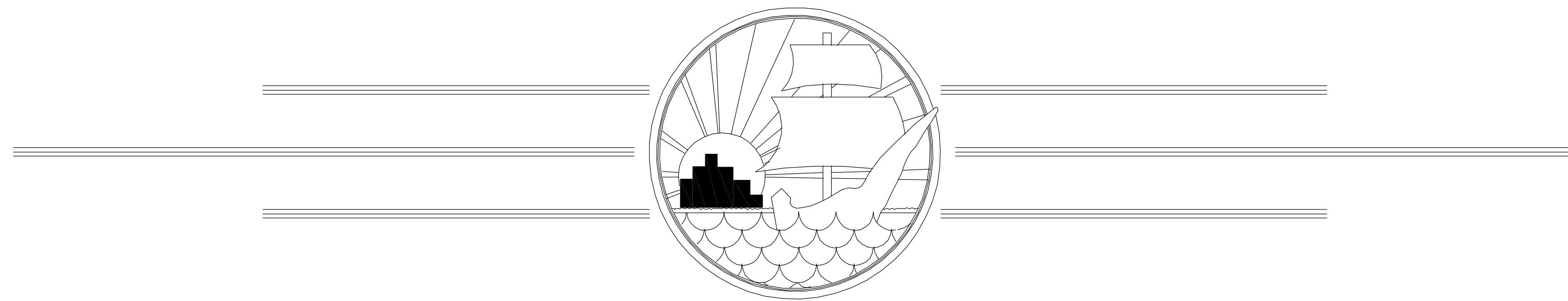


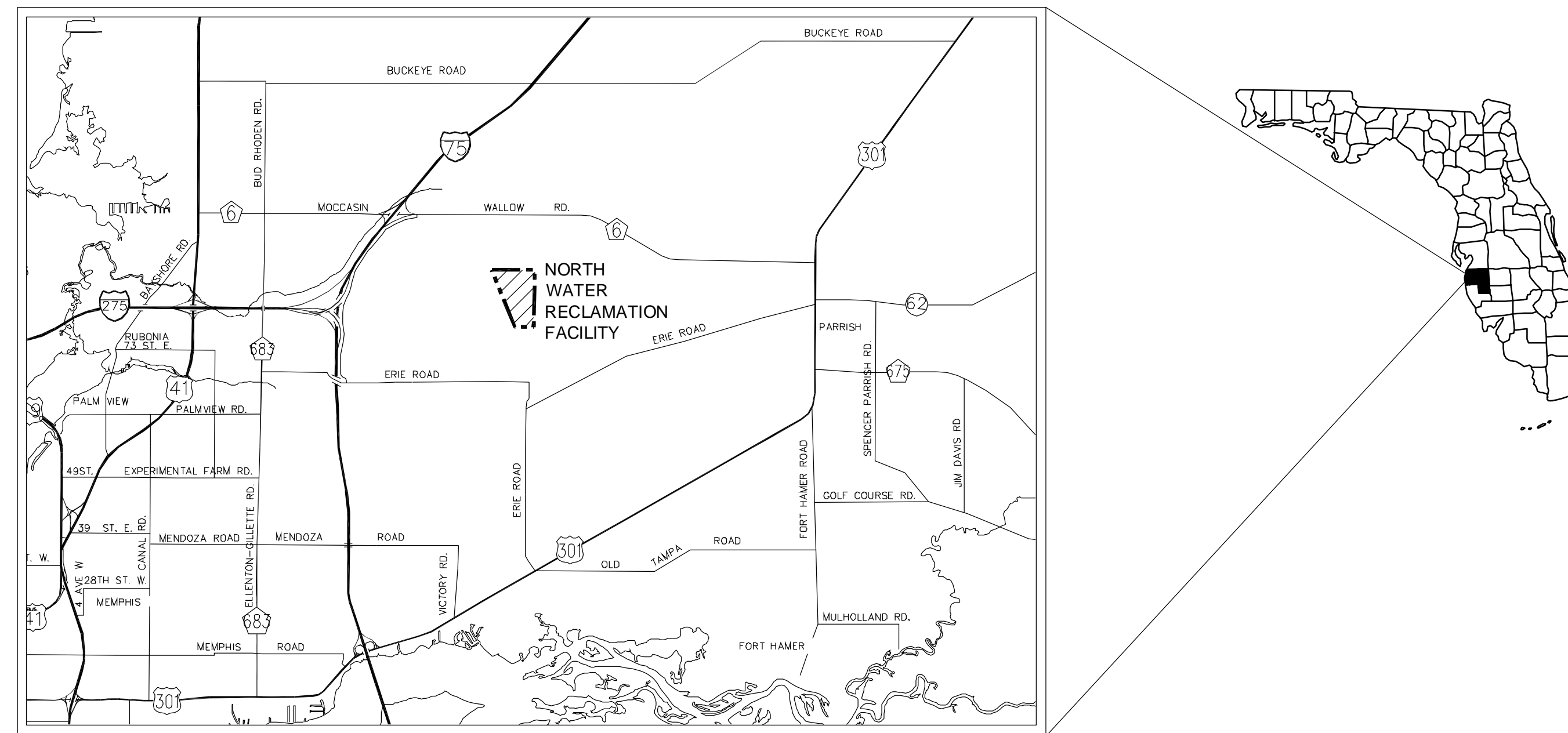
NORTH WATER RECLAMATION FACILITY EXPANSION PHASE 1

COUNTY PROJECT #6011283

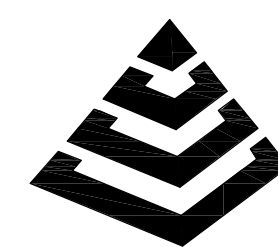
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JULY 2011



MANATEE COUNTY, FLORIDA



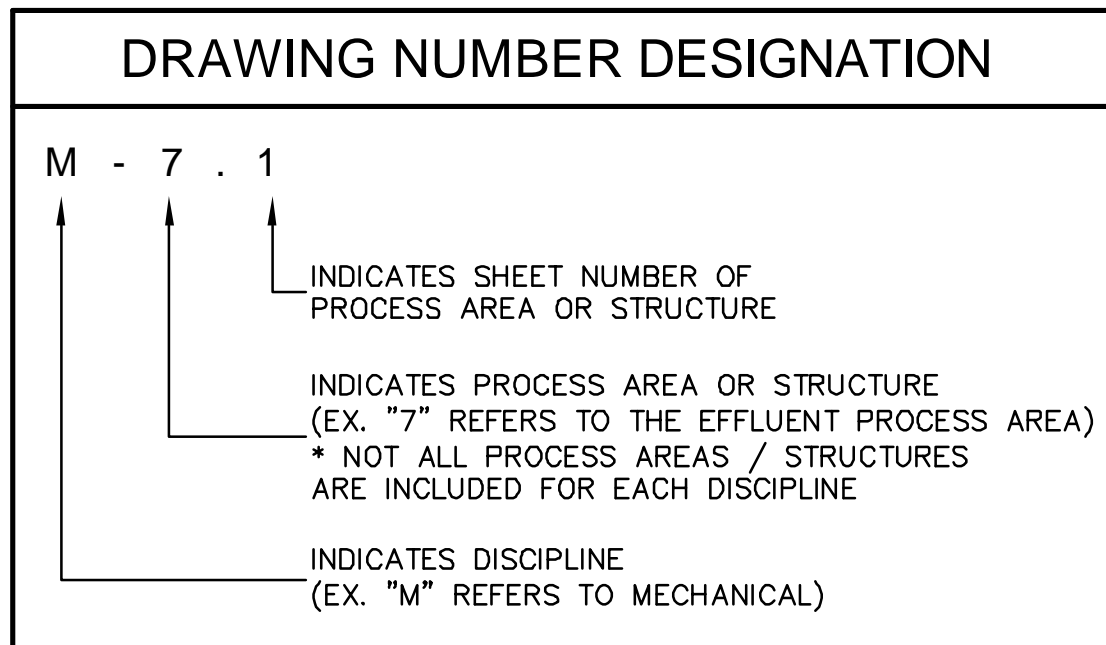
PROJECT VICINITY MAP



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DISCIPLINE	DRAWING	TITLE
GENERAL	G-0.1	COVER SHEET
	G-0.2	DRAWING INDEX AND GENERAL NOTES
	G-0.3	ABBREVIATIONS AND LEGENDS
	G-0.4	SITE PLAN AND PROPOSED WORK LOCATIONS
	G-0.5	SOIL EROSION AND SEDIMENTATION CONTROL PLAN
	G-0.6	PROPOSED EFFLUENT IMPROVEMENTS SCHEMATIC
DEMOLITION	D-0.1	YARD PIPING DEMOLITION PLAN NO. 1
	D-0.2	YARD PIPING DEMOLITION PLAN NO. 2
	D-0.3	YARD PIPING DEMOLITION PLAN NO. 3
	D-3.1	INTERNAL RECYCLE DEMOLITION AND SECTIONS
	D-3.2	ANOXIC / AEROBIC BASINS NO. 1 AND NO. 2 DEMOLITION PLAN AND DETAILS
	D-7.1	EFFLUENT PUMP BACK STATION NO. 1 AND NO. 2 DEMOLITION PLAN
	D-7.2	EFFLUENT PUMP BACK STATION NO. 3 DEMOLITION PLAN
	D-10.1	PLANT DRAIN PUMP STATION DEMOLITION PLAN AND SECTION
CIVIL	C-0.1.1	GRADING AND DRAINAGE PLAN
	C-0.2.1	CIVIL DETAILS NO. 1
	C-0.2.2	CIVIL DETAILS NO. 2
	C-0.2.3	CIVIL DETAILS NO. 3
	C-0.4.1	YARD PIPING PLAN NO. 1
	C-0.4.2	YARD PIPING PLAN NO. 2
STRUCTURAL	S-0.1	STRUCTURAL GENERAL NOTES, DESIGN LOADS, CRITERIA AND LEGEND
	S-0.2	OVERALL STRUCTURAL KEY PLAN
	S-3.1	ANOXIC / AEROBIC BASINS NO. 1 AND NO. 2 BOTTOM PLAN, SECTIONS AND DETAILS
	S-3.2	ANOXIC / AEROBIC BASINS NO. 1 AND NO. 2 TOP PLAN, SECTIONS AND DETAILS
MECHANICAL	M-0.1	MECHANICAL DETAILS 1
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	M-3.1	NEW INTERNAL RECYCLE PUMPS PLAN AND SECTIONS
	M-7.1	METER AND PRV ASSEMBLY, METER AND CHECK VALVE ASSEMBLY PLAN AND SECTION
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	M-7.3	LAKE GRAVITY DISK FILTER PLAN
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E-0.6	ELECTRICAL BUILDING NO. 1 EXISTING MCC ELEVATIONS	
E-0.7	ELECTRICAL SCHEMATICS	
E-0.8	MISCELLANEOUS ELECTRICAL DETAILS NO. 1	
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E-7.1	FLOW METER ASSEMBLY AND METER AND CHECK VALVE ASSEMBLY POWER PLAN	
E-7.2	GOLF COURSE STORAGE LAKE FLOW CONTROL STRUCTURE ELECTRICAL SITE PLAN AND SINGLE LINE	
E-7.3	LAKE GRAVITY DISK FILTER PLAN	
E-7.6	LAKE GRAVITY BACKWASH PUMP STATION	
E-8.1	DEWATERING BUILDING PLAN AND DETAILS	
E-10.1	PLANT DRAIN PUMP STATION ELECTRICAL MODIFICATIONS	
E-10.2	PLANT DRAIN PUMP STATION METERING POWER PLAN	



PROCESS AREA TABLE

NUMERIC DESIGNATION	PROCESS AREA
0	SITE CIVIL AND MISCELLANEOUS
1	NOT USED
2	HEADWORKS
3	BIOLOGICAL PROCESS
4	SECONDARY CLARIFICATION/RAS
5	FILTRATION
6	NOT USED
7	EFFLUENT
8	DEWATERING BUILDING
9	NOT USED
10	REJECT WATER/PLANT DRAIN
11	ELECTRICAL/GENERATOR BUILDING NO. 2
12	ELECTRICAL/GENERATOR BUILDING NO. 1

GENERAL NOTES

- THESE PLANS ARE SOLELY TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF THE EXISTING CONDITIONS WHICH MAY BE ENCOUNTERED DURING THE COURSE OF WORK. CONTRACTORS ARE DIRECTED TO CONDUCT WHATEVER INVESTIGATION THEY DEEM NECESSARY PRIOR TO BIDDING TO DETERMINE THE ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED.
- LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES ARE SHOWN BASED ON THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. THE CONTRACTOR SHALL VERIFY, PRIOR TO CONSTRUCTION, THE LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES (WHETHER OR NOT SHOWN ON THE PLANS) AFFECTING HIS WORK.
- THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS ON THE PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT CONSTRUCTION. SHOULD DISCREPANCIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO OBTAIN WRITTEN CLARIFICATION BEFORE COMMENCING WITH CONSTRUCTION.
- THE CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES, STORM DRAINS, SEWERS, UTILITIES, AND OTHER FACILITIES IN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL REPAIR ANY DAMAGES DUE TO HIS CONSTRUCTION ACTIVITIES AT NO ADDITIONAL COST TO THE OWNER.
- WHERE IT IS NECESSARY TO DEFLECT PIPE EITHER HORIZONTALLY OR VERTICALLY, PIPE JOINT DEFLECTION SHALL NOT EXCEED 75% OF THE MANUFACTURERS' MAXIMUM RECOMMENDED DEFLECTION.
- THERE ARE TO BE NO "SIZE ON SIZE TAPS" OR "SIZE ON SMALLER TAPS" ON THIS PROJECT.
- 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.
- THE CONTRACTOR SHALL PROVIDE CERTIFIED RECORD DRAWINGS AS OUTLINED IN THE SPECIFICATIONS. RED-LINE DRAWINGS SHALL BE CURRENT WITH EACH PAY APPLICATION SUBMITTED AND WILL BE CHECKED AS PART OF THE PAY APPLICATION REVIEW PROCESS. PAYMENT WILL NOT BE MADE TO CONTRACTOR WITHOUT APPROVED RED-LINE DRAWINGS. THE MOST CURRENT SET OF RED-LINES DRAWINGS SHALL ALSO BE BROUGHT TO EACH MONTHLY PROGRESS MEETING.
- THE CONTRACTOR SHALL PROVIDE THE OWNER WITH A DETAILED CONSTRUCTION PHASING PLAN FOR APPROVAL, PRIOR TO BEGINNING CONSTRUCTION.
- FIELD CONDITIONS MAY NECESSITATE ALIGNMENT AND GRADE DEVIATION OF THE PROPOSED PIPELINES TO AVOID CONFLICTS. NO ADDITIONAL PAYMENT SHALL BE MADE WITHOUT PRIOR APPROVAL OF THE OWNER AND THE OWNER'S ENGINEER.
- THE CONTRACTOR SHALL INCLUDE IN HIS BID; BY-PASS PUMPING FACILITIES, PUMPS, FITTINGS, LABOR, ETC, AS NECESSARY, BASED ON METHOD AND SEQUENCE OF CONSTRUCTION TO COMPLETE ALL WORK WHILE MAINTAINING THE EXISTING WASTEWATER TREATMENT PLANT OPERATIONS AT ALL TIMES.
- ALL PROPOSED WORK SHALL BE COORDINATED WITH WASTEWATER TREATMENT PLANT PERSONNEL AND MANATEE COUNTY UTILITIES DEPARTMENT AT LEAST TWO WEEKS IN ADVANCE OF PROPOSED CONSTRUCTION.
- THE CONTRACTOR SHALL FURNISH SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL OF ALL PIPE CONNECTIONS, TRANSITIONS, AND SPECIALS PRIOR TO FABRICATION OR DELIVERY TO THE JOB SITE.
- CONNECTIONS TO EXISTING FACILITIES SHALL BE ACCOMPLISHED IN A NEAT WORKMANLIKE MANNER. WHEN FIELD CONDITIONS INDICATE ANY VARIANCE FROM DETAILED METHODS, THE CONTRACTOR SHALL PROVIDE COMPREHENSIVE AND DETAILED DRAWINGS FOR OWNER REVIEW AND APPROVAL PRIOR TO MAKING THE CONNECTIONS.
- UNLESS OTHERWISE INDICATED OR APPROVED, ALL BELOW GROUND DUCTILE IRON PIPE SHALL HAVE PUSH-ON OR MECHANICAL JOINTS, AND ALL ABOVE GROUND DUCTILE IRON PIPE SHALL HAVE FLANGED JOINTS. ALL JOINTS SHALL BE FULLY RESTRAINED. CONTRACTOR TO FULLY RESTRAIN EXISTING PIPE AT TIE-IN LOCATIONS OF NEW PIPE.
- ALL PIPELINES SHALL HAVE A MINIMUM COVER OF 36" BELOW EXISTING GRADE UNLESS OTHERWISE NOTED OR DIRECTED.
- SANITARY SEWERS AND FORCE MAINS CROSSING OVER OR UNDER WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18" BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE. WHERE THIS MINIMUM SEPARATION CANNOT BE MAINTAINED, THE CROSSING SHALL BE ARRANGED SO THAT THE SEWER OR FORCE MAIN PIPE JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING WITH NO LESS THAN 10' BETWEEN ANY TWO JOINTS. AS AN ALTERNATE, THE SEWER OR FORCE MAIN MAY BE PLACED IN A WATERTIGHT CASING PIPE.
- WATER SHALL NOT BE PERMITTED IN BUILDING EXCAVATIONS AND TRENCHES DURING CONSTRUCTION. DEWATERING IS REQUIRED TO A MINIMUM OF 18" BELOW BOTTOM OF EXCAVATION.
- THE CONTRACTOR SHALL NOT ALLOW ANY DISCHARGE OF WASTEWATER TO LANDS AND/OR ADJACENT WATER BODIES OR STORM DRAINS. ANY LEAKAGE MUST BE CONTAINED AND TRANSFERRED BY THE CONTRACTOR TO THE PLANT DRAIN PUMP STATION AT THE WASTEWATER TREATMENT PLANT.
- ALL BELOW-GRADE FITTINGS 4-INCHES AND GREATER IN DIAMETER SHALL BE MECHANICAL JOINT DUCTILE IRON WITH FACTORY APPLIED, FUSION BONDED EPOXY COATINGS FOR THEIR INTERIOR AND EXTERIOR SURFACES.
- ALL EXPOSED PIPING SHALL BE PAINTED WITH DESIGNATED COLORS ASSOCIATED WITH THEIR USAGE AS PROVIDED IN THE SPECIFICATIONS.
- ALL NEW PIPELINES SHALL BE FLUSHED, PRESSURE TESTED, AND APPROVED PRIOR TO TIE-INS TO EXISTING FACILITIES. THE CONTRACTOR WILL BE ALLOWED TO USE TEMPORARY PLUGS FOR PRESSURE TESTING.
- ALL CONCRETE THRUST BLOCKS INSTALLED FOR TESTING PURPOSES AND NOT REQUIRED FOR THE PIPELINE SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR PRIOR TO FINAL ACCEPTANCE.
- CONTRACTOR SHALL MAINTAIN A CLEAR PATH FOR ALL SURFACE WATER DRAINAGE STRUCTURES AND DITCHES DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL BE REQUIRED TO INSTALL ALL EROSION, SEDIMENT AND TURBIDITY CONTROL MEASURES PRIOR TO CONSTRUCTION OF ANY COMPONENTS ASSOCIATED WITH THE PROJECT. SEDIMENT CONTROL INCLUDES SILT DAMS, TRAPS, EROSION PROTECTION, AND ANY OTHER APPURTENANCES NEEDED BUT NOT NECESSARILY SHOWN ON THESE DRAWINGS.
- CONTRACTOR SHALL PROVIDE PROTECTIVE MATTING, FUEL CONTAINMENT AND ALL OTHER MATERIALS, EQUIPMENT AND LABOR TO PROTECT THE STAGING AREA DURING CONSTRUCTION.
- CONTRACTOR SHALL, PRIOR TO BEGINNING CONSTRUCTION, SUBMIT A "FUELING SPILL PREVENTION PLAN" THAT SHALL CLEARLY INDICATE HOW FUEL SPILLS WILL BE PREVENTED WHEN FUELING BOTH WITHIN AND OUTSIDE OF THE STAGING AREA.
- CONTRACTOR SHALL SUBMIT A DEWATERING PLAN FOR APPROVAL PRIOR TO BEGINNING CONSTRUCTION. DEWATERING SHALL BE CONDUCTED IN ACCORDANCE WITH THE BMPs IDENTIFIED IN CHAPTER 4. 4.40 "DEWATERING" OF "THE FLORIDA STORMWATER EROSION AND SEDIMENTATION CONTROL INSPECTOR'S MANUAL".

SURVEY NOTES

- ELEVATIONS ARE BASED ON MANATEE COUNTY BENCHMARK 133-2. A DISK AND RIVET ON TOP OF THE NORTH 6" CURB, AT A BRIDGE OVER A CANAL THAT RUNS NORTH AND SOUTH AND IS EAST OF THE TREATMENT PLANT, 50± EAST OF THE INTERSECTION OF THE ENTRANCE ROAD AND THE ROAD THAT LEADS TO THE TREATMENT PLANT ADMINISTRATION BUILDING, HAVING AN ELEVATION OF 28.866, NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD 29).
- ALL COORDINATES ARE BASED ON THE FLORIDA STATE PLANE COORDINATE SYSTEM FOR THE WEST ZONE (SPC FL W), NORTH AMERICAN DATUM OF 1983/1999 ADJUSTMENT (NAD 83/99), TRANSVERSE MERCATOR PROJECTION AND ARE MATCHED TO THE FOLLOWING NATIONAL GEODETIC SURVEY (NGS) PUBLISHED CONTROL.

ORIGINATING COORDINATES:

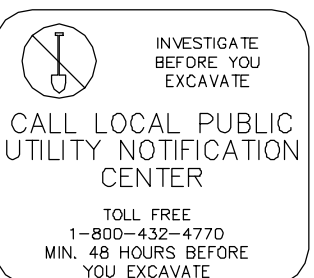
STATION DESIGNATION - NORTHING - EASTING

GIS 009 - 1188044.30 - 494782.22

175 84 A45 - 1171936.68 - 490517.59
- CONTRACTOR SHALL EMPLOY A PROFESSIONAL SURVEYOR, LICENSED IN THE STATE OF FLORIDA TO PERFORM CONSTRUCTION STAKING IN ACCORDANCE WITH RULE 61G17-6.004(3) OF THE FLORIDA ADMINISTRATIVE CODE.
- THE LOCATIONS AND ELEVATIONS OF ALL EXISTING FACILITIES SHOWN WITHIN THE LIMITS OF CONSTRUCTION ARE PROVIDED BY FORESIGHT SURVEYORS SPECIFICALLY FOR THIS PROJECT.

UTILITY NOTES

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE FOLLOWING JURISDICTIONAL BODIES AND UTILITY COMPANIES:

 <p style="font-size: 8px;">CALL LOCAL PUBLIC UTILITY NOTIFICATION CENTER TOLL FREE 1-800-432-4770 MIN. 48 HOURS BEFORE YOU EXCAVATE</p>	<p style="font-size: 8px;">MANATEE COUNTY TRANSPORTATION DEPT. GENE RIGGS 2904 12TH STREET COURT E. BRADENTON, FL 34208 (941) 708-7509 Ext. 7509</p> <p style="font-size: 8px;">MANATEE COUNTY UTILITIES OPERATIONS BOB CROUCH 4422-C 66TH STREET W. BRADENTON, FL 34210 (941) 792-8811 Ext. 5075</p>	<p style="font-size: 8px;">VERIZON FLORIDA, INC. DON DURDEN 1701 RINGLING BLVD. SARASOTA, FL 34236 (941) 952-5616</p> <p style="font-size: 8px;">PARAGON CABLE BRIGHTHOUSE NETWORK, LLC WALTER KROL 5413 S.R. 64 E. BRADENTON, FL 34208 (941) 748-3816 Ext. 24053</p>
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- ALL UTILITY CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE LATEST VERSION OF THE MANATEE COUNTY UTILITY STANDARDS.
- ALL BELOW GROUND DUCTILE IRON PIPE SHALL BE ENCASED IN A POLYETHYLENE WRAP IN ACCORDANCE WITH AWWA STANDARDS.
- ALL VALVE BOX COVERS SHALL BE PAINTED TO INDICATE THEIR TYPE OF SERVICE.
- ALL TEST POINT TAPPING SHALL BE CUT LOOSE FROM THE CORPORATION STOP AND COMPLETELY REMOVED AND DISPOSED OF BY THE CONTRACTOR PRIOR TO FINAL ACCEPTANCE. THE CORPORATION STOP SHALL BE CAPPED AND REMAIN IN PLACE.
- ADJUST EXISTING MANHOLE FRAMES AND COVERS TO MATCH FINAL GRADE.

RESTORATION AND MISCELLANEOUS NOTES

- THE CONTRACTOR SHALL PROVIDE AN ASPHALT PATCH FOR TRENCH AREAS CONSTRUCTED IN EXISTING ROADWAYS. ADJUST ALL CASTINGS TO MATCH NEW PAVEMENT SURFACE.
- THE CONTRACTOR SHALL REPLACE ALL EXISTING PAVING, STABILIZED EARTH, CURBS, SIDEWALKS, FENCES, LANDSCAPING AND OTHER IMPROVEMENTS WITH THE SAME OR BETTER TYPE OF MATERIAL THAT WAS REMOVED DURING CONSTRUCTION OR AS DIRECTED BY THE ENGINEER.
- ALL RESTORATION WORK PERFORMED THROUGHOUT THE PROJECT SHALL CONFORM TO EXISTING LINES AND GRADES UNLESS OTHERWISE NOTED.
- ALL EXISTING FENCES DISTURBED DURING CONSTRUCTION SHALL BE REPLACED AND REINSTALLED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER UNLESS SHOWN TO BE REMOVED ON CONSTRUCTION PLANS.
- CONTRACTOR SHALL RESTORE ALL IRRIGATION SYSTEM COMPONENTS TO PRE-CONSTRUCTION CONDITIONS.
- THE CONTRACTOR SHALL ADJUST EXISTING MANHOLE FRAMES AND COVERS TO MATCH FINAL GRADE.
- ALL DISTURBED GRASS AREAS SHALL BE RESTORED WITH SOLID SOD IN LIKE KIND UNLESS OTHERWISE DIRECTED BY OWNER

SIDEWALK NOTES

- ALL SIDEWALKS SHALL BE CONSTRUCTED WITH 4 INCH THICK 3000 PSI CLASS I CONCRETE REINFORCED WITH 6X6 NO. 10 MESH.
- SIDEWALKS SHALL BE CONSTRUCTED TO THE SPECIFICATIONS OF THE MANATEE COUNTY DEVELOPMENT STANDARDS AND A MINIMUM OF FIVE (5) FEET WIDE.
- THE CONCRETE SHALL BE GIVEN A BROOM FINISH. THE SURFACE VARIATIONS SHALL NOT BE MORE THAN 1/2 INCH UNDER A TEN-FOOT STRAIGHTEDGE, NOR MORE THAN 1/8 INCH ON A FIVE-FOOT TRAVERSE SECTION. THE EDGE OF THE SIDEWALK SHALL BE CAREFULLY FINISHED WITH AN EDGING TOOL HAVING A RADIUS OF 1/2 INCH.
- EXPANSION JOINT: EXPANSION JOINTS BETWEEN THE SIDEWALK AND DRIVEWAYS OR AT FIXED OBJECTS AND SIDEWALK INTERSECTIONS SHALL BE 1/2 INCH JOINTS.
- CONTRACTION JOINTS: FIXED OPEN-TYPE CONTRACTION JOINTS SHALL BE FORMED BY STAKING A METAL BULKHEAD IN PLACE AND DEPOSITING THE CONCRETE ON BOTH SIDES. AFTER THE CONCRETE HAS SET SUFFICIENTLY TO PRESERVE THE WIDTH AND SHAPE OF THE JOINT, THE BULKHEAD SHALL BE REMOVED. AFTER THE SIDEWALK HAS BEEN FINISHED OVER THE JOINT, THE SLOT SHALL BE EDGED WITH A TOOL HAVING A 1/2 INCH RADIUS. SAVED JOINTS: A SLOT APPROXIMATELY 3/16 INCH WIDE AND NOT LESS THAN 1-1/2 INCHES DEEP SHALL BE CUT WITH A CONCRETE SAW AFTER THE CONCRETE HAS SET.

REV. NO.	DESCRIPTIONS / REVISIONS	DATE

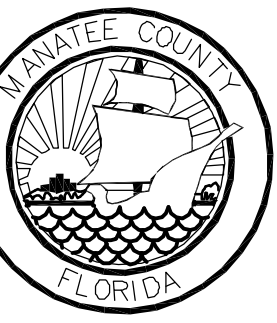
SEAL

DAVID C. WEHNER, P.E.
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MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1

DRAWING INDEX AND GENERAL NOTES

DATE: JULY 2011	SCALE:	DRAWING NUMBER:
MCE PROJ. # 1024-0143	HORIZONTAL: NONE	G-0.2
DRAWN: BFN	VERTICAL: NA	
DESIGNED: DCW	PROJ. MGR. DCW	REVISION:
CHECKED: MSL	ISSUED FOR BID	

GENERAL ABBREVIATIONS

⊙	AT	LN.	LANE
ABW	AUTOMATIC BACKWASH	LP	LIGHT POLE
A/C	AIR CONDITIONER UNIT	LS	LICENSED SURVEYOR
AC	ACRES	MAS	MASONRY
AC	ASPALTIC CONCRETE	MAX.	MAXIMUM
ABD	ABANDONED	MCC	MOTOR CONTROL CENTER
AL./ALUM.	ALUMINUM	MES	MITERED END SECTION
ANCH.	ANCHOR	MG	MILLION GALLONS
APPROX.	APPROXIMATE	MES	MILLION GALLONS PER DAY
AFF.	ABOVE FINISHED FLOOR	MHW	MEAN HIGH WATER
BLDG.	BUILDING	MON.	MONUMENT
BM.	BEAM	NG	NATURAL GROUND
BOT./BOTT.	BOTTOM	N.T.S.	NOT TO SCALE
(C)	CALCULATED DATA	NO.	NUMBER
C	CHANNEL	NP	NORMAL POOL
C.	CONDUIT	∅	DIAMETER/PHASE
C.B.	CATCH BASIN	O/A	OVERALL
CCR	CERTIFIED CORNER RECORD	OPNG.	OPENING
CHKR	CHECKERED	OR	OFFICIAL RECORDS BOOK
CIR.	CIRCLE	(P)	PLAT BOOK
CLF	CHAIN LINK FENCE	PCCP	PRE-STRESSED CONCRETE PIPE
CL	CENTERLINE	PG	PAGE
OMP	CORRUGATED METAL PIPE	PLCS.	PLACES
COL.	COLUMN	PLS	PROFESSIONAL LAND SURVEYOR
CONN.	CONNECTOR/CONNECTION	POB	POINT OF BEGINNING
CONC.	CONCRETE	POC	POINT OF COMMENCEMENT
COR	CORNER	POT	POTABLE
CPB	CONDOMINIUM PLAT BOOK	PP	POWER POLE
C/T	CURB TIE	PRM	PERMANENT REFERENCE MONUMENT
CU.	COPPER	PROP.	PROPOSED
(D)	DEED DATA	PSM	PROFESSIONAL SURVEYOR & MAPPER
D.	DEEP/DRAIN	P/T	PAVEMENT TIE
DB	DEED BOOK	P.V.	PLUG VALVE
DBL.	DOUBLE	PVMT	PAVEMENT
DHW.	DESIGN HIGH WATER	R.	RADIUS/RISER/RELAY
DISCH.	DISCHARGE	RCP	REINFORCED CONCRETE PIPE
DN.	DOWN	REF.	REFERENCED
DRWY	DRIVEWAY	REINF.	REINFORCED/REINFORCING
E.W.	EACH WAY	REQ'D	REQUIRED
EA.	EACH	RESTR.	RESTRAINED
ECMP	ELLIPTICAL CORRUGATED METAL PIPE	RLS	REGISTERED LAND SURVEYOR
EL./ELEV.	ELEVATION	RW/R/W	RIGHT-OF-WAY
ELEC.	ELECTRICAL CONDUIT	SAN.	SANITARY
EP	EDGE OF PAVEMENT	SEC.	SECTION
ERCP	ELLIPTICAL REINFORCED CONCRETE PIPE	SGL	SINGLE
ETC.	AND SO FORTH	SHW	SEASONAL HIGH WATER
EXIST.	EXISTING	SIR	SET IRON ROD 1/2" LB 6113
EXP.	EXPANSION	SND	SET NAIL & DISC LB 6113
(F)	FIELD DATA	SPRK	SPRINKLER
FCM	FOUND CONCRETE MONUMENT	SQ.	SQUARE
FDOT	FLORIDA DEPARTMENT OF TRANSPORTATION	SN.	SIGN
FF	FINISHED FLOOR	SR	STATE ROAD
FIR	FOUND IRON ROD	SSMH	SANITARY SEWER MANHOLE
FND	FOUND NAIL & DISC	S/T	SIDEWALK TIE
FOP	FOUND OPEN PIPE	STL.	STEEL
FPP	FOUND PINCHED PIPE	STY	STORY
FRRS	FOUND RAILROAD SPIKE	S/W; SWK	SIDEWALK
F/T	FENCE TIE	SYM.	SYMBOL
FT.	FOOT	TBM	TEMPORARY BENCH MARK
FTG.	FOOTING	TOB	TOP OF BANK
FXC	FOUND X-CUT	T.&B.	TOP & BOTTOM
GALV.	GALVANIZED	TEL	TELEPHONE
GDRL	GUARDRAIL	TEMP.	TEMPORARY
GE	GRATE ELEVATION	THK	THICK
GEN	GENERATOR	TOS	TOE OF SLOPE
GI	GRATED INLET	TYP.	TYPICAL
GPM	GALLONS PER MINUTE	UG	UNDERGROUND GAS
GRTG.	GRATING	UP	UTILITY POLE
G.S.	GALVANIZED STEEL	UT	UNDERGROUND TELEPHONE
GR./GRD.	GRADE	VCP	VITRIFIED CLAY PIPE
GWP	GUY WIRE POLE	VERT.	VERTICAL
HDWALL	HEADWALL	W	WIDE FLANGE/WIDE/WATT
H.R.	HANDRAIL	W/	WITH
HWL	HIGH WATER LEVEL	WF	WOOD FENCE
IE	INVERT ELEVATION	W/L	WATER LINE
IN.	INCH	W.L.	WATER LEVEL
INV.	INVERT	W/M	WATER MAIN
IP	IRON PIPE	W.M.	WATER METER
IR	IRON ROD	W.P.	WEATHER PROOF
J.B.	JUNCTION BOX	W.S.	WALL SLEEVE/WATER STOP/WATER SERVICE
JT.	JOINT	W/T	WALL TIE
(L)	LEGAL DESCRIPTION DATA	WTR.	WATER
LB	LICENSED BUSINESS		
LG.	LONG		

LEGEND

+ 25.25	= POINT OF ELEVATION
25.25	= DIMENSION FROM BUILDING TO BOUNDARY / RIGHT-OF-WAY LINE
	= BACKFLOW PREVENTER
	= BOLLARD or POST
	= BOX, CABLE TELEVISION
	= BOX, ELECTRIC UTILITY
	= BOX, ELECTRIC UTILITY (TRANSFORMER)
	= BOX, TELEPHONE
	= DECORATIVE LIGHT POLE
	= ELECTRIC OUTLET
	= FIRE HYDRANT
	= FIRE HYDRANT, RECLAIMED
	= FLAGPOLE
	= FLARED END SECTION
	= GRATE INLET
	= GROUND LIGHT
	= GUY ANCHOR
	= LIGHT POLE, CONCRETE
	= LIGHT POLE, METAL
	= LIGHT POLE, WOOD
	= MAILBOX
	= MANHOLE, ELECTRIC
	= MANHOLE, GREASE TRAP
	= MANHOLE, SANITARY SEWER
	= MANHOLE, STORM SEWER
	= MANHOLE, TELEPHONE
	= METER, ELECTRIC
	= METER, GAS
	= METER, RECLAIMED WATER
	= METER, WATER
	= MITERED END SECTION
	= MONITORING WELL
	= PEDESTRIAN CROSSING SIGNAL
	= SANITARY CLEANOUT
	= SPRINKLER HEAD
	= TELEPHONE RISER
	= TRAFFIC SIGN
	= TRAFFIC SIGNAL BOX
	= TRAFFIC SIGNAL POLE
	= UNDERGROUND CABLE TELEVISION MARKER
	= UNDERGROUND CABLE TELEVISION WARNING SIGN
	= UNDERGROUND ELECTRIC MARKER
	= UNDERGROUND ELECTRIC WARNING SIGN
	= UNDERGROUND FIBER OPTIC MARKER
	= UNDERGROUND FIBER OPTIC WARNING SIGN
	= UNDERGROUND FORCEMAIN MARKER
	= UNDERGROUND FORCEMAIN WARNING SIGN
	= UNDERGROUND GAS MARKER
	= UNDERGROUND GAS WARNING SIGN
	= UNDERGROUND RECLAIMED WATER MARKER
	= UNDERGROUND RECLAIMED WATER WARNING SIGN
	= UNDERGROUND SANITARY SEWER MARKER
	= UNDERGROUND SANITARY SEWER WARNING SIGN
	= UNDERGROUND TELEPHONE MARKER
	= UNDERGROUND TELEPHONE WARNING SIGN
	= UNDERGROUND WATER MARKER
	= UNDERGROUND WATER WARNING SIGN
	= UTILITY POLE, CONCRETE
	= UTILITY POLE, METAL
	= UTILITY POLE, WOOD
	= VALVE, UTILITY NOT DETERMINED
	= VALVE, GAS
	= VALVE, RECLAIMED WATER
	= VALVE, SANITARY
	= VALVE, WATER
	= WELL
	= CONCRETE
	= ASPHALT
	= OVERLAY EXIST. PAVEMENT
	= CONCRETE PAVERS
	= BRICK
	= DEMOLITION
	= TOP OF BANK
	= TOE OF SLOPE or CENTER LINE OF DITCH
	= 6' CHAIN LINK FENCE UNLESS OTHERWISE NOTED
	= OVERHEAD UTILITY LINES
	= STAKED SILT FENCE
	= FLOATING TURBIDITY BARRIER

STORM CURB INLETS



LEGEND

	EXISTING	PIPE 12" OR LARGER (ABOVE GROUND)
	EXISTING	PIPE 12" OR LARGER (UNDERGROUND)
	EXISTING	PIPE SMALLER THAN 12" (ABOVE GROUND)
	EXISTING	PIPE SMALLER THAN 12" (UNDERGROUND)
		GATE VALVE
		BUTTERFLY VALVE
		BALL VALVE
		PLUG VALVE
		REDUCER
		MANHOLE
		CATCH BASIN
		TOP OR TOE OF BANK
		CONTOURS
		PIPING, STRUCTURES OR EQUIPMENT TO BE REMOVED

PROPOSED

	PROPOSED	PIPE 12" OR LARGER (ABOVE GROUND)
	PROPOSED	PIPE 12" OR LARGER (UNDERGROUND)
	PROPOSED	PIPE SMALLER THAN 12" (ABOVE GROUND)
	PROPOSED	PIPE SMALLER THAN 12" (UNDERGROUND)
		GATE VALVE
		BUTTERFLY VALVE
		BALL VALVE
		PLUG VALVE
		REDUCER
		MANHOLE
		CATCH BASIN
		TOP OR TOE OF BANK
		CONTOURS
		PIPING, STRUCTURES OR EQUIPMENT TO BE REMOVED

FLOW ABBREVIATIONS

AL	ALUM SOLUTION
AB	AERATION BASIN
AD	AEROBIC DIGESTER
AX	ANOXIC BASIN
BA	BLOWER AIR
BP	BYPASS
BW	BACKWASH
CA	COMPRESSED AIR
CCC	CHLORINE CONTACT CHAMBER
CE	CHLORINATED EFFLUENT
CF	CLOTH FILTER
CLE	CLARIFIER EFFLUENT
CLG	CHLORINE GAS
CLS/CL2S	CHLORINE SOLUTION
D/DR	DRAIN
DAF	DISSOLVED AIR FLOTATION
DF	NEW CLOTH FILTER
DS	DEWATERED SLUDGE
EFF	EFFLUENT
EXP	EXPANSION
FBW	FILTER BACKWASH
FC	FINAL CLARIFIER
FE	FILTER EFFLUENT
FLE	FILTERED LAKE EFFLUENT
FLW	FLOCCULATED WATER
FM	FLOW METER
FW	FILTERED WATER
GBT	GRAVITY BELT THICKENER
GR	GRIT
HDW	HEADWORKS
INF	INFLUENT
IR	INTERNAL RECYCLE
HSBFP	HIGH SOLIDS BELT FILTER PRESS
ML	MIXED LIQUOR
OF	OVERFLOW
P	POLYMER
PD	PLANT DRAIN
PDFM	PLANT DRAIN FORCE MAIN
PS	PUMP STATION
PW	POTABLE WATER
RAS	RETURNED ACTIVATED SLUDGE
RCW	RECLAIMED WATER
REJ	REJECT
RML	RECIRCULATED MIXED LIQUOR
RW	REUSE WATER
SAM	SAMPLE
SB	SPLITTER BOX
SC	SCUM
SDR	STORMWATER DRAINAGE
SL	SAMPLE LINE
SS	SANITARY SEWER
TS	THICKENED SLUDGE
WAS	WASTE ACTIVATED SLUDGE
WBW	WASTE BACKWASH WATER
WW	WASTEWATER

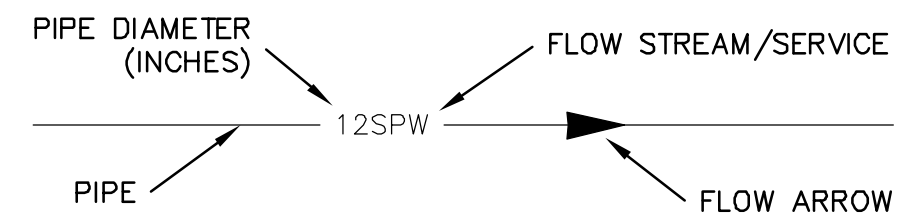
PIPING ABBREVIATIONS

ARV	AIR RELEASE VALVE
ABD	ABANDONED
BFV	BUTTERFLY VALVE
BV	BALL VALVE
CB	CATCH BASIN
CO	CLEANOUT
CORP	CORPORATION
CV	CHECK VALVE
D.I.	DUCTILE IRON
DIA	DIAMETER
D.I.P.	DUCTILE IRON PIPE
ELEC.	ELECTRICAL
EXIST.	EXISTING
FHA	FIRE HYDRANT ASSEMBLY
FL	FLANGED
GS	GALVANIZED STEEL
GV	GATE VALVE
HB	HOSE BIBB
HDPE	HIGH DENSITY POLYETHYLENE
MH	MANHOLE
MJ	MECHANICAL JOINT
PE	PLAIN END
PS	PUMP STATION
PV	PLUG VALVE
PVC	POLYVINYLCHLORIDE
RED.	REDUCER
SCH	SCHECULE
SDR.	DIAMETER RATIO
SHC.	SODIUM HYPOCHLORITE
SS.	STAINLESS STEEL
TBR	TO BE REMOVED
UE	UNDERGROUND ELECTRIC
VERT.	VERTICAL
WM	WATER METER

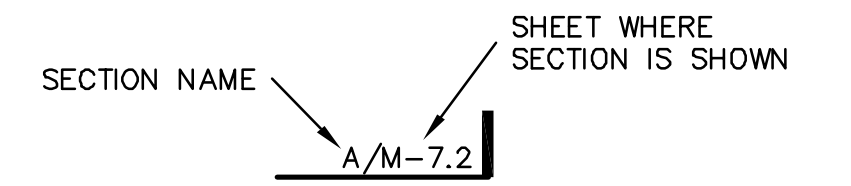
TREE LEGEND

	= BAY TREE
	= BOTTLE BRUSH TREE
	= CAMPHOR TREE
	= CEDAR
	= CHINABERRY TREE
	= CITRUS TREE
	= CYPRESS TREE
	= ELM TREE
	= EUCALYPTUS TREE
	= MAGNOLIA TREE
	= MAPLE TREE
	= MULBERRY TREE
	= OAK TREE
	= OTHER SPECIES
	= PALM TREE
	= PECAN TREE
	= PERSIMMON TREE
	= PINE TREE
	= SYCAMORE TREE
	= WAX MYRTLE TREE
	= WILLOW TREE

PIPE IDENTIFICATION



SECTION DESIGNATION



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REV.	DESCRIPTION	DATE

SEAL

DAVID C. WEHNER, P.E.
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MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1

ABBREVIATIONS AND LEGEND

DATE: JULY 2011	SCALE:	DRAWING NUMBER:
MCE PROJ. # 1024-0143	HORIZONTAL: NONE	G-0.3
DRAWN: BFN	VERTICAL: NA	
DESIGNED: DCW	REVISION:	
CHECKED: JSL	ISSUED FOR BID	
PROJ. MGR: DCW		



SCALE: 1"=100' (Horiz.)

EFFLUENT PUMP BACK STATION No.2

EFFLUENT PUMP BACK STATION No.1

REPLACE INTAKE STRUCTURES

GOLF COURSE STORAGE LAKE

INSTALL RCW CONNECTION PIPE AND NEW GOLF COURSE STORAGE LAKE DISCHARGE

INSTALL YARD PIPING

INSTALL PLANT DRAIN FLOWMETER

REPLACE INTERNAL RECYCLE PUMPS
INSTALL KNIFE GATE VALVES
INSTALL D.O. SENSORS AND TRANSMITTERS

ABW FILTERS

INSTALL LAKE FILTER BACKWASH LIFT STATION

REHABILITATE PLANT DRAIN PUMP STATION

EXIST. 12" IRRIGATION MAIN

12" EFF
20" EFF

INSTALL YARD PIPING

BASIN 2

BASIN 1

INSTALL YARD PIPING

REJECT STORAGE

EFFLUENT PUMP BACK STATION No.3

REPLACE INTAKE STRUCTURES

BUFFALO CREEK GOLF COURSE

SLUDGE DEWATERING BUILDING

INSTALL CHLORINE IMPROVEMENTS

INSTALL NEW LAKE FILTERS

EAST LAKE

DIGESTER

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REVNO.	DATE	DESCRIPTIONS REVISIONS

SEAL

DAVID C. WEHNER, P.E.
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MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
SITE PLAN AND PROPOSED WORK LOCATIONS

DATE:	JULY 2011
MCE PROJ. #	1024-0143
DRAWN	BFN
DESIGNED	DCW
CHECKED	JSL
PROJ. MGR.	DCW
STATUS:	ISSUED FOR BID

SCALE	DRAWING NUMBER
HORIZONTAL: 1" = 100'	G-0.4
VERTICAL: NA	
REVISION	



100' 0 100' 200'
SCALE: 1"=100' (Horiz.)

FLOATING TURBIDITY BARRIER (TYP.)

SILT FENCE (TYP.)

ADDITIONAL SILT FENCE IN FRONT OF ALL CULVERTS THAT TO DRAIN INTO WETLANDS

NOTES

1. PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION OR DEMOLITION ACTIVITIES, ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IN PLACE AND REMAIN THROUGHOUT CONSTRUCTION.
2. CONTRACTOR SHALL FOLLOW BEST MANAGEMENT PRACTICES THROUGHOUT CONSTRUCTION.
3. CONTRACTOR SHALL PREPARE AND SUBMIT A STORM WATER POLLUTION PLAN (SWPPP) FOR REVIEW AND APPROVAL PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES. APPROVAL DOES NOT OBSOLETE CONTRACTOR OF RESPONSIBILITY FOR THE IMPLEMENTATION AND COMPLIANCE OF THE SWPPP. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING PERMITS ASSOCIATED WITH THE SWPPP.
4. SEE DWG NO. C-0.2.2 FOR DETAILS.
5. CARE SHALL BE EXERCISED TO PREVENT DISTURBANCE TO THE NATURAL VEGETATION IN AREAS NOT PROPOSED FOR IMMEDIATE CONSTRUCTION.
6. AS SOON AS PRACTICAL, ALL DRESSED SLOPES AND DISTURBED AREAS SHALL BE SODDED OR SEEDDED AND MULCHED TO PREVENT EROSION.
7. CONTRACTOR SHALL PREPARE AND SUBMIT A DEWATERING PLAN SHOWING APPLICABLE BEST MANAGEMENT PRACTICES FOR REVIEW AND APPROVAL BY THE OWNER PRIOR TO ANY DEWATERING ACTIVITIES. APPROVAL DOES NOT OBSOLETE CONTRACTOR OF RESPONSIBILITY FOR DEWATERING ACTIVITIES.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING PERMITS ASSOCIATED WITH DEWATERING ACTIVITIES.
9. DEWATERING WATER SHALL BE FILTERED AND TREATED WITH SILTATION SUMP AND/OR FILTER SOCKS OR OTHER FDEP APPROVED METHOD PRIOR TO DISCHARGE ONTO THE GROUND IN A MANNER IN WHICH THE WATER DOES NOT LEAVE THE PREMESIS OR CAUSE A NUISANSE TO PLANT OPERATIONS.

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REVNO.	DATE	DESCRIPTIONS REVISIONS

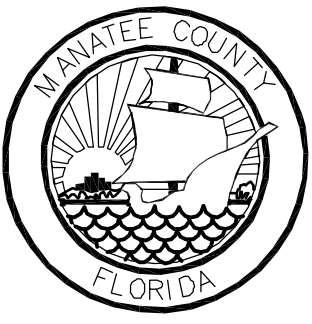
SEAL

DAVID C. WEHNER, P.E.
No. 59541

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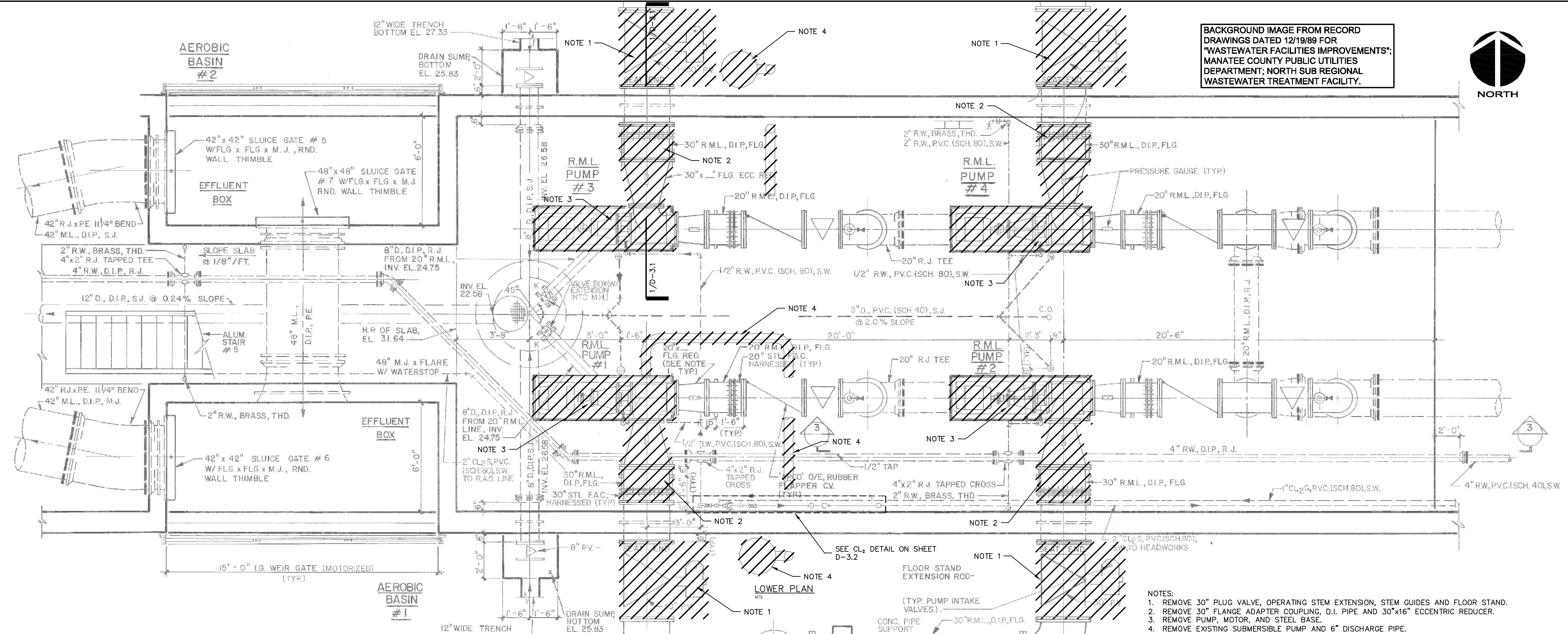
MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
SOIL EROSION AND SEDIMENTATION CONTROL PLAN

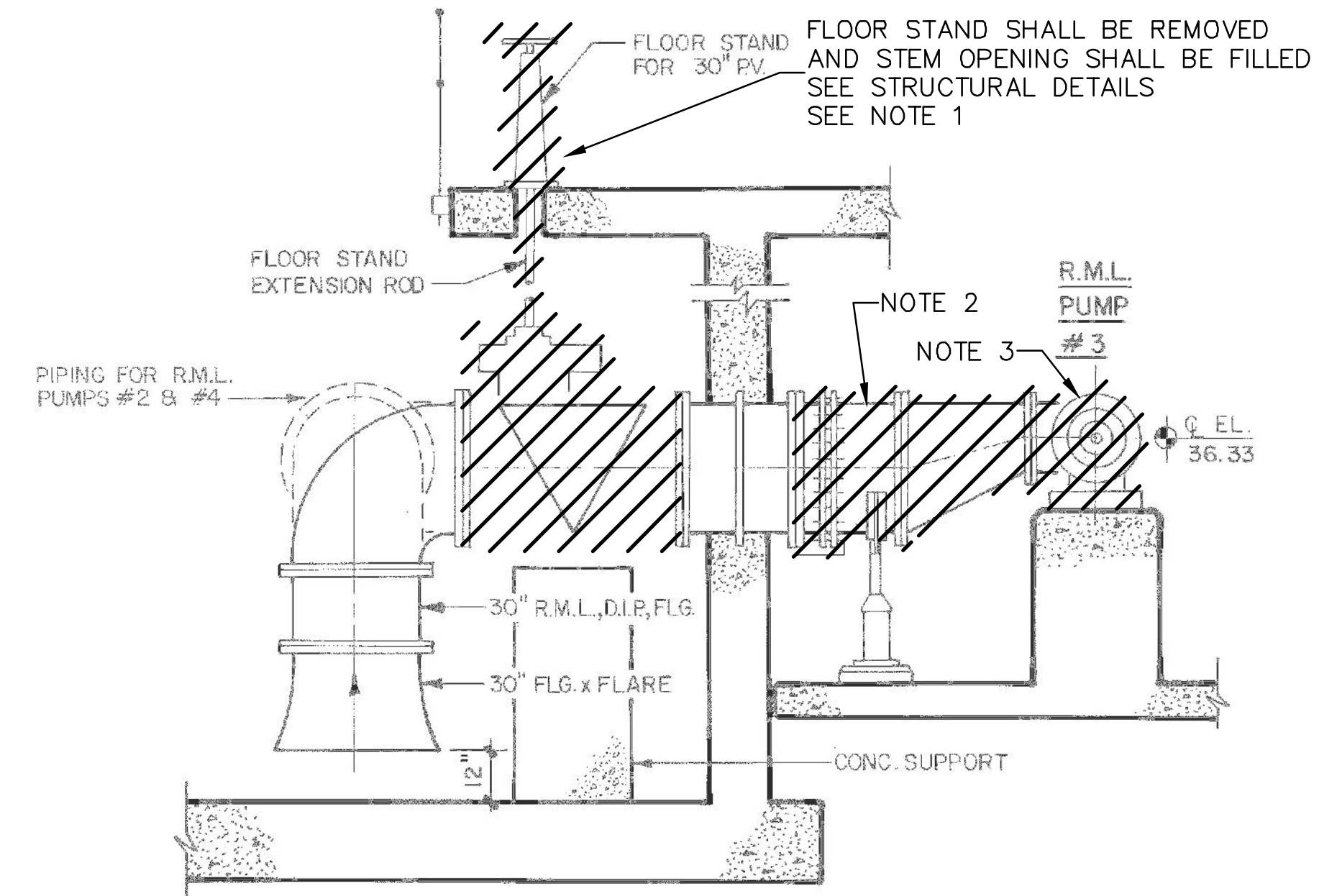
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DESIGNED:	DCW
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PROJ. MGR.	DCW
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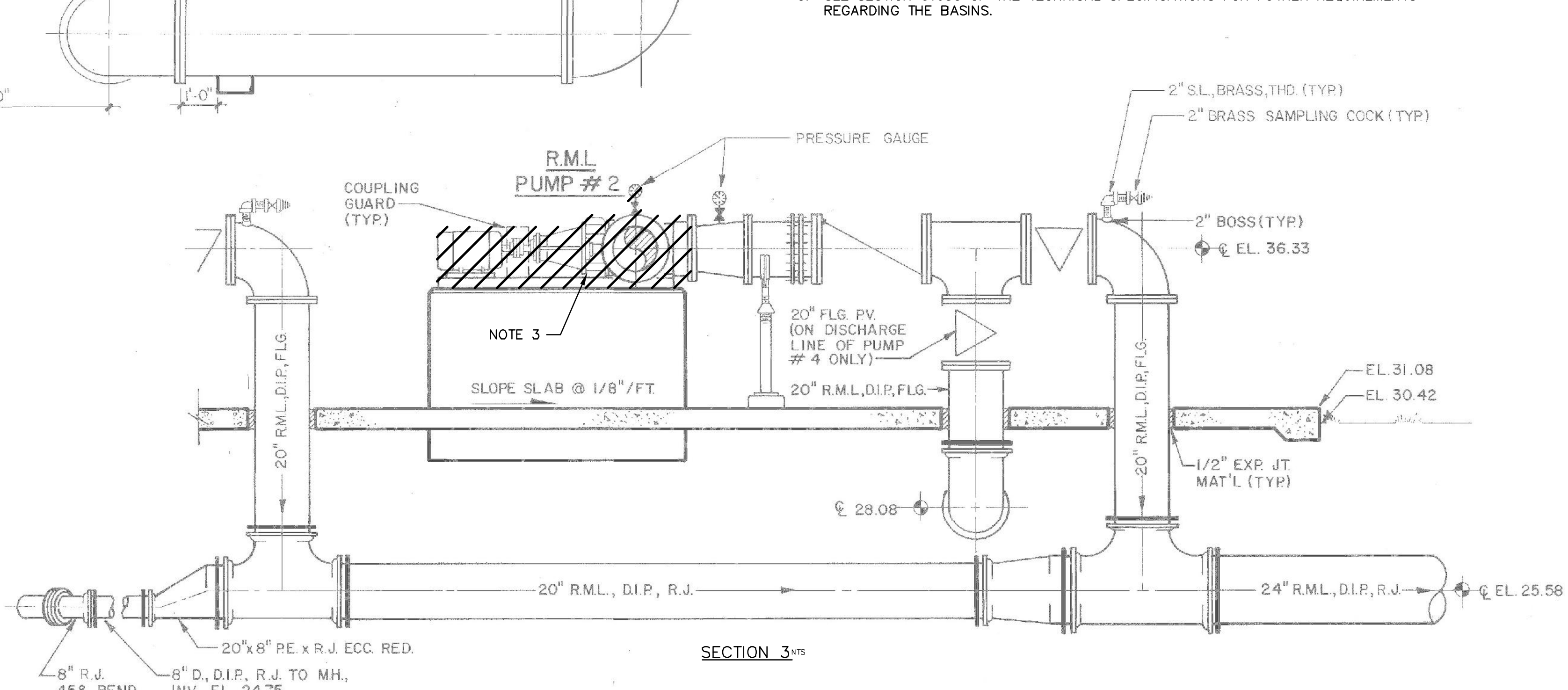
BACKGROUND IMAGE FROM RECORD DRAWINGS DATED 12/19/89 FOR "WASTEWATER FACILITIES IMPROVEMENTS"; MANATEE COUNTY PUBLIC UTILITIES DEPARTMENT; NORTH SUB REGIONAL WASTEWATER TREATMENT FACILITY.



- NOTES:
1. REMOVE 30" PLUG VALVE, OPERATING STEM EXTENSION, STEM GUIDES AND FLOOR STAND.
 2. REMOVE 30" FLANGE ADAPTER COUPLING, D.I. PIPE AND 30"x16" ECCENTRIC REDUCER.
 3. REMOVE PUMP, MOTOR, AND STEEL BASE.
 4. REMOVE EXISTING SUBMERSIBLE PUMP AND 6" DISCHARGE PIPE.
 5. SEE SECTION 01030 OF THE TECHNICAL SPECIFICATIONS FOR FURTHER REQUIREMENTS REGARDING THE BASINS.



NOTE
SECTION IS TYPICAL FOR R.M.L. PUMPS #1,2,3 & 4, EXCEPT FOR SUCTION PIPING BEFORE 30" P.V. & AFTER 30" FLG. x FLARE - SEE PLAN FOR ADDITIONAL INFORMATION.



SECTION 3

REVNO.	DATE	DESCRIPTIONS

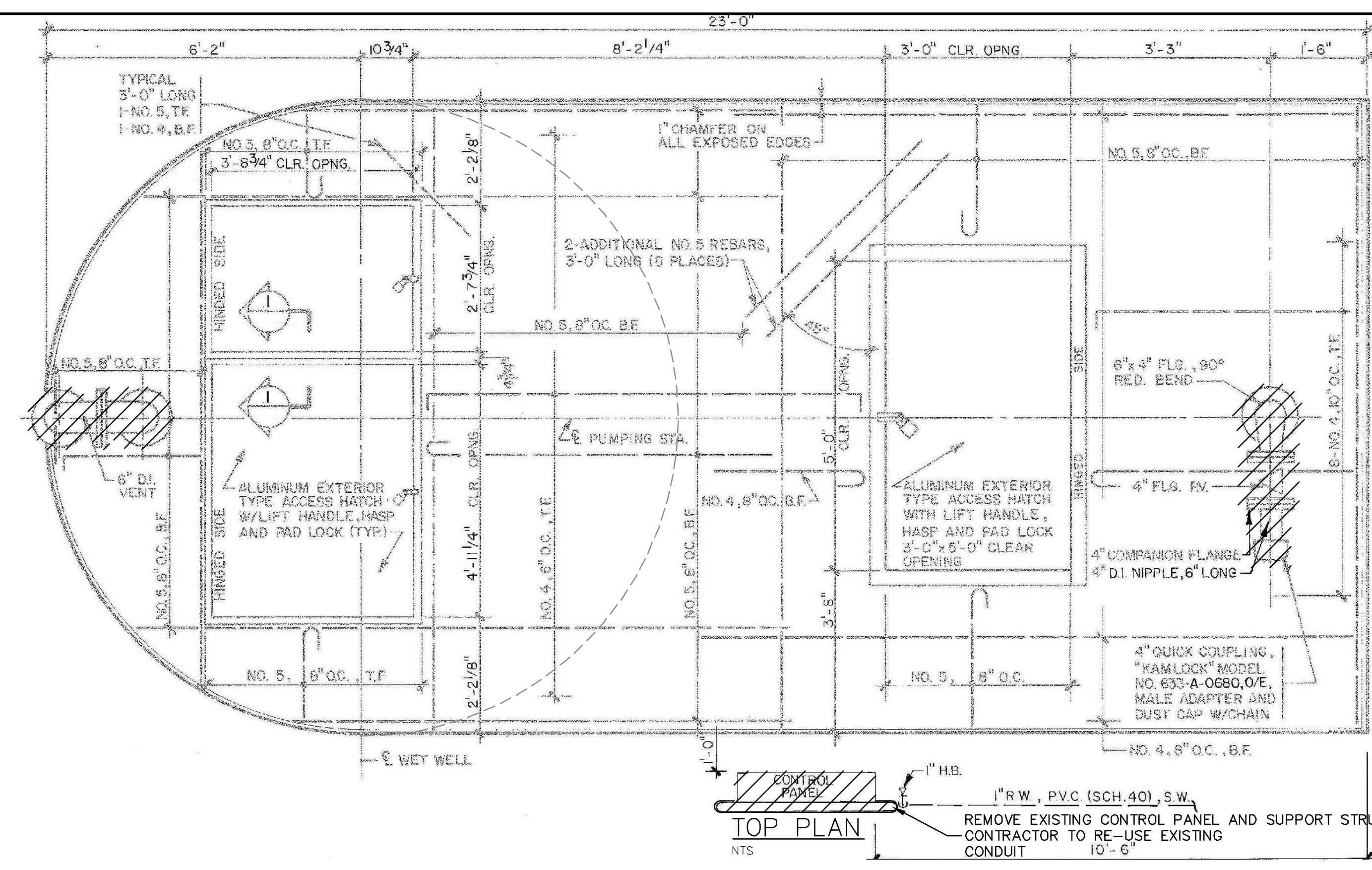
BLAKE R. PETERS, P.E.
No. 64429

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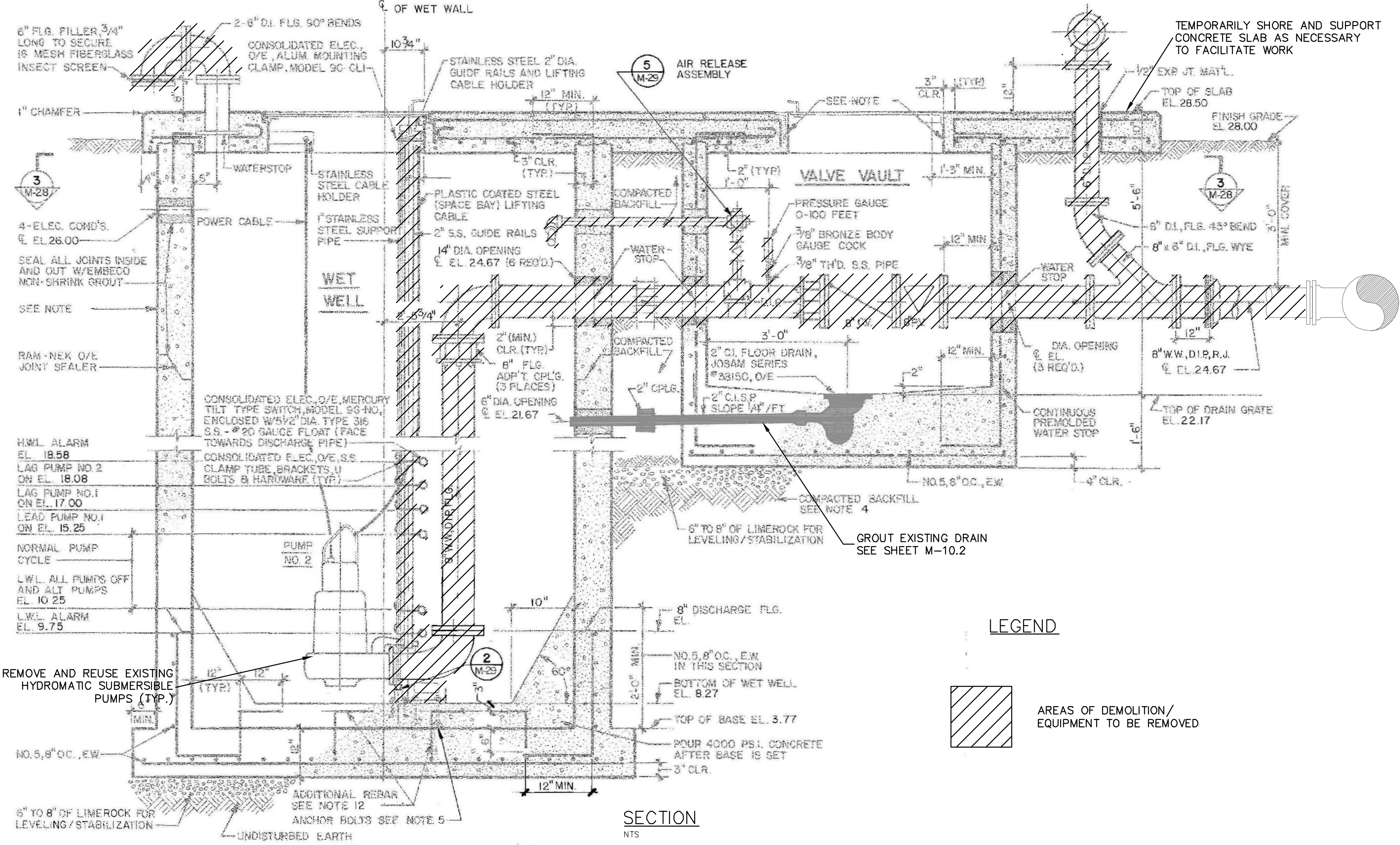
MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
INTERNAL RECYCLE
DEMOLITION PLAN AND SECTIONS

DATE: JULY 2011	SCALE:	DRAWING NUMBER:
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DRAWN: BFN	VERTICAL: NTS	
DESIGNED: NJS		
CHECKED: DCW		
PROJ. MGR. DCW		
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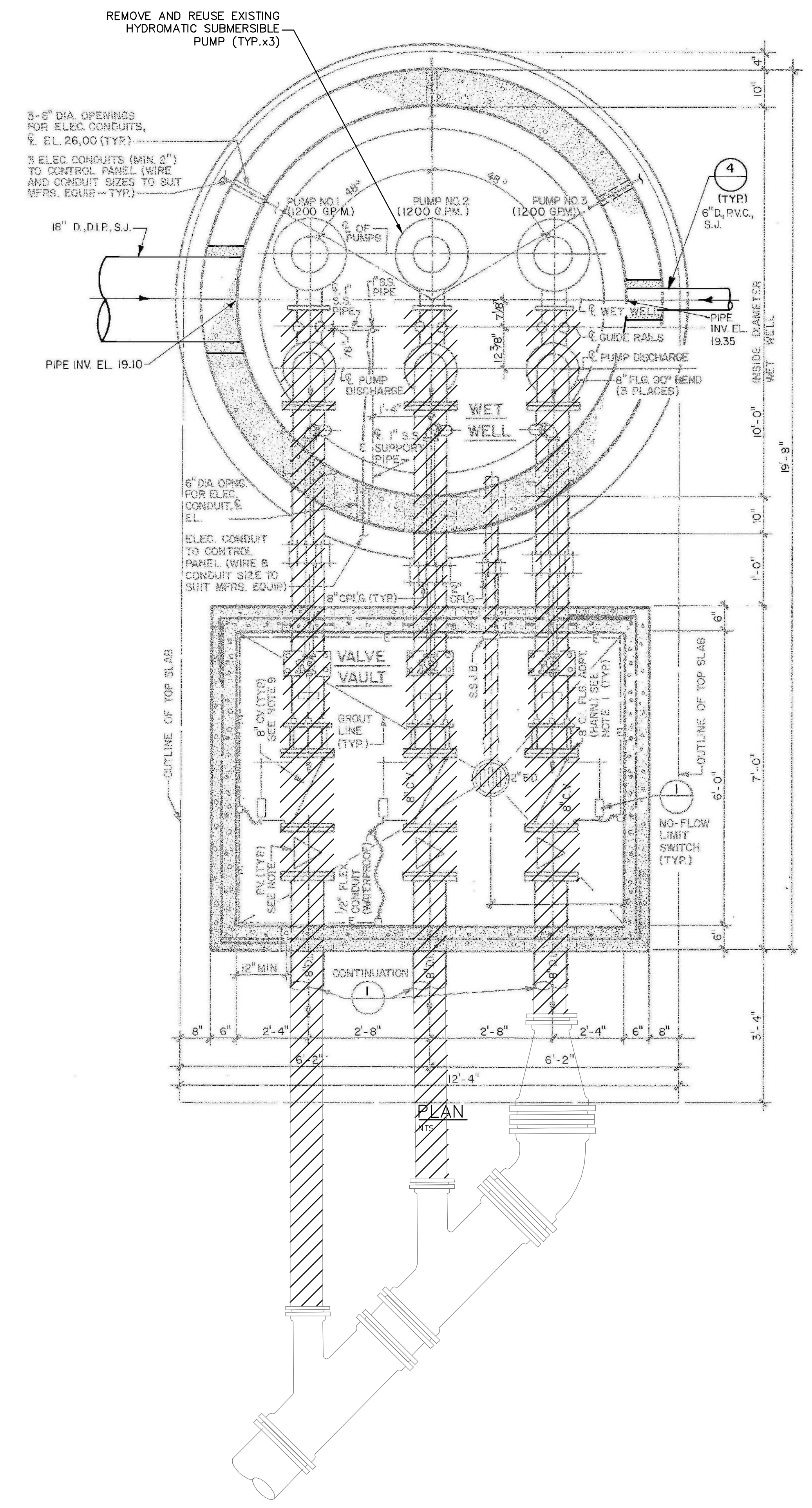


TOP PLAN
 REMOVE EXISTING CONTROL PANEL AND SUPPORT STRUCTURE
 CONTRACTOR TO RE-USE EXISTING CONDUIT 10'-6"



SECTION
 NTS

LEGEND
 AREAS OF DEMOLITION/EQUIPMENT TO BE REMOVED



PLAN
 NTS

REVNO.	DESCRIPTIONS	DATE

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 BLAKE R. PETERS, P.E.
 No. 64429

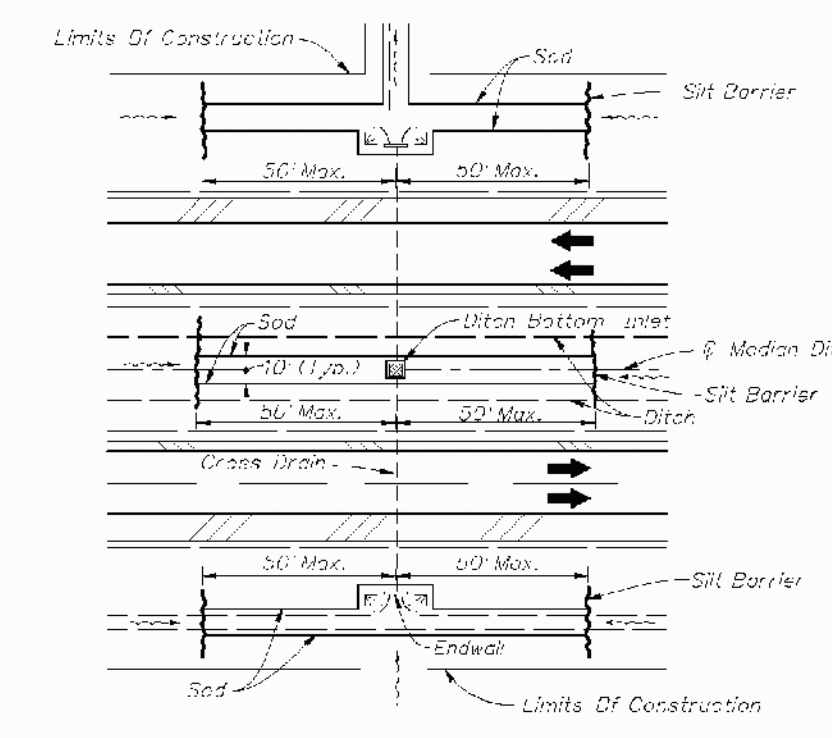
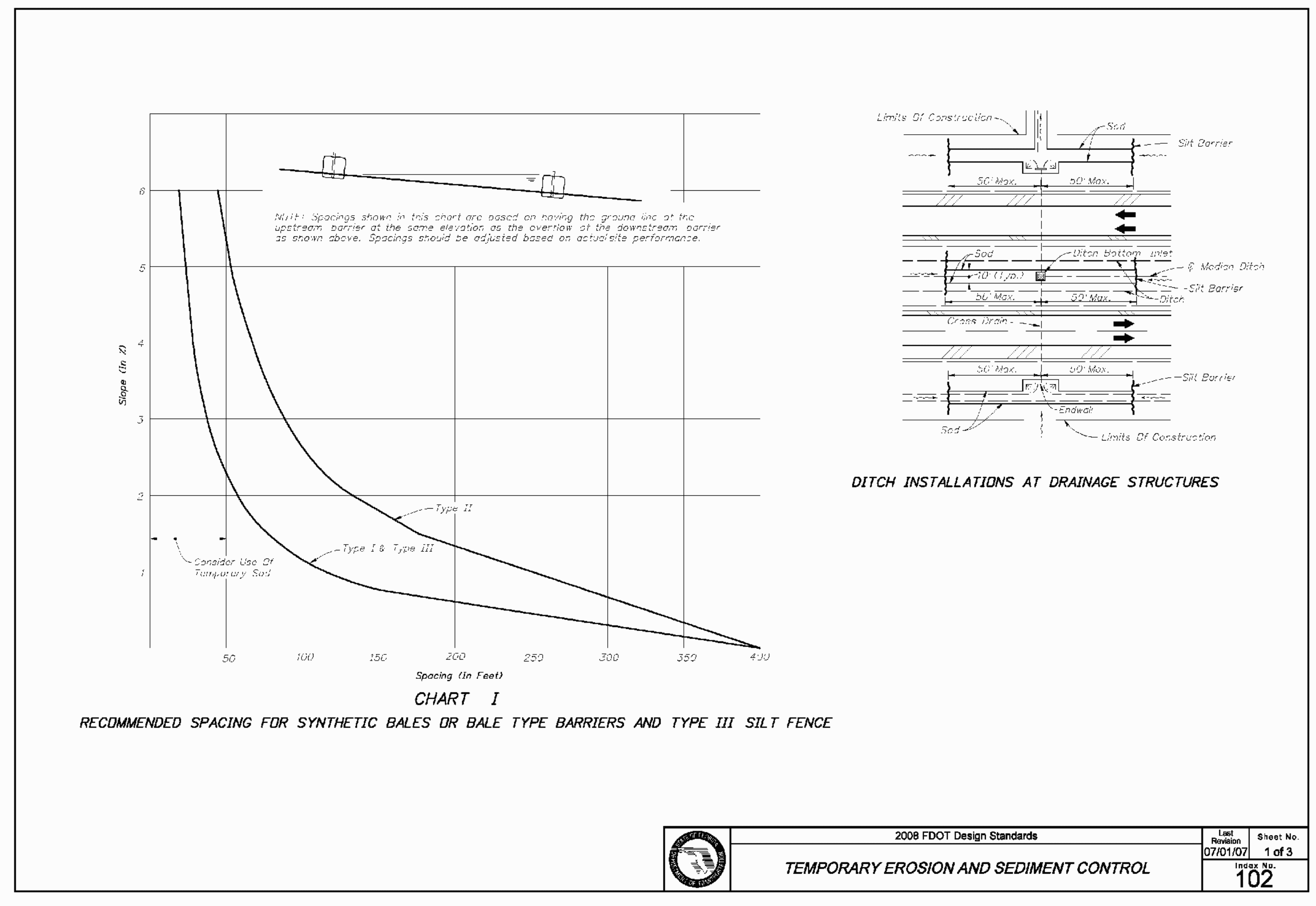
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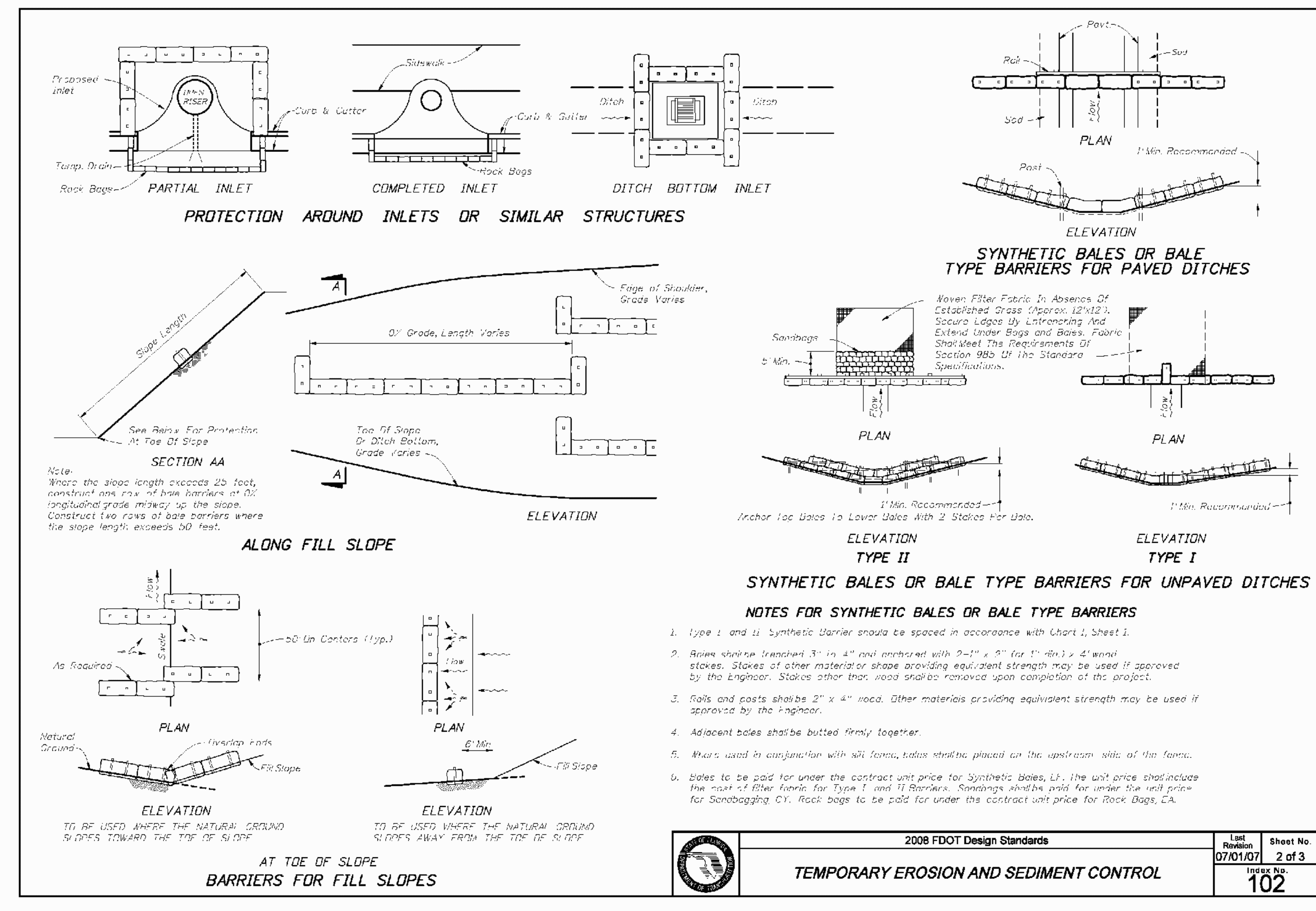
MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
PLANT DRAIN PUMP STATION
DEMOLITION PLAN AND SECTION

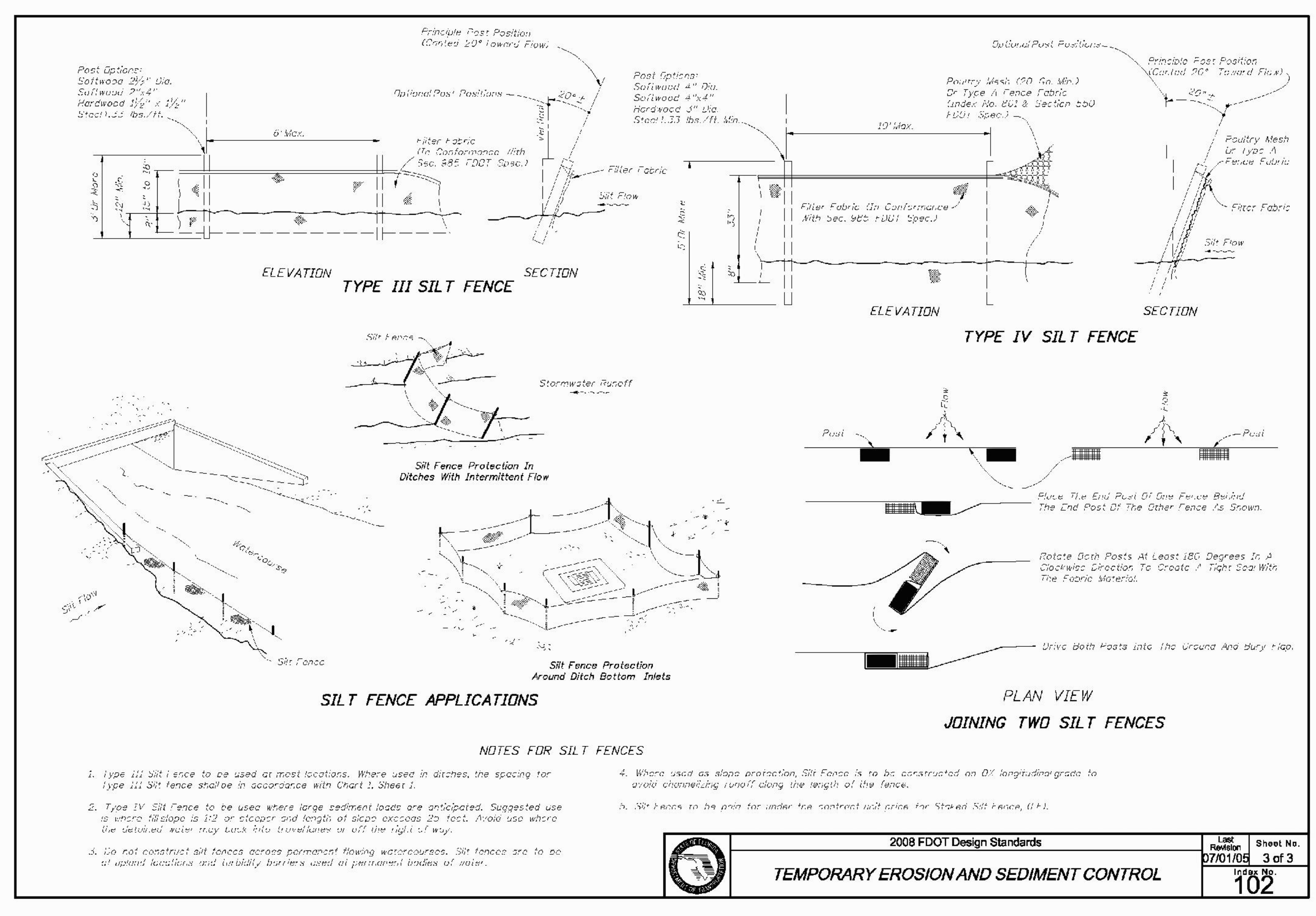
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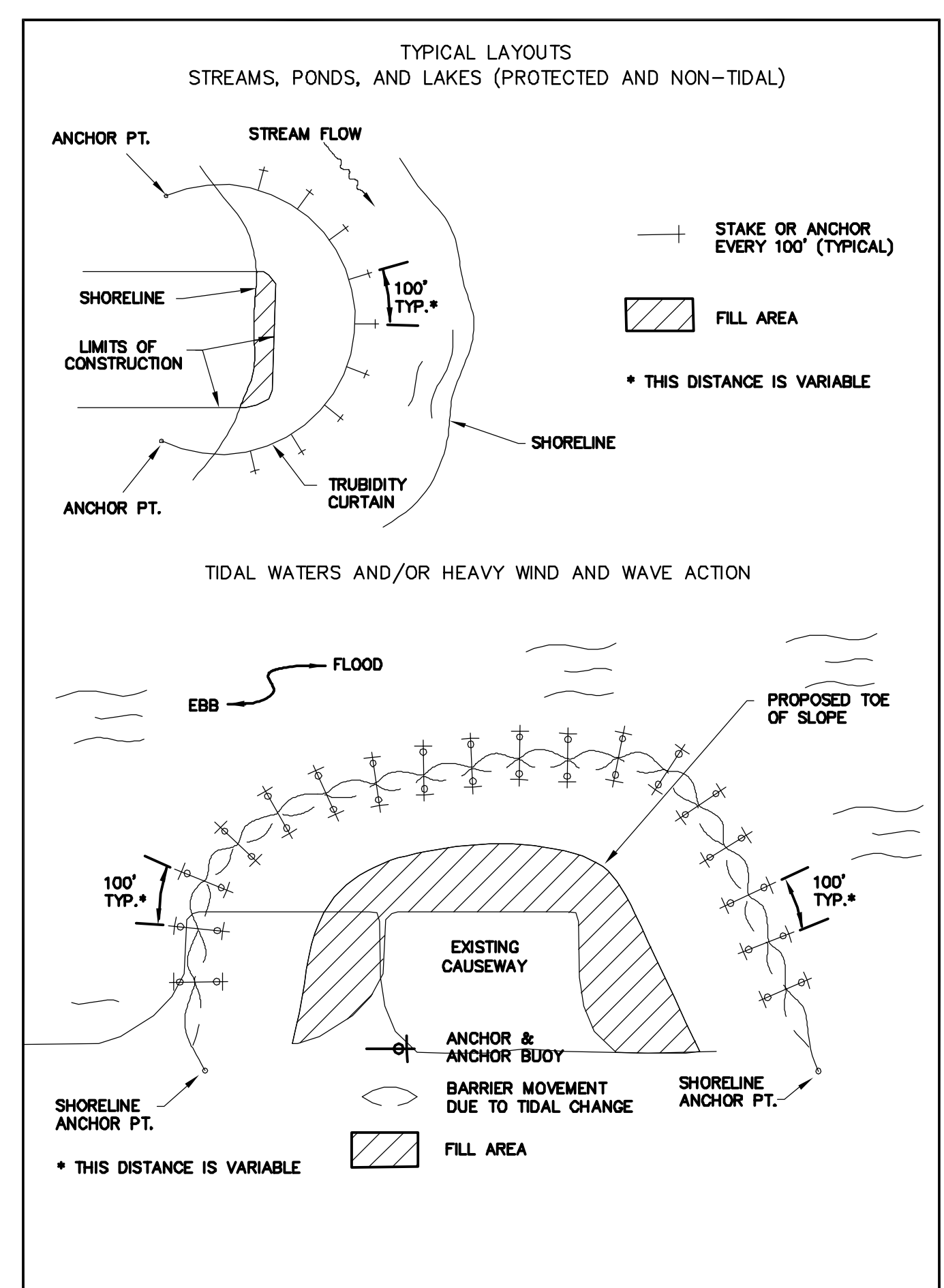
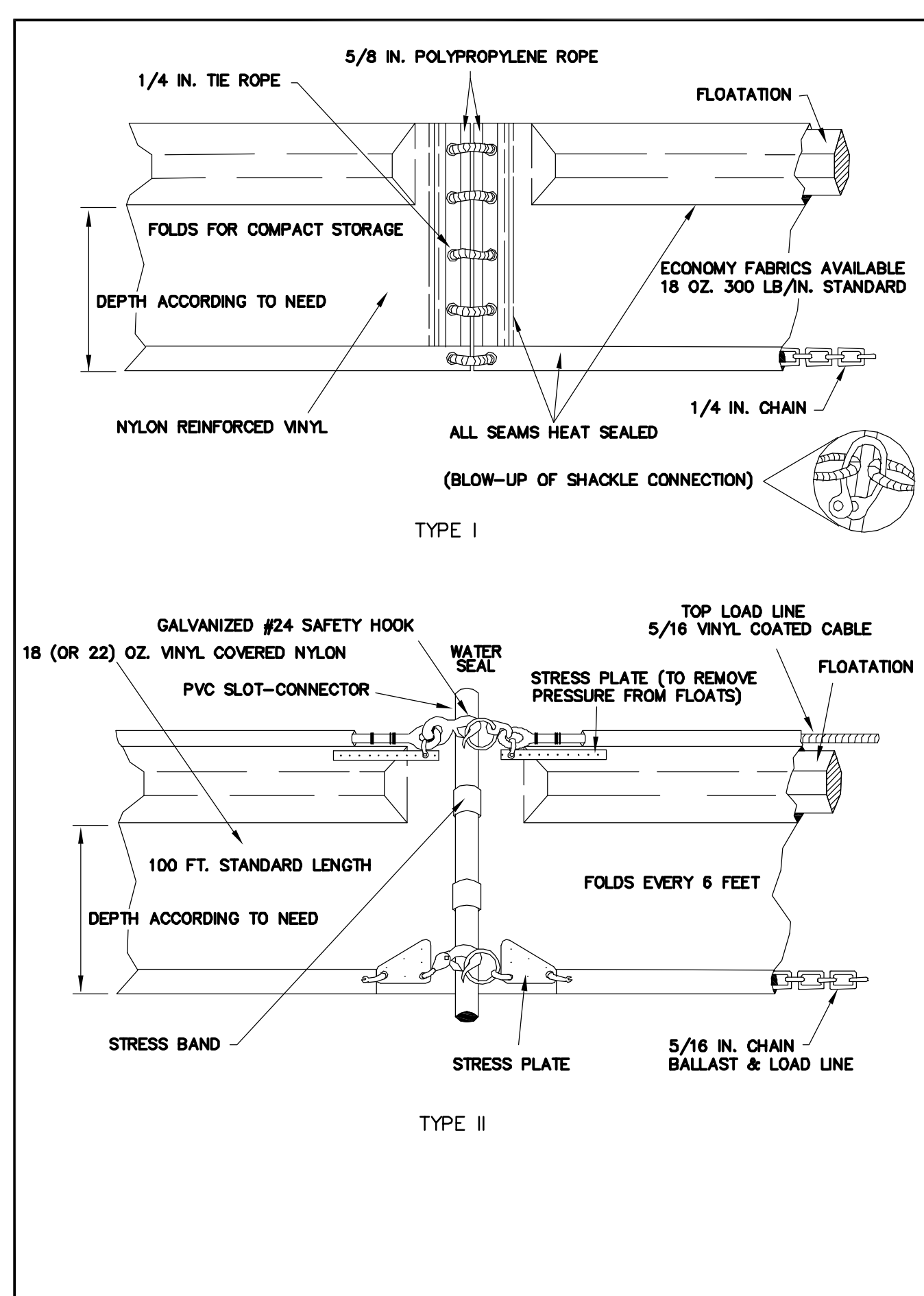
2008 FDOT Design Standards
TEMPORARY EROSION AND SEDIMENT CONTROL
 Last Revision: 07/01/07
 Sheet No. 1 of 3
 Index No. 102



2008 FDOT Design Standards
TEMPORARY EROSION AND SEDIMENT CONTROL
 Last Revision: 07/01/07
 Sheet No. 2 of 3
 Index No. 102



2008 FDOT Design Standards
TEMPORARY EROSION AND SEDIMENT CONTROL
 Last Revision: 07/01/08
 Sheet No. 3 of 3
 Index No. 102



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REV. NO.	DESCRIPTION	DATE

DAVID C. WEHNER, P.E.
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MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1

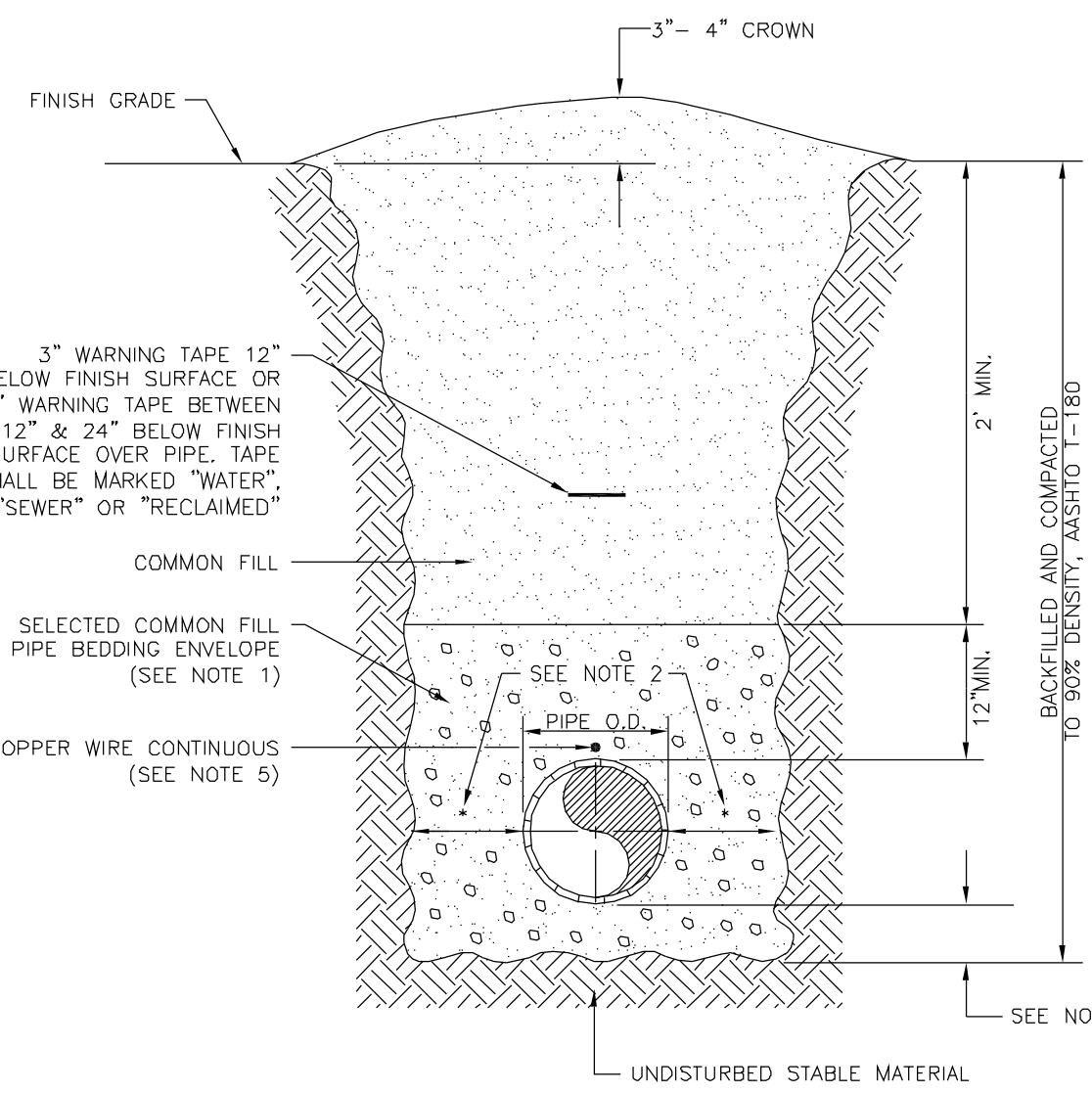
CIVIL DETAILS NO. 1

DATE: JULY 2011
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 DRAWN: BFN
 DESIGNED: DCW
 CHECKED: JSL
 PROJ. MGR: DCW

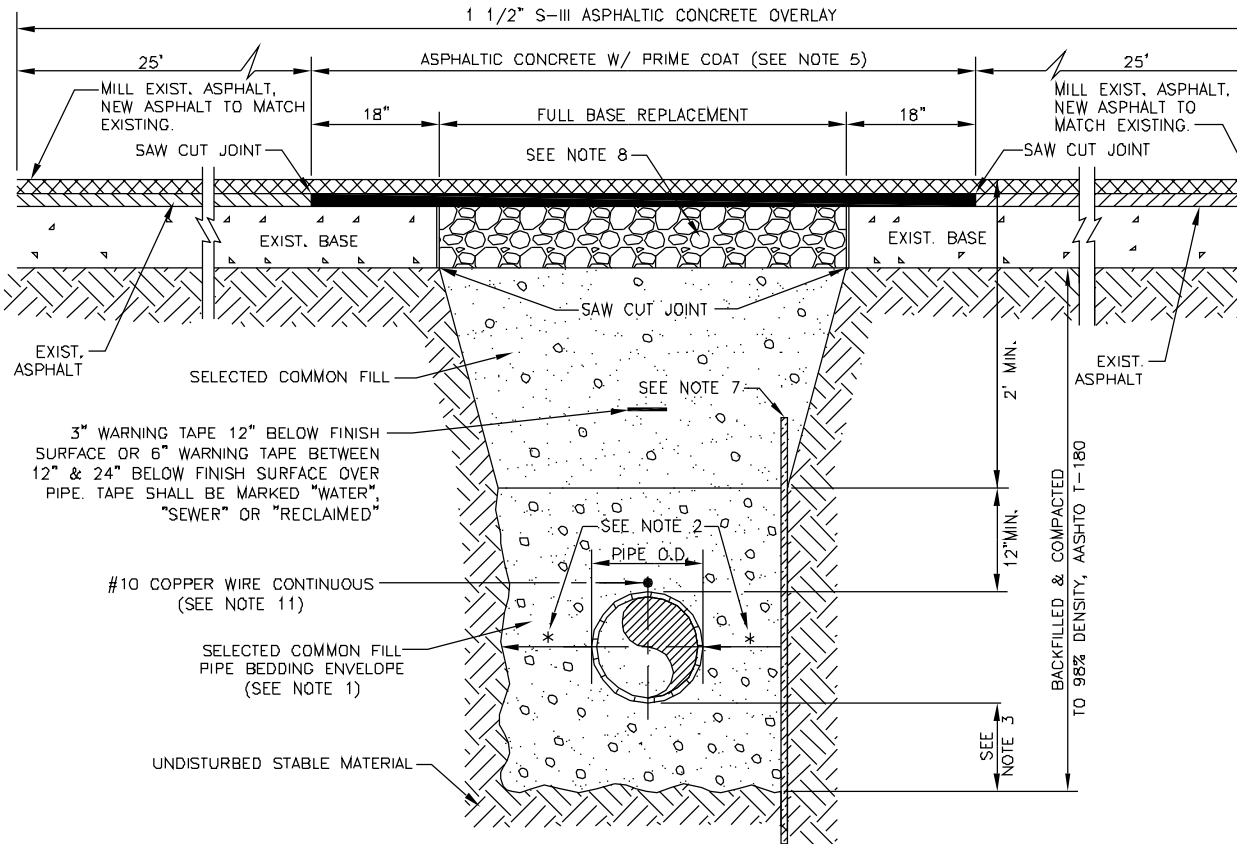
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C-0.2.1

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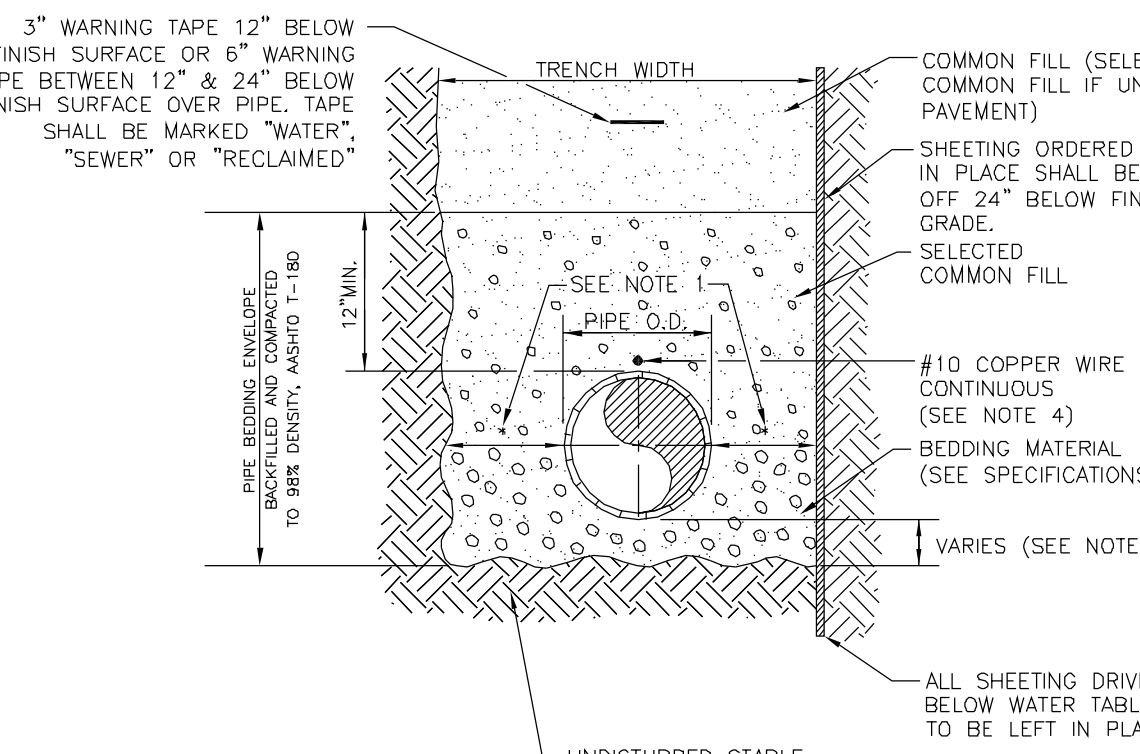
- NOTES:**
- USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
 - PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
 - TYPICALLY 4" TO 6".
 - PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
 - TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.



- NOTES:**
- USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
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 - TYPICALLY 4" TO 6".
 - PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
 - ASPHALTIC CONCRETE STRUCTURE COURSE WITH PRIME COAT SHALL BE THE SAME DEPTH AND TYPE AS EXISTING OR A MINIMUM OF 1 1/4 INCH, WHICHEVER IS GREATER.
 - MILL 25' BACK FROM TRENCH SAW CUT. ADJUST MILLING PER INDIVIDUAL SITE TO NOT IMPACT BASE BUTT JOINT TO EXIST ASPHALT. FINAL OVERLAY LIMITS ARE FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT. FINAL OVERLAY TO MATCH EXISTING WITH NO DISCRETE "BUMP" AT JOINT. MILLING LIMITS THAT IMPACT INTERSECTION SHALL BE ADDRESSED ON A CASE BY CASE BASIS AND APPROVED BY MANATEE COUNTY.
 - SHEETING ORDERED LEFT IN PLACE TO BE CUT OFF 24" BELOW FINISHED GRADE OR 12" BELOW SUBGRADE.
 - BASE SHALL BE 8" MINIMUM THICKNESS CRUSHED CONCRETE.
 - TEMPORARY PATCHES WILL BE INSTALLED TO PROVIDE A SMOOTH ALL-WEATHER SURFACE AT ALL TIMES. PERMANENT REPLACEMENT TO BE MADE AS SOON AS POSSIBLE.
 - RESTORE SIGNAGE & MARKING WITH THERMOPLASTIC PER FOOT STANDARDS, LATEST EDITION.
 - TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.
 - NOTES 6, 7, 10, 11 ARE MINIMUM REQUIREMENTS FOR A TRENCH IN A ROAD. REFER TO LATEST EDITION OF MANATEE COUNTY HIGHWAY AND TRAFFIC STANDARDS FOR ADDITIONAL REQUIREMENTS.



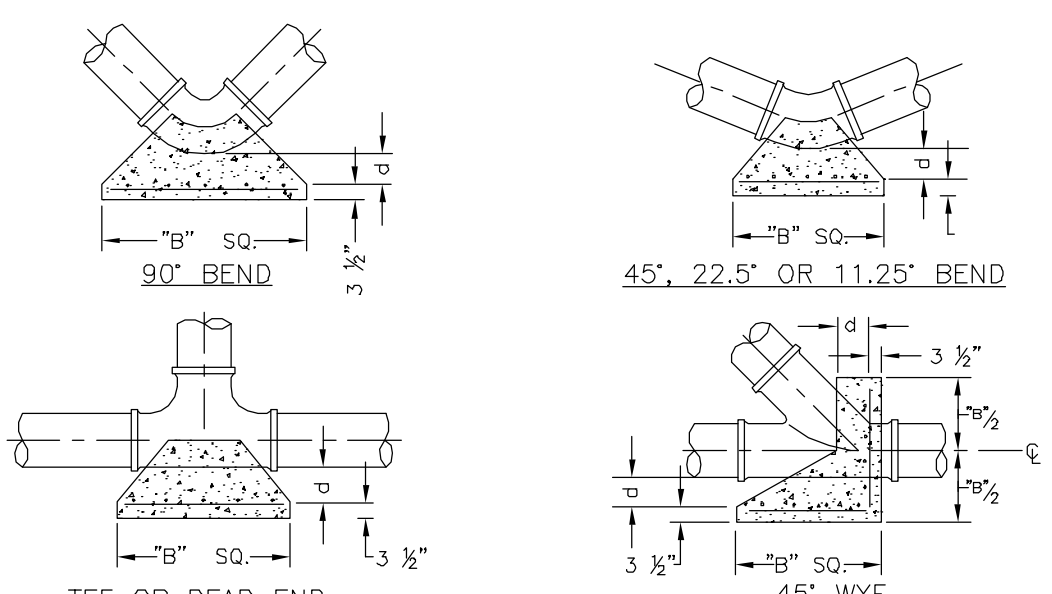
- NOTES:**
- PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
 - TYPICALLY 4" TO 6".
 - PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
 - TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.



PIPE SIZE (IN.)	THRUST BLOCK DIMENSIONS B ft. x d inches					
	90° BEND	45° BEND	22.5° BEND	11.25° BEND	DEAD END & TEE	45° WYE
4	1.5 3 1/2	1.1 3 1/2	0.8 3 1/2	0.6 3 1/2	1.3 3 1/2	1.1 3 1/2
6	2.2 5 1/4	1.6 3 3/4	1.2 3 3/4	0.8 3 3/4	1.9 4 1/2	1.6 3 3/4
8	2.9 7 1/4	2.1 5 1/4	1.5 3 3/4	1.1 3 3/4	2.4 5 3/4	2.0 4 3/4
10	3.5 8 3/4	2.6 6 3/4	1.9 4 1/2	1.3 3 3/4	3.0 7 1/4	2.5 6
12	4.2 10 3/4	3.1 7 3/4	2.2 5 1/4	1.6 3 3/4	3.5 8 3/4	3.0 7 3/4
14	4.9 11 3/4	3.6 8 3/4	2.6 6 3/4	1.8 4 1/4	4.1 9 3/4	3.4 8 3/4
16	5.5 13 1/4	4.1 9 3/4	2.9 7	2.1 5	4.7 11 1/4	3.9 9 3/4
18	6.2 15	4.6 11	3.3 8	2.3 5 1/2	5.2 12 1/2	4.4 10 1/2
20	6.9 16 1/2	5.0 12	3.6 8 3/4	2.6 6 3/4	5.8 14	4.9 11 3/4
24	8.2 19 3/4	6.0 14 3/4	4.3 10 3/4	3.1 7 3/4	6.9 16 3/4	5.8 14
30	10.1 24 1/4	7.5 18	5.3 12 3/4	3.8 9	8.5 20 3/4	7.2 17 1/4
36	12.1 29	8.9 21 3/4	6.4 15 3/4	4.5 10 3/4	10.2 24 3/4	8.6 20 3/4

REINFORCEMENT MAT SCHEDULE
 FOR DIM. "B" BETWEEN 5.75' & 12.5' USE #4 @ 8" EACH WAY
 FOR DIM. "B" LESS THAN 5.75' USE #3 @ 8" EACH WAY

- NOTES:**
- ALL THRUST BLOCKS SHALL BE CAST IN PLACE. FITTINGS ADJACENT TO THRUST BLOCKS SHALL BE WRAPPED IN POLYETHYLENE.
 - THIS TABLE IS BASED ON WATER PRESSURE=180 PSI WITH AN ALLOWABLE SOIL BEARING PRESSURE=2000 PSF. CONCRETE STRENGTH & REINFORCEMENT IS =60,000 KSI. THRUST BLOCK SHALL BE CAST AGAINST FIRM UNDISTURBED SOIL.
 - FOR LARGER "B" DIMENSIONS IT IS NECESSARY TO CHECK THAT PIPE IS SUFFICIENTLY DEEP TO ALLOW 15" MIN. SOIL COVER OVER TOP EDGE OF THRUST BLOCK.
 - RESTRAINED JOINTS MAY BE USED IN LIEU OF THRUST BLOCKS TO SAVE SPACE. THRUST BLOCKS SHALL BE USED IN SITUATIONS WHERE THRUST BLOCKS AND RESTRAINED JOINTS ARE BOTH REQUIRED.

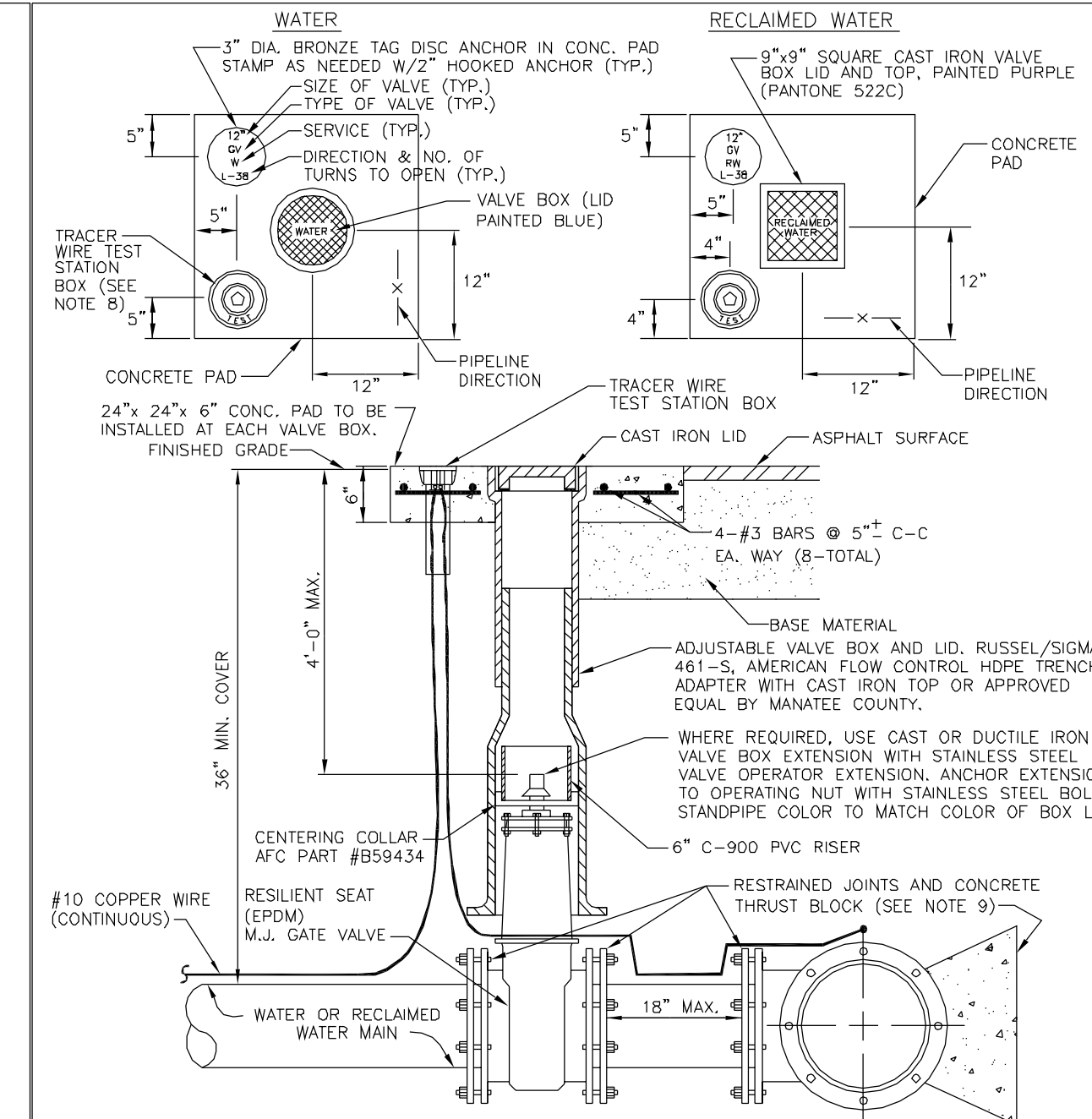


MANATEE COUNTY PUBLIC WORKS DEPARTMENT	TRENCH WITH UNIMPROVED SURFACE TYPE A-1 PIPE BEDDING	UG-11
REV. BY: DATE: WRT/KE 03/11	MAY 10, 2011	PAGE 111

MANATEE COUNTY PUBLIC WORKS DEPARTMENT	TRENCH WITH ASPHALT PAVEMENT SURFACE TYPE A-1 PIPE BEDDING	UG-12
REV. BY: DATE: WRT/KE 03/11	MAY 10, 2011	PAGE 112

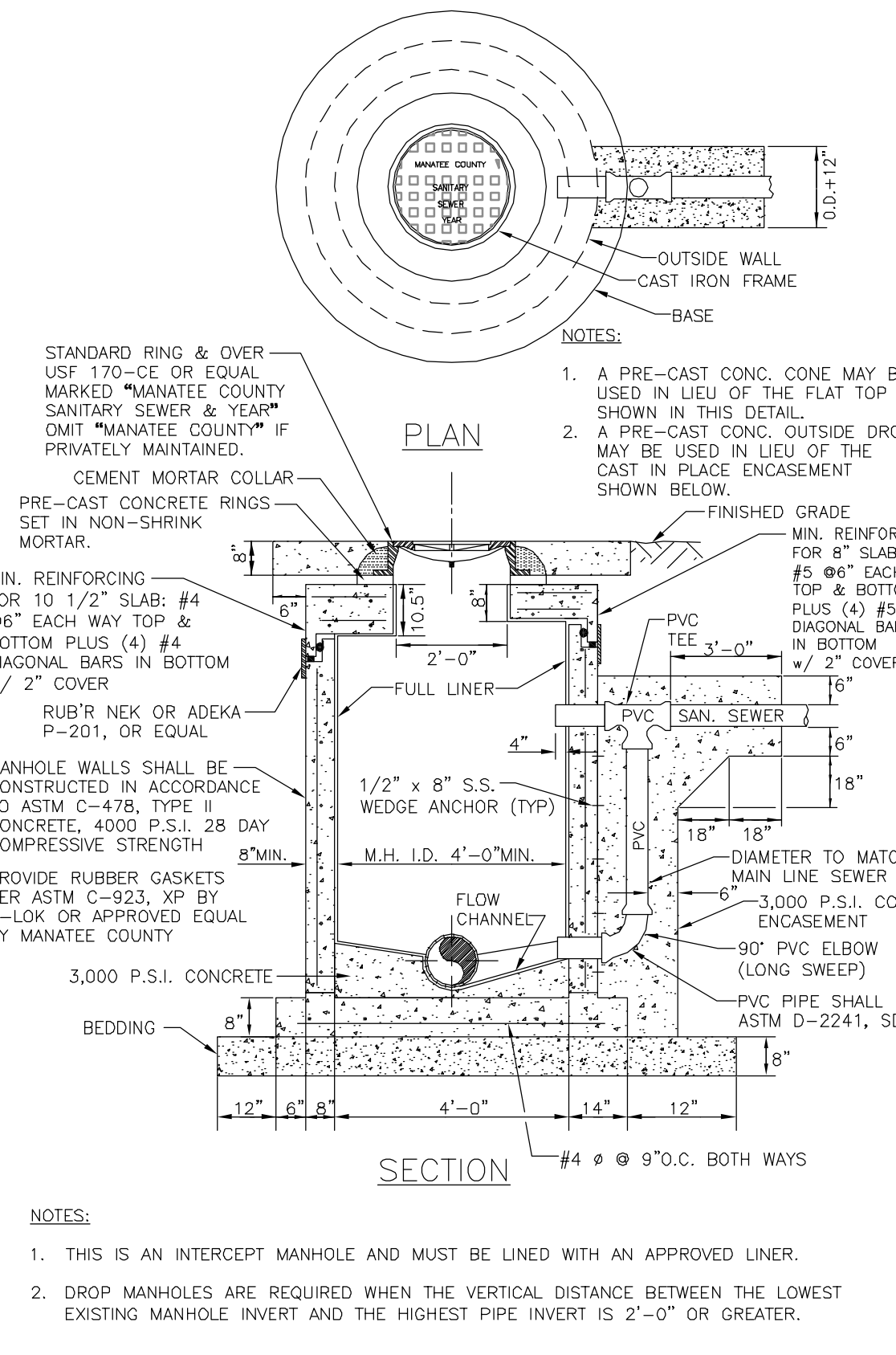
MANATEE COUNTY PUBLIC WORKS DEPARTMENT	TRENCH WITH TYPE A-2 PIPE BEDDING	UG-15
REV. BY: DATE: CLB/BR 11/10	MAY 10, 2011	PAGE 115

MANATEE COUNTY PUBLIC WORKS DEPARTMENT	CONCRETE THRUST BLOCKS	UG-7
REV. BY: DATE: CLB/BR 11/10	MAY 10, 2011	PAGE 107

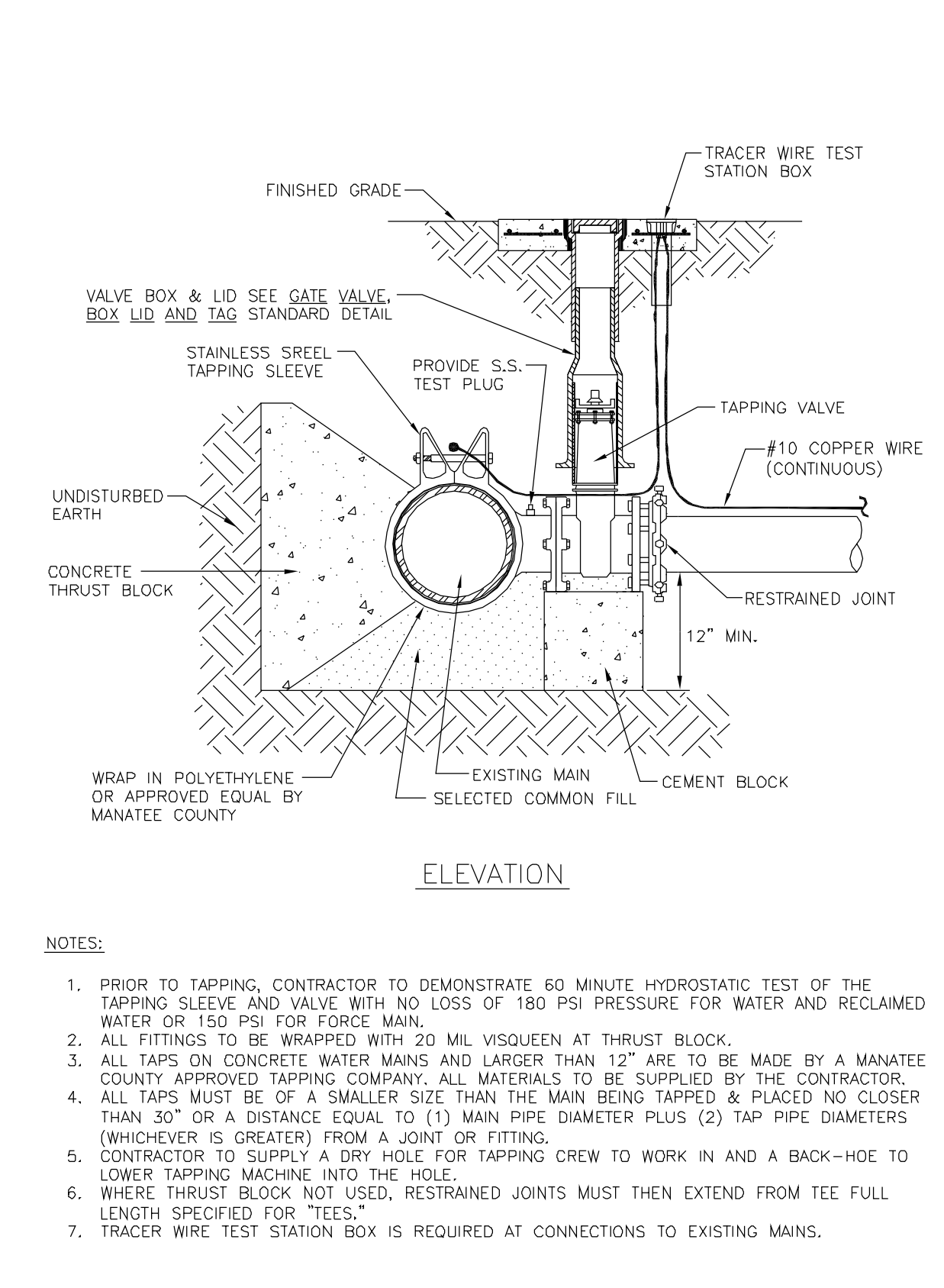


- NOTES:**
- "W" OR "RW" TO BE IMPRESSED INTO THE NEWLY-POURED CONCRETE CURB, ALONG WITH DISTANCE IN FEET TO THE VALVE. IF NO CURB, INSTALL A BLUE DISC WITH "W" OR PURPLE DISC WITH "RW" AND A 1/8"x1" GALVANIZED STEEL SCREW IN THE EDGE OF PAVEMENT WITH THE FOOTAGE FROM THE DISC TO THE VALVE.
 - ALL EXISTING AND PROPOSED VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADES AS DETERMINED IN THE FIELD.
 - WATER VALVES SHALL NOT BE PLACED IN HANDICAPPED RAMPS.
 - PRECAST CONCRETE PADS & THRUST BLOCKS SHALL NOT BE USED.
 - ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1/2".
 - FOR VALVES 16" AND LARGER, USE BUTTERFLY VALVES.
 - PIPELINE DIRECTION TO BE IMPRESSED INTO NEWLY-POURED CONCRETE PAD.
 - TRACER WIRE TEST STATION BOX IS NOT REQUIRED IN VALVE BOX PAD IF THE GATE VALVE IS LOCATED WITHIN 200 FEET OF A WATER SERVICE, BLOW OFF, BACKFLOW PREVENTER OR FIRE HYDRANT THAT HAS A TRACER WIRE BOX.
 - WHERE THRUST BLOCK NOT USED, RESTRAINED JOINTS MUST THEN EXTEND FROM THE FULL LENGTH SPECIFIED FOR "TEES".
 - BINGHAM & TAYLOR P200PFG OR EQUAL FOR NORMAL YARD SERVICE, WHERE VALVE WILL BE IN STREET OR PARKING UNDER VEHICLE TRAFFIC, USE P252RD CENTERED IN SEPARATE CONCRETE PAD SIMILAR TO STANDARD VALVE BOX PAD.

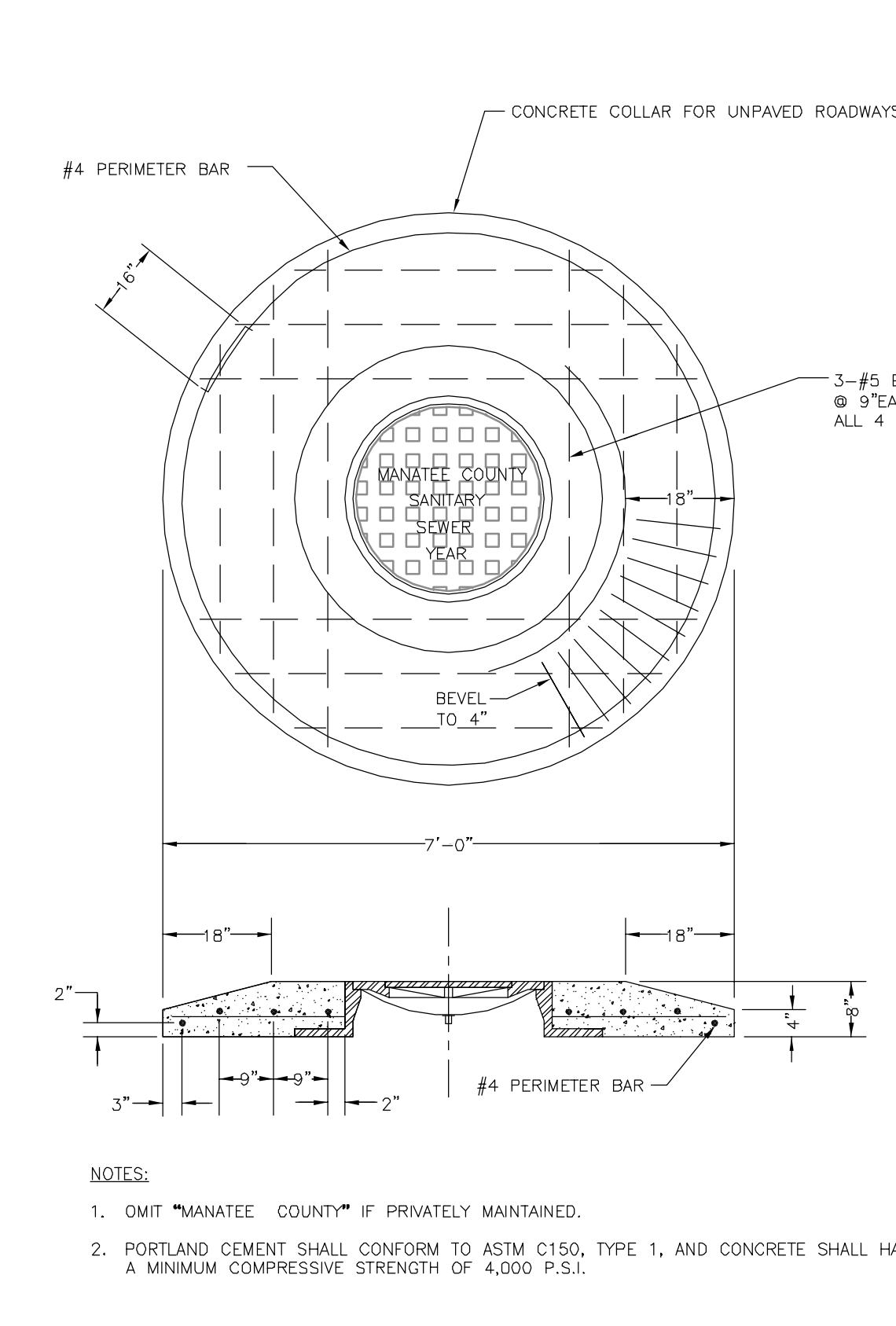
MANATEE COUNTY PUBLIC WORKS DEPARTMENT	GATE VALVE, BOX, LID AND TAG	UW-2
REV. BY: DATE: CLB/KE 11/10	MAY 10, 2011	PAGE 120



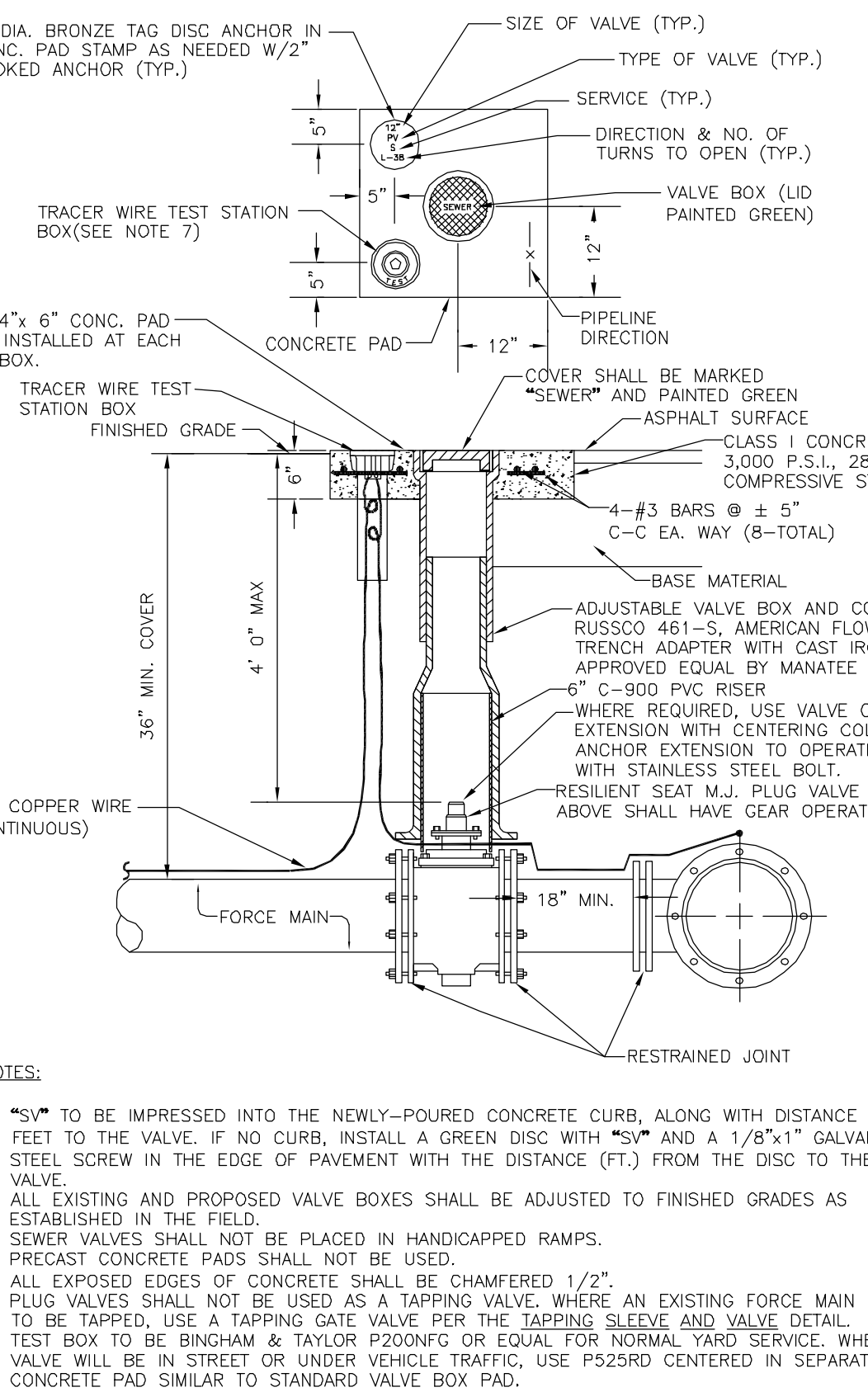
MANATEE COUNTY PUBLIC WORKS DEPARTMENT	GRAVITY SEWER STANDARD DROP CONNECTION	US-6
REV. BY: DATE: CLB/KE 11/10	MAY 10, 2011	PAGE 145



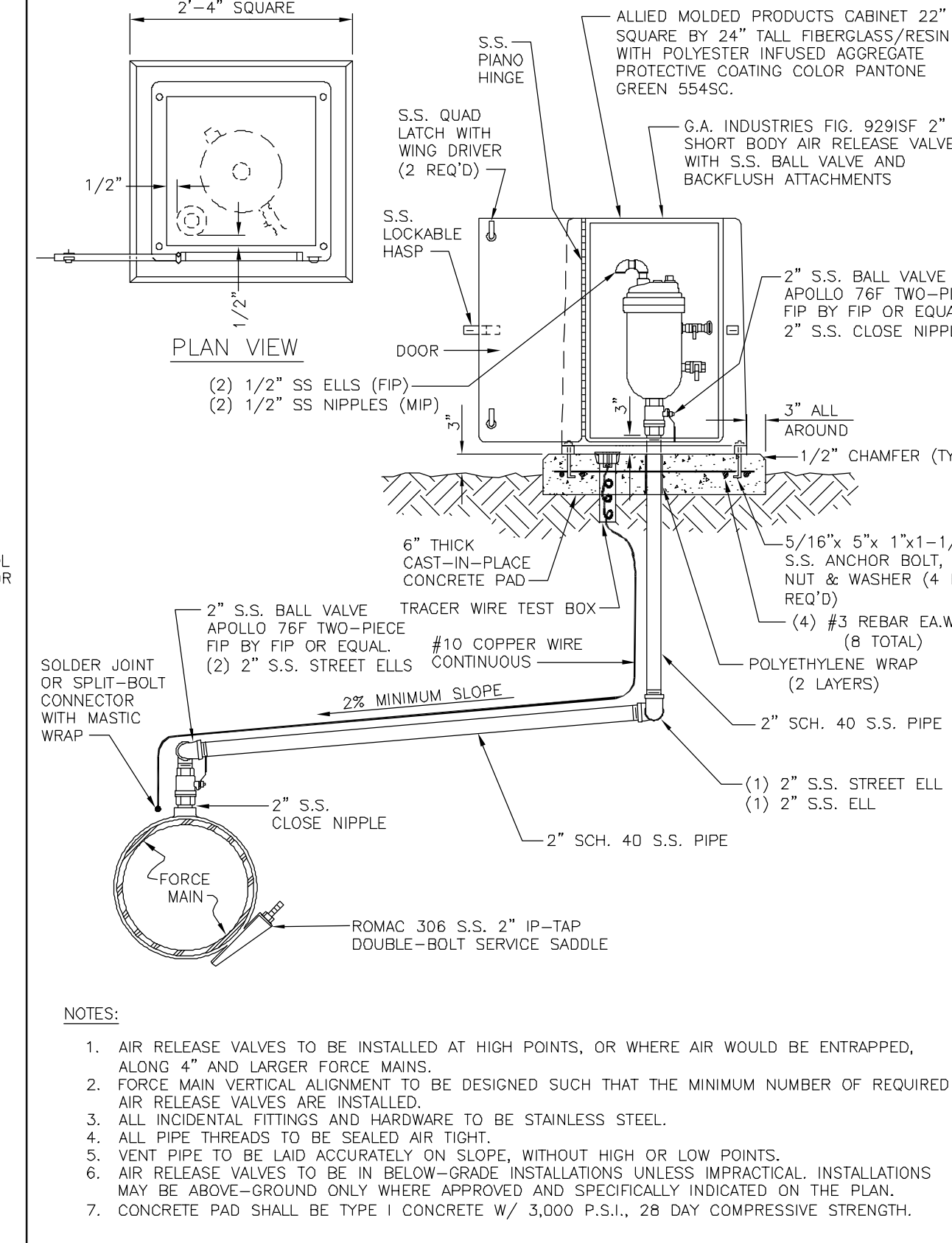
MANATEE COUNTY PUBLIC WORKS DEPARTMENT	TAPPING SLEEVE AND VALVE	UW-4
REV. BY: DATE: CLB/KE 11/10	MAY 10, 2011	PAGE 122



MANATEE COUNTY PUBLIC WORKS DEPARTMENT	MANHOLE COVER & CONCRETE COLLAR FOR UNPAVED ROADWAYS	US-11
REV. BY: DATE: CLB/DOH 11/10	MAY 10, 2011	PAGE 151



MANATEE COUNTY PUBLIC WORKS DEPARTMENT	PLUG VALVE, BOX, COVER AND TAG	US-12
REV. BY: DATE: CLB/DOH 11/10	MAY 10, 2011	PAGE 152



MANATEE COUNTY PUBLIC WORKS DEPARTMENT	ABOVE-GROUND AIR RELEASE VALVE ASSY. FOR FORCE MAINS	US-25
REV. BY: DATE: CLB/KE 11/10	MAY 10, 2011	PAGE 165

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REV. NO.	DESCRIPTION	DATE

DAVID C. WEHNER, P.E. No. 59541

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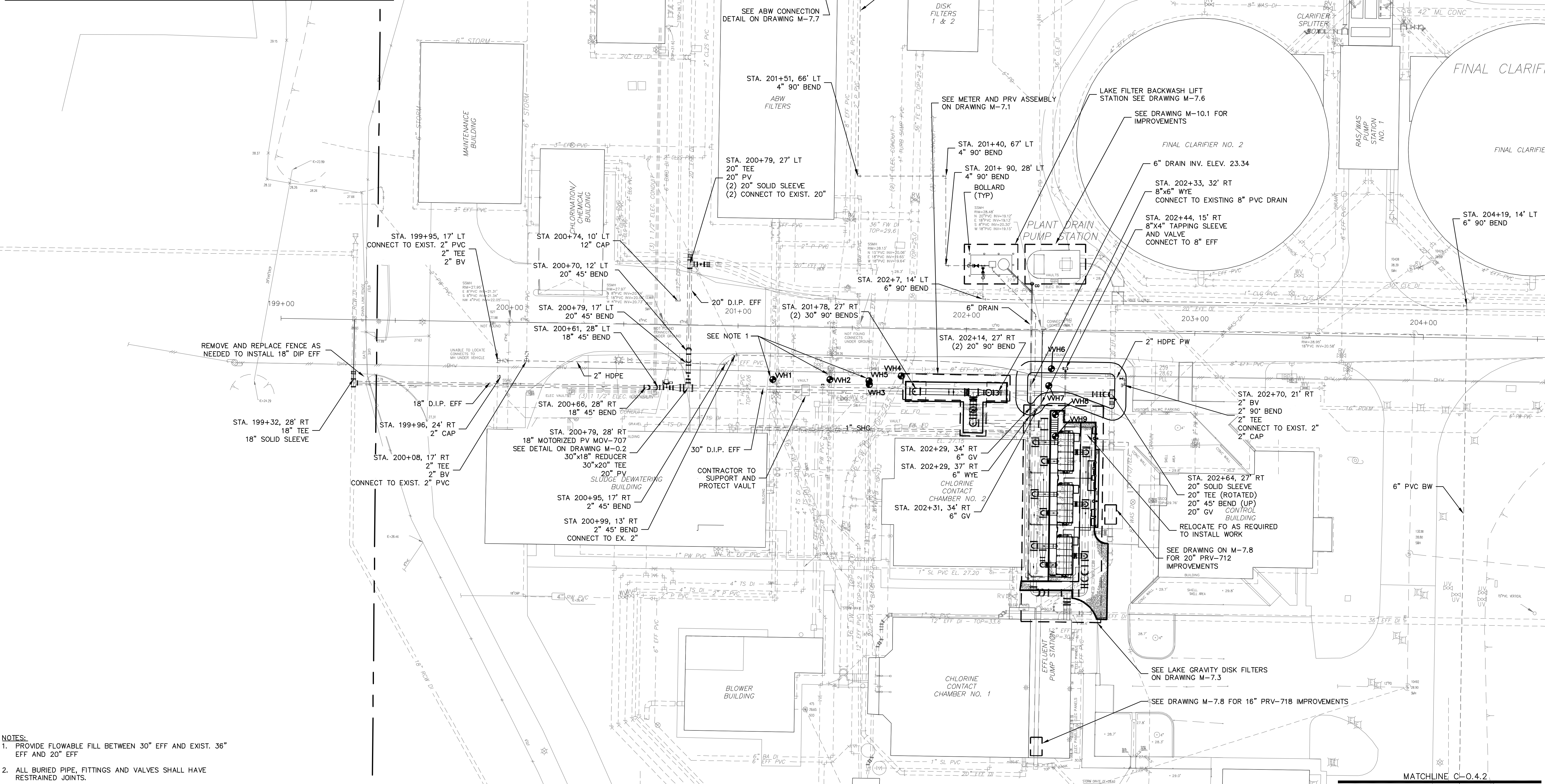
MCKIM & CREED
 1365 Hamlet Avenue
 Clearwater, Florida 33756
 Phone: (727)442-7196, Fax: (727)461-3827
 EB0006691
 www.mckimcreed.com

MANATEE COUNTY, FLORIDA

NWRP EXPANSION PHASE 1
CIVIL DETAILS NO. 3

DATE: JULY 2011	SCALE:	DRAWING NUMBER:
MCE PROJ. # 1024-0143	HORIZONTAL: NA	C-0.2.3
DRAWN: BFN	VERTICAL: NA	
DESIGNED: DCW		
CHECKED: JSL		
PROJ. MGR: DCW		
STATUS: ISSUED FOR BID		

WWH#	PIPE SIZE	MATERIAL	DESC.	GRND ELEV.	COVER	TOP OF UTIL. ELEV.
1	36"	DI	FW	28.04	3.18'	24.86
2	12"	PVC	EFF	28.08	3.13'	24.95
3	24"Wx14"D	ROUGH POUR CONCRETE	ELECT DUCT	28.09	2.26'	25.83
4	36"	DI	FW	28.22	3.83'	24.39
5	20"	DI	EFF	28.07	4.66'	23.41
6	8"	PVC	EFF	28.41	2.98'	25.43
7	24"Wx14"D	ROUGH POUR CONCRETE	ELECT DUCT	28.71	2.36'	26.35
8	(4)2"	PVC	FO	29.30	2.54'	26.76
9	(3) 2", 1"	PVC	FO, UNKNOWN	29.63	2.06'	27.57



NOTES:
 1. PROVIDE FLOWABLE FILL BETWEEN 30" EFF AND EXIST. 36" EFF AND 20" EFF
 2. ALL BURIED PIPE, FITTINGS AND VALVES SHALL HAVE RESTRAINED JOINTS.

REV. NO.	DESCRIPTIONS	DATE

DAVID C. WEHNER, P.E.
 No. 59541

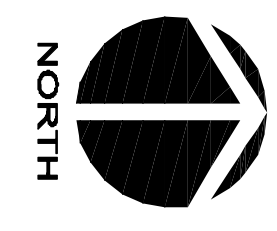
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MANATEE COUNTY, FLORIDA

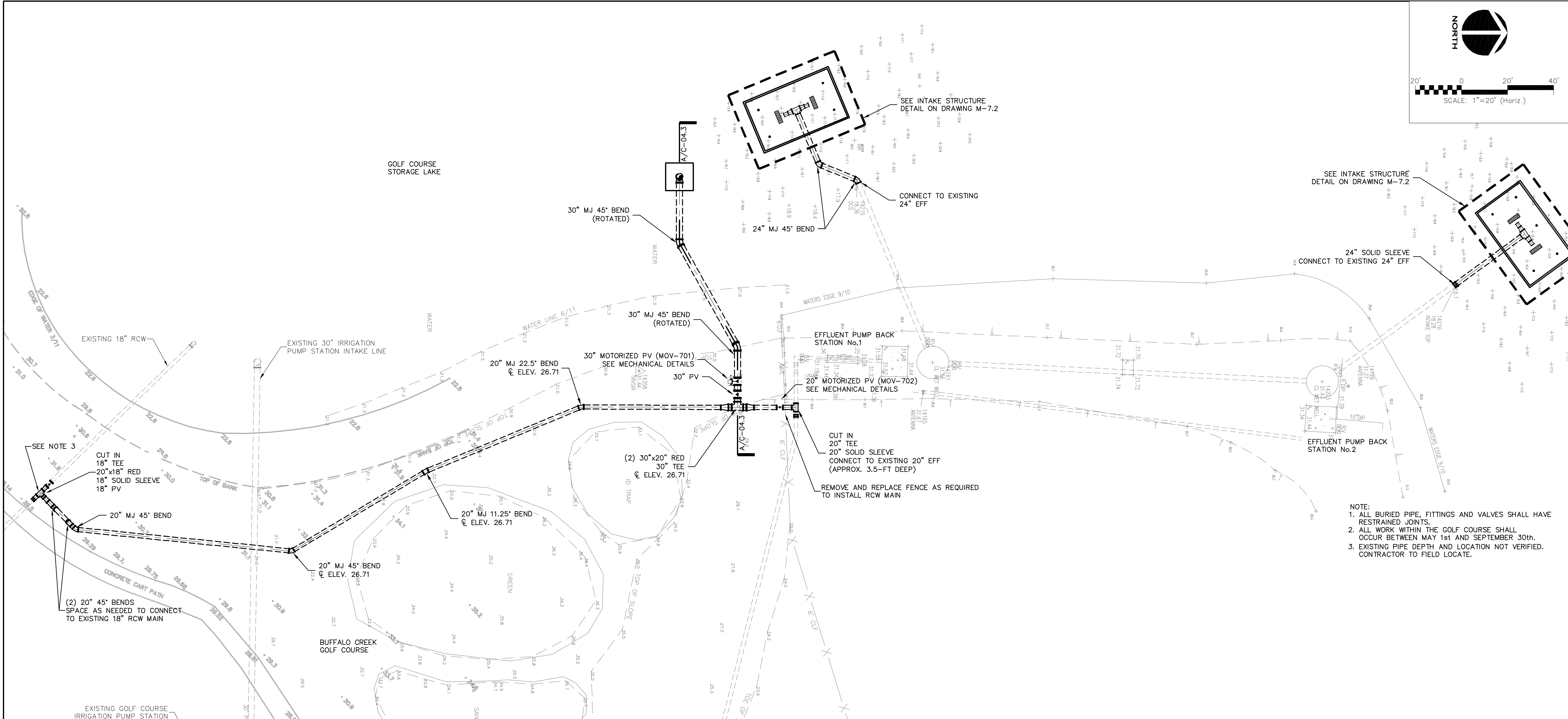
NWRf EXPANSION PHASE 1
YARD PIPING PLAN NO. 1

DATE: JULY 2011	SCALE: 1" = 20'	DRAWING NUMBER: C-0.4.1
MCE PROJ. #: 1024-0143	HORIZONTAL: NJS	REVISION:
DRAWN: BFN	VERTICAL: NA	
DESIGNED: NJS		
CHECKED: DCW		
PROJ. MGR: DCW		
ISSUED FOR BID		

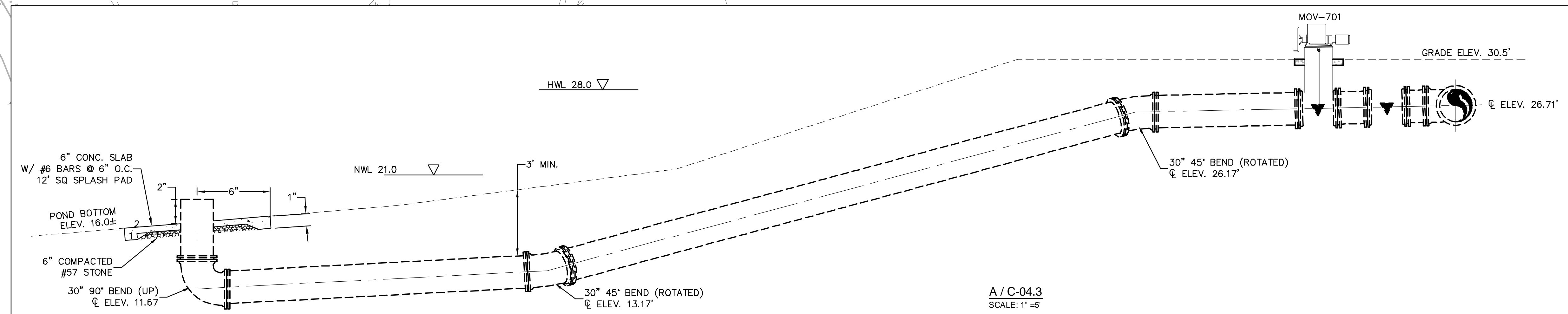
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SCALE: 1"=20' (Horiz.)



- NOTE:
1. ALL BURIED PIPE, FITTINGS AND VALVES SHALL HAVE RESTRAINED JOINTS.
 2. ALL WORK WITHIN THE GOLF COURSE SHALL OCCUR BETWEEN MAY 1st AND SEPTEMBER 30th.
 3. EXISTING PIPE DEPTH AND LOCATION NOT VERIFIED. CONTRACTOR TO FIELD LOCATE.



A / C-04.3
SCALE: 1"=5'

REV. NO.	DATE	DESCRIPTIONS / REVISIONS

DAVID C. WEHNER, P.E.
No. 59541

SEAL

1365 Hamlet Avenue
Clearwater, Florida 33756
Phone: (727)442-7196, Fax: (727)461-3827
EB0006691
www.mckimcreed.com

MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
YARD PIPING PLAN NO. 3

DATE: JULY 2011	SCALE: 1"=20'	DRAWING NUMBER: C-04.3
MCE PROJ. # 1024-0143	HORIZONTAL: N/S	REVISION:
DRAWN: BFN	VERTICAL: NA	
DESIGNED: NJS		
CHECKED: DCW		
PROJ. MGR: DCW		
STATUS: ISSUED FOR BID		

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STRUCTURAL NOTES:

1.0 GENERAL

1.1 ALL WORK IS TO BE PERFORMED IN A GOOD, WORKMANLIKE AND PROFESSIONAL MANNER.
1.2 ALL CONSTRUCTION SHALL BE IN STRICT COMPLIANCE WITH THE REQUIREMENTS OF THE FLORIDA STATE BUILDING CODE...

2.0 COORDINATION

2.1 STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH AND COORDINATED WITH GENERAL, ARCHITECTURAL, CIVIL, ELECTRICAL AND MECHANICAL DRAWINGS AND OTHER CONTRACT DOCUMENTS.
2.2 COORDINATE THE EXACT SIZE AND LOCATION OF ALL SLEEVES AND OPENINGS THROUGH SLABS AND WALLS...

2.4 INDEPENDENT TESTING OF MATERIALS SHALL BE PROVIDED AS DEFINED IN PROJECT SPECIFICATIONS. IN GENERAL PROJECT INVOLVES THE FOLLOWING:
A. CONCRETE.

2.5 IF COORDINATION OF INFORMATION PRESENTED CONFLICTS w/ THE PROJECT SPECIFICATIONS, THE DRAWINGS WILL TAKE PRECEDENCE.

2.6 IN GENERAL CALL-OUTS ARE FOR NEW CONSTRUCTION U.N.O.. EXISTING CONSTRUCTION CALL-OUTS, ELEVATIONS AND DIMENSIONS OF EXISTING STRUCTURES ARE BASED ON EXISTING RECORD DRAWINGS PROVIDED TO MCKIM & CREED.

3.0 FOUNDATIONS

3.1 DESIGN ALLOWABLE SOIL BEARING PRESSURE - 2,000 PSF IN ACCORDANCE WITH THE GEOTECHNICAL REPORT AS PREPARED BY DRIGGERS ENGINEERING SERVICES, INC.
3.2 PREPARE THE EXISTING SUBGRADE IN ACCORDANCE w/ THE GEOTECHNICAL REPORT AS PREPARED BY DRIGGERS ENGINEERING SERVICES, INC.

3.3 ALL FILL INSIDE THE BUILDING(S) AND BELOW FOUNDATIONS SHALL BE SELECT MATERIAL FREE FROM ROOTS, TRASH WOOD SCRAP, AND OTHER EXTRANEUS MATERIALS.
3.4 FOOTING ELEVATIONS SHALL NOT BE RAISED OR LOWERED WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER.

3.5 ALL EXCAVATIONS SHALL BE ADEQUATELY DEWATERED BEFORE PLACEMENT OF CONCRETE. NO CONCRETE OR CONCRETE FILL SHALL BE PLACED IN STANDING WATER.
3.6 FOOTING EXCAVATIONS AND FORMS SHALL BE REVIEWED BY AN OWNER'S CONSTRUCTION REPRESENTATIVE PRIOR TO PLACEMENT OF CONCRETE.

3.7 ALL FOOTINGS SHALL BE CENTERED UNDER THE SUPPORTING MEMBER UNLESS NOTED OTHERWISE.

3.8 CONSTRUCTION JOINTS IN SLABS, WALLS & FOOTINGS SHALL BE MADE AT LOCATIONS SHOWN ON DRAWINGS.

3.9 ANCHOR BOLTS SHALL BE SET BY MEANS OF TEMPLATE. "FLOATING" ANCHOR BOLTS INTO PLACE IS PROHIBITED.

3.10 CONTRACTOR IS TO VERIFY THE ELEVATION AND LOCATION OF ALL EXISTING AND PROPOSED UTILITIES PRIOR TO CONSTRUCTION. ANY "KNOWN" UTILITY LINES DAMAGED WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
3.11 THE CONTRACTOR SHALL OBTAIN THE OWNER'S PERMISSION BEFORE ENCASING OR BACK FILLING AROUND ANY EXISTING UNDERGROUND STRUCTURE, PIPING, ELECTRICAL, OR OTHER UNDERGROUND WORK.

4.0 REINFORCING STEEL

4.1 BARS SHALL BE ROLLED FROM NEW BILLET-STEEL OF DOMESTIC MANUFACTURE CONFORMING TO "STANDARD SPECIFICATION FOR DEFORMED AND PLAIN BILLET STEEL BARS FOR CONCRETE REINFORCEMENT," ASTM A 615, GRADE 60 AND SUPPLEMENTARY REQUIREMENT S-1.

4.2 DETAIL AND FABRICATE REINFORCING STEEL IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE "ACI DETAILING MANUAL," LATEST PUBLICATION.

4.3 REINFORCING STEEL IN PLACE SHALL BE REVIEWED BY THE OWNER'S CONSTRUCTION REPRESENTATIVE PRIOR TO PLACEMENT OF CONCRETE. IN GENERAL "CLR" DISTANCES FOR CONCRETE COVER ARE PROVIDED ON THE DRAWINGS IN THE SECTIONS & DETAILS.
4.4 WELDED WIRE FABRIC SHALL CONFORM TO "STANDARD SPECIFICATION FOR WELDED STEEL WIRE FABRIC FOR CONCRETE REINFORCEMENT," ASTM A-185.

4.5 PLACE WELDED WIRE FABRIC AT CENTER OF SLABS-ON-GRADE UNLESS NOTED OTHERWISE.

4.6 PROVIDE BARS AT CORNERS AND INTERSECTIONS OF SLAB THK'D T/D EDGES, WALLS & FOOTINGS OF THE SAME NUMBER AND SIZE AS LONGITUDINAL BARS, U.N.O. ON THE DRAWINGS.

4.7 FABRICATE CONTINUOUS BARS IN SLABS, WALLS & FOOTINGS TO THE LONGEST PRACTICABLE LENGTHS.

4.8 REINFORCING STEEL SHALL NOT BE BENT AFTER BEING PARTIALLY EMBEDDED IN HARDENED CONCRETE.

4.9 BARS SHALL BE COLD BENT AND SHALL NOT BE HEATED FOR ANY REASON.

4.10 REINFORCING BARS SHALL NOT BE WELDED UNLESS NOTED OTHERWISE ON THE DRAWINGS.

4.11 REFERENCE DRAWINGS FOR REQUIREMENTS FOR LAP REINFORCING STEEL IN CONCRETE. ALL "LCS" SHALL CONFORM TO CLASS B SPLICE CRITERIA.
4.12 LAP SPLICED BARS IN CONCRETE ARE TO BE WIRE TIED.

5.0 CONCRETE

5.1 IN GENERAL CONCRETE SHALL DEVELOP 3,000 TO 4,500 PSI MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS. REFERENCE "DESIGN CRITERIA" THIS DWG. & PROJECT SPECIFICATIONS.
5.2 CONCRETE WORK SHALL CONFORM TO "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", ACI 318 & TO "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES", ACI 350 (LATEST EDITIONS).

5.3 PLACE 1/2 INCH EXPANSION JOINT MATERIAL BETWEEN EDGES OF SLABS AND VERTICAL SURFACES UNLESS NOTED OTHERWISE.

5.4 PROVIDE CONSTRUCTION OR CONTROL JOINTS IN SLABS & WALLS AT LOCATIONS SHOWN ON DRAWINGS, AT OFFSETS AND CHANGES IN DIRECTION AND AT THIRTY (30) FEET MAXIMUM U.N.O.

5.5 CHAMFER EXPOSED EDGES OF CONCRETE 3/4 INCH, UNLESS NOTED OTHERWISE.

5.6 CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER CURING OF ALL CONCRETE. CURING METHODS SHALL CONFORM TO "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", ACI 318 "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES" ACI 350 AND "STANDARD PRACTICE FOR CURING CONCRETE," ACI 308, LATEST EDITIONS.

5.7 UNLESS NOTED OTHERWISE DOWELS SHALL BE THE SAME NUMBER AND SIZE AS THE LARGEST VERTICAL BAR TO WHICH THEY ARE SPLICED.

5.8 REFERENCE PROJECT SPECIFICATIONS FOR REQUIRED FINISHES.

5.9 BONDING AGENT TO BE STRUCTURAL EPOXY ADHESIVE CONFORMING TO ASTM C-881 TYPE I AND II, GRADE 2, CLASS B AND C WITH A MINIMUM BOND STRENGTH OF 1900 PSI.

5.10 CONTRACTOR SHALL SUBMIT REBAR SHOP DRAWINGS FOR APPROVAL TO OWNER PRIOR TO FABRICATION. DO NOT FABRICATE REINFORCING PRIOR TO RECEIPT OF APPROVED SHOP DRAWINGS.

5.11 ROUGHEN THE "BASE" CONCRETE POUR SURFACE TO A FULL AMPLITUDE OF 1/4" MINIMUM, WHERE NOTED ON THE CONSTRUCTION DRAWINGS.

5.12 CONCRETE MIXES TO BE REVIEWED BY THE OWNER'S CONSTRUCTION REPRESENTATIVE PRIOR TO PLACEMENT OF CONCRETE. COMPRESSIVE STRENGTH TEST CYLINDERS TO BE REVIEWED BY THE OWNER'S CONSTRUCTION REPRESENTATIVE THROUGHOUT CONCRETE CONSTRUCTION OF THE PROJECT.

- 5.13 CONCRETE ACCESSORIES AS FOLLOWS:
a.) PREFORMED WATERSTOPS SHALL BE PVC IN ACCORDANCE w/ THE PROJECT SPECIFICATIONS.
b.) EXPANSIVE WATERSTOPS SHALL BE ADEKA ULTRA SEAL TYPE MC-2010M.
c.) CAULK/SEALANT - SONOLASTIC (2) PART POLYSULFIDE.
d.) BONDING AGENT - SHALL BE STRUCTURAL EPOXY ADHESIVE CONFORMING TO ASTM C-881 TYPE I STRENGTH AND II, GRADE 2, CLASS B AND C WITH A MINIMUM BOND STRENGTH OF 1900 PSI.
1.) SIKA ARMATEC 110 EpoCem.

6.0 GROUT

6.1 PROVIDE NON-SHRINK GROUT UNDER ALL COLUMN BASE PLATES AND BEAM BEARING PLATES AND ELSEWHERE AS INDICATED ON DRAWINGS. NON-SHRINK GROUT SHALL CONFORM TO ASTM C 1107.

6.2 GROUT SHALL BE NON-METALLIC AND NON-STAINING AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 7000 psi.

7.0 MASONRY (NOT APPLICABLE)

8.0 STRUCTURAL STEEL

8.1 STEEL SHALL CONFORM TO "STANDARD SPECIFICATION FOR STRUCTURAL STEEL," ASTM A-36 (Fy=36 ksi) FOR ANGLES, PLATES AND CHANNEL SECTIONS. WIDE FLANGE SECTIONS SHALL CONFORM TO ASTM A-572 (Fy=50ksi).
8.2 STEEL WORK SHALL CONFORM TO "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL BUILDINGS", OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION, INC., (LATEST EDITION), INCLUDING ALL SUPPLEMENTS AND THE "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES", (LATEST EDITION).

8.3 CONNECTION BOLTS SHALL BE 3/4 INCH DIAMETER CONFORMING TO "STANDARD SPECIFICATION FOR HIGH-STRENGTH BOLTS FOR STRUCTURAL STEEL JOINTS", ASTM A-325, UNLESS NOTED OTHERWISE CONNECTIONS ARE BEARING TYPE WITH THREADS EXCLUDED FROM SHEAR PLANES-(A-325x).

8.4 WELDING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN WELDING SOCIETY AWS D1.1 "STRUCTURAL WELDING CODE".
8.5 LINTELS SHALL BEAR EIGHT (8) INCHES MINIMUM ON MASONRY UNLESS NOTED OTHERWISE.

8.6 THE CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY BRACING, SHORING, AND GUYING OF STEEL FRAMING AGAINST WIND, CONSTRUCTION LOADS, AND OTHER TEMPORARY FORCES UNTIL SUCH PROTECTION IS NO LONGER REQUIRED FOR THE SAFE SUPPORT OF THE FRAMING.

8.7 ALL COPES, BLOCKS, CUTS, CUT-OFFS AND OTHER CUTTING OF STRUCTURAL MEMBERS SHALL HAVE ALL RE-ENTRANT CORNERS SHAPED, AND NOTCH-FREE TO A RADIUS OF AT LEAST 1/2 INCH.

8.8 ANCHOR BOLTS SHALL BE ASTM F-1554 OR A-36 (NON-HEADED) AND SHALL HAVE HOOKS AS REQUIRED BY THE DRAWINGS. PROVIDE TWO (2) NUTS AND WASHERS WITH EACH ANCHOR BOLT AT COLUMNS UNLESS NOTED OTHERWISE.

8.9 OVERSIZED AND SLOTTED HOLES SHALL NOT BE USED FOR BOLTED CONNECTIONS ON THIS PROJECT EXCEPT AT LOCATIONS NOTED ON DRAWINGS.

8.10 SPLICING OF STRUCTURAL STEEL MEMBERS IS PROHIBITED WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER, AS TO LOCATION AND TYPE OF SPLICE.

8.11 PRE-GROUTING BASE PLATES IS NOT PERMITTED.

8.12 ALL HOLES IN STRUCTURAL STEEL ARE TO BE PUNCHED OR DRILLED. FLAME CUTTING OF STEEL IS STRICTLY PROHIBITED.

8.13 ALL DESIGN, DETAILING, FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION.

8.14 STRUCTURAL STEEL ERECTION SHALL BE REVIEWED BY THE OWNER'S CONSTRUCTION REPRESENTATIVE.

8.15 IN GENERAL SHOP CONNECTIONS SHALL BE EITHER WELDED OR BOLTED AND FIELD CONNECTIONS SHALL BE BOLTED UNLESS NOTED OTHERWISE.

8.16 FABRICATOR/CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR OWNER/ENGINEER APPROVAL PRIOR TO FABRICATION.

8.17 ALL GALVANIZED MATERIALS THAT ARE FIELD CUT, FIELD WELDED OR DAMAGED IN SURFACE FINISH SHALL BE CLEANED AND RE-COATED AS CALLED OUT IN THE PROJECT SPECIFICATIONS.

9.0 ALUMINUM

9.1 ALUMINUM FABRICATION SHALL BE IN CONFORMANCE WITH THE ALUMINUM ASSOCIATION, INC. "SPECIFICATIONS FOR ALUMINUM STRUCTURES".

9.2 UNLESS NOTED OTHERWISE, MATERIALS SHALL BE:
a. PLATE & SHEET - ASTM B209; 6061-T6, 6061-T651 ALLOY.
b. EXTRUDED SHAPES - ASTM B221; 6061-T6, 6061-T651 ALLOY.
c. CASTINGS - ASTM B108; 214 ALLOY.
d. BOLTS - ASTM A193; GRADE B8 OR, ASTM 276; TYPE 316 STAINLESS STEEL.
e. NUTS - ASTM A194; GRADE M, OR ASTM 276; TYPE 316 STAINLESS STEEL.

9.3 ALUMINUM SHALL BE SEPARATED FROM DIRECT CONTACT WITH OTHER MATERIALS (STEEL, CONCRETE, ETC.) BY PRESSURE SENSITIVE TAPE, BITUMASTIC COATING, OR OTHER PROTECTIVE METHOD SUBMITTED BY THE CONTRACTOR AND APPROVED BY THE OWNER'S CONSTRUCTION REPRESENTATIVE.

9.4 CONNECTIONS SHALL HAVE A MINIMUM OF TWO 3/4" DIAMETER STAINLESS STEEL BOLTS.

9.5 WELDING ALUMINUM SHALL CONFORM TO AWS A5.10 & THE REQUIREMENTS OF THE ALUMINUM ASSOCIATIONS "ALUMINUM DESIGN MANUAL" (LATEST EDITION) TABLE 7.1-1 FOR WELD FILLETS FOR WROUGHT ALLOYS.

9.6 REFERENCE PROJECT SPECIFICATIONS FOR HANDRAIL REQUIREMENTS.

10.0 ABBREVIATIONS

10.1 THE FOLLOWING LIST OF ABBREVIATIONS IS NOT INTENDED TO REPRESENT ALL THOSE USED ON THE DRAWINGS, BUT TO SUPPLEMENT THE MORE COMMON ABBREVIATIONS USED.

Table with 2 columns: Abbreviation and Full Name. Includes terms like ADD'L, AL, BM, B.O., BRG., etc.

DESIGN LOADS:

LIVE LOAD: 300 PSF SLAB-ON-GRADE, 100 PSF STAIRS & PLATFORMS
ROOF: NA
SNOW: NA, IMPORTANCE FACTOR (Is): NA
SEISMIC: NA, IMPORTANCE FACTOR (Ie): NA
WIND ZONE: 130 mi/hr, EXPOSURE C, CATEGORY III, IMPORTANCE FACTOR (Iw): 1.15

FLORIDA BUILDING CODE (FBC) 2007 & ASCE 7-05 WIND DESIGN:

CALCULATED WIND BASE SHEARS: Vx = 1.7 k Vy = 4.3 k (FILTER UNIT CURBS) [EA. PAIR]

DESIGN CRITERIA:

Table with 2 columns: Design Criteria and Value. Includes items like CONCRETE 28 DAY COMPRESSIVE STRENGTH, SLAB-ON-GRADE, EQUIPMENT PADS, etc.

LEGEND:

Legend table with 2 columns: Item Name and Symbol. Includes ENLARGED PLAN AREA, DETAIL, CONC. WALL, PAD, ETC., GROUT, GRATING, etc.

REVISIONS table with columns for REV. NO., DESCRIPTIONS, and DATE.

Table for WILLIAM F. BAND, P.E. with No. 67838

Table for SEAL

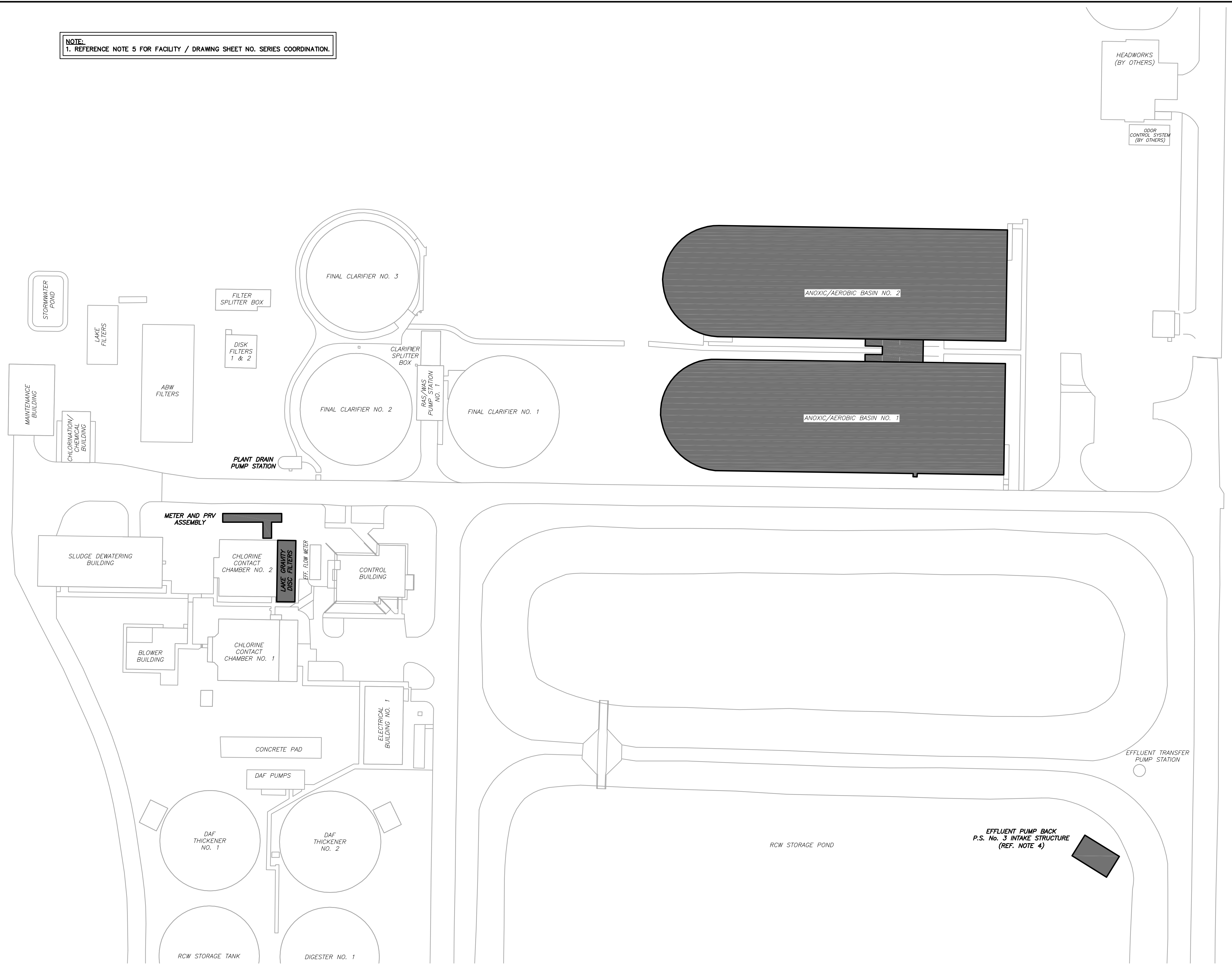
MCKIM & CREED logo and contact information: 1365 Hamlet Avenue, Clearwater, Florida 33756

MANATEE COUNTY, FLORIDA logo and seal

NWRF EXPANSION PHASE 1 STRUCTURAL GENERAL NOTES, DESIGN LOADS, CRITERIA AND LEGEND

DATE: JULY 2011, MCE PROJ. # 1024-0143, SCALE: S-0.1, ISSUED FOR BID

NOTE:
1. REFERENCE NOTE 5 FOR FACILITY / DRAWING SHEET NO. SERIES COORDINATION.



- GENERAL NOTES:**
1. REFERENCE INDIVIDUAL BLDG'S & FACILITIES FOR THEIR RESPECTIVE "REFERENCE" ELEVATIONS. COORDINATE ELEVATIONS w/ CIVIL DWGS. AS REQUIRED.
 2. REFERENCE DWG. S-0.1 FOR ADDITIONAL GENERAL NOTES & DESIGN CRITERIA.
 3. GRADE ELEVATIONS & CONTOURS NOT SHOWN FOR CLARITY. COORDINATE w/ CIVIL DRAWINGS AS REQUIRED FOR ADDITIONAL INFORMATION.
 4. EFFLUENT PUMP BACK P.S. No. 1 AND EFFLUENT PUMP BACK P.S. No. 2 & THEIR RESPECTIVE INTAKE STRUCTURES ARE NORTHWEST OF THE PARTIAL PLAN AREA SHOWN. REFERENCE GENERAL, DEMOLITION, CIVIL & MECHANICAL DRAWINGS FOR LOCATION INFORMATION AS REQUIRED.
 5. FACILITY:

ANOXIC/AEROBIC BASINS	3
METER & PRV ASSEMBLY	7
EFFL. PUMP BACK P.S. INTAKE STRUCTURES	7
LAKE GRAVITY DISC FILTERS	7

1 - PARTIAL PLAN - SITE
SCALE: 1"=50'-0"
NORTH

S:\1024\0143\DWG-drawings\Structure\S-0.2-50002-10240143.dwg, 7/8/2011 9:44:17 PM, Bill Bond

REV. NO.	DESCRIPTIONS / REVISIONS	DATE

SEAL
WILLIAM F. BAND, P.E.
No. 67838

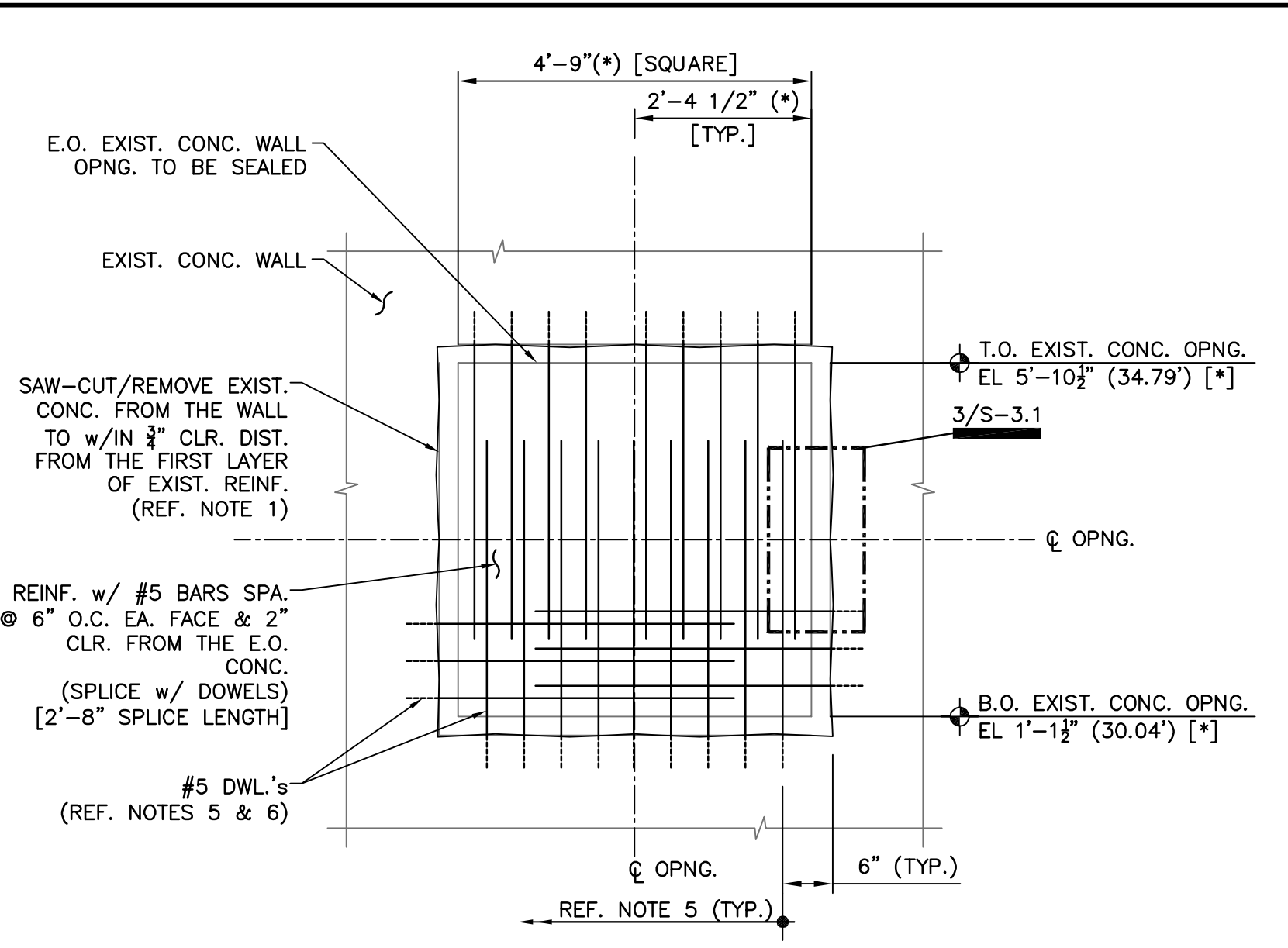
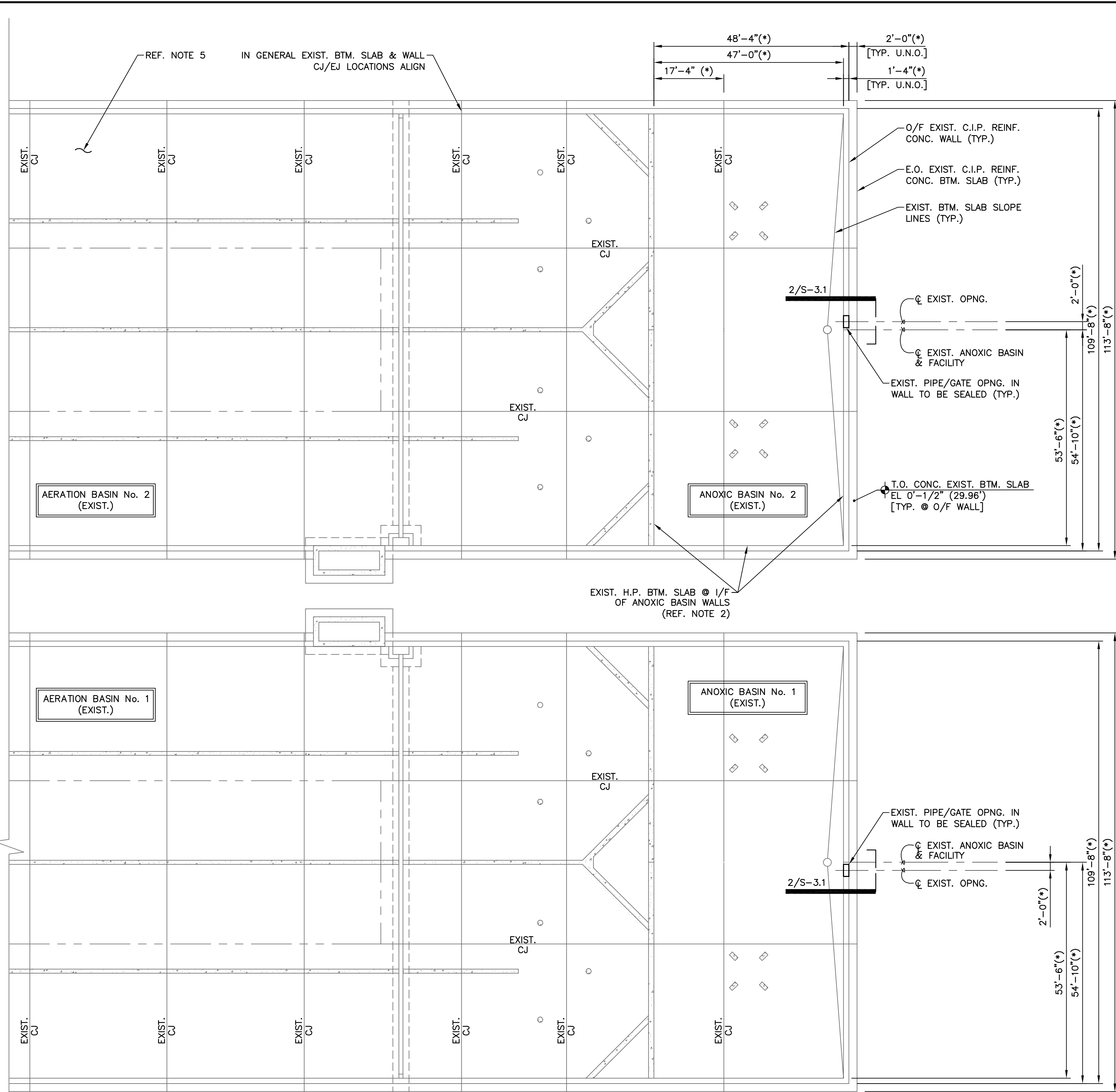
SEAL

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MANATEE COUNTY
MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
OVERALL STRUCTURAL KEY PLAN

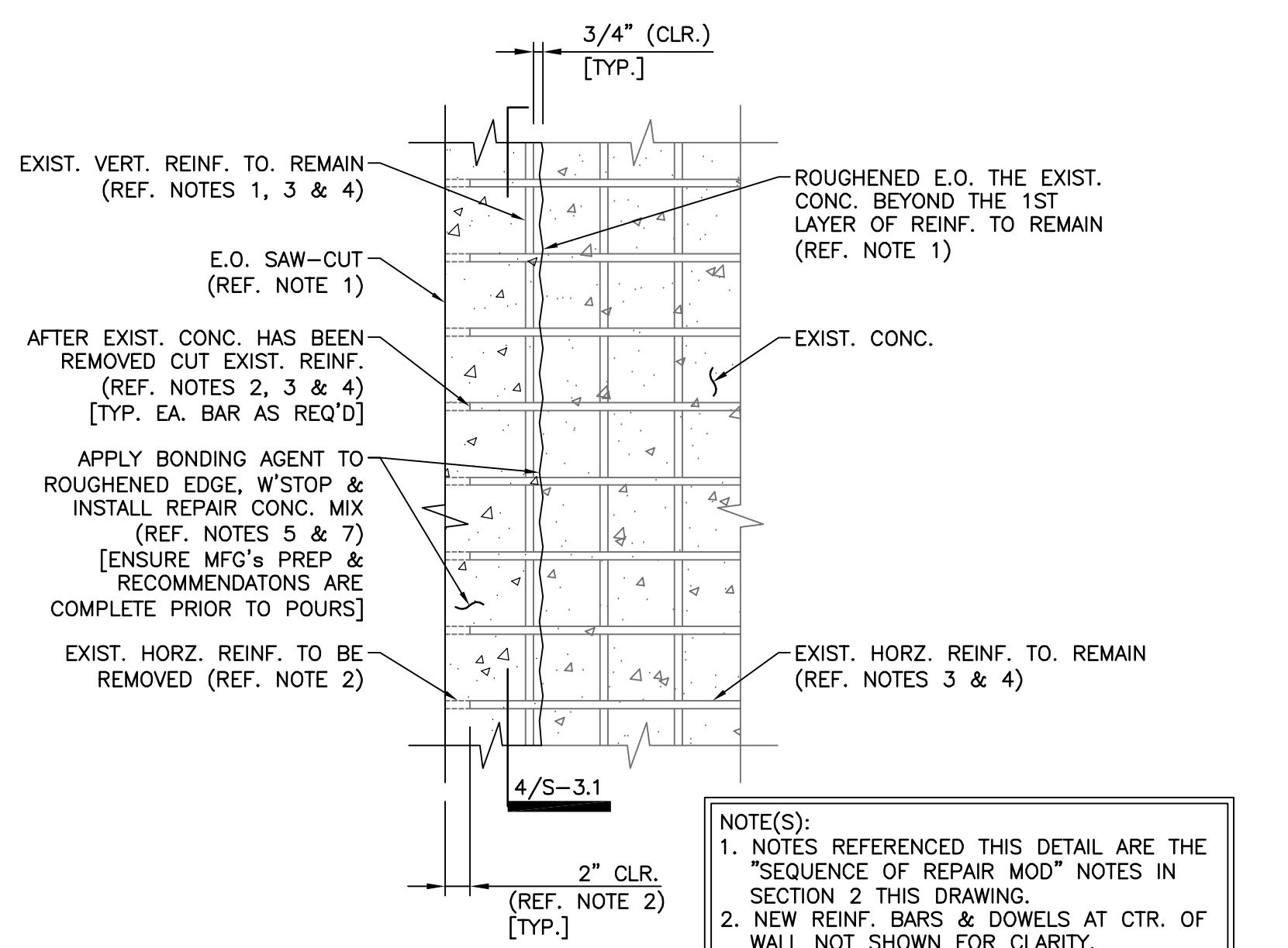
DATE: JULY 2011	SCALE	DRAWING NUMBER
MCE PROJ. # 1024-0143	HORIZONTAL: AS NOTED	S-0.2
DRAWN: WFB	VERTICAL: NA	
DESIGNED: WFB		
CHECKED: JSL		
PROJ. MGR: DCW		
STATUS: ISSUED FOR BID		REVISION



SEQUENCE OF REPAIR MOD NOTES:

- REMOVE EXIST. CONCRETE FROM THE E.O. SAW-CUT TO A ROUGHENED EDGE $\frac{1}{4}$ " BEYOND THE FIRST LAYER OF REINFORCEMENT PARALLEL TO THE E.O. THE SAW-CUT. USE EXTREME CAUTION NOT TO DAMAGE THE EXISTING REINFORCING. EXISTING REINFORCING DAMAGED BY THE GC, PER THEIR SUBS SHALL BE REPAIRED & REPLACED BY THE GC, PER THE DIRECTION OF THE ENGINEER & AT NO EXPENSE TO THE OWNER OR THE ENGINEER.
- CUT REINFORCING BARS PERPENDICULAR TO THE E.O. THE SAW-CUT TO 2" CLEAR OF THE E.O. THE SAW-CUT.
- CLEAN EXPOSED REINFORCING OF ALL LOOSE CONC., AGGREGATE, DIRT, DUST & DEBRIS.
- COAT REINFORCING BARS w/ SIKA FERROGARD 903.
- INSTALL VERT. & HORZ. DWL's AT CENTER OF THE WALL. DWL's SHALL BE #5 BARS SPA. @ 6" O.C. ALL AROUND. ONLY THE VERT. DWL's & A PARTIAL NUMBER OF THE HORZ. DWL's ALONG THE BTM. EDGE ARE SHOWN FOR CLARITY.
- ANCHOR DWL's w/ HILTI HY150 INJECTION ADHESIVE. EMBED DWL's 6" IN TO THE EXIST. CONCRETE WALL.
- APPLY BONDING AGENT & W/STOP TO ROUGHENED SURFACES & INSTALL REPAIR CONCRETE AS FOLLOWS:
 - 4500 PSI PEA-GRAVEL MIX w/ SIKADUR 32 HI-MOD LPL, HIGH STRENGTH EPOXY BONDING/GROUTING ADHESIVE. (MIX IS SIM. TO PROJ. SPEC. EXCEPT FOR AGGREGATE SIZE.)

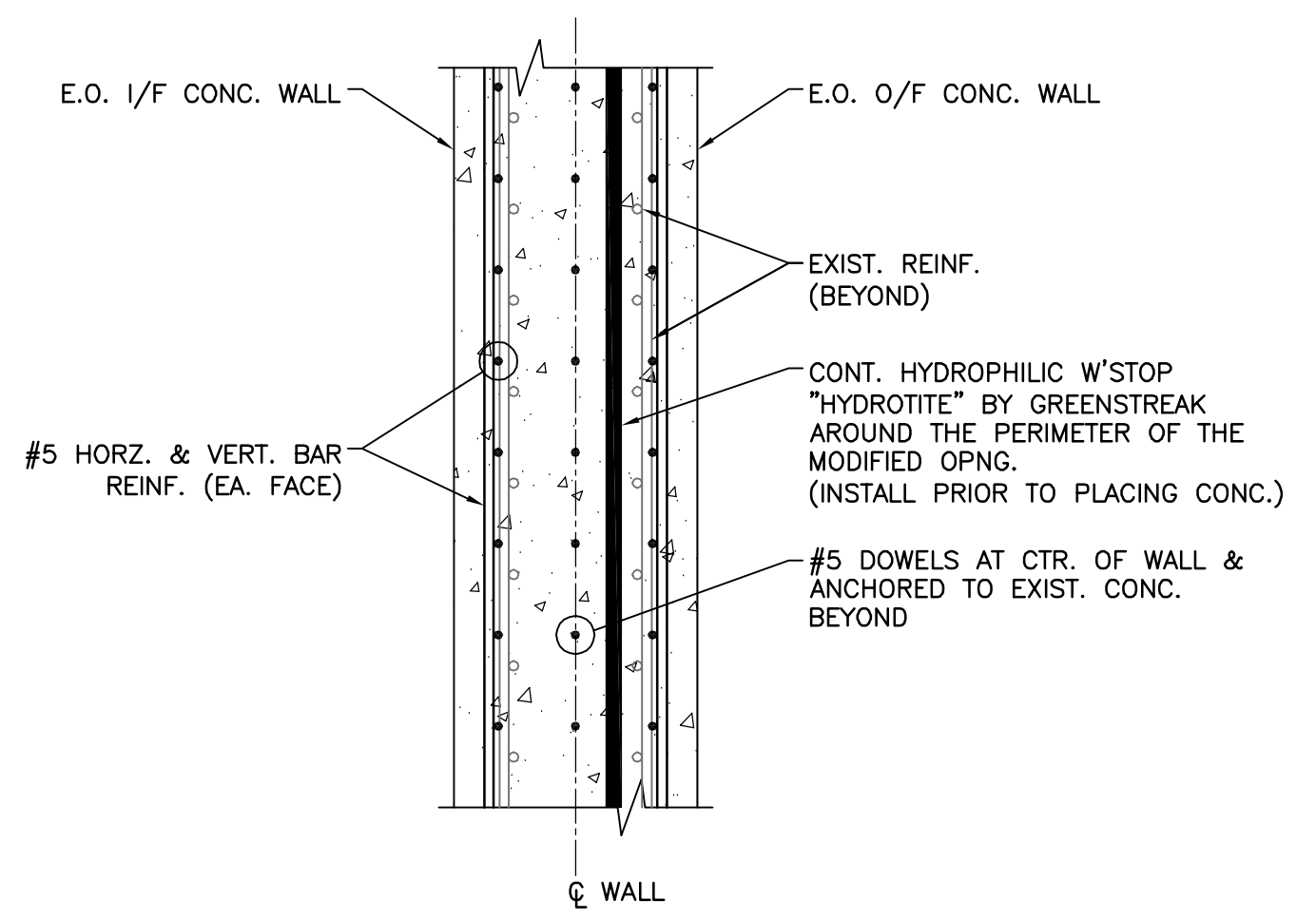
2 - SECTION - EXIST. WALL OPNG. MODIFICATION
SCALE: 1/2"=1'-0"



NOTE(S):

- NOTES REFERENCED THIS DETAIL ARE THE "SEQUENCE OF REPAIR MOD" NOTES IN SECTION 2 THIS DRAWING.
- NEW REINF. BARS & DOWELS AT CTR. OF WALL NOT SHOWN FOR CLARITY.

3 - DETAIL - ENLARGED VIEW OF E.O. MODIFIED WALL OPNG.
SCALE: 1/2"=1'-0"



4 - SECTION - E.O. MODIFIED WALL OPNG.
SCALE: 1/2"=1'-0"



1 - PARTIAL PLAN - ANOXIC/AEROBIC BASINS NO. 1 & NO. 2 BOTTOM LAYOUT
SCALE: 1/16"=1'-0"

BOTTOM PLAN NOTES:

- REFERENCE ELEVATION FOR THE EXISTING ANOXIC/AEROBIC BASINS No. 1 AND No. 2 FACILITIES ARE THE EXISTING ANOXIC BASIN CELL BOTTOM SLAB H.P. T.O. CONC. EL. 0'-0" = EL. 28'-11" (28.92') N.G.V.D.-29. REFERENCE CIVIL DWG'S FOR ADDITIONAL INFORMATION.
- REFERENCE DWG. S-0.1 FOR ADDITIONAL GENERAL NOTES & DESIGN CRITERIA.
- IN GENERAL CALL-OUTS & DIMENSIONS ARE TYPICAL FOR EACH ANOXIC/AEROBIC BASIN FACILITY U.N.O..
- GRADE ELEVATION AROUND THIS STRUCTURE IS 29.17' (±) REFERENCE CIVIL DRAWINGS FOR ADDITIONAL INFORMATION.
- IN GENERAL THE EXISTING BOTTOM SLAB IS REINFORCED w/:
N/S ORIENTATION = #7(*) BARS SPACED @ 1'-0"(*) O.C. (TOP).
E/W ORIENTATION = #6(*) BARS SPACED @ 1'-0"(*) O.C. (BTM).
NOTE IT IS NOT NECESSARY FOR THE GC TO VERIFY THE EXISTING BOTTOM SLAB REINFORCING BAR DIAMETERS. HOWEVER GC TO USE CAUTION TO AVOID DAMAGING EXIST. REINFORCING WHEN CONDUCTING DEMOLITION RELATED WORK IN SLABS & WALLS.
- PIPE & EQUIPMENT LAYOUTS ARE SHOWN FOR GENERAL INFORMATION ONLY. REFERENCE CIVIL, ELECTRICAL, MECHANICAL & EQUIPMENT VENDOR DRAWINGS FOR LOCATIONS & INFO REGARDING SLAB OR WALL PENETRATIONS, PIPING & MISCELLANEOUS EQUIPMENT EITHER SHOWN OR NOT SHOWN.
- EXISTING FACILITY DRAWINGS UTILIZED ARE SHEETS 14, 15, 16, 17, 18, 19, 20 & 21 OF 59 OF THE "WASTEWATER FACILITIES IMPROVEMENTS" RECORD DRAWINGS.

REV. NO.	DESCRIPTIONS	DATE

WILLIAM F. BAND, P.E.
No. 67838

SEAL

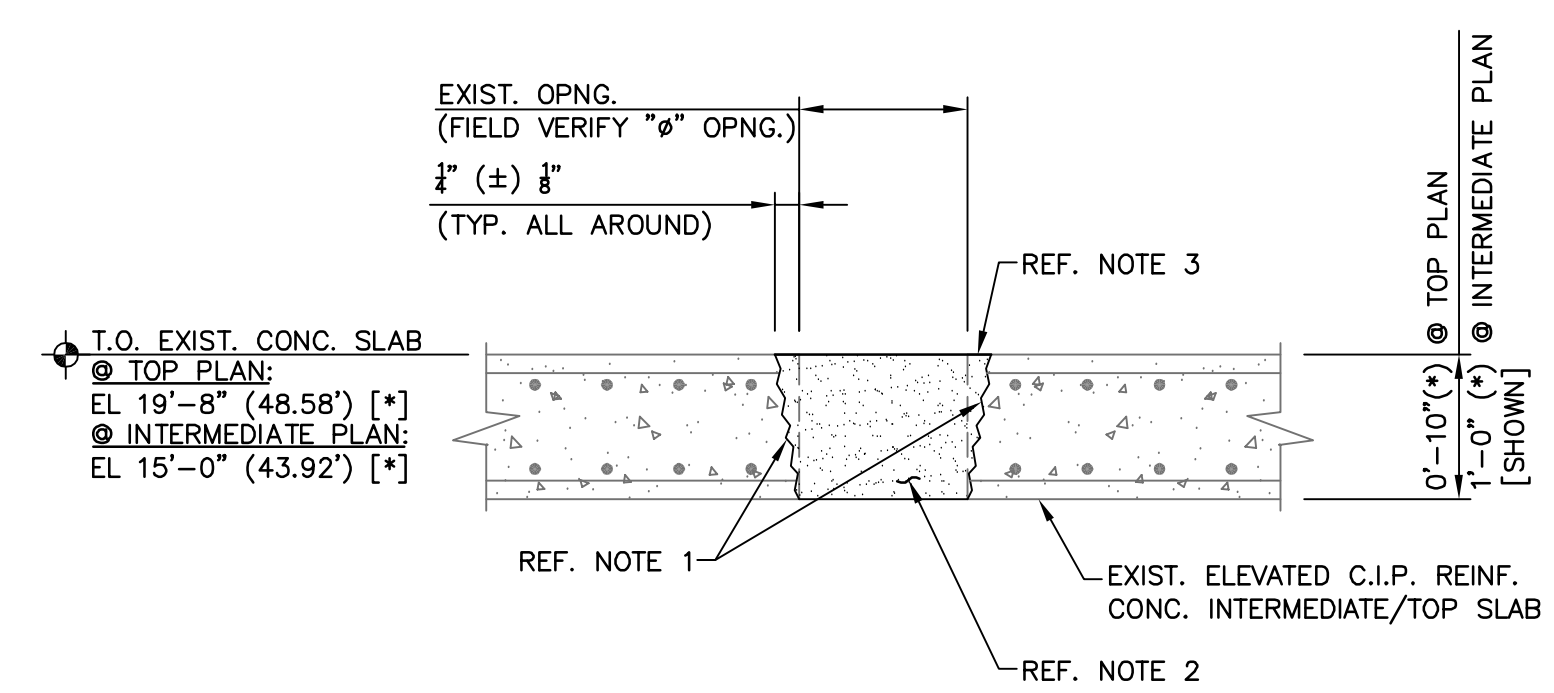
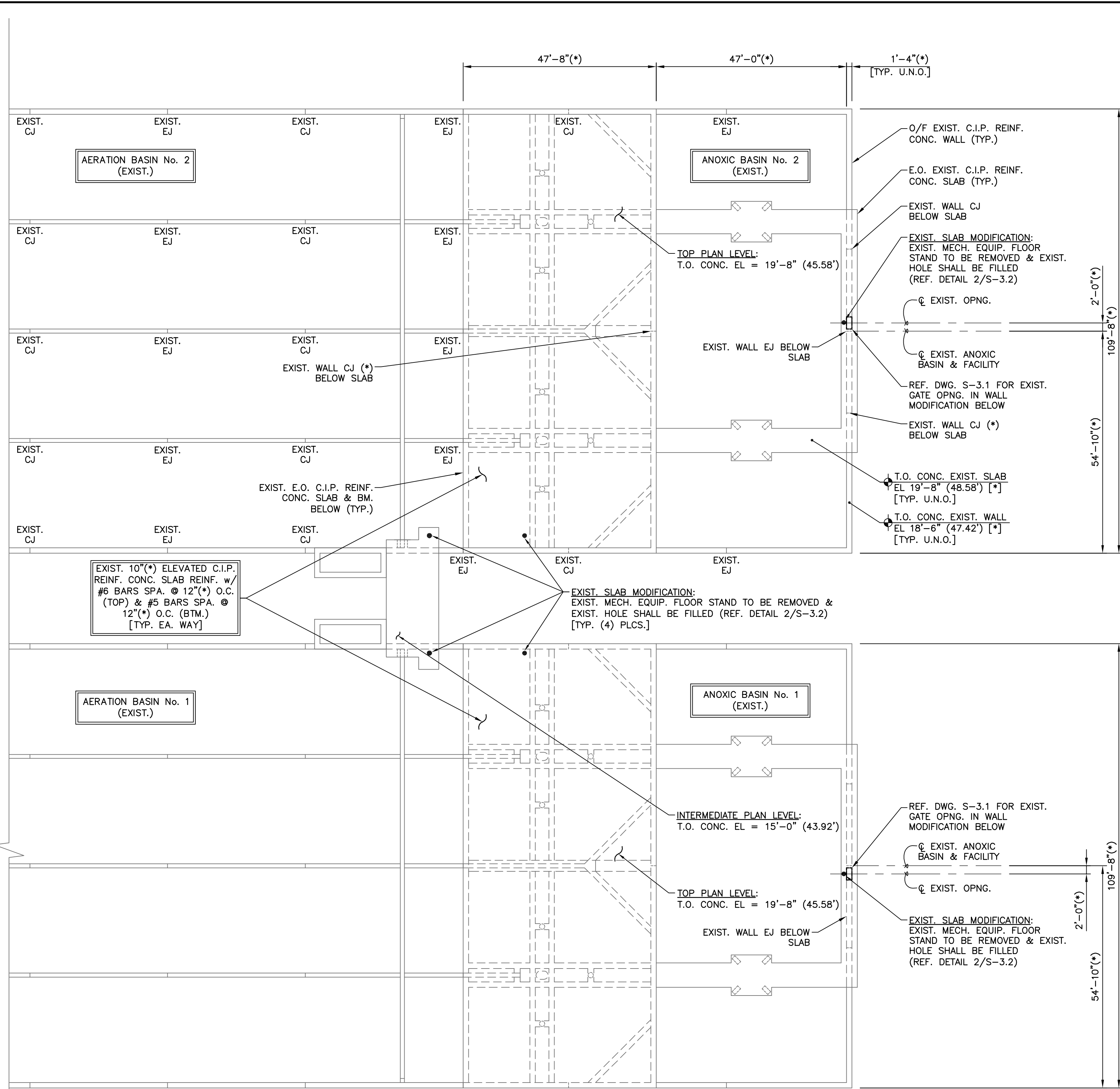
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MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
ANOXIC/AEROBIC BASINS No.1 AND No.2
BOTTOM PLAN, SECTIONS AND DETAILS

DATE: JULY 2011	SCALE:	DRAWING NUMBER:
MCE PROJ. # 1024-0143	HORIZONTAL: AS NOTED	S-3.1
DRAWN: WFB	VERTICAL: NA	
DESIGNED: WFB	PROJ. MGR. DCW	REVISION:
CHECKED: JSL	ISSUED FOR BID	

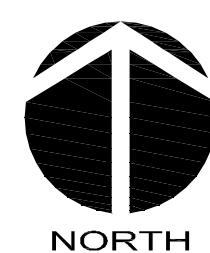
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NOTES:

1. ALL AROUND THE EXISTING OPENING CHIP & ROUGHEN SURFACE TO EXPOSE AGGREGATE. APPLY TO ALL EDGES OF THE EXPOSED SURFACE SIKA ARMATEC 110 EPOCEM.
2. FILL EXISTING OPENING w/ SIKAGROUT 328 & INSTALL PER SIKA'S "PRODUCT EXTENSION" RECOMMENDATIONS. GC TO COORDINATE w/ SIKA'S TECHNICAL REPRESENTATIVE & SERVICE DEPARTMENT AS REQUIRED.
3. ROUGHEN THE TOP SURFACE TO MATCH EXISTING SLAB & PROVIDE SLIP RESISTANT FINISH.

2 - DETAIL - EXIST. SLAB MOD. @ EXIST. FLOOR STANDS
SCALE: 3/4"=1'-0"



1 - PLAN - ANOXIC/AEROBIC BASINS NO. 1 & NO. 2 TOP LAYOUT
SCALE: 1/16"=1'-0"

- TOP PLAN NOTES:**
1. REFERENCE ELEVATION FOR THE EXISTING ANOXIC/AEROBIC BASINS NO. 1 AND NO. 2 FACILITIES ARE THE EXISTING ANOXIC BASIN CELL BOTTOM SLAB H.P. T.O. CONC. EL 0'-0" = EL 28'-11" (28.92') N.G.V.D.-29. REFERENCE CIVIL DWGS. FOR ADDITIONAL INFORMATION.
 2. REFERENCE DWG. S-0.1 FOR ADDITIONAL GENERAL NOTES & DESIGN CRITERIA.
 3. REFERENCE BOTTOM PLAN NOTES FOR ADDITIONAL FACILITY INFORMATION.
 4. IN GENERAL CALL-OUTS & DIMENSIONS ARE TYPICAL FOR EACH ANOXIC/AEROBIC BASIN FACILITY U.N.O.
 5. PIPE & EQUIPMENT LAYOUTS ARE SHOWN FOR GENERAL INFORMATION ONLY. REFERENCE CIVIL, ELECTRICAL, MECHANICAL & EQUIPMENT VENDOR DRAWINGS FOR LOCATIONS & INFO REGARDING SLAB OR WALL PENETRATIONS, PIPING & MISCELLANEOUS EQUIPMENT EITHER SHOWN OR NOT SHOWN.
 6. REFERENCE EQUIPMENT VENDOR DRAWINGS FOR COORDINATION & INSTALLATION OF ANCHORING EQUIPMENT TO T.O. SLAB & WALLS.
 7. EXISTING AL STAIR & PLATFORMS NOT SHOWN FOR CLARITY.
 8. IN GENERAL THE EXISTING C.I.P. REINF. CONCRETE BEAMS AROUND THE PERIMETER OF THE EXISTING SLAB OPENING ARE 1'-4" WIDE x 1'-10 1/2" DEEP AND REINFORCED w/ (4) #9 TOP & BOTTOM BARS & #4 STIRRUPS SPACED @ 8" O.C.. NOTE IT IS NOT REQUIRED FOR THE GC TO VERIFY THE EXISTING BEAM REINFORCING.
 9. EXISTING FACILITY DRAWINGS UTILIZED ARE SHEETS 17 AND 18 OF 59 OF "WASTEWATER FACILITIES IMPROVEMENTS" RECORD DRAWINGS.

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REV. NO.	DESCRIPTIONS / REVISIONS	DATE

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WILLIAM F. BAND, P.E.
No. 67838

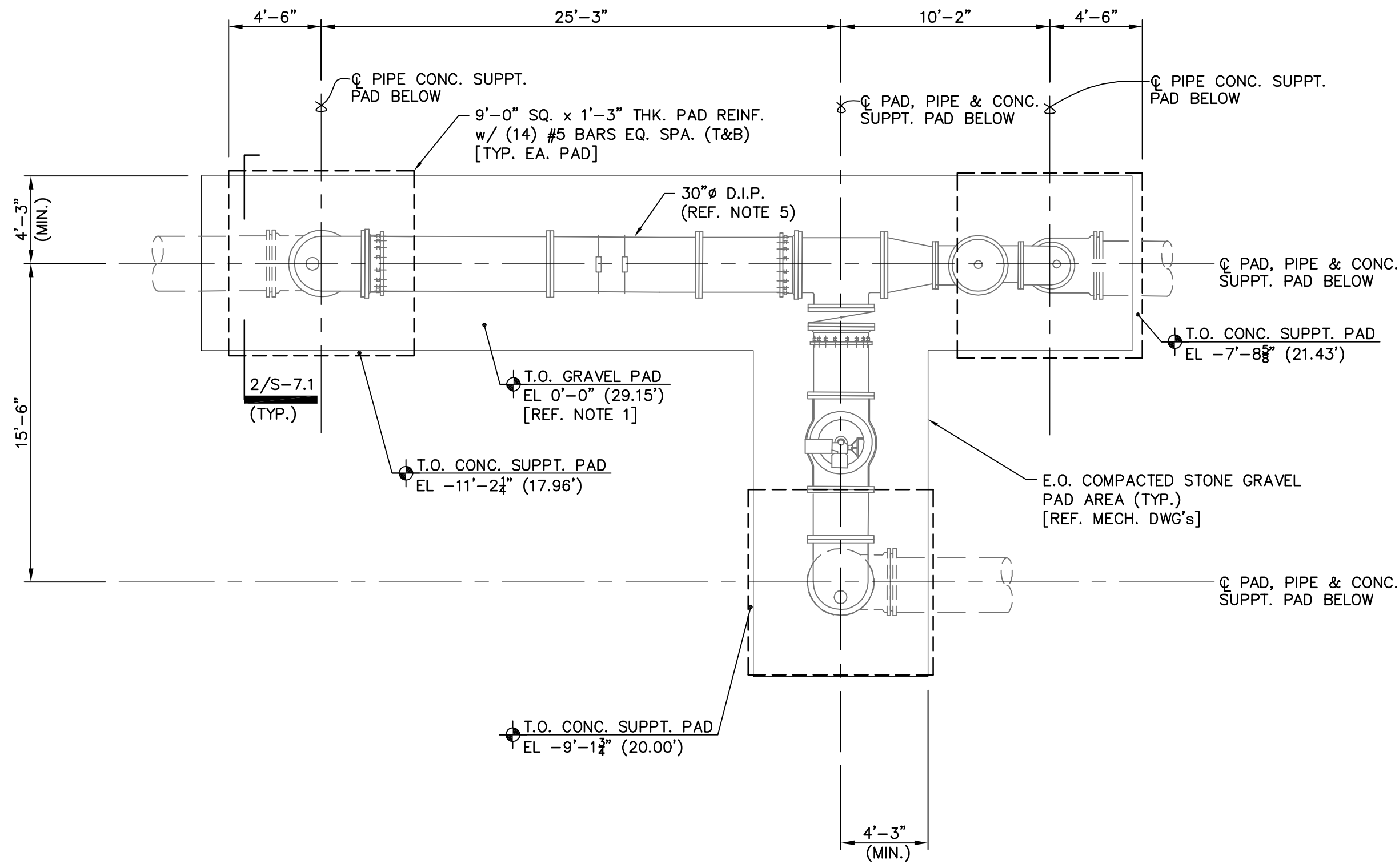
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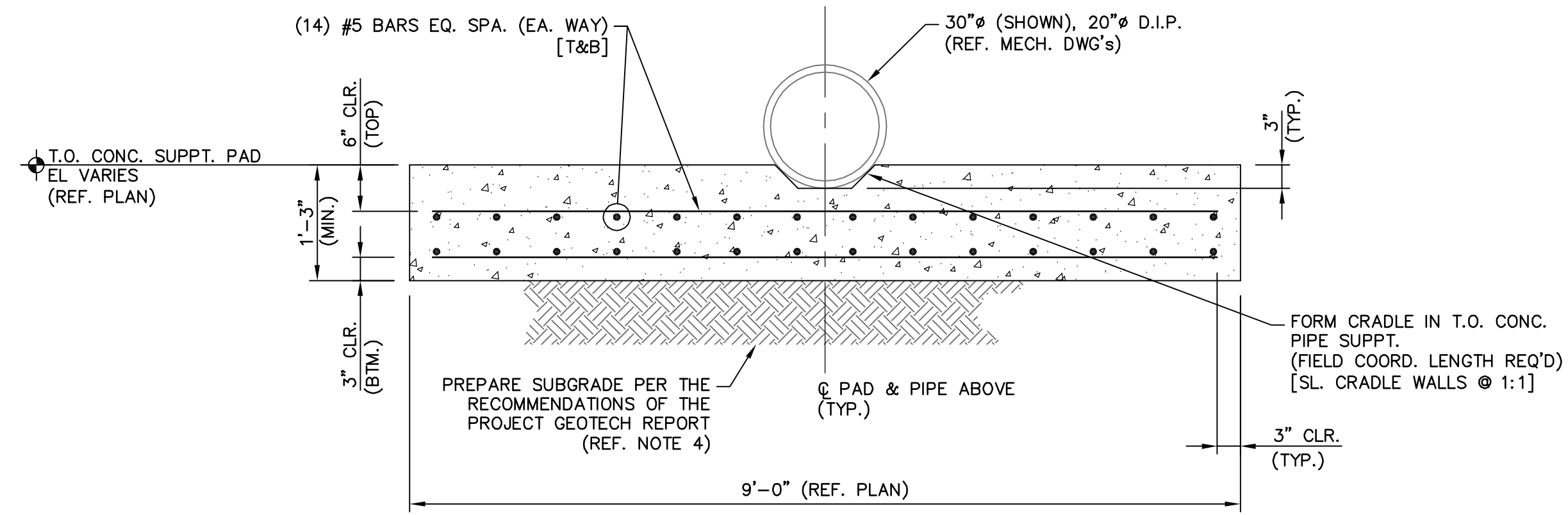
MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
ANOXIC/AEROBIC BASINS No.1 & No.2
TOP PLAN, SECTIONS AND DETAILS

DATE: JULY 2011	SCALE:	DRAWING NUMBER:
MCE PROJ. # 1024-0143	HORIZONTAL: AS NOTED	S-3.2
DRAWN: WFB	VERTICAL: NA	
DESIGNED: WFB	PROJ. MGR. DCW	REVISION:
CHECKED: JSL		ISSUED FOR BID



1 - PLAN - METER & PRESSURE REGULATING VALVE (PRV) ASSEMBLY
 SCALE: 3/16" = 1'-0"



2 - SECTION - TYP. METER & PRV ASSEMBLY PIPE C.I.P. REINF. CONC. SLAB SUPPT. PAD
 SCALE: 3/4" = 1'-0"



NOTES:

1. REFERENCE ELEVATION FOR THE METER AND PRV ASSEMBLY IS THE NON-COMPACTED STONE GRAVEL AREA T.O. GRAVEL EL 0'-0" = EL 29'-1 1/2" (29.15') N.G.V.D.-29. REFERENCE CIVIL DWG'S FOR ADDITIONAL INFORMATION.
2. REFERENCE DWG. S-0.1 FOR ADDITIONAL GENERAL NOTES & DESIGN CRITERIA.
3. GRADE ELEVATION AROUND THE METER AND PRV ASSEMBLY IS 29.00' (±). REFERENCE CIVIL DRAWINGS FOR ADDITIONAL INFORMATION.
4. PREPARE THE SUBGRADE MATERIAL BELOW THE FOUNDATION PADS FOR BELOW GRADE PIPES & THE STONE GRAVEL PAD PER THE RECOMMENDATIONS OF THE "REFERENCE" GEOTECHNICAL REPORT. REFERENCE DRAWING S-0.1 & PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION.
5. PIPE & EQUIPMENT LAYOUTS ARE SHOWN FOR GENERAL INFORMATION ONLY. REFERENCE CIVIL, ELECTRICAL, MECHANICAL & EQUIPMENT VENDOR DRAWINGS FOR LOCATIONS & INFO REGARDING REQUIREMENTS FOR PIPING & MISCELLANEOUS EQUIPMENT EITHER SHOWN OR NOT SHOWN.

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REV. NO.	DESCRIPTIONS / REVISIONS	DATE

SEAL
 WILLIAM F. BAND, P.E.
 No. 67838

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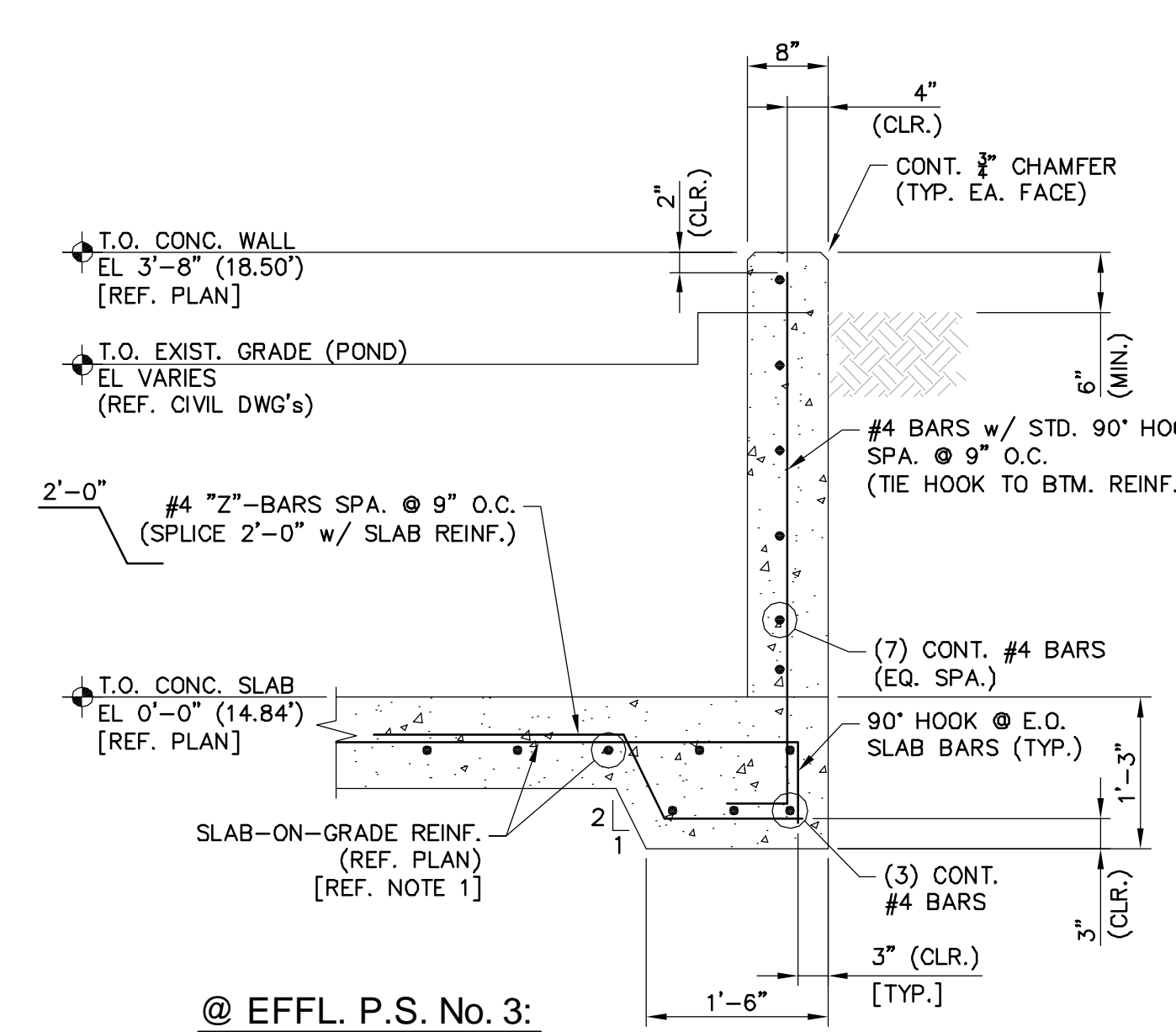
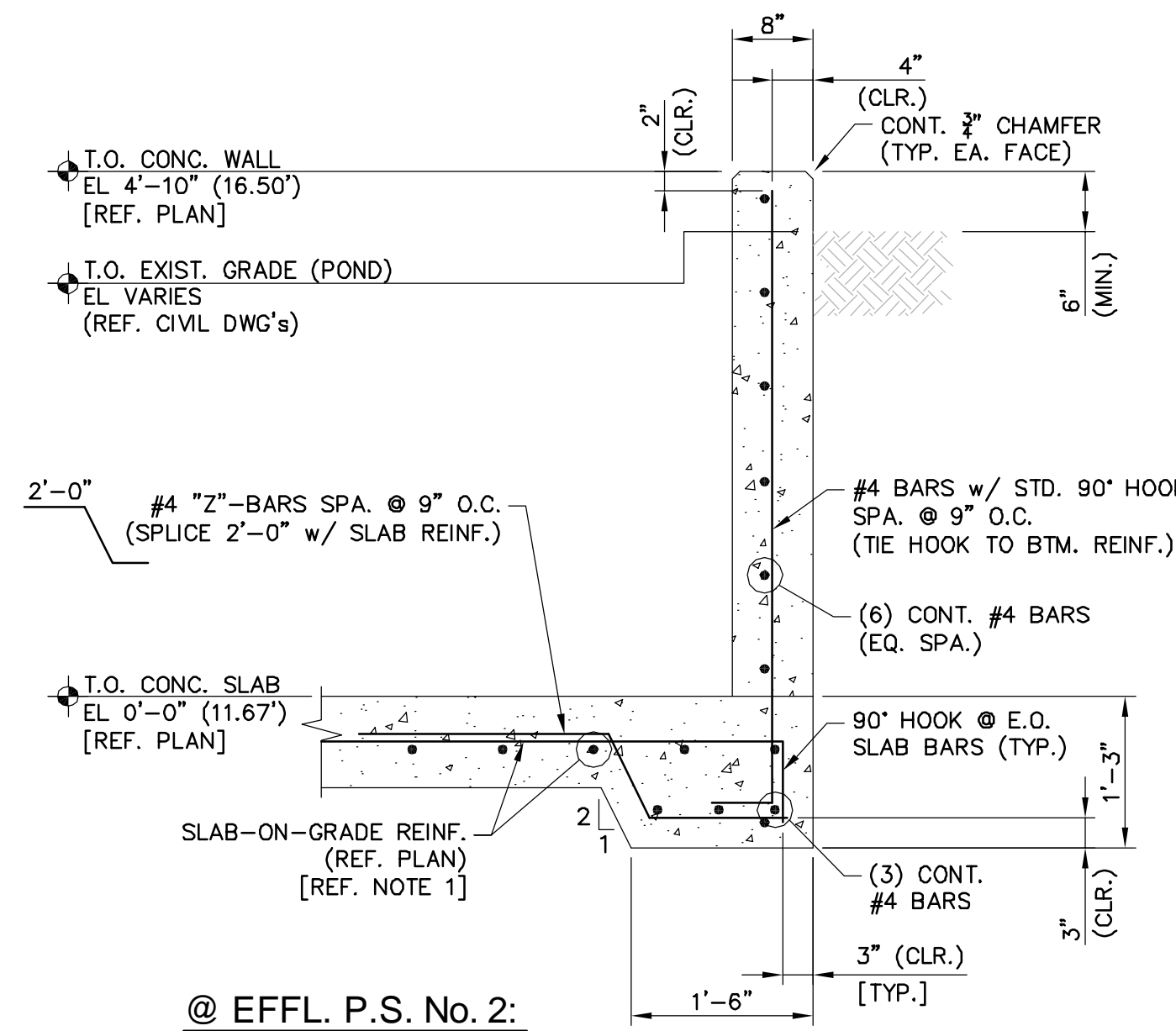
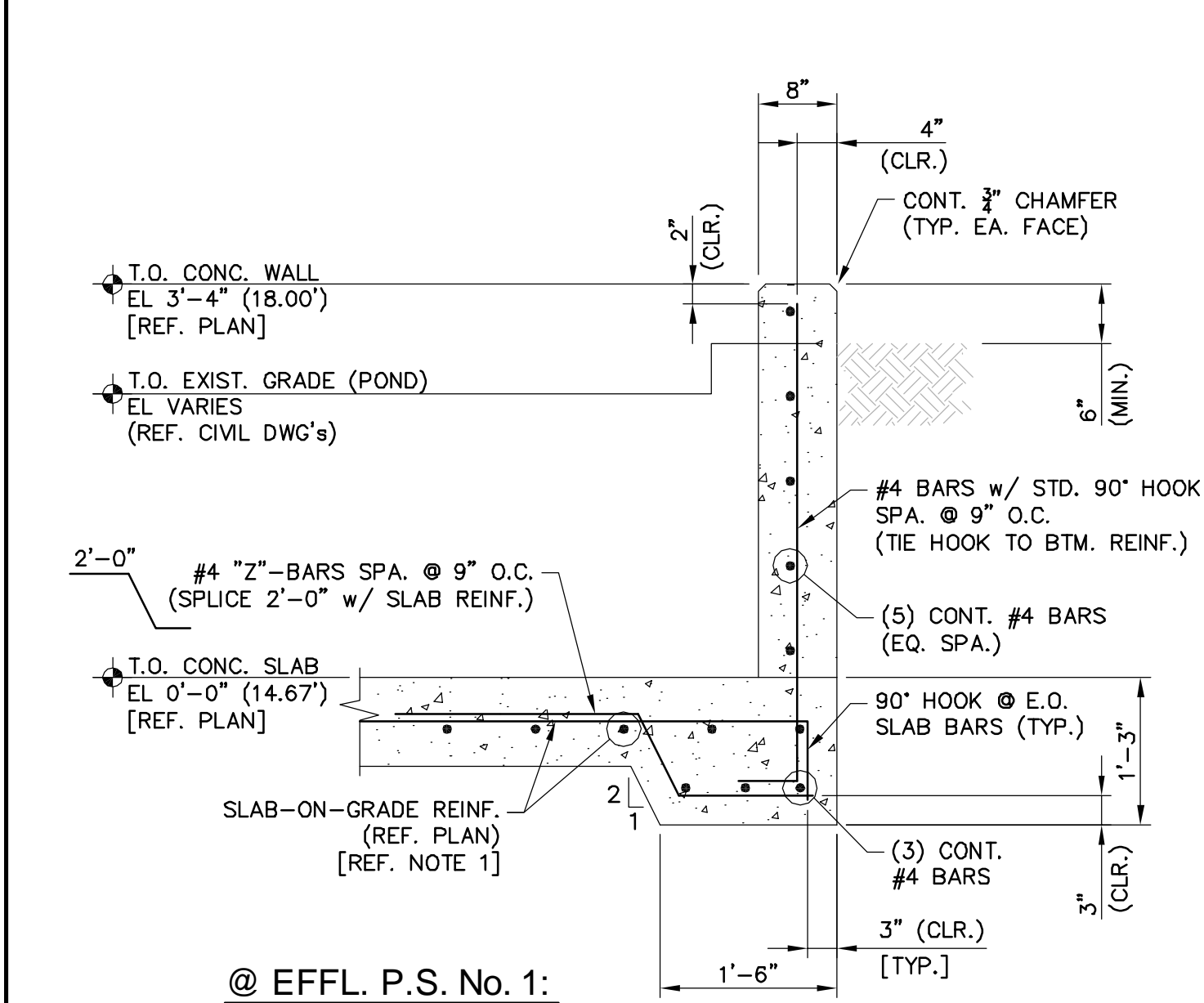
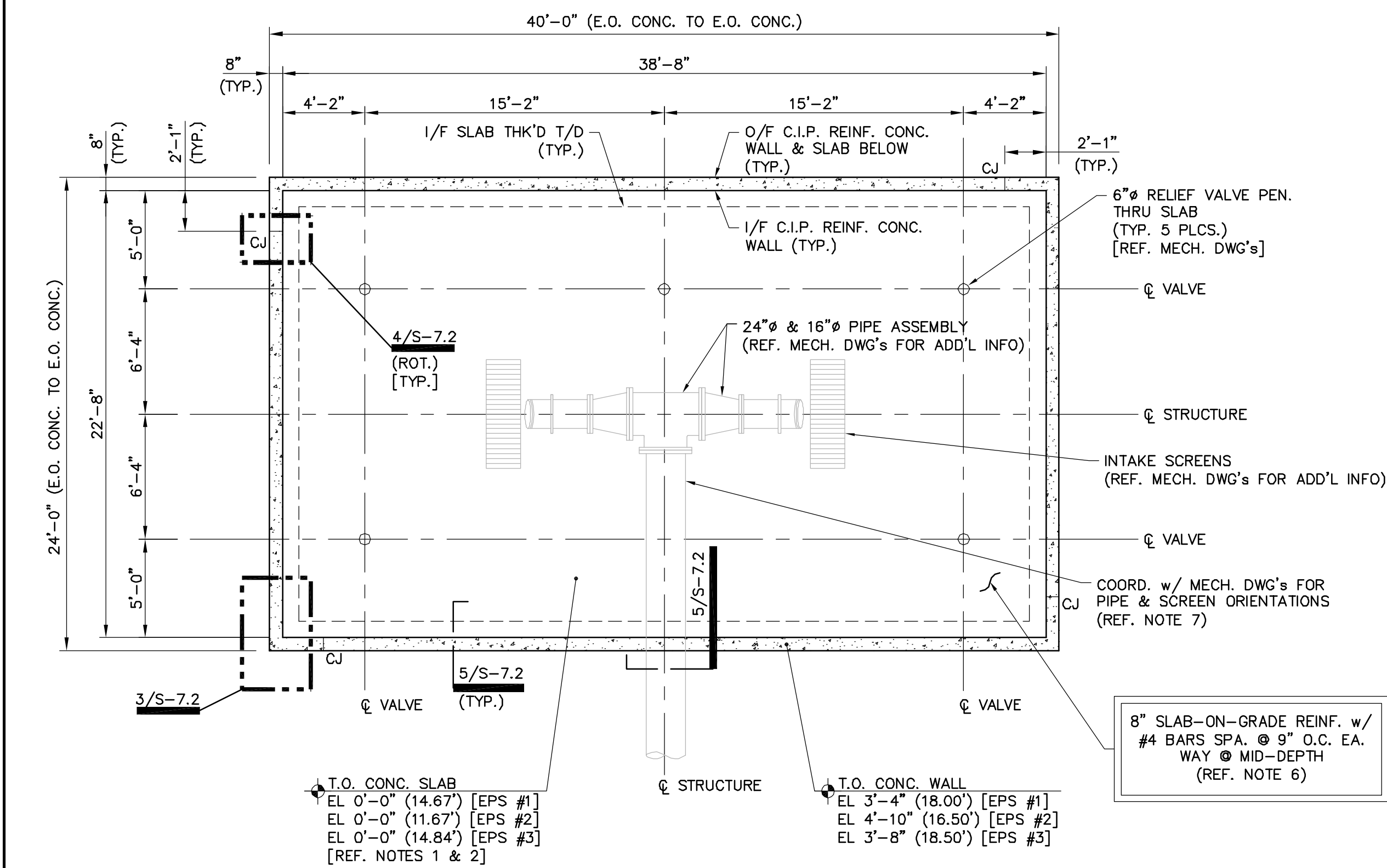
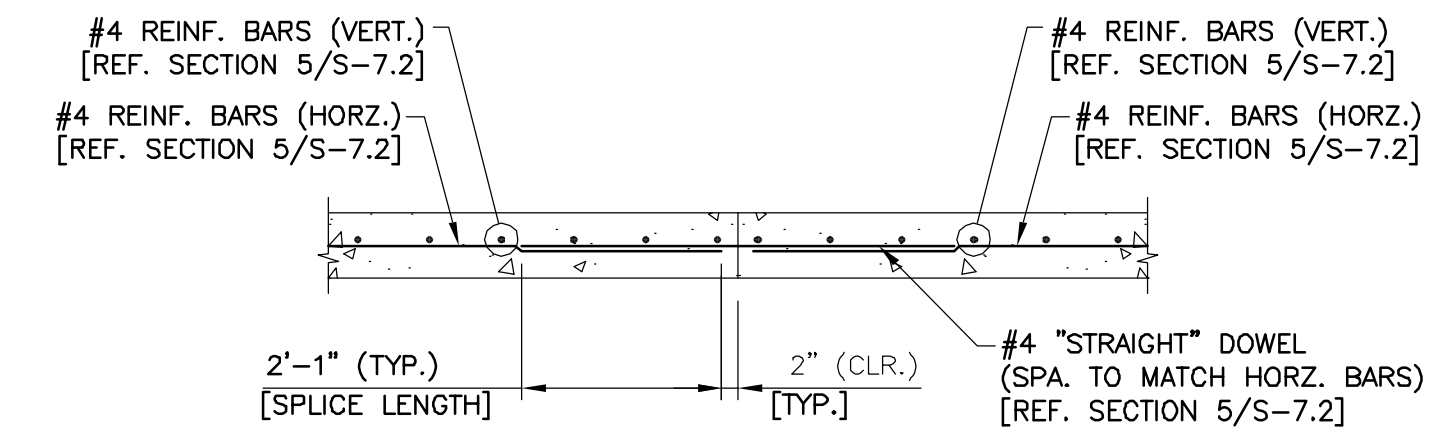
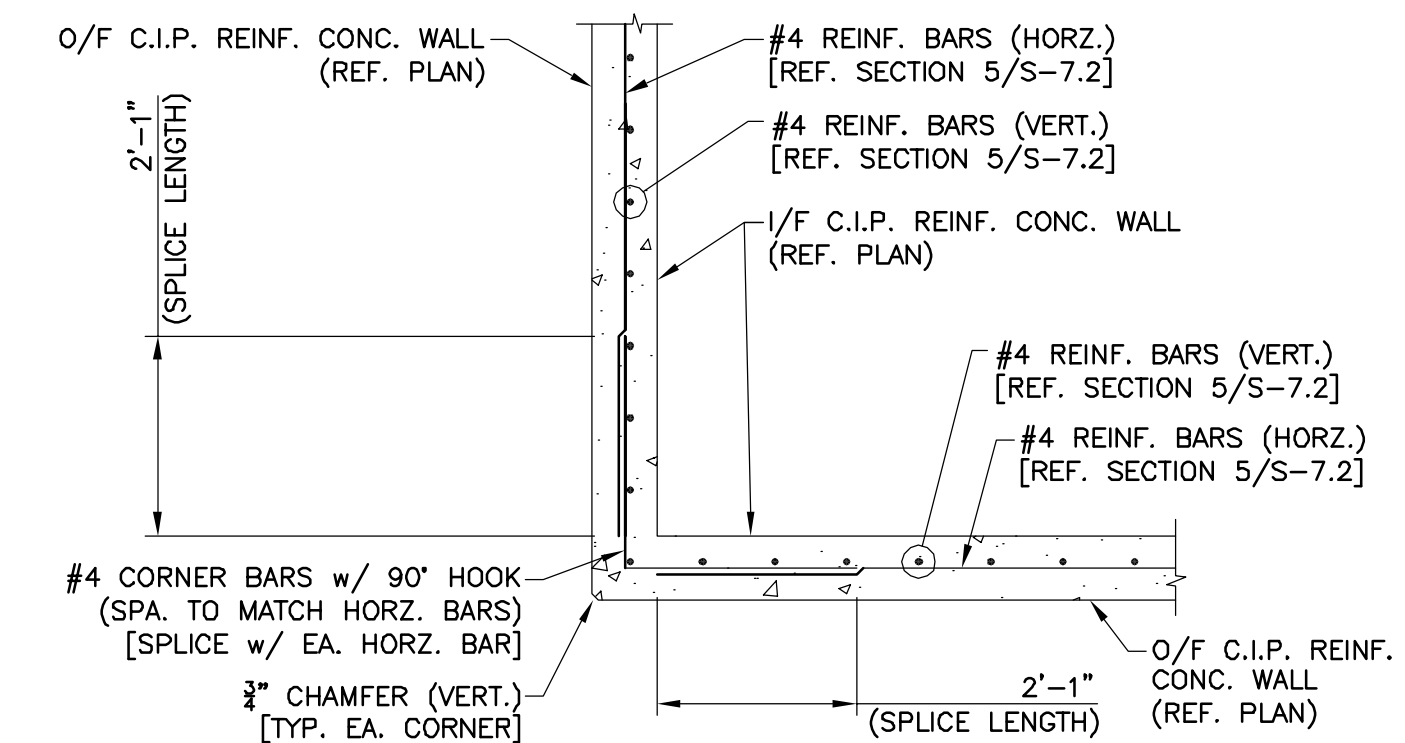
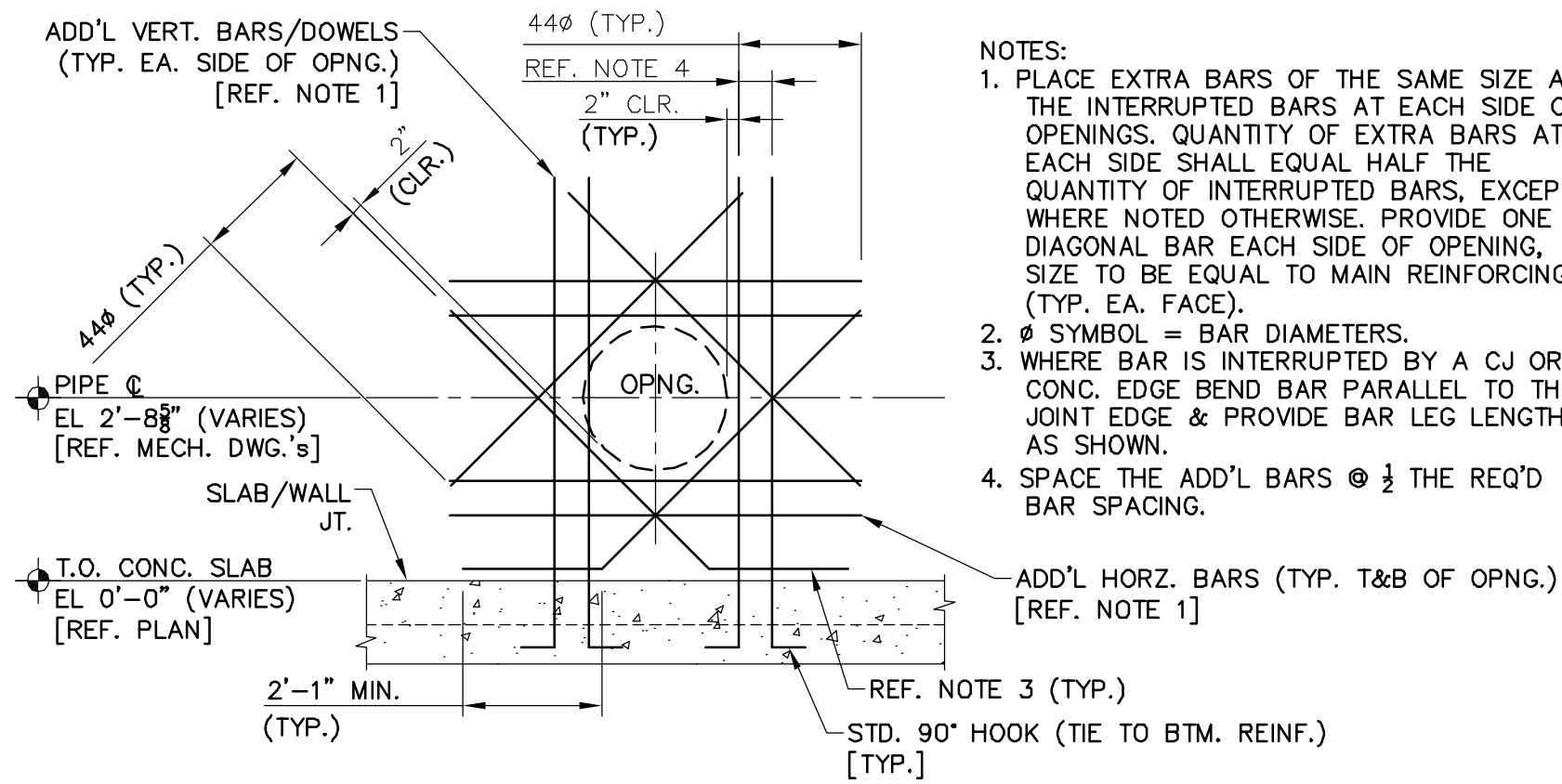
MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
METER AND PRESSURE REGULATING VALVE ASSEMBLY
PLANS, SECTIONS AND DETAILS

DATE: JULY 2011	SCALE:	DRAWING NUMBER:
MCE PROJ. # 1024-0143	HORIZONTAL: AS NOTED	S-7.1
DRAWN: WFB	VERTICAL: NA	
DESIGNED: WFB	STATUS: ISSUED FOR BID	REVISION:
CHECKED: JSL		
PROJ. MGR: DCW		

PLAN NOTES:

- REFERENCE ELEVATIONS FOR THE EFFLUENT PUMP BACK STATIONS (EPS) INTAKE STRUCTURES IS THE SLAB T.O. CONC. EL 0'-0" FOR THESE FACILITIES THE T.O. CONC. SLAB EL IN REGARDS TO THE CORRESPONDING N.G.V.D.-29 DATUM VARIES. REFERENCE CIVIL & MECH. DWG'S FOR ADDITIONAL INFORMATION.
- REFERENCE ELEVATIONS FOR THE EPS FACILITIES INTAKE STRUCTURES IS AS FOLLOWS:
 - EPS #1 T.O. CONC. SLAB EL 0'-0" = EL 14'-8" (14.67') N.G.V.D.-29.
 - EPS #2 T.O. CONC. SLAB EL 0'-0" = EL 11'-8" (11.67') N.G.V.D.-29.
 - EPS #3 T.O. CONC. SLAB EL 0'-0" = EL 13'-10" (13.84') N.G.V.D.-29.
- REFERENCE DWG. S-0.1 FOR ADDITIONAL GENERAL NOTES & DESIGN CRITERIA.
- REFERENCE CIVIL & MECH. DWG'S FOR THE EXISTING BOTTOM OF POND ELEVATIONS AT EACH OF THE INTAKE STRUCTURES.
- REFERENCE CIVIL & MECH. DWG'S FOR THE VARIOUS LOW, NORMAL & HIGH WATER LEVELS FOR THE POND ELEVATIONS AT EACH OF THE INTAKE STRUCTURES.
- PREPARE THE SUBGRADE MATERIAL BELOW THE SLAB IN ACCORDANCE W/ THE PROJECT SPECIFICATIONS & INFORMATION PROVIDED ON THE MECH. DWG'S & THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT. REFERENCE DRAWING S-0.1 & PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- PIPE & EQUIPMENT LAYOUTS ARE SHOWN FOR GENERAL INFORMATION ONLY. REFERENCE CIVIL, MECHANICAL & EQUIPMENT VENDOR DRAWINGS FOR LOCATIONS & INFO REGARDING REQUIREMENTS FOR PIPING & MISCELLANEOUS EQUIPMENT EITHER SHOWN OR NOT SHOWN.



- NOTES:**
- SLAB BARS MAY BE INSTALLED W/ STRAIGHT BARS SPLICED W/ HOOKED BARS REQUIRED AT THE SLAB EDGES. SPLICE LENGTHS = 2'-1" (MIN.) U.N.O.

REV.	DESCRIPTION	DATE

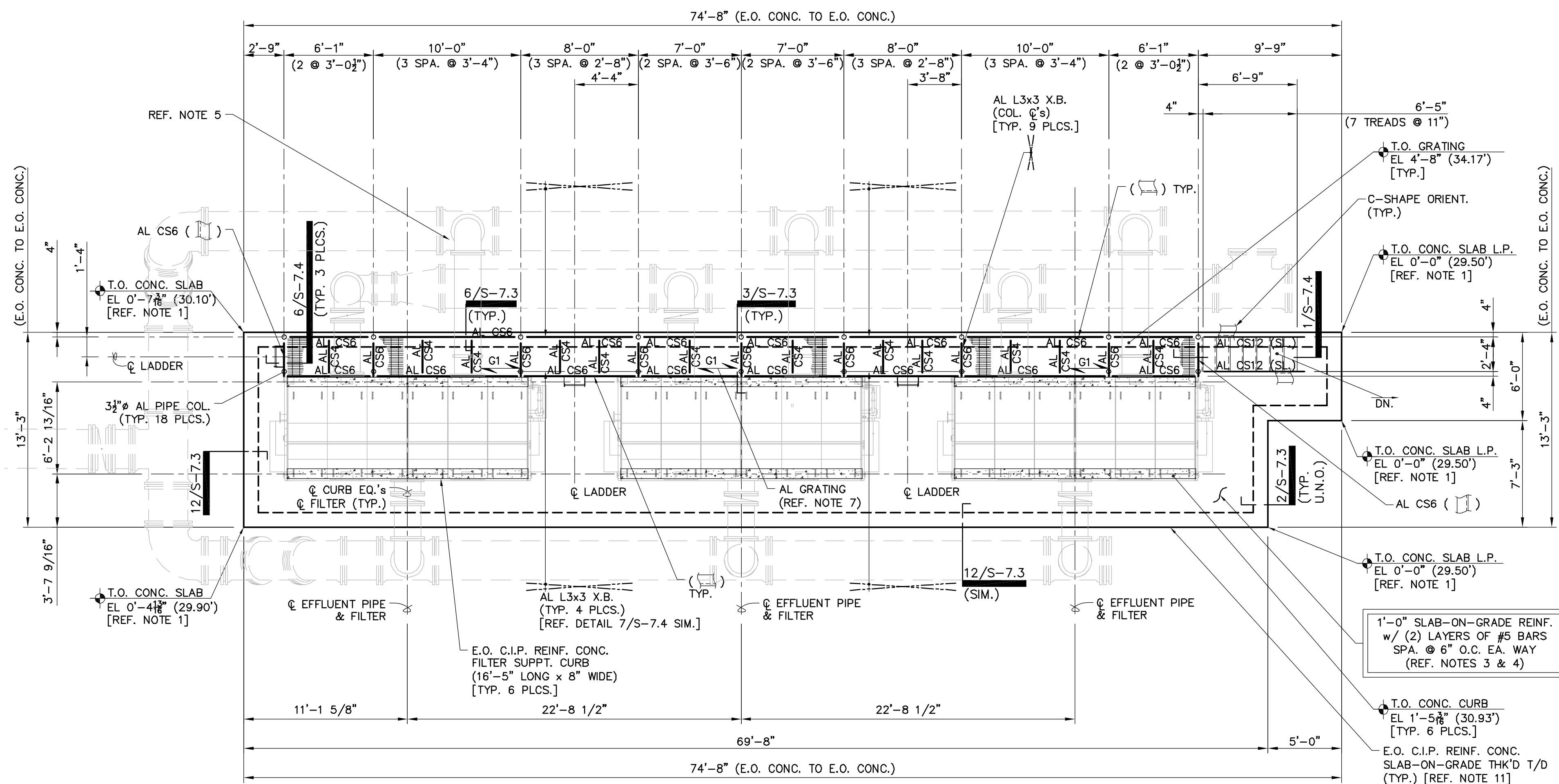
WILLIAM F. BAND, P.E.
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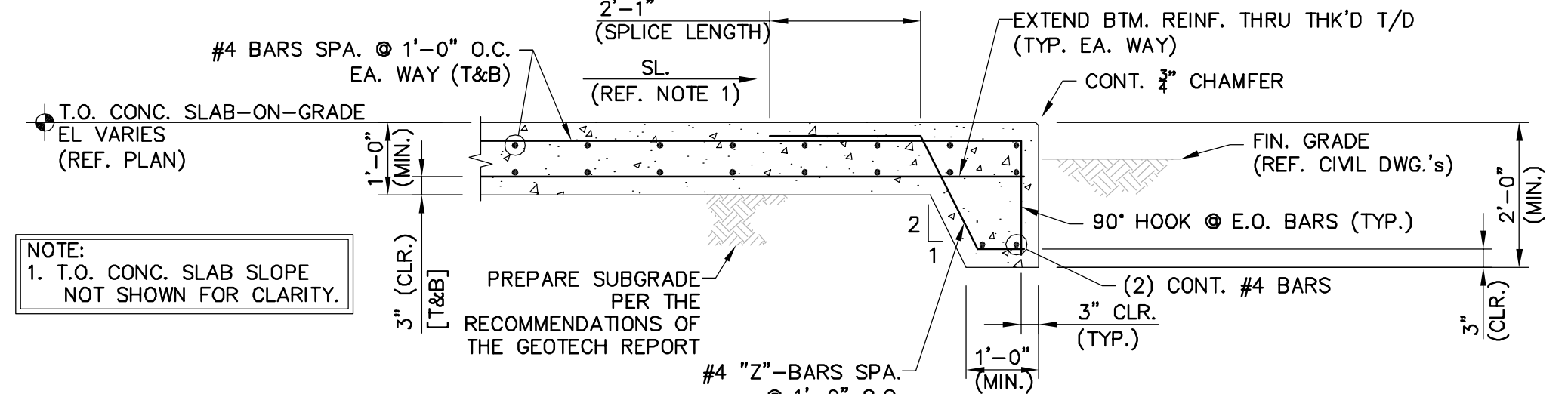
MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
GOLF COURSE STORAGE LAKE FLOW INTAKE STRUCTURES PLANS, SECTIONS AND DETAILS

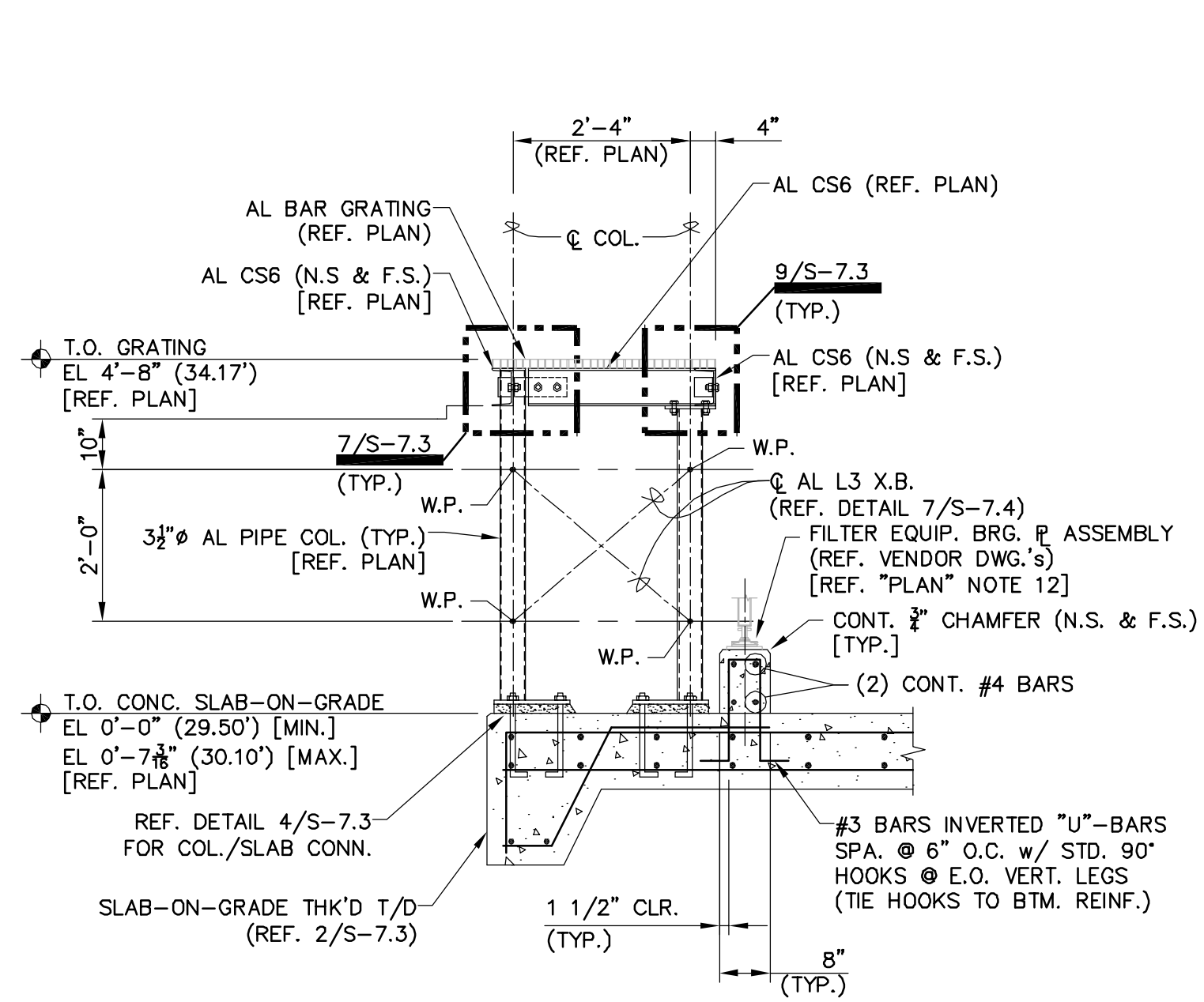
DATE: JULY 2011	SCALE:	DRAWING NUMBER:
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DESIGNED: WFB	STATUS: ISSUED FOR BID	REVISION:
CHECKED: JSL		
PROJ. MGR: DCW		



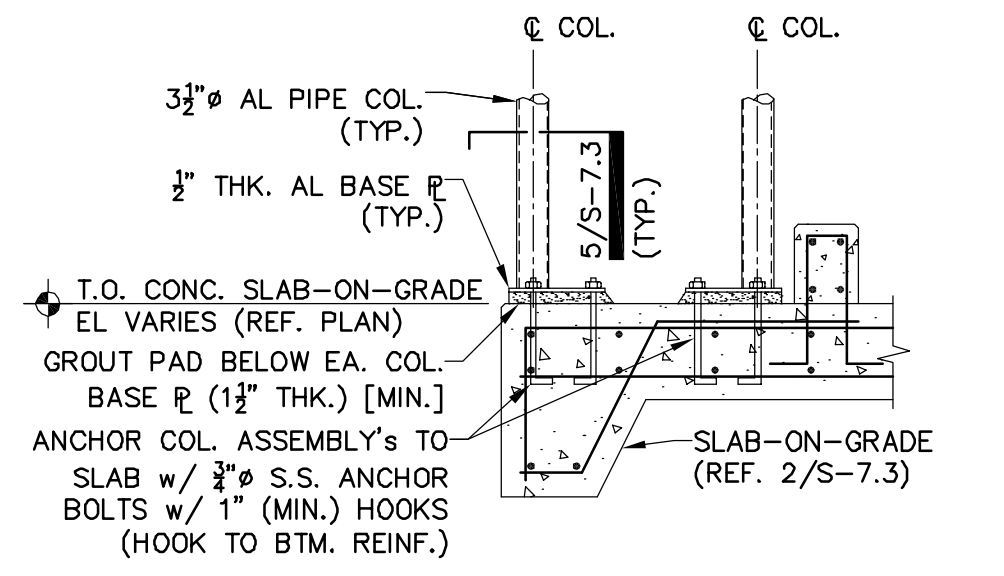
1 - PLAN - GRAVITY LAKE DISC FILTER SLAB
SCALE: 3/16" = 1'-0"



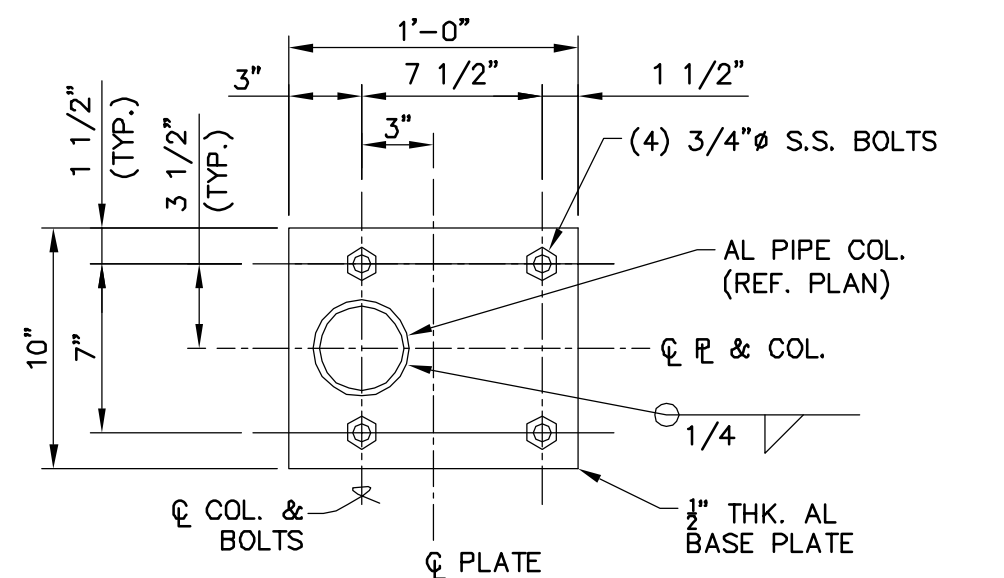
2 - SECTION - TYP. E.O. REINF. CONC. SLAB-ON-GRADE SUPPT. PAD @ GRADE
SCALE: 1/2" = 1'-0"



3 - SECTION - THRU AL PLATFORM FRAMING @ COL's
SCALE: 1/2" = 1'-0"

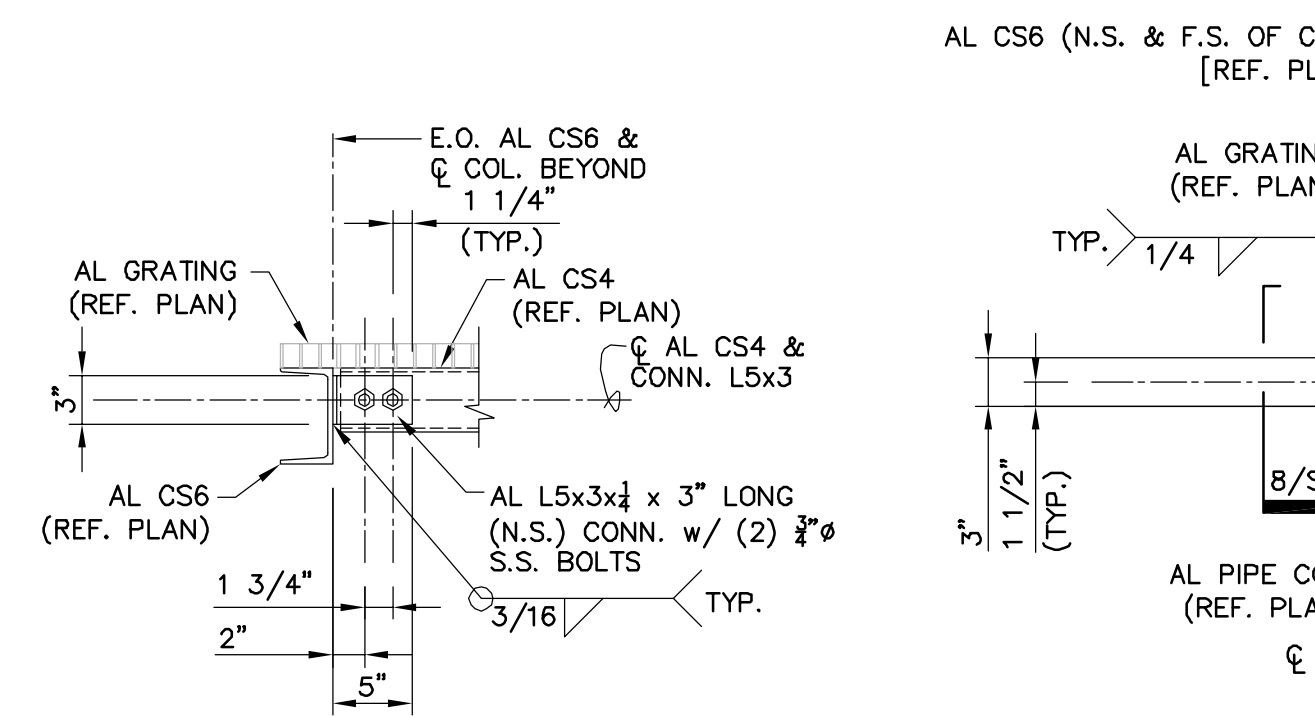


4 - DETAIL - AL COL. / SLAB CONN.'s
SCALE: 1/2" = 1'-0"

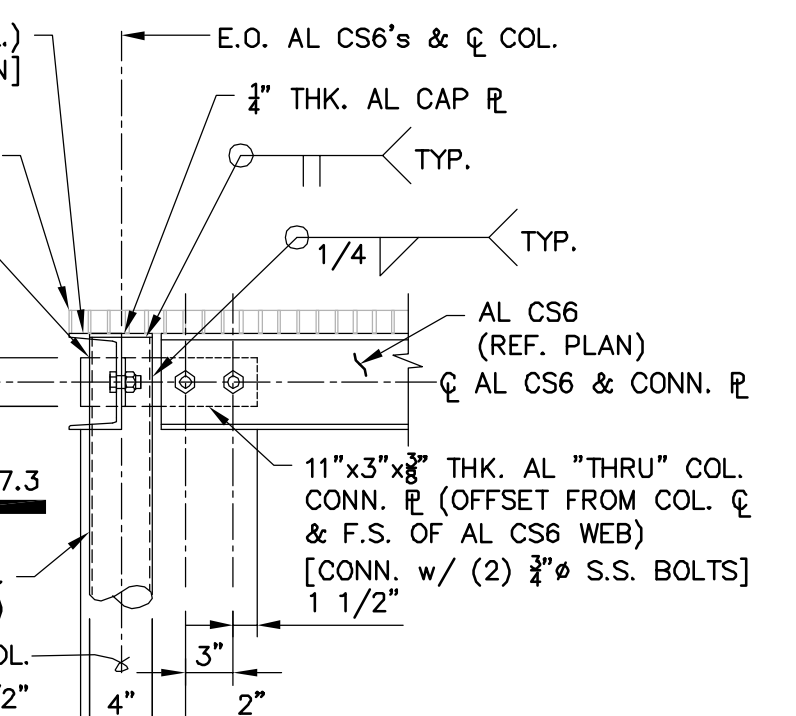


5 - SECTION - AL COL. BASE PLATE
SCALE: 1 1/2" = 1'-0"

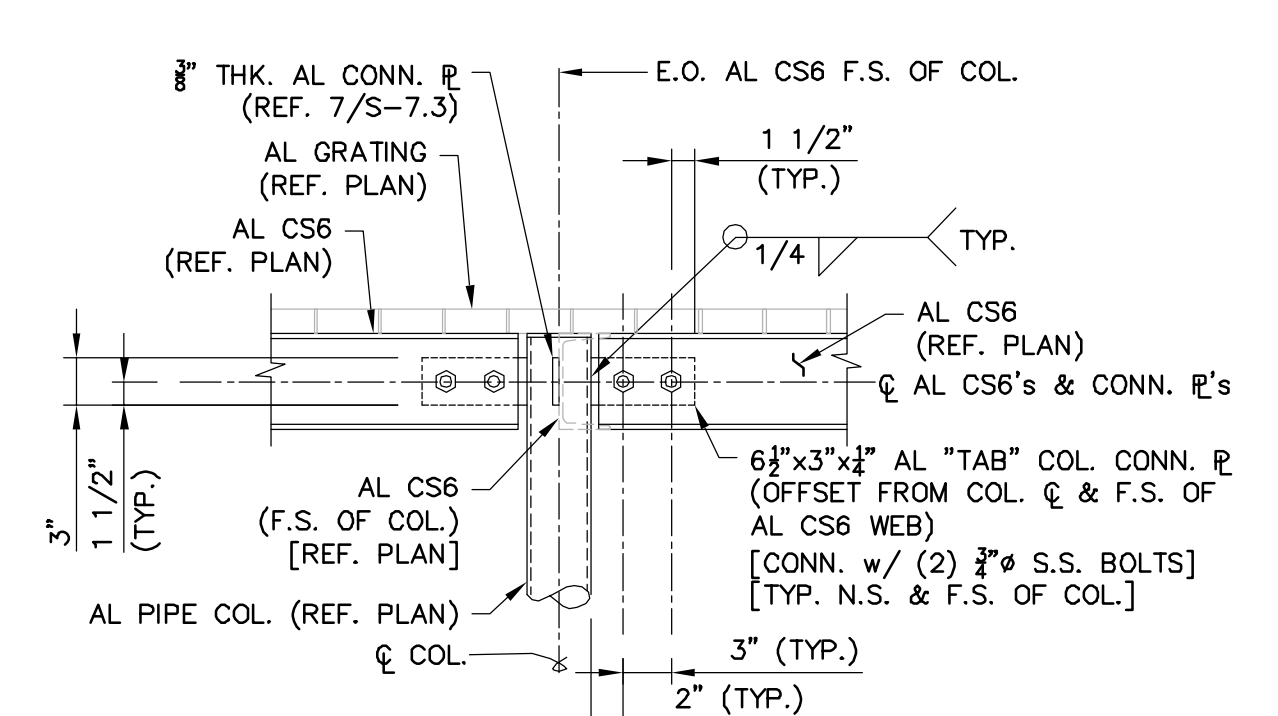
- FOUNDATION PLAN NOTES:**
- REFERENCE ELEVATION FOR THE GRAVITY DISK FILTER FACILITY IS THE SLAB-ON-GRADE T.O. CONC. L.P. EL 0'-0" = EL 29'-6" (29.50') N.G.V.D.-29. REFERENCE CIVIL DWGS. FOR ADDITIONAL INFORMATION.
 - REFERENCE DWG. S-0.1 FOR ADDITIONAL GENERAL NOTES & DESIGN CRITERIA.
 - GRADE ELEVATION AROUND THIS STRUCTURE VARIES FROM 29.50' (±) TO 30.10' (±). REFERENCE CIVIL DRAWINGS FOR ADDITIONAL INFORMATION.
 - PREPARE THE SUBGRADE MATERIAL BELOW THE FACILITY SLAB-ON-GRADE PER THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL REPORT. REFERENCE DRAWING S-0.1 & PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION.
 - PIPE & EQUIPMENT LAYOUTS ARE SHOWN FOR GENERAL INFORMATION ONLY. REFERENCE CIVIL, ELECTRICAL, MECHANICAL & EQUIPMENT VENDOR DRAWINGS FOR LOCATIONS & INFO REGARDING SLAB PENETRATIONS, PIPING & MISCELLANEOUS EQUIPMENT EITHER SHOWN OR NOT SHOWN.
 - REFERENCE EQUIPMENT VENDOR DRAWINGS FOR COORDINATION & INSTALLATION OF ANCHORING EQUIPMENT TO T.O. CONC. SLAB & CURB.
 - SYMBOL ON PLANS INDICATES SPAN DIRECTION OF GRATING MAIN BEARING BARS. GRATING IS ALUMINUM (AL) RECTANGULAR BAR U.N.O.
 - ATTACH GRATING TO AL SUPPORT FRAMING w/ S.S. CLIPS PER GRATE MFG's RECOMMENDATIONS.
 - ALUMINUM FRAMING SECTIONS:
AL CS4 = CS4x2.33 ALUMINUM ASSOCIATION STD. CHANNEL SECTION.
AL CS6 = CS6x4.03 ALUMINUM ASSOCIATION STD. CHANNEL SECTION.
AL CS12 = CS12x8.27 ALUMINUM ASSOCIATION STD. CHANNEL SECTION.
X.B. = ALUMINUM L3x3x4 L-SHAPE SECTION "X"-GROSS BRACING.
 - IN GENERAL FOR PLATFORM CONNECTIONS NOT SHOWN IT IS THE FABRICATOR'S RESPONSIBILITY TO PROVIDE IN THE PROJECT SHOP DRAWINGS.
 - WHERE SLAB WILL BE CONSTRUCTED TO ADJACENT CONCRETE SIDEWALK SECTIONS INSTALL EXTR. GRADE EXP. JT. MATERIAL CAULK & SEAL THE TOP OF JOINT w/ SONOLASTIC "SL-2" POLYURETHANE OR AN APPROVED EQUAL.
 - PROVIDE GROUT PAD IF REQ'D BY THE FILTER EQUIPMENT MFG. TO ENSURE EQUIPMENT IS INSTALLED LEVEL & w/in MFG.'s ALLOWED TOLERANCES. GC TO FIELD COORDINATE T.O. CONC. CURB EL AS REQUIRED.



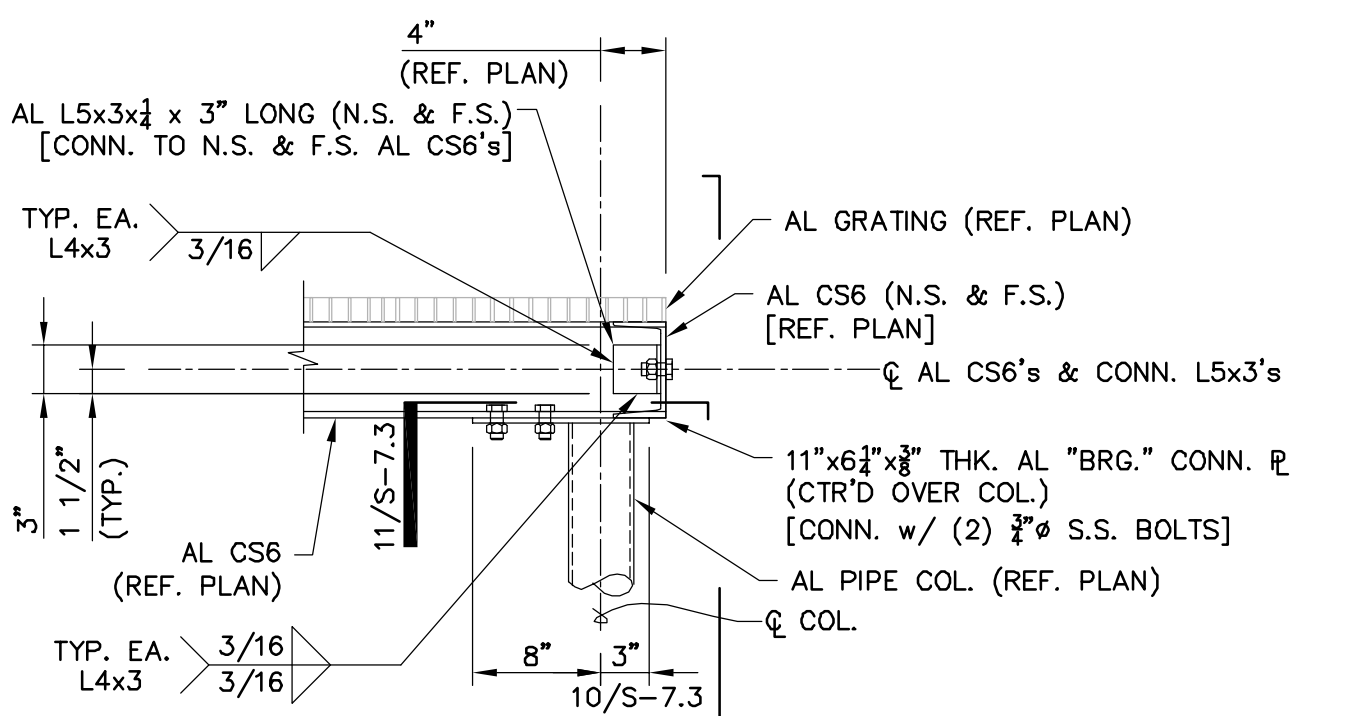
6 - SECTION - AL CS6 / AL CS4 CONN.
SCALE: 1" = 1'-0"



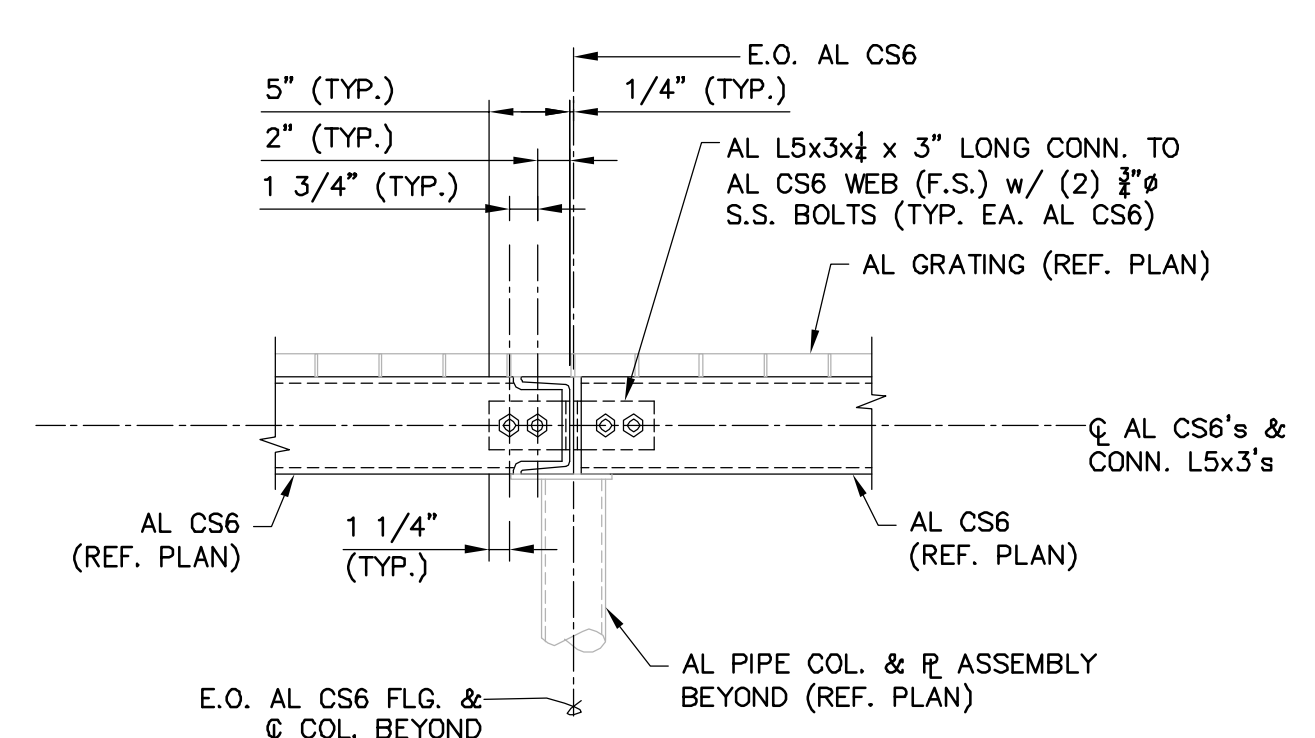
7 - DETAIL - AL PIPE COL. / AL CS6 THRU CONN.
SCALE: 1" = 1'-0"



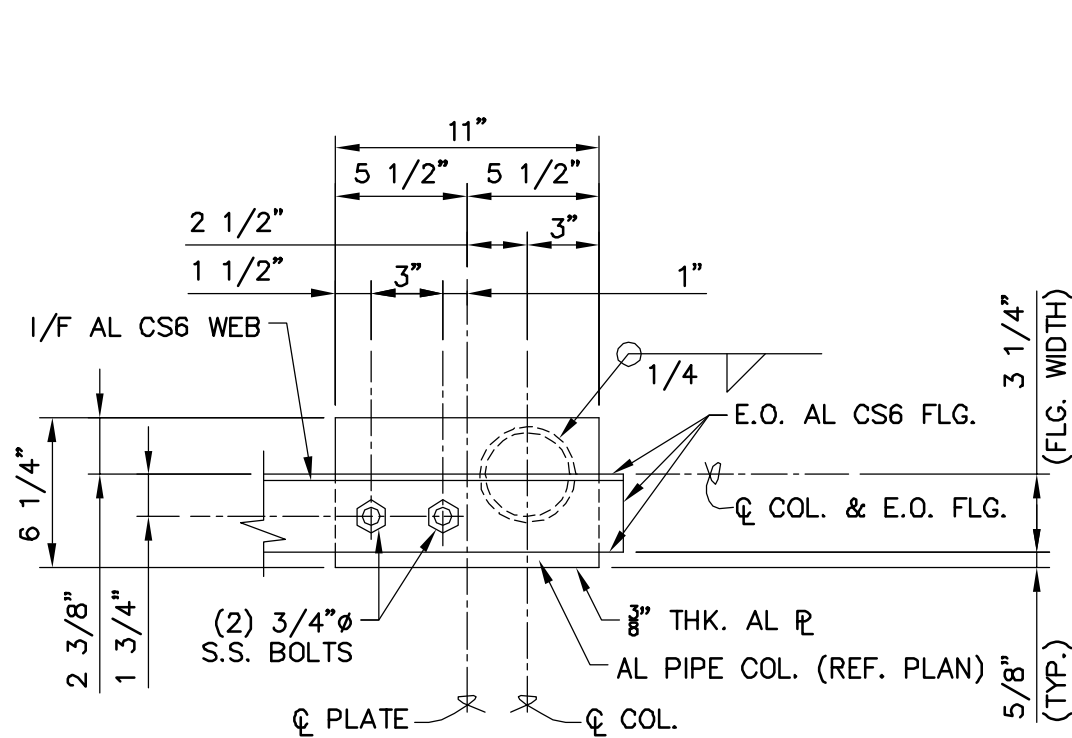
8 - SECTION - AL PIPE COL. / AL CS6 TAB CONN.
SCALE: 1" = 1'-0"



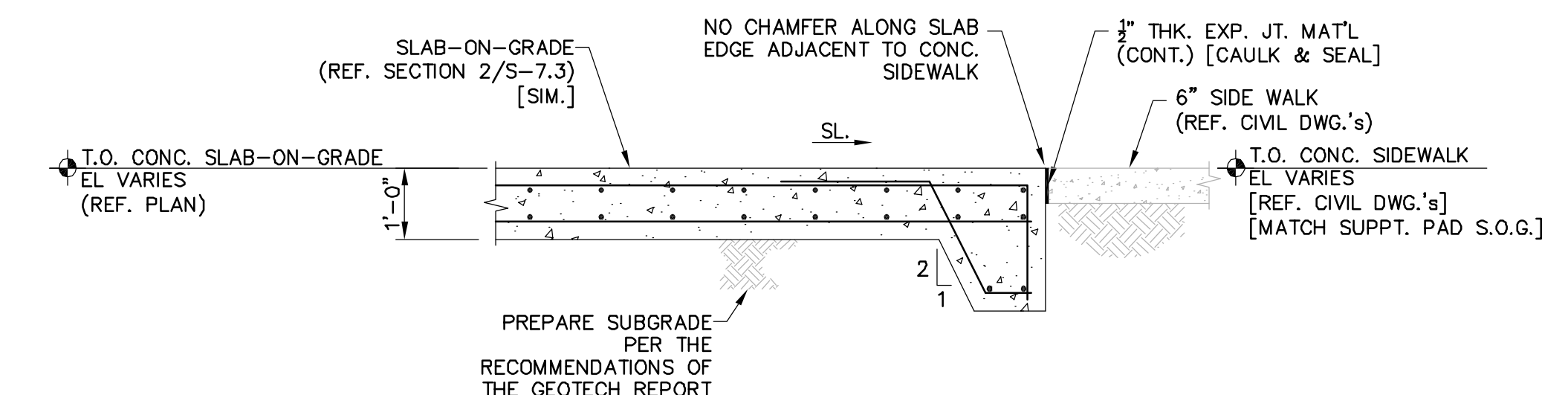
9 - DETAIL - AL PIPE COL. / AL CS6 BRG. CONN.
SCALE: 1" = 1'-0"



10 - SECTION - AL CS6 / AL CS6 / AL CS6 CONN.
SCALE: 1" = 1'-0"



11 - SECTION - AL COL. / BRG. CONN.
SCALE: 1 1/2" = 1'-0"



12 - SECTION - TYP. E.O. REINF. CONC. SLAB-ON-GRADE SUPPT. PAD @ SIDEWALK
SCALE: 1/2" = 1'-0"

REV.	DESCRIPTION	DATE

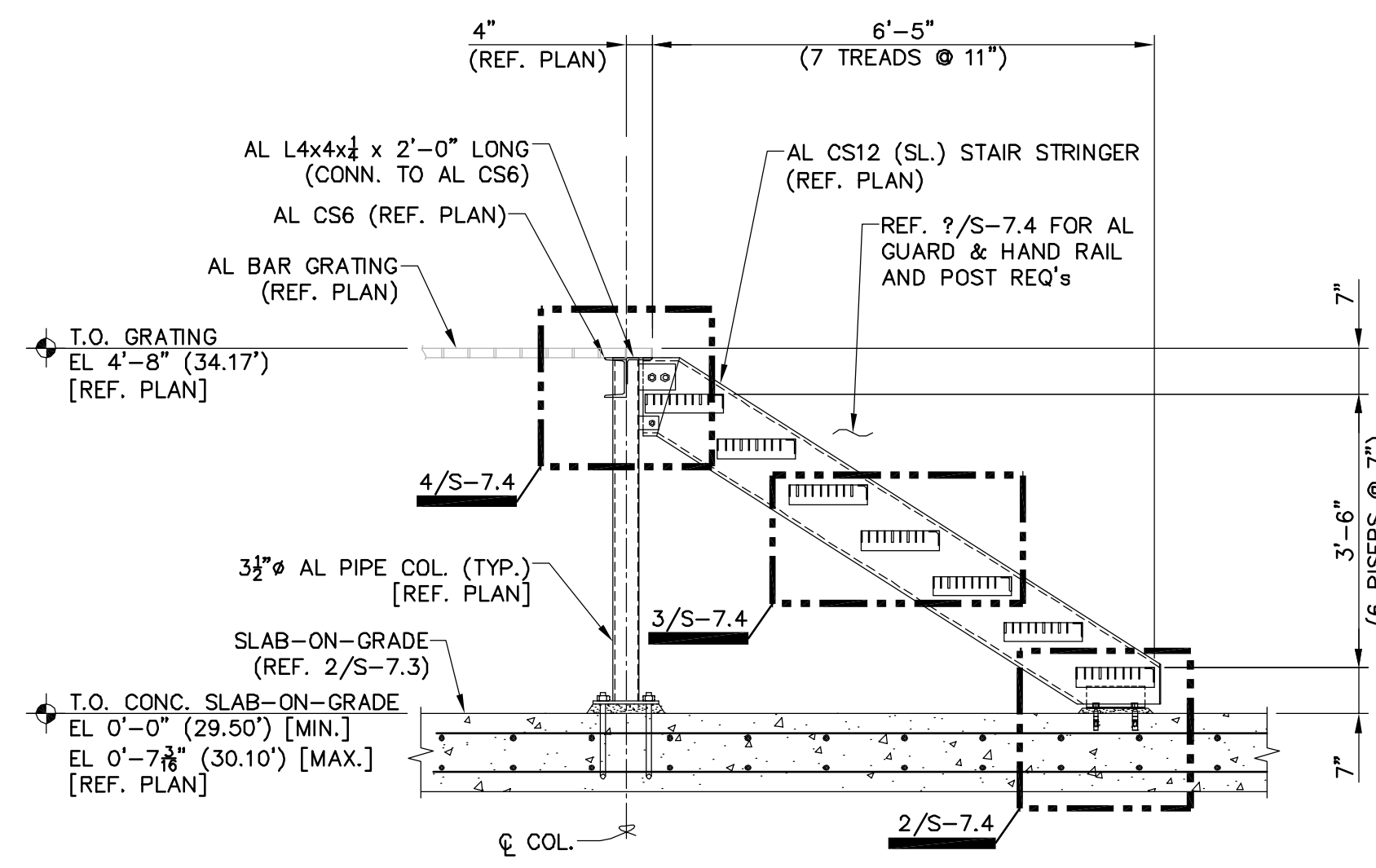
WILLIAM F. BAND, P.E.
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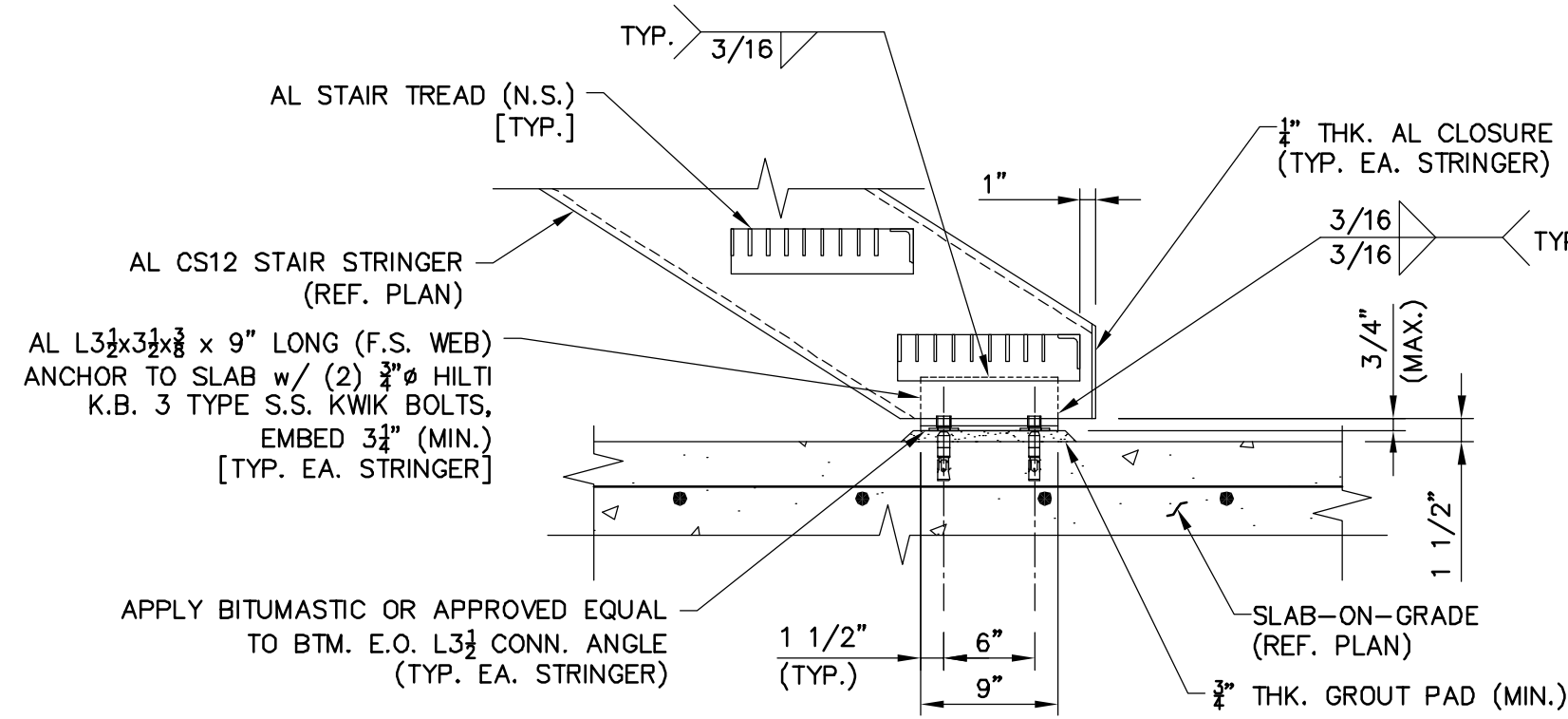
MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
LAKE GRAVITY DISK FILTER
FOUNDATION PLAN,
SECTIONS AND DETAILS

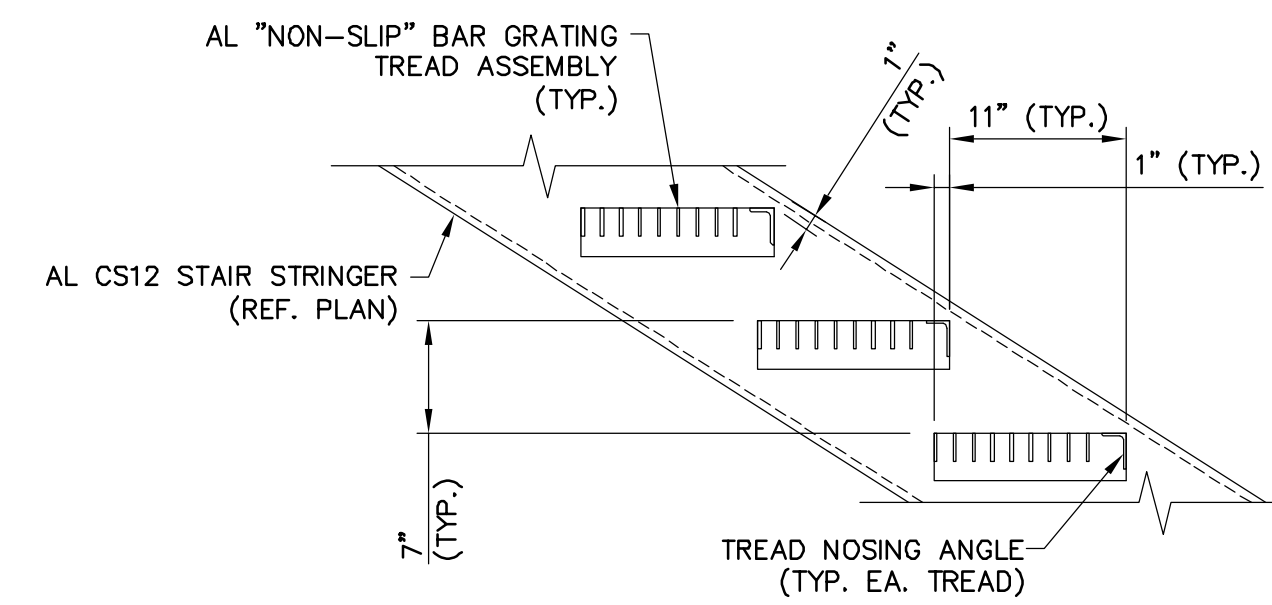
DATE: JULY 2011	SCALE: HORIZONTAL: AS NOTED VERTICAL: NA	DRAWN: WFB	DESIGNED: WFB	CHECKED: JSL	PROJ. MGR: DCW
STATUS: ISSUED FOR BID			DRAWING NUMBER: S-7.3		



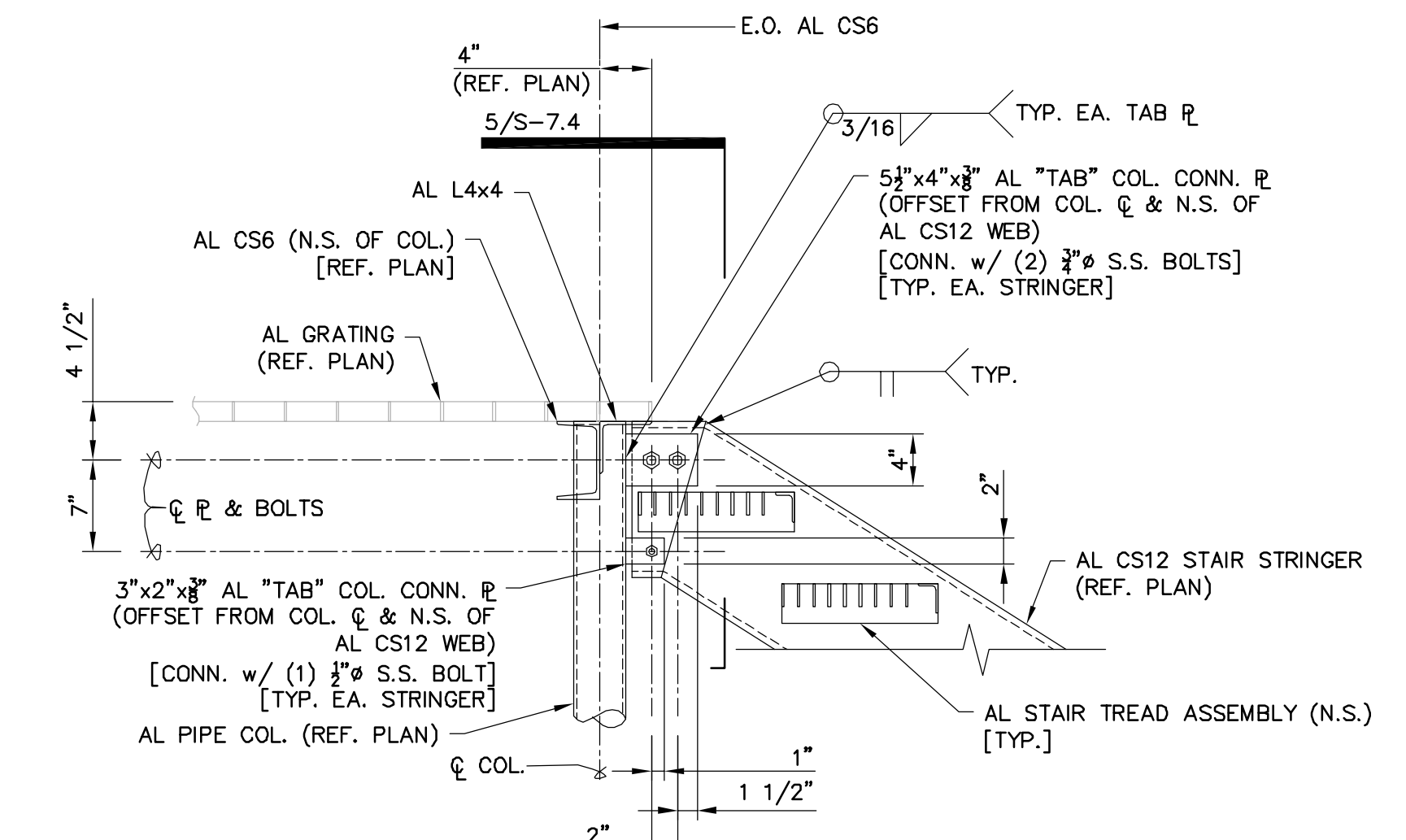
1 - SECTION - THRU AL PLATFORM ACCESS STAIR
SCALE: 1/2" = 1'-0"



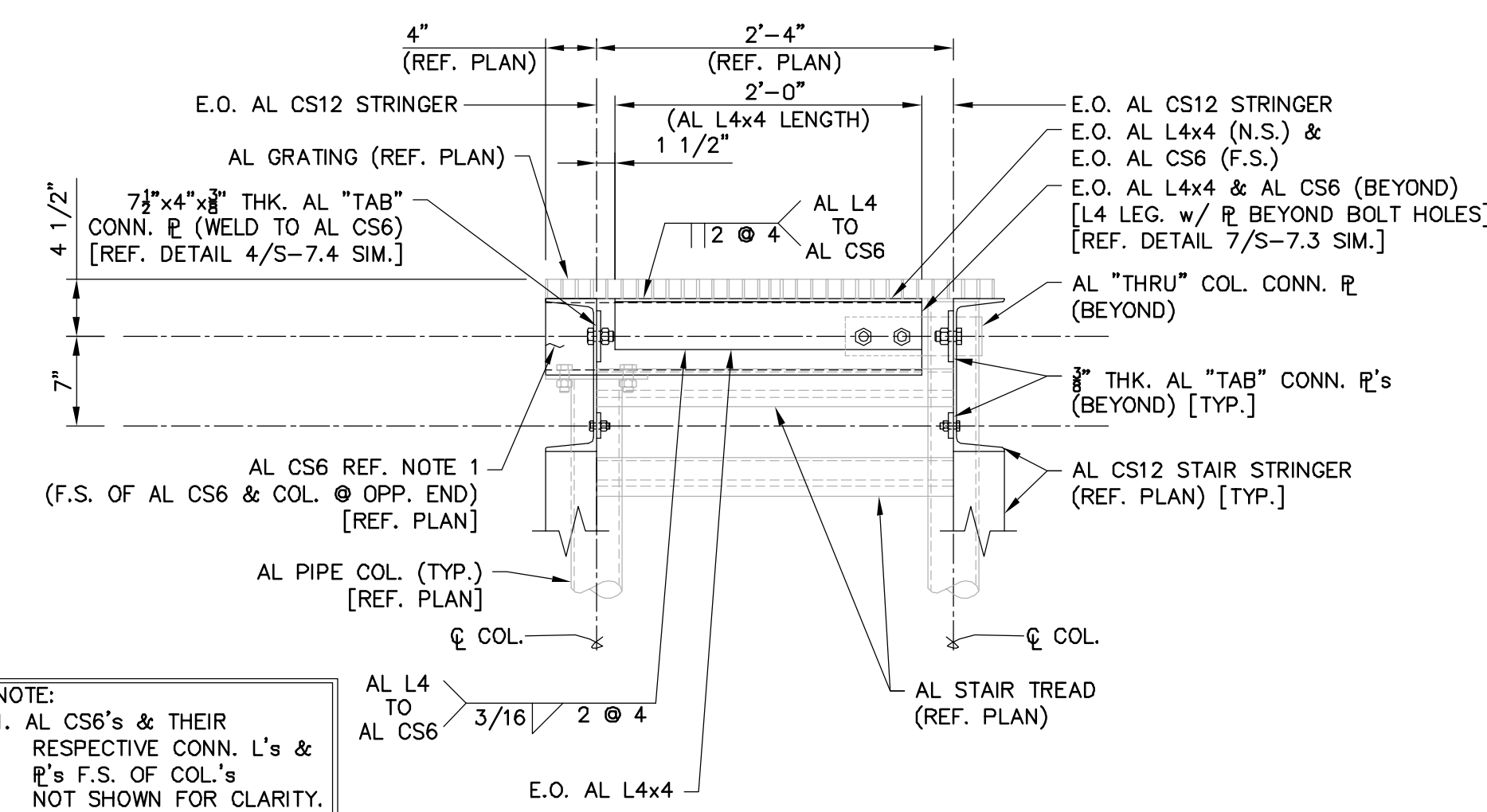
2 - DETAIL - TYP. AL STAIR / SLAB-ON-GRADE CONN.
SCALE: 1" = 1'-0"



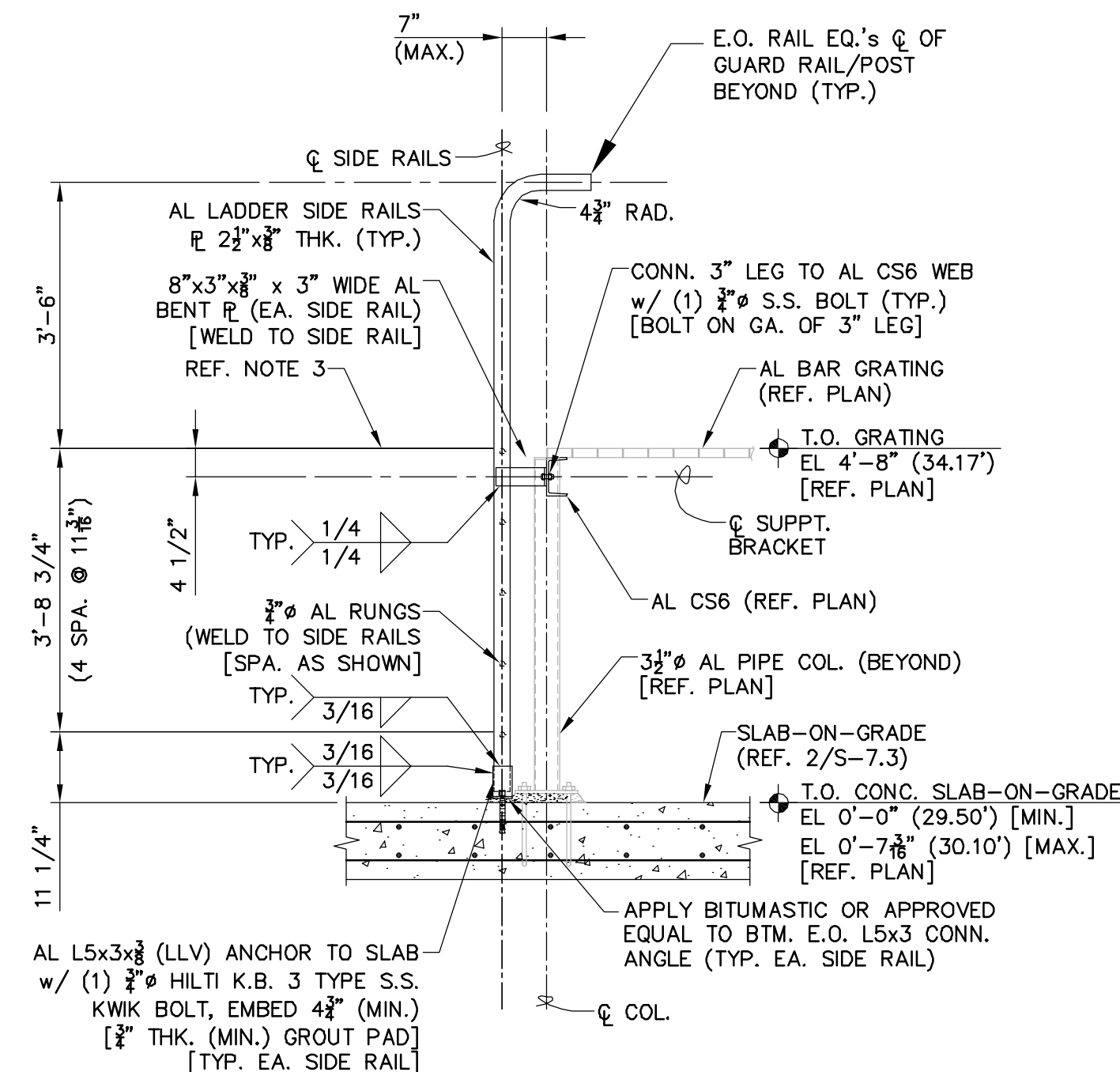
3 - DETAIL - TYP. AL STAIR INFO
SCALE: 1" = 1'-0"



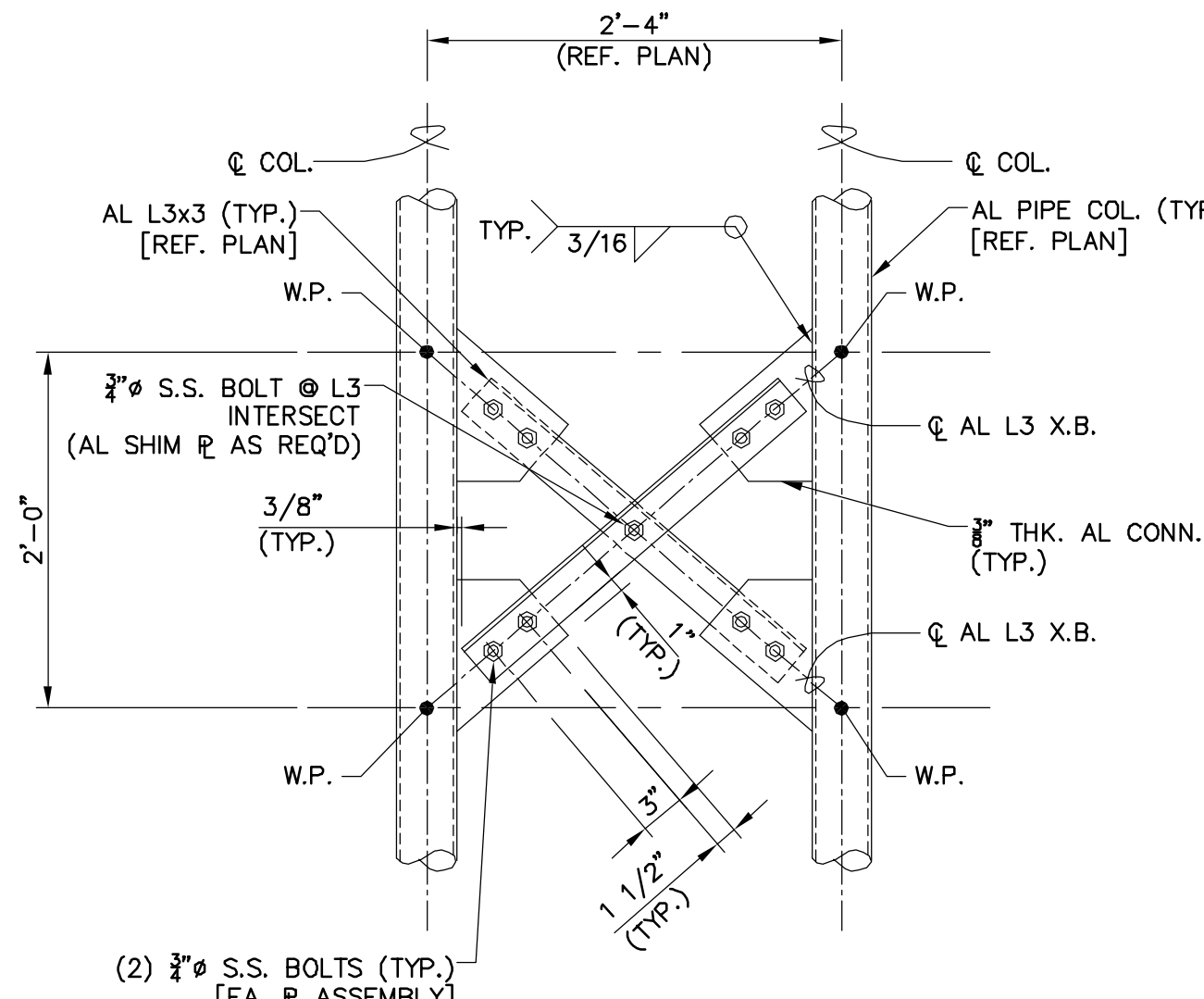
4 - DETAIL - TYP. AL PIPE COL. / AL STAIR AL CS12 CONN.
SCALE: 1" = 1'-0"



5 - SECTION - AL STAIR FRMG. & GRATING SUPPT.
SCALE: 1" = 1'-0"

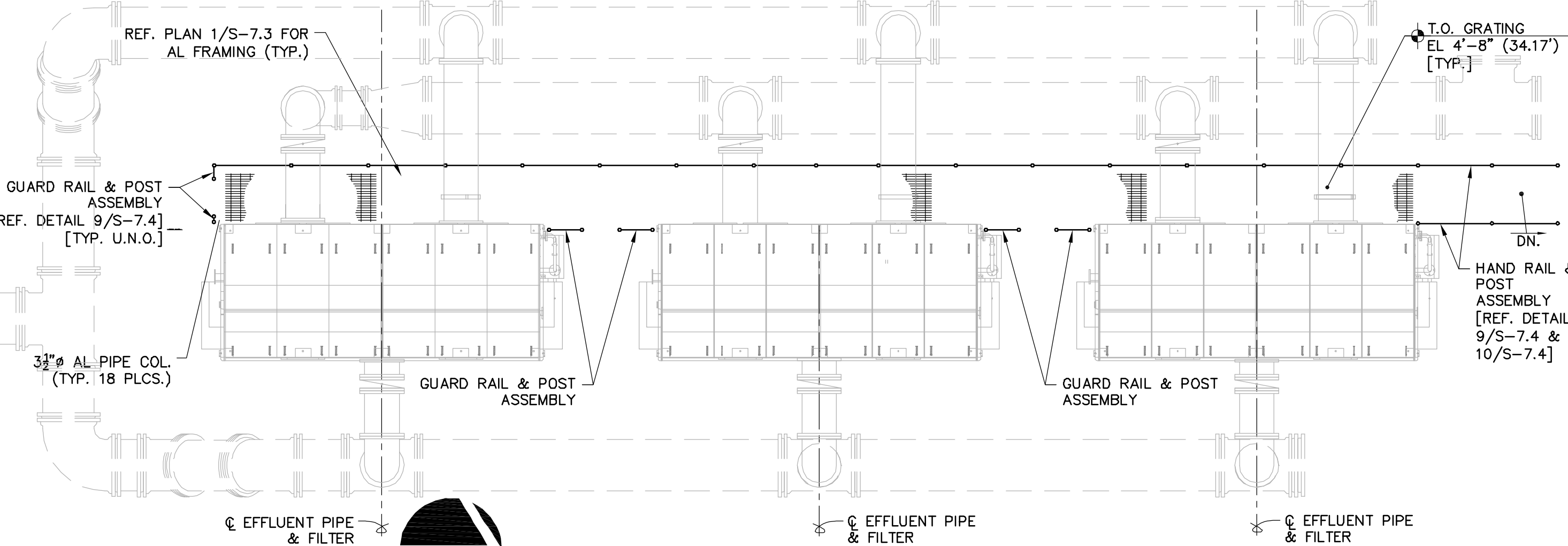


6 - SECTION - TYP. AL ACCESS LADDER FRMG.
SCALE: 1/2" = 1'-0"

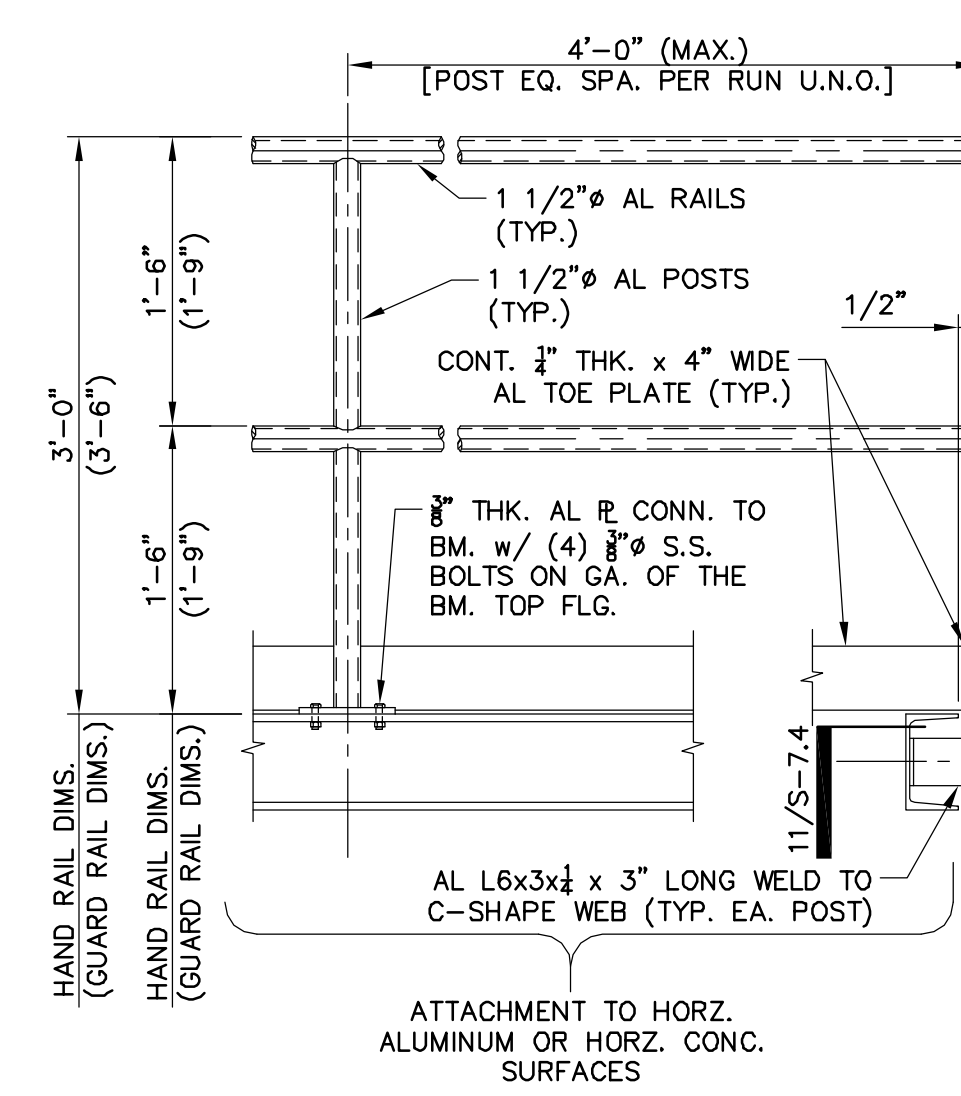


7 - DETAIL - AL PLATFORM E/W DIR. "X"-BRACING
SCALE: 1" = 1'-0"

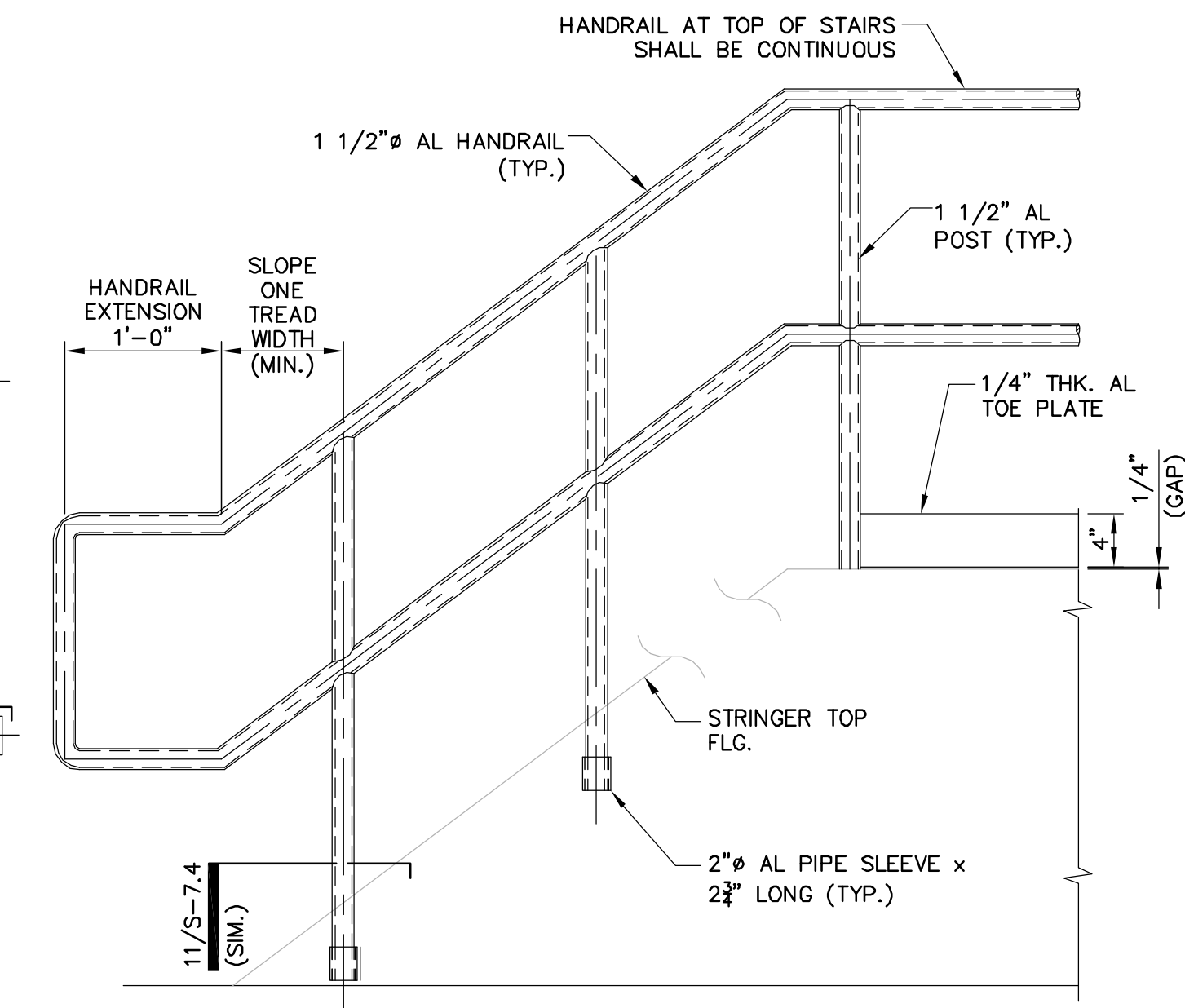
- NOTES:**
- REFERENCE DWG. S-0.1 FOR ADDITIONAL GENERAL NOTES & DESIGN CRITERIA.
 - REFERENCE DWG. S-7.3 FOR ADDITIONAL AL PLATFORM FRAMING & SLAB-ON-GRADE REQUIREMENTS.
 - T.O. AL GRATING EL EQUALS THE T.O. TOP RUNG EL FOR THE AL LADDER SECTIONS.
 - IN GENERAL FOR PLATFORM CONNECTIONS NOT SHOWN IT IS THE FABRICATOR'S RESPONSIBILITY TO PROVIDE IN THE PROJECT SHOP DRAWINGS.
 - HAND RAIL & GUARD RAIL ASSEMBLY INFORMATION AS FOLLOWS:
 - PROVIDE HAND RAIL ALONG STAIR RUNS & GUARD RAIL AT PLATFORMS.
 - HANDRAILS DETAILS SHOWN DEPICT INTENT OF HANDRAIL INSTALLATION. HANDRAIL FABRICATOR/INSTALLER SHALL BE RESPONSIBLE FOR ADHERING TO FLORIDA BUILDING, OSHA & ADDITIONAL JURISDICTION CODES THAT MAY BE APPLICABLE. IT IS THE GENERAL CONTRACTOR'S (GC) RESPONSIBILITY TO VERIFY APPLICABLE CODES W/ THE INSPECTOR FOR THE LOCAL JURISDICTION.
 - HANDRAIL DETAILS SHOWN ARE 1 1/2" ALUMINUM POSTS AND RAILS. REFERENCE DWG. S-0.1 GENERAL NOTES & DESIGN CRITERIA, IN ADDITION TO THE PROJECT SPECS. FOR MATERIAL REQUIREMENTS.
 - COORDINATE W/ MECH. DWGS THE REQUIRED LOCATIONS OF HANDRAIL/GUARDRAIL ASSEMBLIES. GC TO VERIFY LOCATIONS W/ THE INSPECTOR FOR THE LOCAL JURISDICTION, IF APPLICABLE.
 - WHERE ALUMINUM MEETS CONCRETE OR DISSIMILAR METALS, BITUMASTIC OR AN APPROVED EQUAL SHALL BE APPLIED TO THE MATING SURFACE.
 - HANDRAIL CENTERLINE TO EDGE OF CONCRETE DIMENSION SHALL BE 6" (MIN.) U.N.O. WHERE APPLICABLE.
 - GAP FOR TOE PLATE ABOVE WALKING SURFACE U.N.O.
 - POST & HANDRAIL FABRICATOR TO PROVIDE HARDWARE AND/OR JOINTS FOR THERMAL EXPANSION / CONTRACTION AS REQ'D.



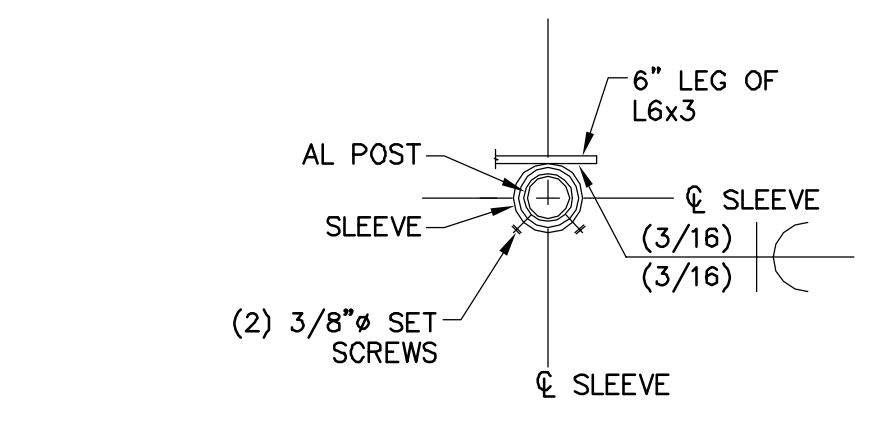
8 - PLAN - AL HAND & GUARDRAIL LAYOUT
SCALE: 3/16" = 1'-0"



9 - DETAIL - AL HAND / GUARD RAIL & POST CONN.'s
SCALE: 1" = 1'-0"



10 - DETAIL - AL RAIL STAIR STRINGER INFO.
SCALE: 1" = 1'-0"



11 - SECTION - AL POST C-SHAPE CONN.
SCALE: 1 1/2" = 1'-0"

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REVNO.	DESCRIPTIONS	DATE

WILLIAM F. BAND, P.E.
No. 67838

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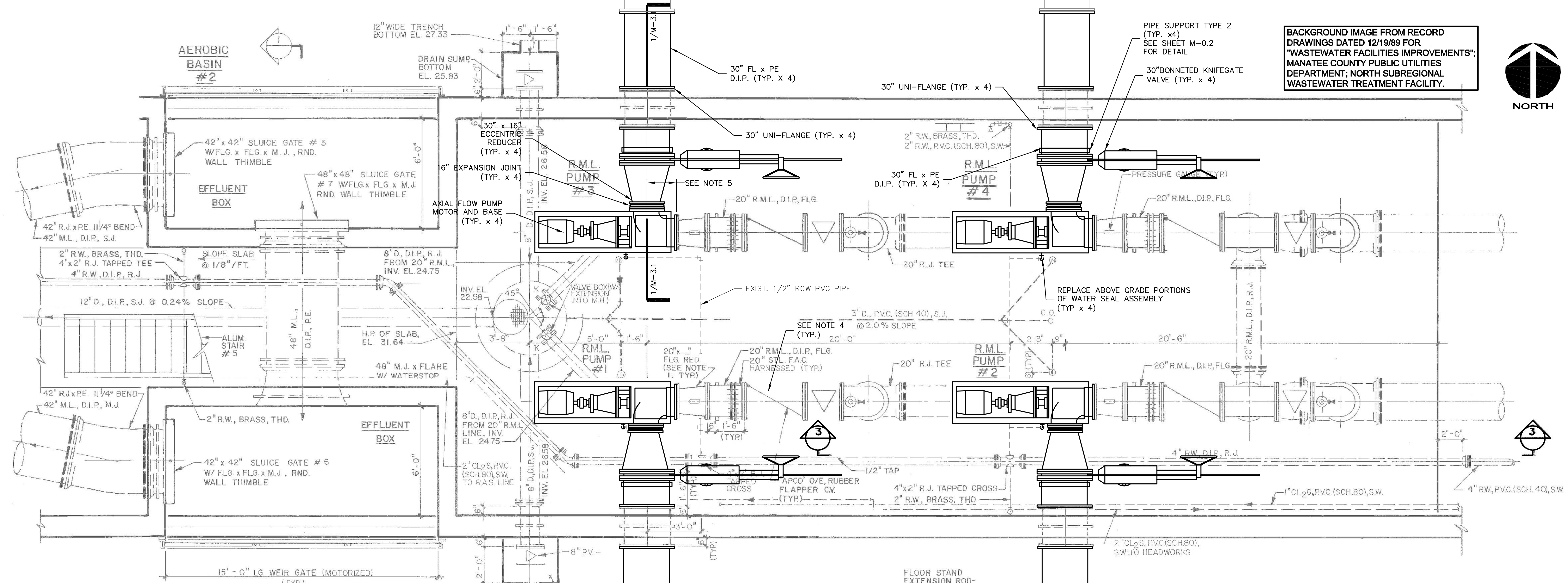
MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
LAKE GRAVITY DISC FILTER
ADDITIONAL FOUNDATION & FRAMING
SECTIONS AND DETAILS

DATE: JULY 2011	SCALE: AS NOTED	DRAWING NUMBER: S-7.4
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DESIGNED: WFB		
CHECKED: JSL		
PROJ. MGR: DCW		
STATUS: ISSUED FOR BID		

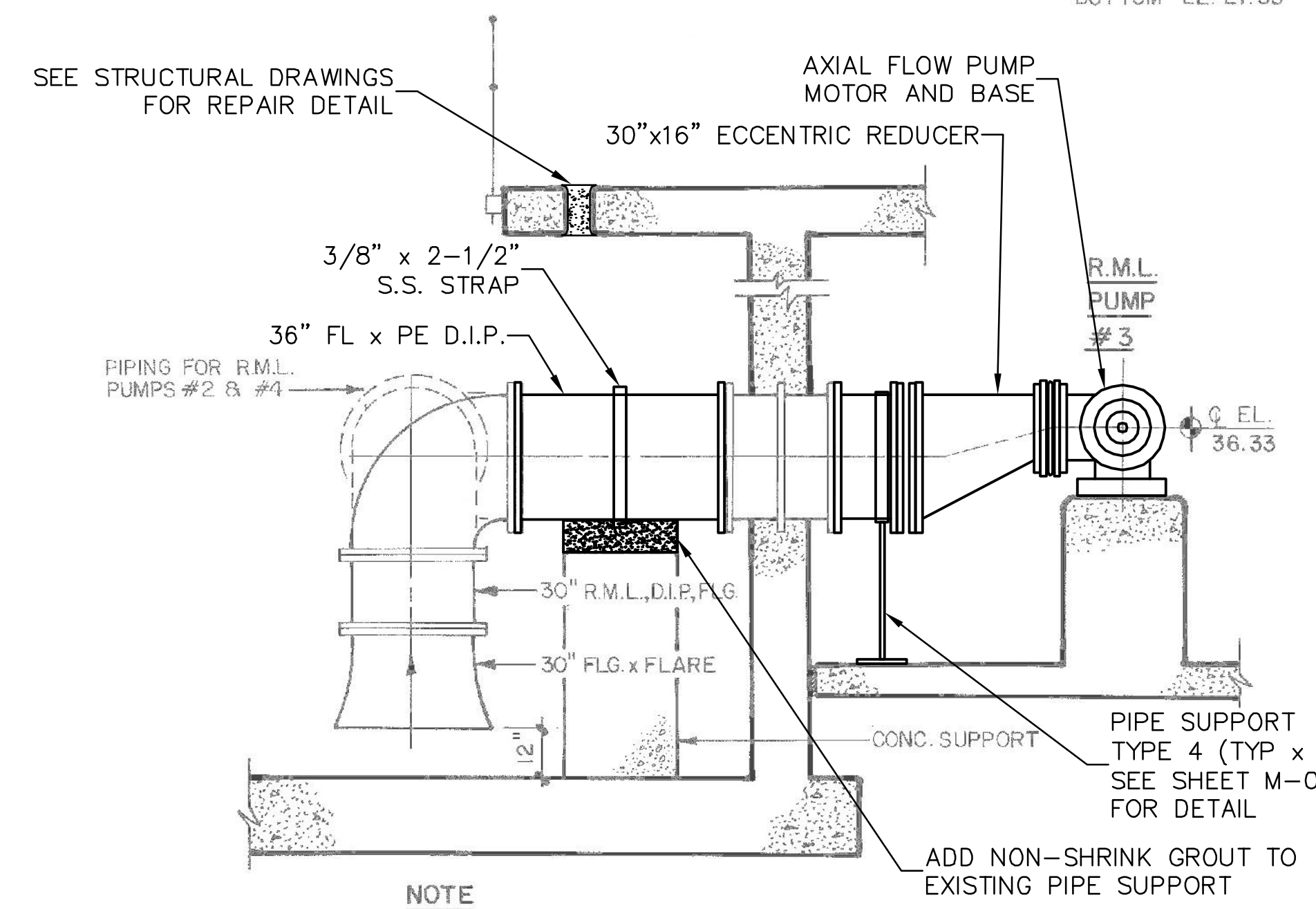


BACKGROUND IMAGE FROM RECORD DRAWINGS DATED 12/19/89 FOR "WASTEWATER FACILITIES IMPROVEMENTS", MANATEE COUNTY PUBLIC UTILITIES DEPARTMENT, NORTH SUBREGIONAL WASTEWATER TREATMENT FACILITY.

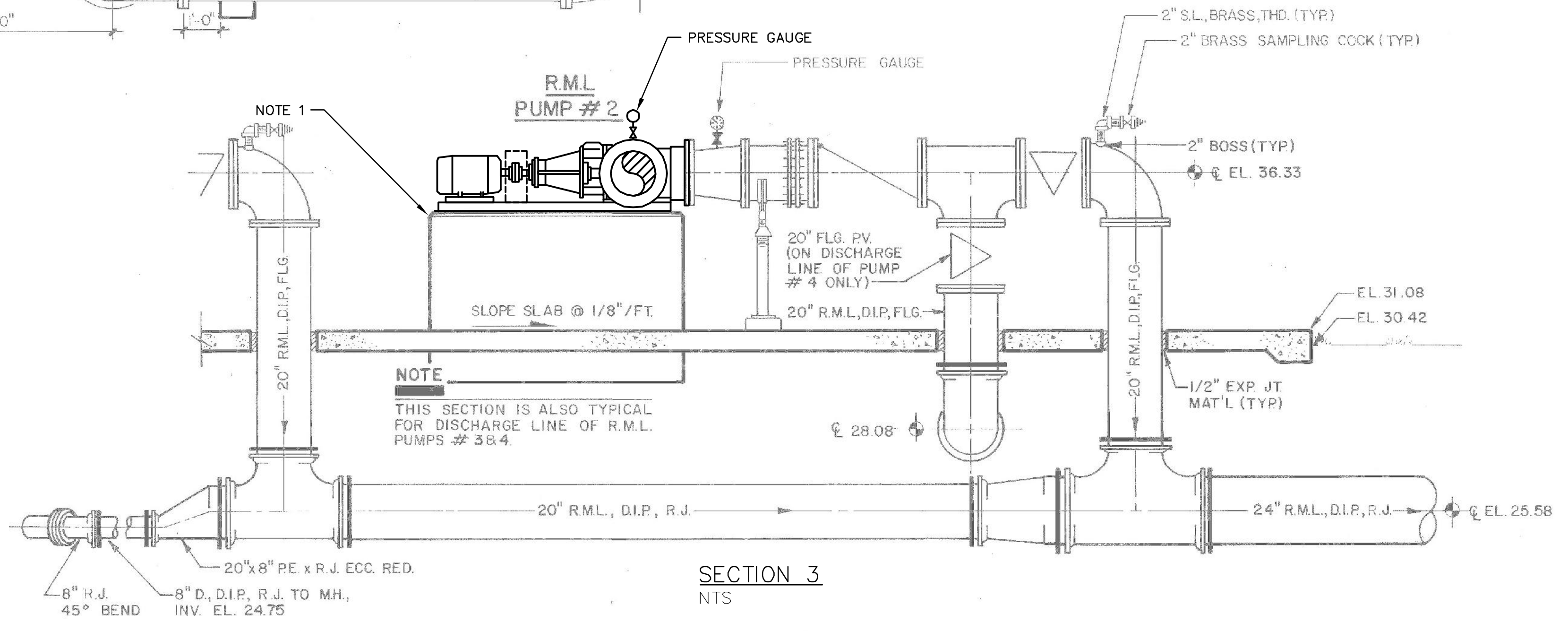


LOWER PLAN NTS

- NOTES:
1. ADJUST CONCRETE PUMP SUPPORT PADS TO ACCOMMODATE NEW PUMP DIMENSIONS.
 2. TEST AND PROVIDE A REPORT REGARDING THE CONDITION OF THE EXISTING POWER WIRE TO THE INTERNAL RECYCLE PUMPS. WIRE SHALL BE REPLACED AS DIRECTED BY THE OWNER AND AS PROVIDED IN THE BID ITEMS.
 3. THE BASIN SHALL BE DEWATERED AND PHASED AS APPROVED BY THE ENGINEER AND OWNER PRIOR TO THE START OF WORK.
 4. PROVIDE VALVE POSITION INDICATOR WITH LIMIT SWITCH ON EXISTING CHECK VALVES.
 5. EXISTING DISTANCE IS 19". IF SELECTED EQUIPMENT DIFFERS, CONTRACTOR TO PROVIDE FLANGE FILLERS, CUT EXISTING SPOOL OR PROVIDE NEW SPOOL AS NEEDED TO MAKE SELECTED EQUIPMENT FIT.



NOTE
SECTION IS TYPICAL FOR R.M.L. PUMPS #1, 2, 3 & 4, EXCEPT FOR SECTION PIPING BEFORE 30" P.V. & AFTER 30" FLG. x FLARE - SEE PLAN FOR ADDITIONAL INFORMATION.
SECTION 1



NOTE
THIS SECTION IS ALSO TYPICAL FOR DISCHARGE LINE OF R.M.L. PUMPS #3 & 4

SECTION 3 NTS

REV.	DATE	DESCRIPTION

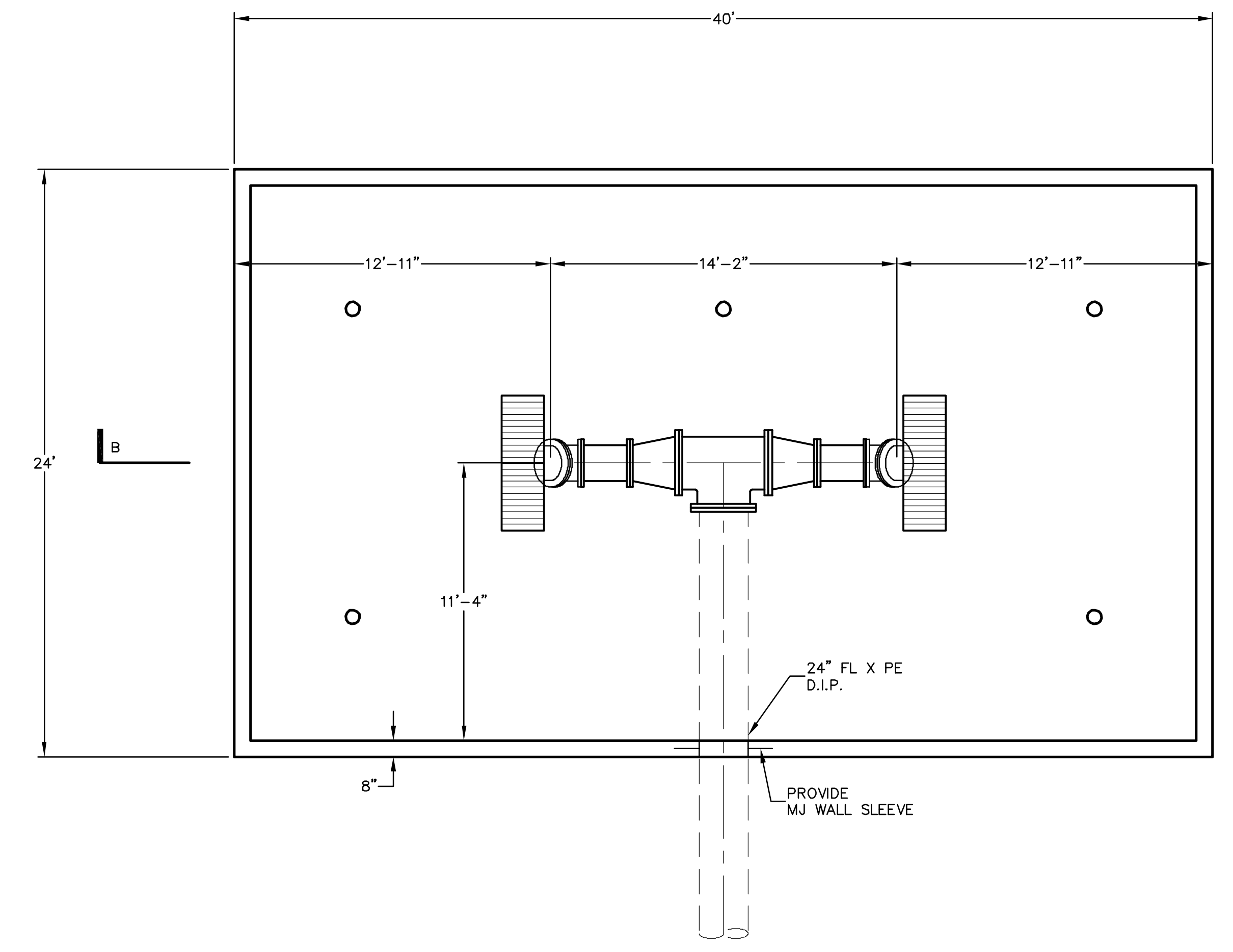
BLAKE R. PETERS, P.E.
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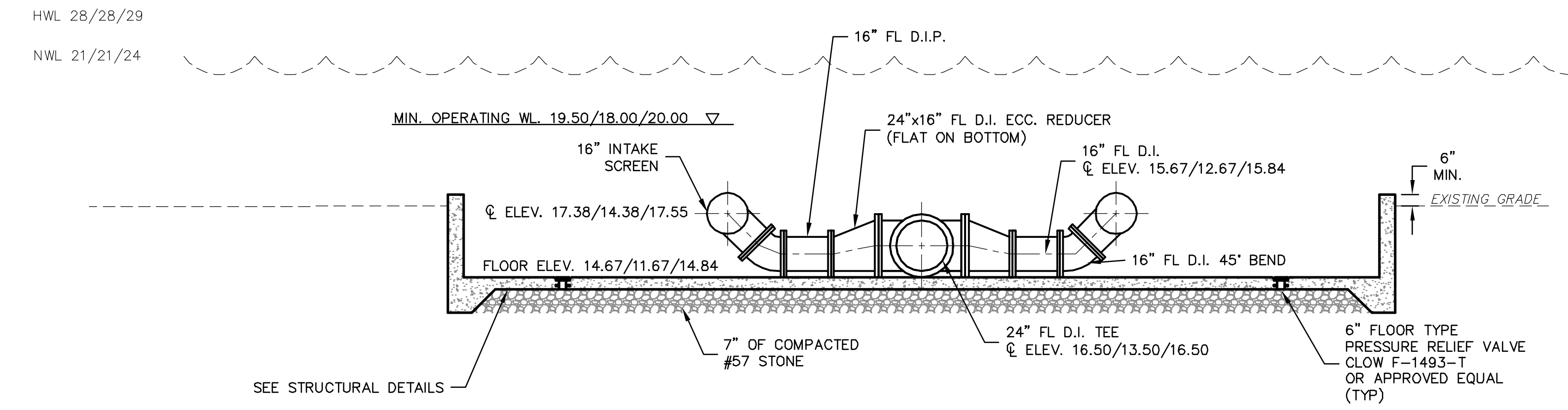
MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
NEW INTERNAL RECYCLE PUMPS
PLAN AND SECTIONS

DATE: JULY 2011	SCALE: NTS	DRAWING NUMBER: M-3.1
MCE PROJ. # 1024-0143	HORIZONTAL: NTS	REVISION: ISSUED FOR BID
DRAWN: BFN	VERTICAL: NTS	
DESIGNED: NJS		
CHECKED: DCW		
PROJ. MGR. DCW		

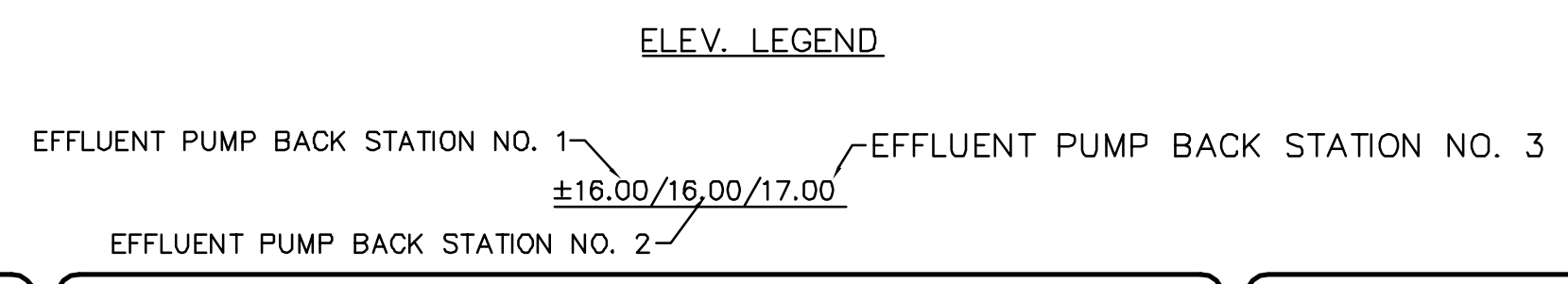


INTAKE STRUCTURE
SCALE: 1/4" = 1'



SECTION B
SCALE: 1/4" = 1'

- NOTES:**
- TWO EFFLUENT PUMP BACK STATIONS SHALL REMAIN ON-LINE AT ALL TIMES.
 - THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT COFFER DAMS AS REQUIRED TO PERFORM THE WORK WITHIN THE STORAGE LAKES.



ELEV. LEGEND

REV. NO.	DESCRIPTIONS	DATE

SEAL
DAVID C. WEHNER, P.E.
No. 59541

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MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1

**INTAKE STRUCTURE
PLANS AND SECTIONS**

DATE:	JULY 2011
MCE PROJ. #	1024-0143
DRAWN:	DMP
DESIGNED:	DCW
CHECKED:	JSL
PROJ. MGR.	DCW
STATUS:	ISSUED FOR BID

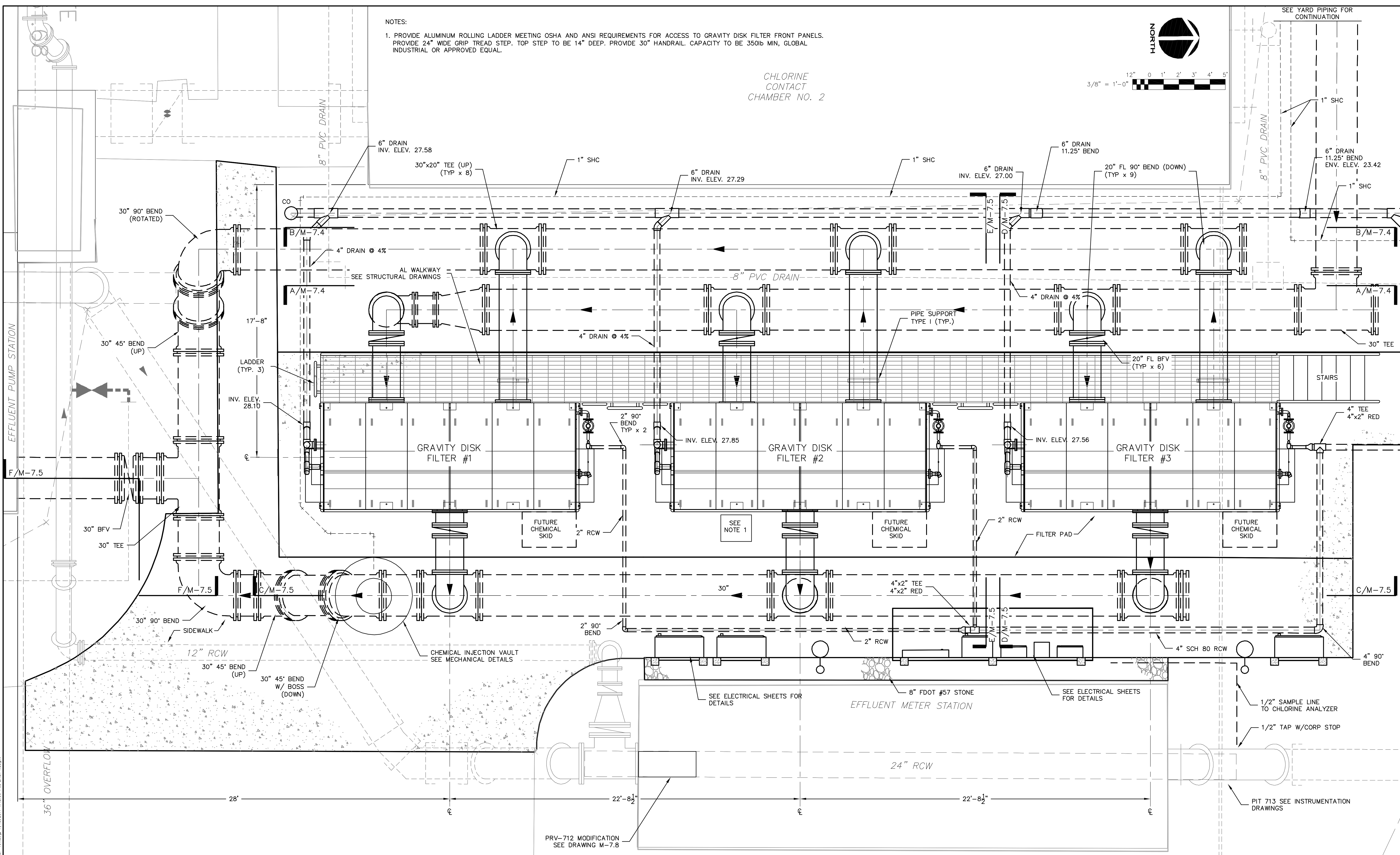
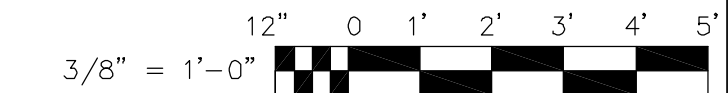
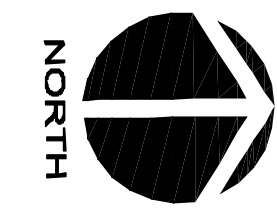
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HORIZONTAL:	AS SHOWN
VERTICAL:	AS SHOWN
REVISION:	M-7.2

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NOTES:

1. PROVIDE ALUMINUM ROLLING LADDER MEETING OSHA AND ANSI REQUIREMENTS FOR ACCESS TO GRAVITY DISK FILTER FRONT PANELS. PROVIDE 24" WIDE GRIP TREAD STEP. TOP STEP TO BE 14" DEEP. PROVIDE 30" HANDRAIL. CAPACITY TO BE 350lb MIN, GLOBAL INDUSTRIAL OR APPROVED EQUAL.

CHLORINE CONTACT CHAMBER NO. 2



REV.	DATE	DESCRIPTION

DAVID C. WEHNER, P.E.
No. 59541

SEAL

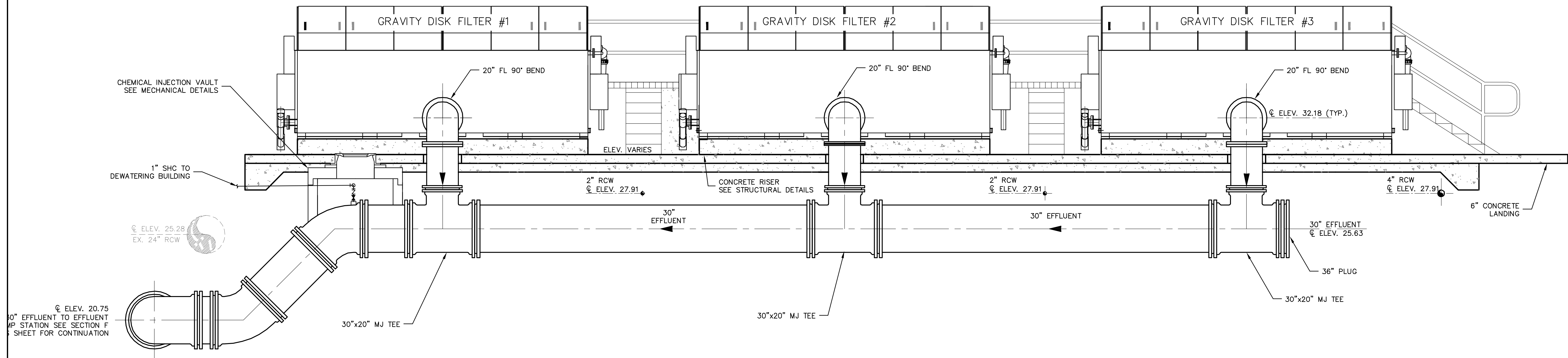
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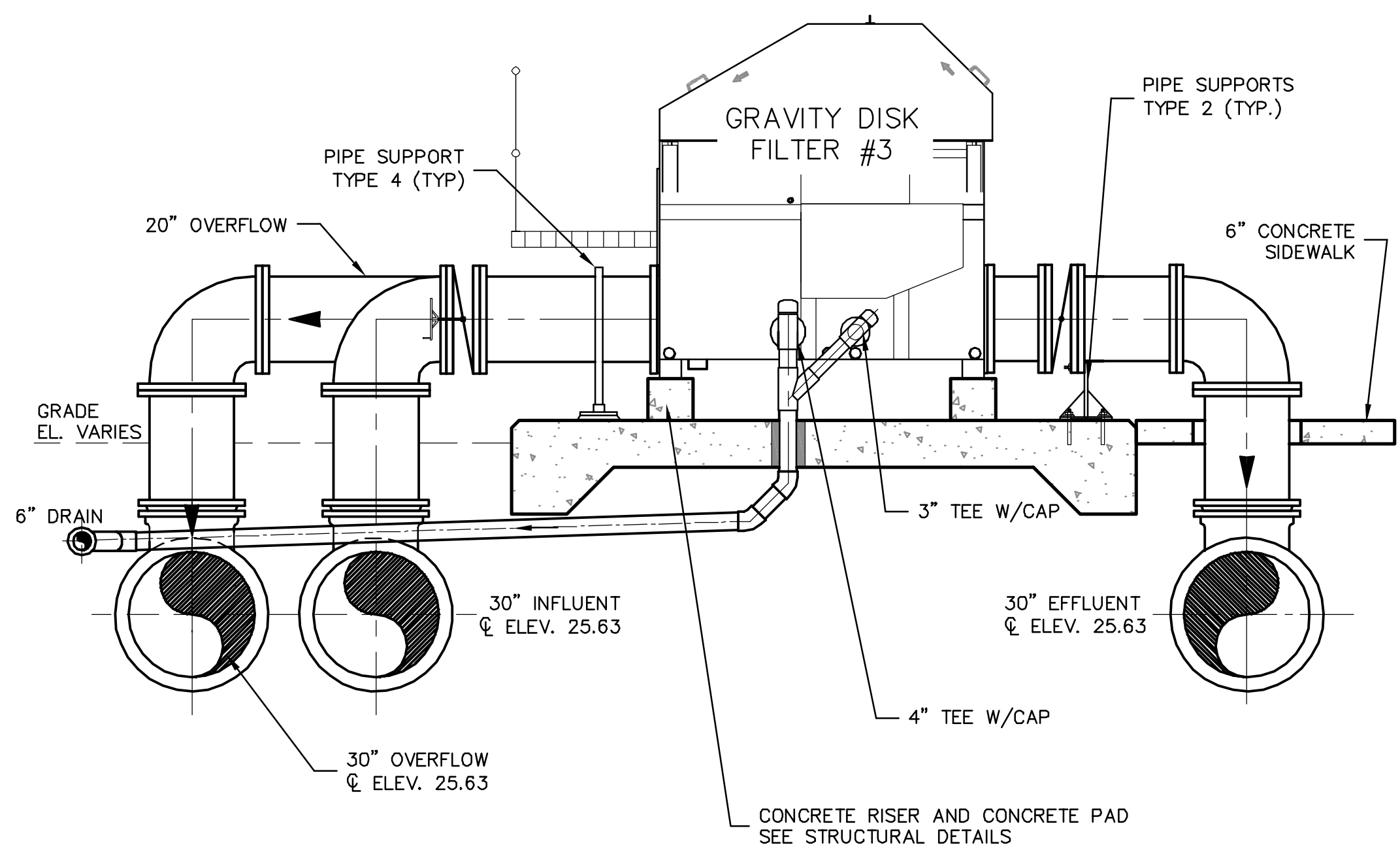
NWRF EXPANSION PHASE 1
LAKE GRAVITY DISK FILTER PLAN

DATE: JULY 2011	SCALE: HORIZONTAL: 3/8" = 1'-0"	DRAWING NUMBER: M-7.3
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DRAWN: BFN	PROJ. MGR: DCW	STATUS: ISSUED FOR BID

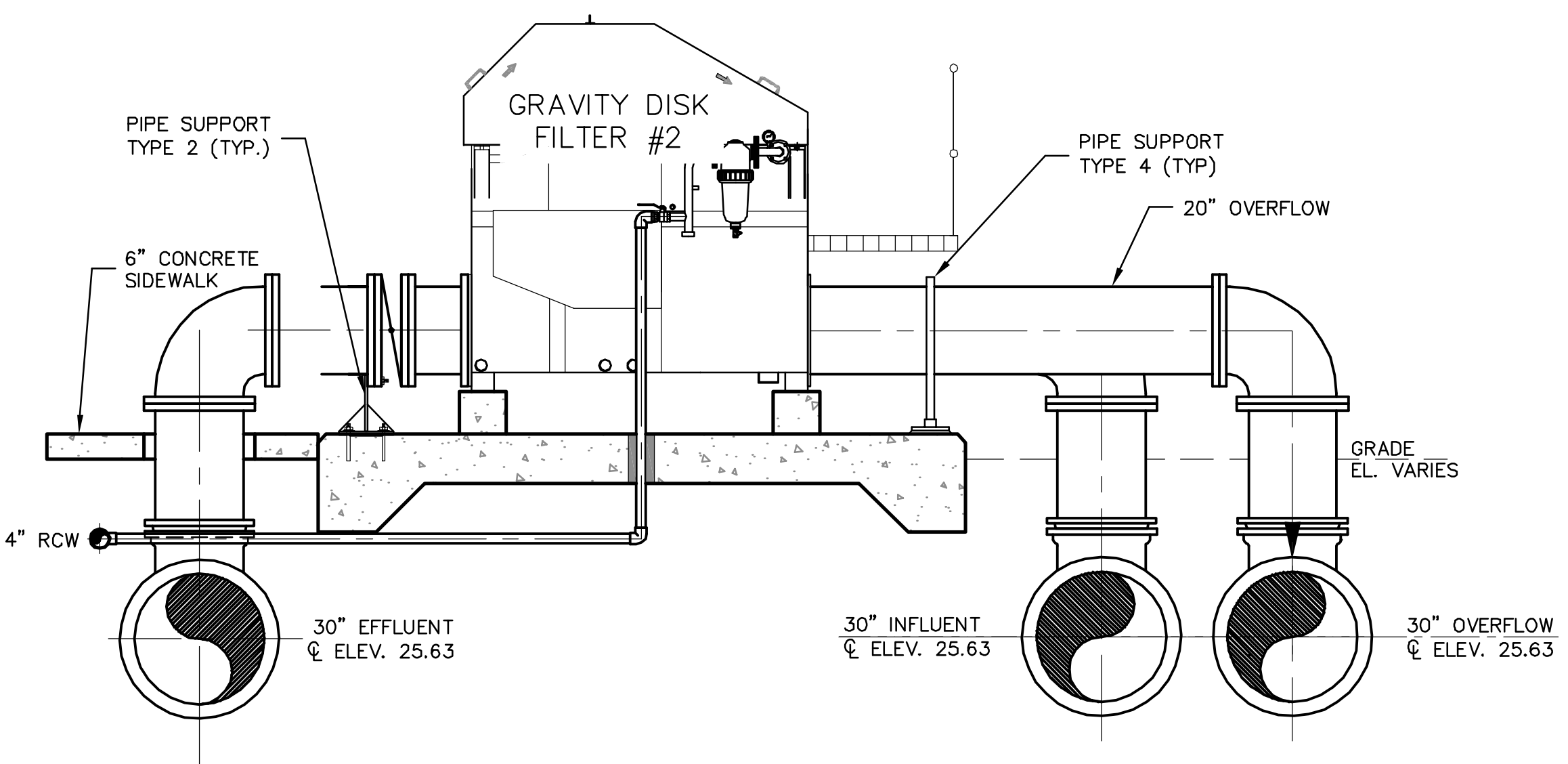
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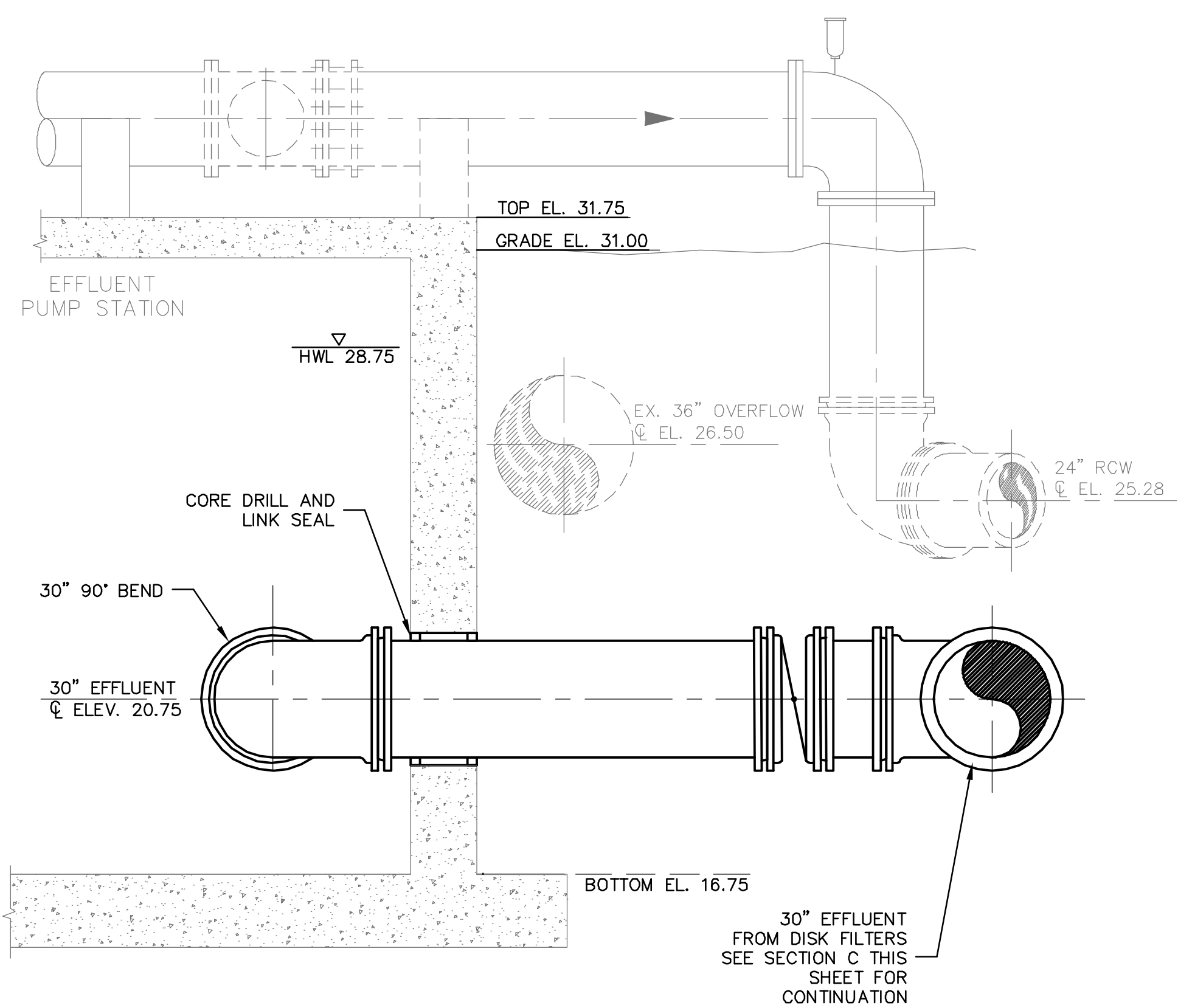
SECTION C/M-7.3
SCALE: 3/8" = 1'-0"



SECTION D/M-7.3
SCALE: 3/8" = 1'-0"



SECTION E/M-7.3
SCALE: 3/8" = 1'-0"



SECTION F/M-7.3
SCALE: 3/8" = 1'-0"

REV. NO.	DESCRIPTIONS	DATE

SEAL
DAVID C. WEHNER, P.E.
No. 59541

SEAL

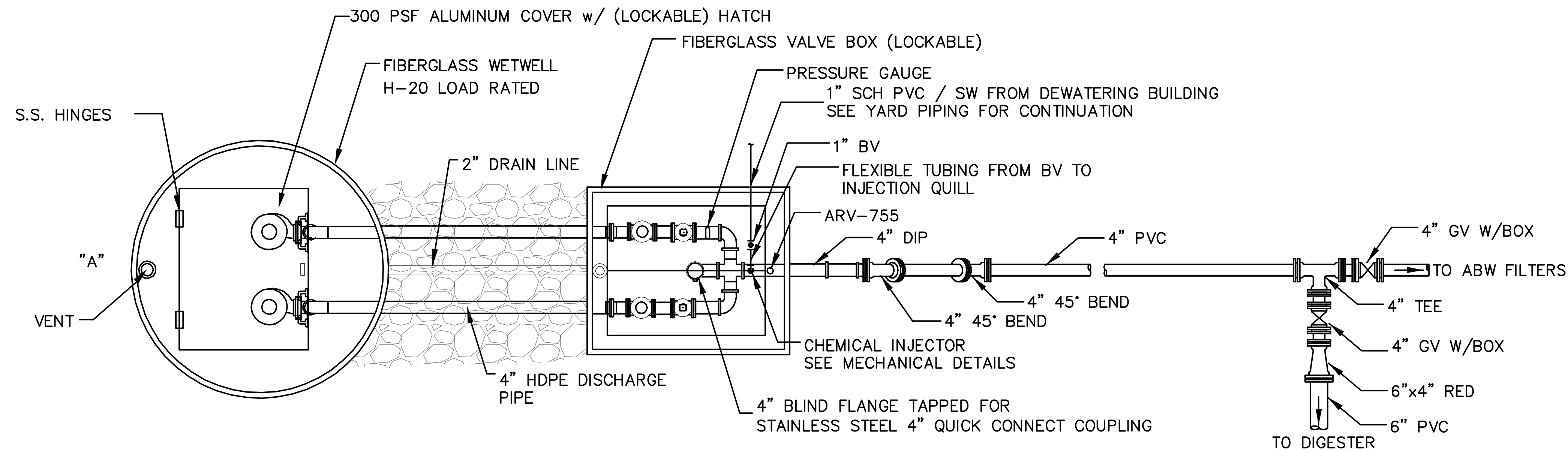
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MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
LAKE GRAVITY DISK FILTER SECTIONS 2

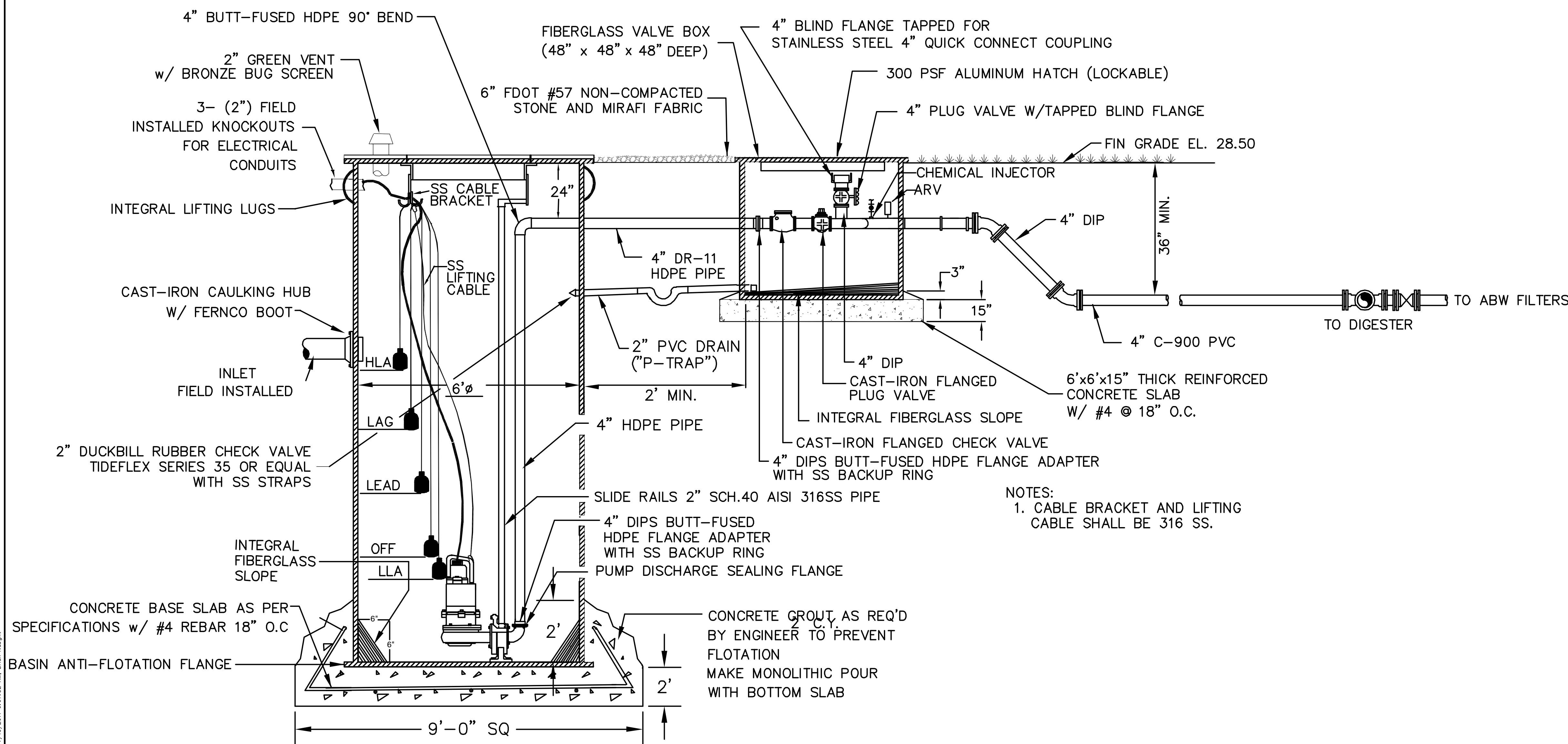
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DRAWN: BFN	VERTICAL: NA	
DESIGNED: DCW		
CHECKED: JSL		
PROJ. MGR: DCW		

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NOTE: PUMP CONTROL PANEL SHALL BE LOCATED 3 FEET MINIMUM FROM WETWELL PERIMETER AT POINT "A"

PLAN



NOTES:
 1. CABLE BRACKET AND LIFTING CABLE SHALL BE 316 SS.

SECTION

PUMP DATA		ELEVATIONS	
PRIMARY PUMP CAPACITY	200 GPM	TOP OF WETWELL	28.75
PRIMARY TDH	40' TDH	INLET INVERT	23.00
PUMP MANUFACTURER	FLYGT	HIGH LEVEL ALARM (HLA)	22.50
PUMP MODEL #	CP3102-181	2nd PUMP ON (LAG)	22.00
R.P.M.	1750	1st PUMP ON (LEAD)	21.00
HORSEPOWER	5	PUMPS OFF (OFF)	20.00
ELECTRICAL/VOLTS/PHASE	460/3	LOW LEVEL ALARM	19.50
PUMP DISCHARGE SIZE	4"	BOTTOM OF WETWELL	18.50
IMPELLER CODE	432	WETWELL DIAMETER	6'

PUMP DATA

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REV. NO.	DATE	DESCRIPTIONS	REVISIONS

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SCOTT R. SPOONER, P.E.
 No. 23273

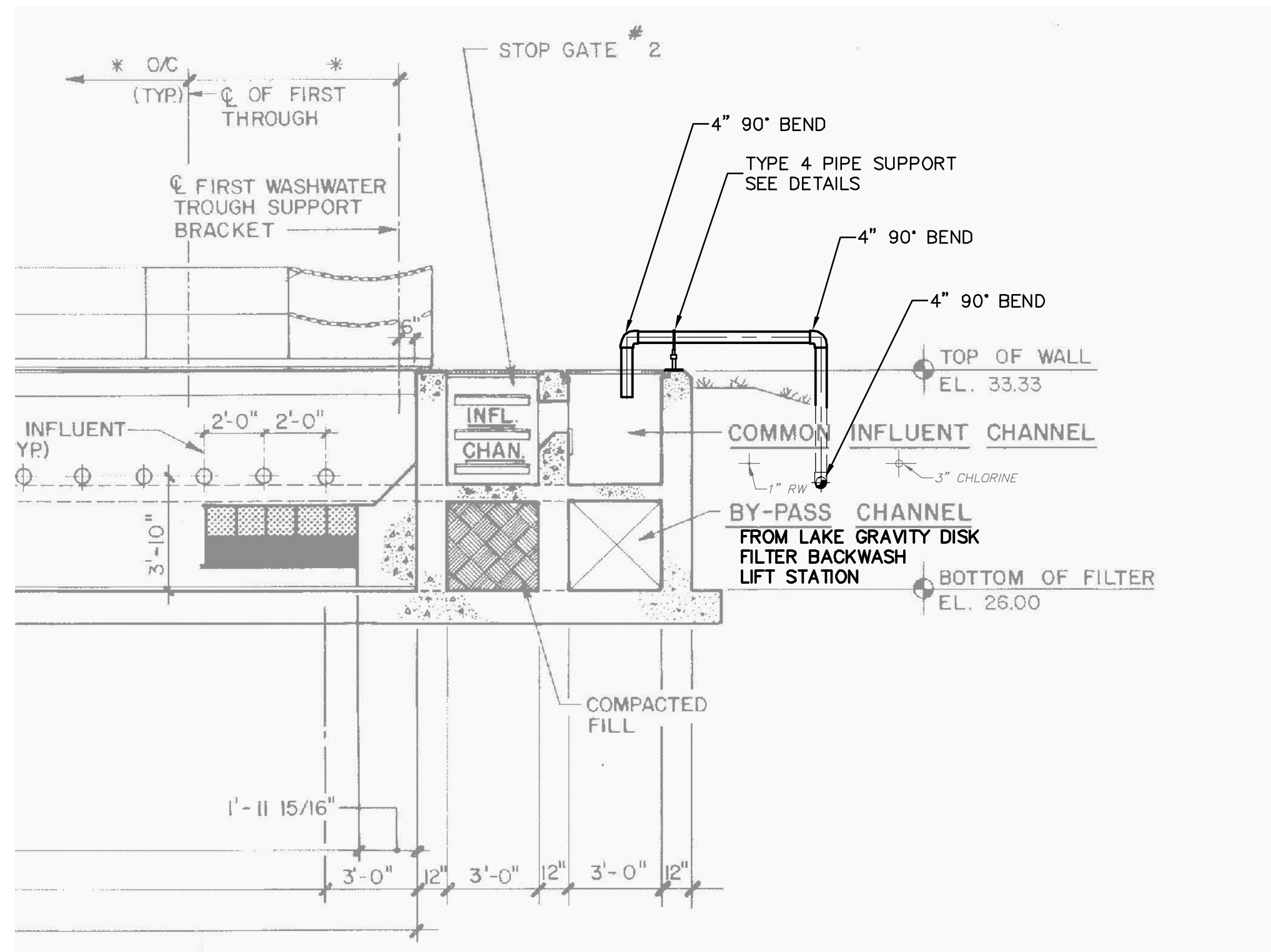
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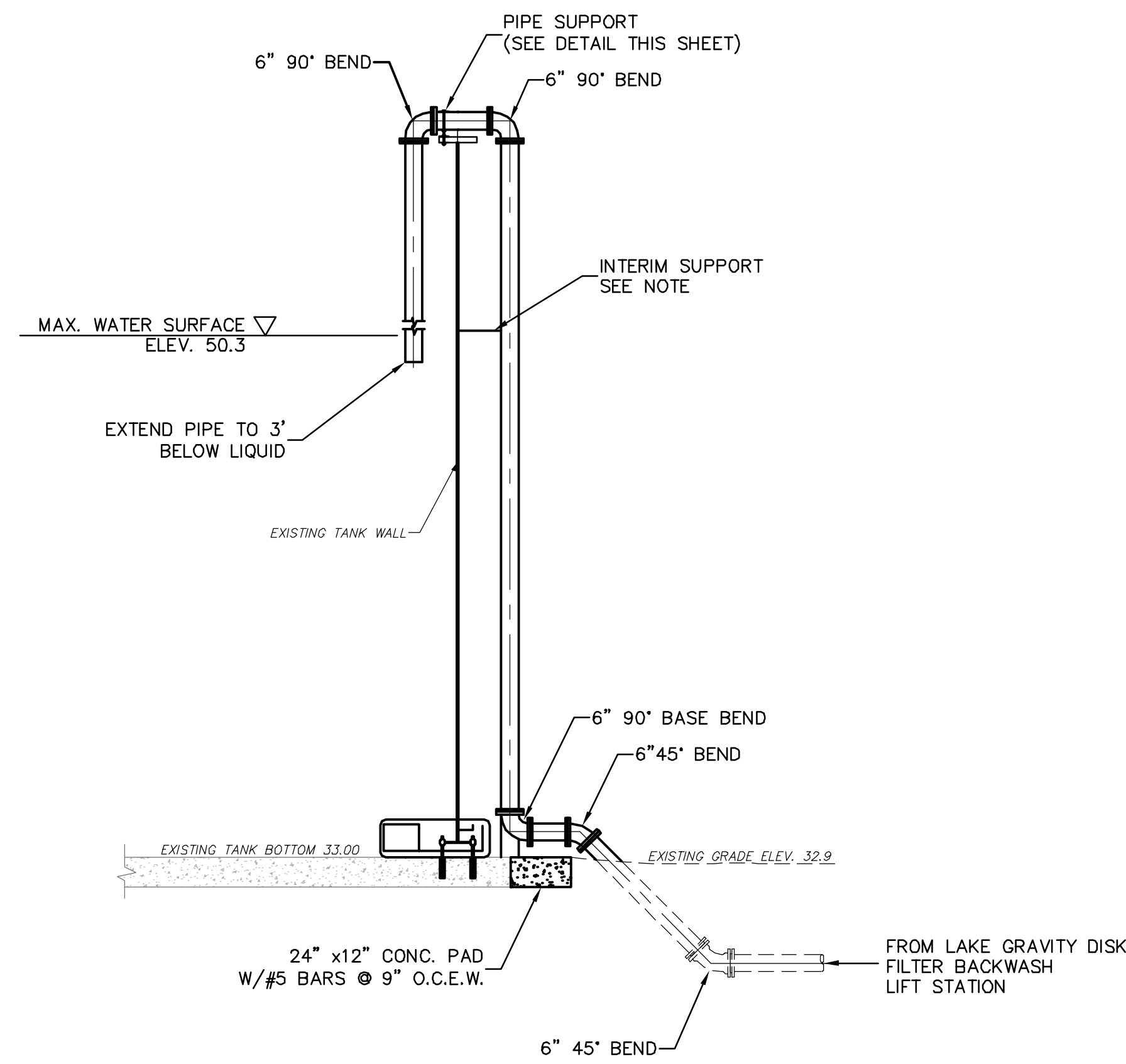
NWRF EXPANSION PHASE 1

LAKE FILTER BACKWASH PUMP STATION
 PLAN AND SECTION

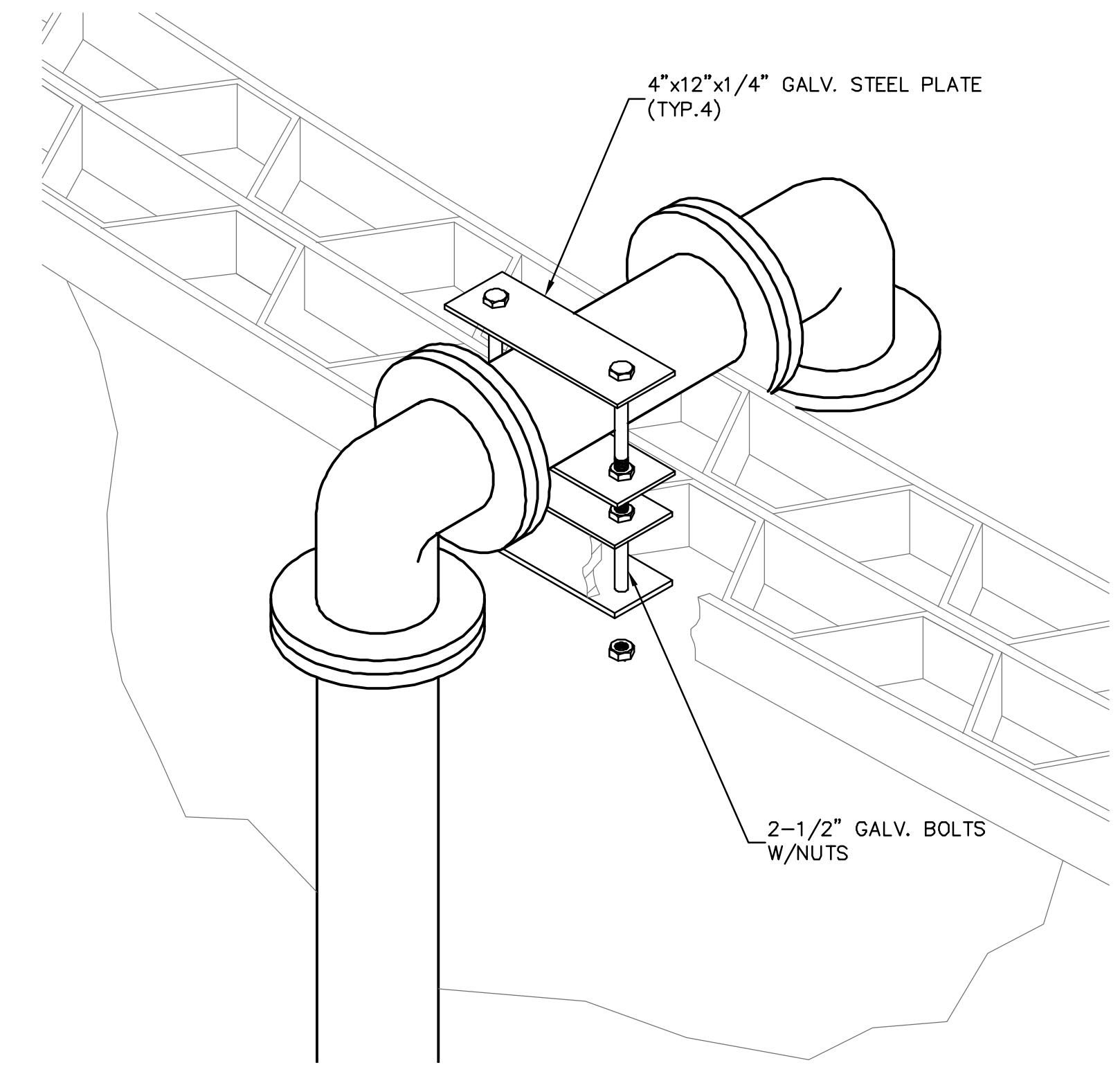
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DRAWN: DMP	VERTICAL: AS SHOWN	
DESIGNED: DCW		
CHECKED: JSL		
PROJ. MGR: DCW		
STATUS: ISSUED FOR BID		



ABW CONNECTION DETAIL
SCALE: 1/4" = 1'-0"



DIGESTER CONNECTION DETAIL
SCALE: 1/4" = 1'-0"



PIPE SUPPORT DETAIL
SCALE: 1-1/2" = 1'-0"

NOTE:
1. INSTALL PIPE SUPPORT AS SHOWN IN DETAIL LOCATED ON UPPER RIGHT CORNER OF THIS SHEET, EXCEPT SUPPORT SHALL BE ORIENTED IN HORIZONTAL CONFIGURATION. LOCATE SUPPORT AT EXTERIOR SUPPORT SYSTEM.

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REV. NO.	DATE	DESCRIPTIONS / REVISIONS

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SCOTT R. SPOONER, P.E.
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MANATEE COUNTY, FLORIDA

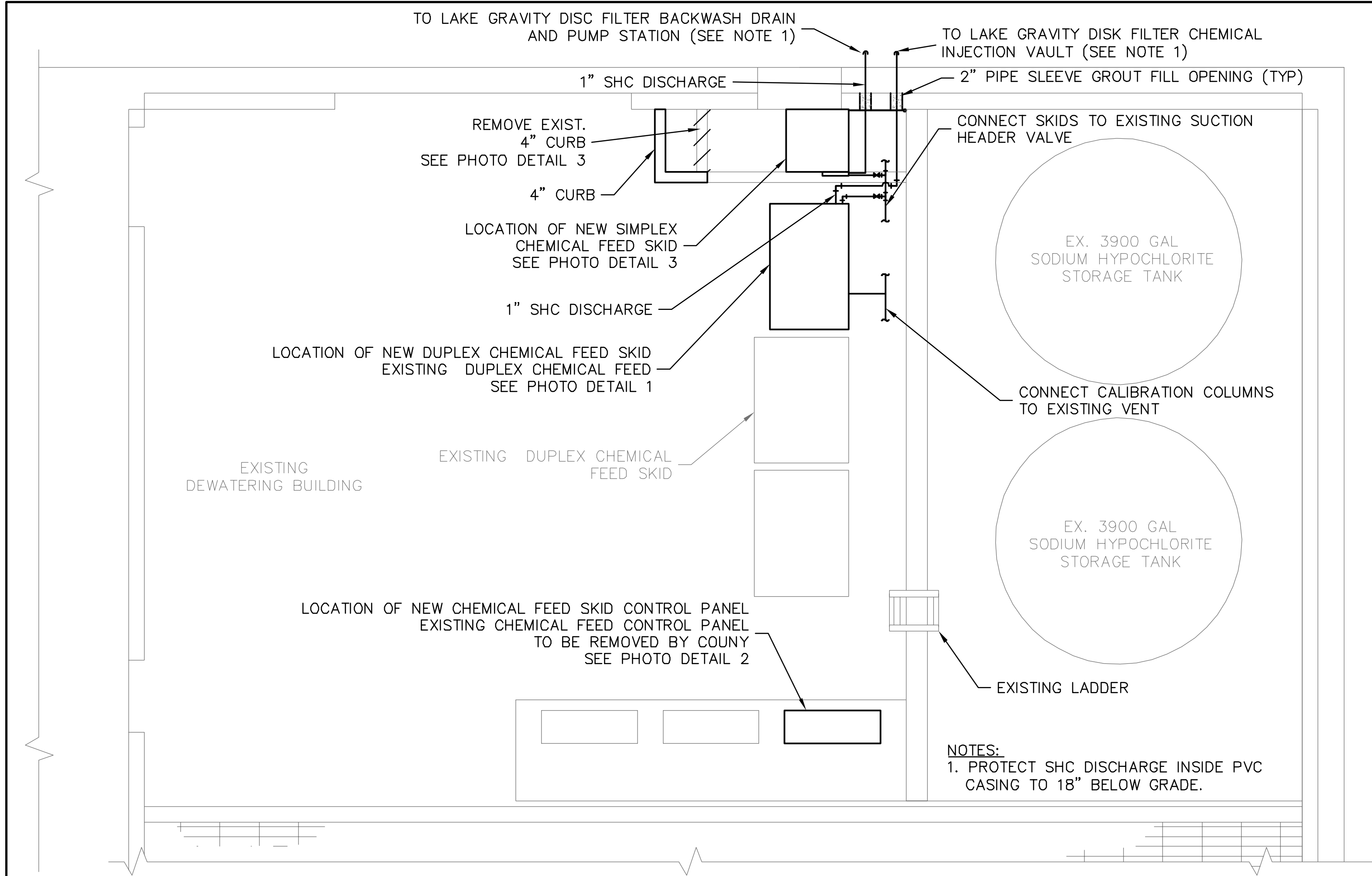
NWRF EXPANSION PHASE 1

ABW / DIGESTER CONNECTION DETAILS

DATE:	JULY 2011
MCE PROJ. #	1024-0143
DRAWN	DMP
DESIGNED	DCW
CHECKED	JSL
PROJ. MGR.	DCW

SCALE	DRAWING NUMBER
HORIZONTAL: AS SHOWN	M-7.7
VERTICAL: AS SHOWN	
REVISION	

STATUS: ISSUED FOR BID



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



PHOTO DETAIL 1
NTS

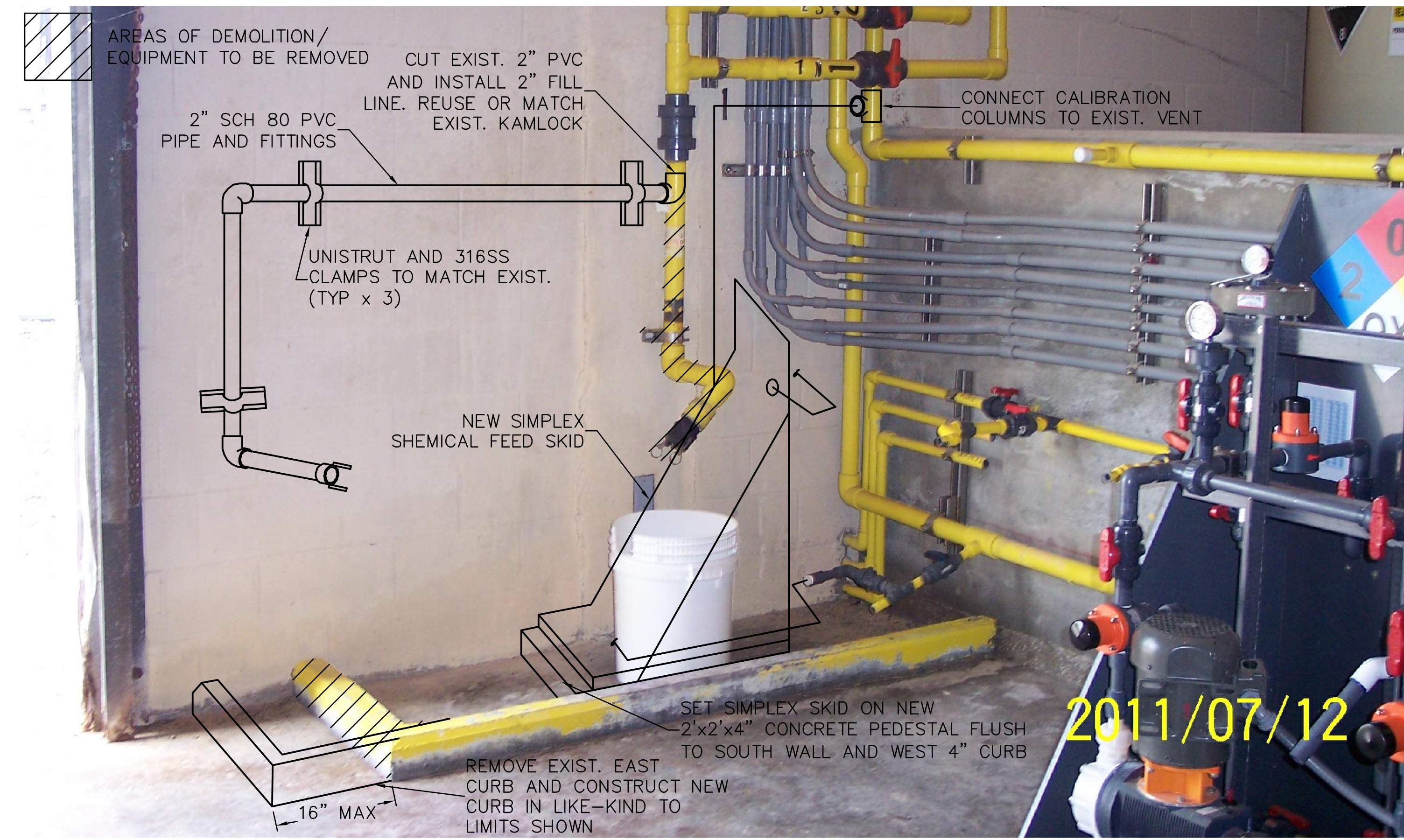


PHOTO DETAIL 3
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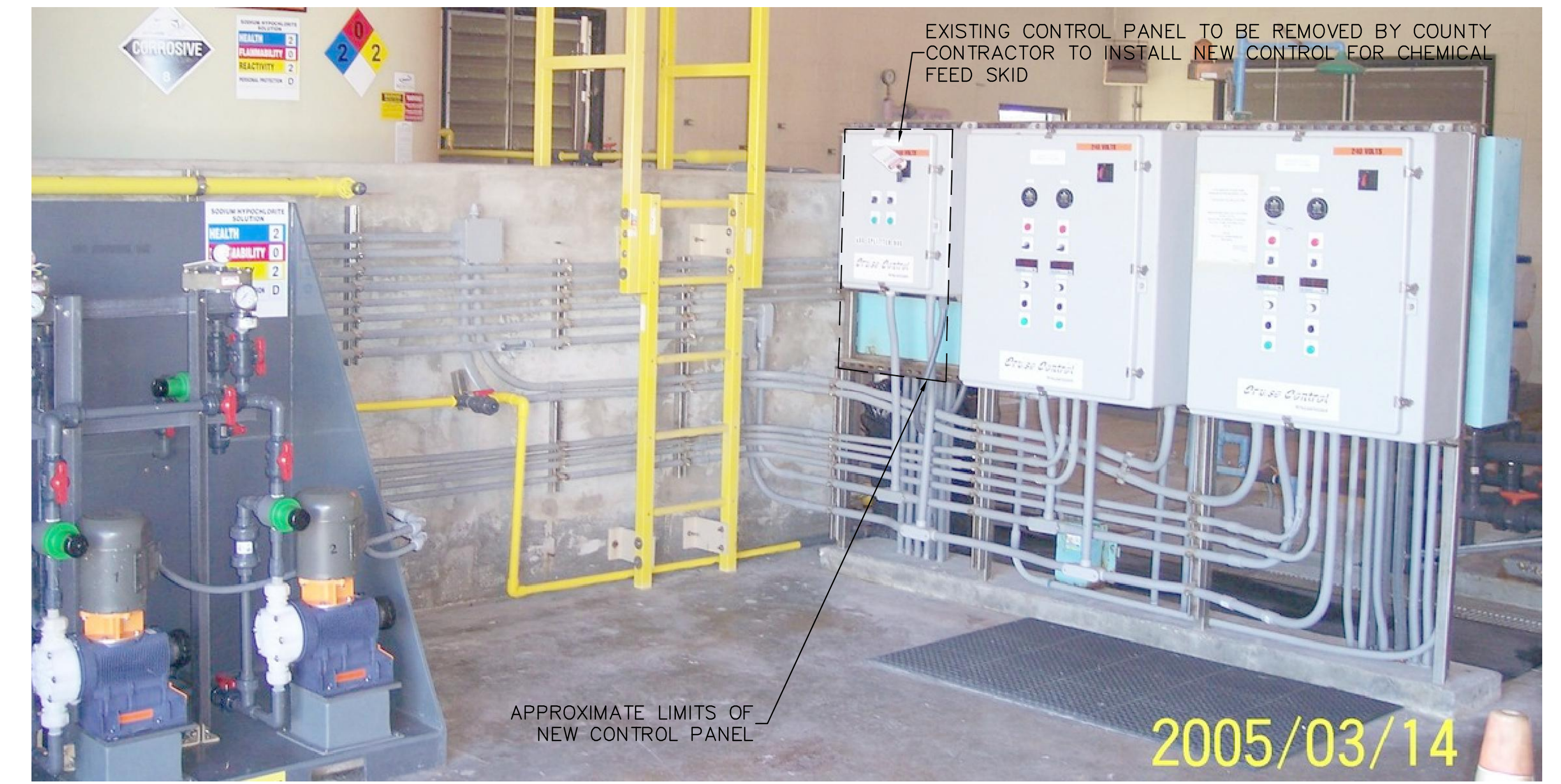


PHOTO DETAIL 2
NTS

REV. NO.	DATE	DESCRIPTIONS REVISIONS

SEAL
DAVID C. WEHNER, P.E.
No. 59541

SEAL

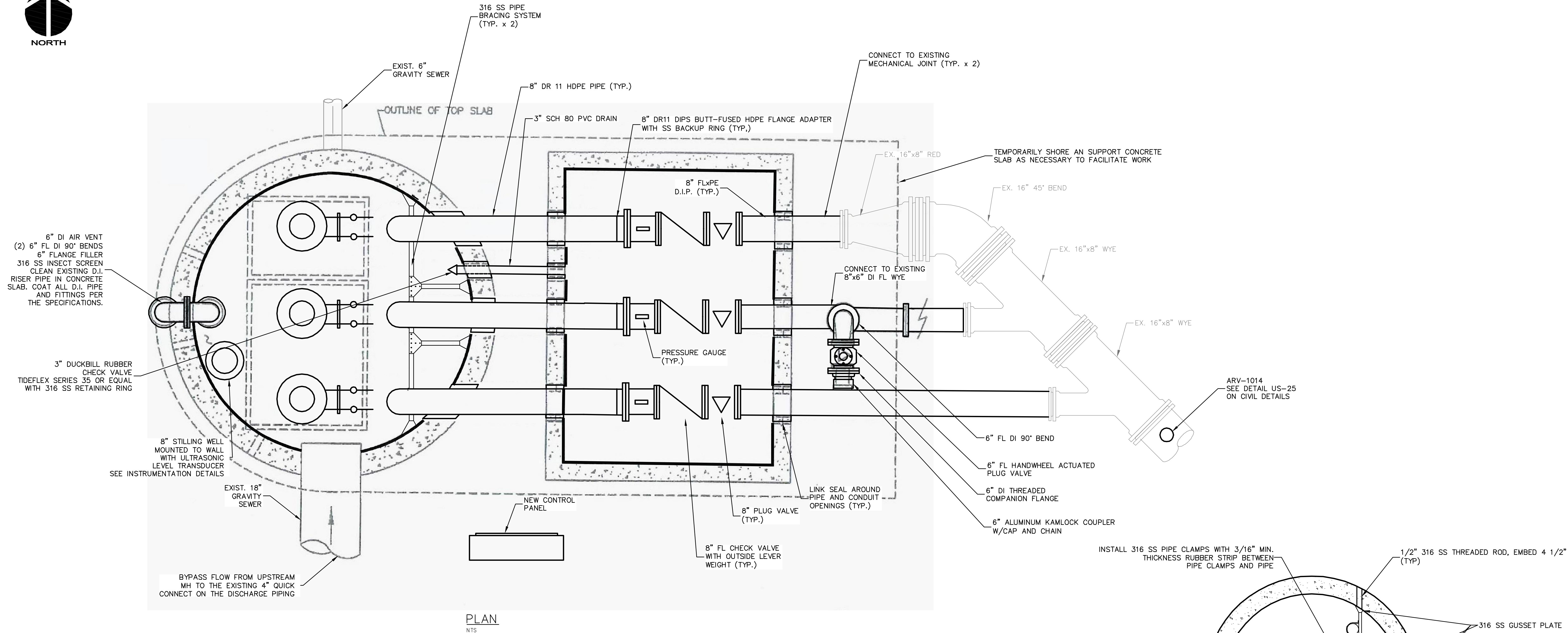
MCKIM & CREED
1365 Hamlet Avenue
Clearwater, Florida 33756
Phone: (727)442-7196, Fax: (727)461-3827
EB0006691
www.mckimcreed.com

MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
SODIUM HYPOCHLORITE CHEMICAL SKID
PLAN AND DETAILS

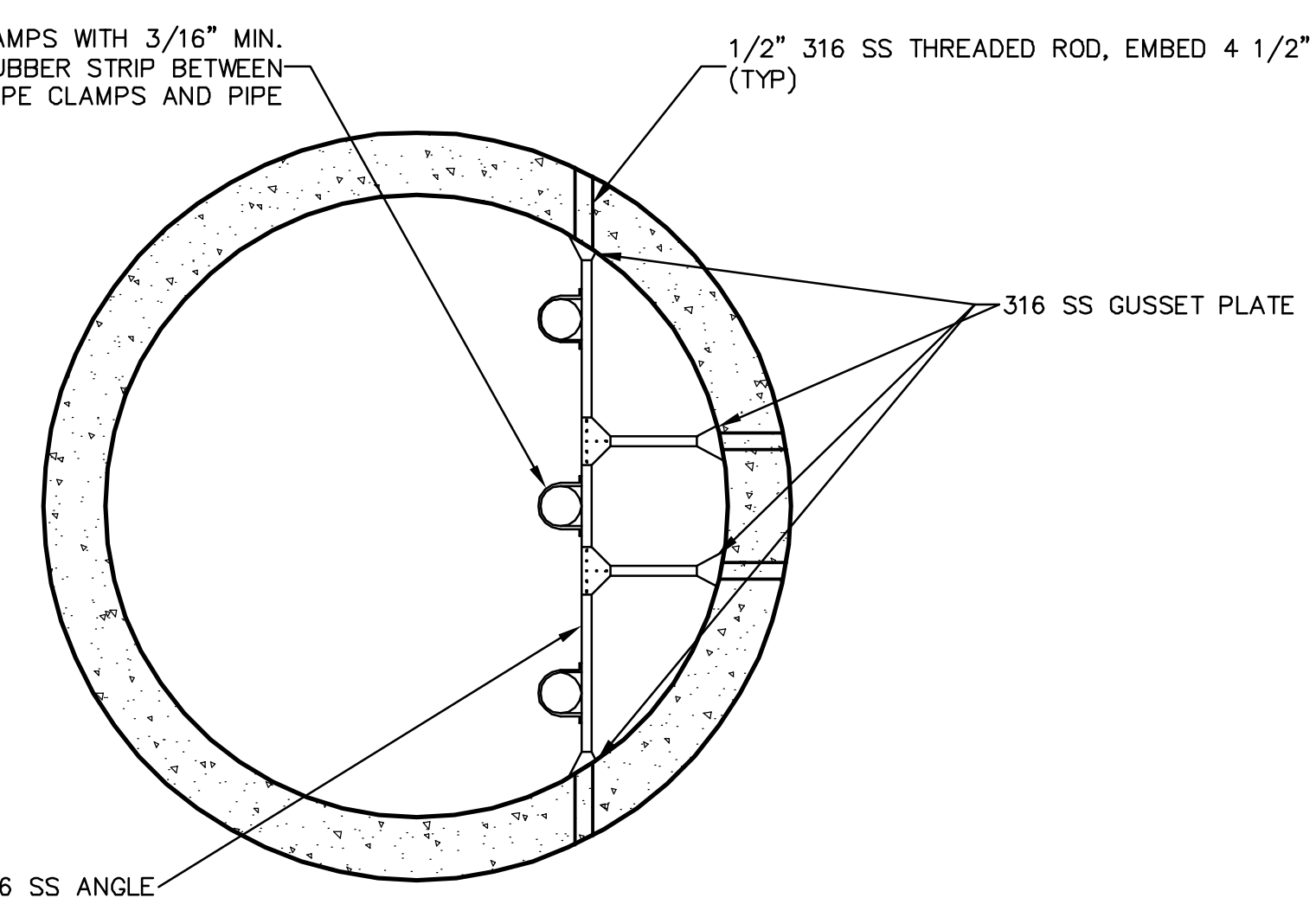
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MCE PROJ. # 1024-0143	HORIZONTAL: AS SHOWN	M-8.1
DRAWN: OES	VERTICAL: NA	
DESIGNED: DCW	PROJ. MGR. DCW	REVISION:
CHECKED: JSL		ISSUED FOR BID
STATUS:		

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PLAN
NTS

- GENERAL NOTES:**
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE WETWELL AND VALVE VAULT FROM DAMAGE DUE TO HYDROSTATIC UPLIFT FROM HIGH WATER LEVELS.
 2. ALL BURIED VALVES AND FITTINGS SHALL HAVE RESTRAINED JOINTS. ALL ABOVE GROUND PIPE, FITTINGS AND VALVES SHALL HAVE FLANGED JOINTS.
 3. ALL PUMP STATION HARDWARE SHALL BE 316 SS EXCEPT WHERE OTHERWISE INDICATED.
 4. LINK SEAL SHALL BE PROVIDED FOR ALL PIPE / CONDUIT OPENINGS.



WETWELL PIPE BRACING DETAIL
SCALE: 3/8" = 1'-0"

THE PIPE CLAMPS SHALL BE CONSTRUCTED FROM MIN. 1 1/2"x1/4"-316 STAINLESS STEEL FLAT STOCK. ALL BRACING SYSTEM COMPONENTS SHALL BE CONNECTED USING 316 STAINLESS STEEL FASTENERS. ALL THREADED CONNECTIONS SHALL HAVE 316 STAINLESS STEEL FLAT WASHERS AND 316 STAINLESS STEEL NYLON INSERT LOCK NUTS.

S:\1024\1043\1043-Drawings\Mechanical\10-10-PPPS-100.dwg, 7/15/2011 8:08:40 AM, Brian Nought

REV. NO.	DATE	DESCRIPTIONS

SEAL
BLAKE R. PETERS, P.E.
No. 64429

SEAL

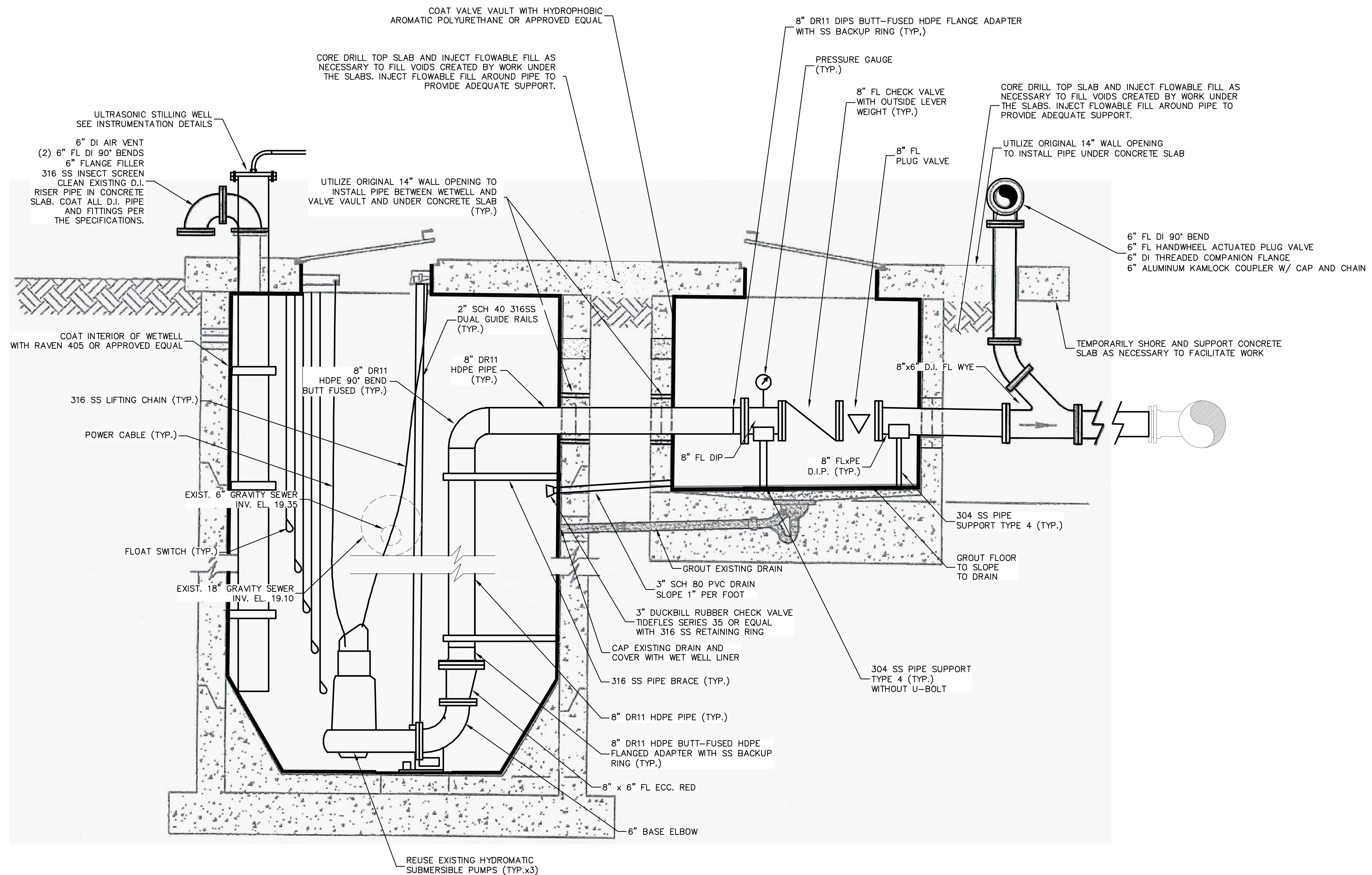
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MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
PLANT DRAIN PUMP STATION
PLAN

DATE:	JULY 2011
MCE PROJ. #	1024-0143
DRAWN	OES
DESIGNED	BRP
CHECKED	
PROJ. MGR.	DCW

SCALE	DRAWING NUMBER
HORIZONTAL: NTS	M-10.1
VERTICAL: NTS	
REVISION	ISSUED FOR BID



PROFILE
NTS

- GENERAL NOTES:
1. ALL BURIED VALVES AND FITTINGS SHALL HAVE RESTRAINED JOINTS. ALL ABOVE GROUND PIPE, FITTINGS AND VALVES SHALL HAVE FLANGED JOINTS.
 2. ALL PUMP STATION HARDWARE SHALL BE 316 SS EXCEPT WHERE OTHERWISE INDICATED.
 3. LINK SEAL SHALL BE PROVIDED FOR ALL PIPE / CONDUIT OPENINGS.
 4. GROUT EXISTING SMALL DIAMETER OPENINGS, NOT UTILIZED AFTER DEMOLITION, WITH NON-SHRINK GROUT.
 5. THE CONTRACTOR SHALL REPLACE THE TOP SLAB IN LIKE-KIND IF DAMAGED AT NO ADDITIONAL COST TO THE OWNER.
 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE WETWELL AND VALVE VAULT FROM DAMAGE DUE TO HYDROSTATIC UPLIFT FROM HIGH WATER LEVELS.

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REV. NO.	DATE	DESCRIPTIONS / REVISIONS

SEAL
BLAKE R. PETERS, P.E.
No. 64429

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MANATEE COUNTY, FLORIDA
MANATEE COUNTY, FLORIDA

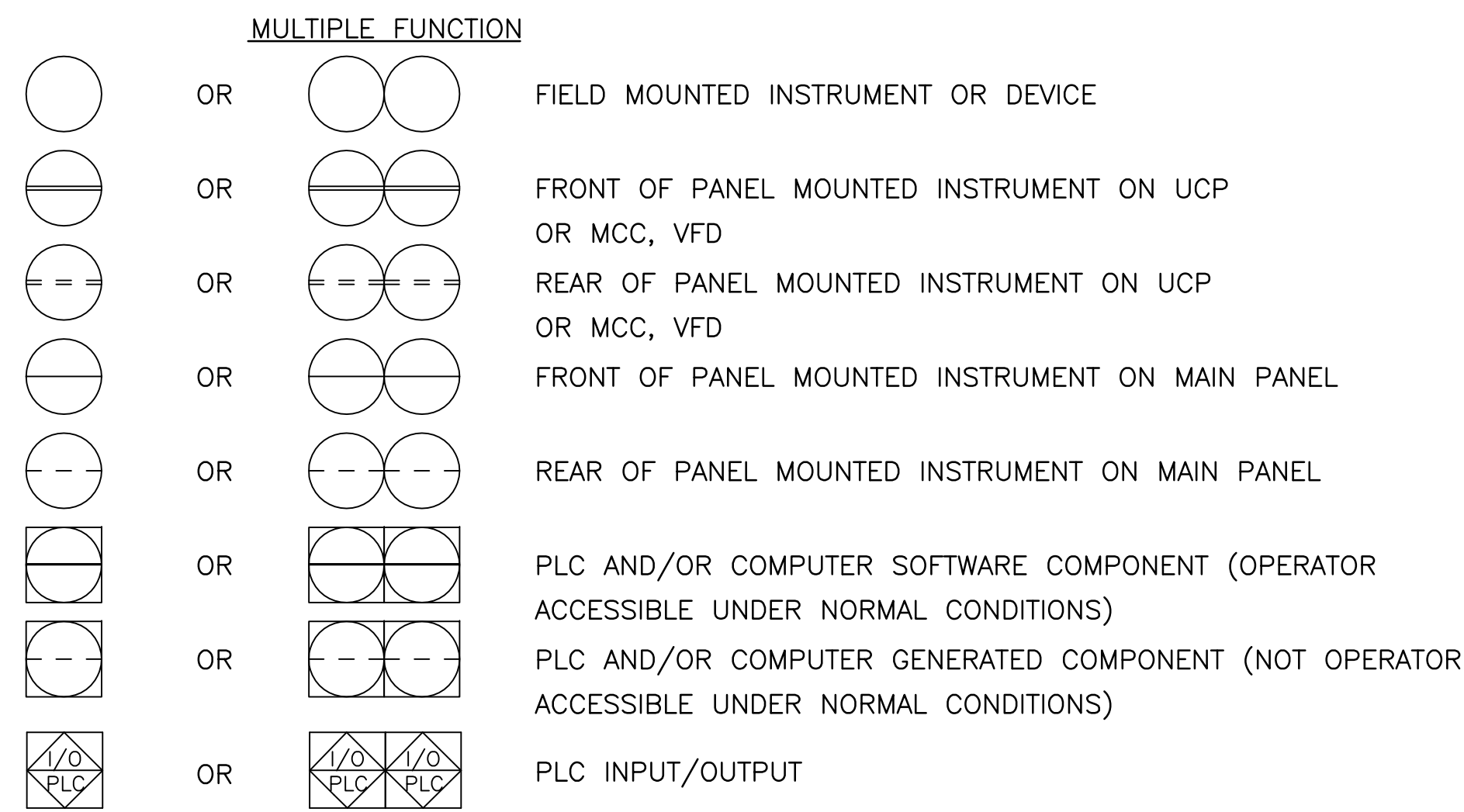
NWRF EXPANSION PHASE 1
PLANT DRAIN PUMP STATION
SECTION

DATE: JULY 2011	SCALE:	DRAWING NUMBER:
MCE PROJ. # 1024-0143	HORIZONTAL: NTS	M-10.2
DRAWN: OES	VERTICAL: NTS	
DESIGNED: BRP	STATUS:	REVISION:
CHECKED: DCW	ISSUED FOR BID	
PROJ. MGR.:		

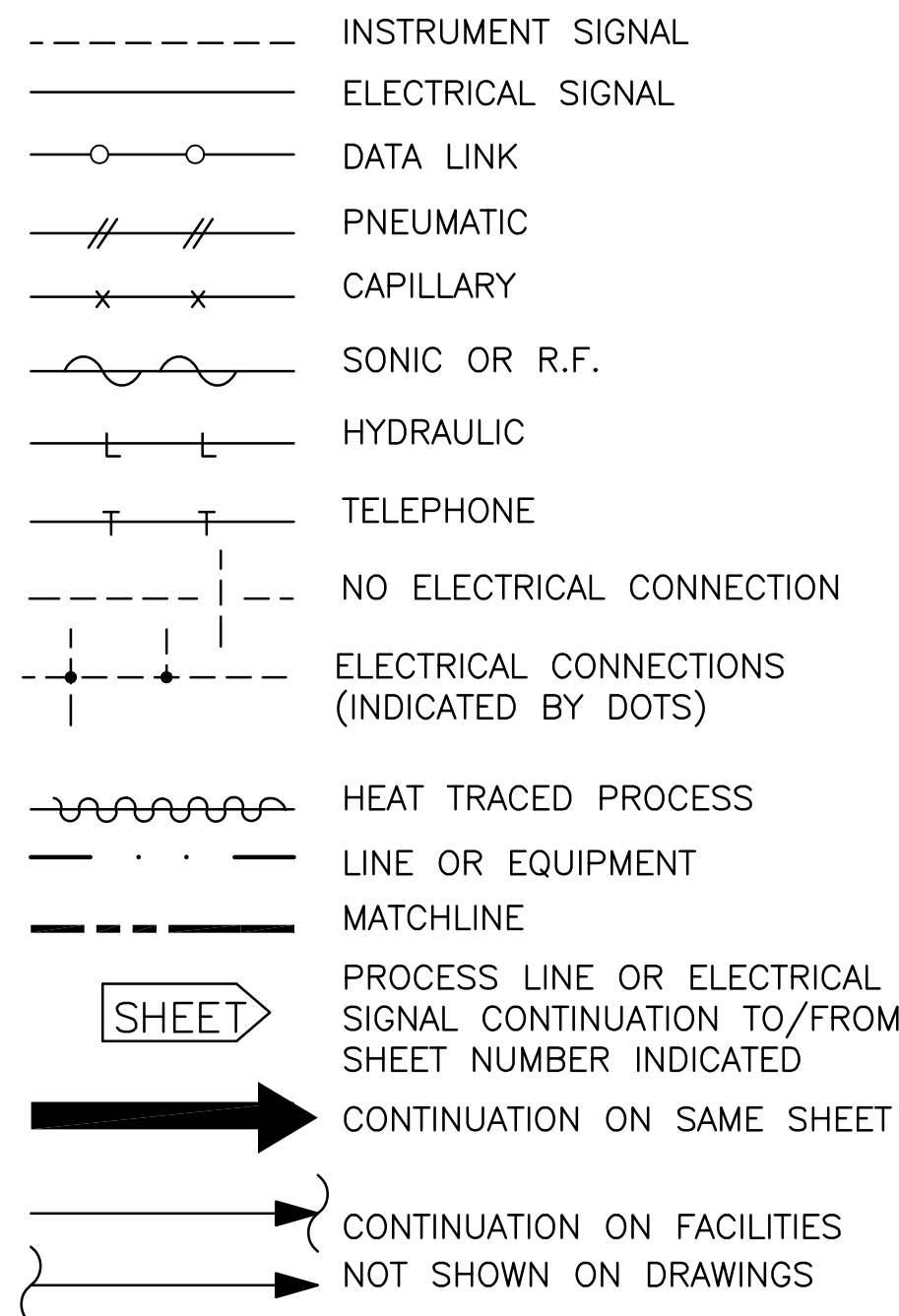
FUNCTION SYMBOL SCHEDULE

FIRST LETTER		SUCCEEDING-LETTERS		
MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	Analysis	Alarm		
B	Burner, Combustion	Programmer		
C	Conductivity (Electrical)		Control	Closed
D	Density or Specific Gravity	Differential		
E	Voltage	Sensor (Primary Element)	Eduction	
F	Flow Rate	Ratio (Fraction)		
G	Gaging	Glass, Viewing Device		
H	Hand			High
I	Current (Electrical)	Indicate		
J	Power	Scan		
K	Time, Time Schedule		Control Station	
L	Level	Light (Pilot)		Low
M	Motor			Middle, Intermediate
N	Vibration			
O	Operation	Offset	Orifice, Restriction	Open
P	Pressure, Vacuum		Point (Test) Connection	
Q	Quantity, Event	Integrate, Totalize	Integrate	
R	Radiation		Record, Print	Regulate
S	Speed, Frequency	Safety		Switch
T	Temperature			Transmit
U	Multivariable	Trend	Multifunction	Multifunction
V	Viscosity	Vacuum		Valve, Damper, Louver, Gate
W	Weight, Force, Torque		Well	
X	Unclassified		Unclassified	Unclassified
Y				Relay, Compute, Convert
Z	Position		Final Control Element	Drive, Actuator, Unclassified Final Control Element

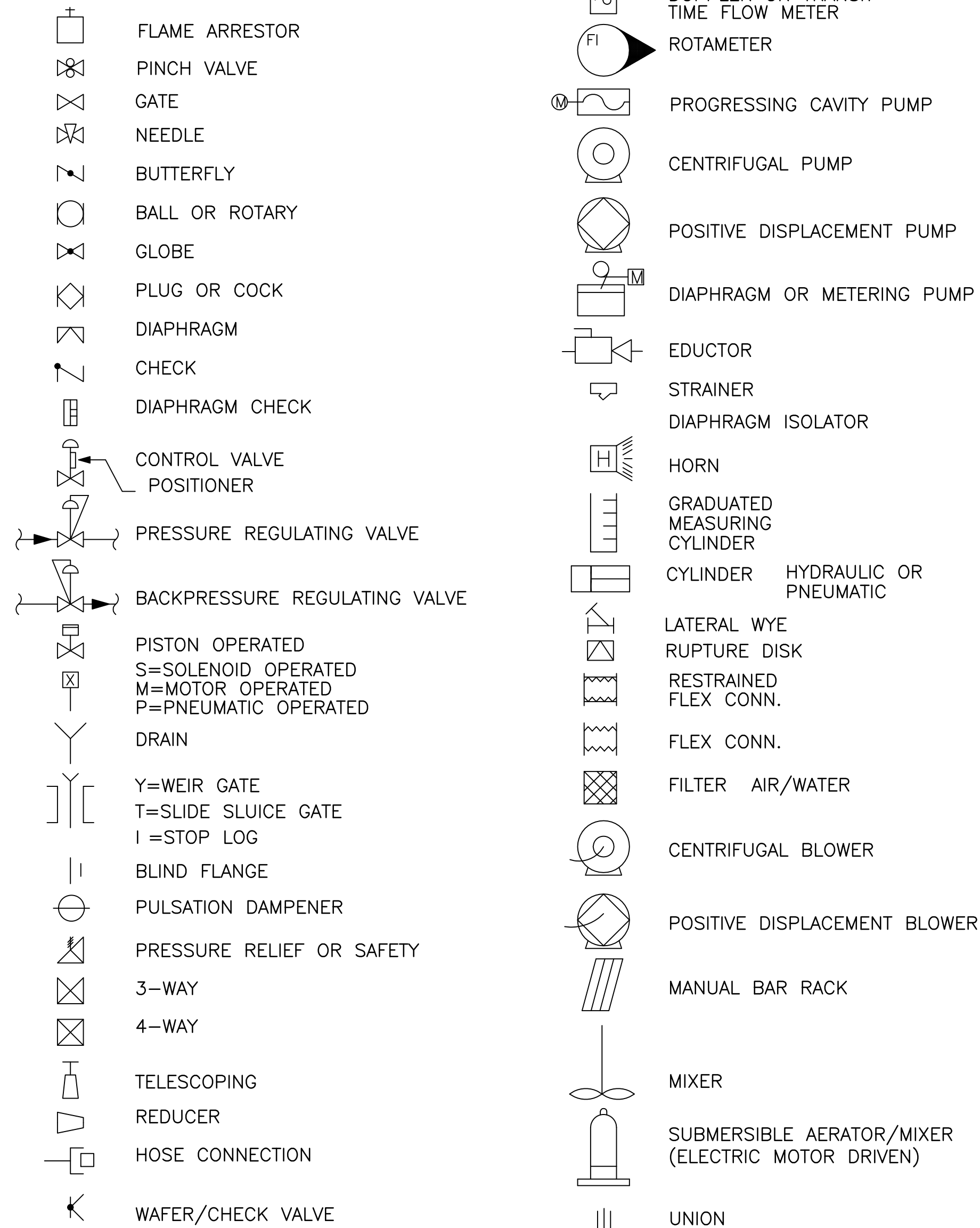
BASIC SYMBOLS



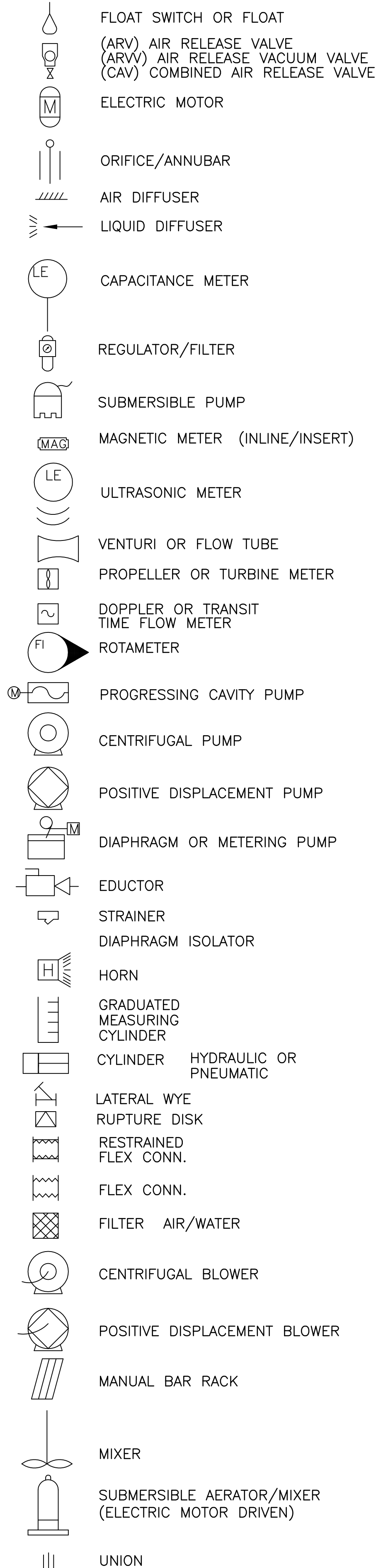
LINE CODES



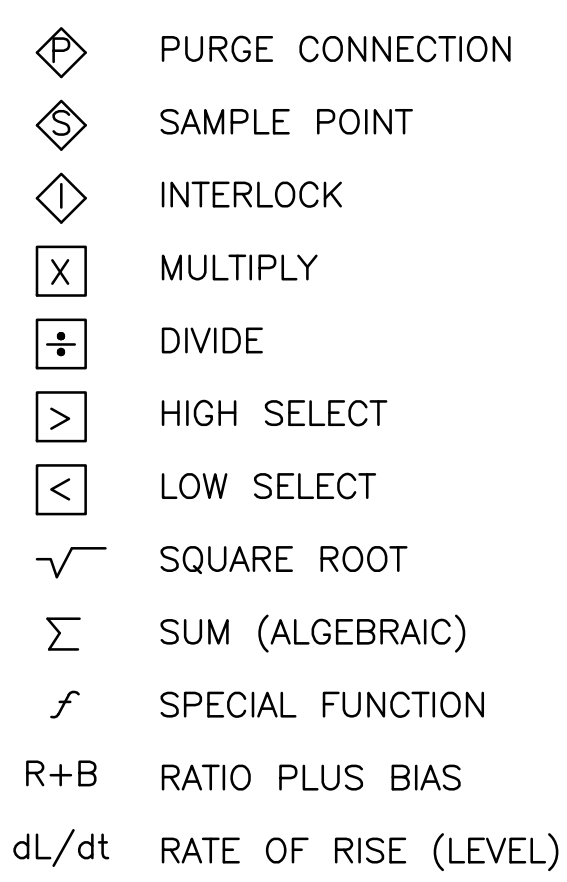
VALVES, PUMPS & METERS



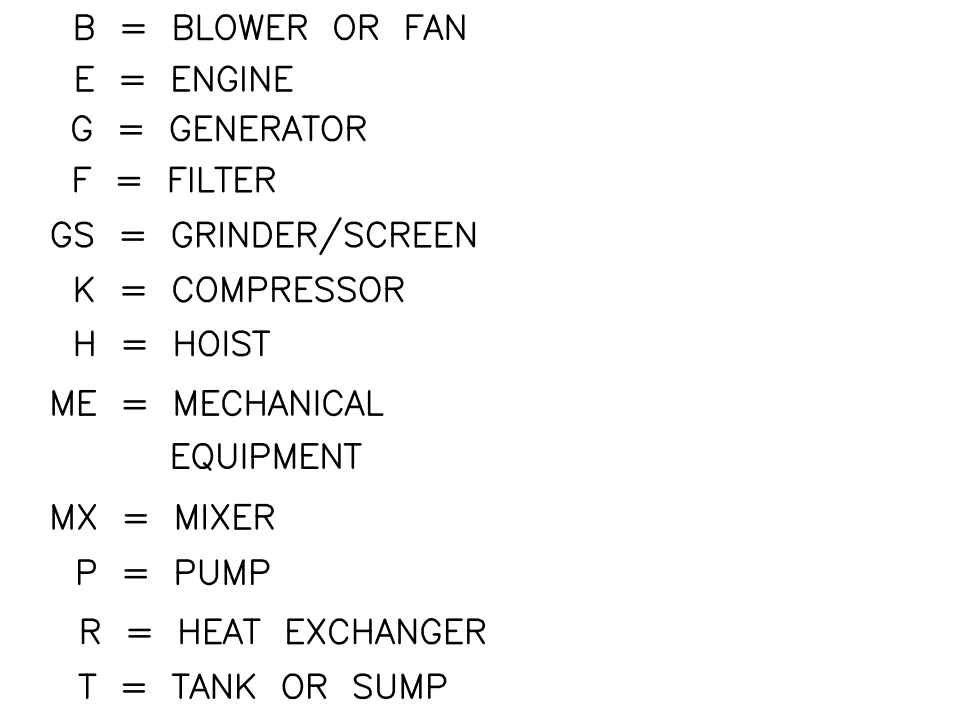
VALVES, PUMPS & METERS (CONT'D)



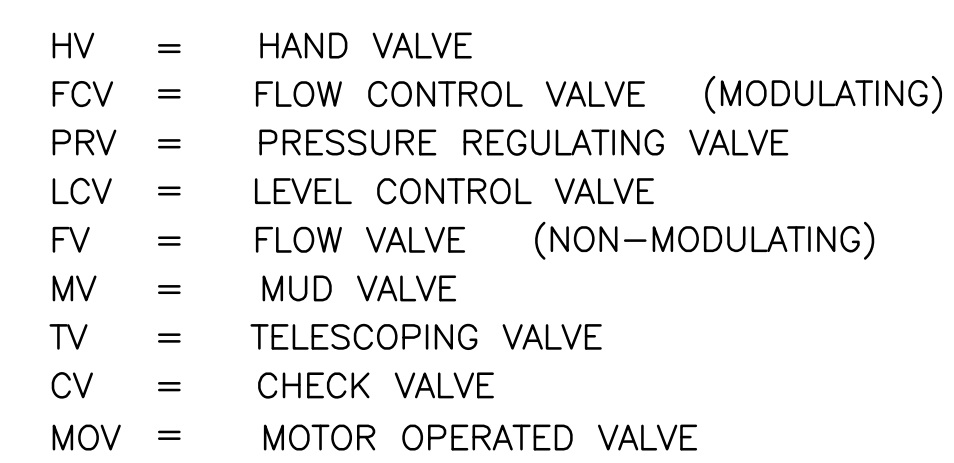
MISCELLANEOUS SYMBOLS



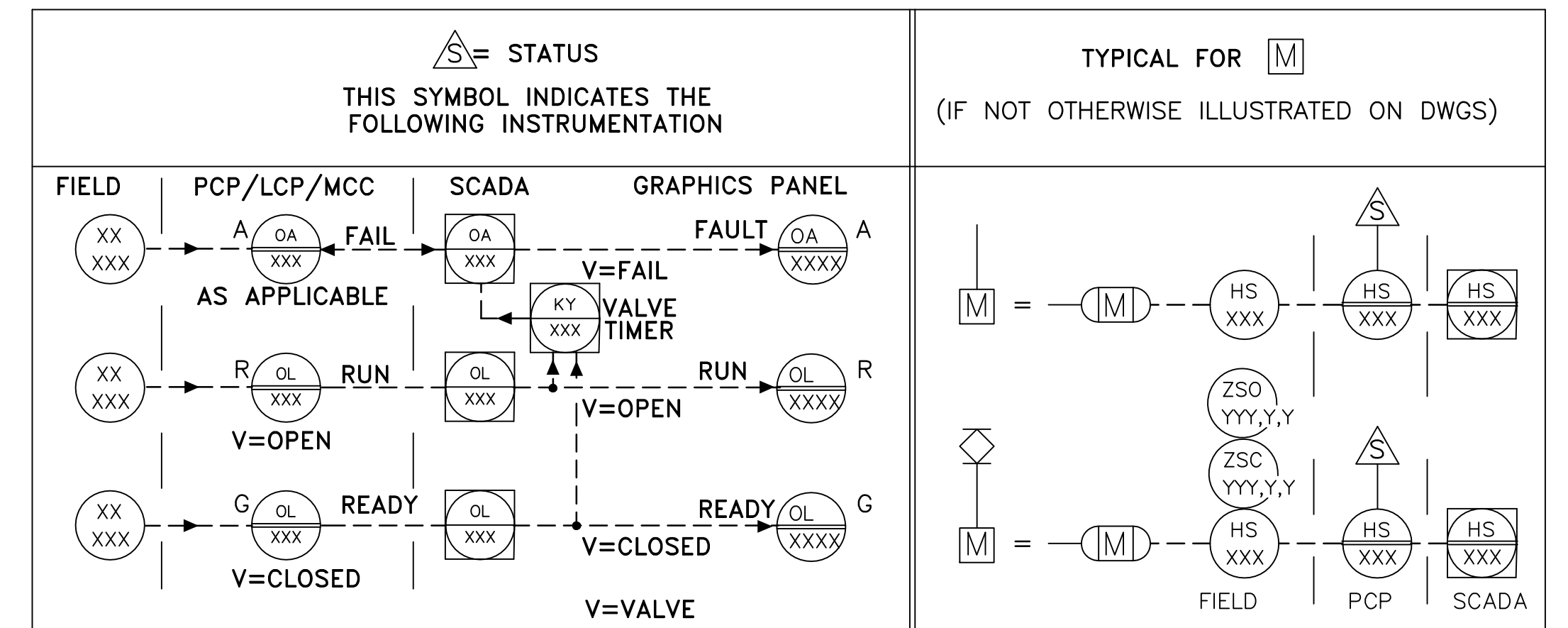
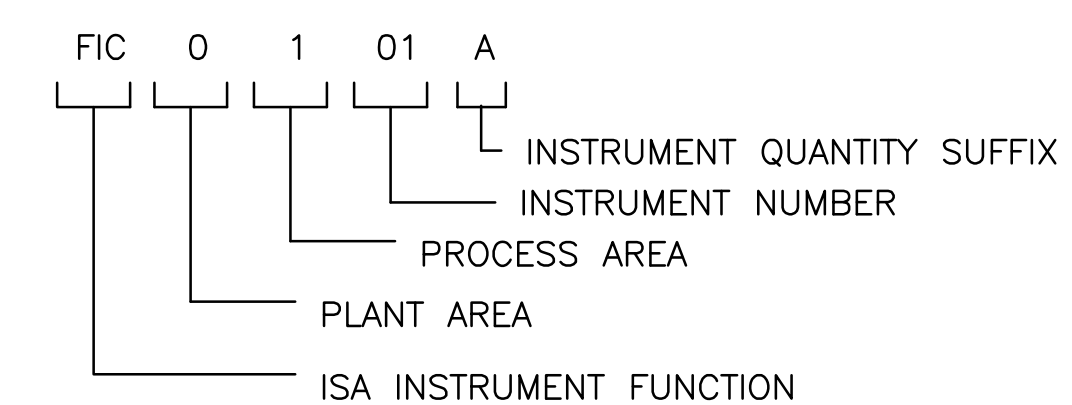
EQUIPMENT NOTATION



VALVE DESIGNATIONS



INSTRUMENT TAG NOTATION



S:\02\A01\03\00-Drawing\MCK-01-102401-01.dwg, 7/15/2011 11:56:15 AM, Michael Tweedel

REVNO.	DESCRIPTIONS	DATE

SEAL

MICHAEL TWEDEL, P.E.
No. 60940

SEAL

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MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1

PROCESS AND INSTRUMENTATION
GENERAL NOTES, LEGEND
AND ABBREVIATIONS

DATE: JULY 2011

MCE PROJ. # 1024-0143

DRAWN: MDT

DESIGNED: MDT

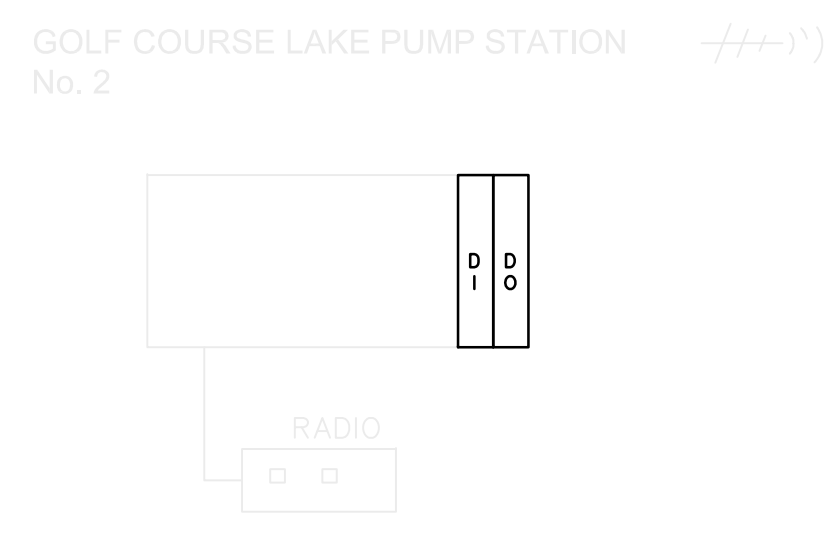
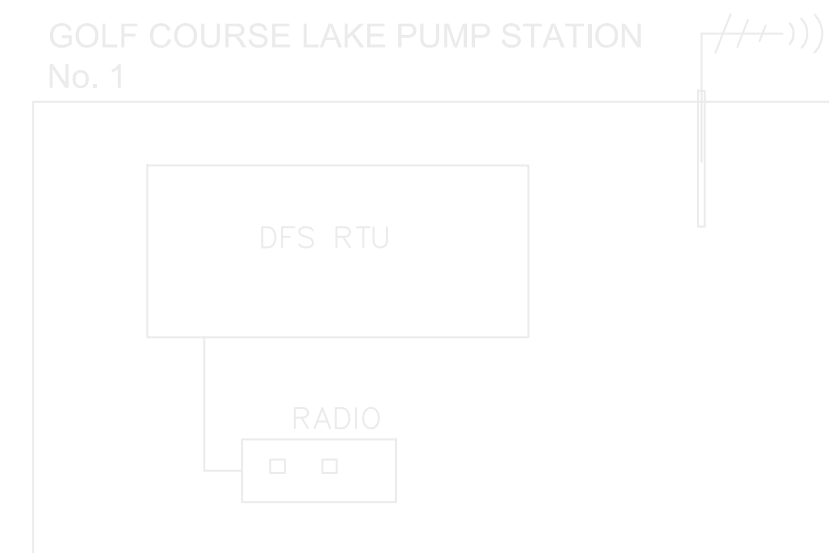
CHECKED: TER

PROJ. MGR.: DCW

SCALE: HORIZONTAL: NA, VERTICAL: NA

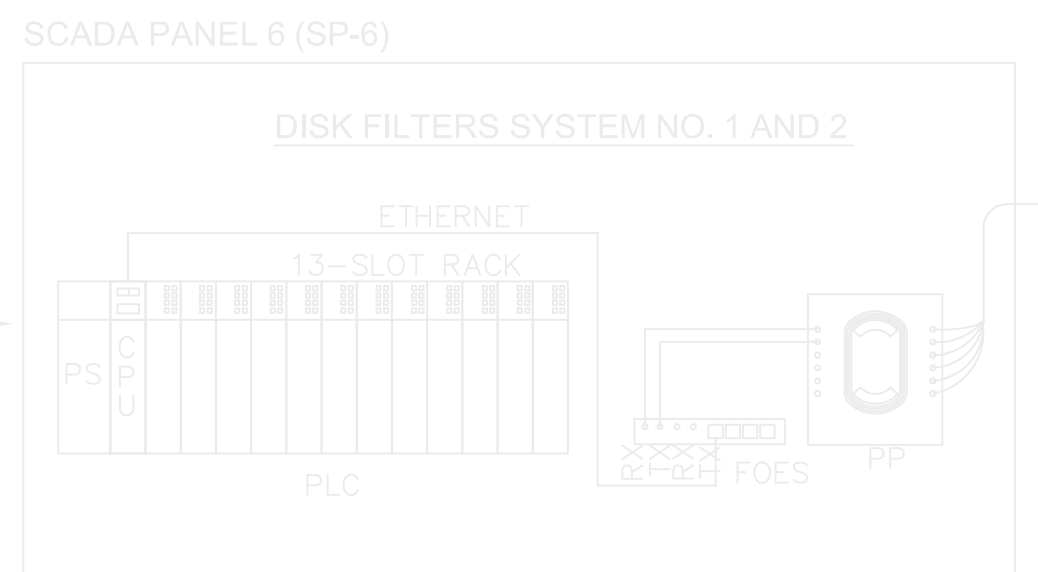
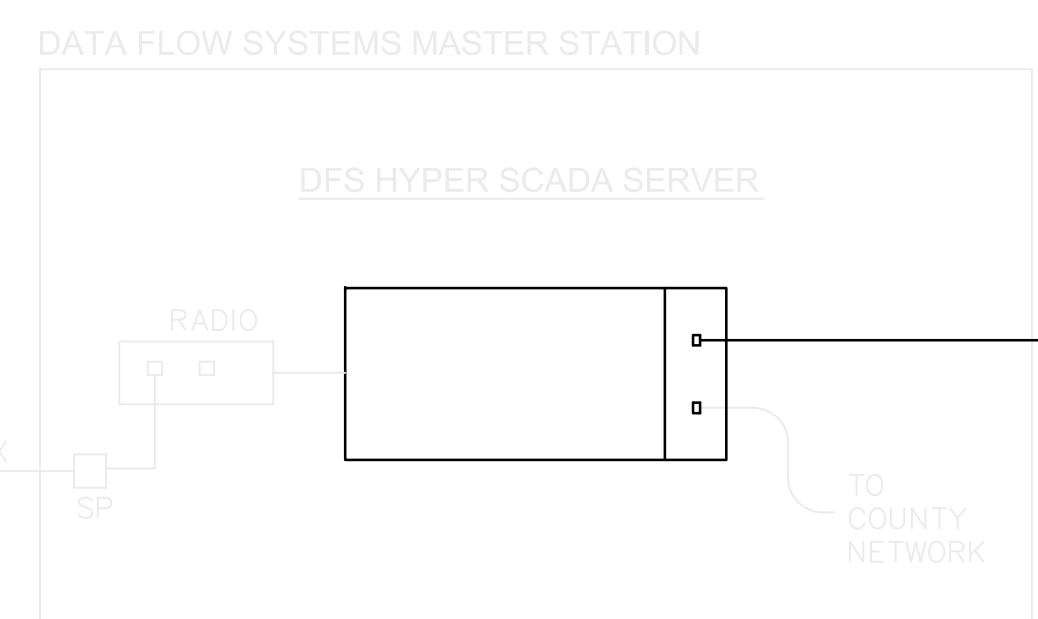
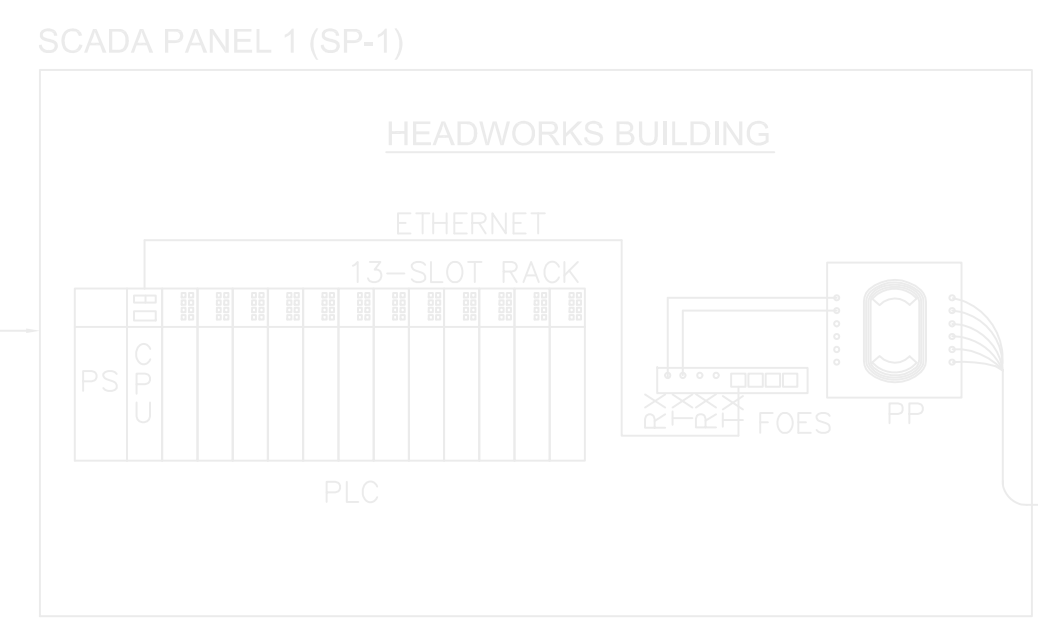
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STATUS: ISSUED FOR BID

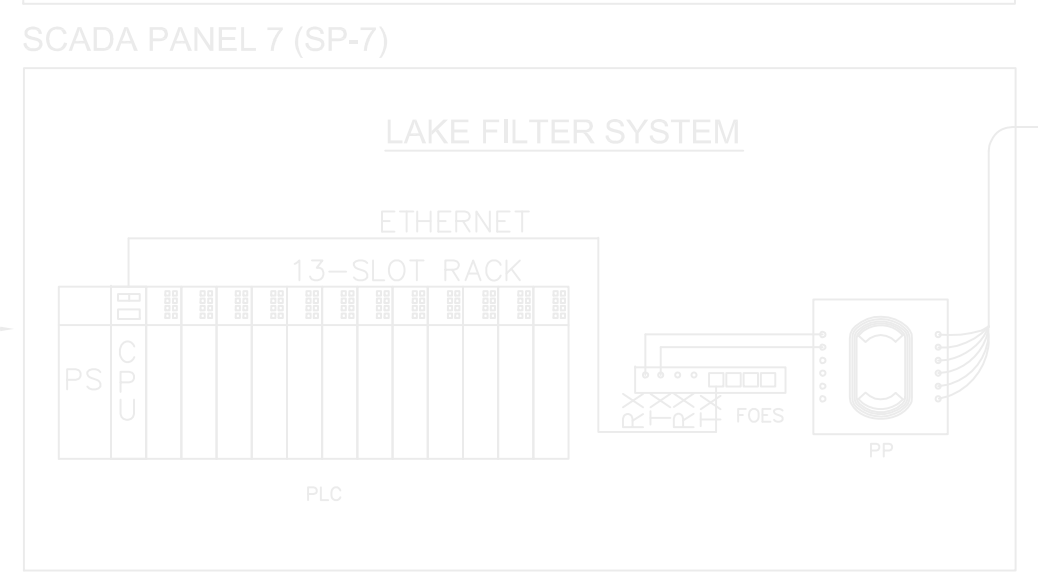


EAST LAKE STATION

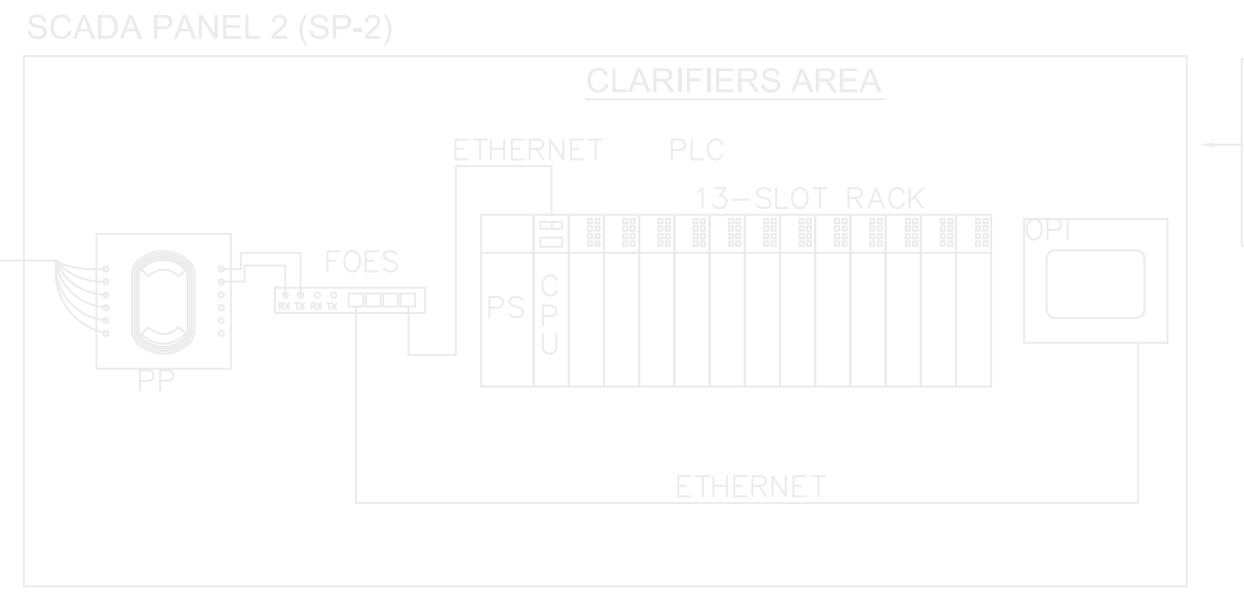
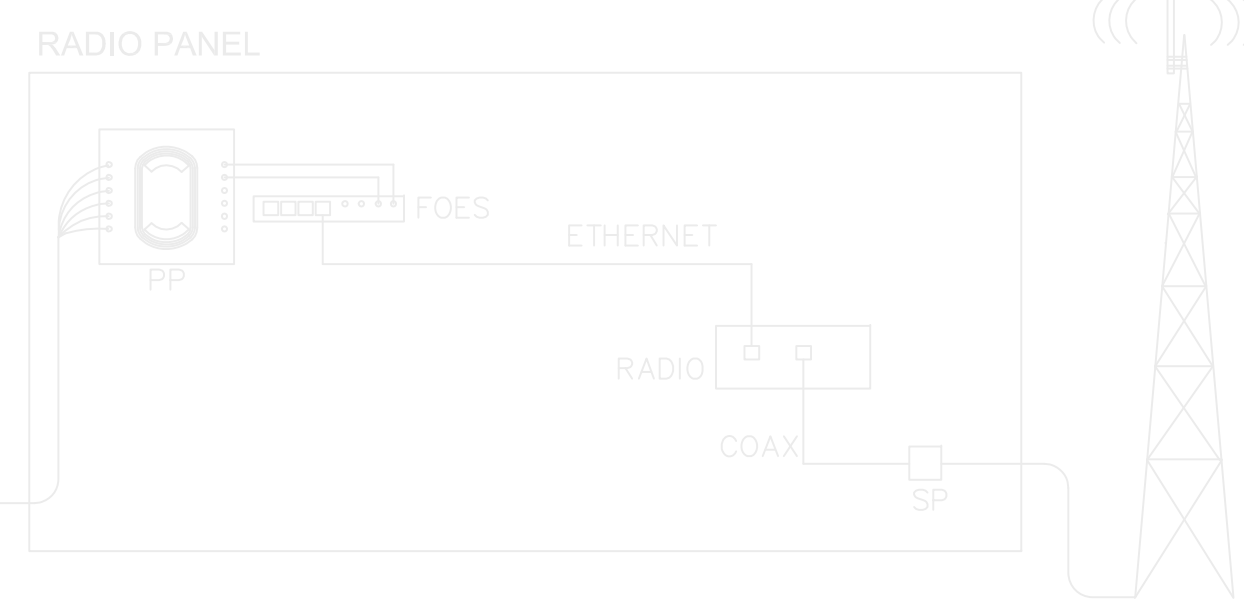
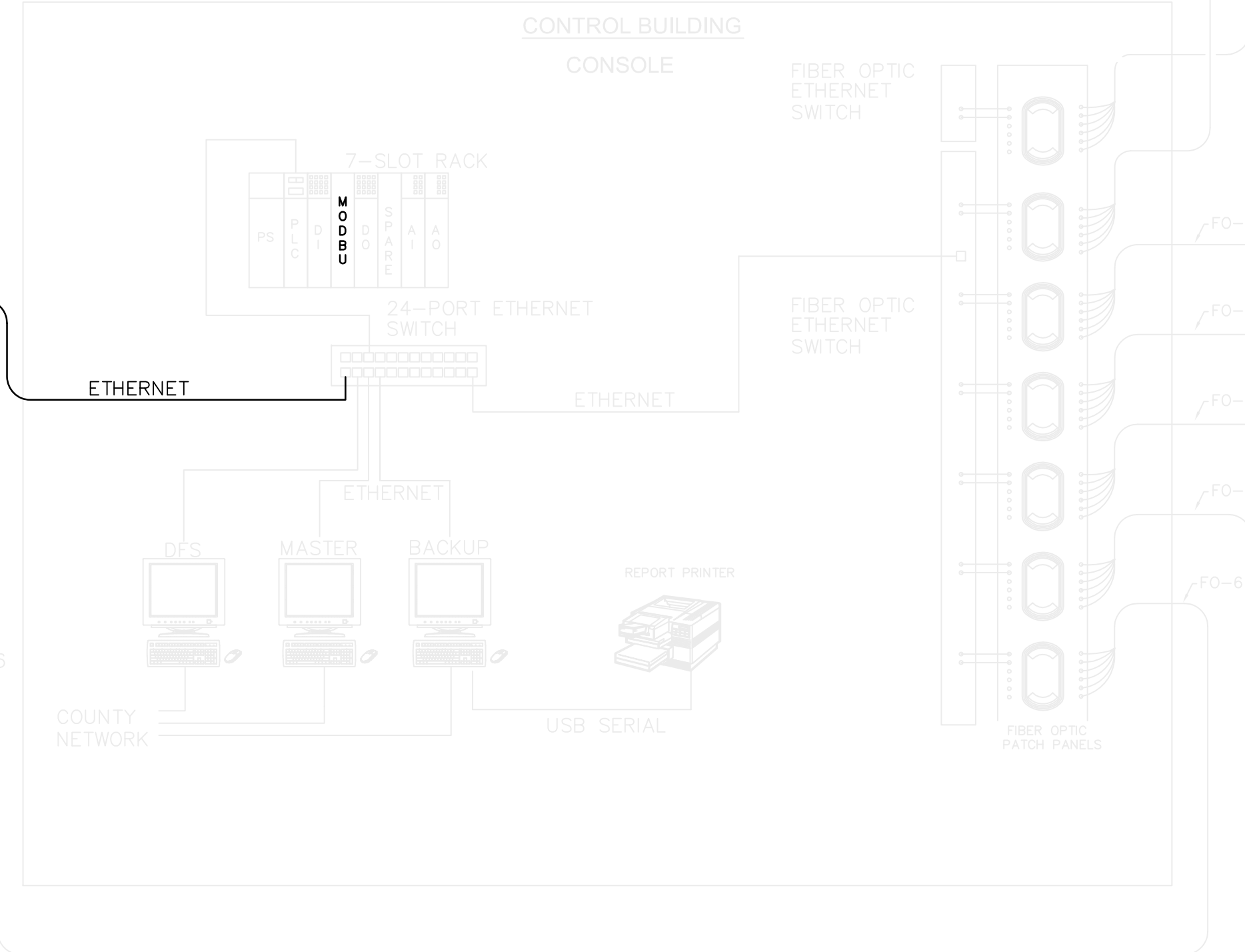
C-2 CONTROL CABINET
I-2 CONTROL CABINET
HEADWORKS MCC-1A
HEADWORKS MCC-1B
GRIT CONTROL PANEL
MECHANICAL BAR
SCREEN CONTROL PANEL
*LOCAL INSTRUMENTATION



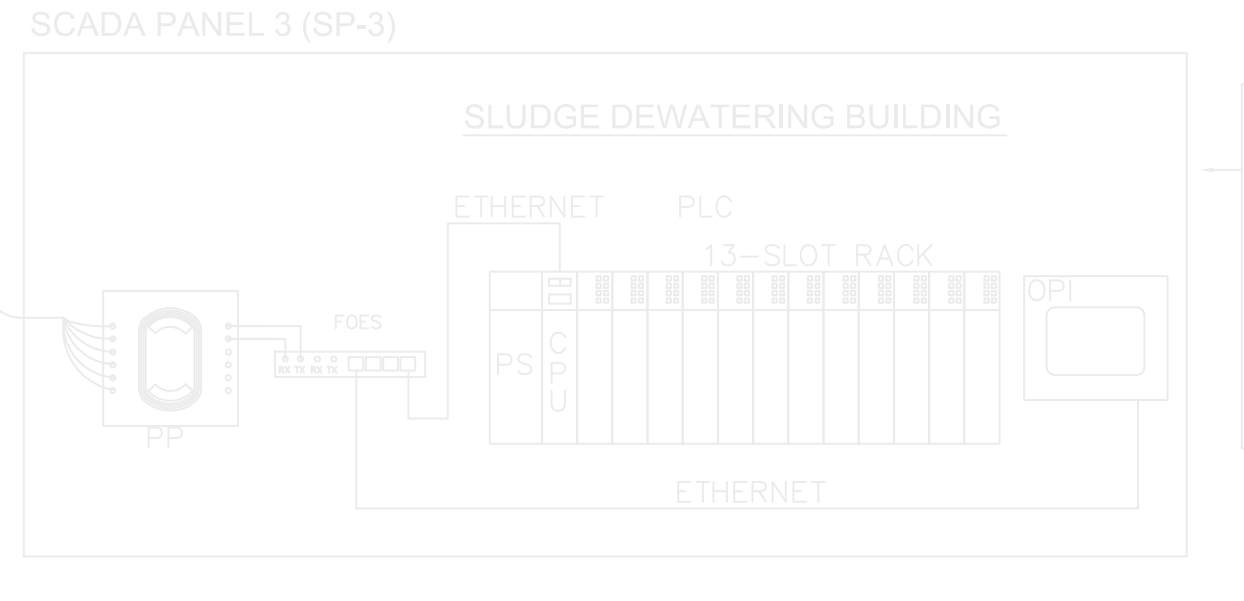
DISK FILTERS NO. 1
AND 2 FLOW SPLITTER BOX
*LOCAL INSTRUMENTATION



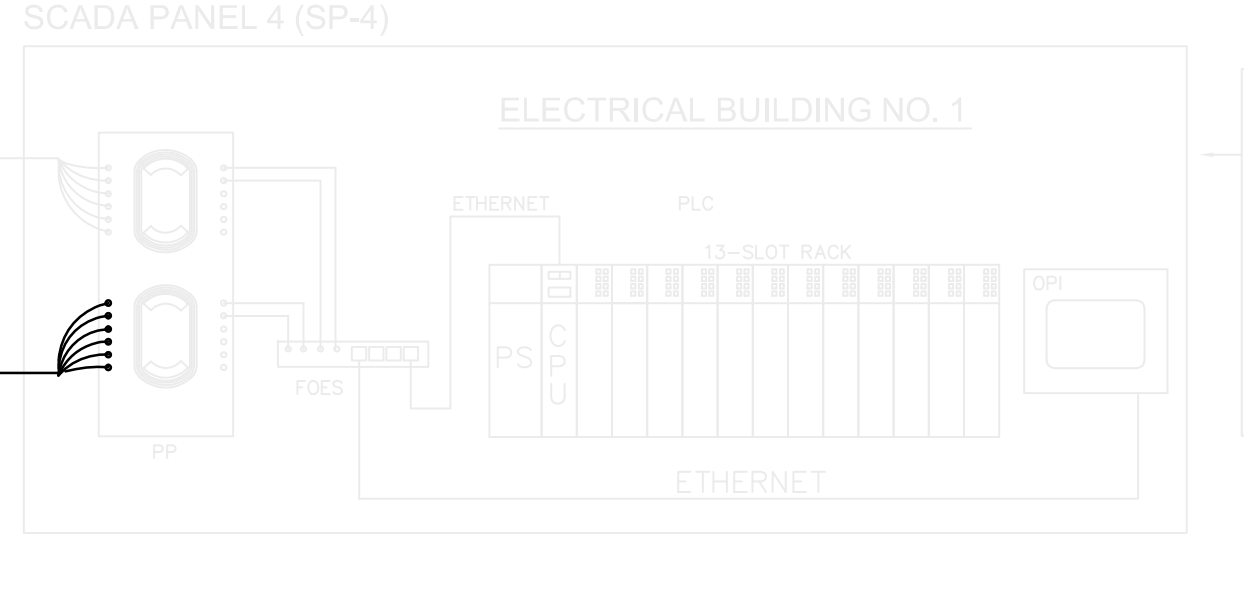
LAKE FILTER SYSTEM
*LOCAL INSTRUMENTATION



C-3 CONTROL CABINET
I-3 CONTROL CABINET
SLUDGE BLANKET DETECTORS
CABINET
*LOCAL INSTRUMENTATION



C-4 CONTROL CABINET
I-4 CONTROL CABINET
BELT PRESS NO. 1,2,3 CONTROL
CABINETS
BELT PRESS MCC
POLYMER SYSTEM CONTROL PANEL
ALUM FEED SYSTEM CONTROL PANEL
EYEWASH SHOWERS
*LOCAL INSTRUMENTATION



C-1 CONTROL CABINET
I-1 CONTROL CABINET
ANOXIC/AEROBIC BASIN NO. 1
ANOXIC/AEROBIC BASIN NO. 2
RAS/WAS PUMP STATION NO. 2
EFFLUENT PUMPS WDS
DAF THICKENER CONTROL PANEL
GENERATORS CONTROL PANELS
EYEWASH SHOWERS
*LOCAL INSTRUMENTATION

- NOTES:
- HIGHLIGHTED ITEMS INDICATE EQUIPMENT TO BE PROVIDED AS PART OF THIS PROJECT. GREY ITEMS INDICATE EXISTING EQUIPMENT.
 - COORDINATE EQUIPMENT IP ADDRESSING STRUCTURE WITH THE OWNER'S INFORMATION SERVICES DEPARTMENT (ISD).
 - UPGRADE DFS SERVER TO LATEST VERSION TO ALLOW MODBUS TCP/IP COMMUNICATIONS. SEE SPECIFICATIONS FOR DETAILS.
 - INSTALL PROSOFT MV46-MNET MODBUS TCP/IP SERVER COMMUNICATIONS MODULE IN CONTROL CONSOLE PLC RACK AND CONNECT TO CONSOLE NETWORK SWITCH.
 - UPGRADE GOLF COURSE LAKE PUMP STATION NO.2 TO INCORPORATE THE I/O REQUIREMENTS FOR LAKE STORAGE RETURN AND GOLF COURSE IRRIGATION PUMP STATION

LEGEND

FO-X	FIBER OPTIC CABLE IDENTIFICATION NUMBER
FOES	MANAGED FIBER OPTIC ETHERNET SWITCH
PP	FIBER OPTIC PATCH PANEL
PLC	PROGRAMMABLE LOGIC CONTROLLER
OPI	LOCAL OPERATOR INTERFACE
SP	SURGE PROTECTOR

*SEE IRRIGATION FLOW
LAKE RETURN PUMPING
MARS TRANSFER FLOW
PLANT DRAIN PUMP STATION
BACKWASH PUMPS
*LOCAL INSTRUMENTATION

REVNO.	DESCRIPTIONS	DATE

SEAL
MICHAEL TWEDEL, P.E.
No. 60940

SEAL

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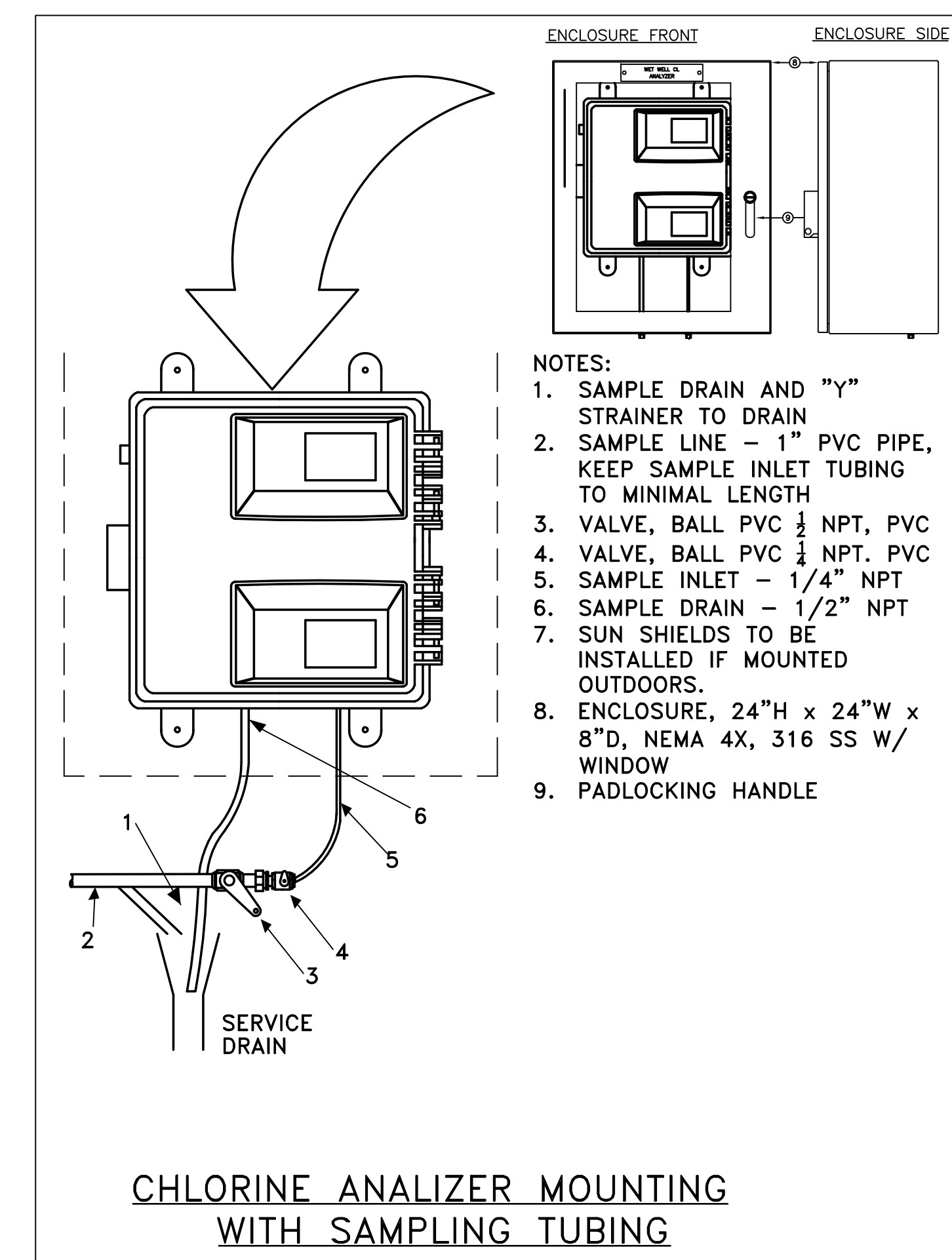
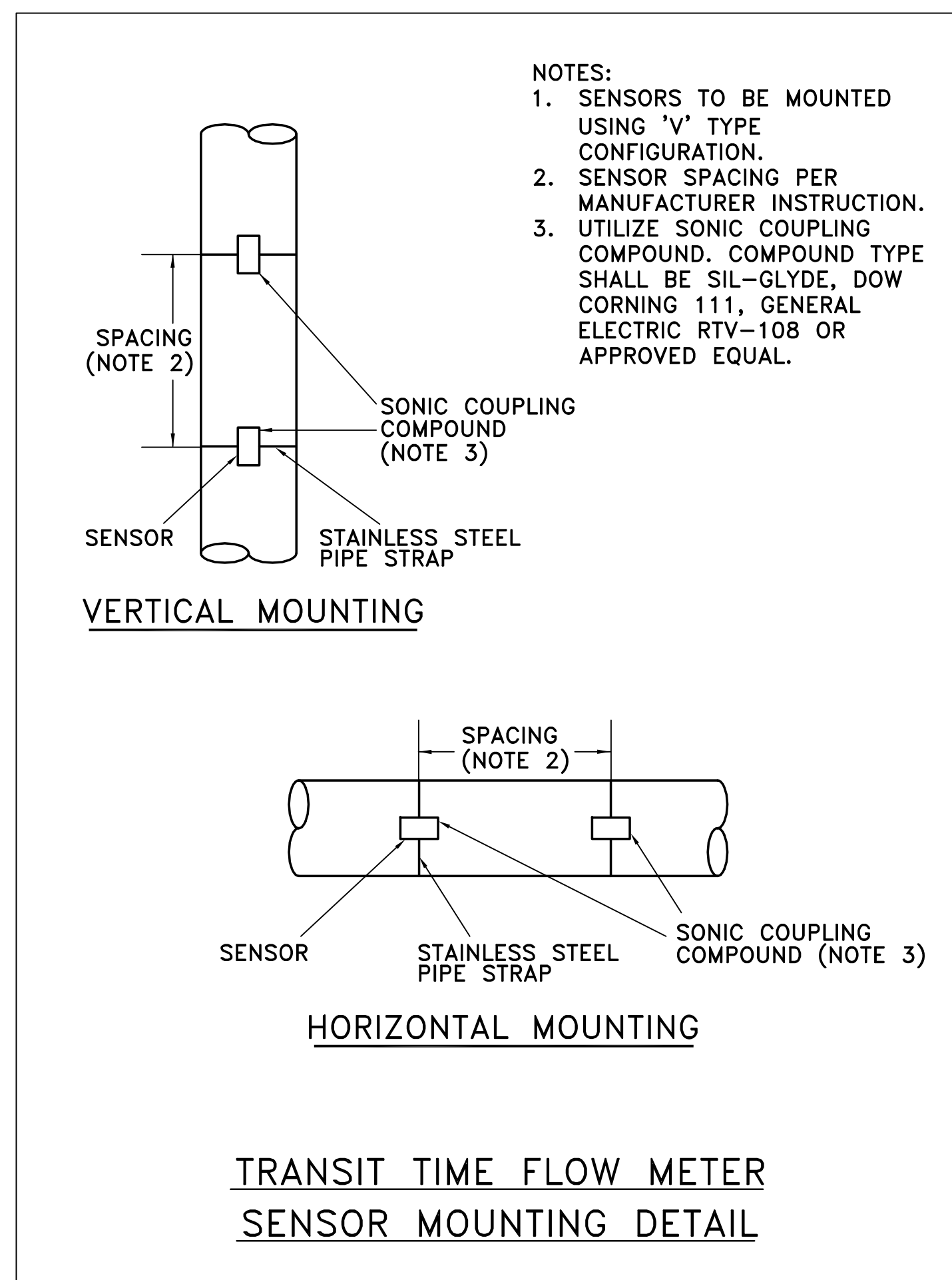
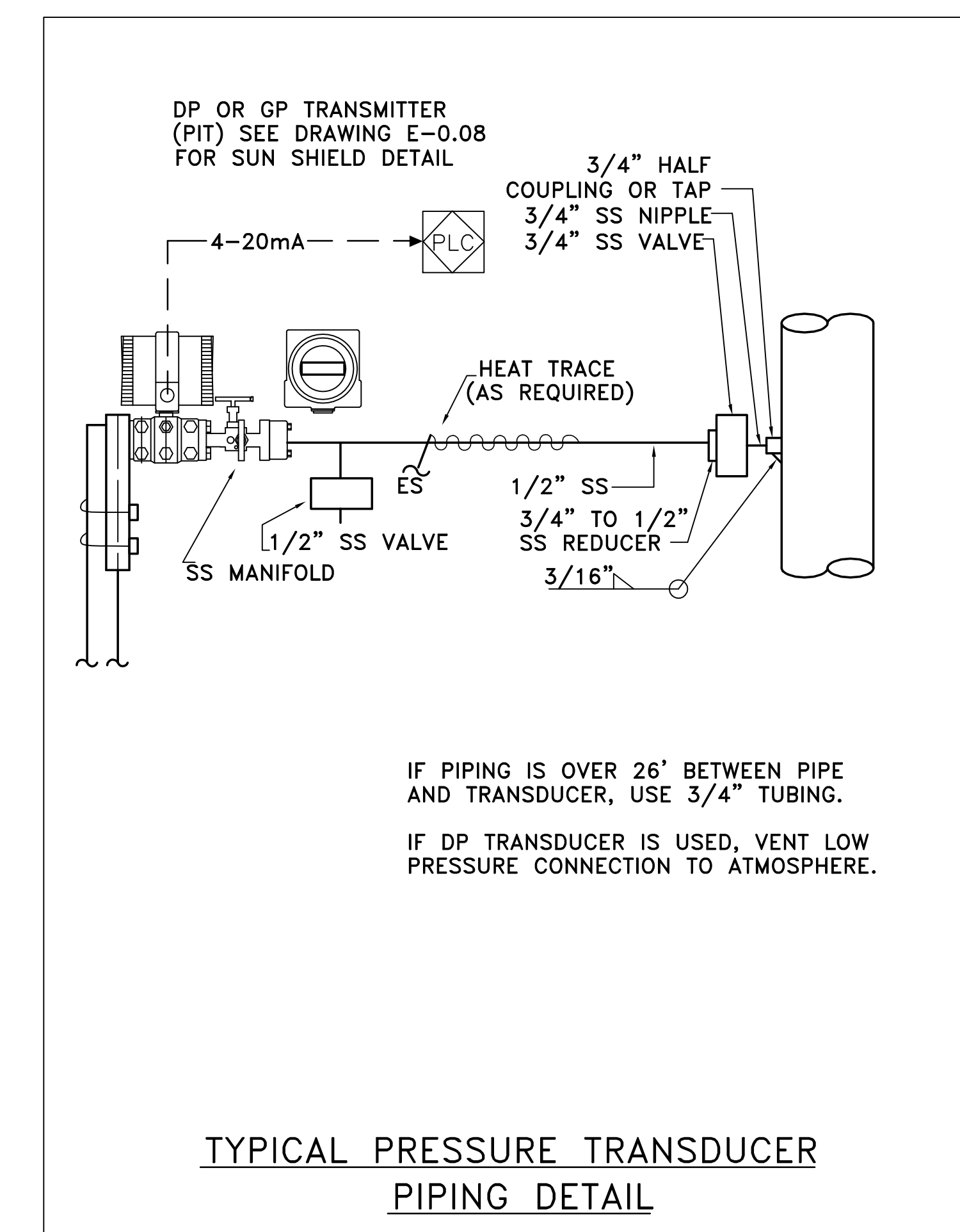
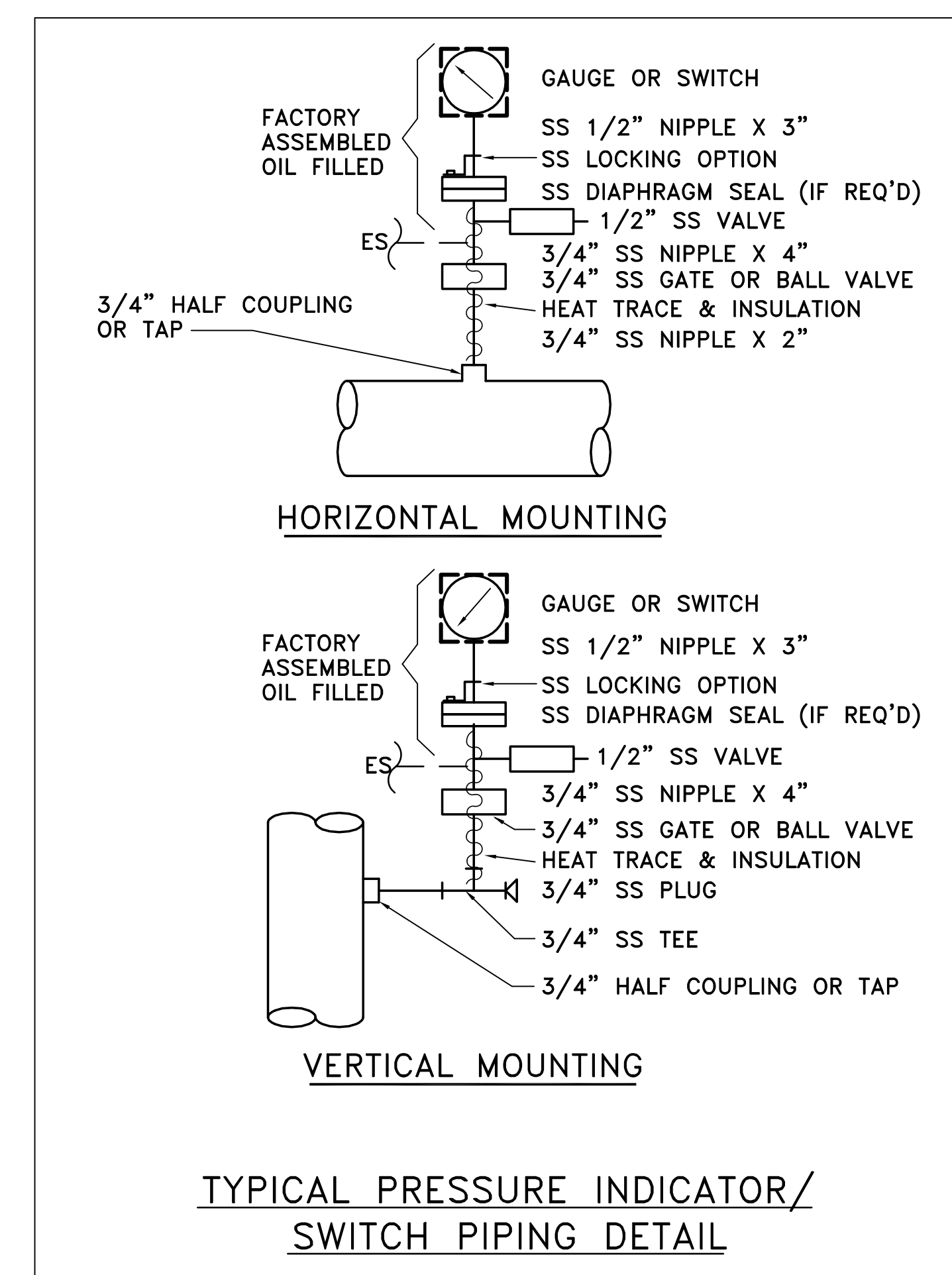
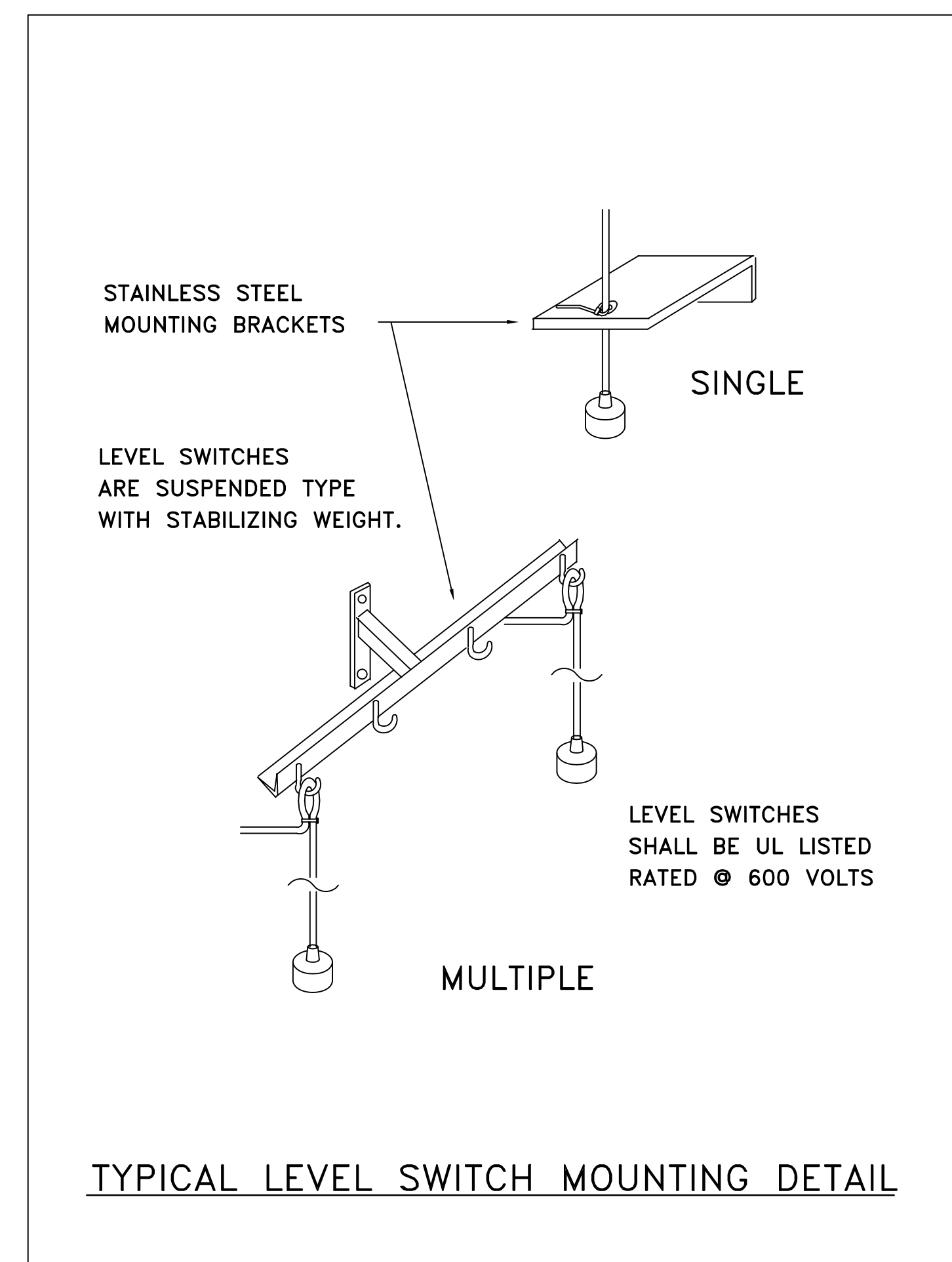
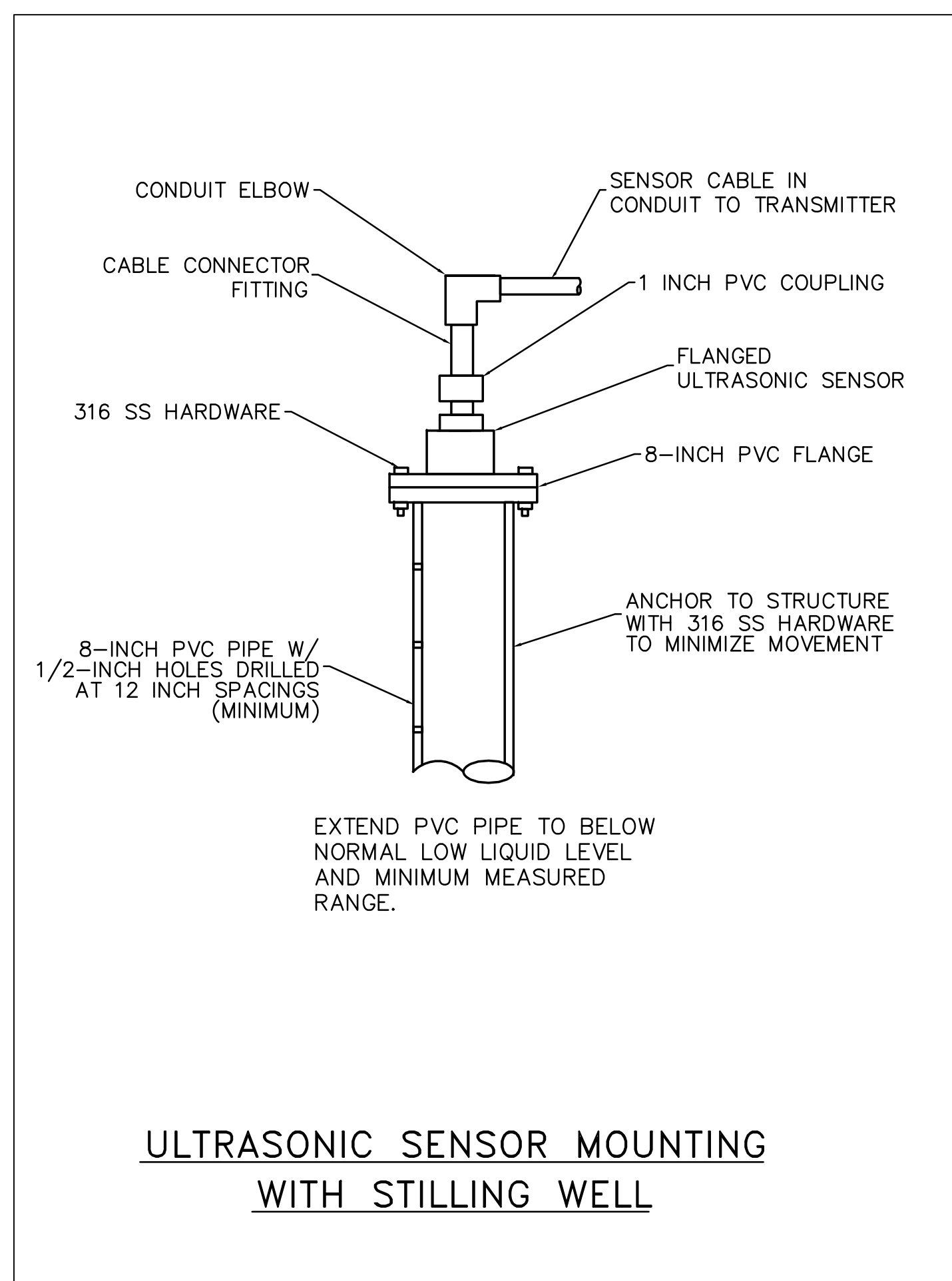
MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1

NETWORK DIAGRAM

DATE:	JULY 2011	SCALE:		DRAWING NUMBER:	
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DRAWN	MDT	VERTICAL:	NA		
DESIGNED	MDT				
CHECKED	TER				
PROJ. MGR.	DCW				
STATUS:		ISSUED FOR BID			

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REVNO.	DESCRIPTIONS REVISIONS	DATE

MICHAEL TWEDEL, P.E.
No. 60940

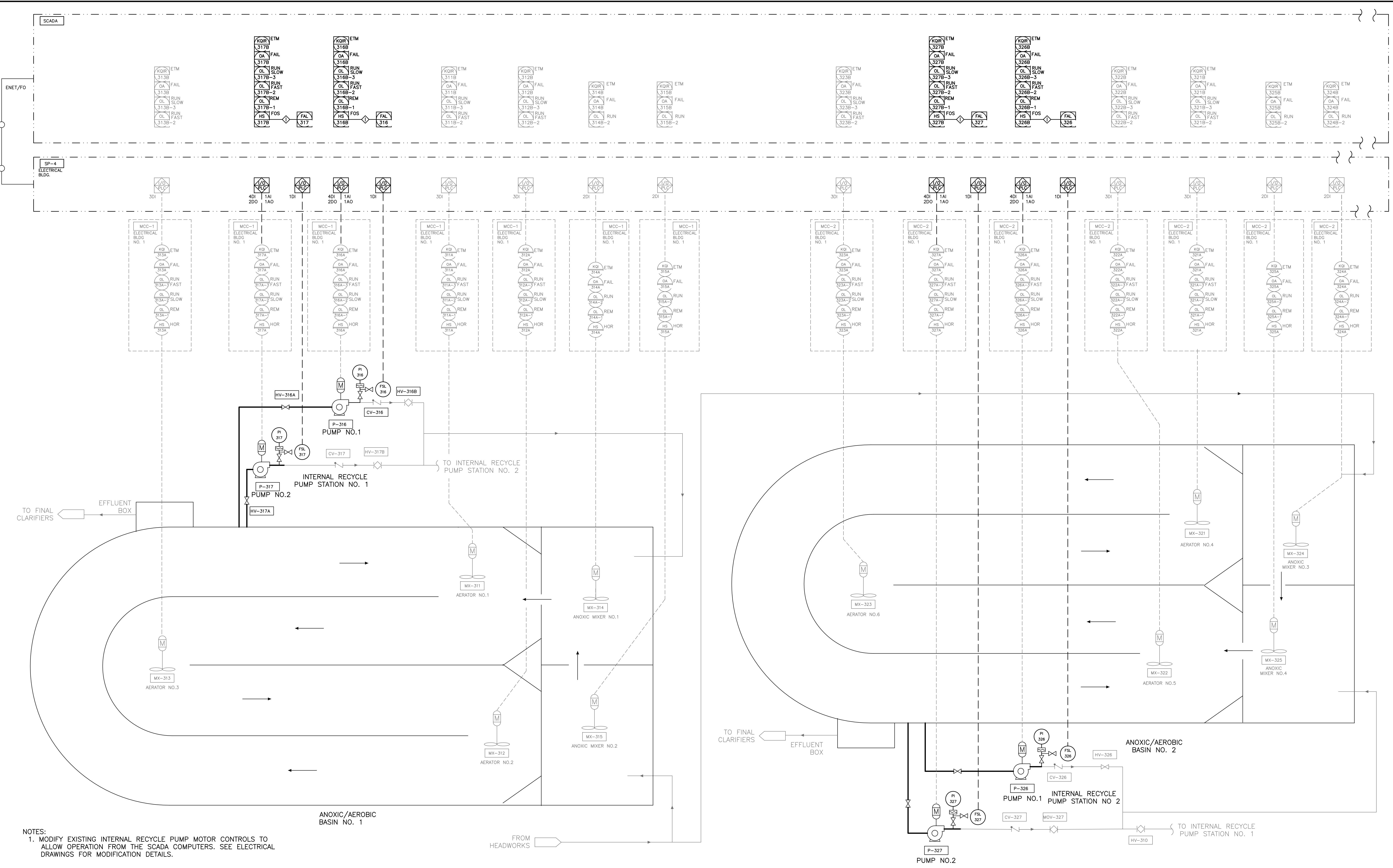
1365 Hamlet Avenue
Clearwater, Florida 33756
Phone: (727)442-7196, Fax: (727)461-3827

MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
PROCESS AND INSTRUMENTATION
DETAILS

JULY 2011 SCALE
1024-0143 HORIZONTAL: NA
JCS NA
MDT VERTICAL: I-0.3
TER NA
DCW NA

ISSUED FOR BID



NOTES:
 1. MODIFY EXISTING INTERNAL RECYCLE PUMP MOTOR CONTROLS TO ALLOW OPERATION FROM THE SCADA COMPUTERS. SEE ELECTRICAL DRAWINGS FOR MODIFICATION DETAILS.

REVNO.	DESCRIPTIONS	DATE

SEAL
 MICHAEL TWEEDL, P.E.
 No. 60940

SEAL

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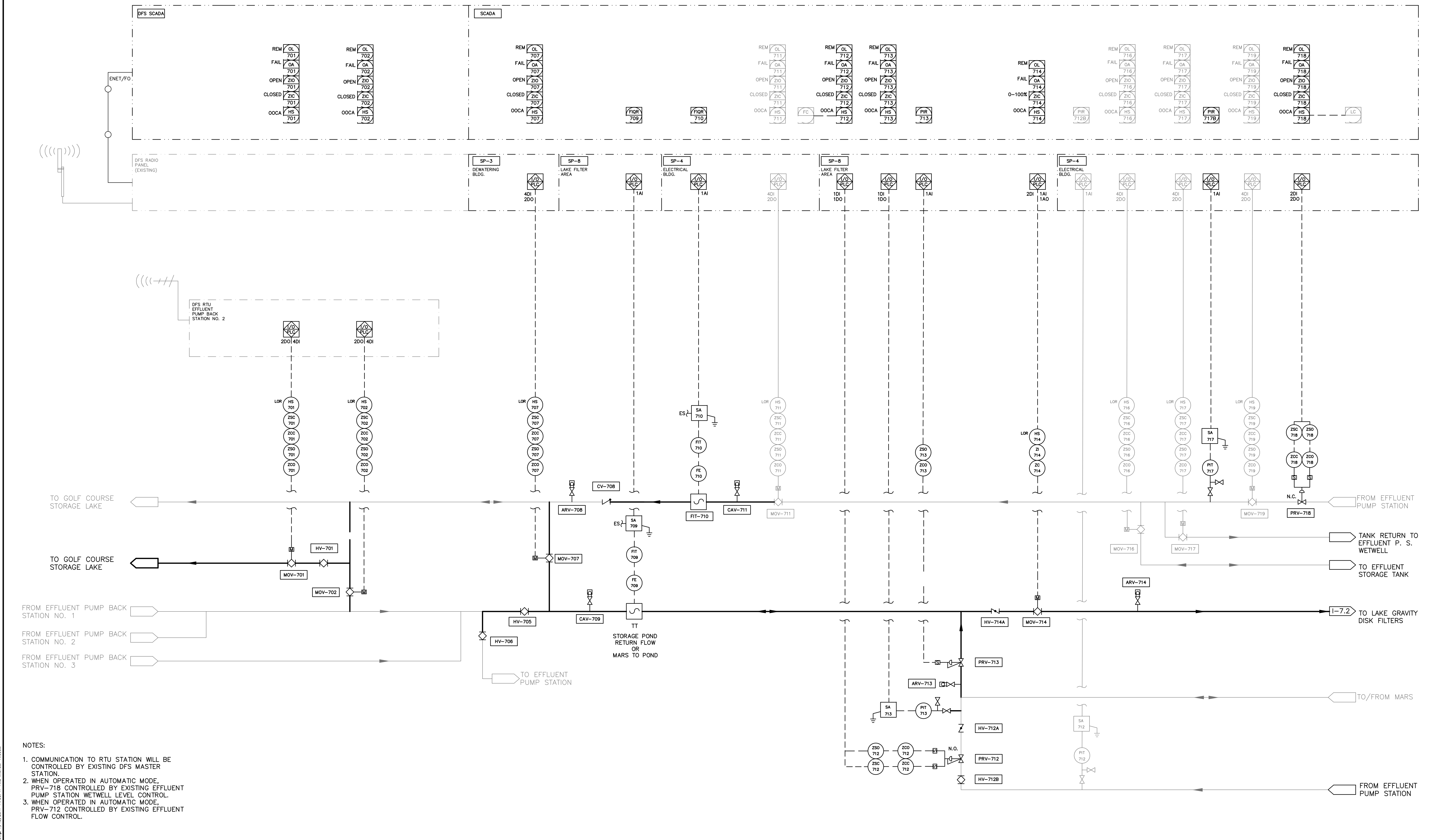
MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
PROCESS AND INSTRUMENTATION DIAGRAM
ANOXIC/AEROBIC BASINS NO. 1 AND NO. 2

DATE: JULY 2011
 MCE PROJ. # 1024-0143
 DRAWN: MDT
 DESIGNED: MDT
 CHECKED: TER
 PROJ. MGR. DCW

SCALE: HORIZONTAL: NA, VERTICAL: NA
 DRAWING NUMBER: I-3.1
 REVISION: ISSUED FOR BID

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- NOTES:
1. COMMUNICATION TO RTU STATION WILL BE CONTROLLED BY EXISTING DFS MASTER STATION.
 2. WHEN OPERATED IN AUTOMATIC MODE, PRV-718 CONTROLLED BY EXISTING EFFLUENT PUMP STATION WETWELL LEVEL CONTROL.
 3. WHEN OPERATED IN AUTOMATIC MODE, PRV-712 CONTROLLED BY EXISTING EFFLUENT FLOW CONTROL.

REVNO.	DESCRIPTIONS	DATE

SEAL

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No. 60940

SEAL

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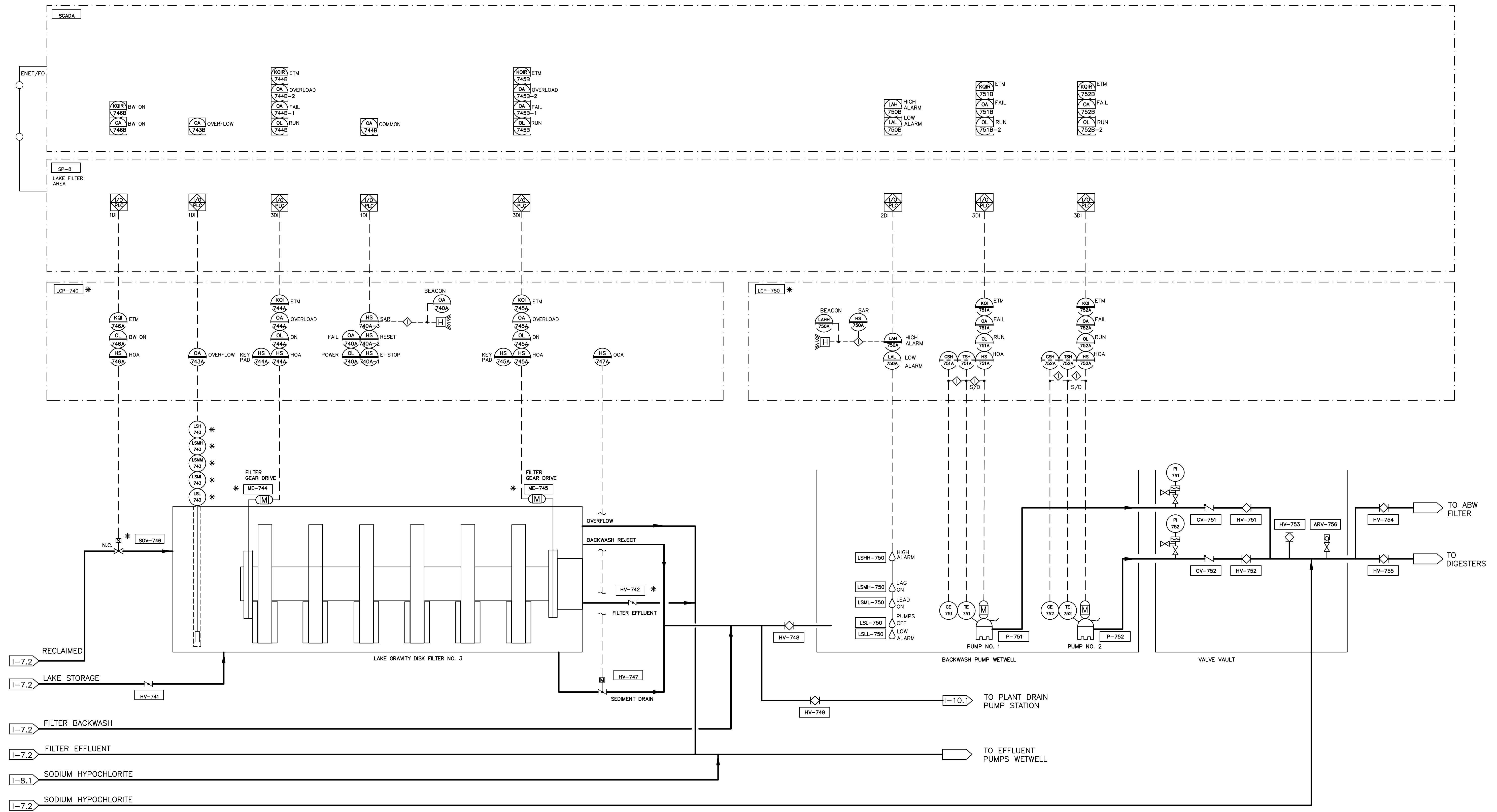
MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1

PROCESS AND INSTRUMENTATION DIAGRAM
EFFLUENT STORAGE AND DISCHARGE

DATE: JULY 2011	SCALE	DRAWING NUMBER
MCE PROJ. # 1024-0143	HORIZONTAL: NA	1-7.1
DRAWN: JCS	VERTICAL: NA	
DESIGNED: MDT	PROJ. MGR. DCW	REVISION
CHECKED: TER	ISSUED FOR BID	

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- I-7.2 RECLAIMED
- I-7.2 LAKE STORAGE
- I-7.2 FILTER BACKWASH
- I-7.2 FILTER EFFLUENT
- I-8.1 SODIUM HYPOCHLORITE
- I-7.2 SODIUM HYPOCHLORITE

NOTE:
* BY FILTER EQUIPMENT SUPPLIER

REVNO.	DATE	DESCRIPTIONS REVISIONS

SEAL
MICHAEL TWEEDL, P.E.
No. 60940

SEAL

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1365 Hamlet Avenue
Clearwater, Florida 33756
Phone: (727)442-7196, Fax: (727)461-3827
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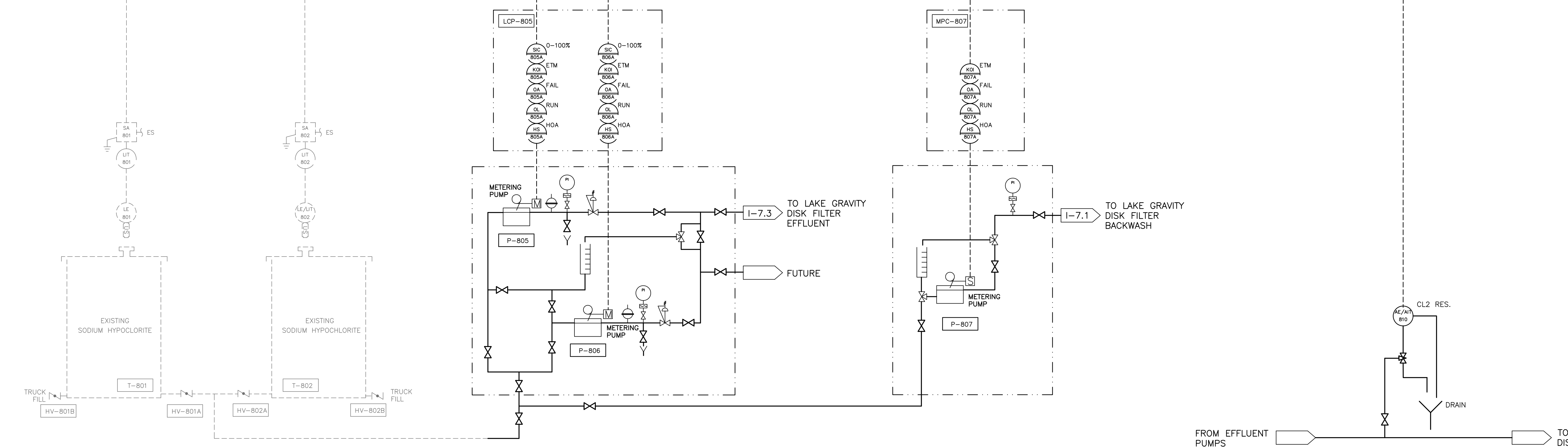
MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
PROCESS AND INSTRUMENTATION DIAGRAM
LAKE GRAVITY DISK FILTER NO. 3
AND BACKWASH PUMP STATION

DATE:	JULY 2011
MCE PROJ. #	1024-0143
DRAWN	JCS
DESIGNED	MDT
CHECKED	TER
PROJ. MGR.	DCW

SCALE	DRAWING NUMBER
HORIZONTAL: NA	I-7.3
VERTICAL: NA	
STATUS: ISSUED FOR BID	REVISION

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- NOTES:
- METERING PUMPS ARE DISABLED FROM OPERATION IN AUTO MODE WHEN SELECTED STORAGE TANK IS AT LOW LEVEL.
 - IN AUTO MODE, IF METERING PUMP IS SELECTED FOR PLANT DRAIN PUMP STATION, PUMP WILL OPERATE ON ANY LAKE FILTER BACKWASH STATUS. WHEN PUMP IS SELECTED FOR BACKWASH PUMP STATION, PUMP WILL OPERATE ON RUN STATUS OF EITHER BACKWASH PUMP.

REVNO.	DESCRIPTIONS	DATE

SEAL

MICHAEL TWEEDEL, P.E.
No. 60940

SEAL

1365 Hamlet Avenue
Clearwater, Florida 33756
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www.mckimcreed.com

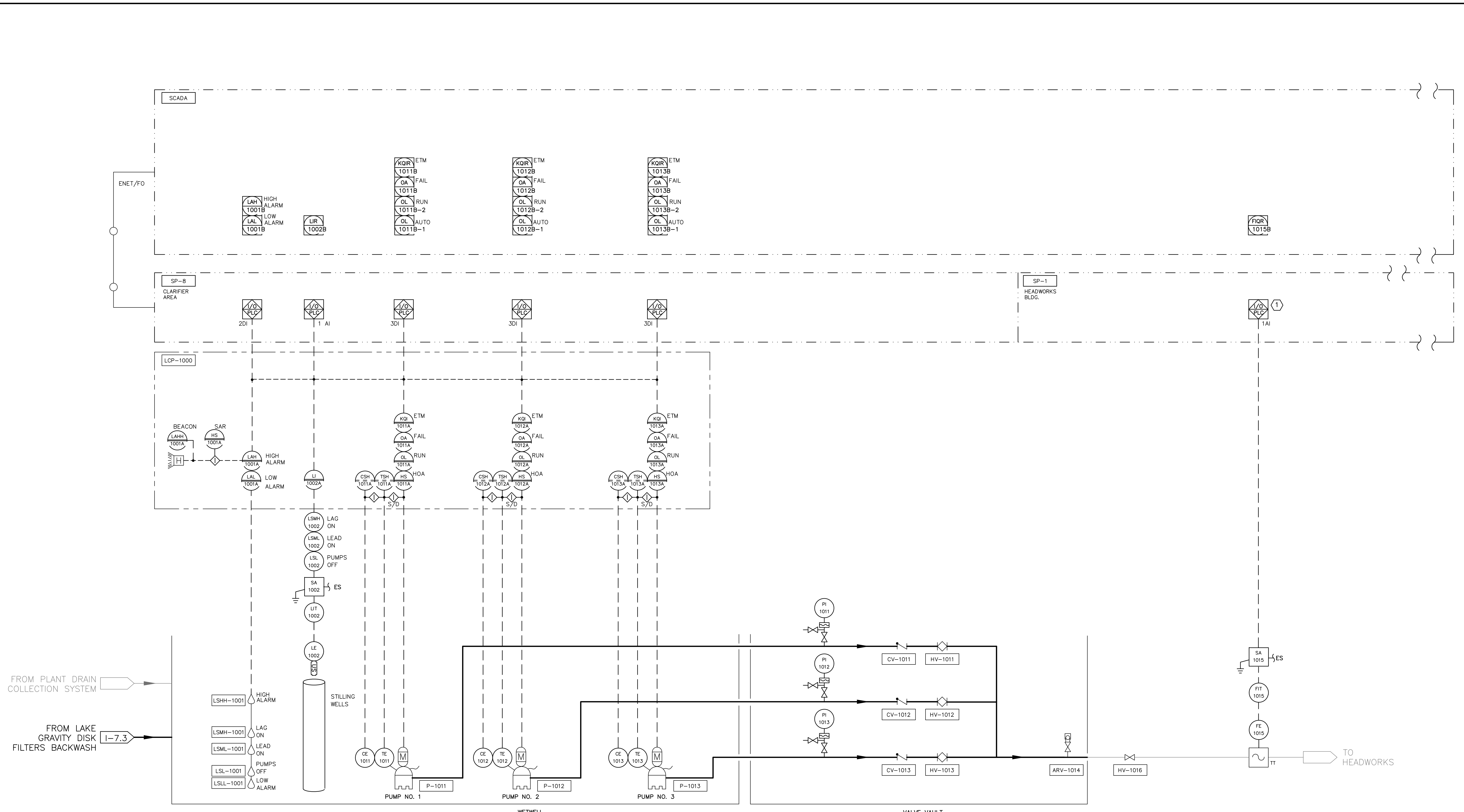
MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1

PROCESS AND INSTRUMENTATION DIAGRAM
SODIUM HYPOCHLORITE
STORAGE AND PUMPING

DATE: JULY 2011	SCALE:	DRAWING NUMBER:
MCE PROJ. # 1024-0143	HORIZONTAL: NA	1-8.1
DRAWN: JCS	VERTICAL: NA	
DESIGNED: MDT	PROJ. MGR: DCW	REVISION:
CHECKED: TER	ISSUED FOR BID	

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PLANT DRAIN PUMP STATION

- NOTES:
1. TERMINATE NEW FLOW METER TO EXISTING SPARE ANALOG INPUT POINT WITHIN HEADWORKS SCADA PANEL. PROVIDE SURGE PROTECTION AT SIGNAL INPUT TO PANEL.
 2. ULTRA SONIC LEVEL CONTROL RELAYS AND FLOAT SWITCHES TO OPERATE IN PARALLEL WITH FLOATS SET 6 INCHES HIGHER THAN ULTRASONIC LEVEL CONTROL RELAYS.

REVNO.	DESCRIPTIONS	DATE

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NWRF EXPANSION PHASE 1
PROCESS AND INSTRUMENTATION DIAGRAM
PLANT DRAIN PUMP STATION

DATE: JULY 2011	SCALE	DRAWING NUMBER
MCE PROJ. # 1024-0143	HORIZONTAL: NA	I-10.1
DRAWN: MDT	VERTICAL: NA	
DESIGNED: MDT	PROJ. MGR. DCW	REVISION
CHECKED: TER	ISSUED FOR BID	

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LIGHTING FIXTURE SCHEDULE											
TYPE	DESCRIPTION	LAMP DATA		BALLAST		VOLTAGE	WATTAGE	MOUNTING	MANUFACTURER	CATALOGUE/SERIES NUMBER	REMARKS
		No.	TYPE	No.	TYPE						
P1	HIGH-PRESSURE SODIUM SITE LIGHTING FIXTURE POLE-MOUNTED	1	150W HPS	1	ELCTRNC	120	187	POLE	NITE-BRITES COOPER/LUMARK LITHONIA	SBX-150S-5T-SC2-PSC HPHR-R2-150-120V-LL KSF1-150S-R2-120-SP04-LPI-CR	FIXTURE SHALL INCLUDE ENHANCED CORROSION RESISTANCE
	12" AL STRAIGHT SQUARE POLE	-	-	-	-	-	-	-	NITE-BRITES COOPER/LUMARK LITHONIA	SSA4-STB-12-D1-BRA SSA-4T12-WCM1-XG SSA-12-4C-DM19-DOB	POLE SHALL INCLUDE VIBRATION DAMPER

- LIGHTING FIXTURE SCHEDULE NOTES:**
- COORDINATE LIGHTING FIXTURE FINISHES WITH ARCHITECTURAL DRAWINGS.
 - REFER TO INDIVIDUAL LIGHTING PLANS FOR FIXTURE MOUNTING HEIGHTS NOT INDICATED ON THE SCHEDULE.

DEVICE SYMBOLS

- Ⓢ FLOAT/FLOW SWITCH
- Ⓛ LIMIT SWITCH
- Ⓟ PRESSURE SWITCH
- Ⓣ THERMOSTAT
- PULL BOX, SIZE PER NEC
- Ⓜ JUNCTION BOX, SIZE PER NEC
- Ⓢ ELECTRICAL EQUIPMENT CONNECTION
- Ⓢ GROUND ROD
- Ⓢ CONTROL STATION
- Ⓢ STOP-START STATION
- Ⓢ LOCK-OUT-STOP SWITCH
- Ⓢ RED STOPPED LIGHT
- Ⓢ FUSE
- Ⓢ MOTOR OL RELAY
- Ⓢ HEATER
- ▶ CLASS 1/DIVISION 1/1 CONDUIT SEAL-OFF FITTING
- LOCATED AT FIELD DEVICE
- △ LOCATED AT MAIN CONTROL PANEL
- LOCATED AT LOCAL CONTROL PANEL
- MOUNTED ON DOOR
- Ⓢ CIRCUIT BREAKER
- Ⓢ AMMETER
- Ⓢ AMMETER SWITCH
- Ⓢ VOLTMETER
- Ⓢ VOLTMETER SWITCH
- Ⓢ MOTOR (HP=RATED HORSEPOWER)
- Ⓢ VACUUM STARTER
- Ⓢ ANS/IEEE TYPE-52 AC POWER CIRCUIT BREAKER
- Ⓢ INDUSTRIAL BATTERY SET W/MOUNTING RACK
- Ⓢ POWER MONITOR
- Ⓢ UNDER VOLTAGE
- Ⓢ PHASE UNBALANCE
- Ⓢ INCOMPLETE SEQUENCE
- Ⓢ OVER TEMPERATURE
- Ⓢ TIMED OVERCURRENT
- Ⓢ TIMED GROUND FAULT
- Ⓢ ALARM RELAY
- Ⓢ FREQUENCY
- Ⓢ LOCK OUT
- Ⓢ DIFFERENTIAL
- Ⓢ DUCTBANK CALLOUT
- Ⓢ CONDUIT OR CABLE NUMBER

GENERAL ELECTRICAL SYMBOLS

- CONDUIT HOMERUN TO EQUIPMENT SHOWN. LINE TYPE DESIGNATES CONCEALED, EXPOSED, ETC. NUMBERS/TEXT DESIGNATE HOMERUN EQUIPMENT (I.E. PANEL BOARD CIRCUIT NUMBER).
- GENERAL CONDUIT RUN EXPOSED
- CONCEALED CONDUIT IN FLOOR SLAB, UNDERGROUND, ETC.
- EXISTING CABLE OR CONDUIT
- CONDUIT TURNED DOWN
- CONDUIT TURNED UP
- E — SITE ELECTRICAL
- E — EXISTING SITE ELECTRICAL
- T — SITE TELEPHONE
- T — EXISTING SITE TELEPHONE
- OHE — OVERHEAD ELECTRICAL UTILITY
- OHT — OVERHEAD TELEPHONE UTILITY
- UGE — UNDERGROUND ELECTRICAL UTILITY
- UGT — UNDERGROUND TELEPHONE UTILITY
- G — SITE GROUND
- G — EXISTING SITE GROUND
- ELECTRICAL INTERLOCK
- ELECTRICAL BUSS
- ELECTRICAL BUSS DUCT
- DISCONNECT SWITCH. TOP NUMBER DENOTES FUSE SIZE (NF=NON-FUSED). BOTTOM NUMBER DENOTES NEMA ENCLOSURE RATING.
- CIRCUIT BREAKER. TOP NUMBER DENOTES TRIP. BOTTOM NUMBER DENOTES FRAME SIZE. RIGHT NUMBER DENOTES NEMA ENCLOSURE RATING.
- COMBINATION MAGNETIC MOTOR STARTER AND DISCONNECT SWITCH OR MOTOR CIRCUIT PROTECTOR. LEFT NUMBER DENOTES NEMA STARTER SIZE. TOP NUMBER DENOTES FUSE SIZE OR MCP. BOTTOM NUMBER DENOTES FRAME SIZE. RIGHT NUMBER DENOTES NEMA ENCLOSURE.
- FULL VOLTAGE NON-REVERSING MOTOR STARTER. LEFT NUMBER DENOTES NEMA STARTER SIZE.
- REDUCED VOLTAGE SOLID-STATE MOTOR STARTER.
- VARIABLE FREQUENCY MOTOR CONTROLLER.
- LIGHTING CONTROL SWITCH: [LOWERCASE LETTER] - CONTROL SWITCHING
- M - MOTOR RATED SWITCH 3 - THREE-WAY SWITCHING
- D - DIMMER CONTROL 4 - FOUR-WAY SWITCHING
- OS - OCCUPANCY SENSOR
- OUTLETS: NUMBER DENOTES PANEL BOARD CIRCUIT FOR POWER OUTLETS. IF SHOWN, LOWERCASE LETTER DENOTES CONTROL SWITCHING FOR POWER OUTLETS.
- Ⓢ SIMPLEX RECEPTACLE. ▽ VOICE (PHONE) OUTLET.
- Ⓢ DUPLEX RECEPTACLE. ▽ DATA OUTLET.
- Ⓢ QUADRAPLEX RECEPTACLE. ▽ VOICE/DATA COMBINATION OUTLET.

LIGHTING SYMBOLS

- PP-C/1 LIGHT FIXTURES (VARIOUS TYPES) - UPPERCASE LETTER DENOTES FIXTURE TYPE, REFER TO LIGHTING SCHEDULE OR NOTES. NUMBER DENOTES LIGHTING PANEL CIRCUIT. LOWERCASE LETTER DENOTES CONTROL SWITCH.
- EMERGENCY LIGHT - BATTERY EQUIPPED, CIRCUIT AHEAD OF CONTROL SWITCHES. ADDITIONAL FIXTURE HEADS MAY BE SHOWN CONNECTED TO UNIT.
- EMERGENCY EXIT LIGHT - BATTERY EQUIPPED.
- Ⓢ PHOTOELECTRIC CONTROL DEVICE
- Ⓢ LIGHTING CONTACTOR

TYPICAL ABBREVIATIONS

- A, AMP
- AFO ABOVE FINISHED GRADE
- AIT ANALYTICAL INDICATION TRANSMITTER
- AHU AIR HANDLING UNIT
- AIC AMPERE INTERRUPTING CAPACITY
- AL ALUMINUM
- ATS AUTOMATIC TRANSFER SWITCH
- BKR BREAKER
- C CONDUIT
- CAB CABINET
- CAT CATALOG
- CL CHLORINE
- CB CIRCUIT BREAKER
- CCTV CLOSED CIRCUIT TELEVISION
- CKT CIRCUIT
- CLG CEILING
- CP CONTROL PANEL
- CR CONTROL RELAY, CORROSION RESISTANT
- CS CONTROL SWITCH
- CV CONTROL VALVE
- CT CURRENT TRANSFORMER
- CU COPPER
- EF EXHAUST FAN
- EMER EMERGENCY
- EMT ELECTRICAL METALLIC TUBING
- ENCL ENCLOSURE
- EQUIP EQUIPMENT
- EWC ELECTRIC WATER COOLER
- EWB ELECTRIC WATER HEATER
- EPRF EXPLOSION PROOF
- FA FIRE ALARM
- FAAP FIRE ALARM ANNUNCIATOR PANEL
- FACP FIRE ALARM CONTROL PANEL
- FBO FURNISHED BY OTHERS
- FLA FULL LOAD AMPS
- FVNR FULL VOLTAGE NON-REVERSING STARTER
- FLOR FLOURESCENT FLOOR
- FMC FLEXIBLE METAL CONDUIT
- FWE FURNISHED WITH EQUIPMENT
- GEN GENERATOR
- G, GND GROUND
- GFIC GROUND FAULT CIRCUIT INTERRUPTER
- HH HANDHOLE
- HID HIGH INTENSITY DISCHARGE
- HOA HAND-OFF-AUTO
- HP HORSE POWER
- HPF HIGH POWER FACTOR
- HPS HIGH PRESSURE SODIUM
- HTR HEATER
- HV HIGH VOLTAGE
- HZ HERTZ
- IMC INTERMEDIATE METALLIC CONDUIT (GALVANIZED)
- INCAND INCANDESCENT
- JB JUNCTION BOX
- k THOUSAND
- KCMIL THOUSAND CIRCULAR MILLS
- KA KILOVOLT AMPERE
- kW KILOWATTS
- kWH KILOWATT-HOURS
- LFMC LIQUIDTIGHT FLEXIBLE METAL CONDUIT
- LFNC LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT
- LI LEVEL INDICATION TRANSMITTER
- LP LIGHTING PANEL, LIGHT POLE
- LPG LIGHTING
- MCB MAIN CIRCUIT BREAKER
- MCC MOTOR CONTROL CENTER
- MCP MOTOR CIRCUIT PROTECTOR
- MDP MAIN DISTRIBUTION PANEL
- MFR MANUFACTURER
- MH MANHOLE
- MLO MAIN LUGS ONLY
- MSB MAIN SWITCHBOARD
- MTD MOUNTED/MOUNTING
- MTS MANUAL TRANSFER SWITCH
- MV MEDIUM VOLTAGE
- NEC NATIONAL ELECTRIC CODE
- NEU NEUTRAL
- NA NOT APPLICABLE
- NC NORMALLY CLOSE
- NO NORMALLY OPEN
- NIC NOT IN CONTRACT
- NTS NOT TO SCALE
- P POLE
- PA PUBLIC ADDRESS
- PB PULL BOX, PUSH-BUTTON
- PCP PUMP CONTROL PANEL
- PF POWER FACTOR
- PH PHASE
- PIT PRESSURE INDICATION TRANSMITTER
- PLC PROGRAMMABLE LOGIC CONTROLLER
- PNL PANEL
- PP POWER PANEL, POWER POLE
- PT POTENTIAL TRANSFORMER
- PWR POWER
- RECEP RECEPTACLE
- RVSS REDUCED VOLTAGE SOFT STARTER
- REQ REQUIRED
- RM ROOM
- RMC RIGID METAL CONDUIT (GALVANIZED)
- RTU REMOTE TELEMETRY UNIT
- SCR DC MOTOR DRIVE
- SH SHEET
- SPEC SPECIFICATION
- SS SELECTOR SWITCH
- SST STAINLESS STEEL
- STP SHIELDED TWISTED PAIR
- SW SWITCH
- SWBD SWITCHBOARD
- SWGR SWITCH GEAR
- TEL TELEPHONE
- TVSS TRANSIENT VOLTAGE SURGE SUPPRESSER
- TYP TYPICAL
- UG UNDERGROUND
- UH UNIT HEATER
- UON UNLESS OTHERWISE NOTED
- UTILITY UTILITY
- UTP UNSHIELDED TWISTED PAIR
- V VOLTS
- VFD VARIABLE FREQUENCY DRIVE
- W WIRE, WATT
- WH WEATHERPROOF
- WP WEATHERPROOF
- XFMR TRANSFORMER

GENERAL NOTES

- REFERENCE ALL SPECIFICATIONS AND CONTRACT DRAWINGS FOR ADDITIONAL REQUIREMENTS AND CONTRACT RESPONSIBILITIES PRIOR TO COMMENCING WORK.
- THE GENERAL NOTES STATED ON THIS DRAWING ARE APPLICABLE TO ALL ELECTRICAL WORK UNLESS NOTED OTHERWISE.
- ALL ELECTRICAL WORK SHALL COMPLY WITH THE CURRENT NEC, NESC AND LOCAL CODES INCLUDING OWNERS STANDARDS AND REQUIREMENTS.
- THE ELECTRICAL INSTALLATION SHALL COMPLY THE REQUIREMENTS OF NECA-1 2006 (STANDARD PRACTICES FOR GOOD WORKMANSHIP IN ELECTRICAL CONSTRUCTION).
- THE SCHEDULING AND DURATION OF ANY SHUTDOWN OF ANY PLANT PROCESS FOR THE REMOVAL OF EXISTING EQUIPMENT OR INSTALLATION OF NEW EQUIPMENT SHALL BE COORDINATED IN ADVANCE WITH THE OWNER.
- ALL SYMBOLS AND ABBREVIATION MAY NOT BE UTILIZED FOR THIS PROJECT.
- ADDITIONAL SYMBOLS NOT SHOWN ON THIS DRAWING MAY BE SHOWN ELSEWHERE ON THE ELECTRICAL DRAWINGS.
- ELECTRICAL DRAWINGS SHOW MAJOR CABLE AND CONDUIT REQUIREMENTS. REFERENCE EQUIPMENT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- ALL 480V ELECTRICAL EQUIPMENT SHALL HAVE A MINIMUM RATING OF 22K AIC.
- ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED SO THAT ALL CODE-REQUIRED AND MANUFACTURER-RECOMMENDED SERVING CLEARANCES ARE MAINTAINED. INSTALLATIONS SHALL COMPLY WITH NEC 110-26 FOR CLEARANCE REQUIREMENTS.
- ALL POWER AND CONTROL WIRING OR CABLES SHALL BE 600V RATED XHHW-2 STRANDED COPPER, UNLESS OTHERWISE NOTED ON DRAWINGS.
- ALL AMPACITIES ARE BASED ON 75°C RATING. THE CONTRACTOR IS RESPONSIBLE FOR THE INCREASING OF CONDUCTOR SIZES AS NECESSARY TO MEET THE REQUIREMENTS OF NEC 110-14(C) WHERE TERMINATIONS ARE NOT LISTED AND LABELED FOR USE AT 75°C. THIS REQUIREMENT APPLIES TO TERMINATIONS IN BOTH NEW EQUIPMENT AND IN EXISTING EQUIPMENT TO WHICH TERMINATIONS ARE MADE AS PART OF THIS PROJECT.
- NO SPLICES OR JUNCTIONS TO FEEDER CABLES SHALL BE MADE WITHOUT ENGINEERS APPROVAL.
- ALL EXPOSED CONDUIT SHALL BE RIGID ALUMINUM.
- ALL CONDUIT INSTALLED BELOW GRADE SHALL BE NON-REINFORCED CONCRETE DUCTBANK; REFERENCE DETAIL SHEETS.
- ALL DUCTBANKS CROSSING ROADWAYS SHALL BE REINFORCED CONCRETE AND EXTEND 5- FEET FROM EDGE OF PAVEMENT. DUCTBANKS SHALL CROSS PROCESS PIPING AT 90° ANGLE WHERE POSSIBLE. REFERENCE DETAIL SHEETS.
- ALL CONDUIT TRANSITIONS THROUGH FINISHED GRADE OR CONCRETE SHALL BE ALUMINUM WITH HEAVY WALL HEAT-SHRINKABLE TUBING 6" MIN. ABOVE AND BELOW TRANSITION.
- ROUGH-IN CONDUIT AS REQUIRED FOR DIRECT CONNECTION TO EQUIPMENT AS SHOWN. PROVIDE FLEXIBLE CONNECTIONS TO ALL EQUIPMENT AND MAKE ALL CONNECTIONS COMPLETE AND IN ACCORDANCE WITH THE SPECIFICATIONS.
- ALL CONDUIT SHALL RUN CONCEALED UNLESS OTHERWISE NOTED OR SHOWN. THE CONDUITS SHALL RUN PARALLEL TO LANDSCAPE AND STRUCTURAL FEATURES, AND THE BENDS AND TURNS SHALL BE MADE BY MEANS OF CONDUIT BENDS. MOST CONDUIT LAYOUTS ARE NOT AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL PROPOSE LOGICAL GROUPINGS, MARSHALLING AND ROUTING OF CONDUITS AND WIRING FOR APPROVAL BY ENGINEER PRIOR TO INSTALLATION.
- THE CONTRACTOR SHALL PROVIDE ALL REQUIRED PULL BOXES, TERMINAL BOXES AND JUNCTION BOXES FOR INSTALLATION OF THE WIRING IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS THOUGH THE BOXES MAY NOT BE INDICATED ON THE DRAWINGS.
- CONDUIT AND WIRING FOR LIGHTING, RECEPTACLES AND OTHER SINGLE PHASE POWERED DEVICES ARE GENERALLY NOT SHOWN BUT SHALL BE PROVIDED AS REQUIRED FOR PROPER SERVICE. MULTI-PHASE CIRCUITS SHALL BE PROVIDED WITH DEDICATED NEUTRAL CONDUCTORS.
- ALL SPARE CONDUITS SHALL BE CAPPED OR PLUGGED AND SHALL INCLUDE 200# TEST POLYPROPYLENE PULL STRING.
- STRUT-CHANNEL SHALL NOT BE BENT, DRILLED, CUT OR OTHERWISE MODIFIED TO PRODUCE FITTINGS, BRACES OR BRACKETS FOR CONDUIT AND EQUIPMENT SUPPORTS.
- MANUFACTURED STRUT-CHANNEL BRACES, BRACKETS, FITTINGS OR POST BASES SHALL BE PROVIDED AND INSTALLED WITH ASSOCIATED HARDWARE AND FASTENERS FOR CONDUIT AND EQUIPMENT SUPPORTS.
- CONTRACTOR SHALL PROVIDE AUXILIARY SUPPORTS FOR SWITCHBOARDS, PANELBOARDS, TRANSFORMERS, CONTROL PANELS, ETC., AS REQUIRED.
- CONTRACTOR SHALL PROVIDE AND INSTALL CONCRETE EMBEDDED LEVELING CHANNEL SUPPORTS FOR FLOOR MOUNTED EQUIPMENT.
- STRUCTURAL MEMBERS SHALL NOT BE DRILLED, CUT, WELDED OR OTHERWISE MODIFIED WITHOUT PRIOR APPROVAL OF THE ENGINEER OF RECORD.
- ALL NEW EQUIPMENT SHALL FIT INTO EXISTING AVAILABLE SPACE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE EQUIPMENT WHICH MEETS THE SPACE REQUIREMENTS.
- THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUITS ARE BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS APPROVED BY THE ENGINEER MAY BE MADE BY THE CONTRACTOR AT HIS EXPENSE TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED.
- THE CONTRACTOR SHALL PROVIDE ALL NECESSARY COMPONENTS REQUIRED FOR MAKING FINAL CONNECTION OF ALL EQUIPMENT INSTALLED OR MODIFIED AS PART OF THIS CONTRACT.
- NOT ALL MOISTURE AND HAZARDOUS AREA CONDUIT SEALS ARE SHOWN ON THE DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE CODE, SPECIFICATION, AND DRAWING REQUIREMENTS FOR THEIR LOCATION.
- CONTRACTOR SHALL PROVIDE BLACK TEXT ON WHITE HEAT-SHRINKABLE CABLE/WIRE IDENTIFICATION LABEL AT BOTH ENDS OF POWER, CONTROL AND DATA WIRING.
- GROUND FAULT CURRENT INTERRUPTING (GFCI) RECEPTACLES:
 - SHALL BE RATED FOR 20A AT 120V WITH LED POWER INDICATOR
 - INSTALLED IN INTERIOR SPACES WHERE EXPOSED TO WATER SOURCES SUCH AS TOILET ROOMS, SHOWER AREAS, KITCHENS, ETC., INDIVIDUAL GFCI RECEPTACLES SHALL BE PROVIDED.
 - INSTALLED OUTDOORS OR IN PROCESS AREAS, ALL RECEPTACLES SHALL BE WEATHER PROOF, CORROSION RESISTANT, AND SHALL BE INDIVIDUAL GFCI DEVICES.

TYPICAL DEVICE MOUNTING HEIGHTS

RECEPTACLES (INTERIOR PROCESS AREAS)	16" AFF
RECEPTACLES (EXTERIOR PROCESS AREAS)	48" AFF
LIGHT SWITCHES	48" AFF
PHONE OUTLETS	16" AFF
PHONE OUTLETS (WALL MOUNT)	64" AFF
DATA OUTLETS	16" AFF
FIRE ALARM PULL STATION	48" AFF
FIRE ALARM AUDIO/VISUAL ALARM	80" AFF
FIRE ALARM VISUAL ALARM ONLY	80" AFF
EXIT LIGHTS (WALL MOUNT)	16" ABOVE DOOR
EMERGENCY LIGHTS (WALL MOUNT)	96" AFF

NOTE: DIMENSIONS ARE TO DEVICE TOP UNLESS NOTED OTHERWISE.

REVNO.	DESCRIPTIONS	DATE

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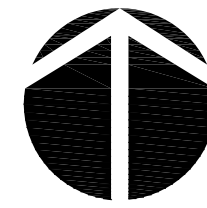
NWRP EXPANSION PHASE 1
ELECTRICAL GENERAL NOTES, LEGENDS AND ABBREVIATIONS

DATE: JULY 2011
MCE PROJ. # 1024-0143
DRAWN: JZM
DESIGNED: ALA
CHECKED: ALA
PROJ. MGR: DCW

SCALE: HORIZONTAL: NA
VERTICAL: NA

DRAWING NUMBER: E-0.01

STATUS: ISSUED FOR BID



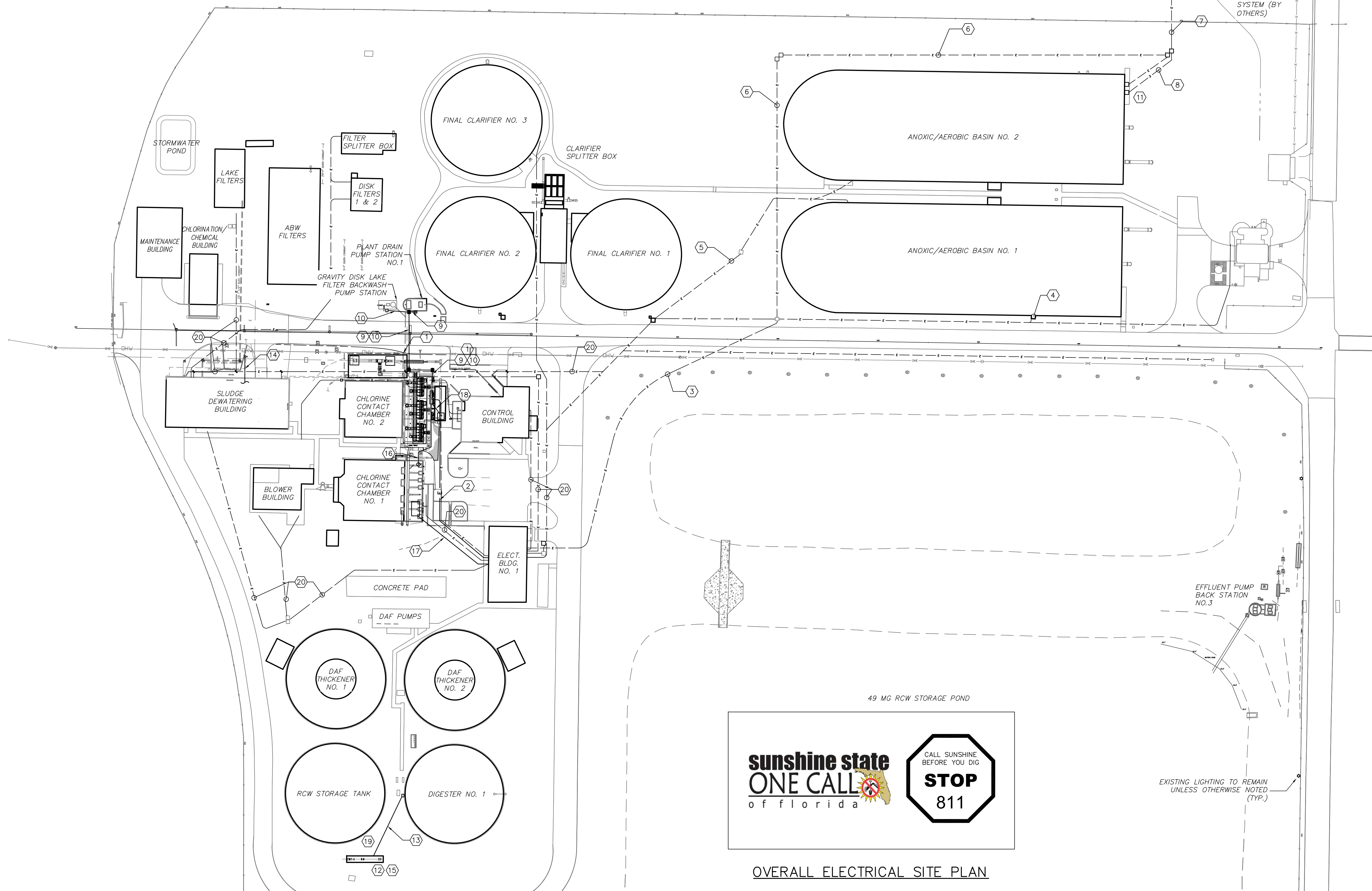
0 50' 100'
SCALE: 1"=50' (Horiz.)

GENERAL NOTES:

- REFER TO SHEET E-0.1 FOR GENERAL ELECTRICAL NOTES, ABBREVIATIONS AND SYMBOLS.
- THE LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING PIPING, UTILITIES, STRUCTURES AND OTHER FEATURES ARE SHOWN BASED ON INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE ELECTRICAL PLANS BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. THE CONTRACTOR SHALL VERIFY AND REVIEW THE LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING PIPING, UTILITIES, STRUCTURES AND OTHER FEATURES (WHETHER OR NOT SHOWN ON THE PLANS) PRIOR TO COMMENCING WORK.
- THE CONTRACTOR SHALL REFERENCE THE YARD PIPING DRAWINGS FOR LOCATIONS OF EXISTING AND PROPOSED PIPE WORK. THE CONTRACTOR SHALL COORDINATE THE DUCTBANK ROUTINGS AND UNDERGROUND PULL-BOX LOCATIONS SUCH THAT THE ELECTRICAL WORK DOES NOT CONFLICT WITH THE PIPE WORK.
- THE CONTRACTOR SHALL COORDINATE WITH THE OTHER CONSTRUCTION PROJECT(S), SHOULD DISCREPANCIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO OBTAIN THE ENGINEER'S CLARIFICATION PRIOR TO THE INSTALLATION.

KEYNOTES:

- NEW FLOW CONTROL ASSEMBLY. REFER TO DRAWING E-7.11 INSTALL THE FOLLOWING CONCRETE ENCASED CONDUIT TO THE EQUIPMENT RACK AT THE LAKE GRAVITY DISC FILTERS:
 - #10, #10G, 1" CONDUIT (MOV-714 480V POWER)
 - #10, #10G, 1" CONDUIT (FIT-709 120V POWER)
 - 1#14, #14G, 1.25" CONDUIT (CONTROL FROM MOV-714, PRV-713 TO SP-8)
 - #16 TSP 1" (FIT-714, SPARE TO SP-8)
- INSTALL THE FOLLOWING CONCRETE ENCASED CABLE AND CONDUIT FROM THE ELECTRICAL BUILDING TO THE EQUIPMENT BUILDING RACK AT THE DISK FILTERS.
 - #3/0, 1#6G, 2.5" (480V TO PP-701)
 - FIBER OPTIC CABLE 2" (COMMUNICATION FROM SP-8 TO PLC IN ELECTRICAL BUILDING)
- EXISTING DUCT BANK TO ANOXIC / AERATION BASINS INCLUDING THE FOLLOWING EQUIPMENT.
 - BASIN 1 AERATOR NO.2
 - BASIN 1 AERATOR NO.1
 - BASIN 1 INTERNAL RECYCLE PUMP 1 - REFER TO E3.1
 - BASIN 1 INTERNAL RECYCLE PUMP 2 - REFER TO E3.1
 - ANOXIC MIXER NO. 1
 - ANOXIC MIXER NO. 2
 - BASIN 2 AERATOR NO.1
 - BASIN 2 AERATOR NO. 2
 - BASIN 2 INTERNAL RECYCLE PUMP 1
 - BASIN 2 INTERNAL RECYCLE PUMP 2
 - ANOXIC MIXER NO. 3
 - ANOXIC MIXER NO. 4
- REPLACE EXISTING 48" X 36" FIBERGLASS JUNCTION BOX ENCLOSURE WITH NEW STAINLESS STEEL NEMA 4X JUNCTION BOX ENCLOSURE.
- EXISTING DUCT BANK TO ANOXIC / AERATION BASINS INCLUDING THE FOLLOWING EQUIPMENT.
 - BASIN 1 AERATOR NO.3
 - BASIN 2 AERATOR NO.3
- EXISTING DUCT BANK FOR 480V POWER TO HEADWORKS.
- INSTALL THE FOLLOWING WIRE IN THE EXISTING SPARE CONDUIT FROM THE HEADWORKS BUILDING TO THE EXISTING HANDHOLES AS SHOWN.
 - #10, #10G, 3 INCH CONDUIT (120V FROM RECEPTACLES AND AREA LIGHTS TO 120/208V PANELBOARD HWL)
- INSTALL THE FOLLOWING CONCRETE ENCASED CONDUIT AND WIRE FROM THE HANDHOLES TO THE NEW STAINLESS STEEL TERMINAL BOXES MOUNTED TO THE BASIN WALL AS SHOWN.
 - #10, #10G, 2 INCH CONDUIT (120V FROM INSTRUMENTS, RECEPTACLES AND AREA LIGHTS TO 120/208V PANELBOARD HWL)
 - 2 INCH CONDUIT SPARE FOR FUTURE INSTRUMENTATION.
- REPLACE EXISTING 3#, 1#6G 480V POWER IN EXISTING CONDUIT FROM PLANT DRAIN PUMP STATION TO MCC-5 LOCATED IN SLUDGE DEWATERING BUILDING. INSTALL THE FOLLOWING CONCRETE ENCASED CONDUIT AND WIRE FROM THE PLANT DRAIN PUMP STATION CONTROL PANEL TO SCADA PANEL SP-8:
 - 2-TSP, 1" CONDUIT (LIT-1002, SPARE)
 - 2#14, #14G, 1.25" CONDUIT (STATUS)
- INSTALL THE FOLLOWING CONCRETE ENCASED CONDUIT AND WIRE FROM THE BACKWASH PUMP STATION CONTROL PANEL CP-750 TO SCADA PANEL SP8 AND PANELBOARD PP-701.
 - #10, #10G, 1 INCH CONDUIT (480V POWER TO CP-750)
 - 2#14, #14G, 1.25 INCH CONDUIT (STATUS TO SP-8)
- INSTALL TWO STAINLESS STEEL TERMINAL BOXES. ONE BOX SHALL BE USED TO TERMINATE 120V POWER. THE OTHER WILL TERMINATE FUTURE PROCESS SIGNALS. RECONNECT EXISTING ANOXIC/AERATION BASIN 120V POWER CIRCUITS FOR RECEPTACLES AND LIGHTING TO 120/208V PANELBOARD IN THE HEADWORKS. REFER TO PANELBOARD SCHEDULE.
- METER AND CHECK VALVE ASSEMBLY. SEE DRAWING E-7.1.
- INSTALL THE FOLLOWING CONCRETE ENCASED CONDUIT AND WIRE FROM THE EXISTING ABANDONED METER AT THE DIGESTER TANK TO THE FIT-710 METER AND CHECK VALVE ASSEMBLY. INSTALL NEW STAINLESS STEEL NEMA 4X JUNCTION AND CONNECT POWER AND SIGNAL CABLES AS LISTED BELOW.
 - 2#10, 1#10G, 1 INCH CONDUIT (FIT-710 120V POWER)
 - 1#16 TSP (FIT-710 SIGNAL)
- INSTALL THE FOLLOWING CONCRETE ENCASED CONDUIT AND WIRE FROM MOTORIZED VALVE MOV-707 TO THE DEWATERING BUILDING.
 - #10, #10G, 1 INCH CONDUIT (MOV-707 480V POWER TO MCC-5)
 - 12#14, 1#14G, 1 INCH CONDUIT (MOV-707 STATUS TO SCADA PANEL SP-3)
- EXISTING MOTORIZED VALVE MOV-711. REPLACE EXISTING CONTROL CONDUIT CONDUCTORS ROUTED TO EXISTING CONNECTION IN SCADA PANEL SP-4 LOCATED IN THE ELECTRICAL BUILDING WITH 12#14, 1#14G.
- INSTALL THE FOLLOWING CONCRETE ENCASED CONDUIT AND WIRE FROM PIT-713 TO SCADA PANEL SP-8.
 - 1#16 TSP, 1 INCH CONDUIT (PIT-713 SIGNAL)
- INSTALL THE FOLLOWING CONCRETE ENCASED CONDUIT AND WIRE FROM PRV-718 AND PIT-717 TO SCADA PANEL SP-4 IN THE ELECTRICAL BUILDING.
 - 10#14, 1#14G, 1 INCH CONDUIT (PRV-718 STATUS TO SCADA PANEL SP-4)
 - 1#16 TSP, 1 INCH CONDUIT (PIT-717 SIGNAL TO SCADA PANEL SP-4)
- INSTALL THE FOLLOWING CONCRETE ENCASED CONDUIT AND WIRE FROM PRV-713 TO SCADA PANEL SP-8.
 - 8#14, 1#14G, 1 INCH CONDUIT (STATUS TO SP-8)
- EXISTING MOTORIZED VALVE MOV-716. REPLACE EXISTING CONTROL CONDUIT CONDUCTORS ROUTED TO EXISTING CONNECTION IN SCADA PANEL SP-4 LOCATED IN THE ELECTRICAL BUILDING WITH 12#14, 1#14G.
- EXISTING UNDERGROUND CONDUIT/DUCT BANK.



49 MG RCW STORAGE POND

STOP
811

OVERALL ELECTRICAL SITE PLAN

REV. NO.	DESCRIPTIONS / REVISIONS	DATE

SEAL
ARTHUR L. ANCHORS, P.E.
No. 39804

SEAL

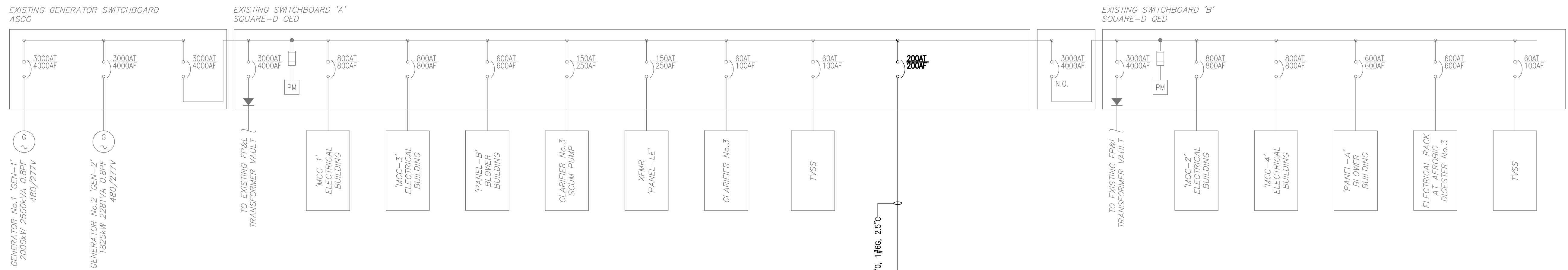
MCKIM & CREED
1365 Hamlet Avenue
Clearwater, Florida 33756
Phone: (727)442-7196, Fax: (727)461-3827
E80006691
www.mckimcreed.com

MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
OVERALL ELECTRICAL SITE PLAN

DATE: JULY 2011	SCALE: HORIZONTAL: 1" = 50'	DRAWING NUMBER: E-0.02
MCE PROJ. # 1024-0143	VERTICAL: NA	REVISION
DRAWN: JZM		
DESIGNED: ALA		
CHECKED: ALA		
PROJ. MGR: DCW		
STATUS: ISSUED FOR BID		

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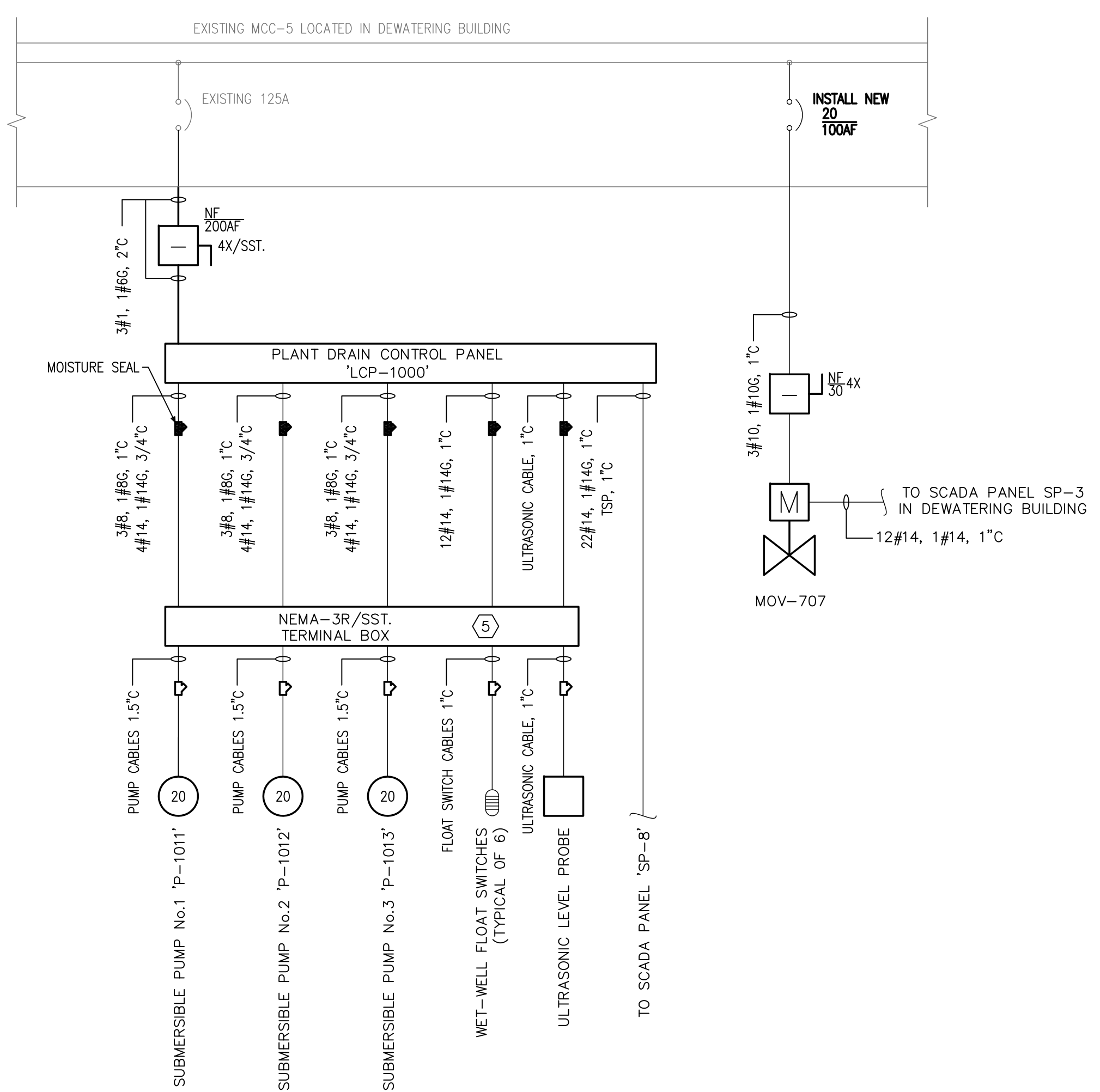
GENERAL NOTES:

1. REFER TO SHEET E-0.1 FOR GENERAL ELECTRICAL NOTES, ABBREVIATIONS AND SYMBOLS.
2. THE EXISTING SINGLE-LINE DIAGRAMS SHOWN ARE BASED ON INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE ELECTRICAL PLANS BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT.
3. THE CONTRACTOR SHALL REVIEW AND VERIFY THE EXISTING ARRANGEMENTS, CONDITIONS, FEATURES AND CABLING OF THE EXISTING ELECTRICAL EQUIPMENT. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND OWNER OF ANY DISCREPANCIES PRIOR TO COMMENCING WORK. FAILURE TO VERIFY EXISTING CONDITIONS SHALL NOT BE JUSTIFICATION FOR ADDITIONAL CLAIMS.
4. REFER TO SHEET E-0.11 FOR WIRING AND CONDUIT SIZES.

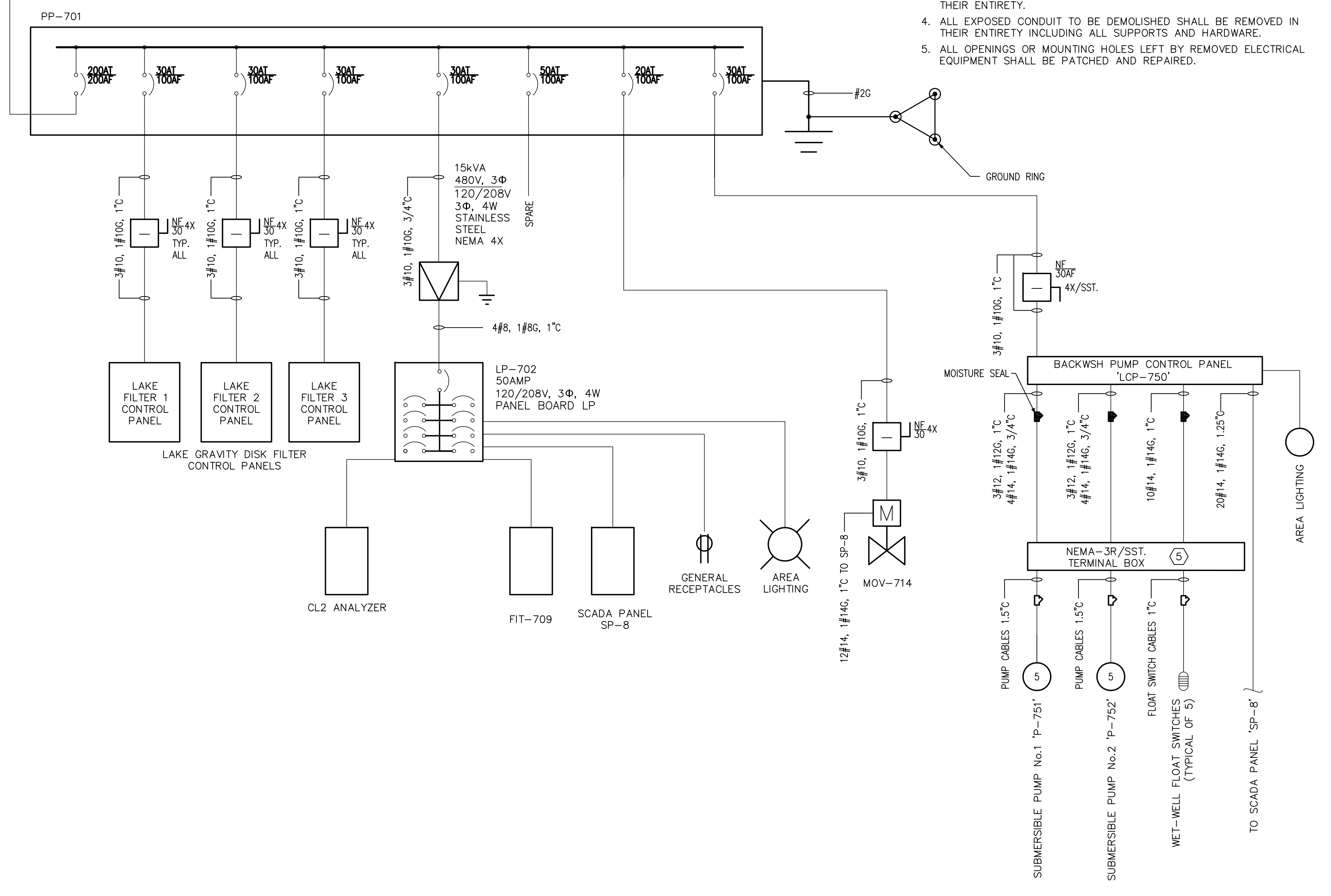
ELECTRICAL DEMOLITION NOTES:

1. THE SCHEDULING AND DURATION OF ANY SHUTDOWN OF ANY PLANT PROCESS FOR THE REMOVAL OF EXISTING EQUIPMENT OR INSTALLATION OF NEW EQUIPMENT SHALL BE COORDINATED WITH THE OWNER IN ADVANCE.
2. THE DEMOLISHED EQUIPMENT SHALL BE REMOVED FROM THE PLANT SITE AND PROPERLY DISPOSED, SALVAGED OR DELIVERED TO A SPECIFIED LOCATION AS DIRECTED BY THE OWNER.
3. ALL WIRE AND CABLING TO BE DEMOLISHED SHALL BE REMOVED IN THEIR ENTIRETY.
4. ALL EXPOSED CONDUIT TO BE DEMOLISHED SHALL BE REMOVED IN THEIR ENTIRETY INCLUDING ALL SUPPORTS AND HARDWARE.
5. ALL OPENINGS OR MOUNTING HOLES LEFT BY REMOVED ELECTRICAL EQUIPMENT SHALL BE PATCHED AND REPAIRED.

EXISTING ELECTRICAL MAIN SWITCHBOARD "A & B" SINGLE-LINE DIAGRAM MODIFICATIONS
N.T.S.



PLANT DRAIN PUMP STATION
N.T.S.



LAKE FILTER BACKWASH PUMP STATION
N.T.S.

S:\2024\03\03\Drawings\Electrical\04-04-08_EE_20240415.dwg, 7/12/2011 9:05:00 AM, CHM, Ruanell

REVNO.	DESCRIPTIONS REVISIONS	DATE

SEAL
ARTHUR L. ANCHORS, P.E.
No. 39804

SEAL

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Clearwater, Florida 33756
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MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
ELECTRICAL BUILDING NO.1
EXISTING SINGLE-LINE DIAGRAM
AND MODIFICATIONS

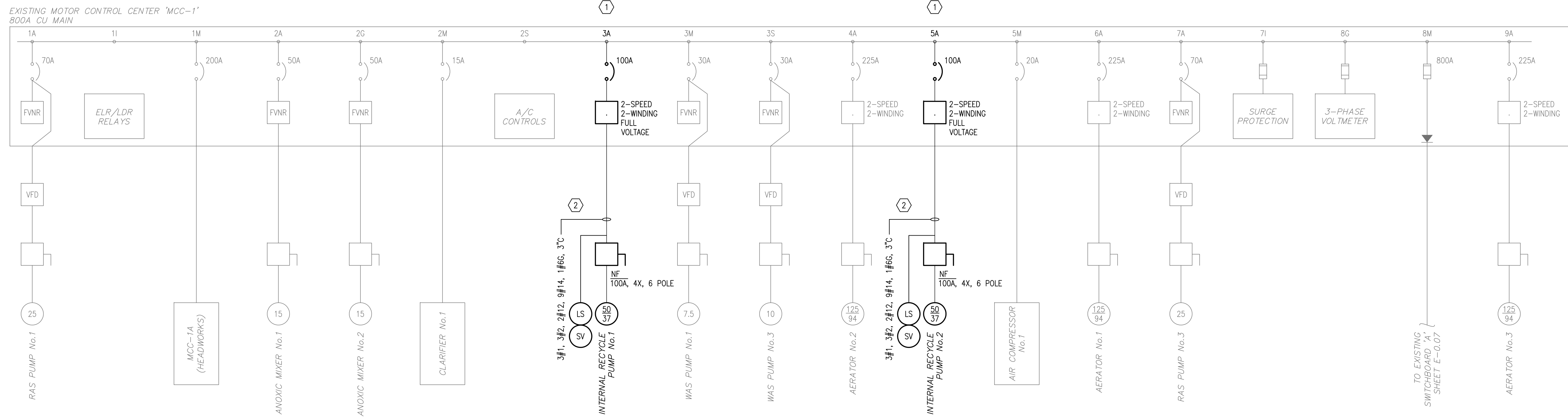
DATE: **JULY 2011**
MCE PROJ. #: **1024-0143**
DRAWN: **JZM**
DESIGNED: **ALA**
CHECKED: **ALA**
PROJ. MGR.: **DCW**

SCALE: HORIZONTAL: **NA**
VERTICAL: **NA**

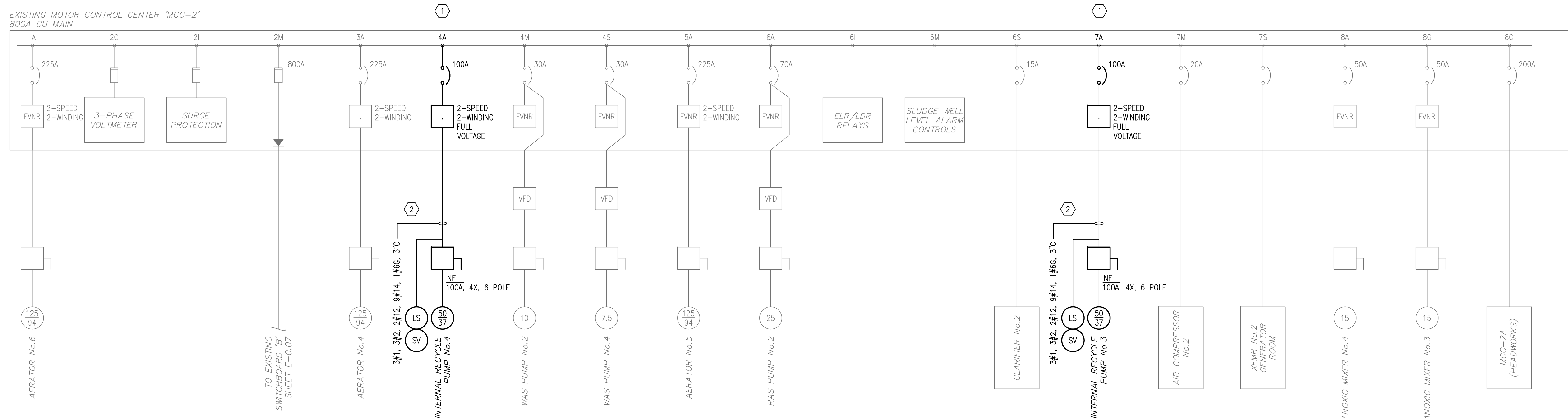
DRAWING NUMBER: **E-0.04**

STATUS: **ISSUED FOR BID**

REVISION: _____



EXISTING MCC-1 SINGLE-LINE DIAGRAM
N.T.S.



EXISTING MCC-2 SINGLE-LINE DIAGRAM
N.T.S.

GENERAL NOTES:

1. REFER TO SHEET E-01 FOR GENERAL ELECTRICAL NOTES, ABBREVIATIONS AND SYMBOLS.
2. THE EXISTING SINGLE-LINE DIAGRAMS SHOWN ARE BASED ON INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE ELECTRICAL PLANS BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT.
3. THE CONTRACTOR SHALL REVIEW AND VERIFY THE EXISTING ARRANGEMENTS, CONDITIONS, FEATURES AND CABLING OF THE EXISTING ELECTRICAL EQUIPMENT. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND OWNER OF ANY DISCREPANCIES PRIOR TO COMMENCING WORK. FAILURE TO VERIFY EXISTING CONDITIONS SHALL NOT BE JUSTIFICATION FOR ADDITIONAL CLAIMS.

ELECTRICAL DEMOLITION NOTES:

1. THE SCHEDULING AND DURATION OF ANY SHUTDOWN OF ANY PLANT PROCESS FOR THE REMOVAL OF EXISTING EQUIPMENT OR INSTALLATION OF NEW EQUIPMENT SHALL BE COORDINATED WITH THE OWNER.
2. THE DEMOLISHED EQUIPMENT SHALL BE REMOVED FROM THE PLANT SITE AND PROPERLY DISPOSED, SALVAGED OR DELIVERED TO A SPECIFIED LOCATION AS DIRECTED BY THE OWNER.
3. ALL WIRE AND CABLING TO BE DEMOLISHED SHALL BE REMOVED IN THEIR ENTIRETY.
4. ALL EXPOSED CONDUIT TO BE DEMOLISHED SHALL BE REMOVED IN THEIR ENTIRETY INCLUDING ALL SUPPORTS AND HARDWARE.
5. ALL OPENINGS OR MOUNTING HOLES LEFT BY REMOVED ELECTRICAL EQUIPMENT SHALL BE PATCHED AND REPAIRED.

KEYNOTES:

1. EXISTING TWO SPEED TWO WINDING MOTOR STARTER FOR EACH OF FOUR INTERNAL RECYCLE PUMPS SHALL BE REBUILT WITH ALL NEW INTERNAL COMPONENTS INCLUDING BREAKERS, CONTACTORS, CONTROL SWITCHES, INDICATING LIGHTS, ETMS, INTERNAL RELAYS AND WIRING. REFER TO INTERNAL RECYCLE PUMP CONTROL DIAGRAM, COORDINATE WITH PUMP SUPPLIER FOR EXACT HIGH SPEED AND LOW SPEED FULL LOAD AMERAGE.
2. PRIOR TO EQUIPMENT INSTALLATION, THE CONTRACTOR SHALL UTILIZE AN INDEPENDENT TESTING SERVICE TO TEST THE CONDITION OF EACH POWER AND CONTROL CONDUCTOR TO EACH OF THE FOUR INTERNAL RECYCLE PUMPS TO VERIFY THE EXISTING POWER AND CONTROL WIRING CAN BE REUSED WITH THE REPLACEMENT PUMPS. THE TESTING SERVICE SHALL PREPARE A REPORT TO BE SUBMITTED TO THE OWNER EVALUATING THE TEST RESULTS ON ALL CONDUCTORS AND IDENTIFY PROBLEMS IN ANY CONDUCTOR TESTED. REFER TO SITE ELECTRICAL PLAN, SINGLE LINE DIAGRAM, AND BID DOCUMENTS.
3. EXISTING MOTOR CONTROL CENTERS 1 & 2 ARE WESTINGHOUSE SERIES 2100.

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REV. NO.	DESCRIPTIONS / REVISIONS	DATE

SEAL

ARTHUR L. ANCHORS, P.E.
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MANATEE COUNTY, FLORIDA

MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1

ELECTRICAL BUILDING NO.1
MCC-1 AND MCC-2 MODIFICATIONS
SINGLE-LINE DIAGRAM

DATE: JULY 2011	SCALE:	DRAWING NUMBER:
MCE PROJ. # 1024-0143	HORIZONTAL: NA	E-0.05
DRAWN: JZM	VERTICAL: NA	
DESIGNED: ALA	PROJECT MGR: DCW	REVISION:
CHECKED: ALA	STATUS: ISSUED FOR BID	

	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5	SECTION 6	SECTION 7	SECTION 8	SECTION 9
A	RAS PUMP No.1	ANOXIC MIXER No.1	INTERNAL RECYCLE PUMP No.1	AERATOR MIXER No.2	INTERNAL RECYCLE PUMP No.2	AERATOR MIXER No.1	RAS PUMP No.3	SPACE	AERATOR MIXER No.3
B									
C									
D									
E									
F									
G									
H									
I									
J	ELR/LDR RELAYS	ANOXIC MIXER No.2	INTERNAL RECYCLE PUMP No.1		INTERNAL RECYCLE PUMP No.2		SURGE PROTECTION	3-PHASE VOLTMETER	
K									
L									
M	MCC-1A FEEDER (HEADWORKS)	CLARIFIER No.1	WAS PUMP No.1		AIR COMPRESSOR No.1		SPARE BREAKERS	MAIN FEEDER	
N									
O									
P									
Q									
R									
S									
T									
U		A/C CONTROLS	WAS PUMP No.3		SPACE				
V									
W									
X									

EXISTING MCC-1 ELEVATION
N.T.S.

	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5	SECTION 6	SECTION 7	SECTION 8
A	AERATOR MIXER No.6	SPACE	AERATOR MIXER No.4	INTERNAL RECYCLE PUMP No.4	AERATOR MIXER No.5	RAS PUMP No.2	INTERNAL RECYCLE PUMP No.3	ANOXIC MIXER No.4
B								
C								
D		3-PHASE VOLTMETER						
E								
F								
G								
H								
I								
J								
K		SURGE PROTECTION		INTERNAL RECYCLE PUMP No.4		ELR/LDR RELAYS	INTERNAL RECYCLE PUMP No.3	ANOXIC MIXER No.3
L								
M								
N		MAIN FEEDER		WAS PUMP No.2		SLUDGE WELL LEVEL ALARM RELAYS	AIR COMPRESSOR No.2	SPACE
O								MCC-2A FEEDER (HEADWORKS)
P								
Q								
R								
S								
T								
U				WAS PUMP No.4		CLARIFIER No.2	XFMR No.2 GENERATOR ROOM	
V								
W								
X								

EXISTING MCC-2 ELEVATION
N.T.S.

GENERAL NOTES:

- REFER TO SHEET E-0.1 FOR GENERAL ELECTRICAL NOTES, ABBREVIATIONS AND SYMBOLS.
- THE EXISTING MCC ELEVATIONS ARE SHOWN APPROXIMATE AND INTENDED TO ASSIST THE CONTRACTOR WITH PROVIDING NEW MOTOR CONTROL CENTER REPLACEMENTS.
- THE CONTRACTOR IS DIRECTED TO CONDUCT AN INVESTIGATION TO DETERMINE THE EXACT ARRANGEMENTS, MOTOR STARTERS, CIRCUIT BREAKERS, CABLE/WIRE SIZES AND QUANTITIES OF ALL THE EXISTING ELECTRICAL EQUIPMENT PRIOR TO COMMENCING WORK. FAILURE TO COMPLETE INVESTIGATION OF ALL EXISTING ELECTRICAL EQUIPMENT SHALL NOT BE JUSTIFICATION FOR ADDITIONAL CLAIMS.

ELECTRICAL MODIFICATION NOTES:

- THE SCHEDULING AND DURATION OF ANY SHUTDOWN OF ANY PLANT PROCESS FOR THE REMOVAL OF EXISTING EQUIPMENT OR INSTALLATION OF NEW EQUIPMENT SHALL BE COORDINATED WITH THE OWNER.
- DEMOLISHED EQUIPMENT SHALL BE REMOVED FROM THE PLANT SITE AND PROPERLY DISPOSED, SALVAGED OR DELIVERED TO A SPECIFIED LOCATION AS DIRECTED BY THE OWNER.
- ALL WIRE AND CABLING TO BE DEMOLISHED SHALL BE REMOVED IN THEIR ENTIRETY.
- ALL EXPOSED CONDUIT TO BE DEMOLISHED SHALL BE REMOVED IN THEIR ENTIRETY INCLUDING ALL SUPPORTS AND HARDWARE.
- ALL OPENINGS OR MOUNTING HOLES LEFT BY REMOVED ELECTRICAL EQUIPMENT SHALL BE PATCHED AND REPAIRED.

KEYNOTES:

- EXISTING TWO SPEED TWO WINDING MOTOR STARTER FOR EACH OF FOUR INTERNAL RECYCLE PUMPS SHALL BE REBUILT WITH ALL NEW INTERNAL COMPONENTS INCLUDING BREAKERS, CONTACTORS, CONTROL SWITCHES, INDICATING LIGHTS, ETMS, INTERNAL RELAYS AND WIRING. REFER TO DRAWING E-0.07 FOR INTERNAL RECYCLE PUMP CONTROL DIAGRAM.

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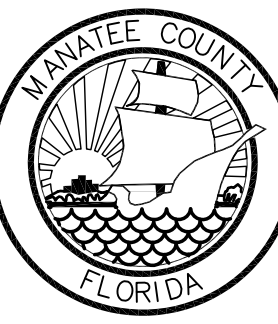
REVNO.	DESCRIPTIONS REVISIONS	DATE

SEAL

ARTHUR L. ANCHORS, P.E.
No. 39804

SEAL

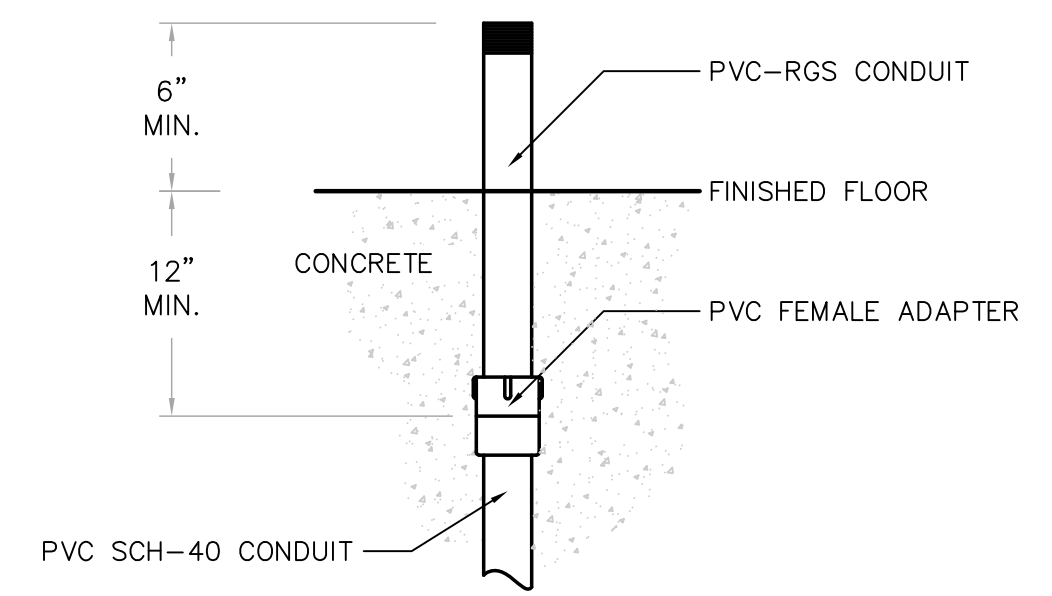
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Clearwater, Florida 33756
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www.mckimcreed.com



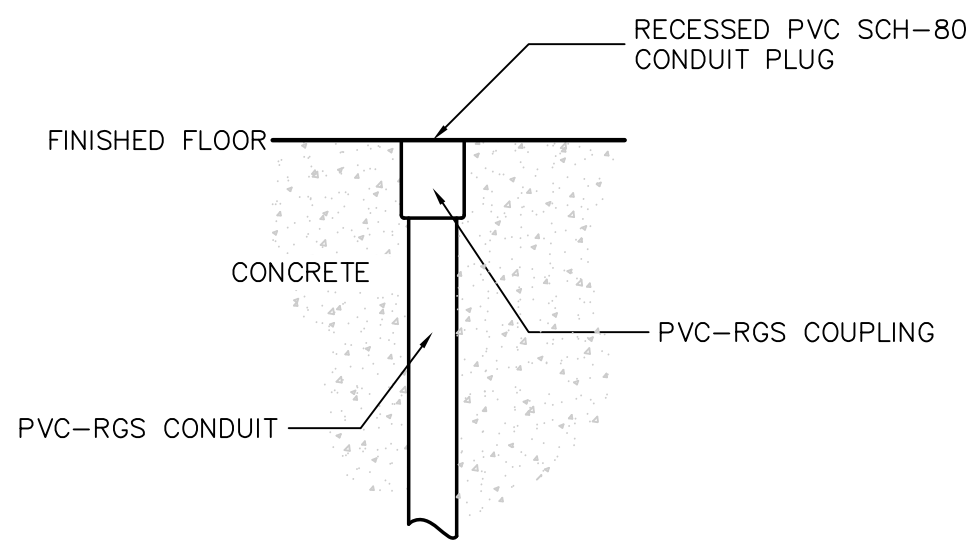
MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
ELECTRICAL BUILDING NO.1
EXISTING MCC ELEVATIONS

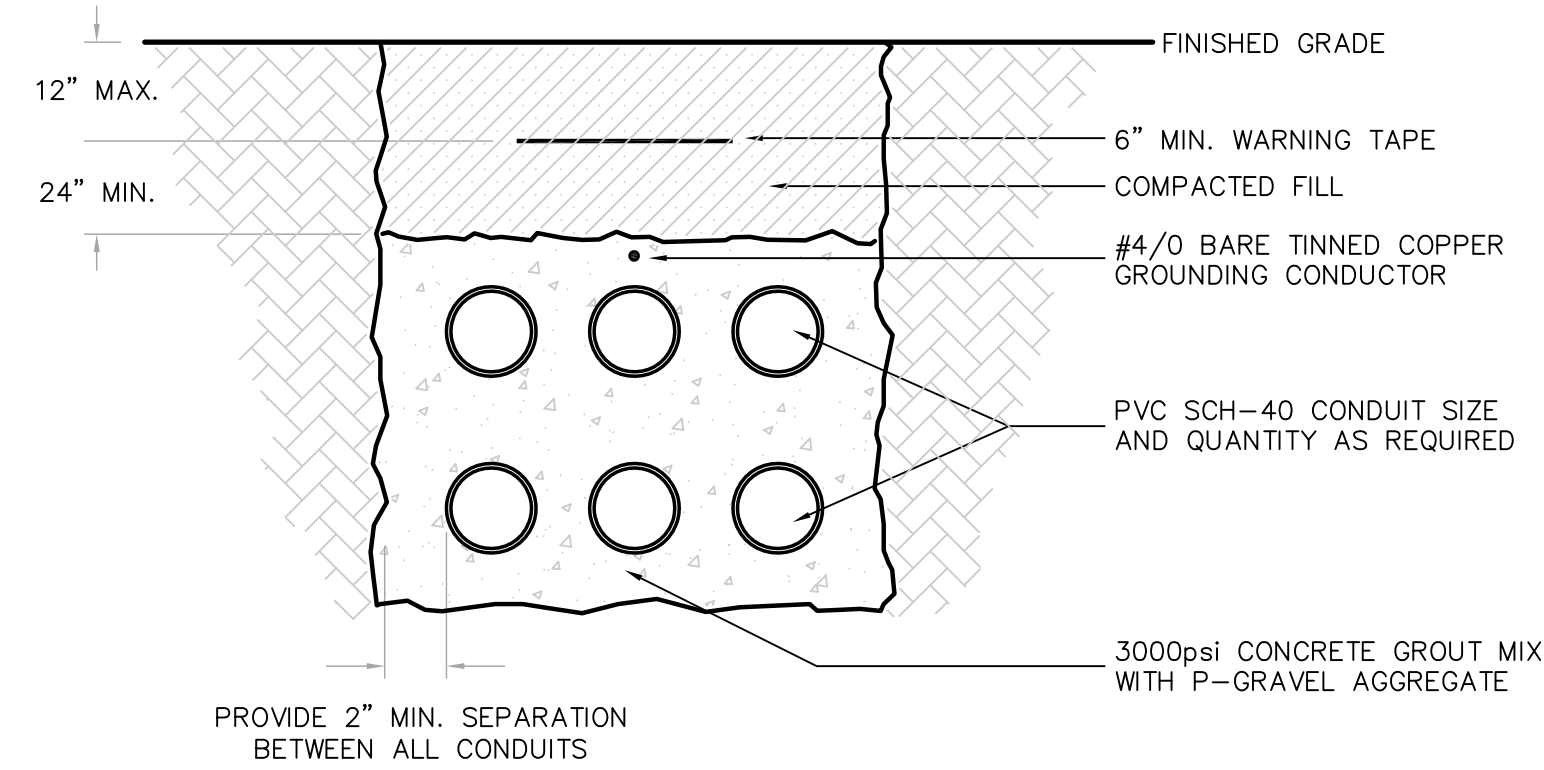
DATE: JULY 2011	SCALE	DRAWING NUMBER
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DRAWN JZM	VERTICAL: NA	
DESIGNED ALA		
CHECKED ALA		
PROJ. MGR. DCW		
STATUS: ISSUED FOR BID		REVISION



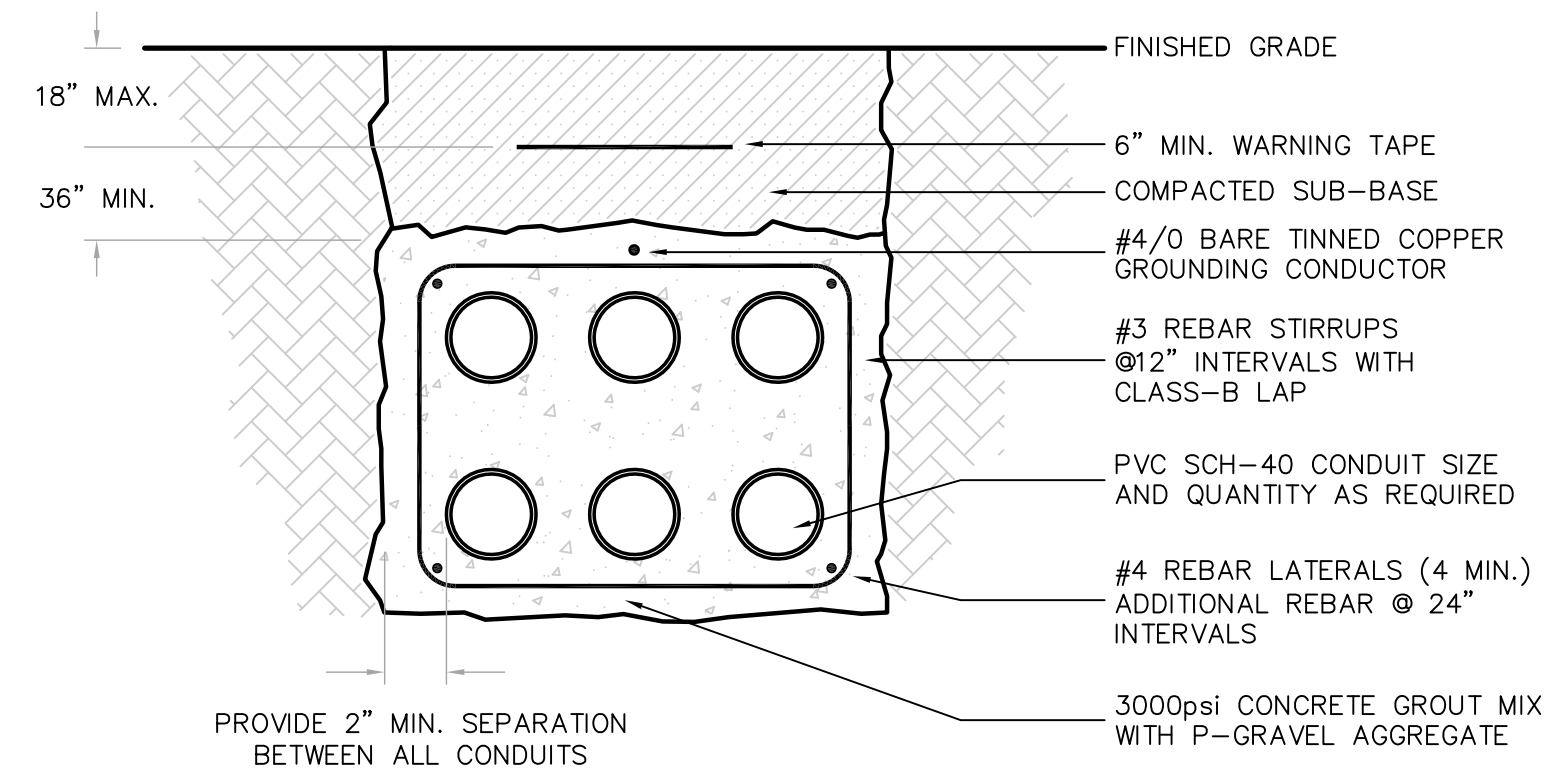
CONDUIT STUB-UP DETAIL (NEW)
N.T.S.



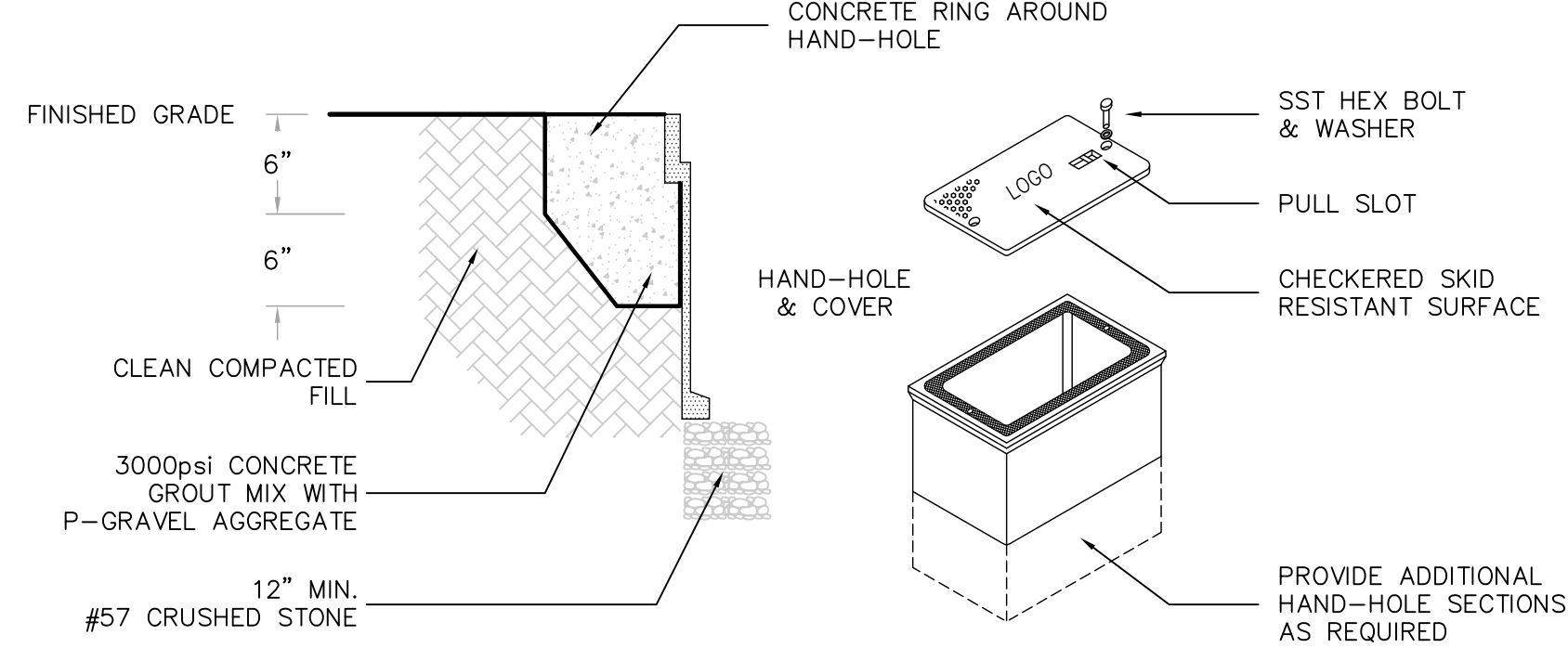
CONDUIT STUB-UP DETAIL (FUTURE)
N.T.S.



NON-REINFORCED CONCRETE DUCTBANK (YARD PIPING)
N.T.S.

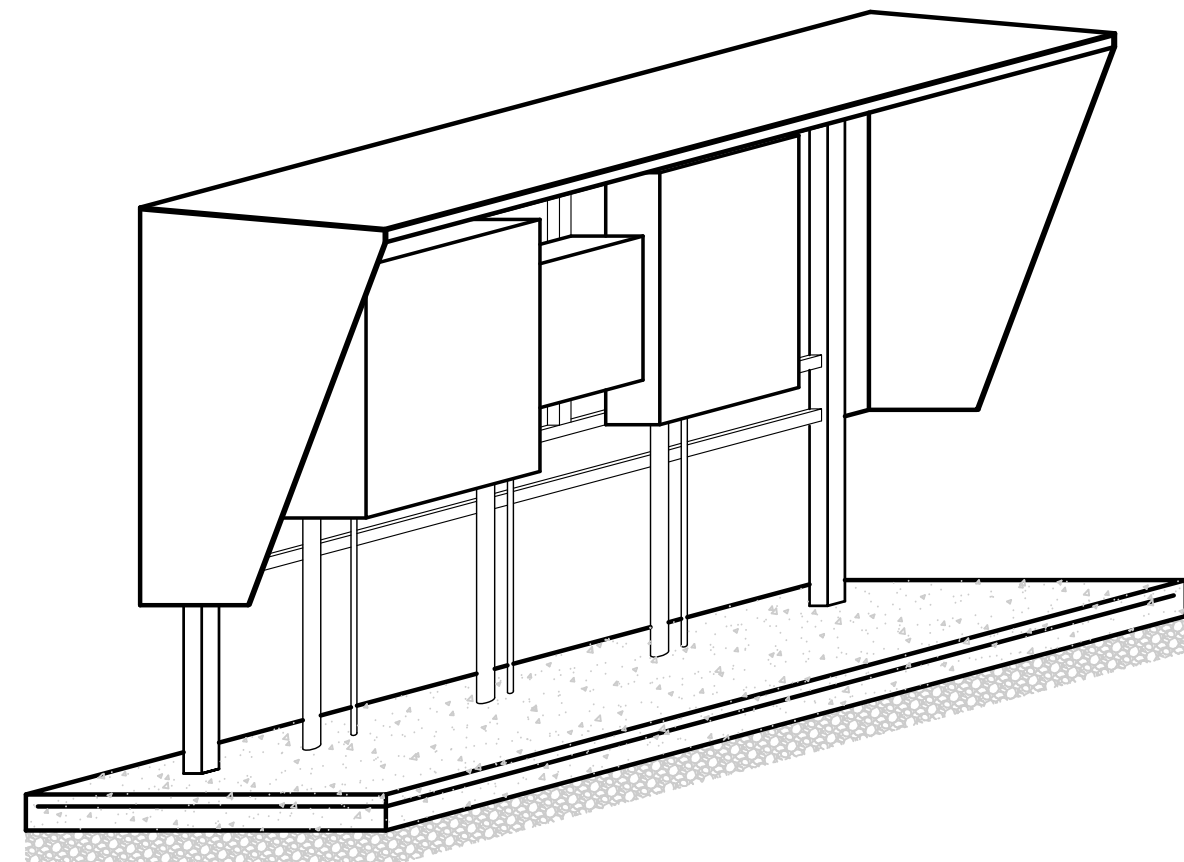


REINFORCED CONCRETE DUCTBANK (ROADWAY CROSSING)
N.T.S.

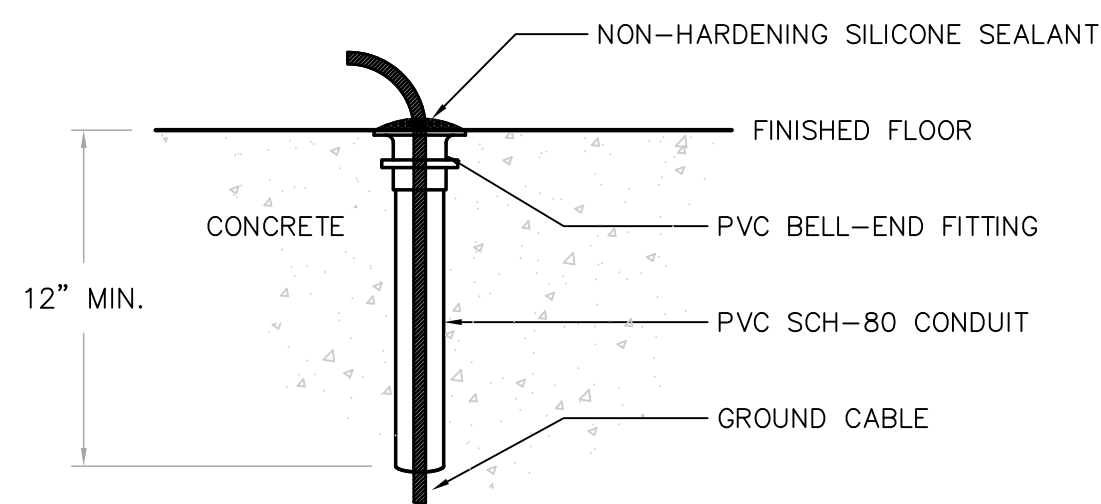


TRAFFIC RATED HAND-HOLE DETAIL
N.T.S.

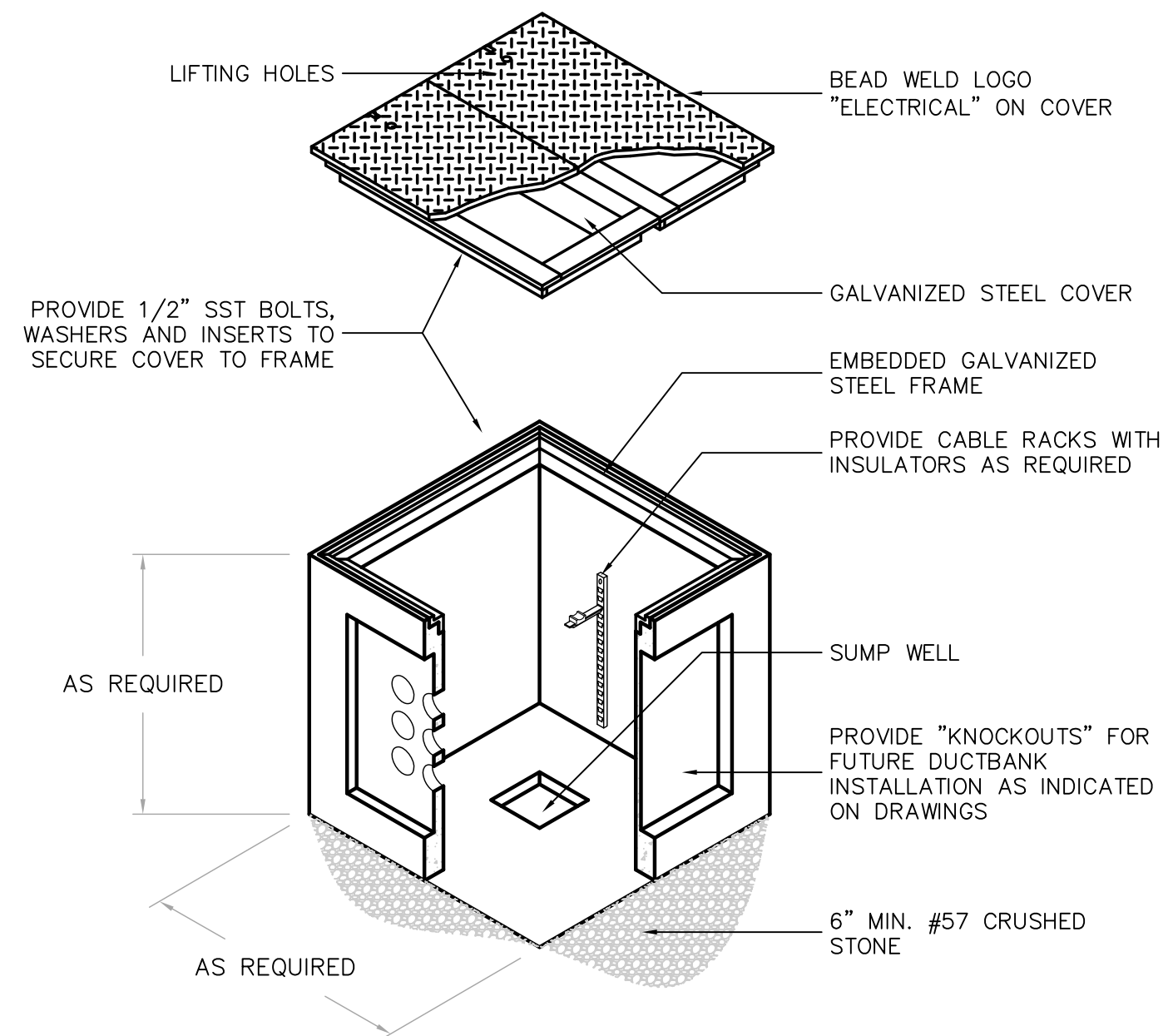
- NOTES:**
- HOUSING SHALL BE REINFORCED CONCRETE AND SHALL HAVE A COMPRESSIVE STRENGTH NO LESS THAN 10,000psi.
 - HAND-HOLE AND COVER SHALL BE RATED FOR AASHTO H20 LOADING.
 - PROVIDE STAINLESS STEEL BOLTS, WASHERS AND INSERTS.
 - PROVIDE COVER LOGO "ELECTRICAL" "CONTROLS" OR "COMMUNICATIONS" AS APPLICABLE OR INDICATED ON THE DRAWINGS.
 - MINIMUM BOX SIZE SHALL BE 24" LONG x 17" WIDE x 24" DEEP.



SUN/RAIN HOOD TYPICAL (ISOMETRIC)
N.T.S.

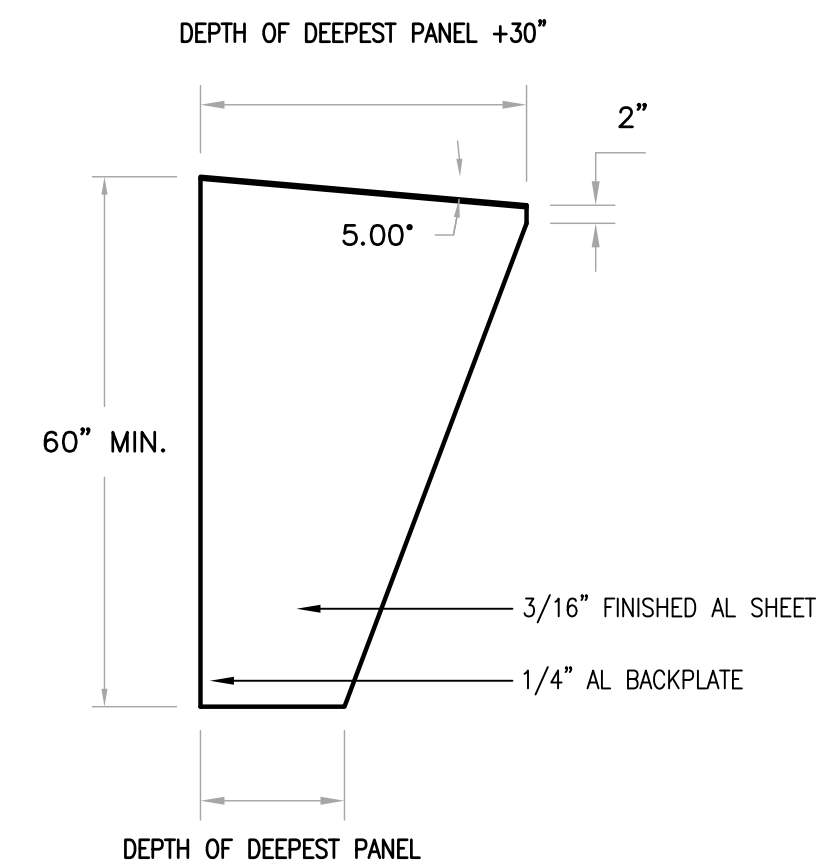


GROUND CABLE SLEEVE DETAIL
N.T.S.

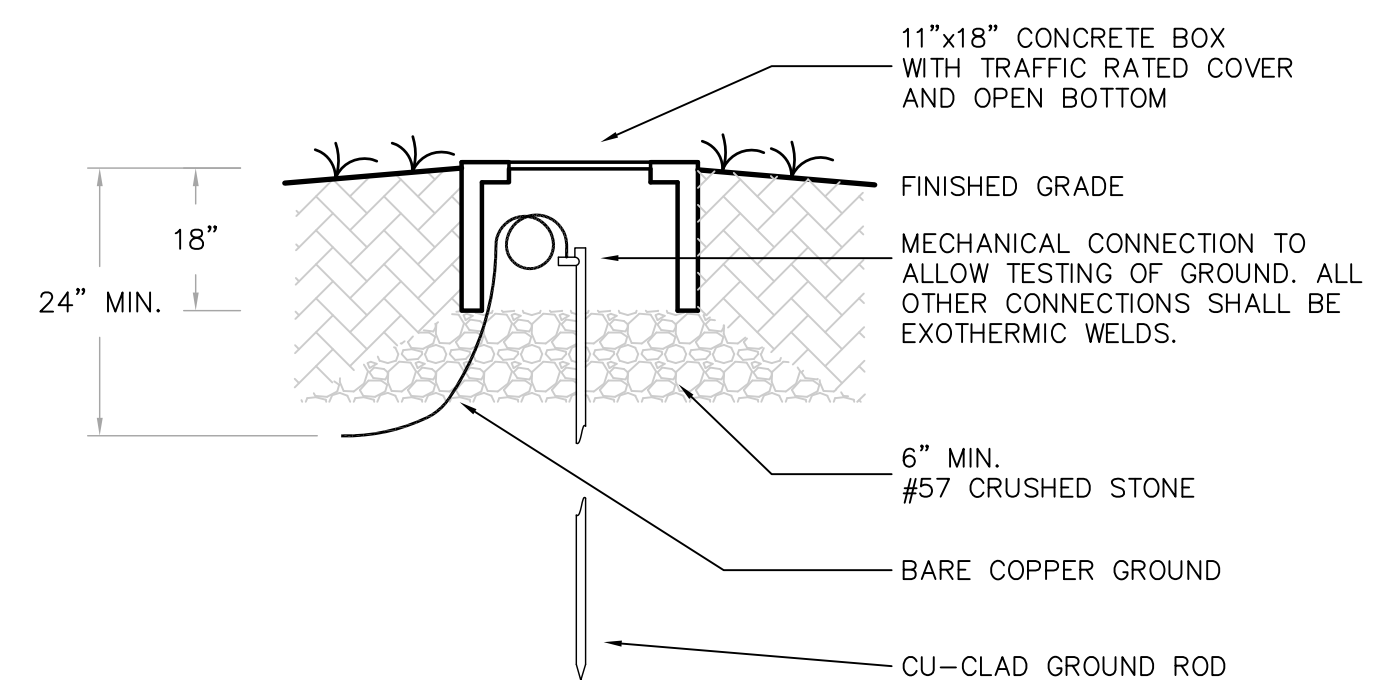


- NOTES:**
- BOND ALL METALLIC PARTS WITH #2 TINNED COPPER.
 - EXOTHERMIC WELD CU-CLAD GROUND ROD TO GROUND CABLE.
 - PULL-BOX LID AND LID COLLAR SHALL BE RATED FOR AASHTO H20 LOADING.

STANDARD ELECTRICAL PULL-BOX DETAIL
N.T.S.



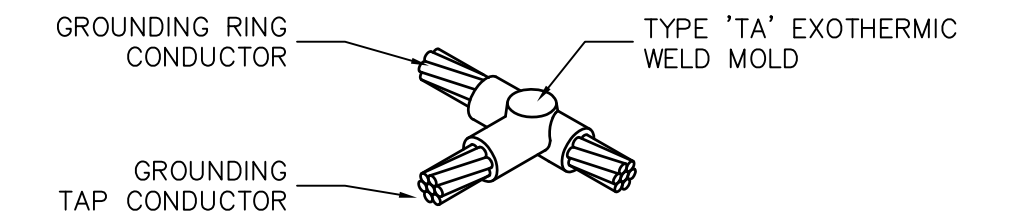
SUN/RAIN HOOD DETAIL (SIDE-VIEW)
N.T.S.



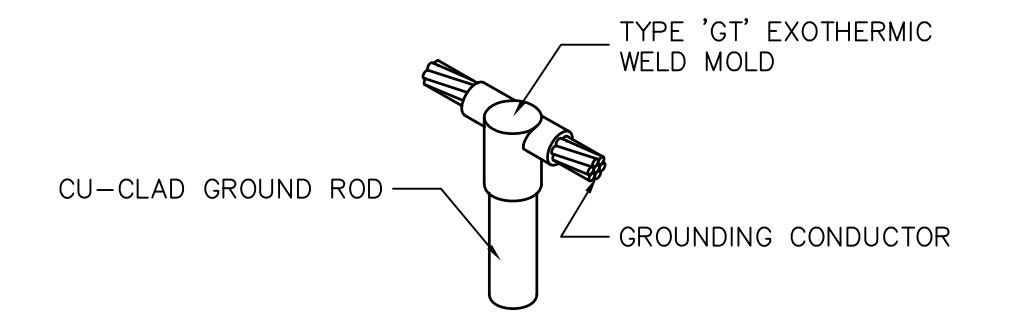
GROUND ROD TEST WELL DETAIL
N.T.S.

GENERAL NOTES:

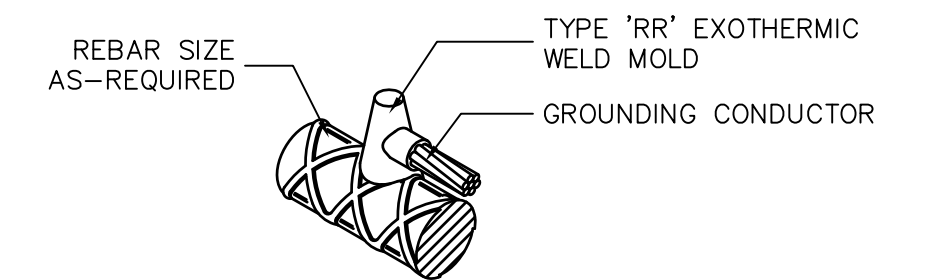
- REFER TO SHEET E-0.1 FOR GENERAL ELECTRICAL NOTES, ABBREVIATIONS AND SYMBOLS.



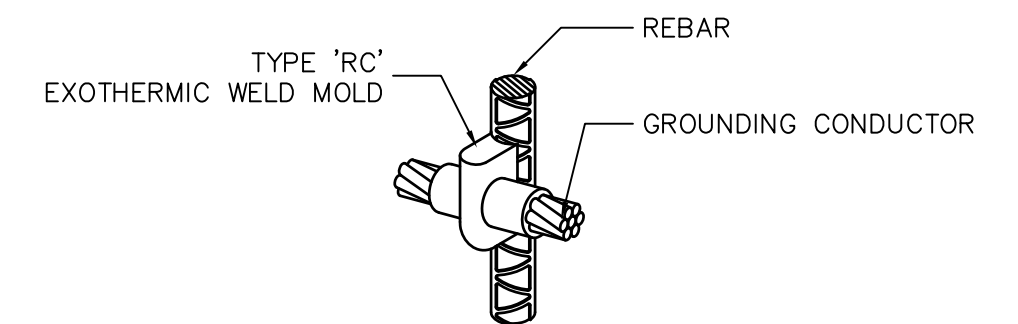
EXOTHERMIC WELD 'TA' CONNECTION
N.T.S.



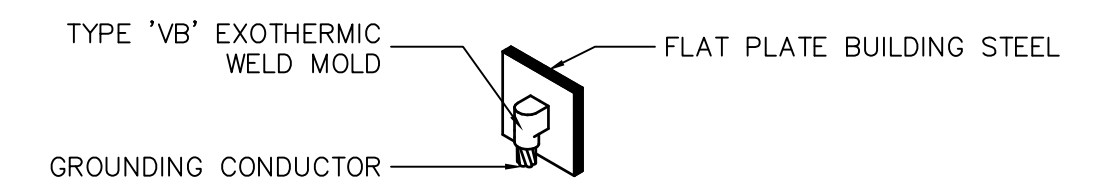
EXOTHERMIC WELD 'GT' CONNECTION
N.T.S.



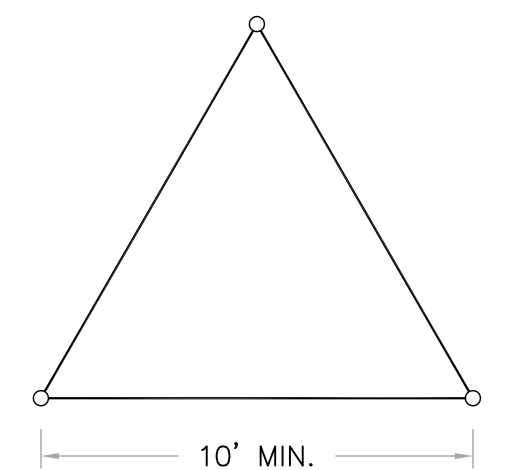
EXOTHERMIC WELD 'RR' CONNECTION
N.T.S.



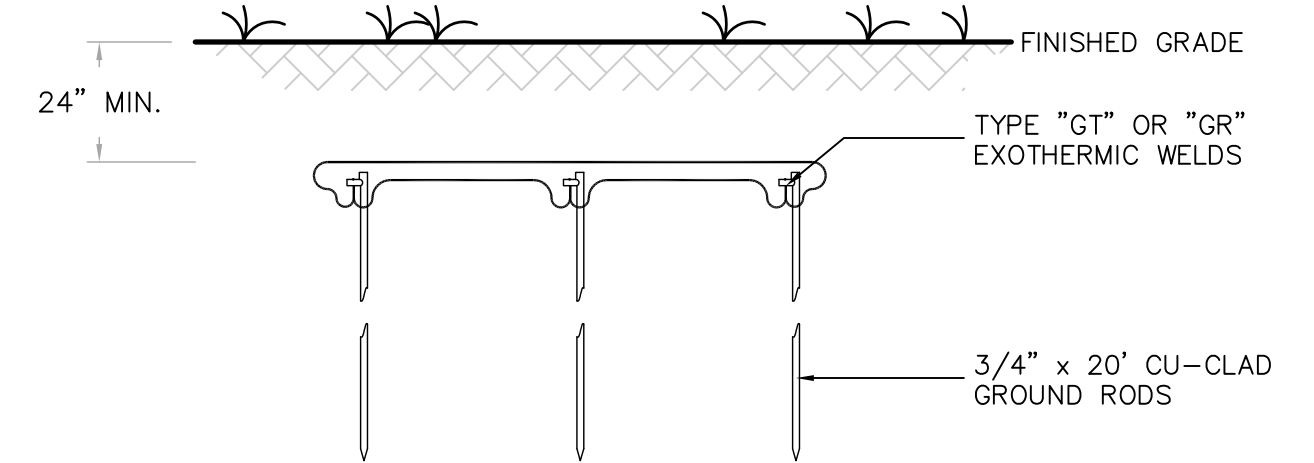
EXOTHERMIC WELD 'RC' CONNECTION
N.T.S.



EXOTHERMIC WELD 'VB' CONNECTION
N.T.S.



TOP VIEW



GROUND ROD TRIODE DETAIL
N.T.S.

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REVNO.	DESCRIPTIONS / REVISIONS	DATE

SEAL
ARTHUR L. ANCHORS, P.E.
No. 39804

SEAL

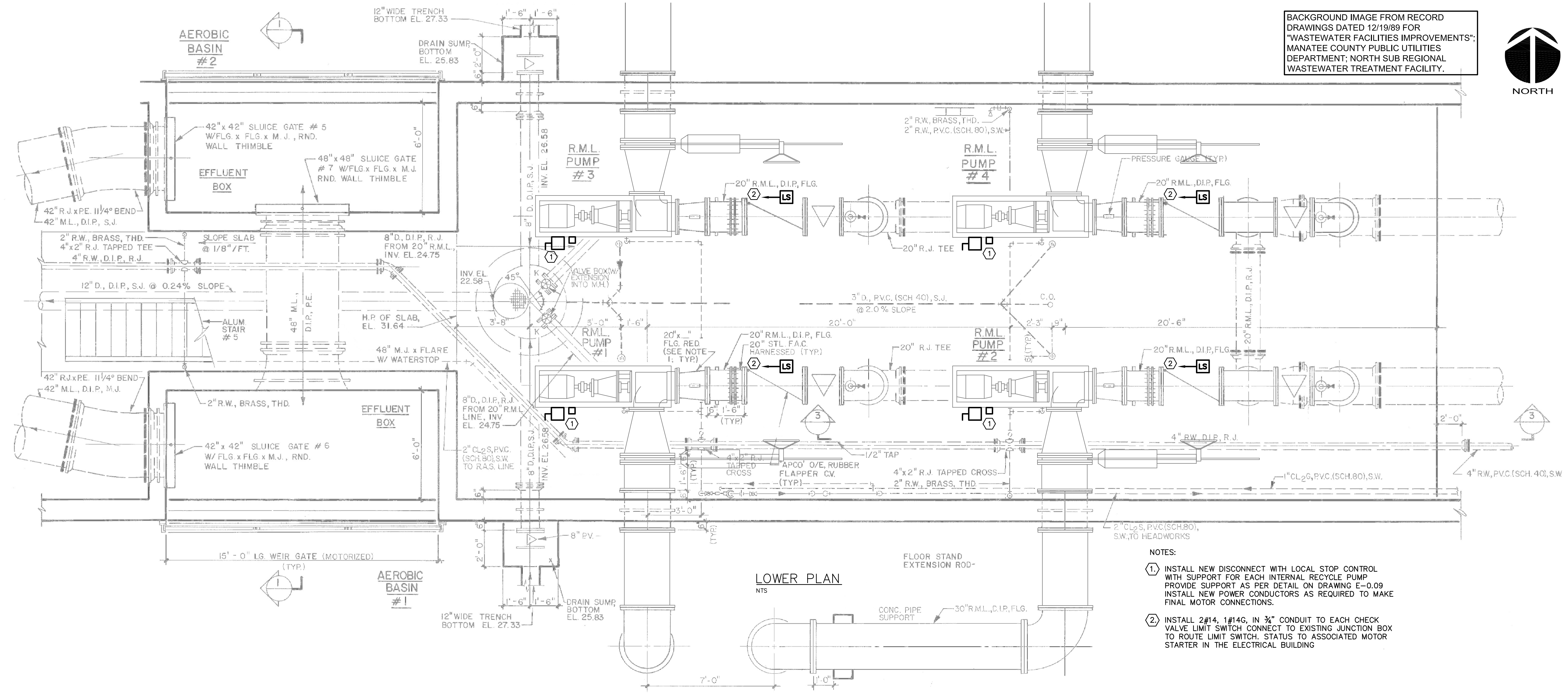
MCKIM & CREED
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EB0006691
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MANATEE COUNTY
MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
MISCELLANEOUS ELECTRICAL DETAILS NO.1

DATE: JULY 2011
MCE PROJ. # 1024-0143
DRAWN: JZM
DESIGNED: ALA
CHECKED: ALA
PROJ. MGR: DCW
SCALE: HORIZONTAL: NA, VERTICAL: NA
DRAWING NUMBER: E-0.08
STATUS: ISSUED FOR BID

BACKGROUND IMAGE FROM RECORD DRAWINGS DATED 12/19/89 FOR "WASTEWATER FACILITIES IMPROVEMENTS"; MANATEE COUNTY PUBLIC UTILITIES DEPARTMENT; NORTH SUB REGIONAL WASTEWATER TREATMENT FACILITY.



- NOTES:
- ① INSTALL NEW DISCONNECT WITH LOCAL STOP CONTROL WITH SUPPORT FOR EACH INTERNAL RECYCLE PUMP PROVIDE SUPPORT AS PER DETAIL ON DRAWING E-0.09 INSTALL NEW POWER CONDUCTORS AS REQUIRED TO MAKE FINAL MOTOR CONNECTIONS.
 - ② INSTALL 2#14, 1#14G, IN 3/4\"/>

REV. NO.	DESCRIPTIONS	DATE

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No. 39804

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MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
NEW INTERNAL RECYCLE PUMPS PLAN

DATE:	JULY 2011
MCE PROJ. #	1024-0143
DRAWN	JZM
DESIGNED	ALA
CHECKED	ALA
PROJ. MGR.	DCW

SCALE	DRAWING NUMBER
HORIZONTAL:	NTS
VERTICAL:	NTS
E-3.1	
STATUS:	REVISION
ISSUED FOR BID	

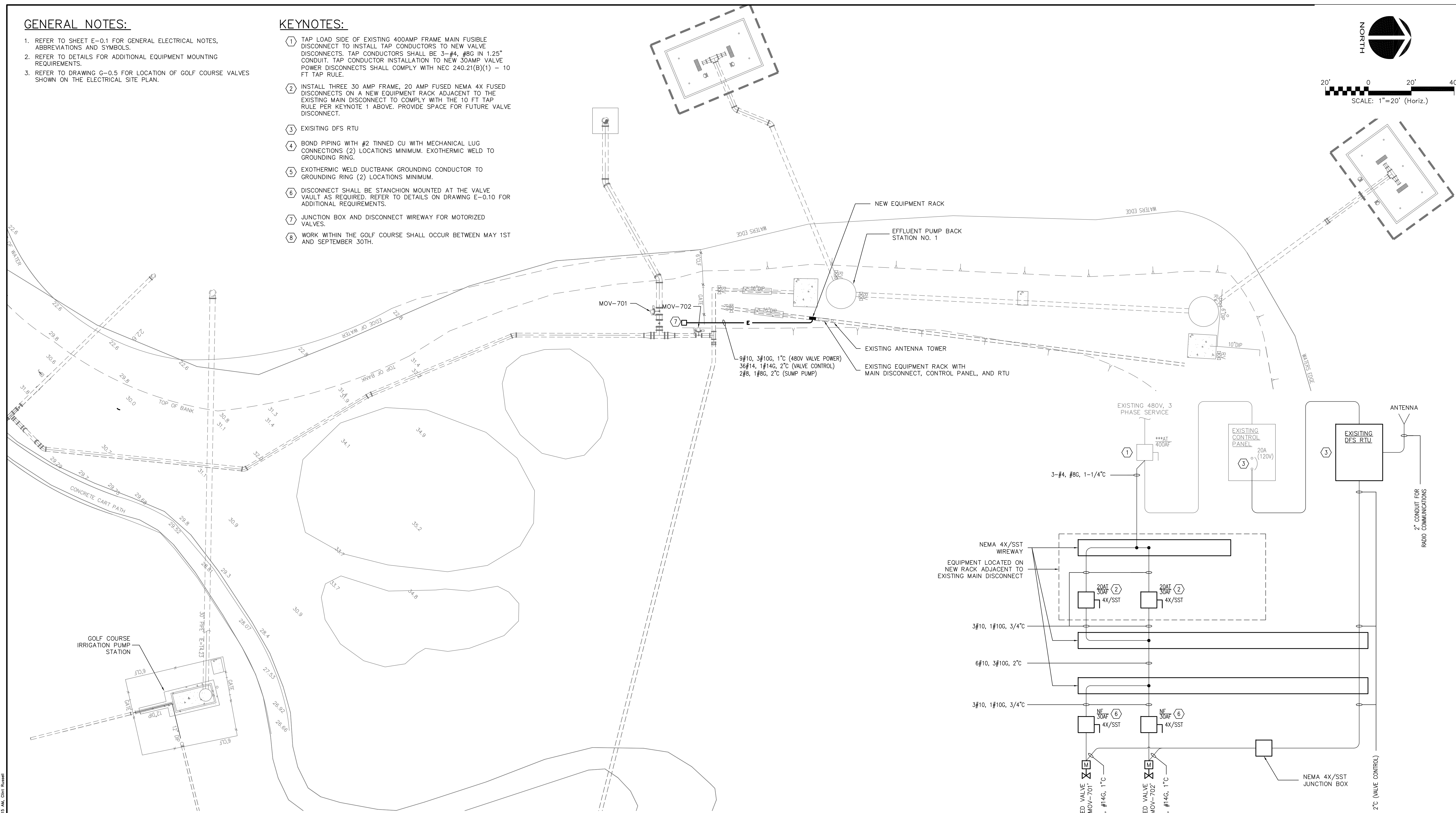
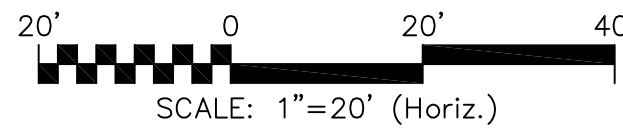
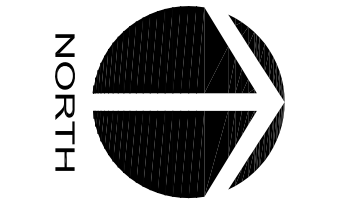
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GENERAL NOTES:

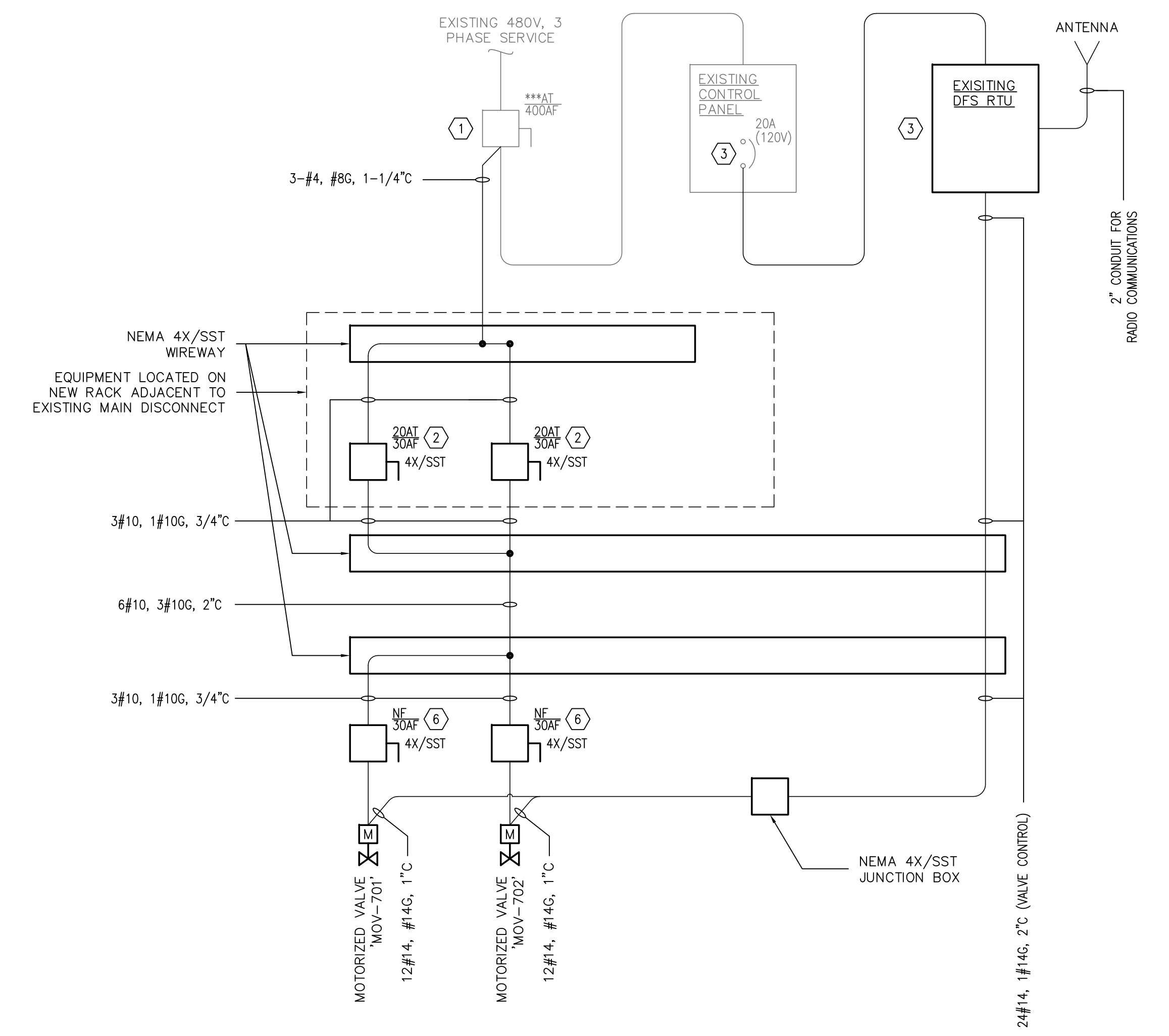
1. REFER TO SHEET E-0.1 FOR GENERAL ELECTRICAL NOTES, ABBREVIATIONS AND SYMBOLS.
2. REFER TO DETAILS FOR ADDITIONAL EQUIPMENT MOUNTING REQUIREMENTS.
3. REFER TO DRAWING G-0.5 FOR LOCATION OF GOLF COURSE VALVES SHOWN ON THE ELECTRICAL SITE PLAN.

KEYNOTES:

1. TAP LOAD SIDE OF EXISTING 400AMP FRAME MAIN FUSIBLE DISCONNECTS TO INSTALL TAP CONDUCTORS TO NEW VALVE DISCONNECTS. TAP CONDUCTORS SHALL BE 3-#4, #8G IN 1.25" CONDUIT. TAP CONDUCTOR INSTALLATION TO NEW 30AMP VALVE POWER DISCONNECTS SHALL COMPLY WITH NEC 240.21(B)(1) - 10 FT TAP RULE.
2. INSTALL THREE 30 AMP FRAME, 20 AMP FUSED NEMA 4X FUSED DISCONNECTS ON A NEW EQUIPMENT RACK ADJACENT TO THE EXISTING MAIN DISCONNECT TO COMPLY WITH THE 10 FT TAP RULE PER KEYNOTE 1 ABOVE. PROVIDE SPACE FOR FUTURE VALVE DISCONNECT.
3. EXISTING DFS RTU
4. BOND PIPING WITH #2 TINNED CU WITH MECHANICAL LUG CONNECTIONS (2) LOCATIONS MINIMUM. EXOTHERMIC WELD TO GROUNDING RING.
5. EXOTHERMIC WELD DUCTBANK GROUNDING CONDUCTOR TO GROUNDING RING (2) LOCATIONS MINIMUM.
6. DISCONNECT SHALL BE STANCHION MOUNTED AT THE VALVE VAULT AS REQUIRED. REFER TO DETAILS ON DRAWING E-0.10 FOR ADDITIONAL REQUIREMENTS.
7. JUNCTION BOX AND DISCONNECT WIREWAY FOR MOTORIZED VALVES.
8. WORK WITHIN THE GOLF COURSE SHALL OCCUR BETWEEN MAY 1ST AND SEPTEMBER 30TH.



**GOLF COURSE STORAGE LAKE FLOW CONTROL STRUCTURE
ELECTRICAL SITE PLAN**
1" = 20'



**GOLF COURSE STORAGE LAKE FLOW CONTROL STRUCTURE
SINGLE LINE DIAGRAM**
N.T.S.

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REV. NO.	DESCRIPTIONS	DATE

SEAL
ARTHUR L. ANCHORS, P.E.
No. 39804

SEAL

MCKIM & CREED
1365 Hamlet Avenue
Clearwater, Florida 33756
Phone: (727)442-7196, Fax: (727)461-3827
EB0006691
www.mckimcreed.com

MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
**GOLF COURSE STORAGE LAKE
FLOW CONTROL STRUCTURE
ELECTRICAL SITE PLAN AND SINGLE LINE**

DATE: JULY 2011	SCALE: HORIZONTAL: 1" = 20'	DRAWING NUMBER: E-7.2
MCE PROJ. # 1024-0143	DESIGNED: ALA	CHECKED: ALA
PROJ. MGR. DCW	STATUS: ISSUED FOR BID	REVISION:

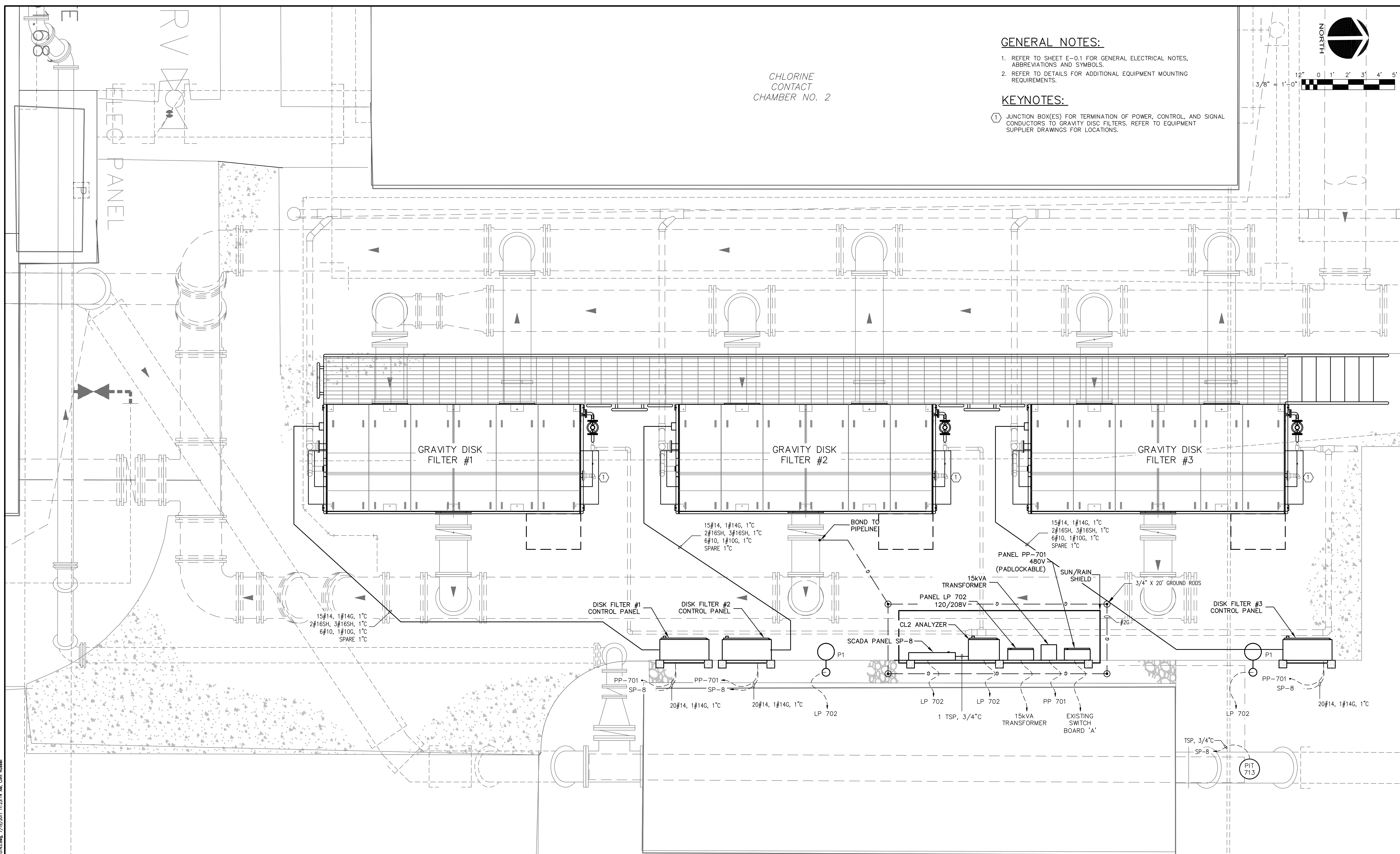
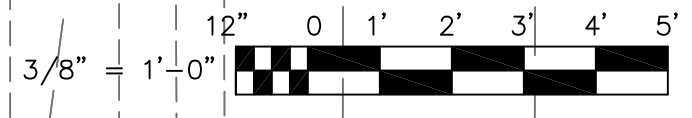
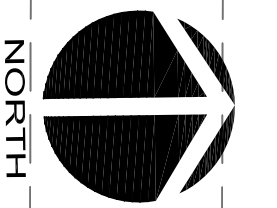
CHLORINE
CONTACT
CHAMBER NO. 2

GENERAL NOTES:

1. REFER TO SHEET E-0.1 FOR GENERAL ELECTRICAL NOTES, ABBREVIATIONS AND SYMBOLS.
2. REFER TO DETAILS FOR ADDITIONAL EQUIPMENT MOUNTING REQUIREMENTS.

KEYNOTES:

- ① JUNCTION BOX(ES) FOR TERMINATION OF POWER, CONTROL, AND SIGNAL CONDUCTORS TO GRAVITY DISC FILTERS. REFER TO EQUIPMENT SUPPLIER DRAWINGS FOR LOCATIONS.



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REVNO.	DESCRIPTIONS	DATE

SEAL

ARTHUR L. ANCHORS, P.E.
No. 39804

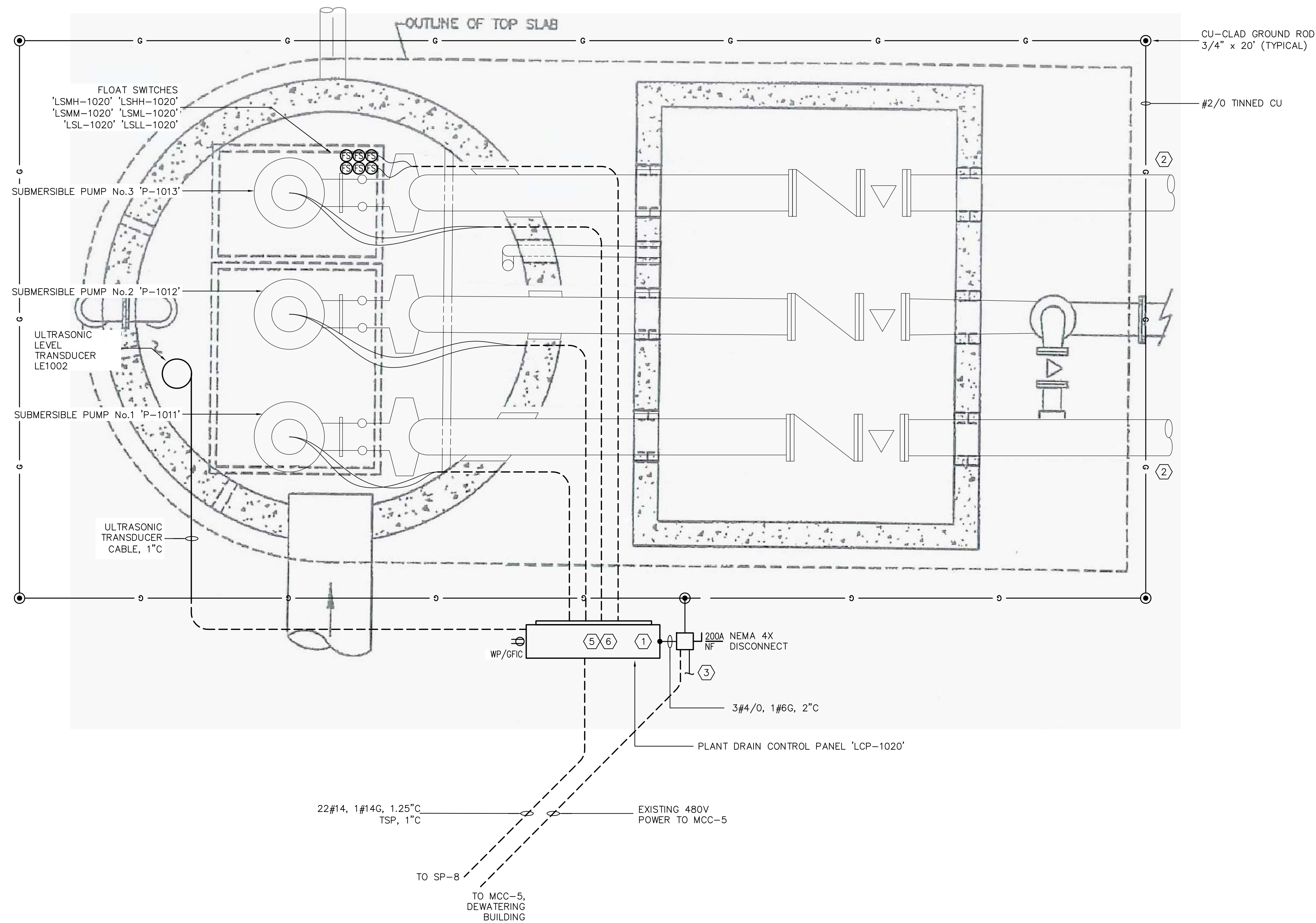
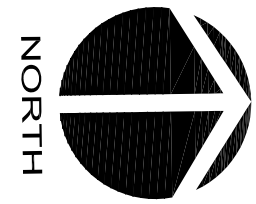
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MANATEE COUNTY, FLORIDA

NRF EXPANSION PHASE 1

LAKE GRAVITY DISC FILTER PLAN

DATE:	JULY 2011	SCALE:	HORIZONTAL: 3/8" = 1'-0"	DRAWING NUMBER:	E-7.3
MCE PROJ. #	1024-0143	DRAWN:	JZM	CHECKED:	ALA
DESIGNED:	ALA	PROJ. MGR.:	DCW	REVISION:	
STATUS:			ISSUED FOR BID		



PLANT DRAIN PUMP STATION POWER PLAN
N.T.S.

GENERAL NOTES:

- REFER TO SHEET E-0.1 FOR GENERAL ELECTRICAL NOTES, ABBREVIATIONS AND SYMBOLS.

KEYNOTES:

- BOND TO PUMP CONTROL PANEL WITH #2 TINNED CU WITH MECHANICAL LUG CONNECTIONS. EXOTHERMIC WELD TO GROUND RING.
- BOND MECHANICAL PIPING WITH #2 TINNED CU WITH MECHANICAL LUG CONNECTIONS. EXOTHERMIC WELD CONNECTIONS TO GROUNDING RING.
- EXOTHERMIC WELD DUCTBANK GROUNDING CONDUCTOR TO GROUNDING RING (2) LOCATIONS MINIMUM.
- NA
- EXISTING CONTROL PANEL TO BE REPLACED. EXISTING POWER FEED FROM MCC-5 TO BE REUSED. EXISTING CONDUIT RUNS FROM CONTROL PANEL TO PUMP STATION TO BE REUSED.
- PROVIDE NEW SUPPORT FOR NEW PUMP CONTROL PANEL, REFER TO DETAILS
- PROVIDE SEAL-OFFS TO PROTECT CONTROL PANEL FROM CORROSIVE/COMBUSTIBLE GAS. REFER TO SINGLE LINE DIAGRAM ON SHEET E-0.04.

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REV. NO.	DESCRIPTIONS	DATE

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MANATEE COUNTY, FLORIDA

NWRF EXPANSION PHASE 1
PLANT DRAIN PUMP STATION ELECTRICAL MODIFICATIONS

DATE:	JULY 2011
MCE PROJ. #	1024-0143
DRAWN	JZM
DESIGNED	ALA
CHECKED	ALA
PROJ. MGR.	DCW

SCALE	DRAWING NUMBER
HORIZONTAL: NTS	E-10.1
VERTICAL: NTS	
STATUS: ISSUED FOR BID	REVISION

