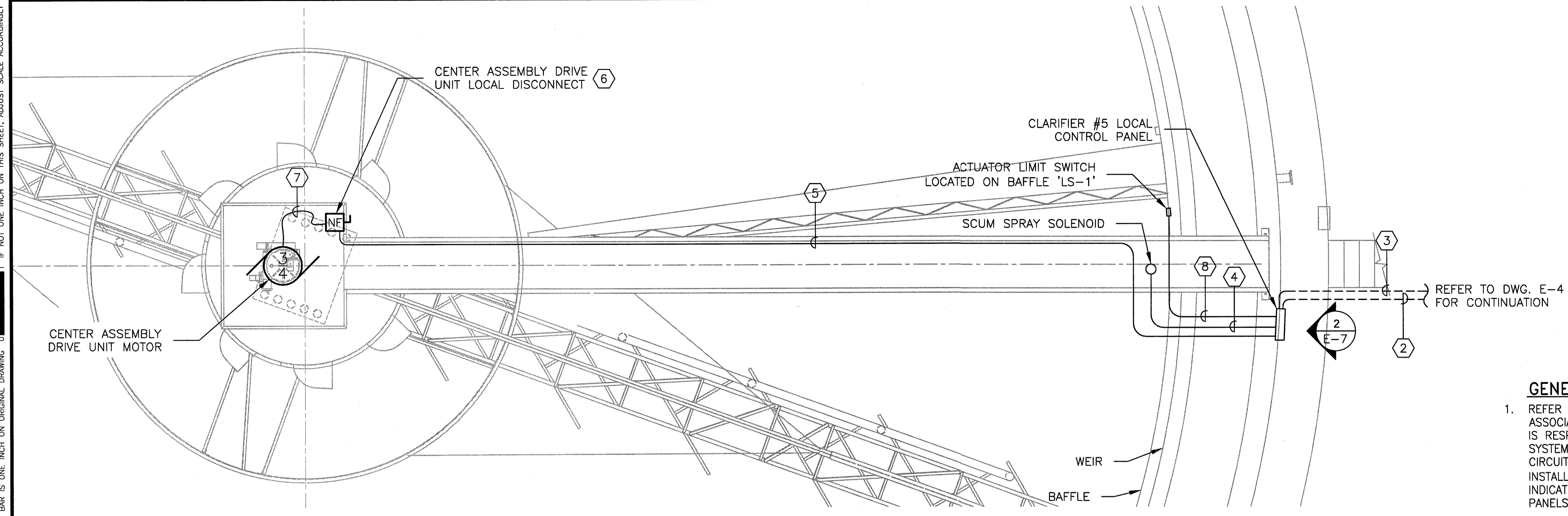


5TH CLARIFIER AT THE
 SOUTHWEST WATER RECLAMATION FACILITY
 FOR
 MANATEE COUNTY GOVERNMENT
 MANATEE COUNTY, FLORIDA

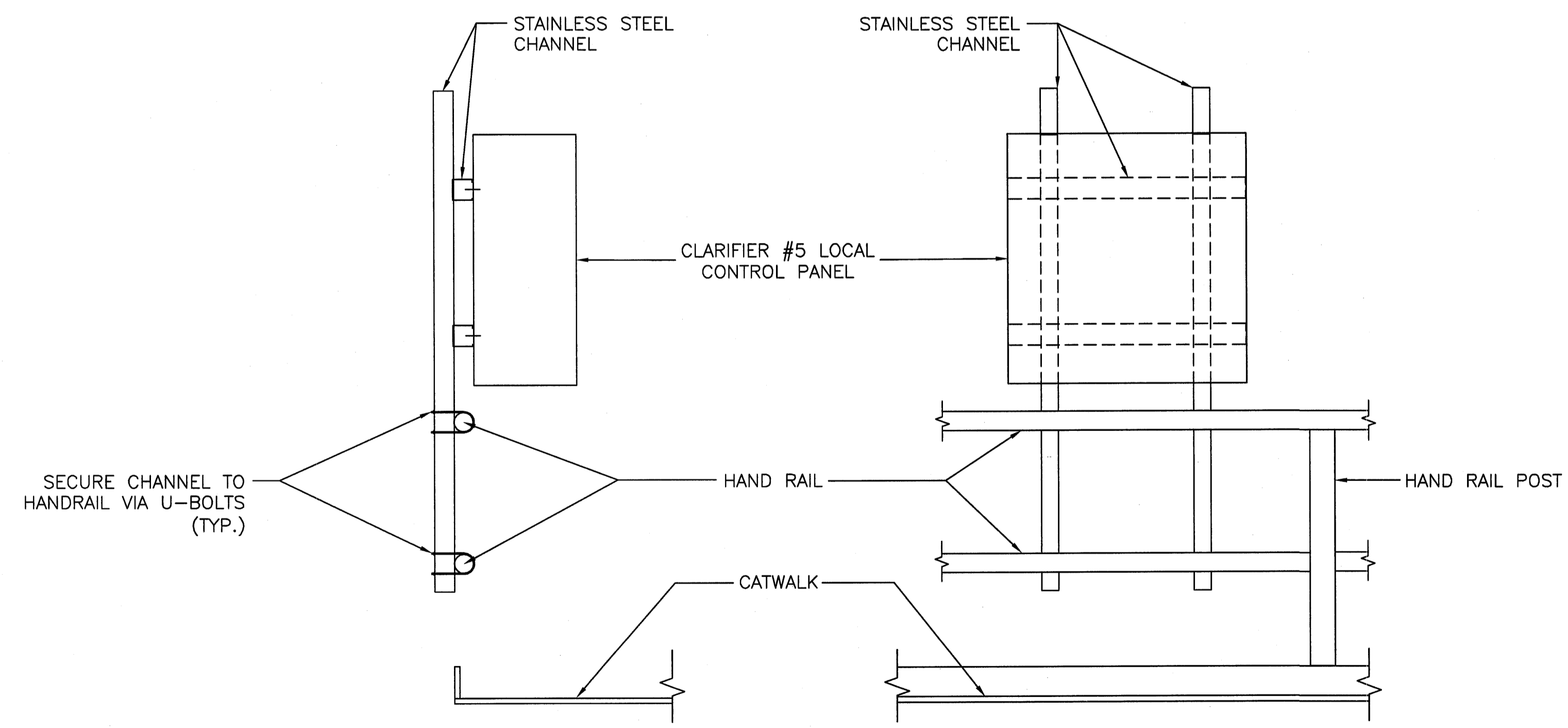
ENLARGED PLAN EXISTING
 ELECTRICAL BUILDING

PROJECT STATUS
 BID SET
 DECEMBER 2009
E-6

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



1 DETAIL
E-7 CLARIFIER #5
SCALE: 1" = 50'-0"



2 DETAIL
E-7 CLARIFIER #5 LOCAL CONTROL PANEL MOUNTING DETAIL
SCALE: N.T.S.

GENERAL NOTES:

- REFER TO MECHANICAL SPECIFICATION SECTION 11227 FOR EQUIPMENT WIRING ASSOCIATED WITH CONTROL AND INSTRUMENTATION SYSTEM. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING THE RACEWAYS FOR CONTROL SYSTEM, CONNECTION OF ELECTRICAL POWER TO SUCH EQUIPMENT, AND 120V CIRCUITS TO CONTROL DEVICES. CONTROL PANELS AND DEVICES ARE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR AND/OR EQUIPMENT SUPPLIER AND ARE INDICATED AT APPROXIMATE LOCATIONS. CONTROL DEVICES LOCATED IN CONTROL PANELS MAY ACTUALLY BE INTEGRAL TO OTHER MECHANICAL EQUIPMENT AT RACKS.
- 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.
- SCUM CONTROL PANEL, SUPPORTS, CHANNELS, BRACKETS, U BOLTS, NUTS, ETC. SHALL BE SUPPLIED BY SAME MANUFACTURER.
- ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL UNO.

REFERENCE NOTES:

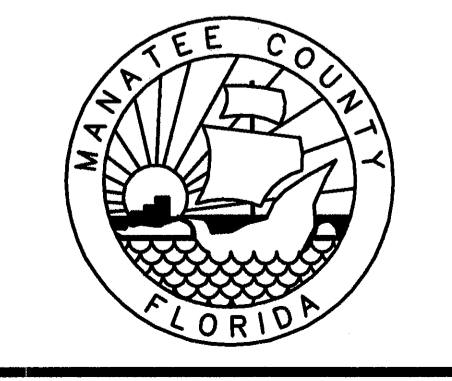
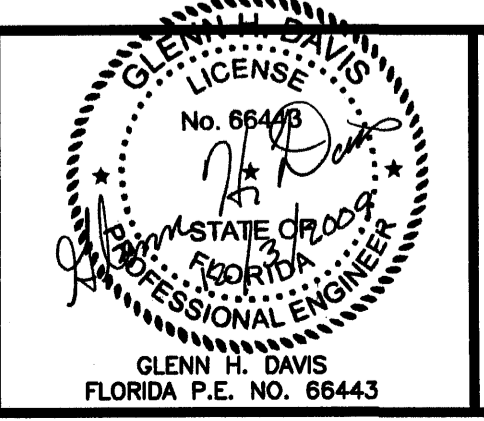
- PROVIDE CENTER ASSMBLY DRIVE UNIT COMBINATION MOTOR STARTER IN NEMA TYPE 4X SS ENCLOSURE.
- PROVIDE ONE 1 IN. SCHEDULE 80 PVC CONDUIT DIRECT BURIED BETWEEN CENTER ASSEMBLY STARTER AND PANEL 'DP-1' FOR MOTOR POWER.
- PROVIDE ONE 2 IN. SCHEDULE 80 PVC CONDUIT WITH 6 #14 CTRL (MOTOR RUN, HIGH TORQUE STATUS, HOSE PUMP FAILURE LIGHT), 8 #14 SPARE, 1 #12 GND DIRECT BURIED BETWEEN CLARIFIER #5 LOCAL CONTROL PANEL AND CLARIFIER #5 CONTROLS TERMINAL CABINET.
- PROVIDE ONE 3/4 IN. RIGID ALUMINUM CONDUIT WITH 2 #14 CTRL, 1 #14 GND ROUTED EXPOSED BETWEEN CLARIFIER #5 LOCAL CONTROL PANEL AND SCUM SPRAY SOLENOID; PROVIDE LFMC (ALUMINUM) FOR MINIMUM OF 24 IN. ADJACENT TO SCUM SPRAY SOLENOID HOUSING.
- PROVIDE ONE 1 IN. RIGID ALUMINUM CONDUIT ROUTED EXPOSED UNDER CATWALK BETWEEN CENTER ASSEMBLY STARTER AND CENTER ASSEMBLY DRIVE UNIT LOCAL DISCONNECT.
- PROVIDE 30A NON-FUSED LOCAL DISCONNECT IN NEMA 4X STAINLESS STEEL ENCLOSURE.
- PROVIDE ONE 1 IN. LFMC (ALUMINUM) BETWEEN CENTER ASSEMBLY DRIVE UNIT LOCAL DISCONNECT AND CENTER ASSEMBLY DRIVE UNIT MOTOR.
- PROVIDE ONE 3/4 IN. RIGID ALUMINUM CONDUIT WITH 2 #14 CTRL, 1 #14 GND ROUTED EXPOSED BETWEEN CLARIFIER #5 LOCAL CONTROL PANEL AND ACTUATOR LIMIT SWITCH; PROVIDE LFMC (ALUMINUM) FOR MINIMUM OF 24 IN. ADJACENT TO LIMIT SWITCH HOUSING.

PLOTTED December 3, 2009 1:37 PM PLOTTED BY: SONNENBERG, TERRY X:\MANATEE PROJECTS\12008492 SWRF 5TH CLARIFIER WA\8\CADD\PLANS\E-7 DETAILS.DWG

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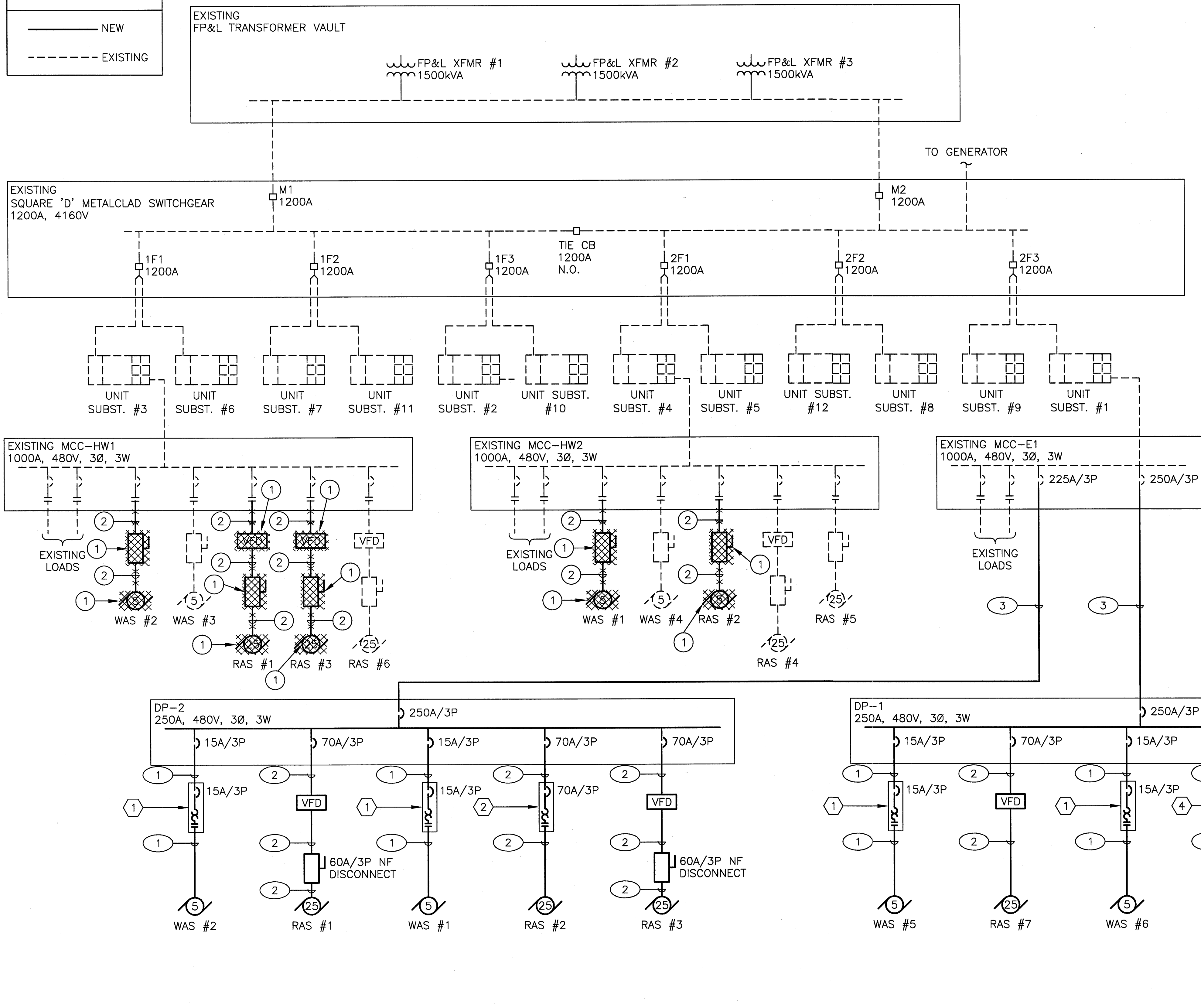


5TH CLARIFIER AT THE
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MANATEE COUNTY, FLORIDA

PROJECT STATUS
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DECEMBER 2009
CLARIFIER #5 DETAILS
E-7

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 X:\MANATEE PROJECTS\12008492 SWRF 5TH CLARIFIER WAS\CAO\PLANS\E-8 SINGLE LINE DIAGRAM.DWG

LEGEND	
—	NEW
- - - - -	EXISTING



REFERENCE NOTES:

- ① PROVIDE NEMA SIZE 0 FVNR, 480V COMBINATION STARTERS WITH THERMAL UNITS SIZED SPECIFICALLY FOR THE ASSOCIATED MOTOR LOAD. INCLUDE START/STOP PUSHBUTTON, HAND-OFF-AUTO SELECTOR SWITCH, LED-PUSH-TO-TEST RED "OFF" PILOT LIGHT, LED-PUSH-TO-TEST GREEN "ON" PILOT LIGHT, CONTROL TRANSFORMER, RELAYS AND E-STOP PUSHBUTTONS.
- ② PROVIDE NEMA SIZE 3 FVNR, 480V COMBINATION STARTERS WITH THERMAL UNITS SIZED SPECIFICALLY FOR THE ASSOCIATED MOTOR LOAD. INCLUDE START/STOP PUSHBUTTON, FORWARD/REVERSE SELECTOR SWITCH, LED-PUSH-TO-TEST RED "OFF" PILOT LIGHT, LED-PUSH-TO-TEST GREEN "ON" PILOT LIGHT, CONTROL TRANSFORMER, RELAYS AND E-STOP PUSHBUTTONS.
- ③ CENTER ASSEMBLY DRIVE-UNIT STARTER IS MOUNTED INTERNAL TO CLARIFIER #5 LOCAL CONTROL PANEL. REFER TO DETAIL 3 AND DIAGRAM 4 ON DWG. E-13 FOR FURTHER DETAIL.
- ④ PROVIDE NEMA SIZE 1 FVR, 480V COMBINATION STARTERS WITH THERMAL UNITS SIZED SPECIFICALLY FOR THE ASSOCIATED MOTOR LOAD. INCLUDE START/STOP PUSHBUTTON, HAND-OFF-AUTO SELECTOR SWITCH, FORWARD/REVERSE SELECTOR SWITCH, LED-PUSH-TO-TEST RED "OFF" PILOT LIGHT, LED-PUSH-TO-TEST GREEN "ON" PILOT LIGHT, CONTROL TRANSFORMER, RELAYS AND E-STOP PUSHBUTTONS.
- ⑤ PROVIDE SEALED TRANSFORMER/LOAD CENTER IN ONE NEMA 3R ENCLOSURE WITH 480V SINGLE PHASE PRIMARY, 120/240V SINGLE PHASE SECONDARY AND INTERRUPT RATING NOT LESS THAN 25kAIC.
- ⑥ PROVIDE NEUTRAL-GROUND BOND IN 'XLC' ENCLOSURE.

FEEDER SCHEDULE:

- ① (3) #12 AWG PH. AND (1) #12 AWG GND. IN 1 IN. CONDUIT.
- ② (3) #6 AWG PH. AND (1) #6 AWG GND. IN 1 IN. CONDUIT.
- ③ (3) 250kcmil PH. AND (1) 250kcmil GND. IN 3 IN. CONDUIT.
- ④ (2) #12 AWG PH. AND (1) #12 AWG GND. IN 1 IN. CONDUIT.
- ⑤ (1) #12 AWG PH., (1) #12 AWG NEUT. AND (1) #12 AWG GND. IN 1 IN. CONDUIT.

DEMOLITION NOTES:

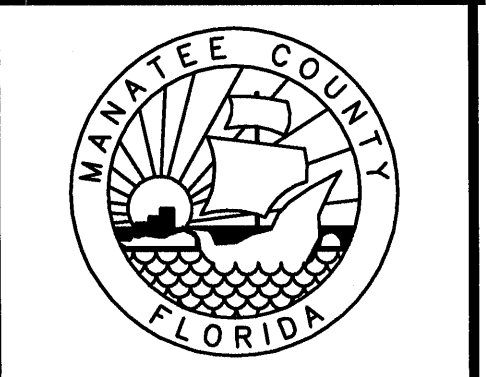
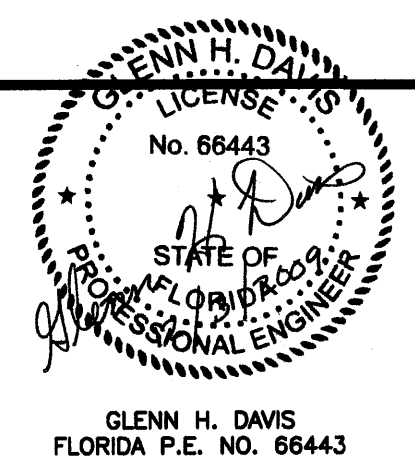
- ① DISCONNECT, REMOVE AND PROPERLY DISPOSE OF EXISTING VFDs, DISCONNECT SWITCHES AND MOTORS.
- ② DISCONNECT, REMOVE AND PROPERLY DISPOSE OF EXISTING CONDUIT AND CONDUCTORS. ABANDON UG CONDUIT AND CONDUCTORS IN PLACE.



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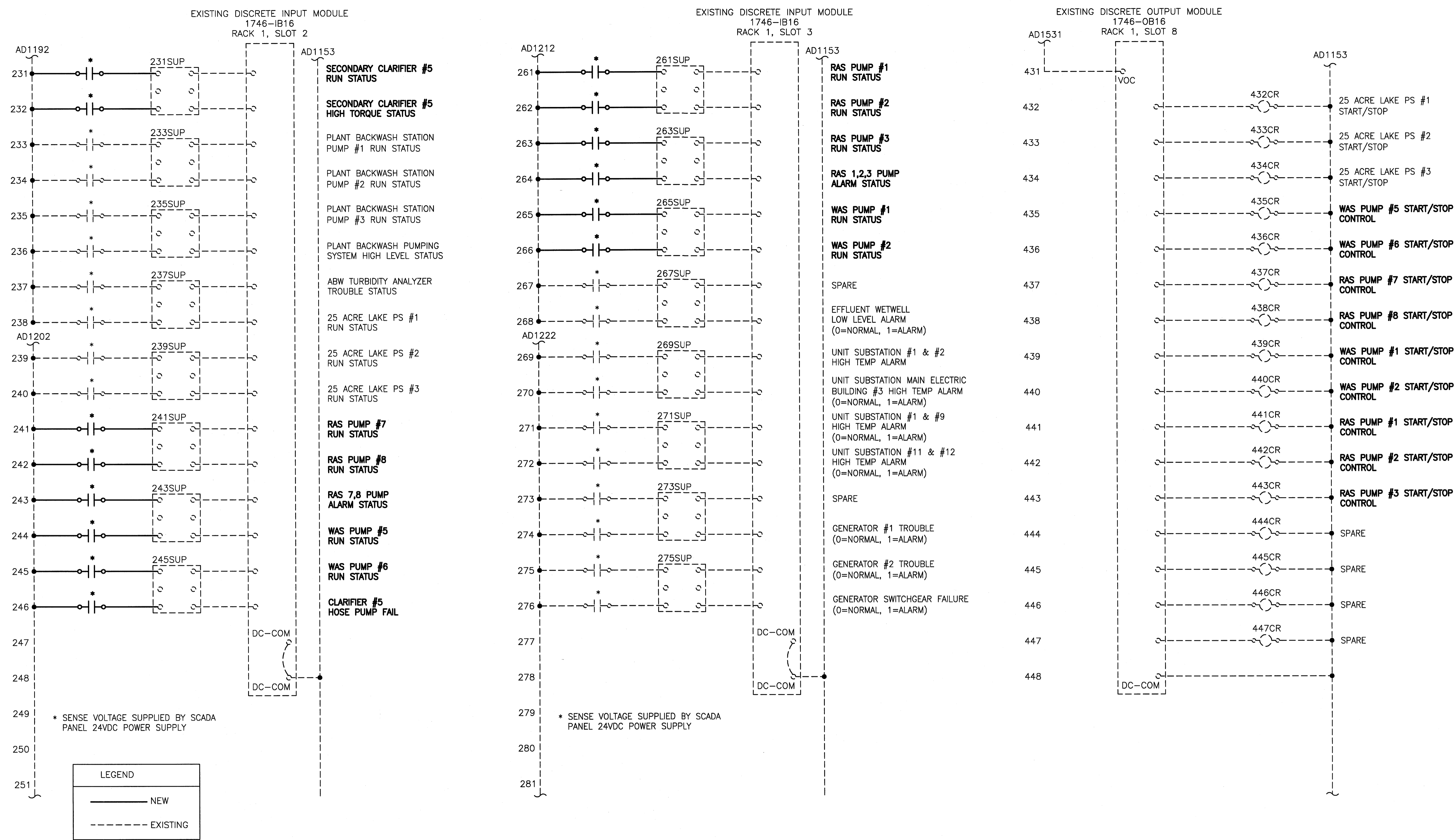
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PROJECT STATUS
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SINGLE LINE DIAGRAM

E-8

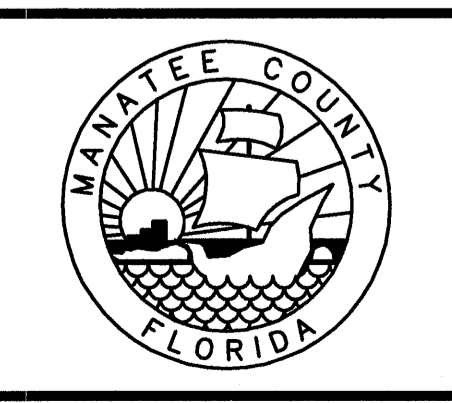
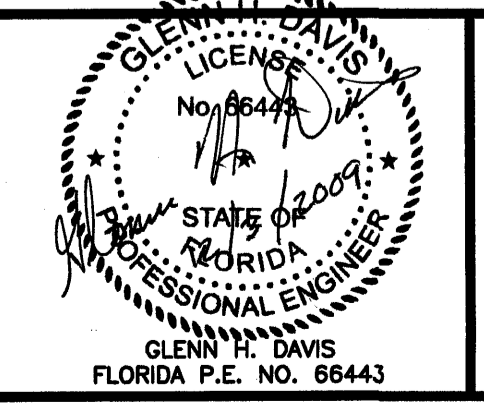
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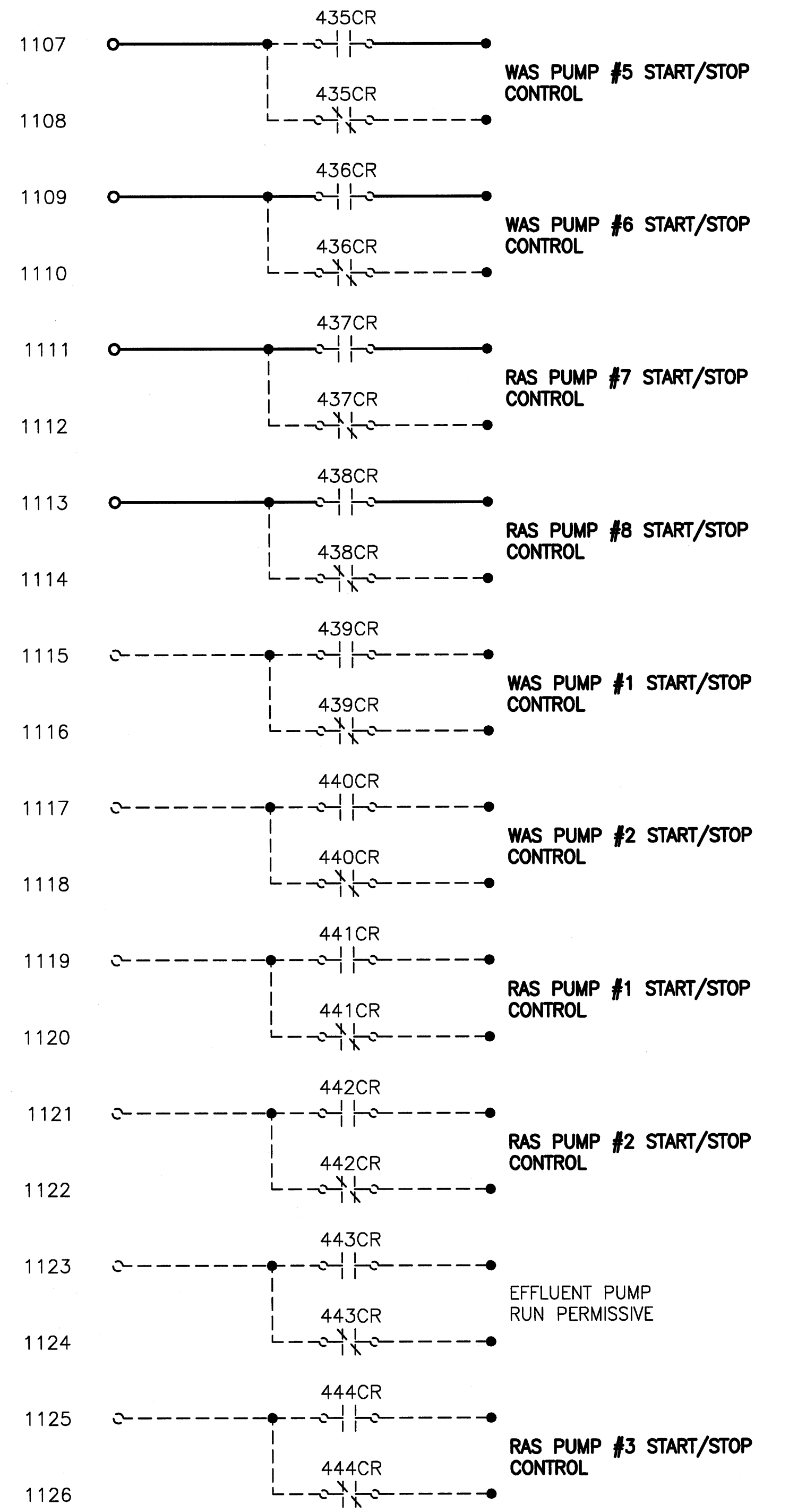
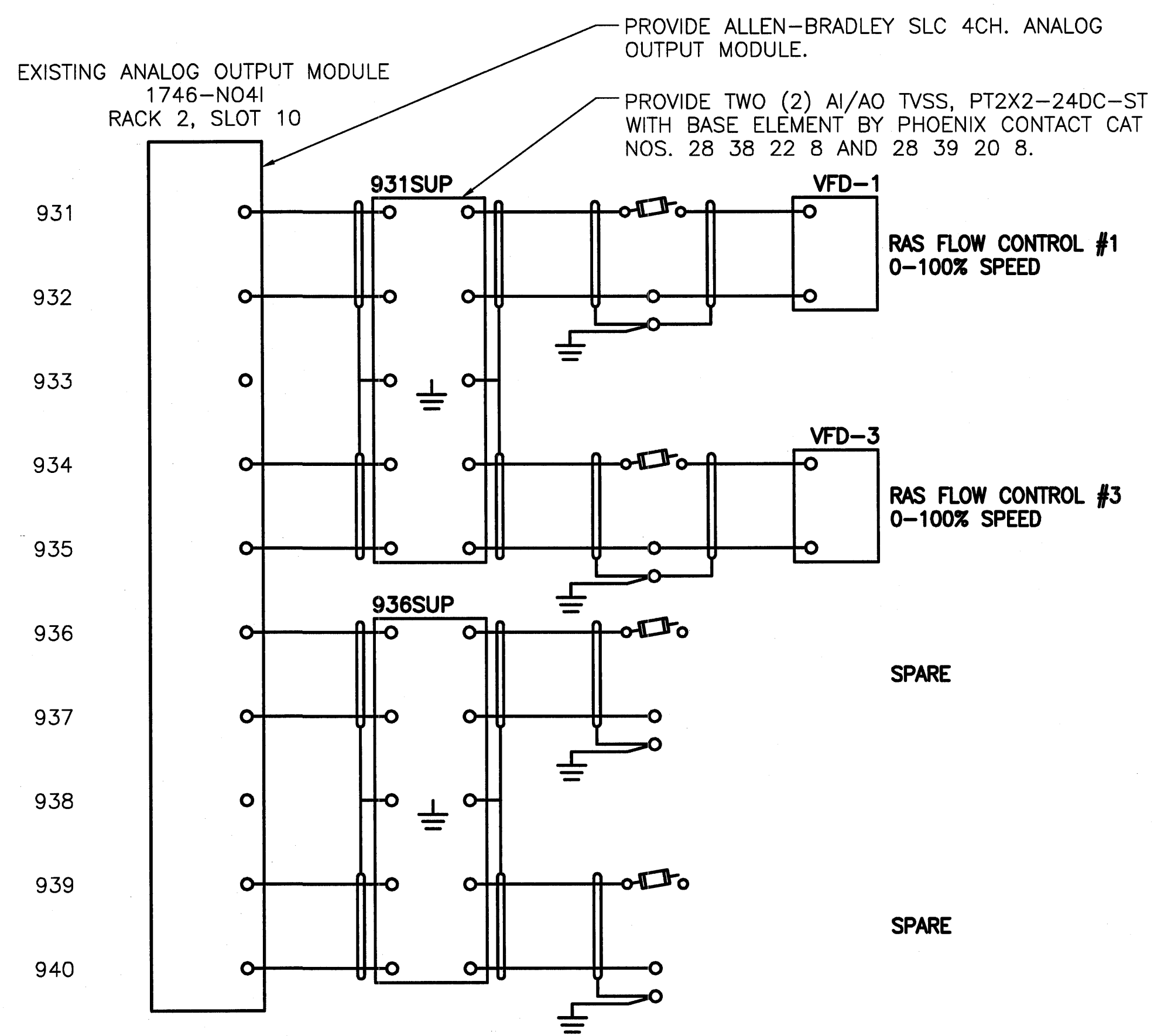
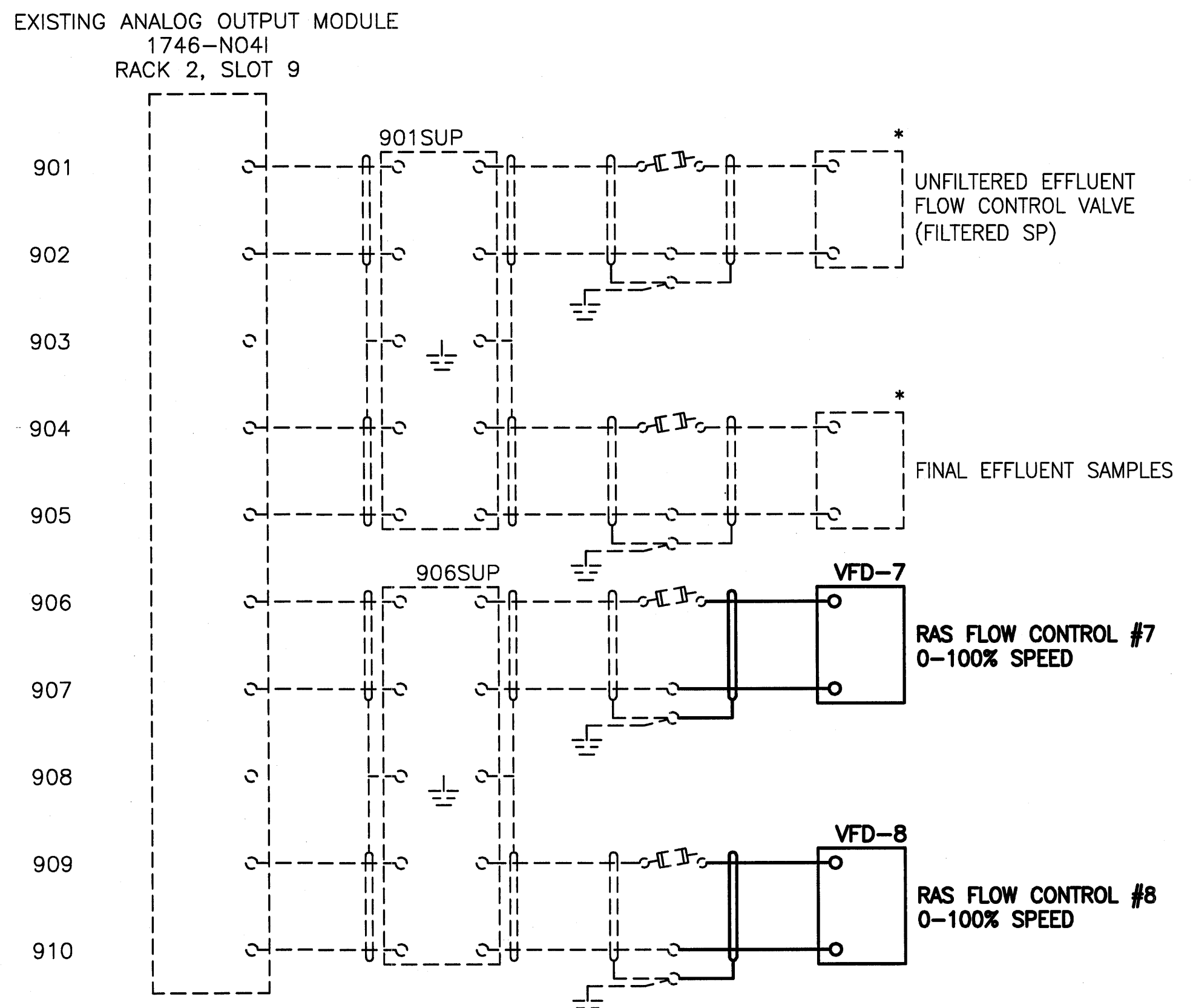
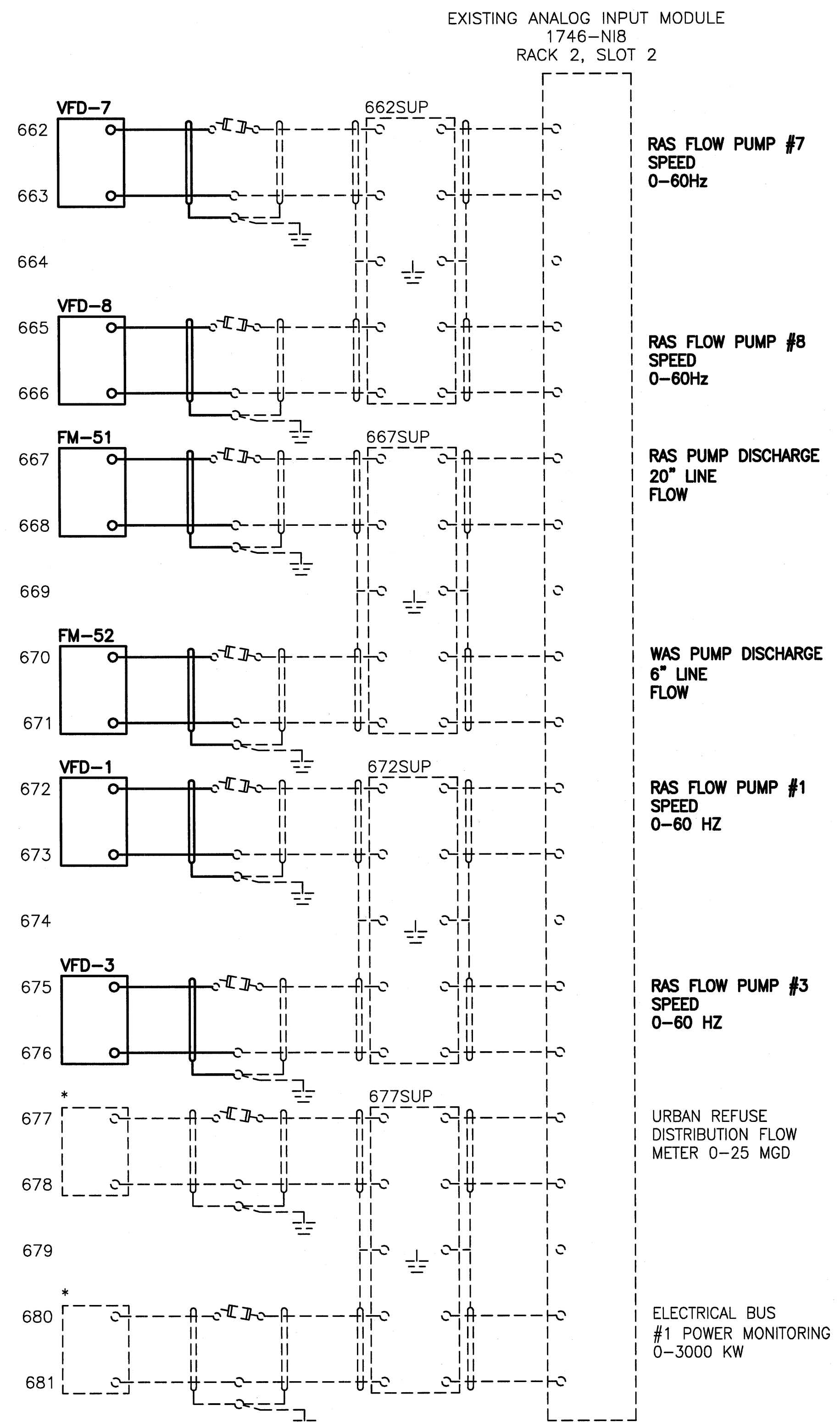


5TH CLARIFIER AT THE
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MONITORING & CONTROL WIRING
 TERMINATION DIAGRAMS (1)
 SCADA CABINET 'SP-1'

PROJECT STATUS
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 DECEMBER 2009
 E-10

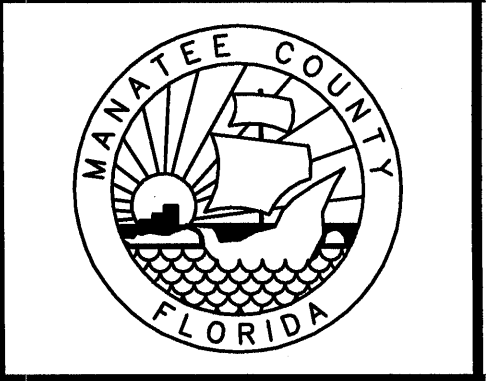
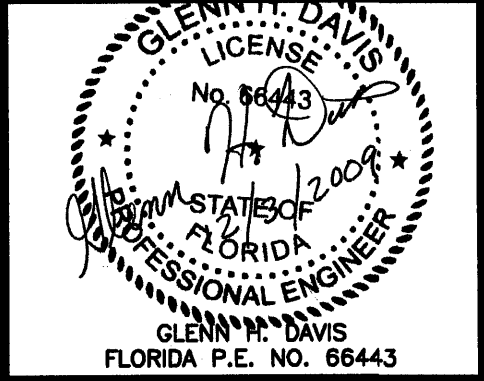
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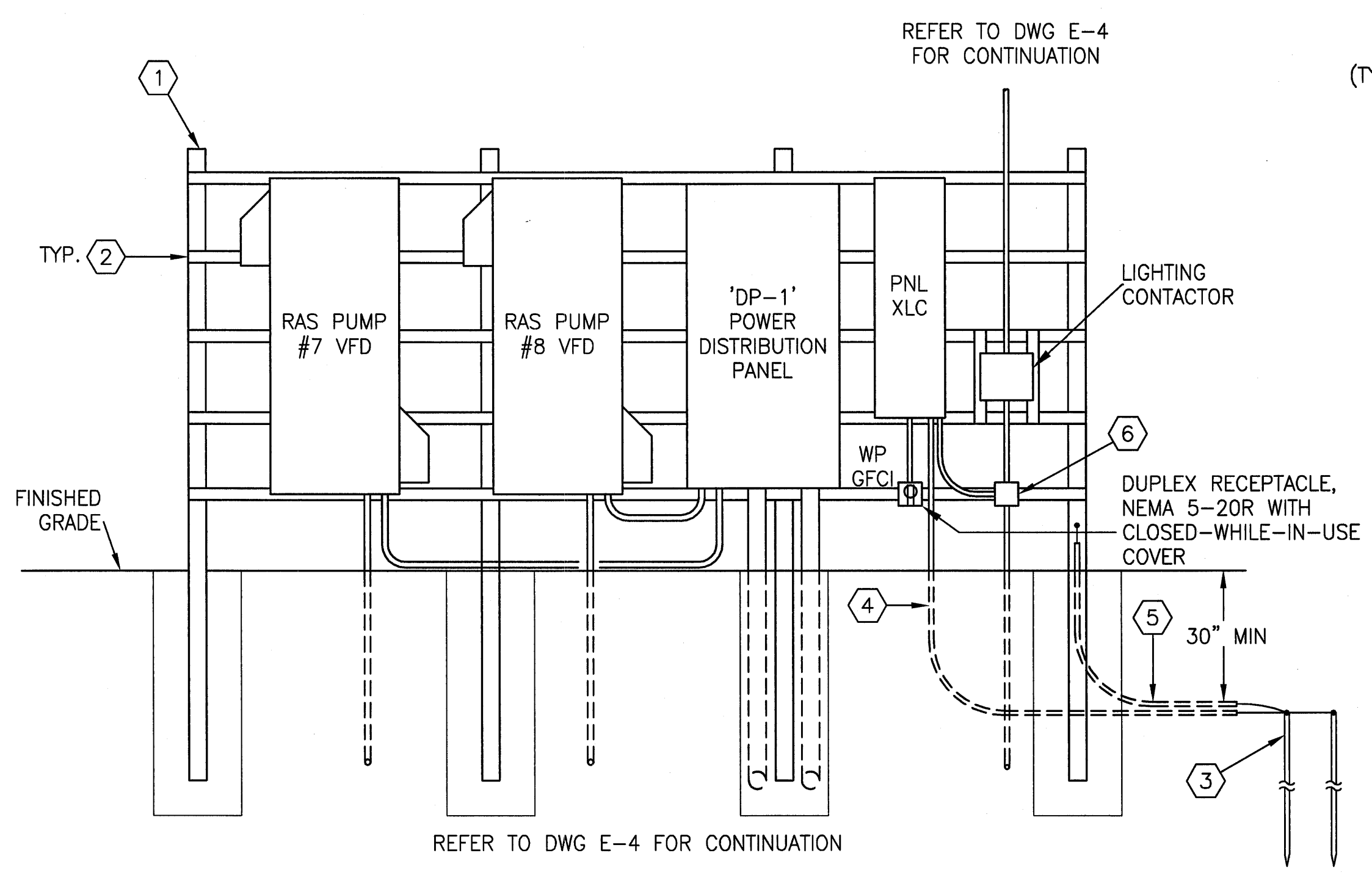


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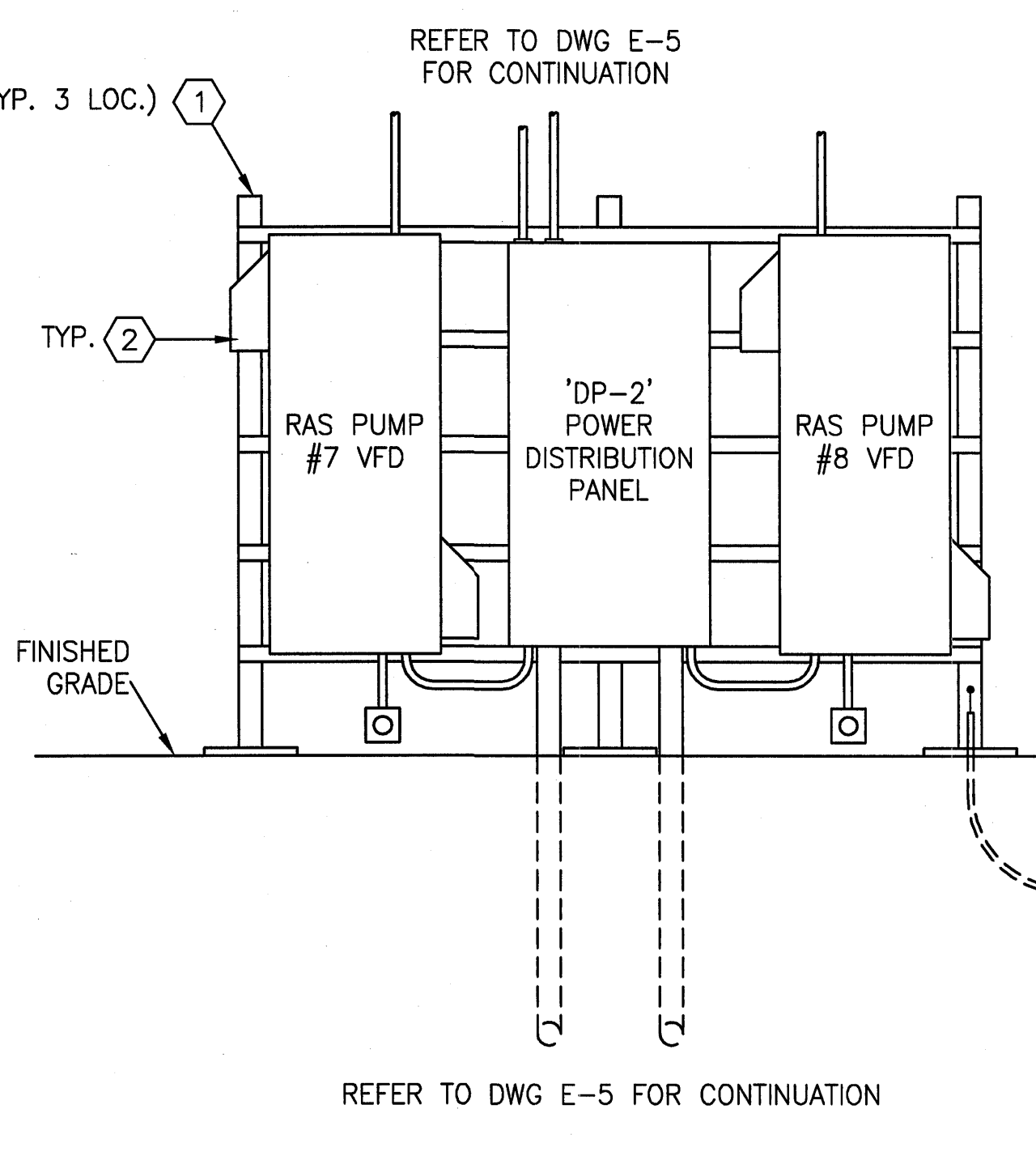
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 MONITORING & CONTROL WIRING
 TERMINATION DIAGRAMS (2)
 SCADA CABINET 'SP-1'
 E-11

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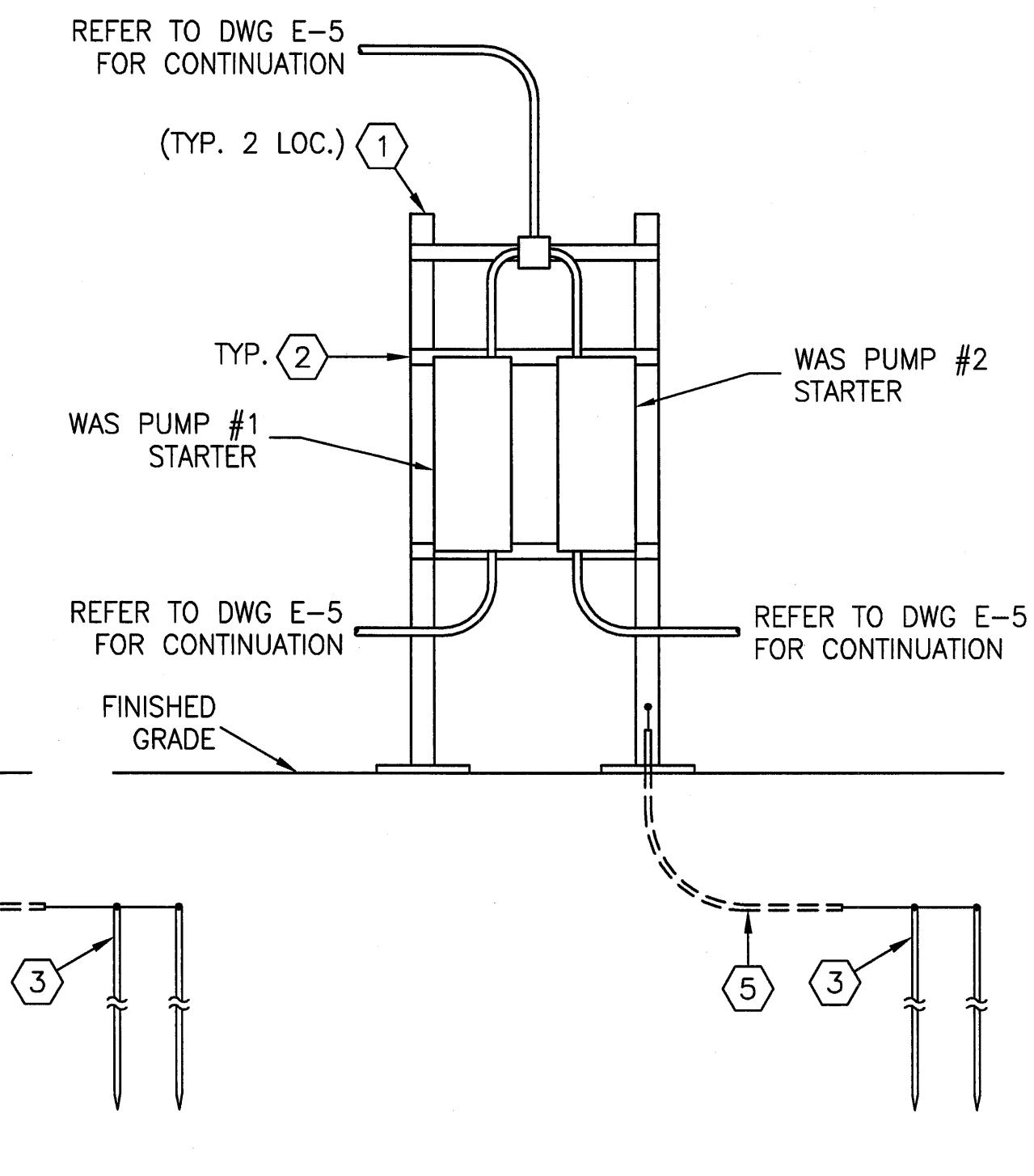
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1 ELEVATION
E-4 CLARIFIER #5 ELECTRICAL RACK
SCALE: NTS

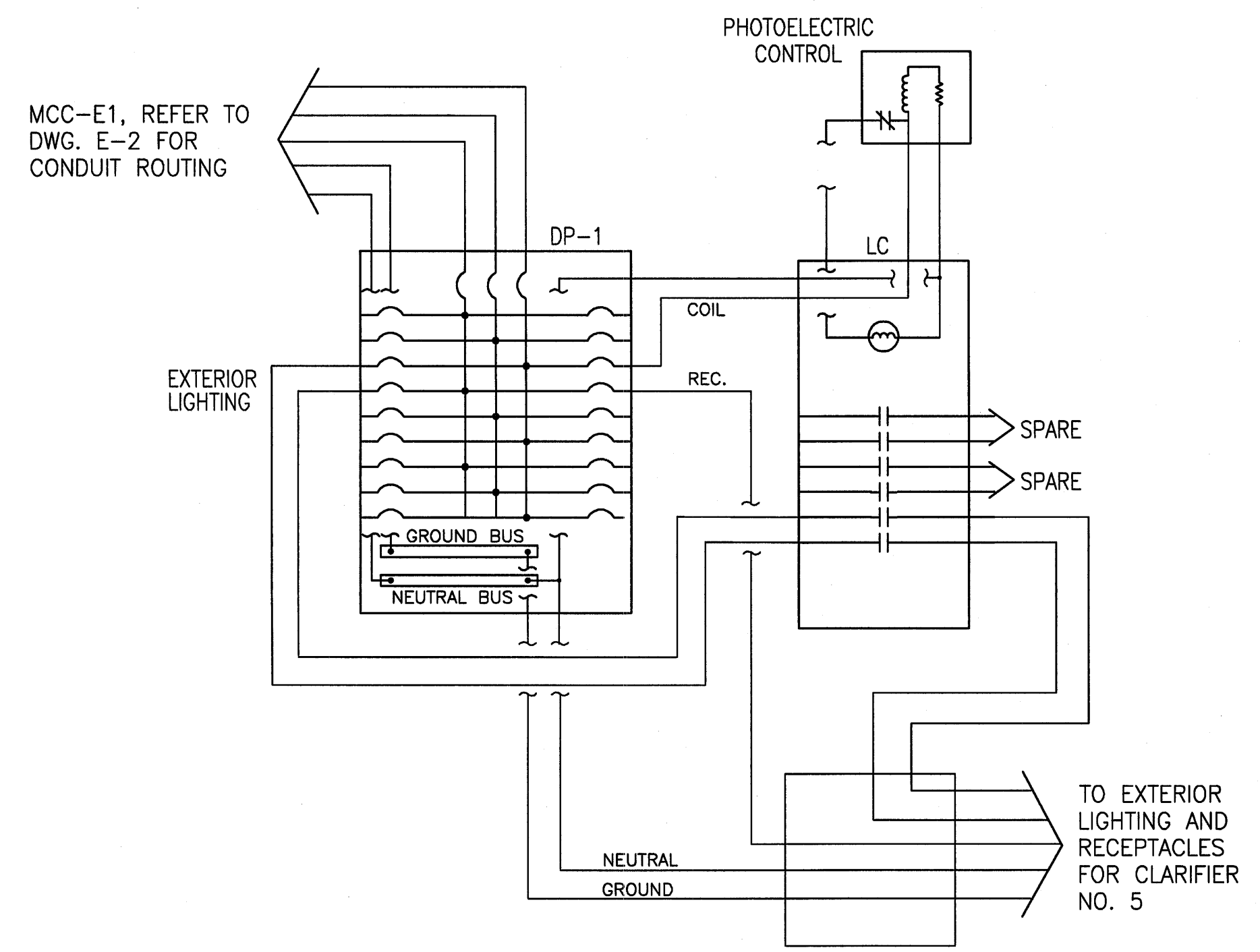


2 ELEVATION
E-5 CLARIFIER #1 & #2 ELECTRICAL RACK
SCALE: NTS

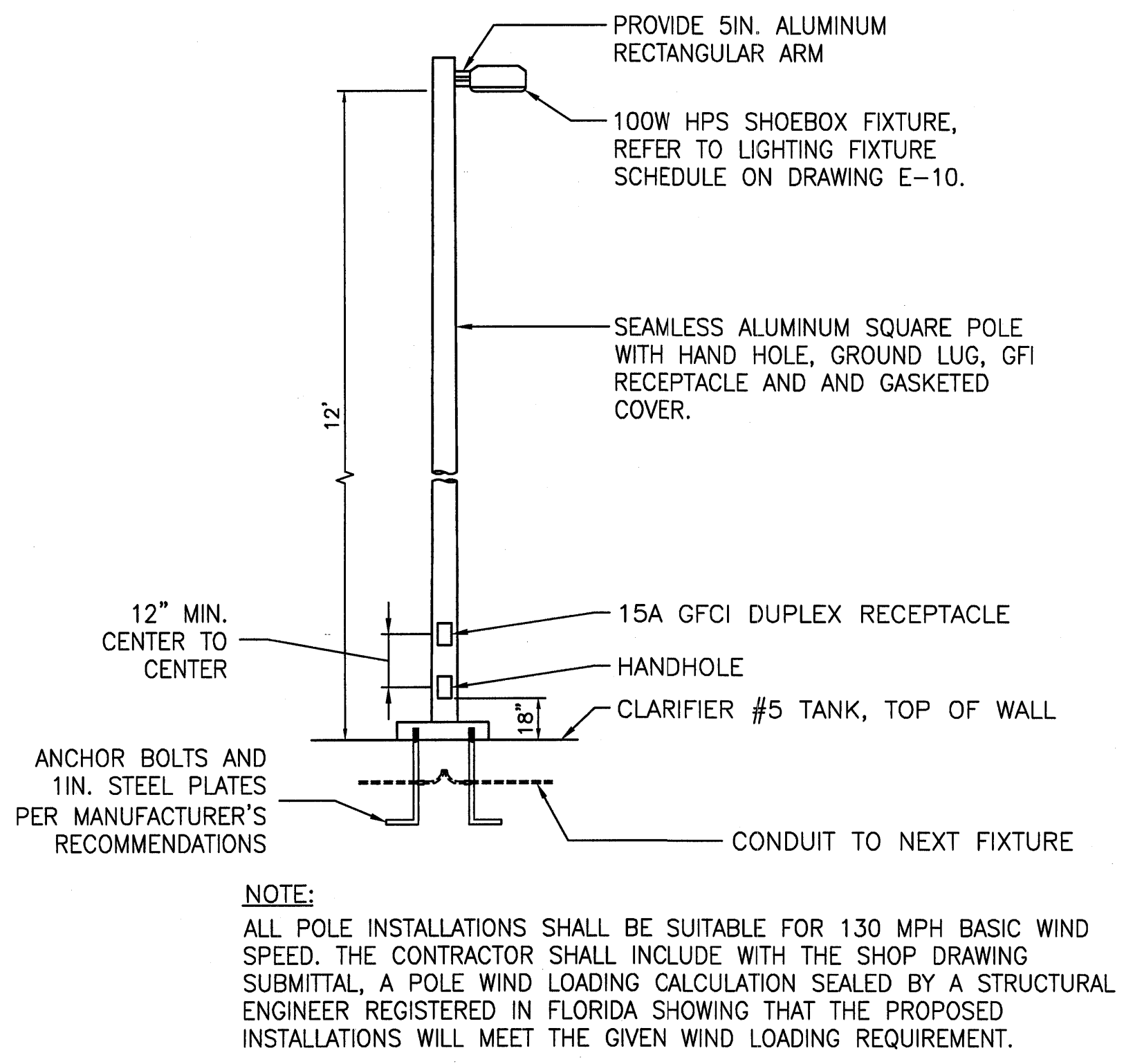


3 ELEVATION
E-5 WAS PUMPS #1 & #2 STARTER RACK
SCALE: NTS

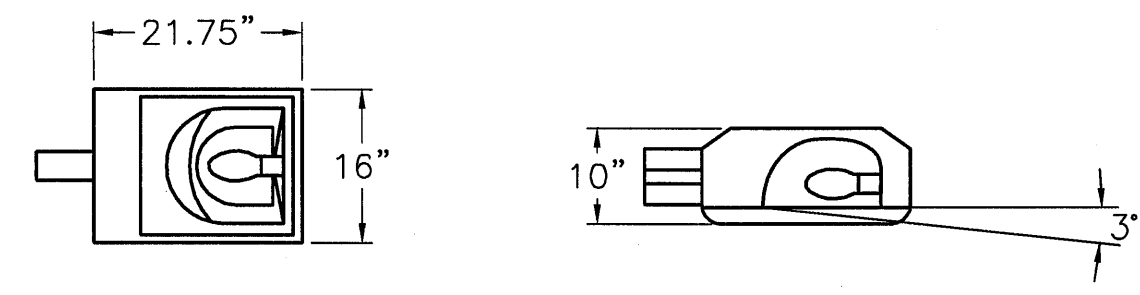
- REFERENCE NOTES:**
- 1 PROVIDE A MINIMUM OF FOUR (4) 3 IN. DIA. BY 9 FT. LONG SS SCHEDULE 40 PIPE SUPPORT POSTS WITH SS END CAPS. PLACE CONCRETE 6" AROUND AND UNDER EACH SUPPORT POST. CONCRETE SHALL HAVE A MINIMUM STRENGTH AT 28 DAYS OF 3,000 PSI. THE OUTSIDE EDGES OF THE SLAB SHALL BE CAST AGAINST FORMWORK.
 - 2 1-5/8 IN. 12 GA. SS CHANNEL WITH END CAPS (QUANTITY AS REQUIRED). PROVIDE SS MOUNTING HARDWARE AS REQUIRED.
 - 3 PROVIDE TWO (2) 3/4 IN. DIA. BY 10 FT. LONG GROUND RODS SPACED WITH A MINIMUM OF 10 FT. SEPARATION.
 - 4 PROVIDE ONE #2 GROUNDING ELECTRODE CONDUCTOR (GEC) IN 1 IN. SCHEDULE 80 PVC CONDUIT BETWEEN PANEL 'XLC' AND GROUND RODS. EXOTHERMICALLY WELD GEC TO GROUND RODS.
 - 5 PROVIDE ONE #2 GROUNDING CONDUCTOR IN 1 IN. SCHEDULE 80 PVC CONDUIT BETWEEN ELECTRICAL RACK VERTICAL SUPPORT AND GROUND ROD. EXOTHERMICALLY WELD GROUNDING CONDUCTOR TO GROUND ROD AND ELECTRICAL RACK VERTICAL MEMBER.
 - 6 6" X 6", NEMA 4X, SS JUNCTION BOX.



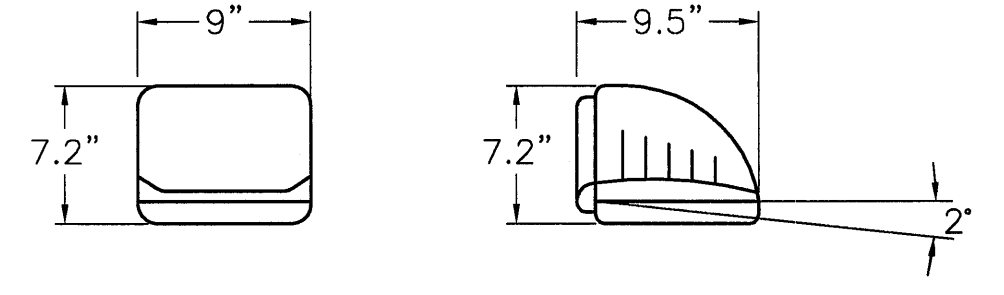
4 DIAGRAM
E-12 EXTERIOR LIGHTING WIRING
SCALE: NTS



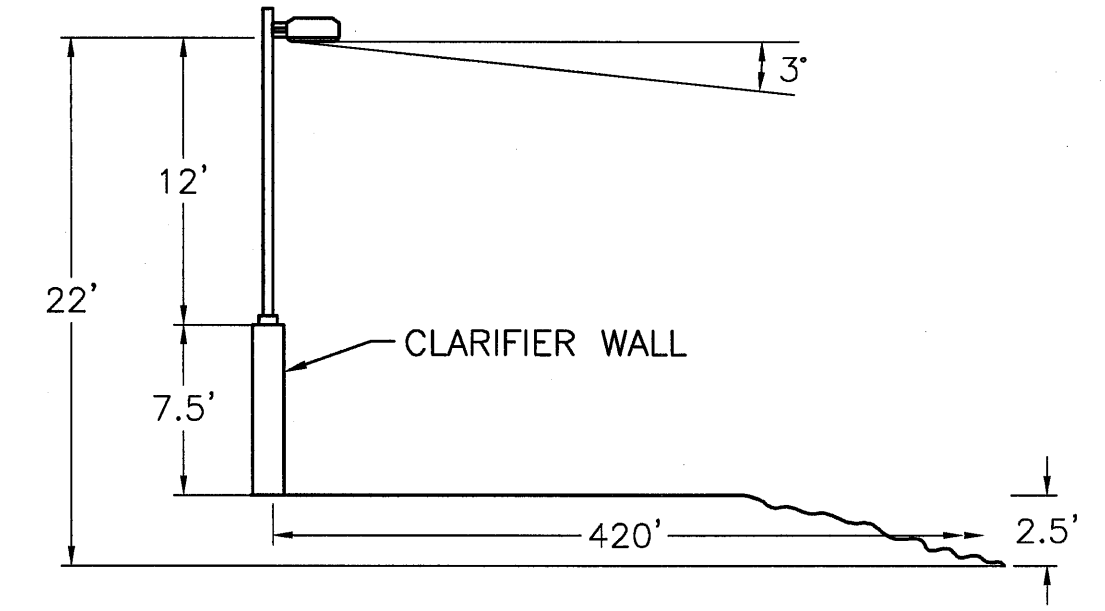
5 DETAIL
E-4 LIGHT POLE
SCALE: NTS



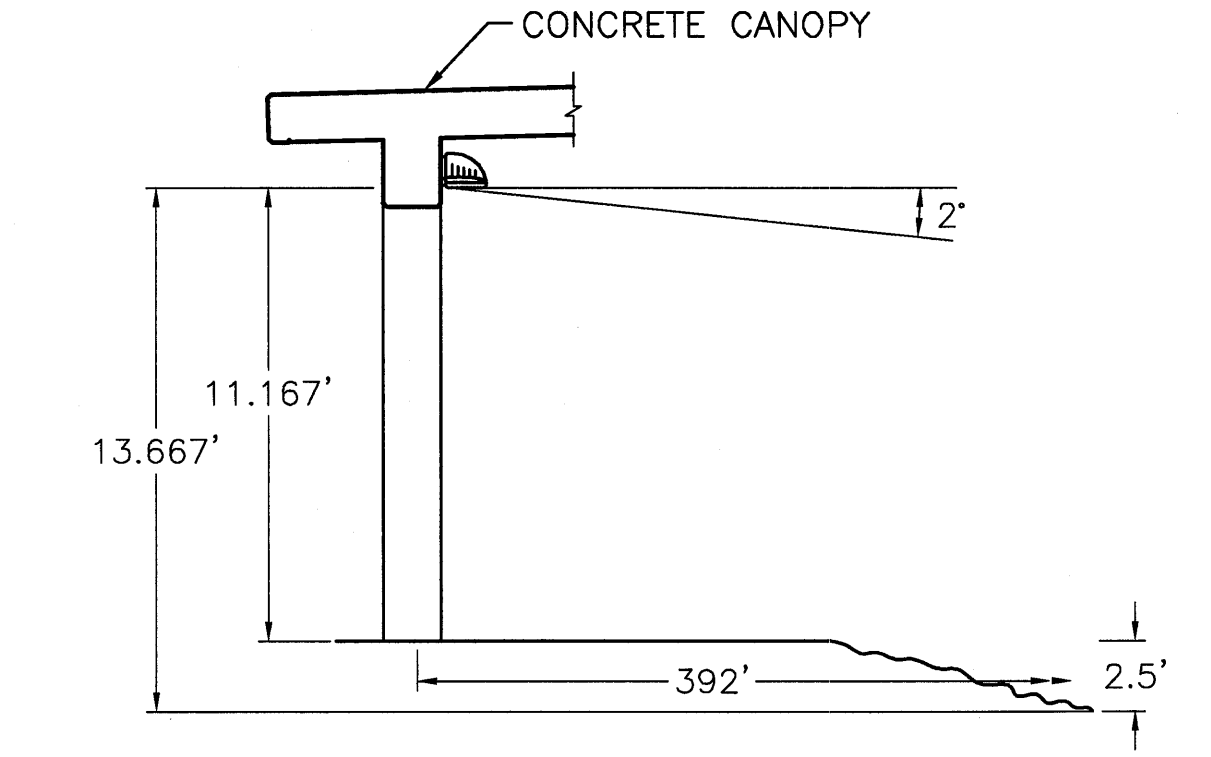
6 DETAIL
E-12 TYPE 'A' LIGHT FIXTURE
SCALE: NTS



8 DETAIL
E-4 TYPE 'B' LIGHT FIXTURE
SCALE: NTS



7 DETAIL
E-12 DISTANCE TO THE EDGE OF DIRECT ILLUMINATION
SCALE: NTS

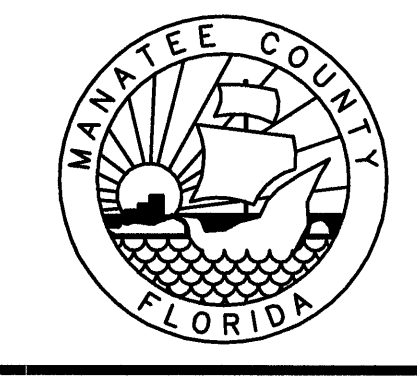
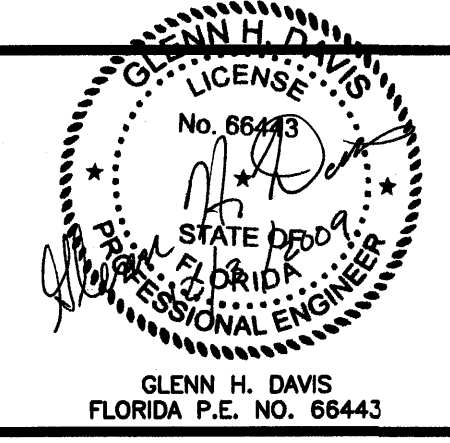


9 DETAIL
E-4 DISTANCE TO THE EDGE OF DIRECT ILLUMINATION
SCALE: NTS

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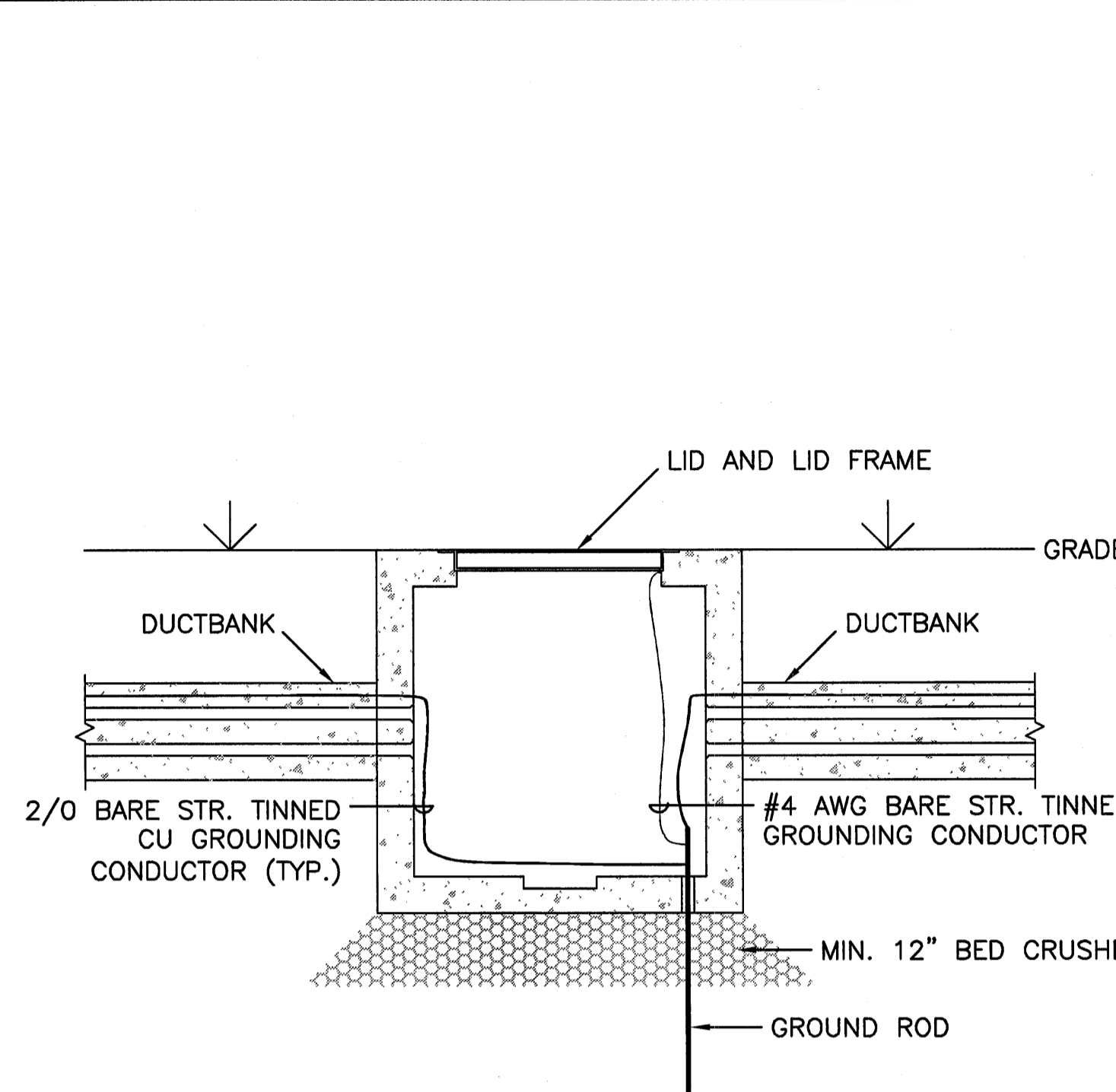


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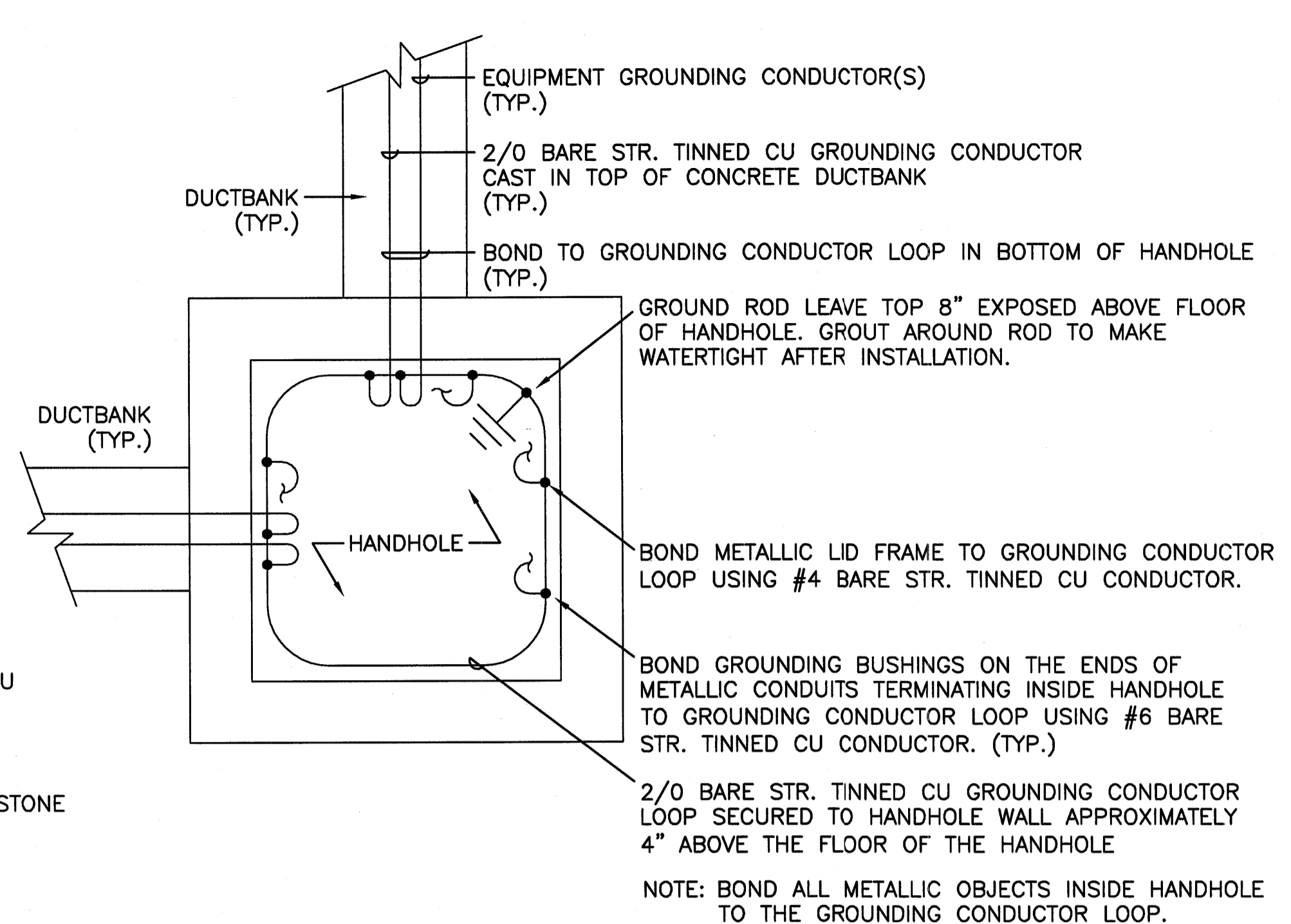
PROJECT STATUS
BID SET
DECEMBER 2009
ELECTRICAL DETAILS
E-12

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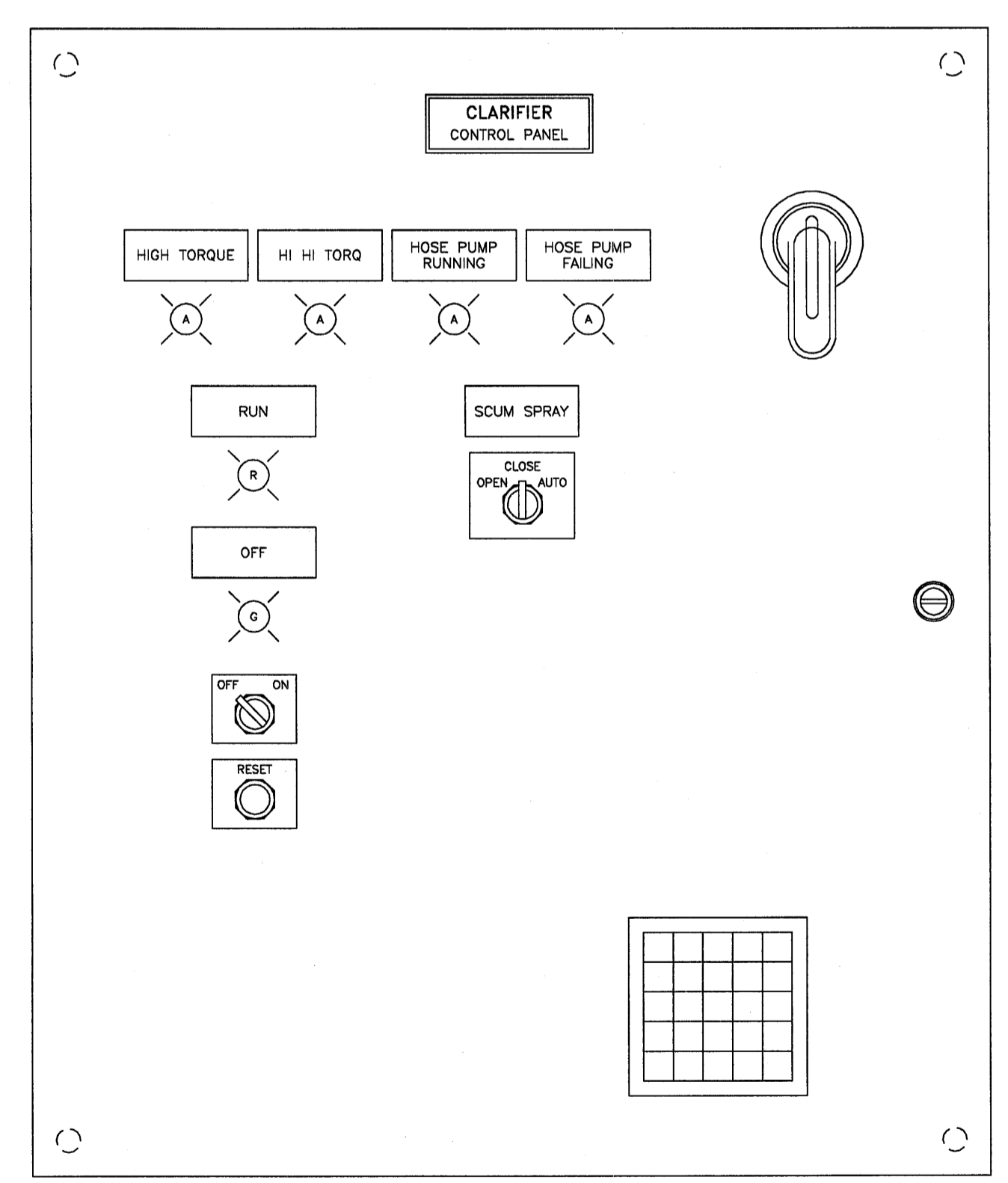
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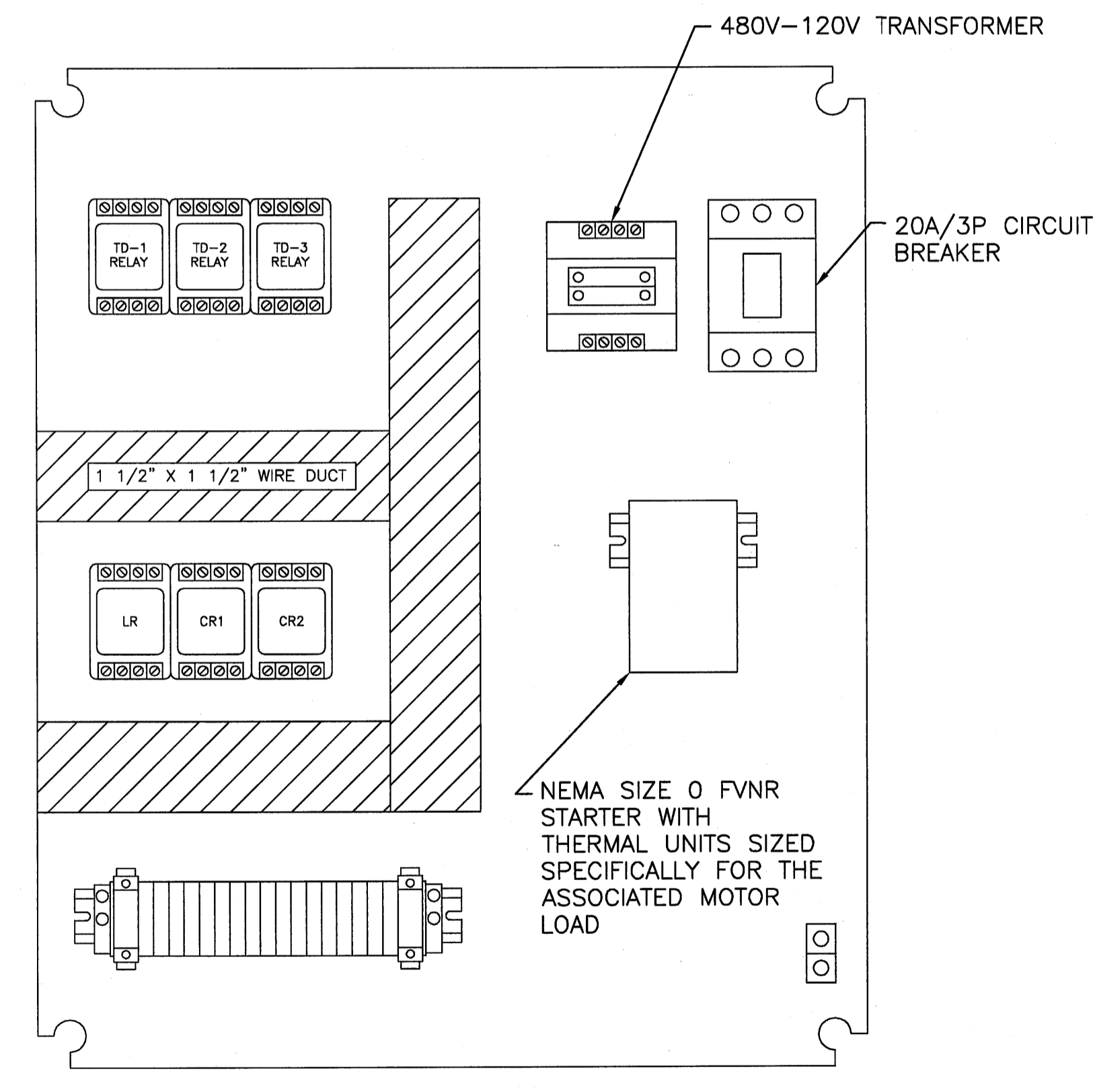
1 DETAIL
E-02 CLOSED BOTTOM HANDHOLE
SCALE: NTS



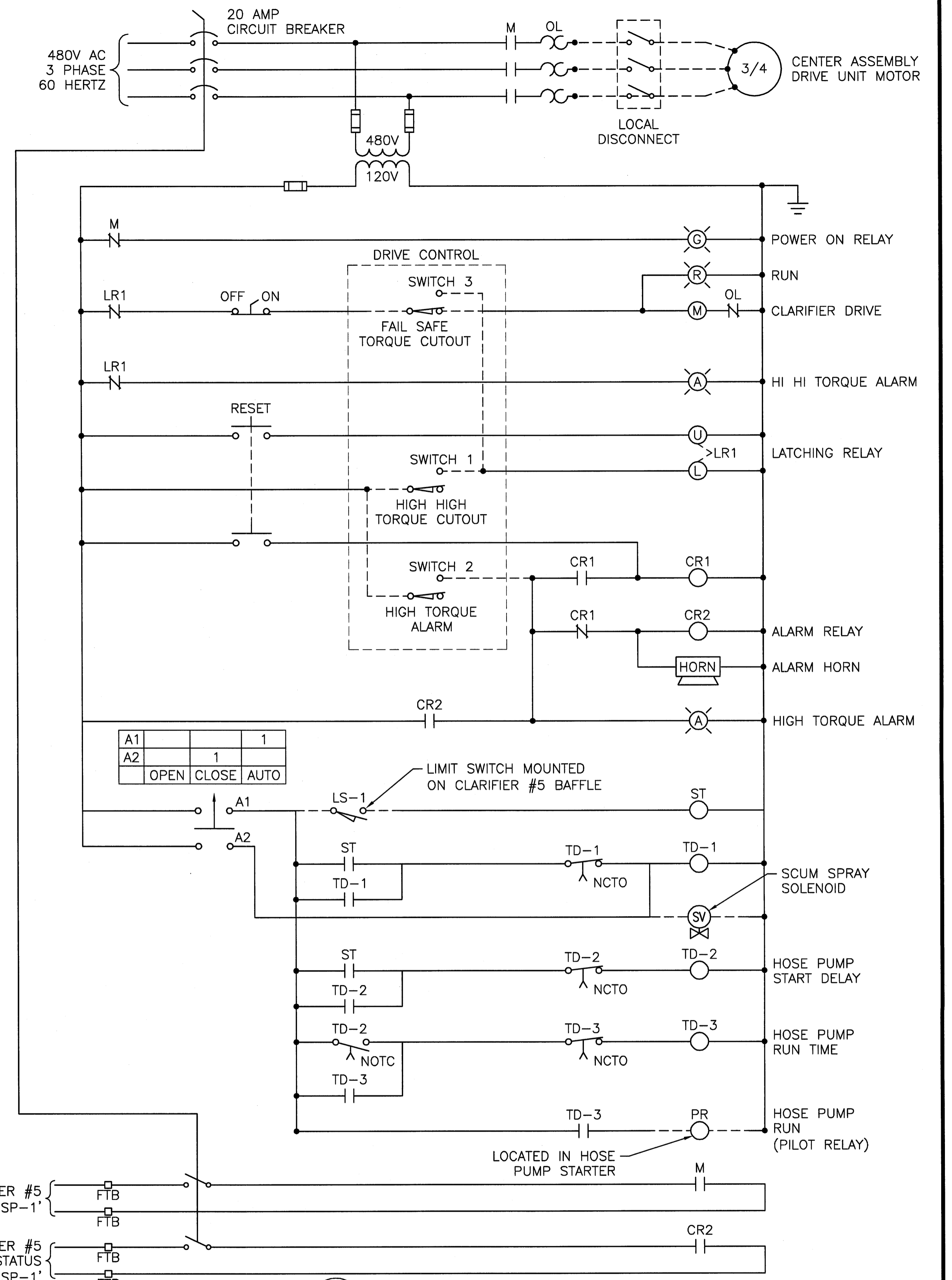
2 DETAIL
E-02 HANDHOLE GROUNDING
SCALE: NTS



3 DETAIL
E-7 CLARIFIER #5 CONTROL PANEL
SCALE: NTS



4 DETAIL
E-7 ELECTRICAL COMPONENTS
SCALE: NTS

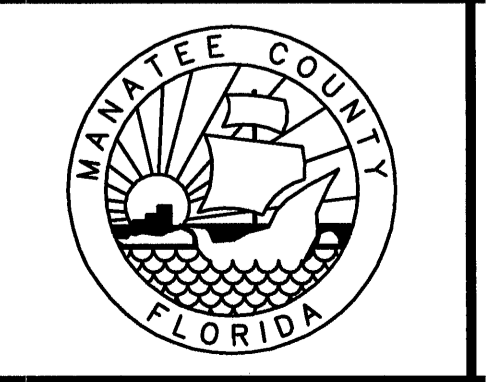
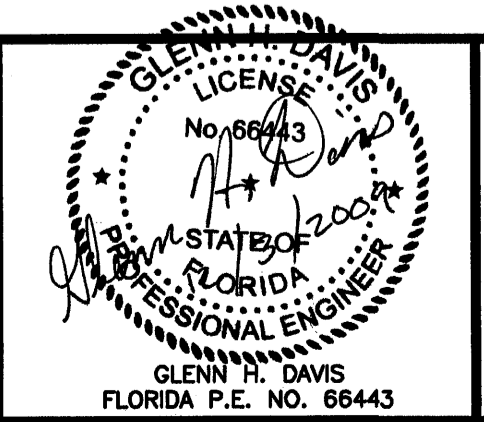


4 DIAGRAM
E-7 CENTER ASSEMBLY DRIVE
SCALE: NTS

URS
7650 West Courtney Campbell Causeway
Suite 700
Tampa, Florida 33607
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Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION

URS JOB NUMBER
12008492
PM: DAVID WILCOX
ENG: G. DAVIS
DRW: J. SCHEURMAN
FILE SAVE DATE:
October 30, 2009

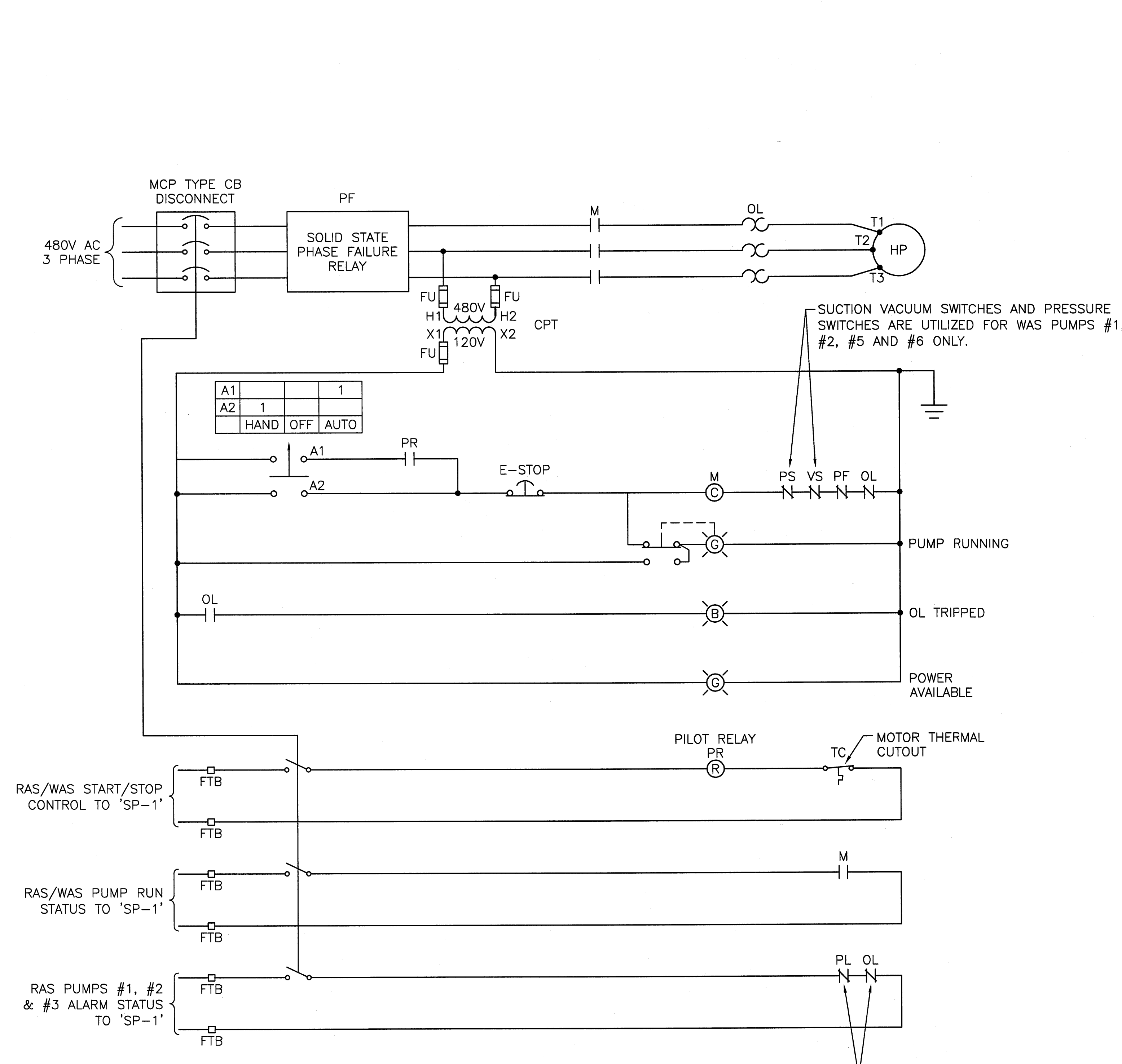


5TH CLARIFIER AT THE
SOUTHWEST WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

ELECTRICAL DETAILS

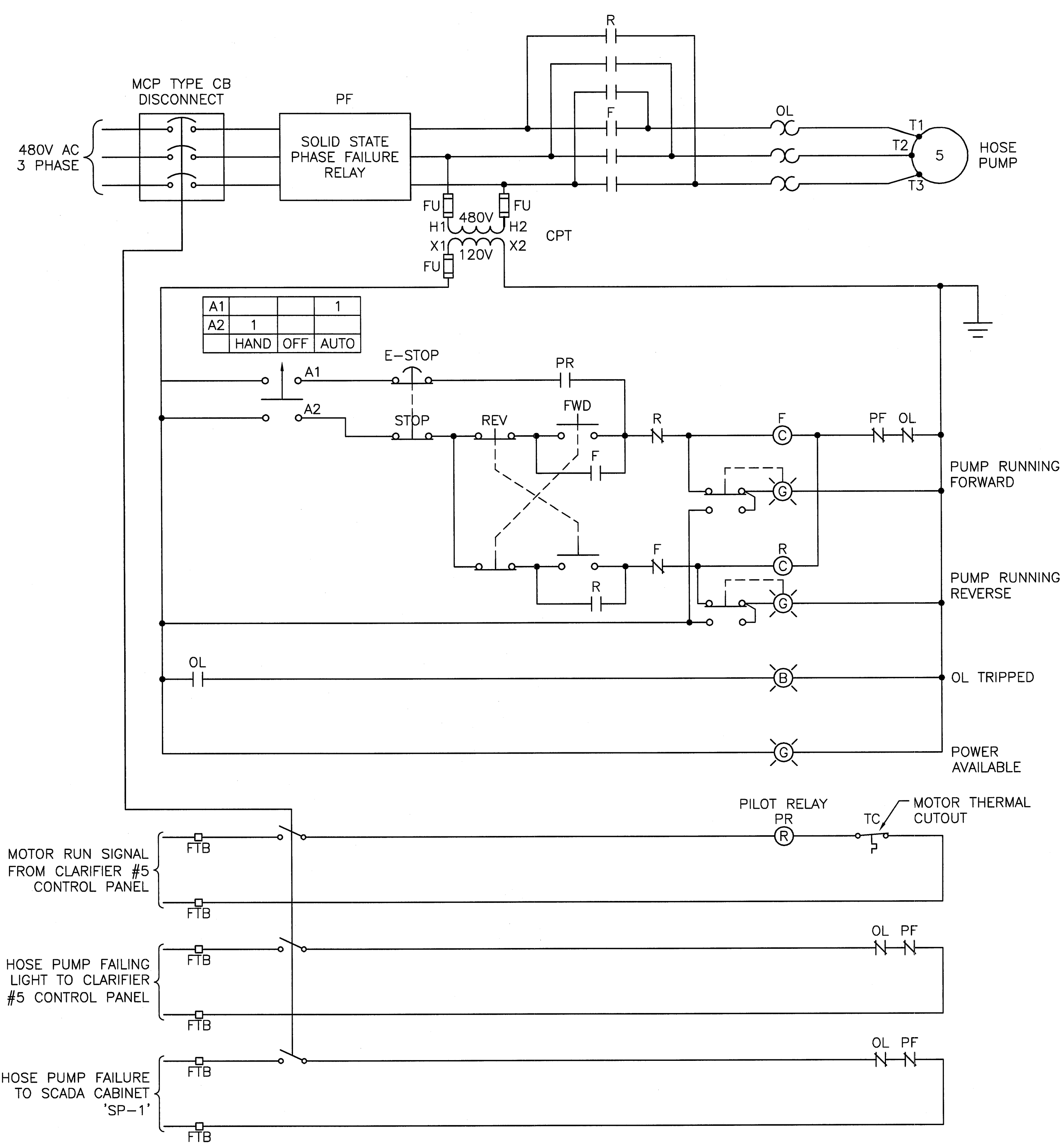
PROJECT STATUS
BID SET
DECEMBER 2009
E-13

PLOTTED December 3, 2009 1:39 PM PLOTTED BY: SONNENBERG, TERRY
 X:\MANATEE\PROJECTS\12008492 SWWRF 5TH CLARIFIER\MANATEE\CAD\PLANS\E-14 MOTOR STARTER DIAGRAMS.DWG
 VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING 0 1 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY



1 DIAGRAM
 TYP. RAS PUMP #2
 WAS PUMPS #1, #2, #5 & #6 STARTERS
 SCALE: NTS

ALARM STATUS CIRCUIT IS UNIQUE TO 'RAS PUMP #2' AND SHALL BE WIRED IN SERIES WITH 'RAS PUMP #1' AND 'RAS PUMP #3' ALARM STATUS CONTACTS TO PROVIDE ONE SUMMARY ALARM TO SCADA CABINET 'SP-1'.

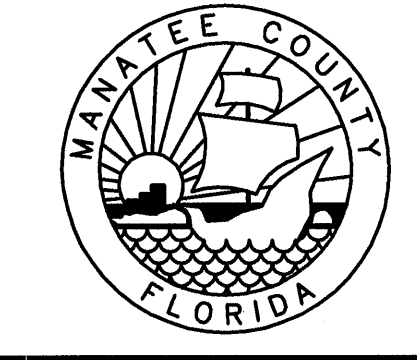
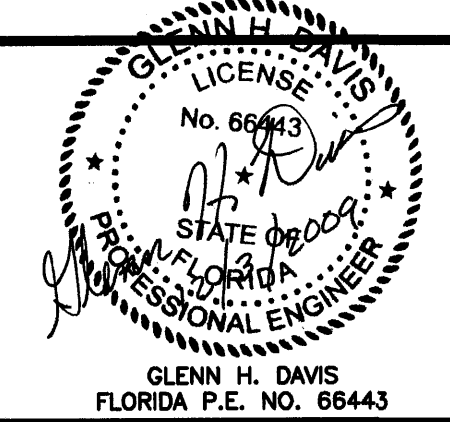


2 DIAGRAM
 E-4 HOSE PUMP STARTER
 SCALE: NTS

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 Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION

URS JOB NUMBER
 12008492
 PM: DAVID WILCOX
 ENG: G. DAVIS
 DRW: J. SCHEUERMAN
 FILE SAVE DATE:
 October 29, 2009



5TH CLARIFIER AT THE
 SOUTHWEST WATER RECLAMATION FACILITY
 FOR
 MANATEE COUNTY GOVERNMENT
 MANATEE COUNTY, FLORIDA

MOTOR STARTER DIAGRAMS
 PROJECT STATUS
 BID SET
 DECEMBER 2009
E-14