WWTP IMPROVEMENTS

FOR THE

TOWN OF TIGNALL

WILKES COUNTY, GEORGIA

MARCH 2026

TOWN OF TIGNALL

MAYOR

SCOTT WARE

CONTACT INFORMATION

124 SOUTH HULIN AVE
TIGNALL, GA 30668
PHONE: 706-285-2551

COUNCIL MEMBERS

JOSHUA BUFFORD
SHAMEIKA DAVIS
MALINDA HALL
JOHN MACK

PLANT INFORMATION

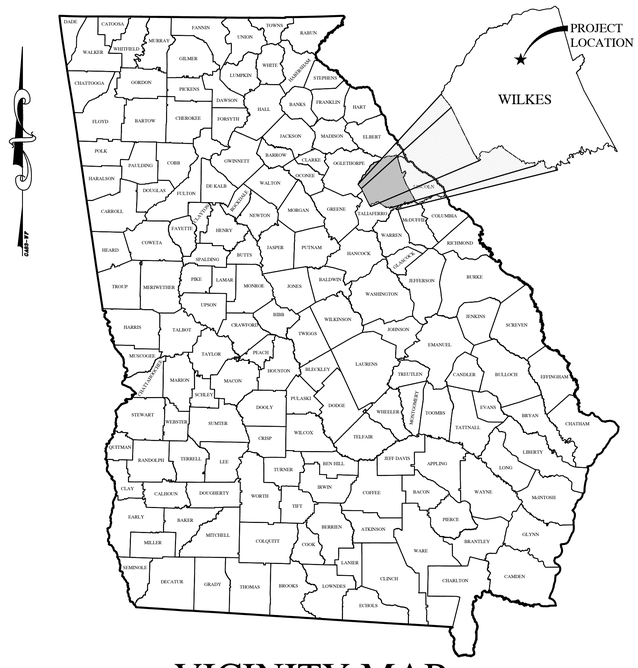
TIGNALL WATER POLLUTION
CONTROL PLANT
117 JANE HILL ROAD
TIGNALL, GA 30668

CITY CLERK

HOLLEY KANGETER

WATER & WASTEWATER SUPERINTENDENT

CLYDE DAVIS



VICINITY MAP

DESIGN CERTIFICATION

"I CERTIFY THAT I HAVE BEEN IN RESPONSIBLE CHARGE OF THE DESIGN OF THIS PROJECT IN ACCORDANCE WITH THE RULES OF THE GEORGIA STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS. I FURTHER CERTIFY, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THAT THESE PLANS AND SPECIFICATIONS WERE PREPARED IN ACCORDANCE WITH CURRENT STANDARD ENGINEERING PRACTICES AND ACCURATELY REFLECT THE DESIGN DEVELOPMENT REPORT (DDR) PREVIOUSLY REVIEWED AND CONCURRED IN BY EPD. I FURTHER CERTIFY THAT THE SYSTEM AS DESIGNED CAN REASONABLY BE EXPECTED TO CONSISTENTLY MEET ALL CURRENTLY APPLICABLE PERMIT LIMITS, CONDITIONS AND REGULATORY REQUIREMENTS, PROVIDED THE FACILITY IS CONSTRUCTED AS DESIGNED AND PROPERLY OPERATED AND MAINTAINED."

Martin C. Boyd — 03/16/26

MARTIN C. BOYD, P.E. — DATE

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EROSION, SEDIMENTATION & POLLUTION CONTROL
SCOTT WARE, MAYOR
TOWN OF TIGNALL
PHONE: (706) 498-1108

Carter & Sloope
CONSULTING ENGINEERS
1031 STONEBRIDGE PARKWAY. WATKINSVILLE, GA 30677 . 706.769.4119 TEL
GA COA LICENSE# PEF001004 EXPIRES 6/30/2026

GEORGIA REGISTERED No. 25423 PROFESSIONAL ENGINEER MARTIN C. BOYD
03/12/2026

DATE	DESCRIPTION
03/16/26	RELEASE FOR BID

C&S PROJECT NO.: T7040.003

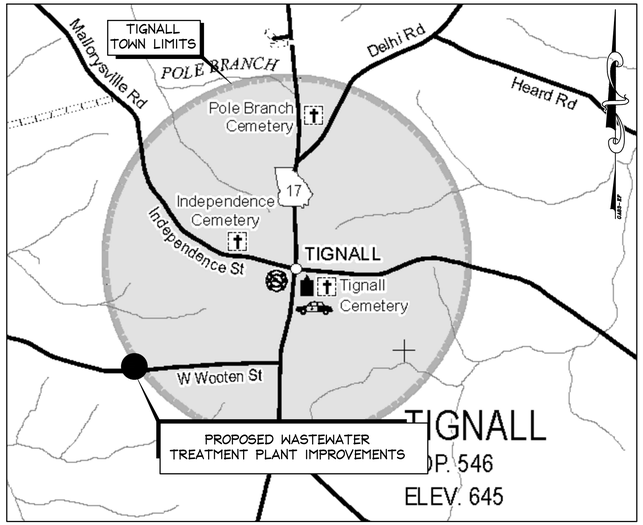
LEGEND

SITE/CIVIL	EXISTING	PROPOSED
PROPERTY LINE		
EASEMENT LINE		
RIGHT OF WAY		
EDGE OF PAVEMENT		
CREEK/DITCH		
CONTOUR	100	100
FENCE	XX	XX
CENTERLINE		
RAILROAD		
UTILITIES		
WATER LINE	W	W
POTABLE WATER	PW	PW
NON-POTABLE WATER	NPW	NPW
SANITARY SEWER	SS	
FORCE MAIN	FM	FM
GAS LINE	GAS	GAS
UNDERGROUND CABLE	UGC	UGC
UNDERGROUND POWER	UGP	UGP
OVERHEAD POWER	OHP	OHP
OVERHEAD TELEPHONE	OHT	OHT
STORM DRAIN		
FIBER OPTIC CABLE	FOC	FOC
DUCTBANK	D	D
PIPING/PROCESS LINES		
PLANT/PROCESS LINE	PL	PL
PLANT/PROCESS DRAIN	PD	PD
WASTE ACTIVIATED SLUDGE	WAS	WAS
RETURN ACTIVATED SLUDGE	RAS	RAS
BACKWASH LINE	BW	BW
AIR LINE	AIR	AIR
THICKENED SLUDGE	TS	TS
SCUM LINE	SC	SC
EXISTING PIPING TO BE ABANDONED		
EXISTING PIPING ALREADY ABANDONED		
MISC. YARD PIPING	OR	OR
CHEMICAL LINES		
ALUMINUM SULFATE	AL	AL
HEAVY METAL PRECIPITANT	HMP	HMP
LIME SLURRY	LS	LS
MICRO-C	MC	MC
POLYMER	PY	PY
PURATE	PU	PU
SODIUM BISULFITE	SB	SB
SODIUM HYDROXIDE	C	C
SODIUM HYPOCHLORITE	CL	CL
SULFURIC ACID	SA	SA

SITE/CIVIL SYMBOLS	EXISTING	PROPOSED
POWER POLE		
LIGHT POLE		
WELL		
CLEANOUT	C.O.	C.O.
UTILITY POLE/GUY WIRE		
FIRE HYDRANT		
YARD HYDRANT	Y.H.	Y.H.
POST HYDRANT	P.H.	P.H.
VALVE		
WATER METER		
SEWER MANHOLE		
SIGN		
MAILBOX		
TELEPHONE PEDESTAL		
HEADWALL		
FLARED END SECTION		
PINE TREE		
HARDWOOD		
MISC. TREE		
MISC. SHRUB		
IRON PIN FOUND	IPF	
CONC. R/W MONUMENT	CMF	
CONTROL POINT	CP	
TEMP. BENCHMARK	TBM	
SOIL BORE	SB01	
PAVING/STRUCTURES		
SPOT ELEV.	101.5	101.5
STRUCTURE/BUILDING		
ASPHALT PAVING		
CONCRETE PAVING		
G.A.B./GRAVEL PAVING		
EROSION		
CHECK DAM, FILTER SOCK		
FILTER RING		
INLET SEDIMENT TRAP		
SILT FENCE		X
RIP RAP/OUTLET PROTECTION		
DOWNSTREAM SAMPLING POINT NPDES GENERAL PERMIT		DSP-1
UPSTREAM SAMPLING POINT NPDES GENERAL PERMIT		USP-1

ABBREVIATION LIST

ACT. TILE	ACOUSTICAL TILE	F & C	FRAME & COVER	O.F.	OUTSIDE FACE
ASPH.	ASPHALT	F.D.	FLOOR DRAIN	PC	POINT OF CURVATURE
B.F.	BLIND FLANGE	F.E.	FIRE EXTINGUISHER	PD	PROCESS DRAIN
BLDG.	BUILDING	F.E.S.	FLARED END SECTION	P.E.	PLAIN END
BLK.	BLOCK	F.F.	FINISHED FLOOR	P.H.	POST HYDRANT
BOT.	BOTTOM	FL.	FLANGE	P.I.	POINT OF INTERSECTION
BRG.	BEARING	FM	FORCE MAIN	PL	PLACE(S)
B.F.V.	BUTTERFLY VALVE	FT.	FOOT/FEET	P.L.	PROCESS LINE
B.V.	BALL VALVE	G.A.B.	GRADED AGGREGATE BASE	P.R.V.	PRESSURE REDUCING VALVE
B.W.V.	BACKWATER VALVE	G.V.	GATE VALVE	PS	PUMP STATION
CAP	CORRUGATED ALUMINUM PIPE	GYP. BD.	GYPSUM BOARD	PT	POINT OF TANGENCY
CHEM.	CHEMICAL	H.M.	HOLLOW METAL	PTS.	POINTS
CMP	CORRUGATED METAL PIPE	HORIZ.	HORIZONTAL	P.V.	PLUG VALVE
CONC.	CONCRETE	H.P.	HORSE POWER	P.V.C.	POLY VINYL CHLORIDE PIPE
CONT.	CONTINUOUS	HYD.	HYDRANT	R	RADIUS
CONST.	CONSTRUCTION	I.E.	INVERT ELEVATION	R.A.S.	RETURN ACTIVATED SLUDGE
CP	CONTROL POINT	I.F.	INSIDE FACE	RCP	REINFORCED CONCRETE PIPE
CPP	CORRUGATED PLASTIC PIPE	INF.	INFLUENT	REQ'D	REQUIRED
CPVC	CHLORINATED POLY VINYL CHLORIDE	INSUL.	INSULATION	R.J.	RESTRAINED JOINT
CV	CHECK VALVE	INV.	INVERT	SAN.	SANITARY
CY	CUBIC YARDS	J.B.	JUNCTION BOX	SED.	SEDIMENT
△	DELTA	JT.	JOINT	S.S.	STAINLESS STEEL
D.I.A.	DIAMETER	L	LENGTH OF CURVE	T & B	TOP & BOTTOM
DIP OR DI	DUCTILE IRON PIPE	L.A.S.	LAND APPLICATION SYSTEM	TAN	TANGENT
D.S.	DOWN SPOUT	LB.	POUNDS	T/W	TOP OF WALL
D/W	DRIVEWAY	L.C.	LENGTH OF CHORD	T.U.	TRUE UNION
DWL.	DOWEL	L.F.	LINEAR FEET	TYP.	TYPICAL
EA.	EACH	MET.	METAL	U.F.	UNIFLANGE
E.F.	EACH FACE	M.H.	MANHOLE	V.B.	VALVE BOX
EFF.	EFFLUENT	MIN.	MINIMUM	VERT.	VERTICAL
E.J.	EXPANSION JOINT	M.J.	MECHANICAL JOINT	W/	WITH
EL. OR ELEV.	ELEVATION	ML	MEGALUG	W.A.S.	WASTE ACTIVATED SLUDGE
E.W.	EACH WAY	N.T.S.	NOT TO SCALE	W.S.	WATER STOP
EXP.	EXPANSION	O.C.	ON CENTER	W.S.L.	WATER SURFACE LEVEL
				Y.H.	YARD HYDRANT



PROJECT VICINITY MAP

SCALE: 1" = 1000'

INDEX TO DRAWINGS

RELEASES	
03/16/26	RELEASE FOR BID

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GA COA LICENSE# PEF001004 EXPIRES 6/30/2026

GEORGIA REGISTERED No. 25423 PROFESSIONAL ENGINEER MARTIN C. BOYD
03/12/2026

LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581
EXPIRES: 12/21/2026

THIS LINE IS ONE INCH LONG WHEN DRAWING IS PLOTTED FULL SCALE

DSGN: MB	DRWN: JB
SCALE: AS SHOWN	
PROJ. NO.: T7040.003	
DATE: 03/16/26	SHEET NO.: 1

DRAWING INDEX & VICINITY MAP

D:\AUTODESK\DC\ACCDOCS\CARTERSLOOPE\T7040.003 WWTP IMPROVEMENTS\PROJECT FILES\CADD\WORKING DRAWINGS\$TITLE SHEET

GENERAL CONSTRUCTION NOTES

1. THIS SET OF PLANS REFERENCES RECORD DRAWINGS AND FIELD EVENTS FROM THE PROJECT SITE AS SHOWN BELOW. THESE DRAWINGS ARE AVAILABLE FOR CONTRACTOR REVIEW.

• SANITARY SEWER SYSTEM EXPANSION,PRECISION PLANNING, INC. 1992

2. THE LOCATION OF EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE. FURTHERMORE, INFORMATION REGARDING UNDERGROUND UTILITIES SHOWN ON THESE PLANS IS NOT GUARANTEED AS TO ACCURACY OR COMPLETENESS. AT LEAST 3 DAYS PRIOR TO BEGINNING ANY WORK, THE CONTRACTOR SHALL REQUEST A FIELD UTILITY LOCATE THROUGH GEORGIA'S UTILITY PROTECTION CENTER BY DIALING 811 OR 800-282-7411. THE CONTRACTOR SHALL COMPARE THESE FIELD-MARKED LOCATIONS WITH THE PROJECT PLANS AND NOTIFY THE ENGINEER OF ANY ANTICIPATED PROBLEMS OR NEED FOR CONTRACT CHANGES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXCAVATE OR CAUSE THE UTILITY OWNER TO EXCAVATE FOR THE PURPOSE OF DETERMINING EXACT ELEVATIONS OR LOCATIONS AT UTILITY CROSSINGS AND OTHER CRITICAL LOCATIONS WELL IN ADVANCE OF THE WORK UNDER THIS CONTRACT.

3. UTILITY COORDINATION SHALL BE INCLUDED IN THE PROJECT SCHEDULE, AND IT IS THE EXPLICIT RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT THE PROJECT SCHEDULE INCLUDES COORDINATION. THE CONTRACTOR WILL NOT BE PAID ADDITIONALLY FOR THIS COORDINATION. THE CONTRACTOR SHOULD SEEK ASSISTANCE FROM ALL UTILITY COMPANIES TO LOCATE AND PROTECT THEIR FACILITIES.

4. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT ANY DISRUPTIONS OF UTILITY SERVICE. ANY UTILITIES DAMAGED MUST BE REPAIRED THE SAME DAY UNLESS WRITTEN PERMISSION FROM OWNER IS GIVEN.

5. IF THE CONTRACTOR DAMAGES ANY EXISTING UTILITIES OR FACILITIES DURING CONSTRUCTION, HE SHALL, AT HIS OWN EXPENSE, REPAIR OR REPLACE THEM TO THEIR ORIGINAL CONDITION AND QUALITY, AS APPROVED BY THE ENGINEER.

6. CONTRACTOR SHALL BE RESPONSIBLE FOR HOLDING ANY POWER POLES AS REQUIRED DURING CONSTRUCTION AT HIS OWN EXPENSE.

7. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO BEGINNING ANY WORK AND ORDERING ANY EQUIPMENT. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

8. THE CONTRACTOR SHALL MAINTAIN FIELD "AS-BUILT" DRAWINGS AND SHALL MEASURE AND SHOW LOCATION OF ALL PROPOSED IMPROVEMENTS.

9. ALL CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE SITE AND LEGALLY DISPOSED OF AT THE CONTRACTOR'S EXPENSE.

10. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE OWNER AND MAKE ALL EFFORTS TO MINIMIZE INTERRUPTION TO OPERATION OF THE WATER POLLUTION CONTROL PLANT. CONTRACTOR SHALL NOTIFY OWNER TWO WEEKS IN ADVANCE OF ANY WORK WHERE SERVICE INTERRUPTION WILL BE REQUIRED. OWNER MUST APPROVE WORK SCHEDULE BEFORE WORK MAY BEGIN.

11. ALL CONSTRUCTION STAKING AND LAYOUT SHALL BE CONTRACTOR'S SOLE RESPONSIBILITY.

12. CONTRACTOR SHALL ABIDE BY ALL COUNTY WEIGHT LIMIT RESTRICTIONS ON ROADS WHEN HAULING EQUIPMENT AND MATERIALS TO SITE. ANY UTILITIES OR FACILITIES DAMAGED BY CONTRACTOR WHEN HAULING MATERIALS AND EQUIPMENT TO SITE SHALL BE REPAIRED OR REPLACED TO THEIR ORIGINAL QUALITY AND CONDITIONS AT CONTRACTOR'S EXPENSE.

13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL BUILDING PERMITS REQUIRED BY WILKES COUNTY.

14. CONTRACTOR SHALL COORDINATE MATERIAL LAYDOWN & CONTRACTOR TRAILER LOCATIONS WITH OWNER PRIOR TO BEGINNING CONSTRUCTION.

15. CARTER & SLOOPE WILL NOT SUPERVISE, DIRECT, CONTROL, OR HAVE AUTHORITY OVER OR BE RESPONSIBLE FOR CONTRACTOR'S MEANS, METHODS, TECHNIQUES, OR SAFETY PRECAUTIONS AND PROGRAMS INCIDENT TO THE WORK, OR WITH ANY FAILURE OF CONTRACTOR TO COMPLY WITH APPLICABLE LAWS AND REGULATIONS PERTAINING TO THE PERFORMANCE OF THE WORK. UNLESS NOTED OTHERWISE, CARTER & SLOOPE WILL NOT SUPERVISE, DIRECT, CONTROL, OR HAVE AUTHORITY OVER OR BE RESPONSIBLE FOR CONTRACTOR'S SEQUENCES OR PROCEDURES OF CONSTRUCTION.

16. THIS DESIGN IS VALID ONLY FOR THIS PROJECT AND SITE.

17. CARTER & SLOOPE IS NOT RESPONSIBLE FOR CONSTRUCTION SITE SAFETY. THIS INCLUDES THE FOLLOWING:

18. THE CONTRACTOR SHALL FOLLOW FEDERAL AND STATE STANDARDS TOWARDS SAFETY.

19. THE CONTRACTOR MUST PROVIDE AN ON-SITE COMPETENT PERSON, AS DEFINED BY OSHA TO EVALUATE THE GROUNDS CONDITIONS ENCOUNTERED DURING EXCAVATION TO DETERMINE THEIR CONFORMANCE TO THE ASSUMED GROUND CONDITIONS DESCRIBED HEREIN.

20. CARTER & SLOOPE HAS NOT EVALUATED THE SITE FOR THE PRESENCE OF HAZARDOUS MATERIALS OR ENVIRONMENTAL CONTAMINATES.

21. CONTRACTOR SHALL FLAG ANY 25' UNDISTURBED BUFFER PRIOR TO CONSTRUCTION.

22. STRUCTURE & PIPING ABANDONMENT REQUIREMENTS:

23. ALL EXISTING SEWER & FORCE MAINS SHOWN TO BE ABANDONED MAY BE LEFT IN PLACE UNLESS CONFLICTING WITH NEW CONSTRUCTION. ALL OPEN ENDS OF ABANDONED PIPE LINES SHALL BE PLUGGED WITH MANUFACTURED OR GROUT TYPE PLUGS.

24. MANHOLES TO BE ABANDONED: CONTRACTOR SHALL REMOVE MANHOLE FRAME & COVER, ADJUSTMENT RINGS, AND TOP RISER PORTION TO A MINIMUM OF 24" BELOW GRADE. PLUG ALL PIPE CONNECTIONS WITH FABRICATED OR GROUT TYPE PLUGS. CONTRACTOR SHALL BREAKUP INVERT SECTION OF THE MANHOLE TO PREVENT WATER RETENTION AND THEN BACKFILL WITH SUITABLE ONSITE MATERIAL. ALTERNATELY, CONTRACTOR MAY LEAVE THE INVERT IN PLACE AND FILL WITH CEMENTITIOUS MATERIAL (FLOWABLE FILL) UP TO A MAXIMUM DEPTH 24" BELOW GRADE.

25. PIPES TO BE ABANDONED SHALL BE CUT IN PLACE AND CAPPED WITH AN MJ CAP

1

1

YARD PIPING

1. MATERIALS AND DIAMETERS OF EXISTING PIPING ARE PROVIDED ON SHEETS # - # BASED ON THE BEST AVAILABLE INFORMATION PROVIDED BY THE OWNER. CONTRACTOR SHALL POT HOLE & FIELD VERIFY PIPE MATERIALS AND DIAMETERS PRIOR TO ORDERING VALVES, FITTINGS, SLEEVES, AND APPURTENANCES.

2. WHERE UTILITY EXCAVATION IS REQUIRED FOR REPLACEMENT OF PIPE, INSTALLATION OF VALVES OR FITTINGS WITHIN THE PUMP STATION SITE, CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING EXCAVATION AND TRENCHING IN ACCORDANCE WITH ALL STATE AND FEDERAL LAWS AND REGULATIONS FOR SAFETY, LIFE, HEALTH, AND PROPERTY PROTECTION. PROVIDE ALL NECESSARY SHEETING, SHORING, AND/OR BRACING FOR EXCAVATION REQUIREMENTS.

3. BEDDING OF PRESSURE PIPE SHALL BE A MINIMUM OF TYPE 2 IN ACCORDANCE WITH ANSI/AWWA C600 FOR DUCTILE IRON PIPE AND ANSI/AWWA C605 FOR PVC PIPE. BACKFILL SHALL BE COMPACTED TO 98% OF MAXIMUM DRY DENSITY.

4. PERMANENT GRASSING SHALL BE RE-ESTABLISHED FOR ALL DISTURBED AREAS AFTER CONSTRUCTION IS COMPLETE. SEEDING RATES, PLANTING DATES, FERTILIZER REQUIREMENTS, AND MULCH REQUIREMENTS SHALL BE AS SPECIFIED IN THE SECTION TITLED DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION - DS3) OF THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA, LATEST EDITION. GRASSING VARIETY SHALL MATCH EXISTING SPECIES WHERE POSSIBLE BUT CONTRACTOR SHALL SUBMIT FINAL SPECIES SELECTION, FERTILIZER, AND MULCH INFORMATION TO ENGINEER FOR APPROVAL PRIOR TO PLANTING.

PROTECTIVE COATINGS

1. CONTRACTOR SHALL APPLY PROTECTIVE COATINGS TO EXISTING DUCTILE IRON PIPE, CHANNEL WEIRS & TRAVELING SLIDE GATES IN THE HEADWORK CHANNELS, INFLUENT JUNCTION BOX, AND RETURN SLUDGE FLUME STRUCTURE PER THE SCHEDULE BELOW. MATERIALS SPECIFIED ARE THOSE MANUFACTURED BY TNEMEC COMPANY, INC. EQUIVALENT MATERIALS AS MANUFACTURED BY THE ALTERNATE MANUFACTURERS LISTED FOR EACH APPLICATION MAY BE USED.

2. CONTRACTOR SHALL APPLY PROTECTIVE COATINGS TO ALL INTERIOR WET WELL AND PROPOSED MANHOLE CONCRETE SURFACES EXPOSED TO RAW WASTEWATER AND/OR WASTEWATER FORMS PER THE SCHEDULE BELOW. MATERIALS SPECIFIED ARE THOSE AS MANUFACTURED BY TNEMEC OR ENGINEER APPROVED EQUAL.

3. CONTRACTOR SHALL ENSURE THAT THE PROTECTIVE COATINGS USED SHALL BE COMPATIBLE WITH THE UNDERLYING CONCRETE REPAIR GROUTS AND CHEMICAL GROUTS USED FOR CONCRETE REHABILITATION.

4. CONTRACTOR SHALL ENSURE ALL NON-CONCRETE INTERIOR SURFACES WITHIN THE WET WELL ARE MASKED WITH PLASTIC OR ALUMINUM OF SUITABLE THICKNESS FOR PROTECTION, PRIOR TO COATING INSTALLATION.

5. WHERE NEW DIP IS INSTALLED, THE INTERIOR OF THE PIPE SHALL BE LINED WITH TNEMAC SERIES 431 OR ENGINEER APPROVED EQUAL AND THE EXTERIOR SHALL BE COATED AS REQUIRED IN THE 'EXTERIOR EXPOSED' TABLE.

6. WORK SHALL BE PERFORMED BY SKILLED APPLICATORS THOROUGHLY TRAINED IN COATING APPLICATIONS AND FAMILIAR WITH THE SPECIFIC REQUIREMENTS OF THE COATING MANUFACTURER. IN ADDITION TO A ONE-YEAR WARRANTY AGAINST COATING FAILURE, THE CONTRACTOR SHALL ALSO PROVIDE A TWO-YEAR ADHESION WARRANTY ON THE COATING SYSTEM FROM THE DATE OF SUBSTANTIAL COMPLETION. ANY FAILURES WILL BE REPAIRED BY THE CONTRACTOR AT THEIR EXPENSE AND AN ADDITIONAL TWO-YEAR WARRANTY SHALL BE PROVIDED ON ANY REPAIRS. THE COATINGS SUPPLIER SHALL PROVIDE A FIVE-YEAR MANUFACTURER'S LIMITED MATERIAL WARRANTY FROM THE DATE OF SUBSTANTIAL COMPLETION TO REPLACE THE PRODUCT IN THE EVENT OF A DEFECTIVE CONDITION OF THE PRODUCT.

EXTERIOR EXPOSED (TNEMEC, DEVOE, CARBOLINE)		
A	PREPARATION:	PER MANUFACTURER'S INSTRUCTIONS
B	PRIMER:	SERIES N69 HI-BUILD EPOXYLINE, DFT 3.0 TO 5.0 MILLS
C	INTERMEDIATE:	SERIES N69 HI-BUILD EPOXYLINE, DFT 4.0 TO 6.0 MILLS
D	FINISH:	SERIES 1075U ENDURA-SHIELD, DFT 2.0 TO 3.0 MILLS
E	TOTAL DFT:	9.0 TO 14.0 MILLS

1

INTERIOR LINED CONCRETE HEADWORKS		
A	PREPARATION:	REMOVE THE EXISTING LINING SYSTEM IN ACCORDANCE WITH NACE NO. 6/SSPC-SP13 JOINT SURFACE PREPARATION STANDARDS AND ICRI TECHNICAL GUIDELINES. ABRASIVE BLAST, SHOT-BLAST, WATER JET OR MECHANICALLY ABRADE CONCRETE SURFACES TO PROVIDE A MINIMUM ICRI-CSP 5 SURFACE PROFILE.
B	SKIM COAT/ RESURFACER:	SERIES 218 APPLIED UP TO ½" OR SERIES 217 APPLIED ½" TO 4"
C	PERMA-SHIELD BODY COAT:	SERIES 434 OR G436 APPLIED AT 125 MILS
D	GLAZE FINISH COAT:	SERIES G435 APPLIED AT 15-20 MILS

PIPING & WEIR (TNEMEC, SAEREISEN, DUDICK)		
A	PREPARATION:	PER MANUFACTURER'S INSTRUCTIONS
B	PRIMER:	SERIES 1140-1211 POT-O-POX PLUS, DFT 4.0 TO 6.0 MILLS
C	FINISH:	SERIES 431 PERMA-SHIELD PL, DFT 40.0 MILLS
D	TOTAL DFT:	44.0 TO 46.0 MILLS
BELOW GROUND		
A	PREPARATION	FACTORY SHOP COATED
B	PRIMER	ASPHALTIC COATING, 7.0 MIL THICK PER AWWA C151

PIPING, VALVES & ACCESSORIES

1. WHERE DUCTILE IRON PIPE IS REPLACED WITHIN THE HEADWORKS, THE PIPE SHALL CONFORM TO ANSI 21.50 (AWWA C-150) AND ANSI A21.5 (AWWA C-151). PRESSURIZED PIPE LESS THAN 12" IN DIAMETER SHALL BE PRESSURE CLASS 350. GASKETS SHALL BE SBR ELASTOMER.

2. PIPE AND FITTINGS SHALL HAVE AN INTERIOR AND EXTERIOR COATING AS DESCRIBED IN PROTECTIVE COATINGS. PUSH-ON MECHANICAL JOINTS SHALL CONFORM TO ANSI A21.11 (AWWA C-111) AND FLANGED JOINTS SHALL BE FACED AND DRILLED PER ABSI B16.1, 125 POUND STANDARD.

3. BOLTS, WASHERS AND NUTS FOR EXPOSED FLANGED JOINTS SHALL BE GRADE B, ATSM A-307 CARBON STEEL AND CONFORM TO ANSI B16.1 FOR CLASS 125. BOLTS AND ACCESSORIES FOR BELOW GROUND MECHANICAL OR FLANGE JOINTS SHALL BE HIGH-STRENGTH, LOW-ALLOY STEEL PER AWWA C-111.

4. PLUG VALVES SHALL BE QUARTER-TURN, ECCENTRIC TYPE WITH A MINIMUM PORT AREA OF 80% AND SHALL CONFORM TO AWWA C-517. VALVE BODY SHALL BE CAST IRON MEETING ASTM A126, CLASS B WITH A MINIMUM WORKING PRESSURE OF 150 PSI. VALVE SEAT SHALL BE 90% NICKEL AND BEARINGS SHALL BE RADIAL SHAFT, PERMANENTLY LUBRICATED TYPE AND STEM SHALL BE STAINLESS STEEL. PLUGS SHALL BE CAST IRON WITH BUNA RUBBER FACING. VALVES SHALL BE AS MANUFACTURED BY DEZURIK, CLOW OR VAL-MATIC.

5. ALL PIPE AND MATERIALS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF OFF-SITE.

ELEVATION DATA INFORMATION

"THE TOPOGRAPHIC ELEVATION DATA SHOWN HEREON WAS OBTAINED FROM USGS AND IS NOT CERTIFIED AS CORRECT BY THIS ENGINEER. USERS OF THIS DATA DO SO AT THEIR OWN RISK."

"THE EXISTING STRUCTURES ELEVATION DATA SHOWN HEREON WAS PRODUCED BY AGENTS OF THIS FIRM."

PROTECTIVE COATINGS

1. CONTRACTOR SHALL APPLY PROCTECTIVE COATING TO THE INTERIOR PROPOSED MANHOLE A-4 ONLY. NO OTHER CONCRETE SURFACES SHALL BE COATED. THE CONTRACTOR SHALL COAT MANHOLE A-4 USING ONE THE SYSTEMS SCHEDULED BELOW:

1

MANHOLE COATING SCHEDULE

PRODUCT	SURFACE PREP	PRIME/BUILD BACK	INTERMEDIATE	FINISH
DURAMER 1030 SERIES (TWO COMPONENT COATING SYSTEM)	PHYSICALLY REMOVE LOOSE PARTICULTES, ACID ETCH SMOOTH SURFACES,POWER WASH AT SURFACE	1.5 MIL DFT	45 MIL DFT	10 MIL DFT
RAVE 405 (ULTRA HIGH-BUILD EPOXY SYSTEM)	SSPC-SP13/ NACE 6	RAVEN 755 REINFORCED CEMENTITIOUS BUILD-BACK AS REQUIRED FOR PROPER FINISH COAT ½" MINIMUM	N/A	RAVEN 405 ULTRA HIGH-BUILD EPOXY, 150 MIL DFT
TNEMEC 218/435 SERIES (ULTRA HIGH-BUILD EPOXY SYSTEM)	SSPC-SP13/ NACE 6	TNEMEC SERIES 218 EPOXY CEMENTITIOUS RESURFACER, THICKNESS AS REQUIRED TO FILL ALL VOIDS AND PINHOLES, ¼-INCH MINIMUM THICKNESS	TNEMEC SERIES 434 PERMA-SHIELD AGGREGATE REINFORCED EPOXY LININGM 125 MIL DFT	TNEMEC SERIES 435 PERMA-GLAZE, 15 MIL DFT
SPECTRASHIELD (POLYURATHANE/POLYMETRIC FOAM AND MODIFIED POLYMER CORROSION BARRIER)	SSPC-SP13/ NACE 6	SPECTROSHIELD MODIFIED POLYMER MOISTURE BARRIER, 40 MIL DFT	SPECTRASHIELD POLYURETHANE/POLYMETRIC BLEND FOAM, 400 MIL DFT	SPECTROSHIELD MODIFIED POLYMER CORROSION BARRIER, 60 MIL DFT

RELEASES	
03/16/26	RELEASE FOR BID
03/30/26	ADDENDUM #1

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SCALE: AS SHOWN	
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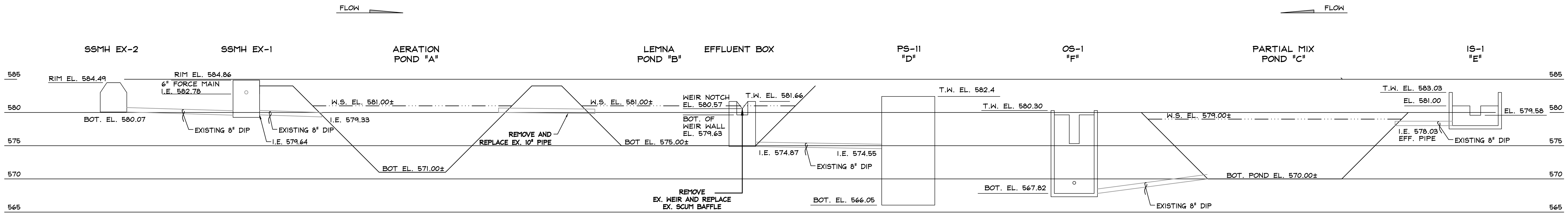
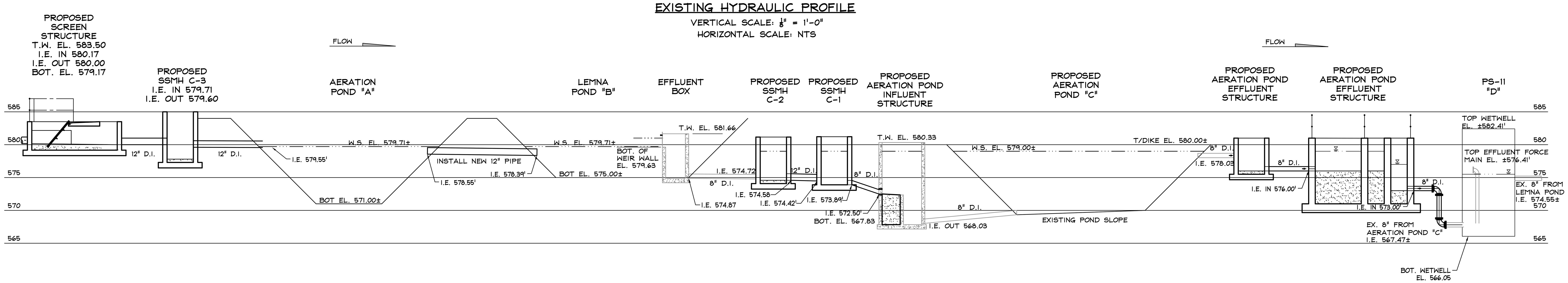
LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581
EXPIRES: 12/21/2026

GENERAL CONSTRUCITON NOTES



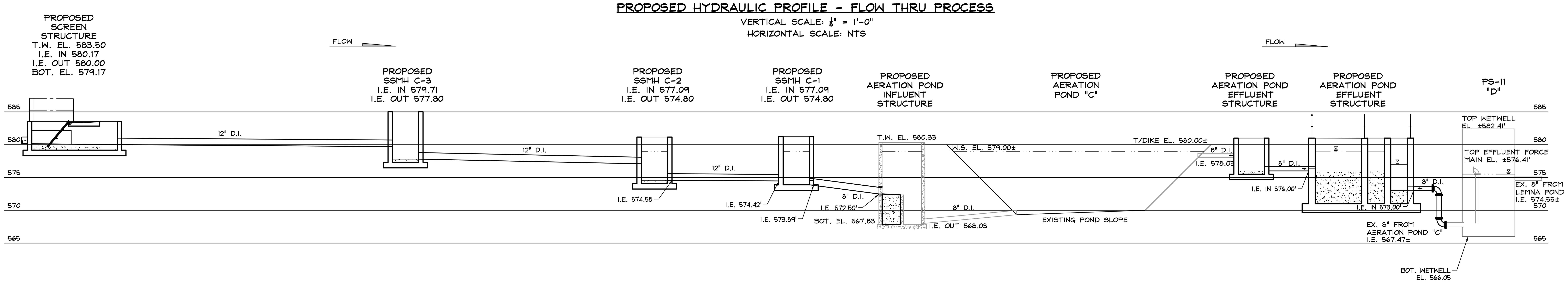
EXISTING HYDRAULIC PROFILE

VERTICAL SCALE: 1/8" = 1'-0"
HORIZONTAL SCALE: NTS



PROPOSED HYDRAULIC PROFILE - FLOW THRU PROCESS

VERTICAL SCALE: 1/8" = 1'-0"
HORIZONTAL SCALE: NTS



PROPOSED HYDRAULIC PROFILE - LEMNA BYPASS

VERTICAL SCALE: 1/8" = 1'-0"
HORIZONTAL SCALE: NTS

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HYDRAULIC PROFILES

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RELEASES	
03/16/26	RELEASE FOR BID

WWTP IMPROVEMENTS
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WILKES COUNTY, GEORGIA

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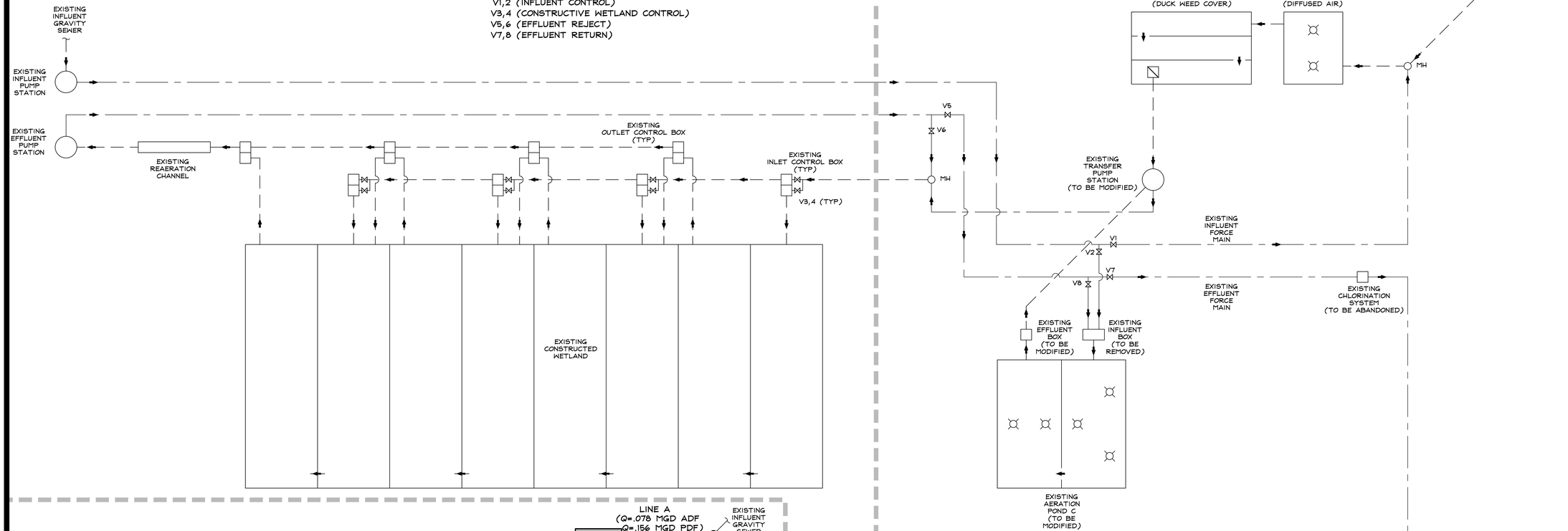
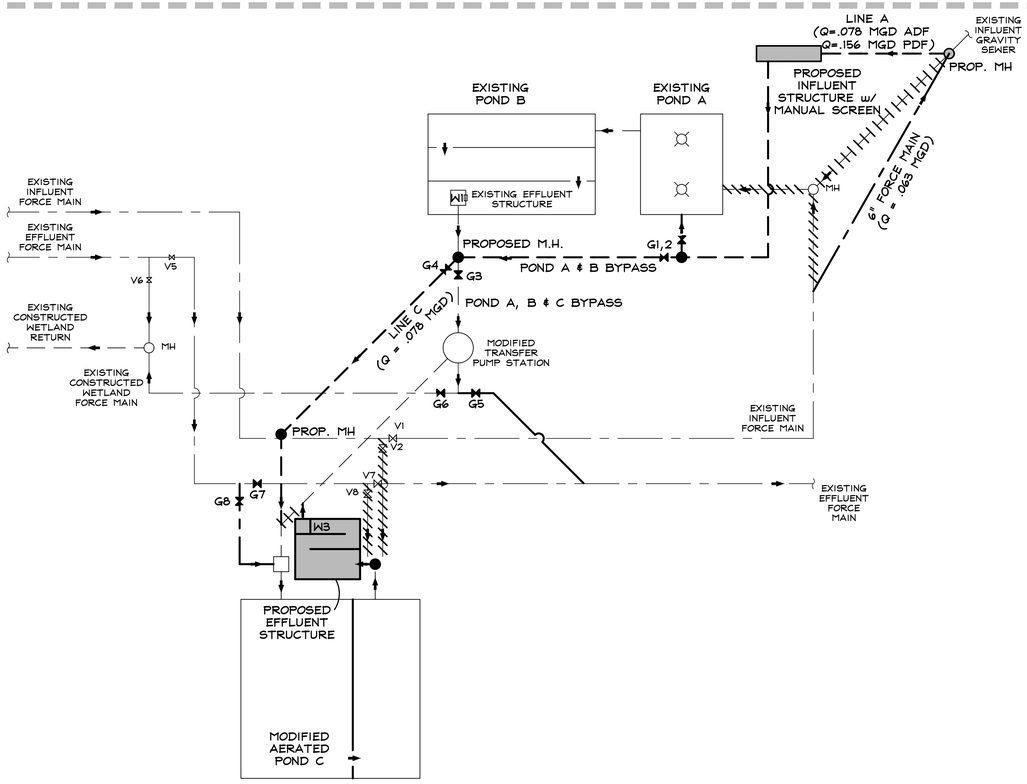
SCALE: AS SHOWN	
PROJ. NO.: T7040.003	
DATE: 03/16/26	SHEET NO.: 3

EXISTING VALVE SCHEDULE
V1,2 (INFLUENT CONTROL)
V3,4 (CONSTRUCTIVE WETLAND CONTROL)
V5,6 (EFFLUENT REJECT)
V7,8 (EFFLUENT RETURN)

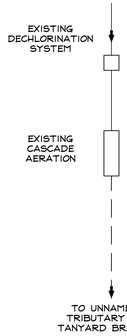


EXISTING PLANT FLOW SCHEMATIC



PROPOSED PLANT FLOW SCHEMATIC

LEGEND
- EXISTING VALVE
- EXISTING EFFLUENT STRUCTRUE
- EXISTING AERATORS
- EXISTING MANHOLE
- PROPOSED VALVE
- PROPOSED MANHOLE



ADDENDUM No. 1
REPLACE WITH REVISED SHEET

PLANT FLOW SCHEMATIC

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03/12/2026
LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581
EXPIRES: 12/21/2026

RELEASES	
03/16/26	RELEASE FOR BID
03/30/26	ADDENDUM #1

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DATE: 03/16/26	SHEET NO.: 4

D:\AUTODESK\DOCS\ACCDOCS\CARTERSLOOPE\T7040.003 WWTP IMPROVEMENTS\PROJECT FILES\CADD\WORKING DRAWINGS\POND STRUCTURES

EXISTING STRUCTURE KEY		
TAG	STRUCTURE	NOTES
1	AERATION BASIN POND "A"	TO BE MODIFIED
2	LEMNA SYSTEM POND "B"	TO BE MODIFIED
3	PARTIAL MIX POND "C"	TO BE MODIFIED
4	OPERATIONS BUILDING	TO BE MODIFIED
5	CHEMICAL INJECTION POINT	TO BE ABANDONED
6	STORAGE BUILDING	
7	STORAGE BUILDING	TO BE MODIFIED
8	EQUIPMENT STORAGE	
9	EQUIPMENT STORAGE	
10	PUMP STATION	TO BE MODIFIED
11	LEMNA SYSTEM EFFLUENT BOX	TO BE MODIFIED
12	PARTIAL MIX POND INFLUENT STRUCTURE	TO BE REMOVED
13	PARTIAL MIX POND EFFLUENT STRUCTURE	TO BE MODIFIED
14	CHEMICAL INJECTION POINT (ABANDONED)	TO BE DEMOED

EXISTING CONSTRUCTED WETLANDS

EXISTING EFFLUENT STRUCTURE (TO BE MODIFIED, SEE SHEET 12)

EXISTING PUMPS ARE TO BE REMOVED AND REPLACED AS DIRECTED BY THE ENGINEER

EXISTING PARTIAL MIX POND "C" (TO BE MODIFIED SEE SHEET 18 - 22)

EXISTING LEMNA EFFLUENT BOX (TO BE MODIFIED SEE SHEET 11)

EXISTING INFLUENT STRUCTURE (TO BE REMOVED, SEE SHT 12)

EXISTING 6" FORCE MAIN (TO BE ABANDONED IN PLACE)

EXISTING LEMNA POND "B"

EXISTING DRYING BED

EXISTING ACCESS DRIVE

ABANDONED CHEMICAL INJECTION POINT (TO BE ABANDONED IN PLACE)

EXISTING BLOWERS SHALL BE RELOCATED FROM OPERATIONS BUILDING TO EXISTING CONCRETE PAD

EXISTING 10" EQUALIZATION LINE (TO BE REMOVED AND REPLACED)

EXISTING AERATION POND "A"

PLUG W/ CAP

PLUG & ABANDON EXIST. PIPE

PLUG & ABANDON EXISTING MH (TYP. 2 PL)

EXISTING CARPORT TO BE RELOCATED

EXISTING 6" FORCE MAIN (TO BE ABANDONED BY CUT & CAP)

EXISTING 8" SANITARY SEWER (TO BE ABANDONED IN PLACE BY CUT & CAP)

EXISTING FIRE HYDRANT

N/F
PUBLIC PROPERTY
PI: 058 058A01
JANE HILL RD

N/F
BROOME RANDALL T & HINES
PI: 058 059
JANE HILL RD

JANE HILL RD

N/F
DENARD ELIZABETH H
PI: 059 007
JANE HILL RD

N/F
DENARD ELIZABETH H
PI: 059 007 01
JANE HILL RD

GRAPHIC SCALE IN FEET: 1" = 30'

EXISTING SITE PLAN - SOUTH

RELEASES	
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DATE: 03/16/26	SHEET NO.: 5

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03/12/2026
LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581
EXPIRES: 12/21/2026

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30 0 30 60 90
GRAPHIC SCALE IN FEET: 1" = 30'

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SCALE: AS SHOWN	
PROJ. NO.: T7040.003	
DATE: 03/16/26	SHEET NO.: 6

GEORGIA REGISTERED No. 25423 PROFESSIONAL ENGINEER MARTIN C. BOYD
03/12/2026
LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581
EXPIRES: 12/21/2026

CLEARING & GRUBBING PLAN

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Sd1-NS ±70 LF

PROPOSED BLOWERS W/ RELOCATED CARPORT (SEE SHEET 16)

EXISTING EFFLUENT STRUCTURE (TO BE MODIFIED, SEE SHEET 12)

8" PLUG VALVE, MJ W/ VALVE BOX

PR SSMH A-1
STA. 1+06
N: 1404768.60
E: 477218.21

LINE A: 8" SDR 26 PVC GRAVITY SEWER

PROPOSED 4" AIR PIPING (SEE SHEET 13)

CONTRACTOR TO RELOCATE EXISTING FORCE MAIN (SEE SHEET 13)

12" PLUG VALVE, MJ W/ VALVE BOX

12" PLUG VALVE, MJ W/ VALVE BOX

EXISTING PARTIAL MIX POND (TO BE MODIFIED SEE SHEET 18 - 22)

PROPOSED POLISHING REACTOR (SEE SHEET 14-15)

8" PLUG VALVE, MJ W/ VALVE BOX

PR SSMH A-2 (DOGHOUSE)
STA. 0+35
N: 1404740.93
E: 477248.58

EXISTING LEMNA EFFLUENT BOX (SEE SHEET 11)

PROPOSED AERATION POND EFFLUENT STRUCTURE (SEE SHEET 12)

PROPOSED 8' x 14' FRP CHEMICAL STORAGE BUILDING (SEE SHEET 17)

EXISTING LEMNA POND "B"

LINE A: 12" SDR 26 PVC GRAVITY SEWER

EXISTING INFLUENT STRUCTURE (TO BE REMOVED, SEE SHT 12)

ABANDONED CHEMICAL INJECTION POINT (TO BE DEMOED IN PLACE)

EXISTING BLOWERS SHALL BE RELOCATED FROM OPERATIONS BUILDING TO EXISTING CONCRETE PAD AND ANCHORED TO PAD

LINE B 12" EQUALIZATION LINE (SEE SHEET 8)

CONTRACTOR TO PROVIDE SHELTER FOR EXISTING BLOWERS (SEE MISC. NOTE 1 THIS SHEET)

CONNECT TO EXISTING AIR PIPING. CONTRACTOR TO FIELD LOCATE EXISTING AIR PIPING. COORDINATE ALL PIPING CONNECTIONS WITH ENGINEER

EXISTING AERATION POND "A"

Sd1-NS ±170 LF

DEWATERING AREA (±11,500 SF)

PROPOSED 12" SDR 26 PVC GRAVITY SEWER
I.E.: 579.55'

2 - 12" PLUG VALVE, MJ W/ VALVE BOX

Cd-Fs TYP. 2

PROPOSED BAR SCREEN (SEE SHEET 9 - 10)

PR SSMH A-3
STA. 3+40
N: 1404549.06
E: 477267.48

N/F
BROOME RANDALL T & HINES
PI: 058 059
JANE HILL RD

EXISTING 6" FORCE MAIN (TO BE ABANDONED IN PLACE ± 31LF)

CONNECT TO EXISTING FORCE MAIN

1 - 6" 90° BEND, MJ CONC. BLOCKING

EXISTING 8" SANITARY SEWER (TO BE ABANDONED IN PLACE ± 125LF)

PR SSMH A-4 (DOGHOUSE)
STA. 1+84
N: 1404503.87
E: 477405.37

Sd1-S ±280 LF DOUBLE ROW

N/F
PUBLIC PROPERTY
PI: 058 058A01
JANE HILL RD

PROPOSED (2) 8' WIRE-FILLED SWING GATES - DOUBLE SWING,16' TOTAL OPENING

LINE C: PROPOSED 6" DR 18 PVC FORCE MAIN

6" 90° BEND, MJ CONC. BLOCKING

Sd1-NS ±370 LF

Co Wo

EXACT WASHOUT AND CONSTRUCTION EXIT LOCATIONS TO BE FIELD LOCATED PRIOR TO ANY LAND DISTURBANCE

EXISTING ACCESS DRIVE

JANE HILL RD

Du	TO BE PLACED ON ALL DISTURBED AREAS TO MATCH EXISTING CONDITIONS
Ds1	
Ds2	
Ds3	
Ss	SEE NOTE 16, EC1

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20 0 20 40 60
GRAPHIC SCALE IN FEET: 1" = 20'

YARD PIPING NOTES:

1. LOCATION OF EXISTING YARD PIPING IS APPROXIMATE AND SHOWN FOR CONTRACTOR'S REFERENCE ONLY. CONTRACTOR SHALL POTHOLE ALL EXISTING BURIED PIPING AT ALL PROPOSED CROSSING LOCATIONS PRIOR TO LAYING NEW YARD PIPING AND NOTIFY ENGINEER OF ANY CONFLICTS.
2. BURIED FITTINGS NOT LABELED ON THIS SHEET CAN BE FOUND ON THE FOLLOWING SITE PLAN SHEETS OR THE CIVIL DRAWINGS.
3. ALL BURIED DUCTILE IRON PRESSURE FITTINGS SHALL BE MECHANICAL JOINT AND HAVE CONCRETE BLOCKING OR RESTRAINED JOINTS.
4. ALL BURIED PVC PRESSURE FITTINGS SHALL HAVE CONCRETE BLOCKING.
5. IF ANY PIPE INSTALLED UNDER EXISTING OR PROPOSED ROADWAYS HAS LESS THAN 2.5' OF COVER, INSTALL 6" CONCRETE CAP OVER PIPE TO SPRINGLINE.
7. ALL PIPING 4" AND LARGER IS DIP UNLESS OTHERWISE NOTED.
8. DUCTILE IRON PIPE PRESSURE CLASSES SHALL BE AS SHOWN BELOW:
   - 12" DIP & SMALLER: CLASS 350
   - 14" & 16" DIP: CLASS 250
   - 24" DIP: CLASS 200
   - 30" DIP: CLASS 150
9. ALL BURIED PVC PIPING GREATER THAN 4" IN DIAMETER IS SDR 26, AND ALL BURIED PVC PIPING 4" OR LESS IS SCHEDULE 40 UNLESS OTHERWISE NOTED. ALL EXPOSED PVC PIPING IS SCHEDULE 80 UNLESS OTHERWISE NOTED.
10. ANYWHERE THAT PROPOSED ELECTRICAL DUCT BANK CROSSES EXISTING OR PROPOSED YARD PIPING, A MINIMUM OF 18" VERTICAL SEPARATION IS REQUIRED.
11. ALL NEW, BURRIED DIP AND PVC, PIPING SHALL HAVE TRACING WIRE w/ TRACER WIRE TESTING STATIONS (SEE DETAIL SHT. 23) AND WARNING TAPE.
12. SEE SHEET 1 FOR ADDITIONAL INFORMATION

MISC. NOTES:

1. BLOWER SHELTER SHALL BE 7-FT X 7-FT RUBBERMAID STORAGE SHED (MOD. NO. 2119053 OR ENGINEER APPROVED EQUAL.)
2. BLOWER SHELTER SHALL BE MOUNTED PER MANUFACTURE'S RECOMMENDATIONS.

YARD PIPING LINE LEGEND

	EXISTING	PROPOSED
WATER MAIN	W	W
POTABLE WATER	PW	PW
NON-POTABLE WATER	NPW	NPW
REUSE WATER	RW	RW
SANITARY SEWER	SS	SS
FORCE MAIN	FM	FM
GAS LINE	GAS	GAS
UNDERGROUND ELECTRIC	UGE	OHP
OVERHEAD POWER	OHP	OHP
STORM DRAIN		
CHLORINE FEED LINE	CL	CL
EXISTING PIPING TO BE ABANDONED		

RELEASES	
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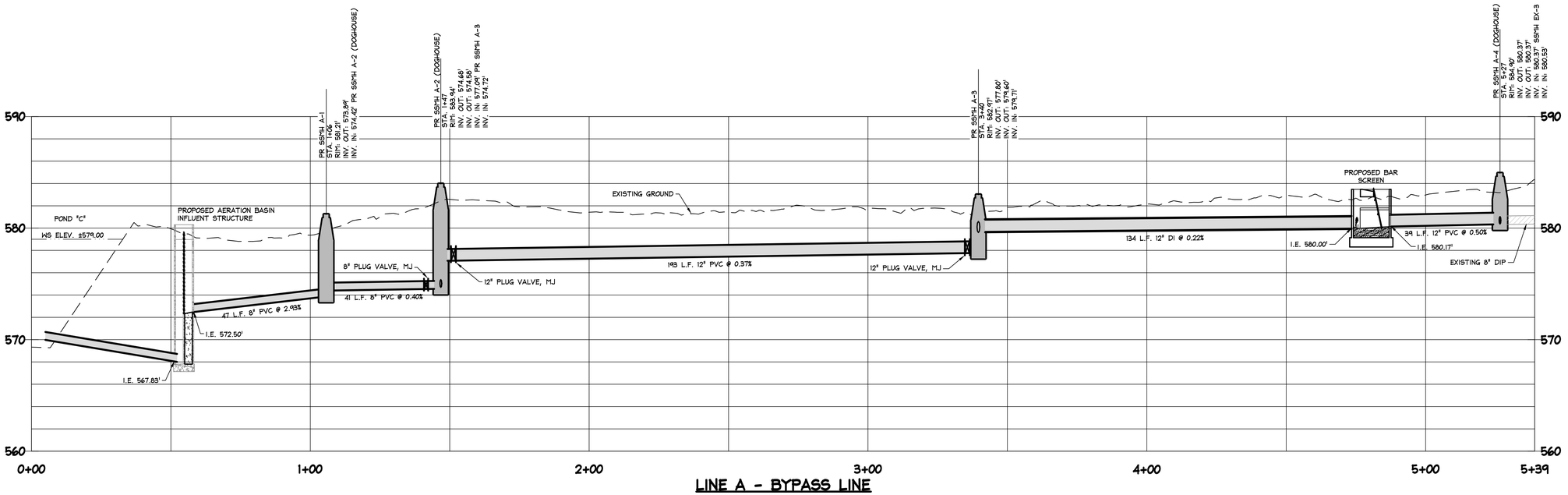
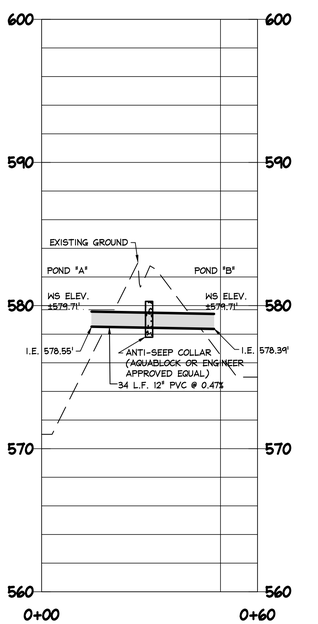
PROPOSED SITE PLAN - SOUTH



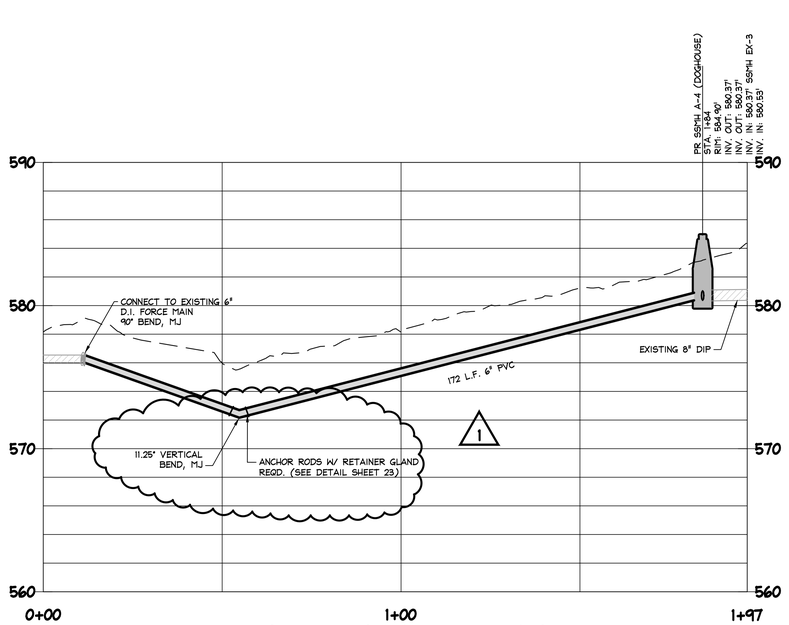
LINE A - BYPASS LINE

STATION 0+00 TO 5+39
SCALE: 1"=20'H/1"=5'V



LINE B - 12IN EQUALIZATION LINE

STATION 0+00 TO 0+60
SCALE: 1"=20'H/1"=5'V



LINE C - 6IN PVC FORCE MAIN

STATION 0+00 TO 1+97
SCALE: 1"=20'H/1"=5'V

YARD PIPING PROFILES

RELEASES	
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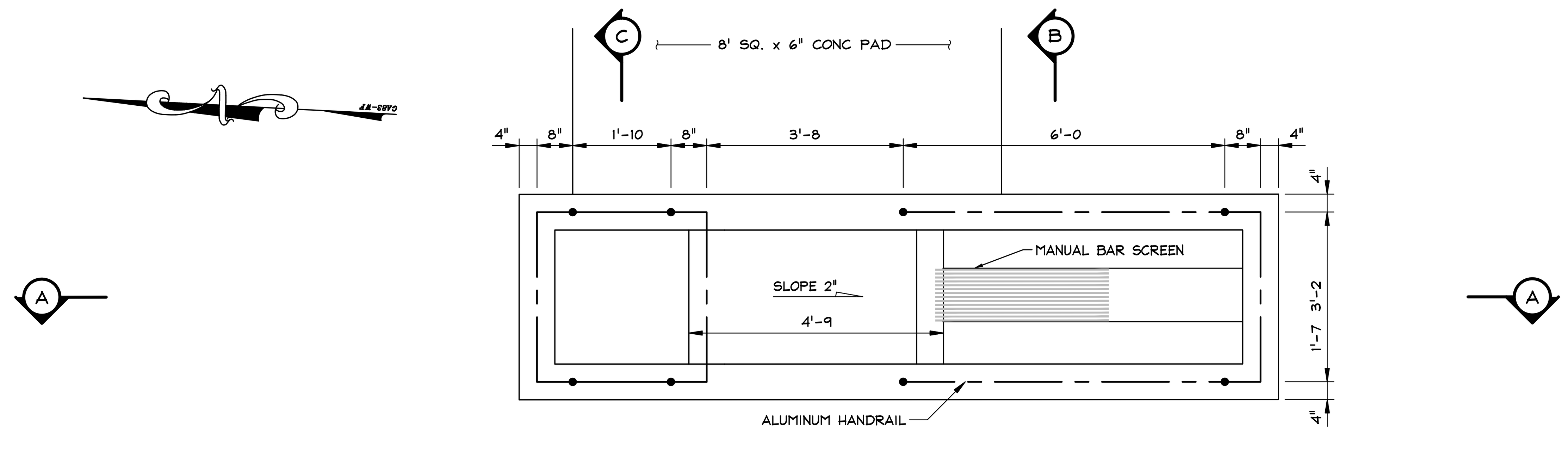
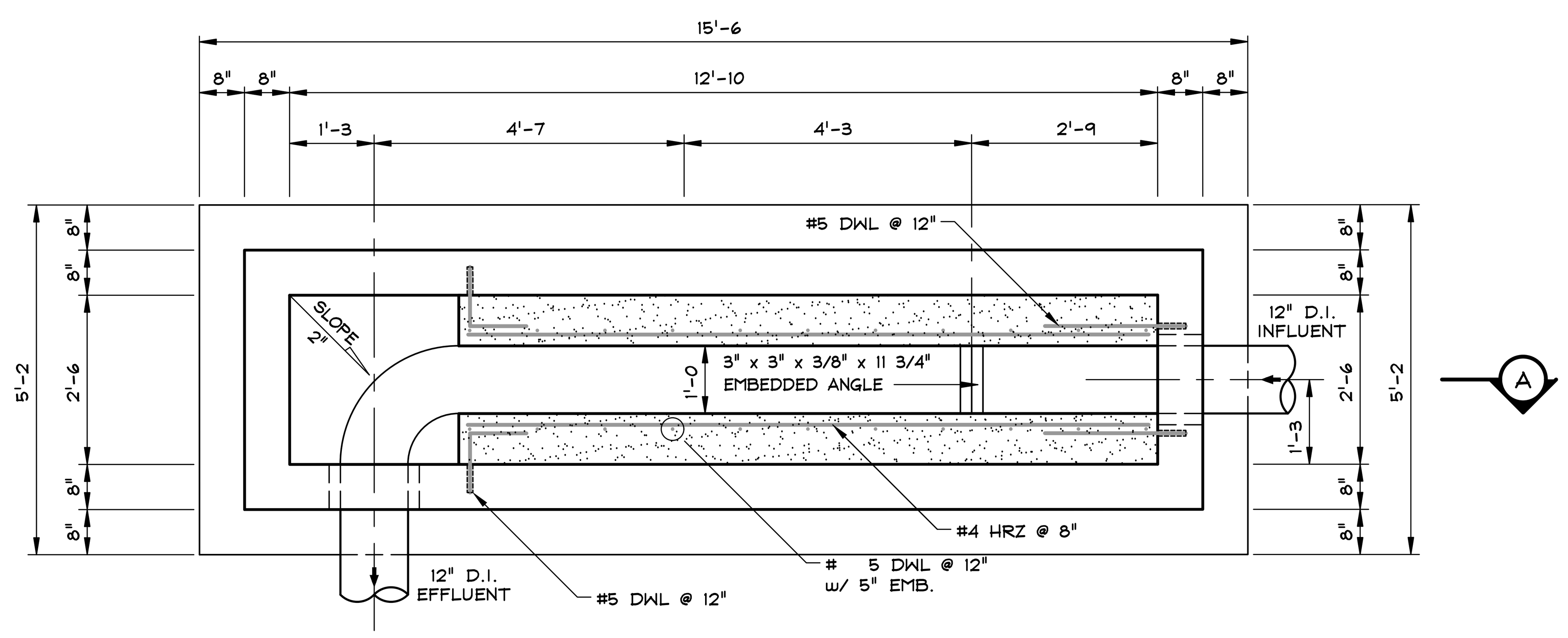
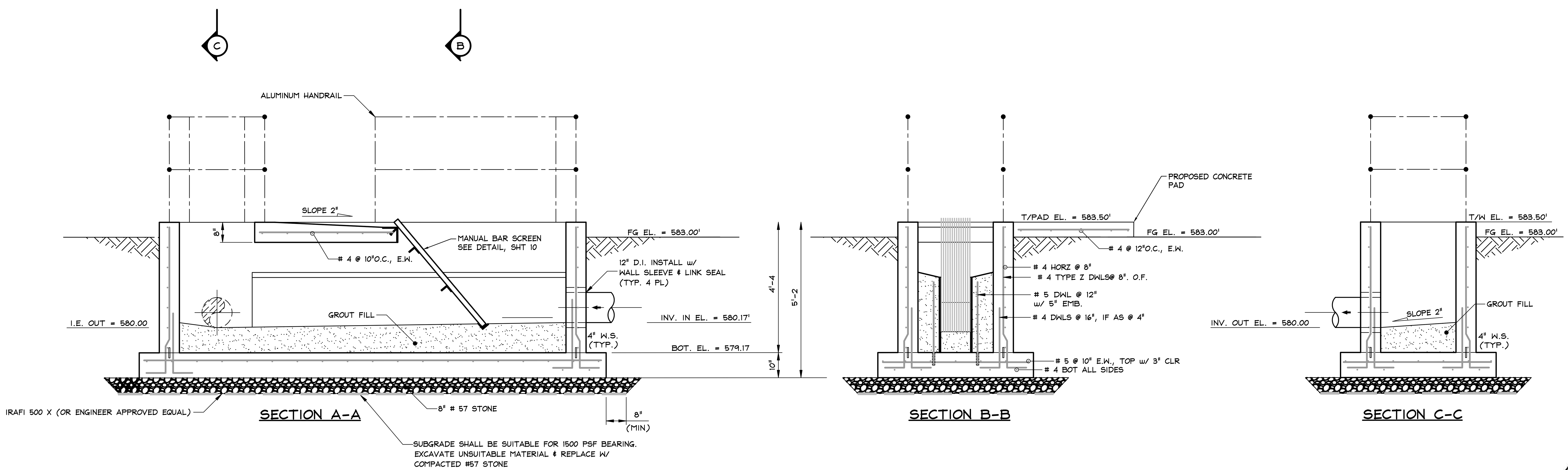


TOP PLAN



BOTTOM PLAN



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

PROPOSED INFLUENT STRUCTURE PLAN & SECTION

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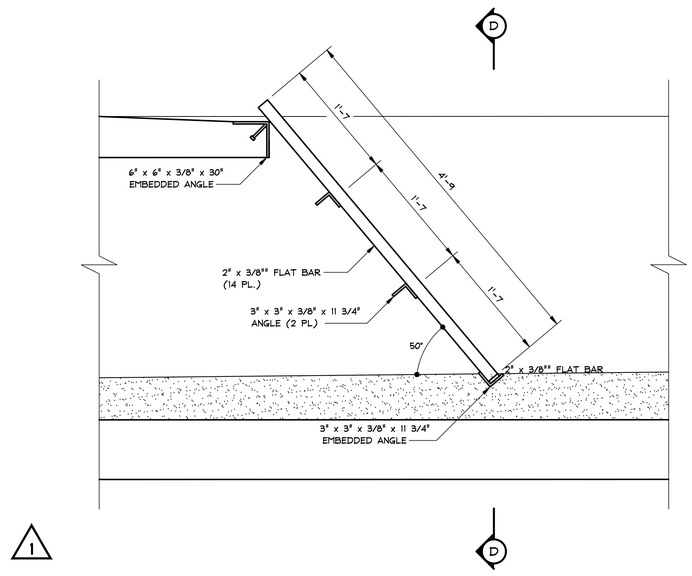
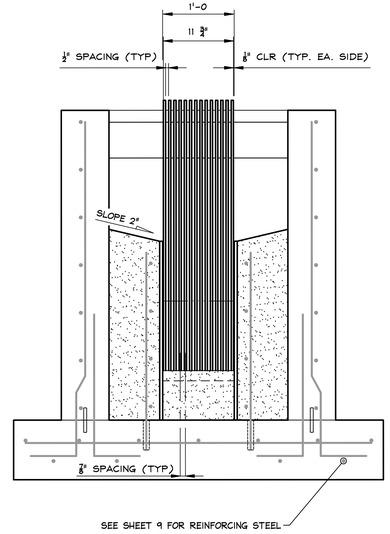
NOTES:

1. OWNER TO PROVIDE BAR SCREEN RAKE.

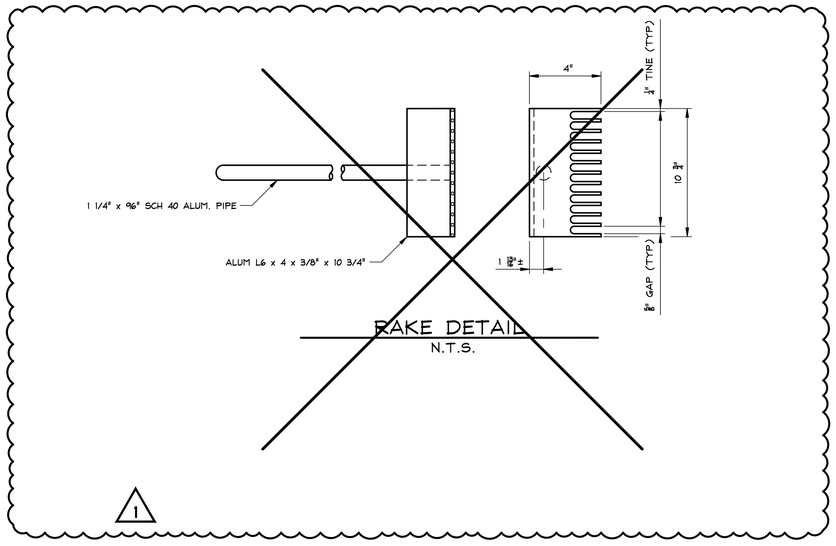


PARTIAL SECTION A-A



SECTION D-D

SCREEN DETAIL
SCALE: 1" = 1'-0"



RAKE DETAIL
N.T.S.

PROPOSED INFLUENT STRUCTURE DETAILS

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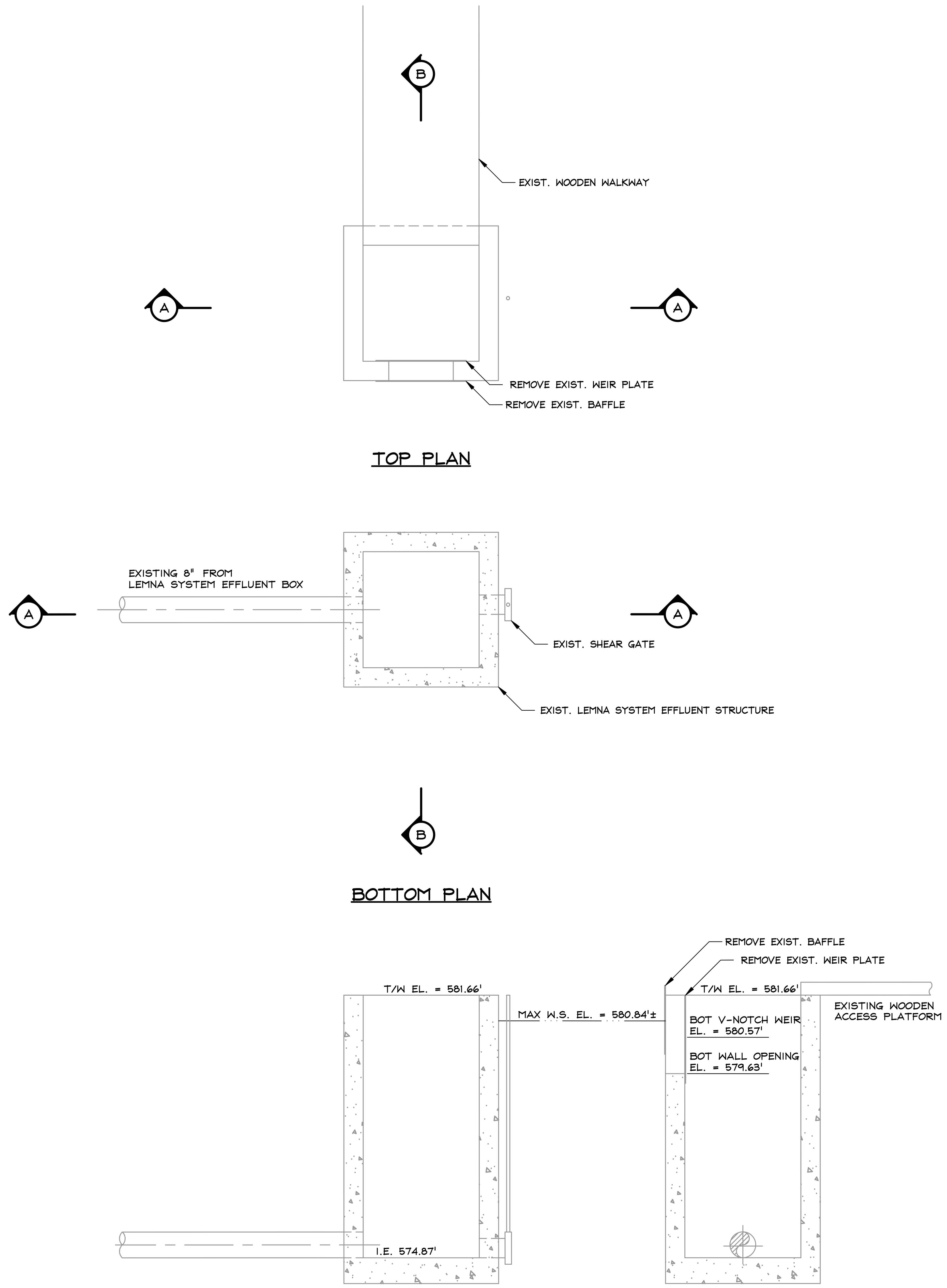
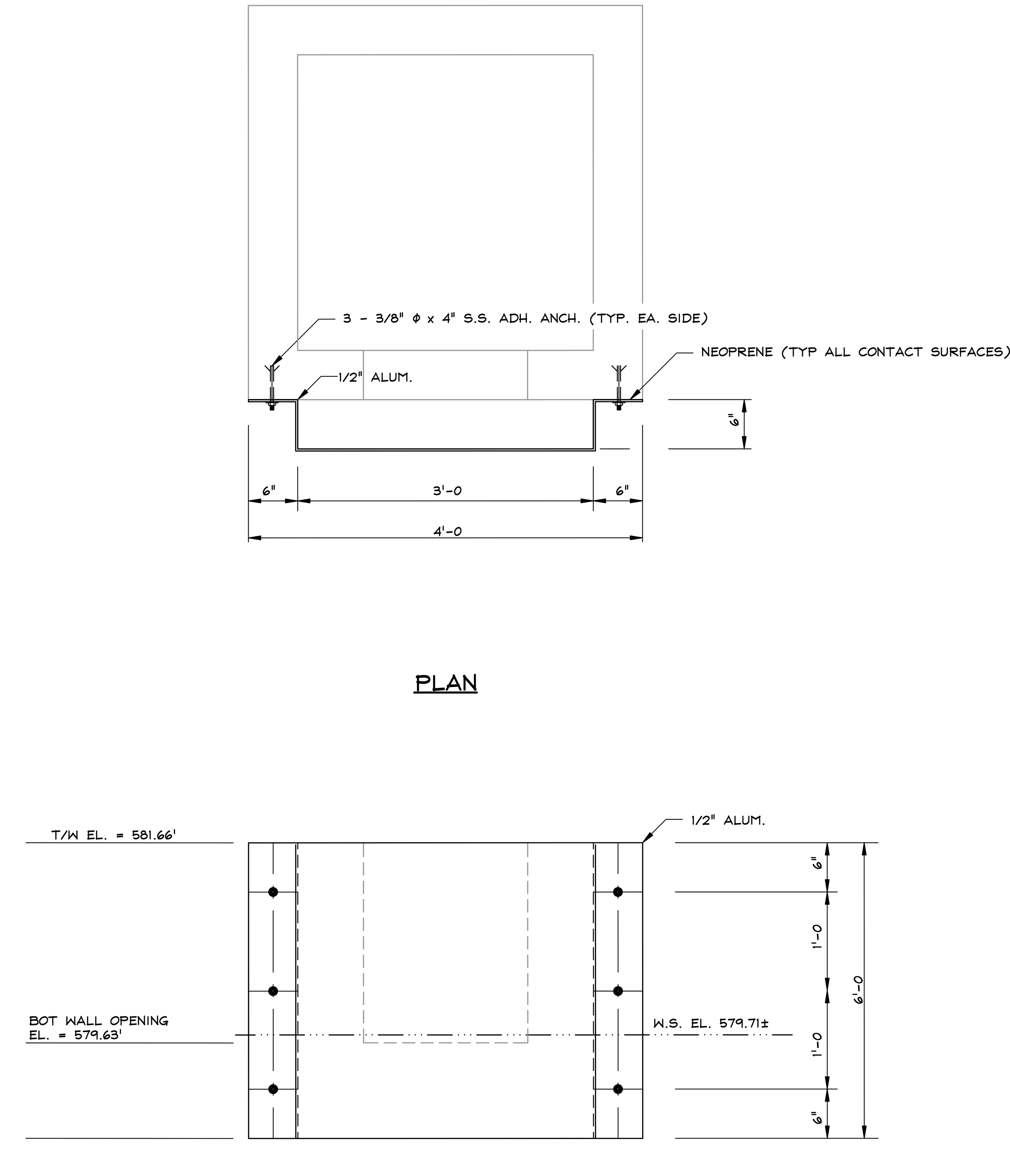


EXISTING POND B EFFLUENT STRUCTURE
SCALE: 1/2" = 1'-0"



NEW BAFFLE BOX
SCALE: 1" = 1'-0"

MODIFICATIONS TO EXISITNG LEMNA EFFLUENT STRUCTURE

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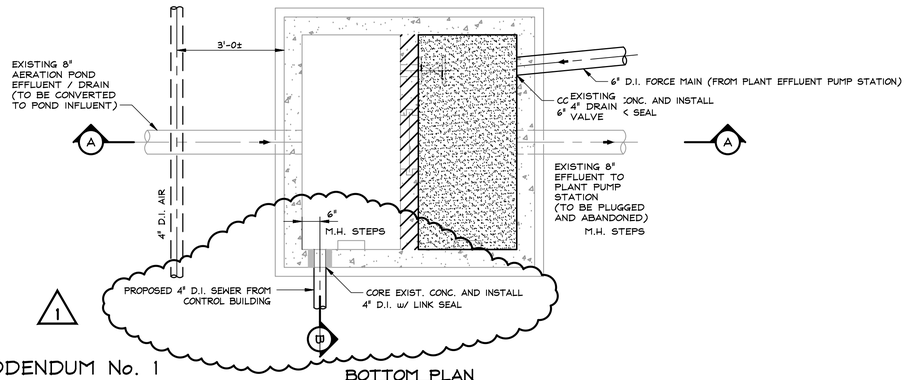
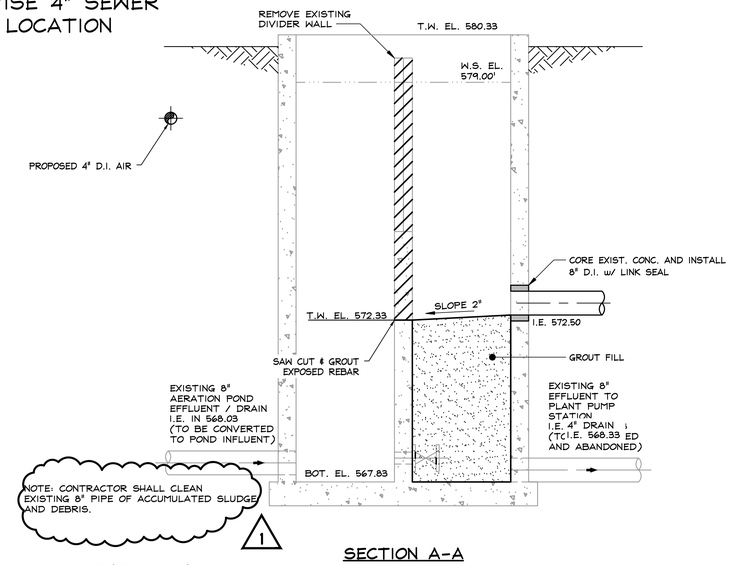
PROJ. NO.: T7040.003	
DATE: 03/16/26	SHEET NO.: 11

D:\AUTODESK\DC\ACCDOCS\CARTERSLOOPE\T7040.003 WWTP IMPROVEMENTS\PROJECT FILES\CADD\WORKING DRAWINGS\POND STRUCTURES



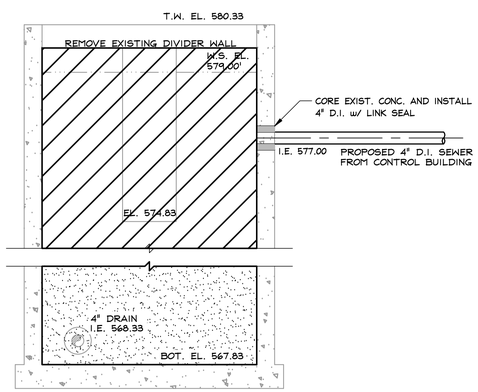
ADDENDUM No. 1
REVISE 4" SEWER LOCATION

BOTTOM PLAN

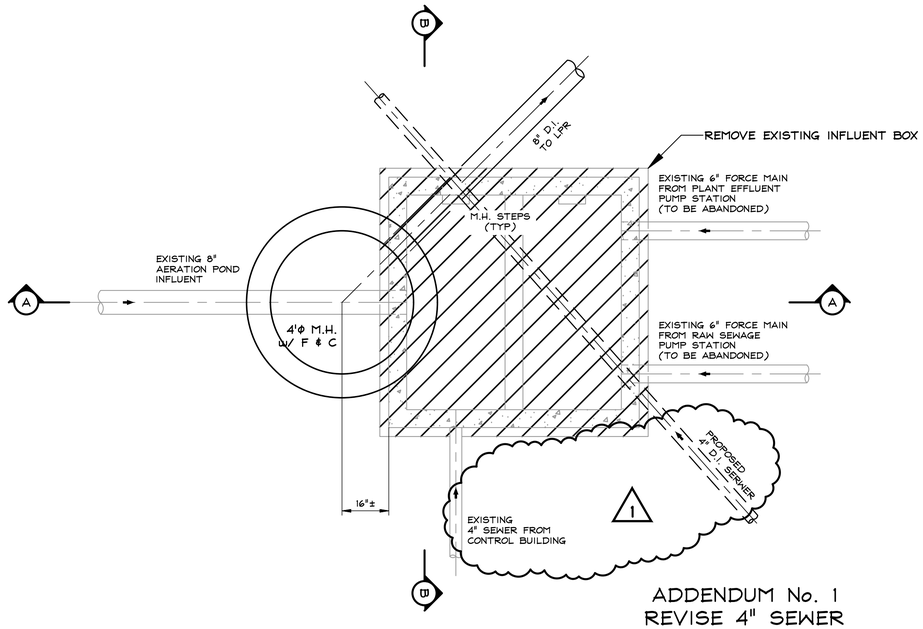


SECTION A-A

ADDENDUM No. 1
ADD NOTE

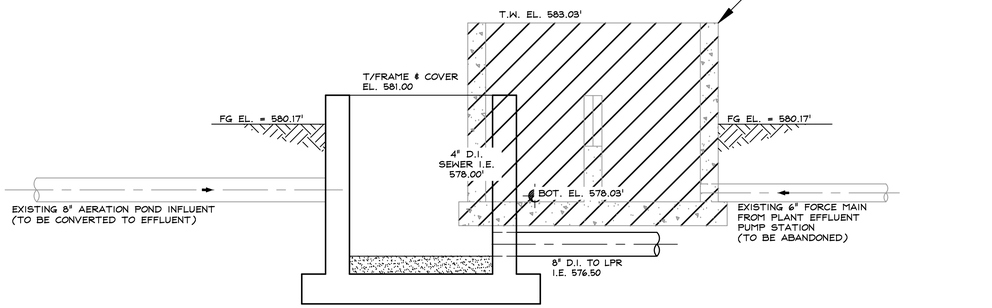


MODIFICATIONS TO EXISTING
AERATION BASIN EFFLUENT STRUCTURE
SCALE: 1/2" = 1'-0"

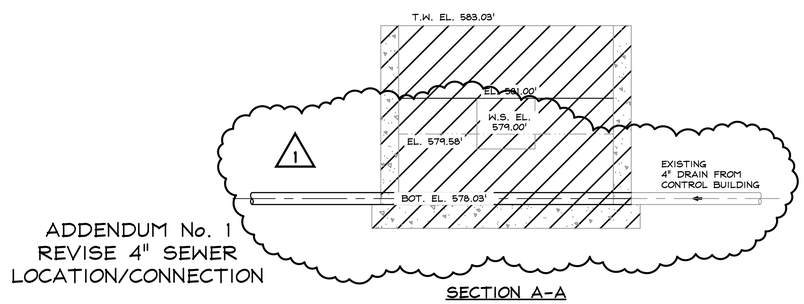


ADDENDUM No. 1
REVISE 4" SEWER
LOCATION/CONNECTION

BOTTOM PLAN



SECTION A-A



ADDENDUM No. 1
REVISE 4" SEWER
LOCATION/CONNECTION

SECTION A-A

MODIFICATIONS TO EXISTING
AERATION BASIN INFLUENT STRUCTURE
SCALE: 1/2" = 1'-0"

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MODIFICATION TO EXISTING AERATION BASIN STRUCTURES

GEORGIA REGISTERED No. 25423 PROFESSIONAL ENGINEER MARTIN C. BOTO
03/12/2026
LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581
EXPIRES: 12/21/2026

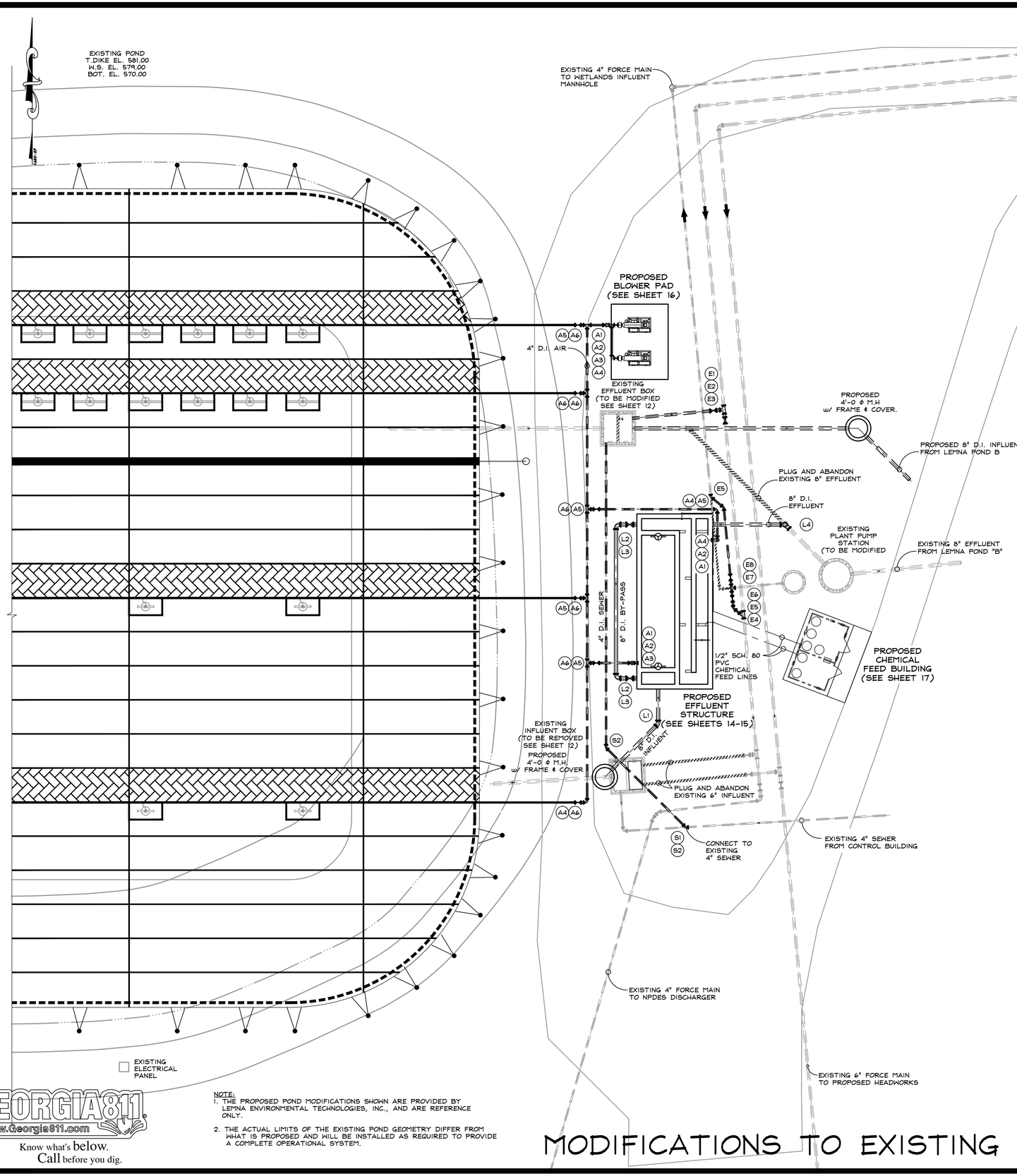
RELEASES	
03/16/26	RELEASE FOR BID
03/30/26	ADDENDUM #1

WWTP IMPROVEMENTS
FOR THE
TOWN OF TIGNALL
WILKES COUNTY, GEORGIA

Carter & Sloope
CONSULTING ENGINEERS
1031 STONEBRIDGE PARKWAY. WATKINSVILLE, GA 30677 . 706.769.4119 TEL
GA COA LICENSE# PEF001004 EXPIRES 6/30/2026

THIS LINE IS ONE INCH LONG WHEN DRAWING IS PLOTTED FULL SCALE

DSGN: MB	DRWN: JB
SCALE: AS SHOWN	
PROJ. NO.: T7040.003	
DATE: 03/16/26	SHEET NO.: 12



AIR PIPING SCHEDULE		
ITEM	QUAN.	DESCRIPTION
A1	4	4" WAFER STYLE BUTTERFLY VALVE
A2	4	4" FL 90° BEND
A3	1	4" x 4" FL TEE
A4	5	4" MJ 90° BEND
A5	5	4" x 4" MJ TEE
A6	6	4" MJ GATE VALVE AND VALVE BOX
EFFLUENT FORCE MAIN SCHEDULE		
ITEM	QUAN.	DESCRIPTION
E1	2	6" MJ SLEEVE
E2	1	6" MJ TEE
E3	2	6" MJ PLUG VALVE AND VALVE BOX
E4	1	6" x 4" MJ WYE
E5	3	4" MJ 45° BEND
E6	2	4" MJ PLUG VALVE AND VALVE BOX
E7	1	4" MJ TEE
E8	1	4" MJ SLEEVE
LPR INFLUENT		
ITEM	QUAN.	DESCRIPTION
L1	1	8" MJ 45° BEND
LPR BY-PASS		
ITEM	QUAN.	DESCRIPTION
L2	2	8" MJ 90° BEND
L3	2	8" MJ PLUG VALVE AND VALVE BOX
LPR EFFLUENT		
ITEM	QUAN.	DESCRIPTION
L4	2	8" MJ 45° BEND
GRAVITY SEWER		
ITEM	QUAN.	DESCRIPTION
S1	1	8" MJ SLEEVE
S2	2	8" MJ 45° BEND

NOTES:
1. CONTRACTOR SHALL FIELD VERIFY EXISTING PIPE LOCATIONS, SIZES AND MATERIAL.
2. ALL NEW PIPE MATERIALS SHALL BE DUCTILE IRON UNLESS NOTED OTHERWISE.
3. QUANTITIES SHOWN ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL REQUIRED VALVES AND FITTINGS FOR A COMPLETE SYSTEM.
4. ALL AIR LINES SHALL BE UNLINED D.I.P. WITH VITON GASKETS. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

NOTE:
1. THE PROPOSED POND MODIFICATIONS SHOWN ARE PROVIDED BY LEMNA ENVIRONMENTAL TECHNOLOGIES, INC., AND ARE REFERENCE ONLY.
2. THE ACTUAL LIMITS OF THE EXISTING POND GEOMETRY DIFFER FROM WHAT IS PROPOSED AND WILL BE INSTALLED AS REQUIRED TO PROVIDE A COMPLETE OPERATIONAL SYSTEM.

1
ADDENDUM No. 1
REPLACE WITH REVISED SHEET

MODIFICATIONS TO EXISTING AERATION BASIN PLAN

MODIFICATIONS TO EXISTING AERATION POND C PLAN
SCALE: 3/32" = 1'-0"

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GEORGIA REGISTERED No. 25423 PROFESSIONAL ENGINEER MARTIN C. BOYD
03/12/2026
LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581 EXPIRES: 12/21/2026

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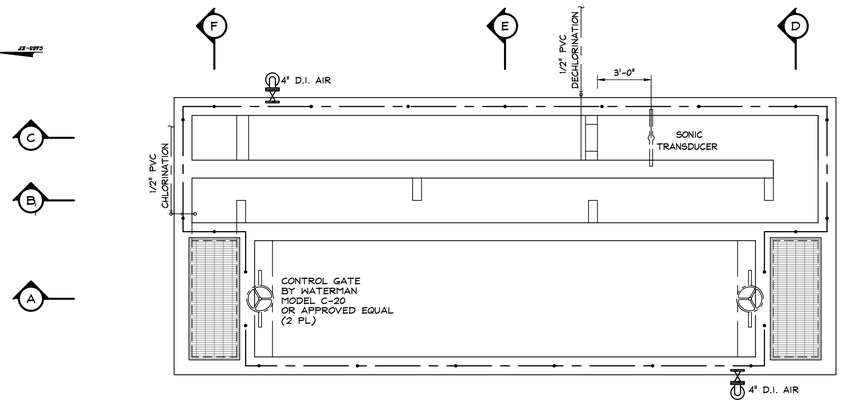
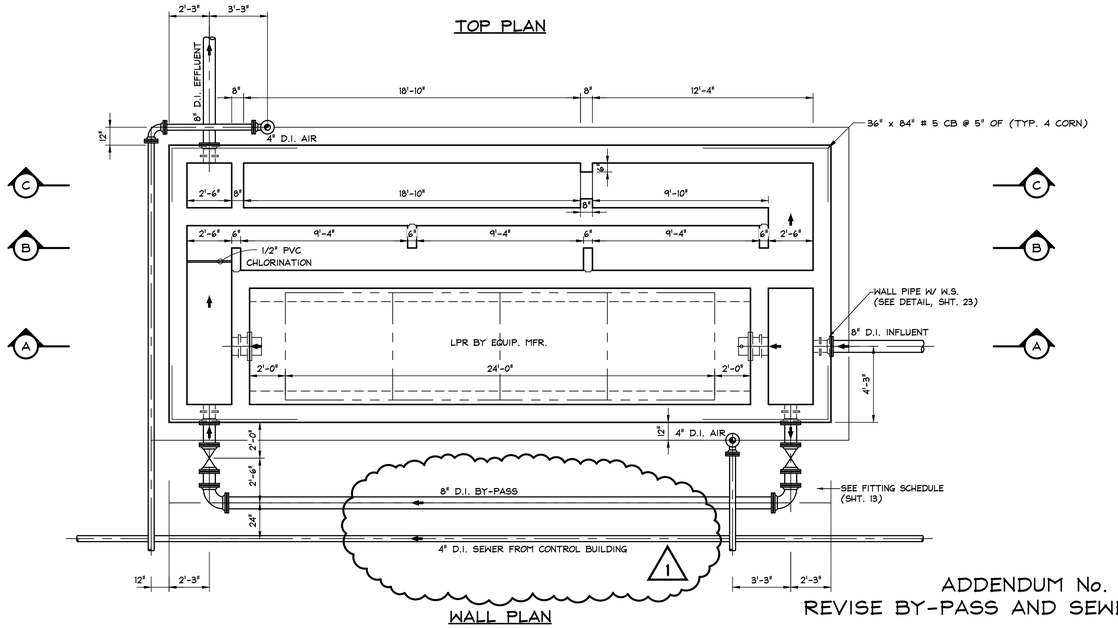
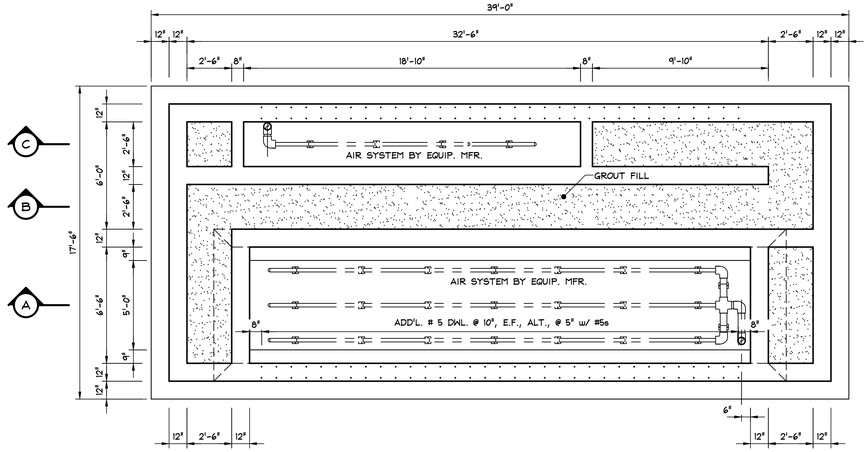
DSGN: MB	DRWN: JB
SCALE: AS SHOWN	
PROJ. NO.: T7040.003	
DATE: 03/16/26	SHEET NO.: 13



TOP PLAN

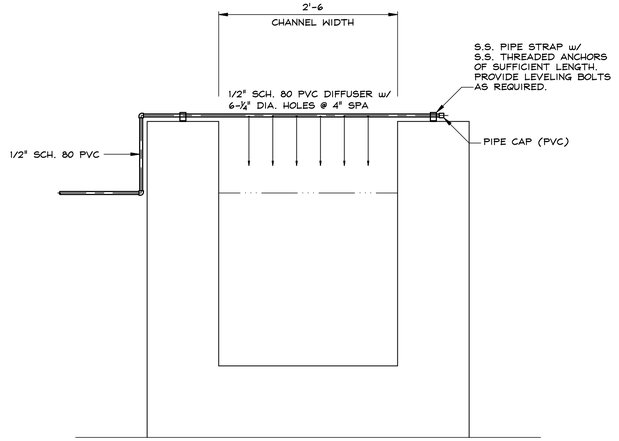


WALL PLAN

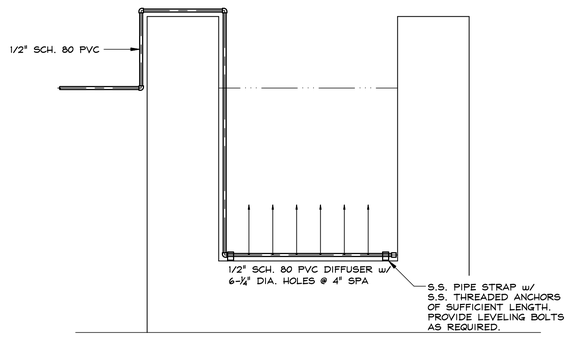


FOUNDATION PLAN

ADDENDUM No. 1
REVISE BY-PASS AND SEWER LOCATION



DECHLORINATION



CHLORINATION

TYPICAL DIFFUSER DETAILS
N.T.S.

EFFLUENT STRUCTURE
PLANS & SECTIONS
SCALE: 1/4" = 1'-0"

PROPOSED AERATION EFFLUENT STRUCTURE PLAN & SECTION

RELEASES	
03/16/26	RELEASE FOR BID
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WWTP IMPROVEMENTS
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03/12/2026
LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581
EXPIRES: 12/21/2026

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SCALE: AS SHOWN	
PROJ. NO.: T7040.003	
DATE: 03/16/26	SHEET NO.: 14

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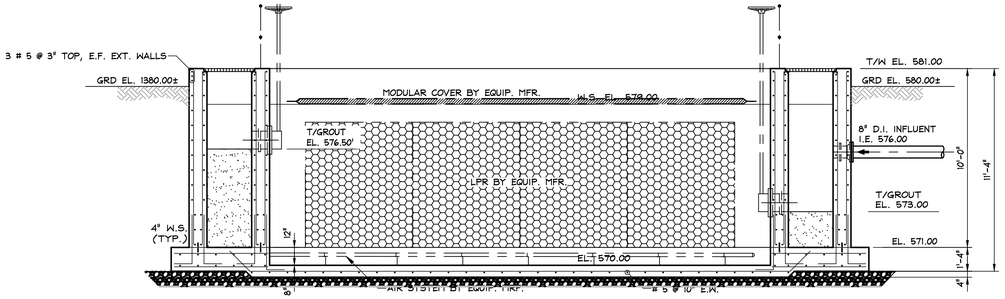
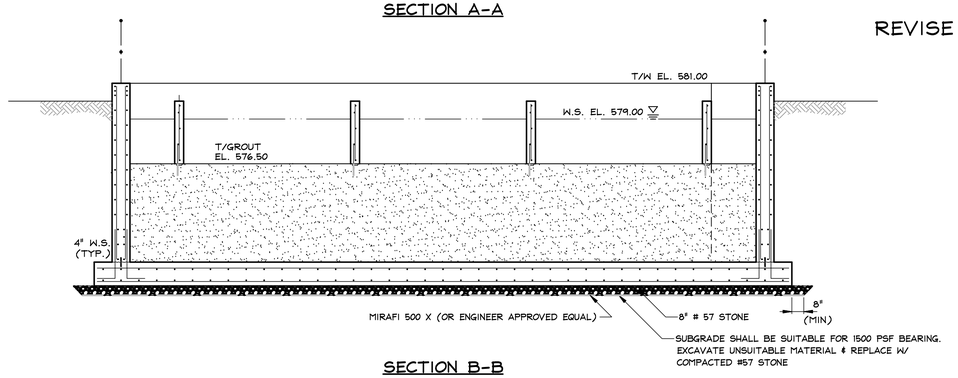
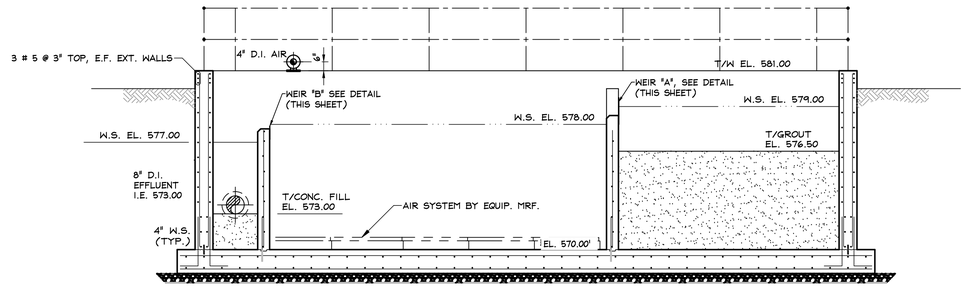


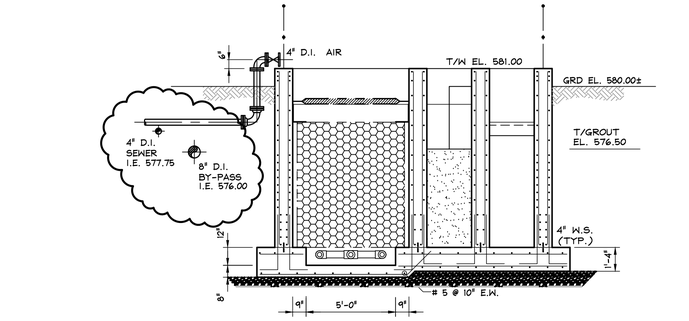
SECTION A-A



SECTION B-B

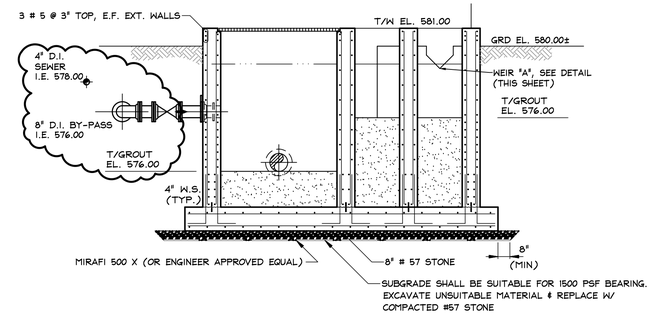


SECTION C-C

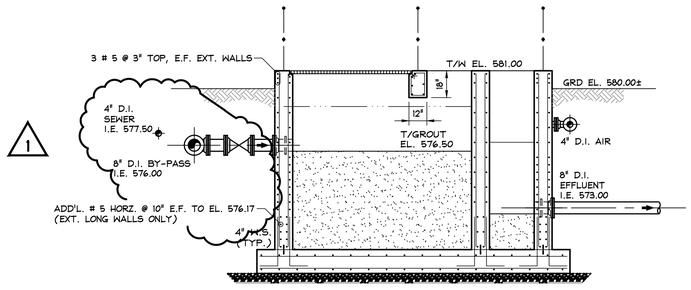


SECTION E-E

ADDENDUM No. 1
REVISE BY-PASS AND SEWER LOCATION



SECTION D-D



SECTION F-F

REINF NOTES:
1. ALL REINF SHALL BE AS LISTED U.N.O.

2. 3" MIN CLR SHALL BE PROVIDED FOR ALL BOT SLAB REINF.

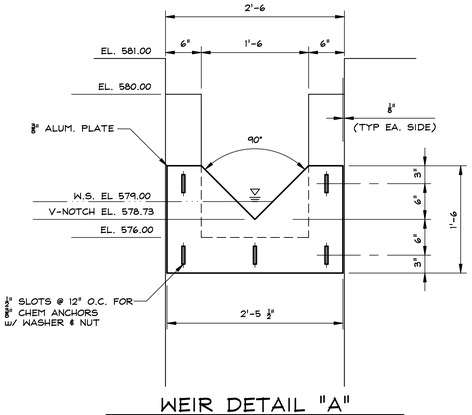
3. 16" BASE SLABS
   # 6 @ 10" L.W., TOP
   # 5 @ 10" L.W., BOT
   # 5 @ 10" S.W., T&B

4. 12" WALLS
   # 5 DWLS. @ 10" I.F + ADD'L. WHERE SHOWN
   # 4 @ 10" E.F., VERT.
   # 5 @ 10" E.F., HORZ.+ ADD'L. WHERE SHOWN

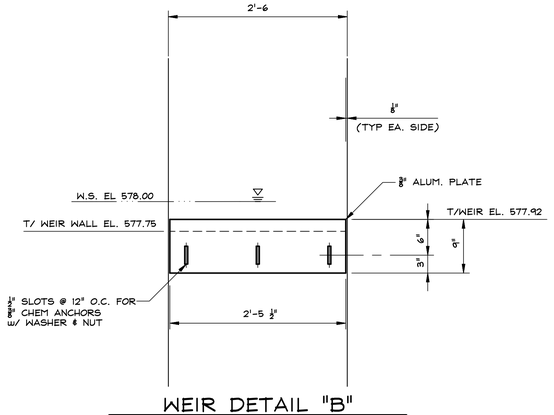
5. 8" WALLS
   # 4 DWLS. @ 10" w/ 8" EMB
   # 4 @ 10" VERT.
   # 4 @ 10" CENTER WALL

5. 6" WALLS
   # 4 DWLS. @ 10" w/ 5" EMB
   # 4 @ 10" VERT.
   # 4 @ 10" CENTER WALL

6. 12" x 18" BEAM
   3 # 4 E.F. w/ # 3 TIES @ 8"



WEIR DETAIL "A"
SCALE: 1" = 1'-0"



WEIR DETAIL "B"
SCALE: 1" = 1'-0"

PROPOSED AERATION EFFLUENT STRUCTURE SECTION & DETAIL

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03/12/2026
LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581
EXPIRES: 12/21/2026

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PROJ. NO.: T7040.003	
DATE: 03/16/26	SHEET NO.: 15

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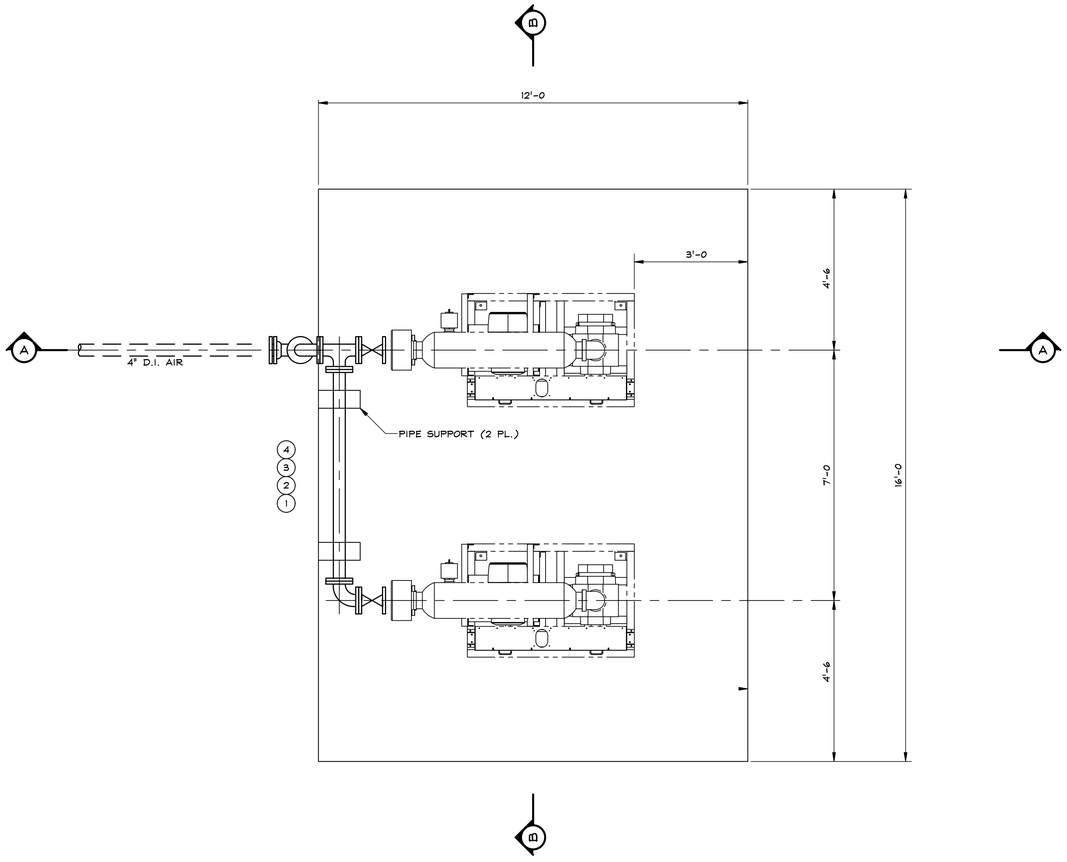
AIR PIPING SCHEDULE		
ITEM	QUAN.	DESCRIPTION
1	4	4" WAFER STYLE BUTTERFLY VALVE
2	4	4" FL 90° BEND
3	1	4" x 4" FL TEE
4	6	4" MJ 90° BEND

NOTES:
1. ALL MEW PIPE MATERIALS SHALL BE DUCTILE IRON UNLESS NOTED OTHERWISE.

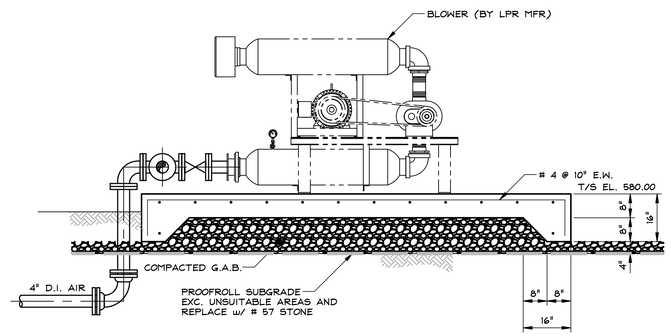
3. QUANTITIES SHOWN ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL REQUIRED VALVES AND FITTINGS FOR A COMPLETE SYSTEM.



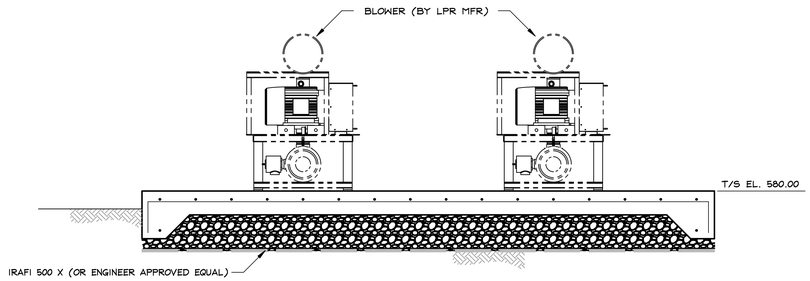
NOTE: CONTRACTOR SHALL RELOCATE EXISTING CANOPY LOCATED OVER EXISTING CHLORINE SYSTEM AND PLACE OVER BLOWER PAD

PLAN

NOTE: BLOWER ENCLOSURE NOT SHOWN FOR CLARITY. (SEE SHEET 22 FOR MANUFACTURE DETAILS)



SECTION A-A



SECTION B-B

1 ADDENDUM No. 1
REPLACE WITH REVISED SHEET

BLOWER
PLANS & SECTIONS
SCALE: 1/2" = 1'-0"

PROPOSED BLOWER AND CHEMICAL STORAGE PLAN & SECTION

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03/12/2026
LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581
EXPIRES: 12/21/2026

RELEASES	
03/16/26	RELEASE FOR BID
03/30/26	ADDENDUM #1

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PROJ. NO.: T7040.003	
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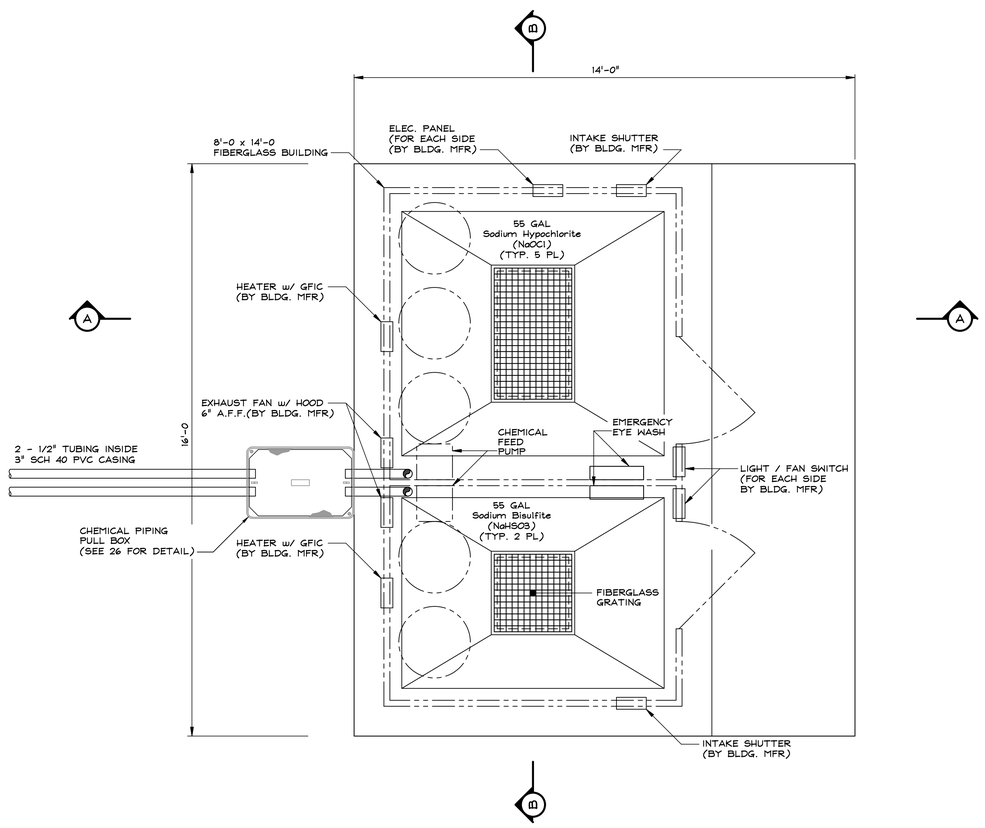
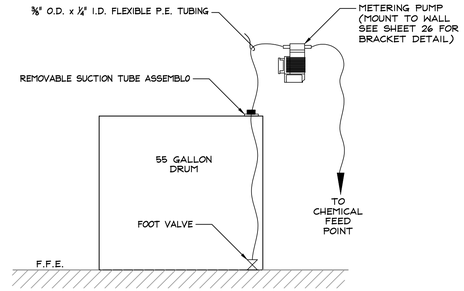


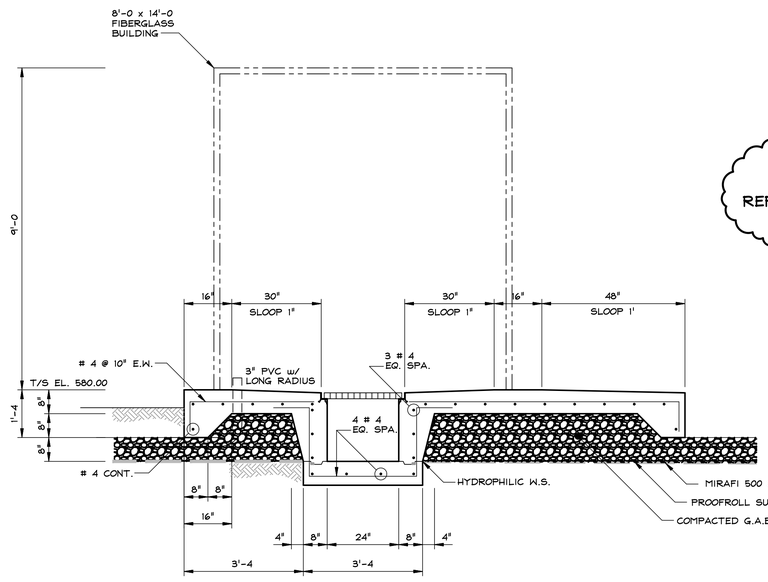
PLAN

NOTES
1. SEE PLANS & ELEVATION VIEWS FOR LOCATIONS OF SIGNS.
2. CONTRACTOR SHALL PROVIDE ALL MOUNTING HARDWARE FOR MOUNTING SIGNS TO CONCRETE & MASONRY UNITS, GATES, FENCE, POSTS, ETC. AS REQ'D.
3. SIGNS SHALL BE 0.040" THICK ALUMINUM WITH OSHA COLOR SCHEME.

TYPICAL SIGN DETAILS
N.T.S.



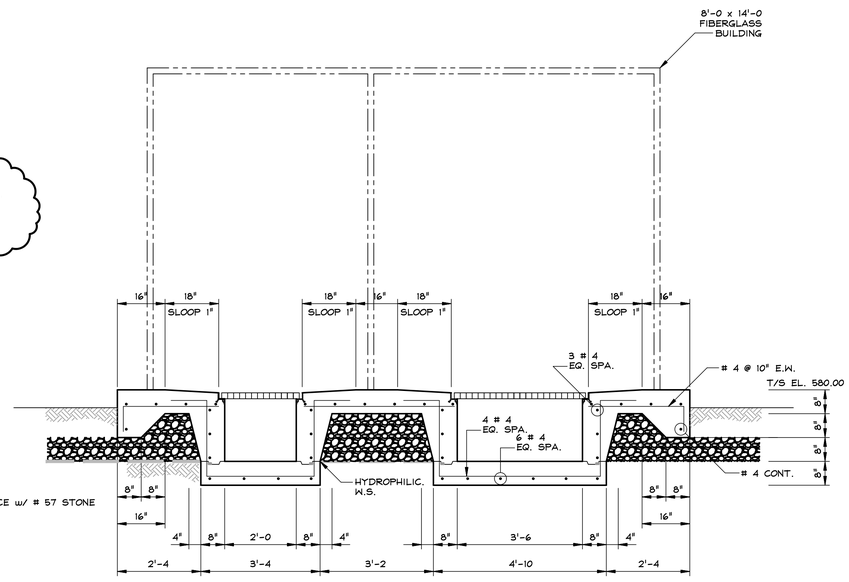
TYPICAL CHEMICAL FEED SCHEMATIC
N.T.S.



SECTION A-A

1

ADDENDUM No. 1
REPLACE WITH REVISED SHEET



SECTION B-B

CHEMICAL STORAGE
PLANS & SECTIONS
SCALE: 1/2" = 1'-0"

PROPOSED CHEMICAL STORAGE PLANS &SECTIONS

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03/12/2026
LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581 EXPIRES: 12/21/2026

RELEASES

03/16/26	RELEASE FOR BID
03/30/26	ADDENDUM #1

WWTP IMPROVEMENTS
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TOWN OF TIGNALL
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PROJ. NO.: T7040.003	
DATE: 03/16/26	SHEET NO.: 17

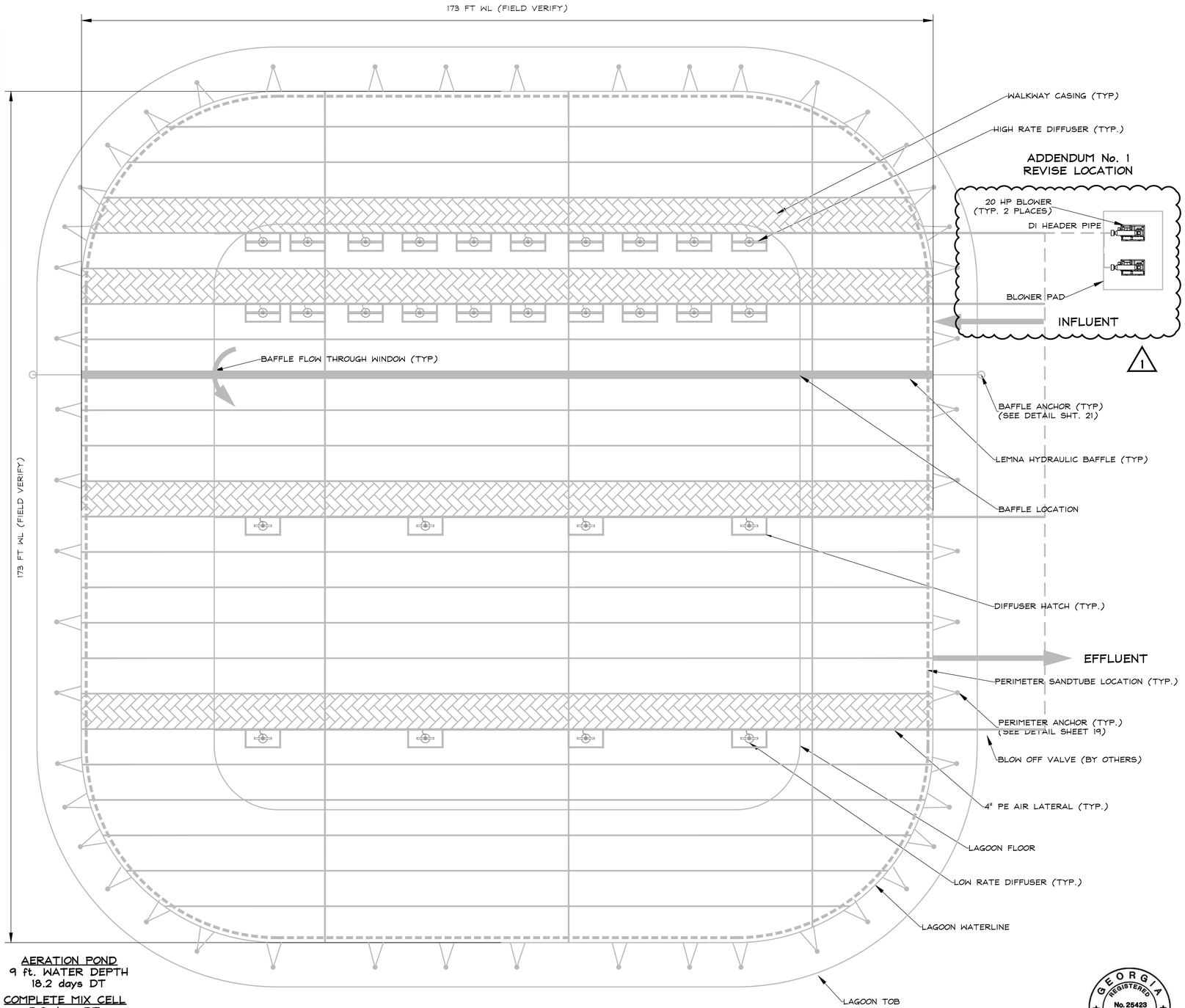
NOTE:
1. COVER: R-8 INSULATION, 40mil HDPE
2. THIS DRAWING IS PROVIDED FOR DESIGN PURPOSES. FINAL MODULAR COVER LAYOUT AND BAFFLE FABRICATION DRAWING FOR INSTALLATION PURPOSE WILL BE PROVIDED AFTER REQUIRED SITE SURVEY.
   MODULAR COVER LAYOUT WILL CHANGE BASED ON SITE CONDITIONS AND LOCATION OF IN-BASIN PIPES AND STRUCTURES.
   LOCATION OF ALL OTHER EQUIPMENT SUPPLIED BY LEMNA ENVIRONMENTAL TECHNOLOGIES OR ENGINEER APPROVED EQUAL WILL BE BASED ON FINAL MODULAR COVER LAYOUT AFTER SURVEY.
3. AIR HEADER PIPE IS RECOMMENDED TO BE INSTALLED AFTER MODULAR COVER IS INSTALLED. CONTRACTOR MUST ENSURE AIR LATERALS LINE UP WITH MODULAR COVER SEAMS AND AIR HEADER VALVES LOCATIONS.
4. IN INSTANCES WHERE MODULAR COVER IS INSTALLED AFTER AIR PIPE IS IN PLACE, LET WILL LOCATE IT DURING LAGOON SURVEY.
5. ALL PERSONNEL SHALL WEAR OSHA APPROVED PERSONAL FLOTATION DEVICE WHEN WORKING ON WASTEWATER PONDS

GENERAL NOTES:

1. SEE SHEET 1 FOR ADDITIONAL CONSTRUCTION NOTES.
2. CONTRACTOR SHALL FIELD VERIFY ALL PIPING LOCATION & ELEVATIONS BEFORE BEGINNING CONSTRUCTION.
3. EXISTING YARD PIPING IS BASED UPON BEST AVAILABLE INFORMATION. ENGINEER ASSUMES NO RESPONSIBILITY FOR INACCURACIES. CONTRACTOR SHALL INCLUDE IN THEIR BID PRICE ALL EQUIPMENT, MATERIALS, & LABROR TO POT HOLE AND/OR TO USE GROUND PENETRATING RADAR TO LOCATE EXISTING UTILITIES. ANY UTILITIES FOUND SHALL BE NOTED ON "AS-BUILTS".
4. THE CONTRACTOR MAY USE WATER FROM THE ON-SITE HOSE BIBS. THE WATER LINE WILL BE METERED AND THE OWNER WILL PROVIDE A WATER METER TO BE INSTALLED BY THE CONTRACTOR. A RPZ BACKFLOW PREVENTER MUST BE FURNISHED AND INSTALLED BY THE CONTRACTOR IF POTABLE WATER IS TO BE USED.

DREDGING & DEWATERING NOTES:

1. CONTRACTOR MAY USE MECHANICAL OR HYDRAULIC DREDGING METHODS TO REMOVE ACCUMLATED SLUDGE FROM THE COMPLETE MIX AERATION POND. THE SLUDGE SHALL BE REMOVED AND MAY BE TRANSPORTED TO THE IDENTIFIED STAGING AREA ONSITE FOR DEWATERING. CONTRACTOR SHALL DEWATER THE SLUDGE TO SPECIFIED CAKE SOLIDS PERCENTAGE. CONTRACTOR SHALL PROVIDE NECESSARY EQUIPMENT AND CONTAINERS TO TRANSPORT THE DEWATERED SLUDGE TO AN APPROVED LANDFILL. IN ORDER TO PREVENT UNINTENTIONAL SPILLAGE OF SPOIL MATERIAL DURING TRANSPORTATION, TRUCK BED/TRAILER TAILGATES SHALL BE EQUIPPED WITH A GASKET AND A PNEUMATIC ACTUATOR AND LOCKING MECHANISM, OR A LATCH WITH CLEVIS AND BRACKET ENHANCED WITH EITHER TURNBUCKLES OR CHAIN AND BINDER TO ASSURE A POSITIVE SEAL OF THE TAILGATE TO THE BED/TRAILER.
2. CONTRACTOR MUST PROTECT THE CLAY LINER DURING DREDGING OPERATIONS. ANY DAMAGE TO THE LINER MUST BE REPAIRED BY THE CONTRACTOR.
3. THE CONTRACTOR SHALL, EITHER THROUGH USE OF TEMPORARY BAFFLES OR BY CLOSING THE STRUCTURE'S SHEAR GATES, ENSURE THAT EFFLUENT LEAVING THE LAGOON REMAINS REASONABLY FREE OF SOLIDS THAT MAY BE STIRRED UP DURING DREDGING.
4. THE CONTRACTOR IS RESPONSIBLE FOR RETURNING ALL WATER REMOVED DURING DREDGING INTO THE PLANT PUMP STATION.
5. CONTRACTOR IS RESPONSIBLE FOR HAUL-OFF AND DISPOSAL OF ALL DREDGED MATERIAL.
6. THE CONTRACTOR SHALL FURNISH ALL NECESSARY EQUIPMENT, PIPING, VALVES, ETC. REQUIRED TO DREDGE THE MATERIAL FROM THE POND AND TRANSPORT IT TO THE DEWATERING LOCATION. THE CONTRACTOR SHALL ENSURE THAT THE DRIVEWAY IS UNOBSTRUCTED AT ALL TIMES DURING WASTEWATER TREATMENT PLANT OPERATIONS.
7. THE CONTRACTOR IS REQUIRED TO PROVIDE NECESSARY POWER SUPPLY FOR ALL PUMPING AND DREDGING.
8. WHILE DREDGING OPERATIONS ARE TAKING PLACE, THE CONTRACTOR SHALL MAINTAIN FULL ACCESS ON ROADS TO THE WASTEWATER TREATMENT PLANT AND ALL SURROUNDING ROADS.



AERATION POND
9 ft. WATER DEPTH
18.2 days DT

COMPLETE MIX CELL
5.2 days DT

SETTLING CELL
13.0 days DT

AERATION POND LAYOUT
SCALE: 3/32" = 1'-0"±

MODIFICATIONS TO EXISTING AERATION BASIN LAYOUT

RELEASES	
03/16/26	RELEASE FOR BID
03/30/26	ADDENDUM #1

WWTP IMPROVEMENTS
FOR THE
TOWN OF TIGNALL
WILKES COUNTY, GEORGIA

Carter & Sloope
CONSULTING ENGINEERS
1031 STONEBRIDGE PARKWAY. WATKINSVILLE, GA 30677 . 706.769.4119 TEL
GA COA LICENSE# PEF001004 EXPIRES 6/30/2026

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LEMNA ENVIRONMENTAL TECHNOLOGIES, INC.
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PHONE: 612-253-2000 FAX: 612-253-2003 WWW.LEMNATECHNOLOGIES.COM

GEORGIA REGISTERED No. 25423 PROFESSIONAL ENGINEER MARTIN C. BOYD
03/12/2026
LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581
EXPIRES: 12/21/2026

THIS LINE IS ONE INCH LONG WHEN DRAWING IS PLOTTED FULL SCALE

DSGN: MB	DRWN: JB
SCALE: AS SHOWN	
PROJ. NO.: T7040.003	
DATE: 03/16/26	SHEET NO.: 18

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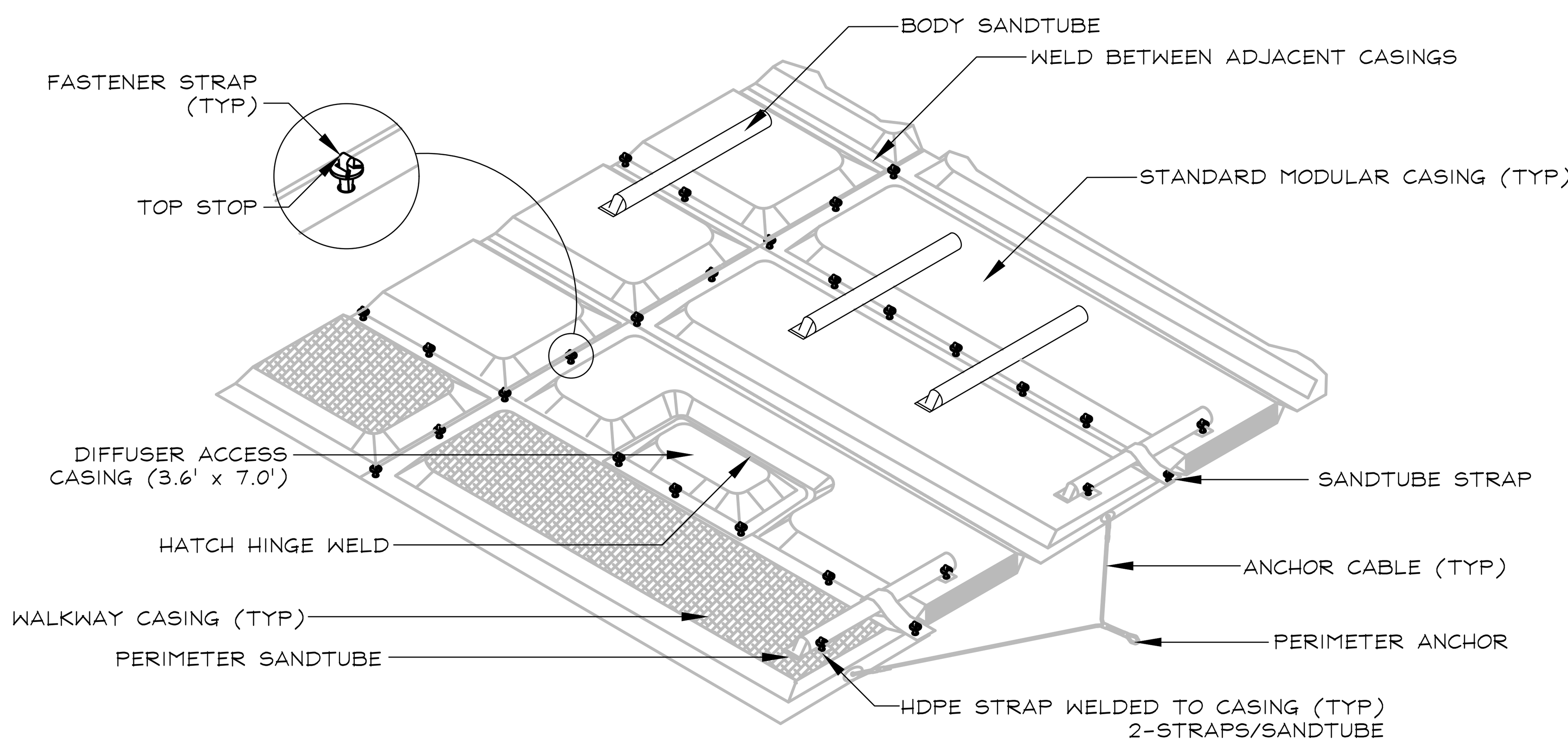
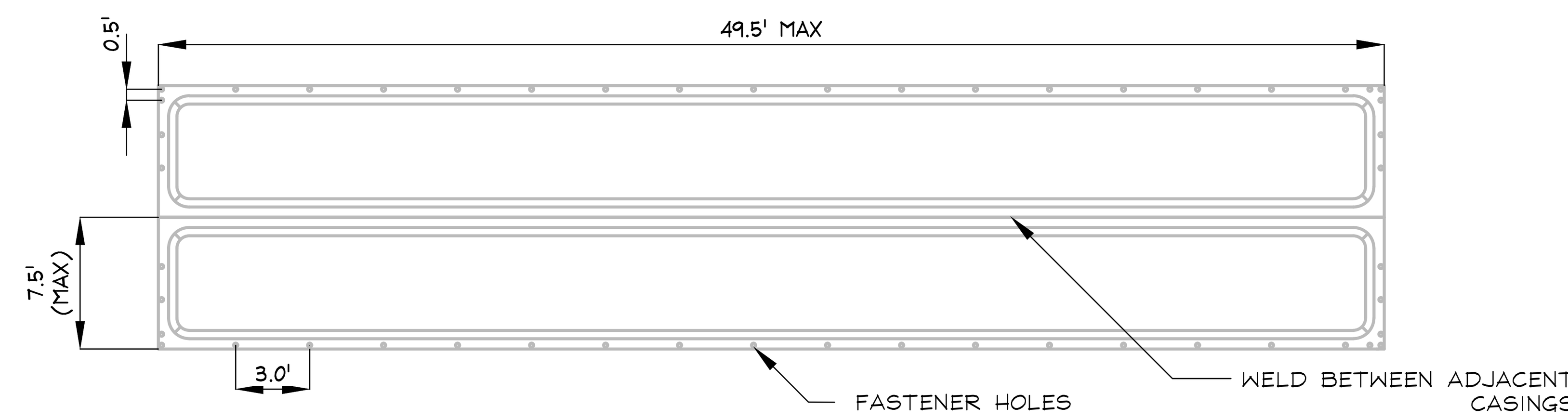
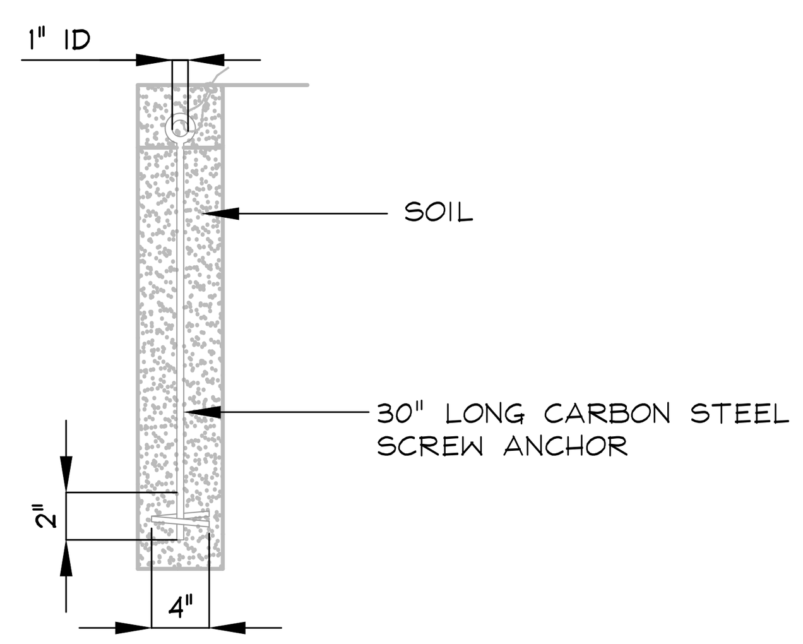


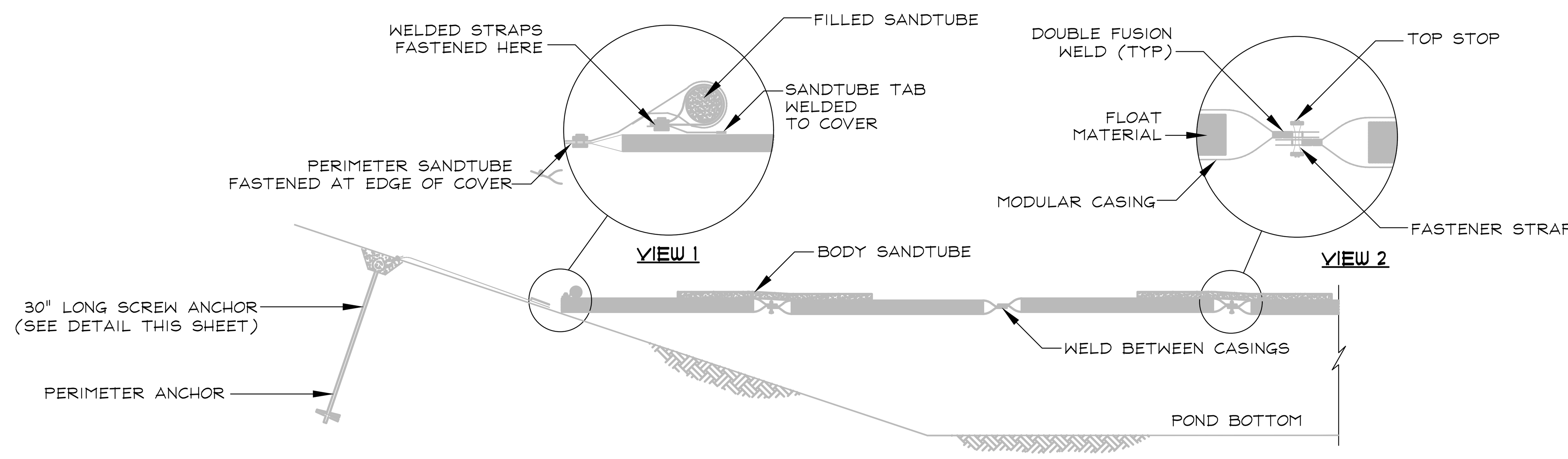
MODULAR COVER - ISOMETRIC VIEW



TOP VIEW - MODULAR BI-FOLD CASING



MODULAR COVER ANCHOR DETAIL



SECTION VIEW - PERIMETER ANCHOR DETAILS

NOTES:
1. ANCHOR CABLE TO BE 1/8" PVC COATED STAINLESS STEEL
2. IF POND HAS SYNTHETIC LINER, ANCHOR TO BE LOCATED 1' BEYOND LINER ANCHOR TRENCH
3. IF POND IS UNLINED, ANCHOR TO BE LOCATED APPROXIMATELY 3' BEYOND HIGH WATER LINE

MODULAR COVER DETAILS
SCALE: N.T.S.

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MODIFICATIONS TO EXISTING AERATION BASIN DETAILS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 25423 MARTIN C. BOYD 03/12/2026
LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581
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RELEASES	
03/16/26	RELEASE FOR BID

WWTP IMPROVEMENTS
FOR THE
TOWN OF TIGNALL
WILKES COUNTY, GEORGIA

Carter & Sloope
CONSULTING ENGINEERS
GA COA LICENSE# PEF001004 EXPIRES 6/30/2026

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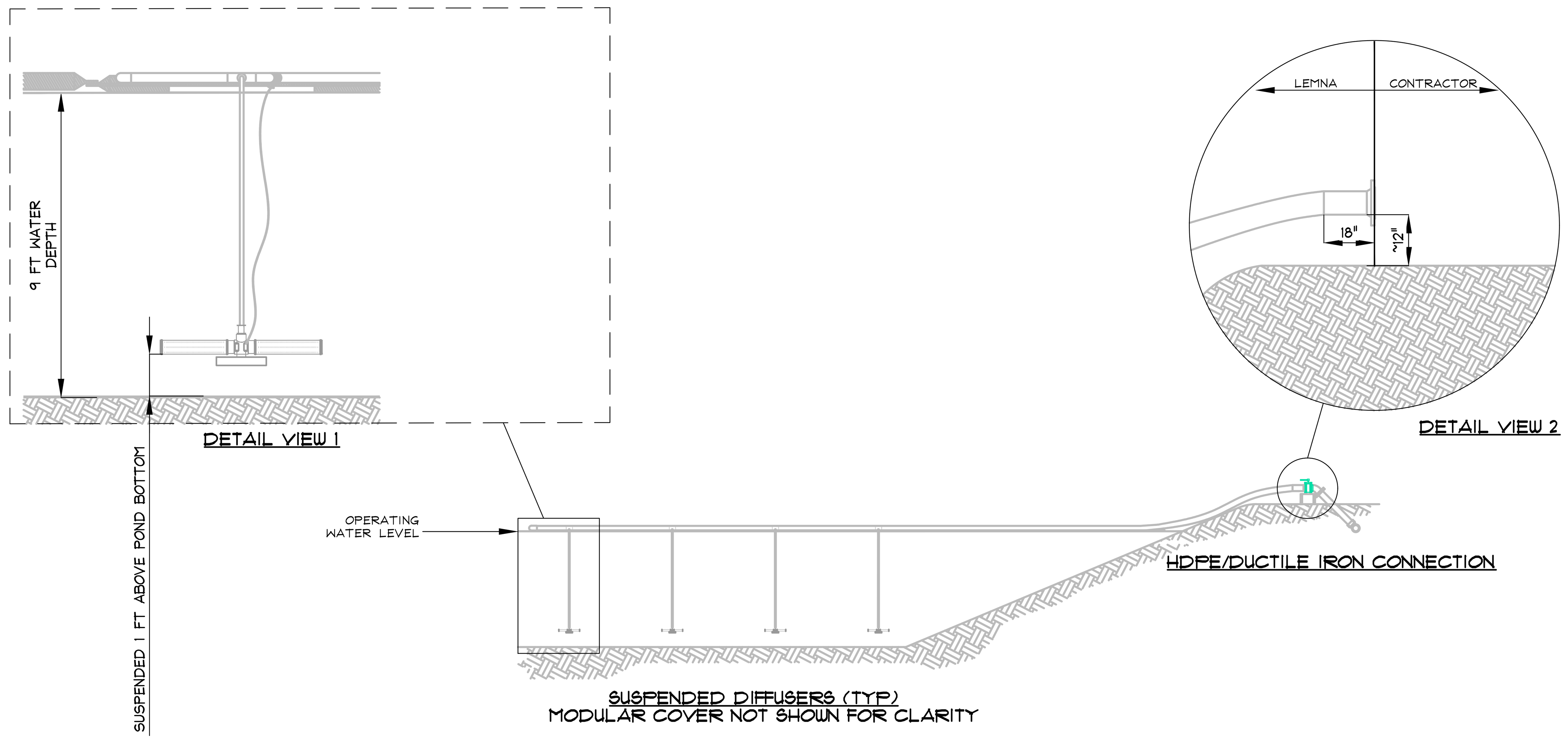
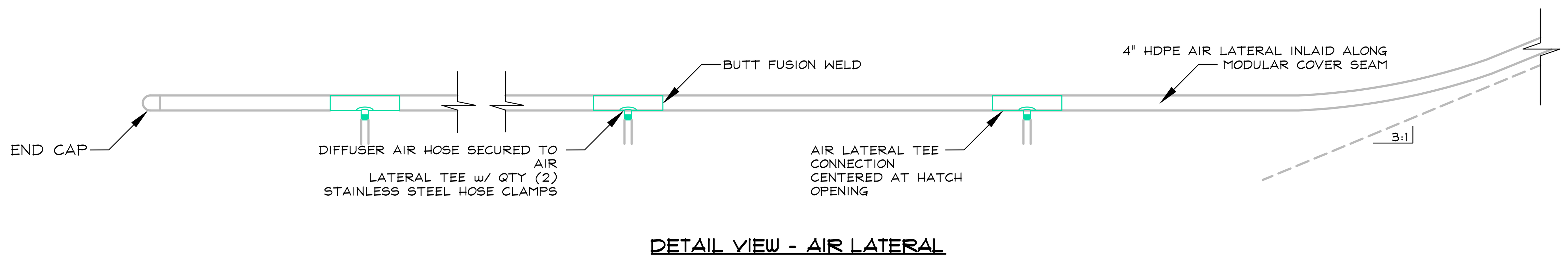
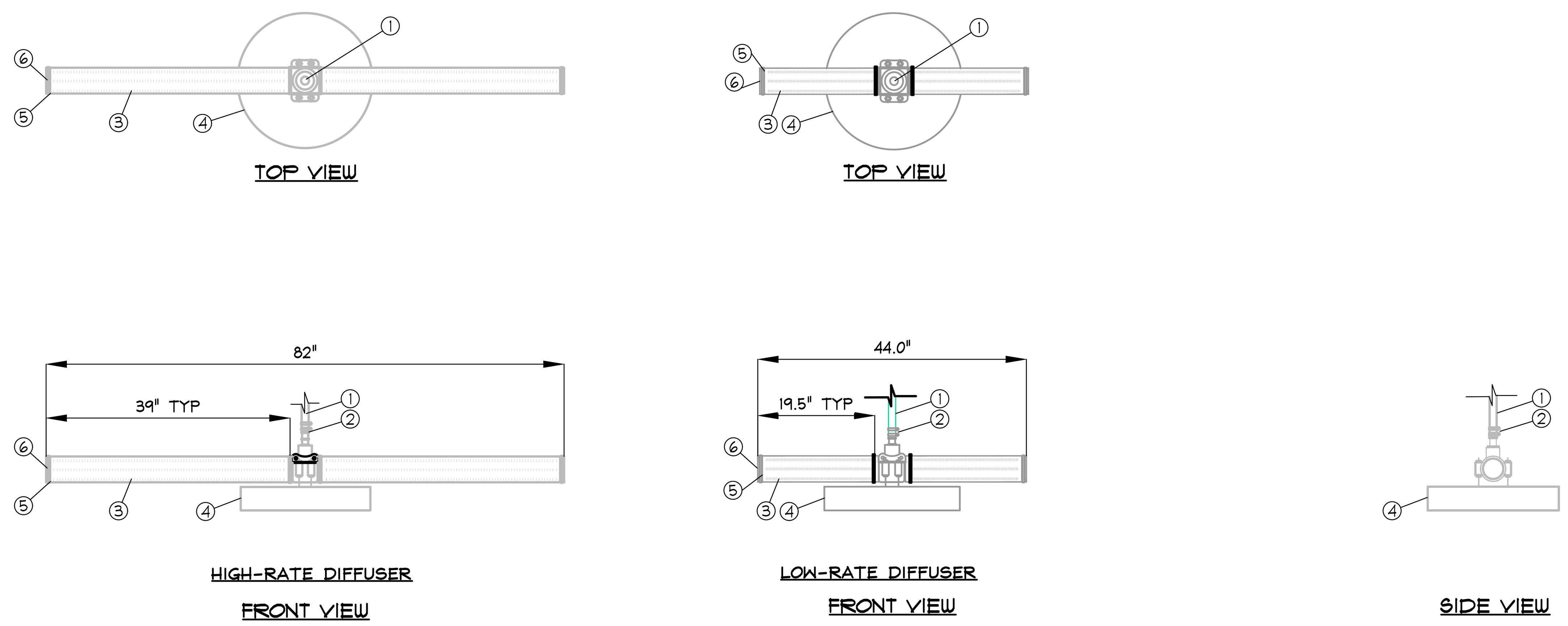
AIR LATERAL/DIFFUSER ASSEMBLY
1. LEMTEC COVER
2. 4" HDPE AIR LATERAL (INLAID ALONG COVER SEAM)
3. DIFFUSER HATCH (INDICATES LOCATION OF DIFFUSERS)
4. AIR LATERAL TEE CONNECTION (4" MAIN x 1-1/4" MNPT BRANCH)
5. BUTT FUSION WELD
6. RETRIEVAL ROPE (WRAPPED AND TIED AROUND LATERAL)
7. 1-1/4" EPDM HOSE
8. SUSPENDED DIFFUSER



AIR LATERAL TO HEADER CONNECTION
1. HDPE PIPE ADAPTER
2. HDPE PIPE
3. BUTT FUSION WELD
4. TOP OF BERM



DETAIL VIEW - AIR LATERAL



LEGEND
1. 1-1/4" EPDM AIR INLET HOSE
2. QTY (2) SS HOSE CLAMPS
3. FINE BUBBLE MEMBRANE
4. CONCRETE BALLAST BY CONTRACTOR (MINIMUM DENSITY OF 150 LBS/CF³)
5. SS 1 EAR STEPLESS HOSE CLAMP (TYP)
6. 3" PVC PIPE W/BUSHING STOP

DIFFUSER DETAILS
SCALE: N.T.S.

MODIFICATIONS TO EXISTING AERATION BASIN DETAILS

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GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 25423 MARTIN C. BOYD 03/12/2026
LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581
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RELEASES	
03/16/26	RELEASE FOR BID

WWTP IMPROVEMENTS
FOR THE
TOWN OF TIGNALL
WILKES COUNTY, GEORGIA

Carter & Sloope
CONSULTING ENGINEERS
GA COA LICENSE# PEF001004 EXPIRES 6/30/2026

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PROJ. NO.: T7040.003	
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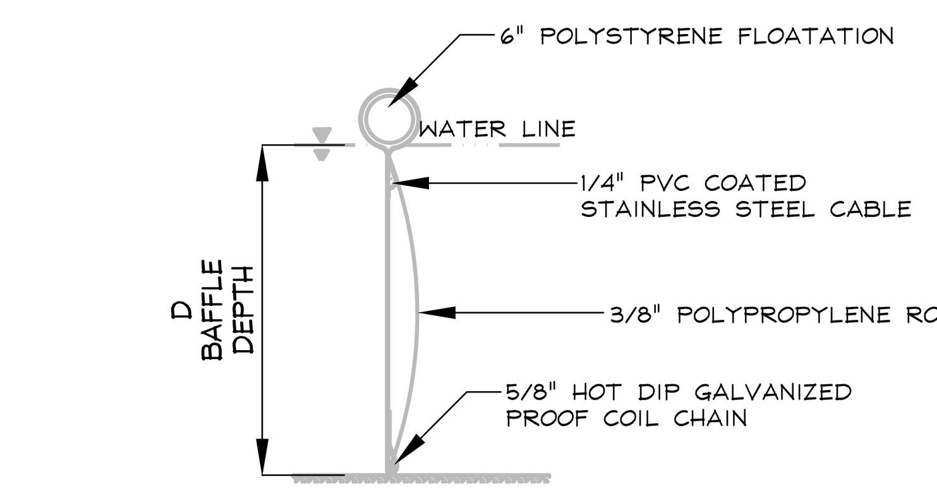
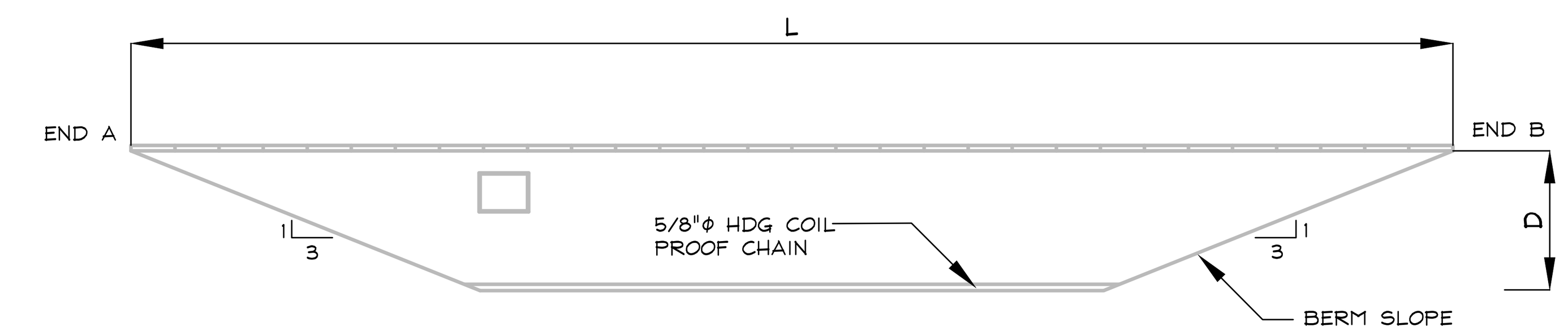
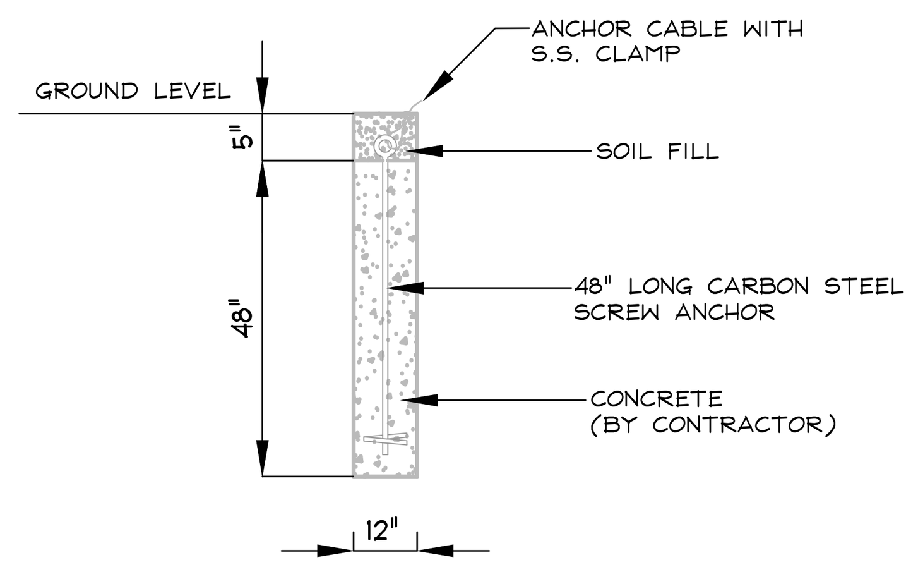
RELEASES	
03/16/26	RELEASE FOR BID



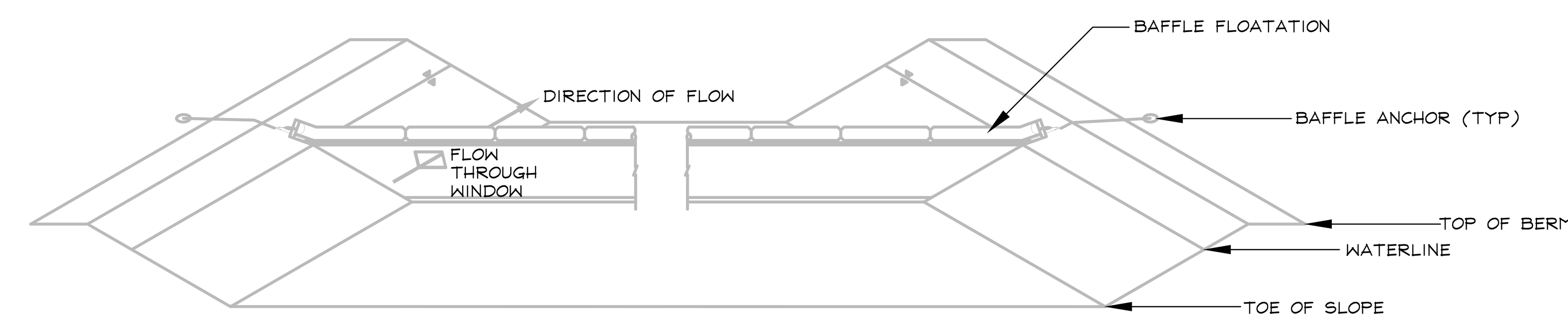
HYDRAULIC BAFFLE
SECTION



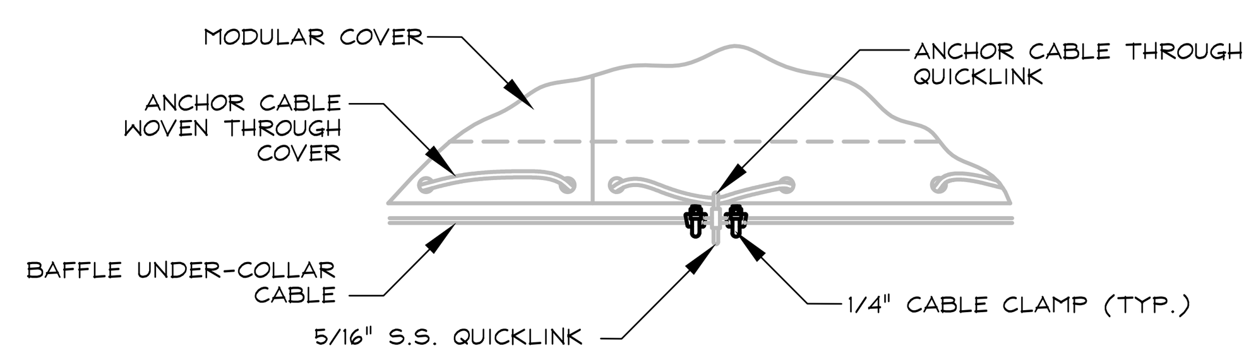
BAFFLE ELEVATION DETAIL
D= MAX. WATER DEPTH +1.0= BAFFLE DEPTH



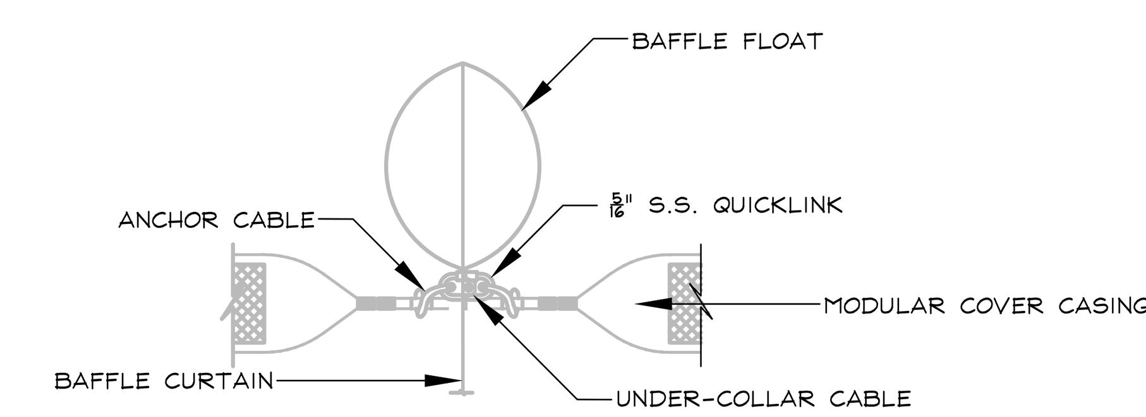
BAFFLE ANCHOR
DETAIL



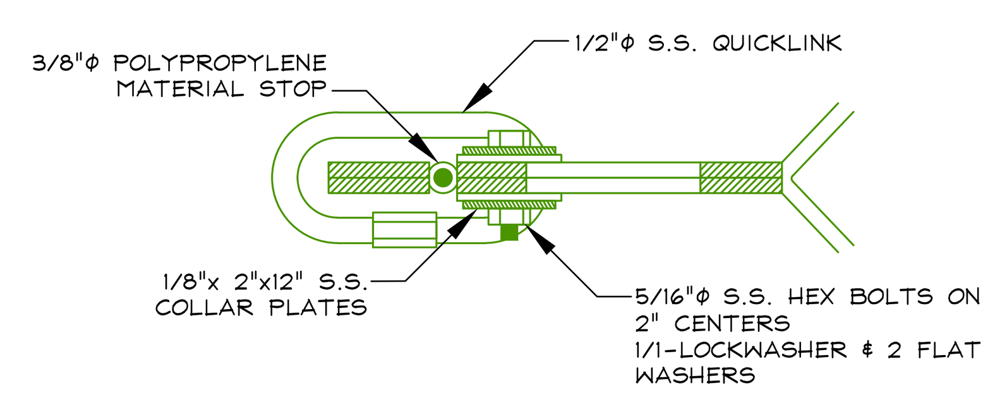
BAFFLE ISOMETRIC VIEW



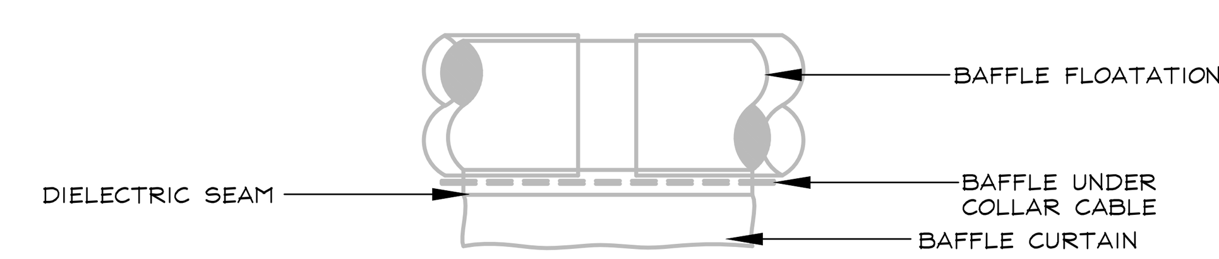
DETAIL VIEW - BAFFLE/COVER CONNECTION
IF APPLICABLE



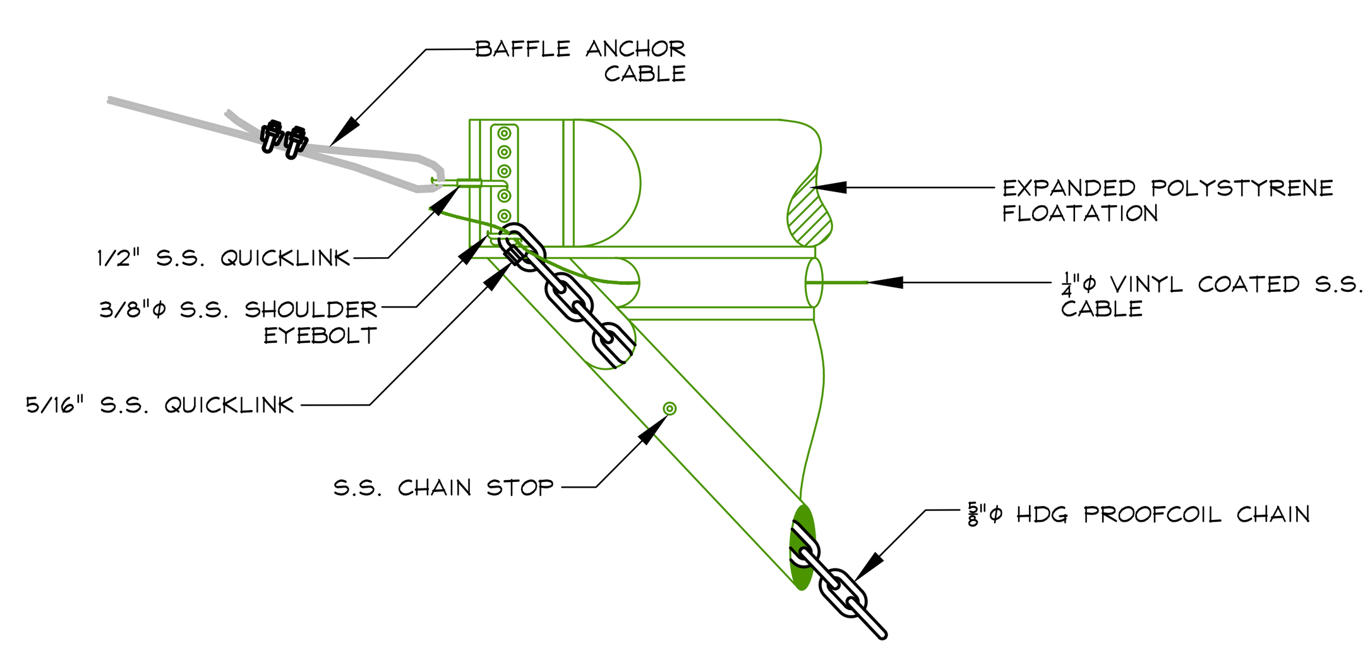
SECTION VIEW - BAFFLE/COVER
IF APPLICABLE



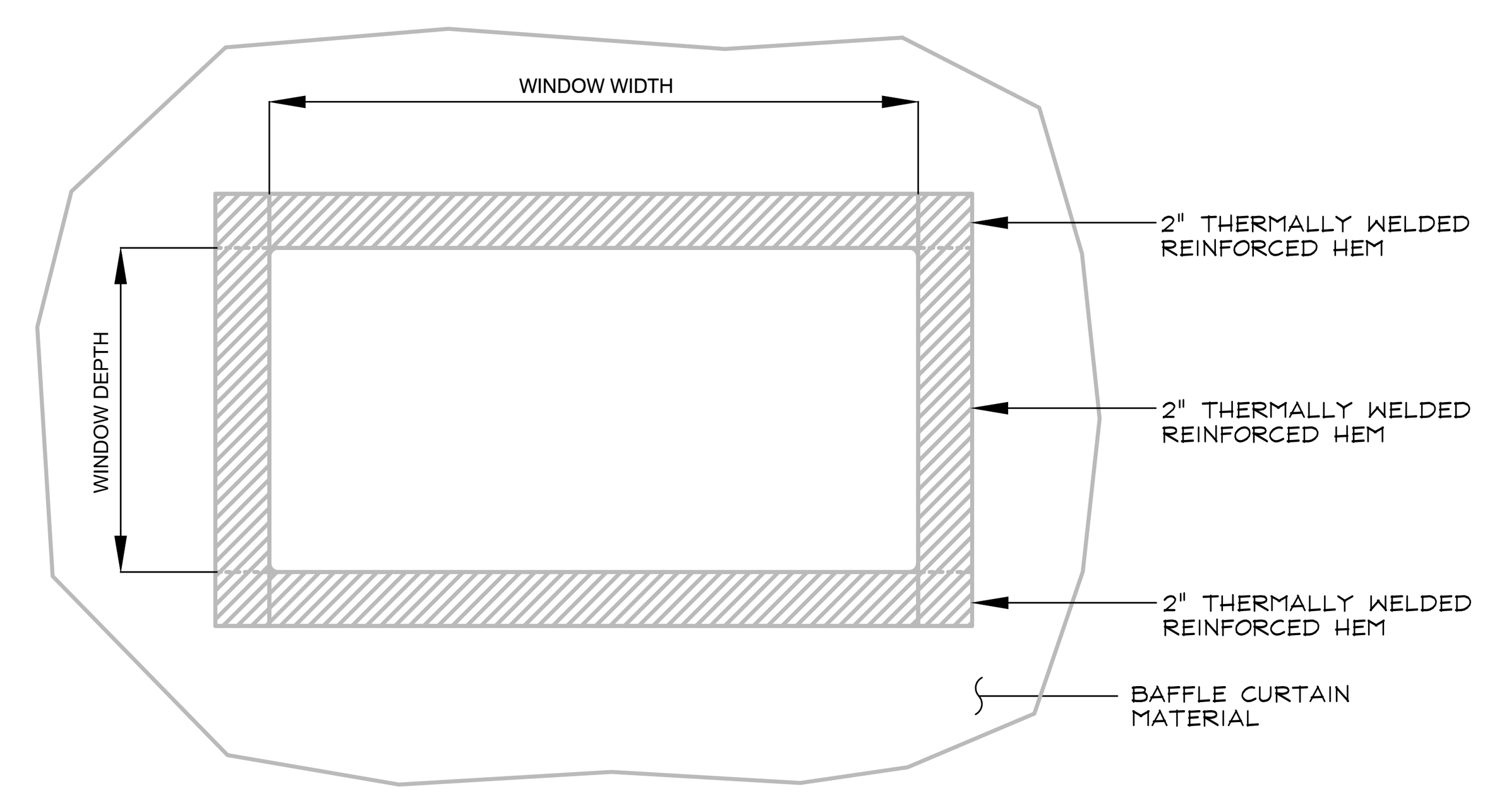
DETAIL VIEW - BAFFLE ANCHOR
CONNECTION



SECTION VIEW - BAFFLE UNDERCOLLAR
CABLE SUPPORT



DETAIL VIEW - BAFFLE ANCHOR
CONNECTION



DETAIL VIEW - BAFFLE FLOW THROUGH
WINDOW
FLOW THROUGH WINDOW SIZE VARIES

BAFFLE DETAILS
SCALE: N.T.S.

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MODIFICATIONS TO EXISTING AERATION BASIN DETAILS

GEORGIA REGISTERED No. 25423 PROFESSIONAL ENGINEER MARTIN C. BOYD
03/12/2026
LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581
EXPIRES: 12/21/2026

WWTP IMPROVEMENTS
FOR THE
TOWN OF TIGNALL
WILKES COUNTY, GEORGIA

Carter & Sloope
CONSULTING ENGINEERS
GA COA LICENSE# PEF001004 EXPIRES 6/30/2026

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DATE: 03/16/26	SHEET NO.: 21

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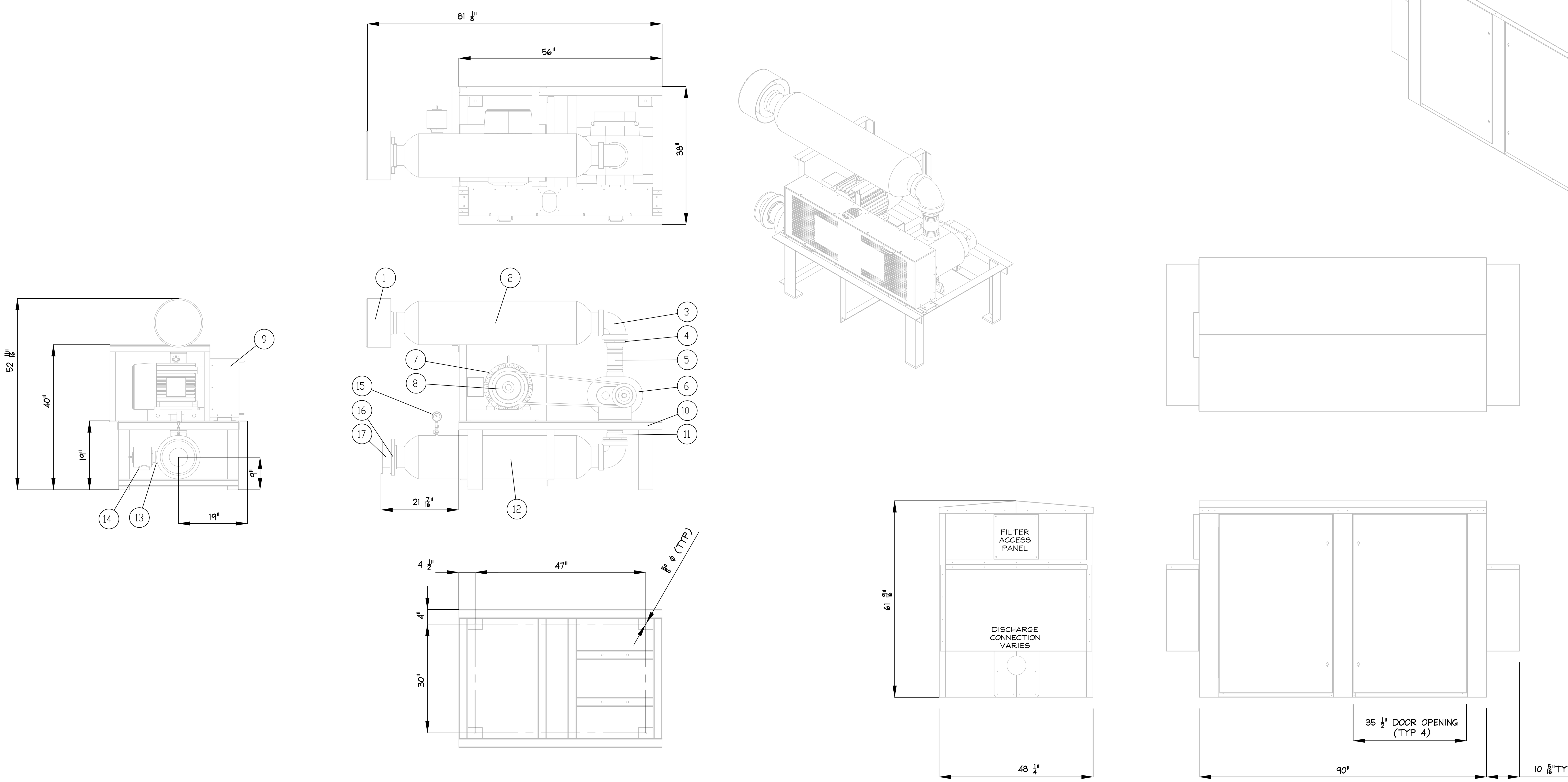
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	CREATED DRAWING	6/11/2007	MH
	B	REPLACED BELT GUARD WITH STANDARD A200	11/11/2015	IMJ



NOTE:

1. INSTALL AND OPERATE ACCORDING TO O&M MANUAL.
2. SOME ITEMS, USUALLY SILENCERS, MAY BE DISASSEMBLED FOR SHIPMENT. REASSEMBLY MAY BE REQUIRED.

ENCLOSURE SPECIFICATIONS:

1. MATERIAL OF CONSTRUCTION: 16 GA POWDER COATED STEEL
2. QTY (4) HINGED DOORS (2 PER SIDE)
3. QTY (8) 1/2 TURN COMPRESSION LATCHES (2 PER DOOR)
4. QTY (1) EXHAUST FAN (1/60/120V, 4.3 AMPS) w/ THERMOSTAT
5. ENCLOSURE AND VENT BOXES LINED W/ 2" ACOUSTICAL FOAM

BLOWER DETAILS

SCALE: N.T.S.

ITEM NO.	DESCRIPTION	5L, 256T, Standard/QTY.
1	5" hooded filter w/ paper element	1
2	Grade I Inlet SIlencer	1
3	5" 90 deg Threaded Elbow	2
4	5" x 4" Hex Bushing	2
5	4" THD Flex Joint	1
6	Legend Blower	1
7	256T NEMA MOTOR	1
8	V-Belt Drive Assy @ 1.4 S.F.	1
9	Powder Coated Steel Belt Guard	1
10	Blower/motor base	1
11	4" THD FLEX JOINT	1
12	Grade I Discharge Silencer	1
13	2-1/2" Threaded coupling	1
14	2.5" Spring Loaded PRV	1
15	2-1/2", 0-15 PSI, Gauge Assembly	1
16	5" Companion Flange	1
17	5" Wafer Check Valve w/EPDM	1
19	Inlet Silencer Support	1
20	Motor Rails	1

NOTE: ITEM 17 SHIPPED LOOSE

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MODIFICATIONS TO EXISTING AERATION BASIN DETAILS

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RELEASES	
03/16/26	RELEASE FOR BID

WWTP IMPROVEMENTS
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TOWN OF TIGNALL
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Carter & Sloope
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[illegible]
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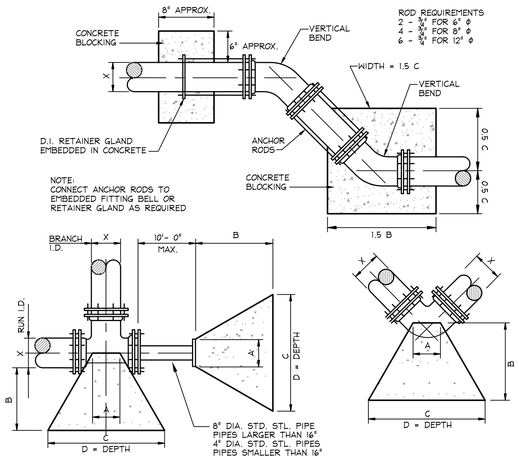


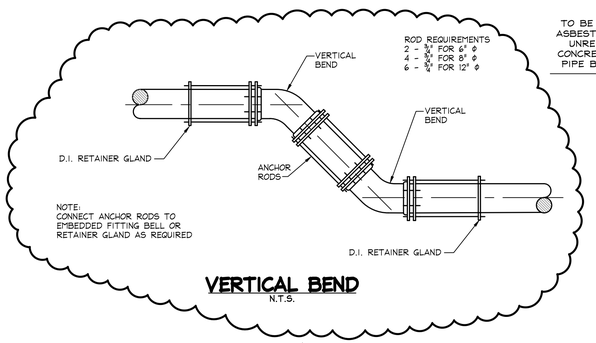
BLOCKING DIMENSIONS

		BENDS					BENDS				
		X	A	B	C	D	X	A	B	C	D
90° BEND	30"	2'-0"	11'-6"	15'-3"	6'-0"	30"	1'-0"	2'-10"	4'-3"	3'-0"	
	24"	2'-0"	7'-9"	10'-9"	5'-6"	24"	1'-0"	2'-6"	3'-8"	2'-6"	
	20"	1'-9"	6'-0"	8'-6"	5'-0"	20"	10"	2'-0"	3'-0"	2'-0"	
	16"	1'-3"	4'-0"	6'-0"	4'-6"	16"	16"	1'-8"	2'-6"	1'-6"	
	12"	10"	2'-9"	4'-0"	4'-0"	12"	8"	1'-0"	1'-6"	1'-6"	
	10"	10"	2'-6"	3'-9"	3'-0"	10"	10"	1'-0"	1'-6"	1'-0"	
	8"	8"	1'-9"	2'-6"	2'-6"	8"	8"	1'-0"	1'-6"	1'-0"	
	6"	6"	1'-3"	2'-0"	2'-0"	6"	6"	1'-0"	1'-0"	1'-0"	
	4"	4"	1'-0"	1'-6"	1'-6"	4"	4"	1'-0"	1'-0"	9"	
45° BEND	30"	1'-6"	7'-6"	10'-0"	5'-0"						
	24"	1'-3"	5'-9"	8'-0"	4'-0"						
	20"	1'-0"	4'-9"	6'-8"	3'-6"						
	16"	1'-3"	3'-3"	5'-0"	3'-3"						
	12"	10"	1'-9"	3'-0"	2'-9"						
	10"	10"	1'-9"	3'-0"	2'-0"						
	8"	8"	1'-6"	2'-0"	2'-0"						
	6"	6"	1'-3"	1'-6"	1'-6"						
	4"	4"	1'-0"	1'-0"	1'-0"						
22-½° BEND	30"	1'-0"	4'-8"	6'-4"	4'-0"						
	24"	1'-0"	3'-9"	5'-0"	3'-6"						
	20"	1'-0"	2'-6"	4'-4"	3'-0"						
	16"	1'-0"	1'-9"	3'-0"	2'-6"						
	12"	10"	1'-3"	2'-3"	2'-0"						
	10"	10"	1'-0"	2'-0"	1'-6"						
	8"	8"	1'-0"	1'-9"	1'-6"						
	6"	6"	1'-0"	1'-6"	1'-6"						
	4"	4"	1'-0"	1'-3"	1'-3"						

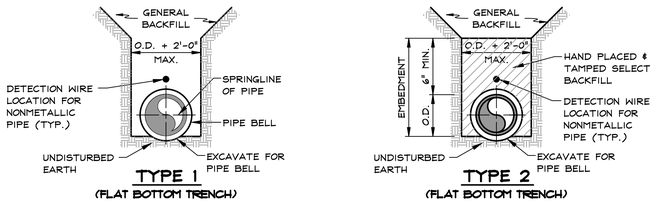
TEES & DEAD ENDS				
X	A	B	C	D
30"	3'-0"	8'-9"	13'-0"	5'-0"
24"	2'-6"	7'-3"	10'-8"	3'-9"
20"	2'-0"	5'-3"	8'-0"	3'-6"
16"	1'-0"	4'-8"	6'-4"	3'-0"
12"	10"	2'-9"	4'-6"	2'-6"
10"	10"	2'-0"	3'-3"	2'-6"
8"	8"	1'-9"	2'-6"	2'-0"
6"	6"	1'-3"	2'-0"	1'-6"

NOTE: 200 P.S.I. TEST PRESSURE SOIL BEARING OF 2500 P.S.F. 3000 P.S.I. CONCRETE PIPE LESS THAN 4" IN DIAMETER SHALL HAVE THE SAME REQUIREMENTS AS 4" DIAMETER PIPE

THRUST BLOCK
N.T.S.

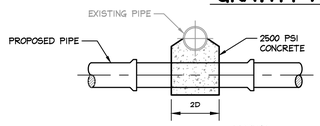


VERTICAL BEND
N.T.S.

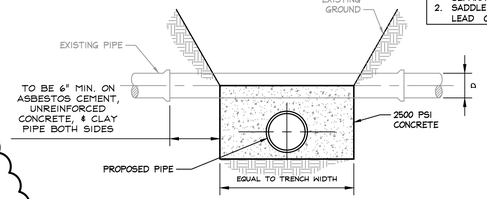


NOTES
1. TYPE 1 AND 2 CAN ONLY BE USED IN DRY EARTH TRENCHES.
2. TYPE 2 SHALL BE USED FOR PVC & D.I. FORCE MAINS & WATER MAINS UNLESS ROCK IS ENCOUNTERED OR OVER EXCAVATION OCCURS, IN WHICH CASE 6" MIN. OF GRANULAR CRUSHED STONE SHALL BE USED AS BEDDING.
3. SEE SPECIFICATION SECTION 02315 FOR ADDITIONAL REQUIREMENTS.

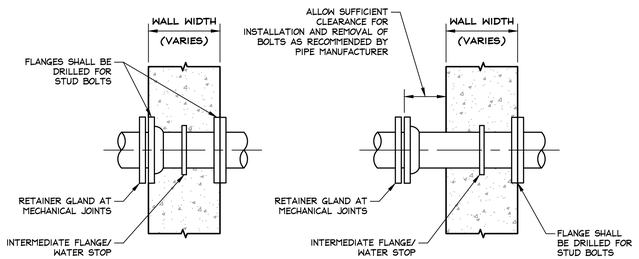
PIPE BEDDING AND HAUNCHING DETAILS GRAVITY AND PRESSURE PIPES
N.T.S.



NOTE:
1. SADDLE REQUIRED IF LESS THAN 18" SEPARATION BETWEEN PIPES.
2. SADDLE NOT REQUIRED FOR PLASTIC, STEEL, LEAD OR COPPER PIPE 2" OR SMALLER.

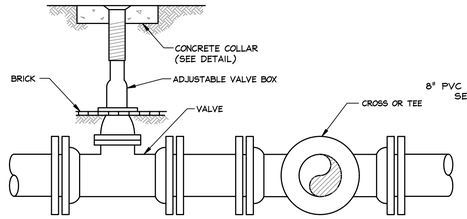


PIPE SADDLE DETAIL
N.T.S. C4S STD. W79

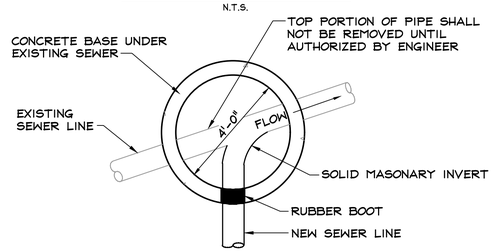


NOTES:
1. FURNISH RESTRAINED MECHANICAL JOINT WHERE INDICATED ON THE DRAWINGS OR SPECIFIED.
2. FURNISH JOINT TYPES AS SHOWN ON THE DRAWINGS. JOINTS SHOWN IN DETAIL ARE CONCEPTUAL ONLY.
3. PIPE SIZE AND PIPE MATERIAL VARIES.

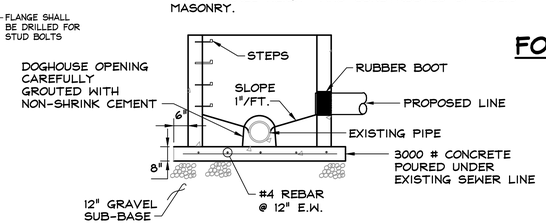
PIPE WALL DETAIL
N.T.S.



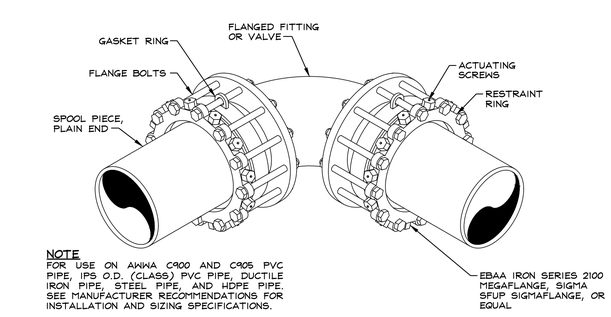
VALVE SETTING & BOX
N.T.S.



NOTES
1. PROVIDE PRECAST MANHOLE RISER COMPLETE WITH UP-SIDE DOWN U-SHAPED OPENING TO SUIT EXISTING LINES.
2. CORED AND BOOTED OPENINGS TO SUIT PROPOSED PIPELINES.
3. TABLES ARE TO BE GENTLY SLOPED AND TROWELED SMOOTH FROM MANHOLE WALL TO INVERT WALL HEIGHT AND CONSTRUCTED OF SOLID MASONRY.

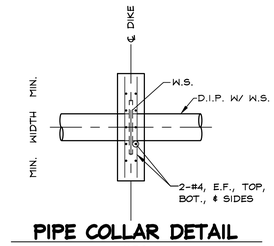


DOGHOUSE MANHOLE
N.T.S. C4S STD. S537



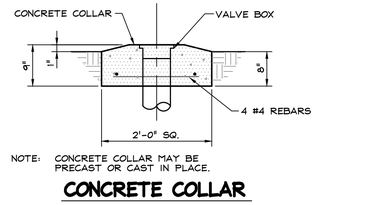
NOTE
FOR USE ON AWWA C900 AND C905 PVC PIPE, IPS O.D. (CLASS) PVC PIPE, DUCTILE IRON PIPE, STEEL PIPE, AND HDPE PIPE. SEE MANUFACTURER RECOMMENDATIONS FOR INSTALLATION AND SIZING SPECIFICATIONS.

RESTRAINED FLANGED ADAPTOR DETAIL
N.T.S.



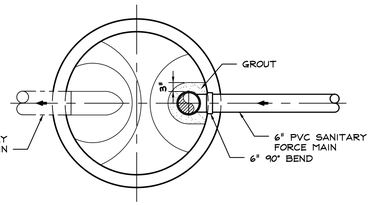
PIPE COLLAR DETAIL
N.T.S.

NOTES:
1. BOTTOMS AND SIDES SHALL BE POURED AGAINST UNDISTURBED EARTH.
2. WALL HEIGHT SHALL BE MIN. PIPE DIAMETER PLUS 1' BELOW PIPE AND 1' ABOVE PIPE.

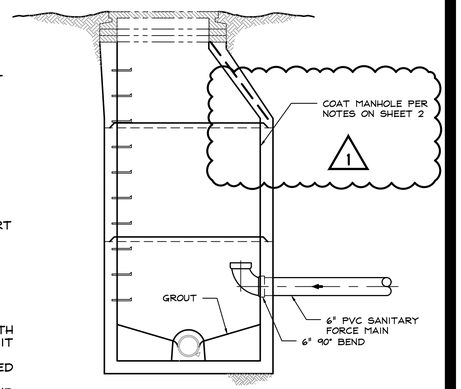


NOTE: CONCRETE COLLAR MAY BE PRECAST OR CAST IN PLACE.

CONCRETE COLLAR
N.T.S.



PLAN



SECTION

FORCE MAIN CONNECTION TO MANHOLE
SCALE: 1/2" = 1'

RELEASES	
03/16/26	RELEASE FOR BID
03/30/26	ADDENDUM #1

WWTP IMPROVEMENTS
FOR THE
TOWN OF TIGNALL
WILKES COUNTY, GEORGIA

Carter & Sloope
CONSULTING ENGINEERS
1031 STONEBRIDGE PARKWAY. WATKINSVILLE, GA 30677 . 706.769.4119 TEL
GA COA LICENSE# PEF001004 EXPIRES 6/30/2026

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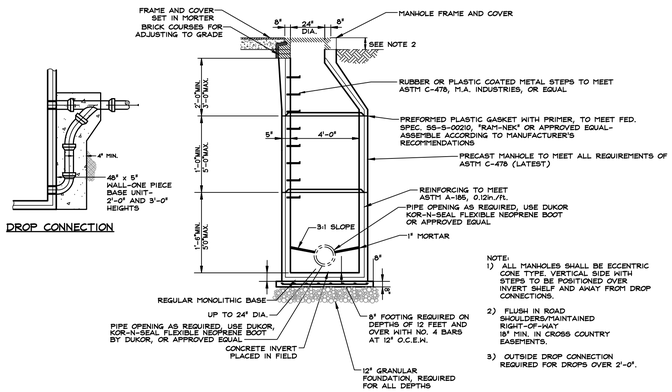
DSGN: MB	DRWN: JB
SCALE: AS SHOWN	
PROJ. NO.: T7040.003	
DATE: 03/16/26	SHEET NO.: 23

GEORGIA REGISTERED No. 25423 PROFESSIONAL ENGINEER MARTIN C. BOYD
03/12/2026
LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581 EXPIRES: 12/21/2026

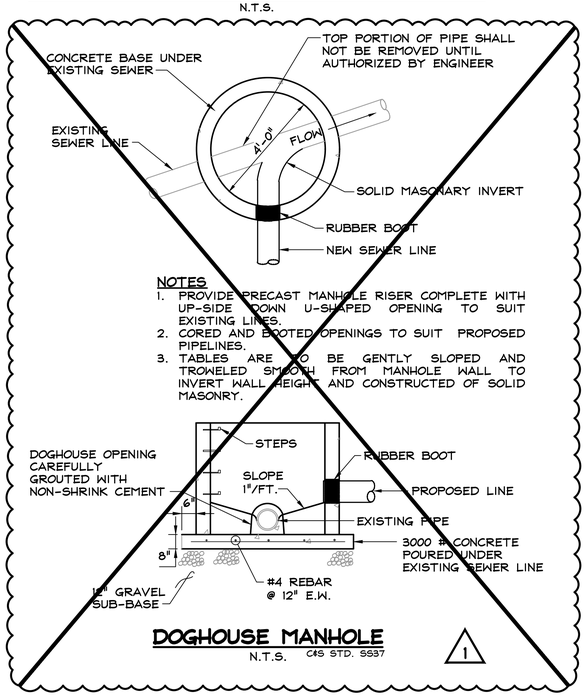
PIPING DETAILS

D:\AUTODESK\DCA\ACCDOCS\CARTERSLOOPE\T7040.003 WWTP IMPROVEMENTS\PROJECT FILES\CADD\WORKING DRAWINGS\DETAILS



PRECAST MANHOLE DETAIL W/ DROP

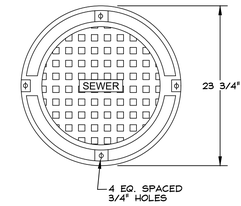
N.T.S.



DOGHOUSE MANHOLE

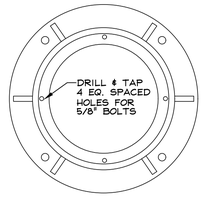
N.T.S. GA STD. 5937

1



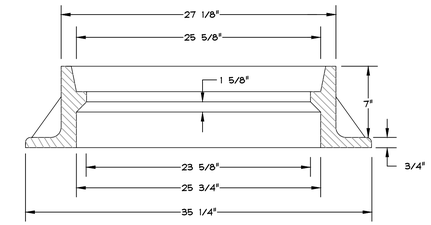
COVER FACE

N.T.S.



FRAME PLAN

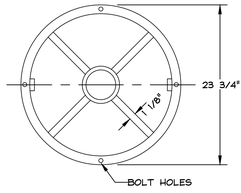
N.T.S.



NOTE: PICKHOLES SHALL BE NON-PENETRATING AND WATER TIGHT. CORRUGATION AND TWO PICKHOLES IN COVER, NO PERFORATION. SEATING SURFACE OF FRAMES AND COVERS TO BE MACHINED TO FIT.
FRAME AND COVER SHALL WEIGH 280 POUNDS MINIMUM.

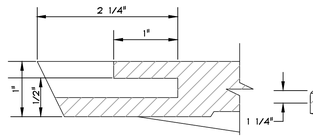
FRAME SECTION

N.T.S.



COVER BACK

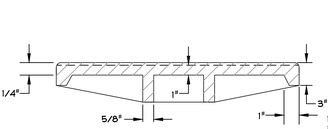
N.T.S.



NOTE: PICKHOLE SHALL BE MIN. 1 1/4" WIDE, TWO PER COVER

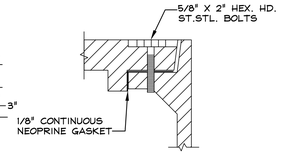
PICKHOLE DETAIL

N.T.S.



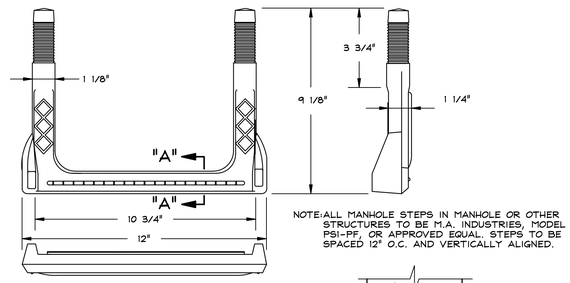
COVER SECTION

N.T.S.

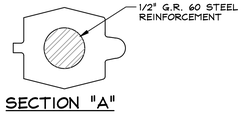


WATERTIGHT DETAIL

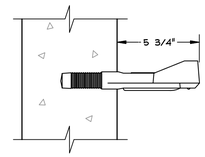
N.T.S.



NOTE: ALL MANHOLE STEPS IN MANHOLE OR OTHER STRUCTURES TO BE M.A. INDUSTRIES, MODEL PSI-PF, OR APPROVED EQUAL. STEPS TO BE SPACED 12" O.C. AND VERTICALLY ALIGNED.



SECTION "A"



PVC MANHOLE STEPS DETAIL

N.T.S.

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SITE DETAILS

GEORGIA REGISTERED No. 25423 PROFESSIONAL ENGINEER MARTIN C. BOYD
03/12/2026
LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581
EXPIRES: 12/21/2026

RELEASES

03/16/26	RELEASE FOR BID
03/30/26	ADDENDUM #1

WWTP IMPROVEMENTS
FOR THE
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1031 STONEBRIDGE PARKWAY. WATKINSVILLE, GA 30677 . 706.769.4119 TEL
GA COA LICENSE# PEF001004 EXPIRES 6/30/2026

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DSGN: MB	DRWN: JB
SCALE: AS SHOWN	
PROJ. NO.: T7040.003	
DATE: 03/16/26	SHEET NO.: 24

D:\AUTODESK\DCA\ACCDOCS\CARTERSLOOPE\T7040.003 WWTP IMPROVEMENTS\PROJECT FILES\CADD\WORKING DRAWINGS\DETAILS

GENERAL STRUCTURAL NOTES

MISCELLANEOUS
1. BEFORE COMMENCING WORK, CHECK ALL LINES AND LEVELS AND VERIFY ALL DIMENSION INDICATED ON THE DRAWINGS AND WITH MANUFACTURE'S SHOP DRAWINGS AND WITH OTHER WORK THAT HAS BEEN COMPLETED. NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES BEFORE PROCEEDING WITH ANY WORK.
2. THE CONTRACTOR SHALL COORDINATE ALL TRADES AND VERIFY THAT ALL WORK THAT IS TO BE BUILT INTO THE CONCRETE INCLUDING PIPE SLEEVES, INSERTS, ANCHOR BOLTS, ETC. IS LOCATED AND INSTALLED BEFORE PLACING ANY CONCRETE. ALL SUCH ITEMS SHALL BE PLACED SO AS NOT TO INTERFERE WITH REINFORCING STEEL.
3. THE CONTRACTOR SHALL GIVE THE ENGINEER 48 HOURS NOTICE PRIOR TO PLACING ANY CONCRETE. AT THE ENGINEER'S OPTION, ALL REINFORCING SHALL BE OBSERVED BY THE ENGINEER PRIOR TO PLACING ANY CONCRETE.
4. BEFORE PLACING ANY CONCRETE, ALL EXCAVATION AND FOOTING TRENCHES SHALL BE DRAINED OF WATER AND MUD FILM REMOVED AND LOOSE DIRT LIFTED OUT. THE CONTRACTOR SHALL PREVENT THE FLOW OF WATER INTO THE EXCAVATION AND FORMWORK WHILE THE CONCRETE IS BEING PLACED AND IS SETTING. THE CONTRACTOR SHALL TAKE ADEQUATE PRECAUTIONS TO PREVENT FLOTATION OF STRUCTURES DURING CONSTRUCTION.
5. SLAB THICKNESS INDICATED ON THE DRAWINGS IS A MINIMUM AND SHALL BE MEASURED FROM THE LOWEST POINT IN THE SLAB.
6. NO ADDITIONAL PAYMENT WILL BE MADE FOR ANY ADDITIONAL LABOR AND MATERIALS REQUIRED FOR CONSTRUCTION JOINTS INSTALLED AT THE REQUEST OF THE CONTRACTOR.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR BRACING ALL WORK DURING CONSTRUCTION.
8. ALL CONCRETE SHALL BE 4,000 PSI CLASS 'A' CONCRETE UNLESS NOTED OTHERWISE ON DRAWINGS OR IN SPECIFICATIONS.

FOUNDATIONS
1. LOOSE AND UNSUITABLE MATERIAL SHALL BE REMOVED FROM THE BOTTOM OF THE FOUNDATION AND REPLACED WITH COMPACTED STRUCTURAL FILL OR STONE.
2. STRUCTURAL FILL UNDER FOOTINGS AND SLABS ON GRADE SHALL BE COMPACTED IN 6-INCH LIFTS TO 98% OF THE MAXIMUM DRY DENSITY AS INDICATED BY ASTM D698 (STANDARD PROCTOR TEST).
3. THE CONTRACTOR SHALL PROVIDE NECESSARY BRACING OF WALLS AND STRUCTURES TO PREVENT DAMAGE DURING COMPACTION OF FILL AND BACKFILLING.
4. ALL SLABS ON GRADE SHALL BE POURED ON 6" MINIMUM COMPACTED CRUSHED STONE OR SAND. FOR BUILDING SLABS, THE CRUSHED STONE OR SAND SHALL BE COVERED BY A 6 MIL BLACK POLYETHYLENE VAPOR BARRIER.
5. AN INDEPENDENT, QUALIFIED GEOTECHNICAL ENGINEER SHALL VERIFY THE COMPACTION AND BEARING PRESSURE IS OBTAINED AT ALL FOUNDATIONS, SHALL MONITOR AND APPROVE ALL STRUCTURAL FILL PLACEMENT AND COMPACTION, AND SHALL APPROVE SUBGRADE BELOW ALL SLABS ON-GRADE.

CONCRETE
1. ALL CONCRETE WORK SHALL CONFORM TO ACI 318 AND ACI 301, ACI 350 LATEST EDITIONS.
2. CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH AT 28-DAYS AS FOLLOWS:
   a. CLASS A - 4,000 PSI
   b. CLASS B - 3,000 PSI
3. IN THE ABSENCE OF CONTRARY DESIGNATION, CONCRETE USED FOR ALL CONSTRUCTION SHALL BE CLASS A. PROVIDE THE FOLLOWING COVER FOR REINFORCING STEEL UNLESS OTHERWISE SHOWN ON THE DRAWINGS:
   a. CONCRETE CAST AGAINST OR PERMANENTLY EXPOSED TO EARTH: 3"
   b. FORMED CONCRETE EXPOSED TO EARTH, WATER OR WEATHER: 2"
   c. STRUCTURAL SLABS, BEAMS OR COLUMNS, NOT EXPOSED TO EARTH, WATER OR WEATHER: 1"
   d. OTHER FORMED SURFACES NOT EXPOSED TO EARTH, WATER OR WEATHER: 1½"
4. SINGLE MAT REINFORCING IN SLABS ON GRADE AND WALLS SHALL BE PLACED AT MID-DEPTH UNLESS NOTED OTHERWISE.
5. INSTALL SLEEVES AT ALL LOCATIONS WHERE PIPING PASSES THROUGH WALL OR SLABS. SLEEVES, ANCHOR BOLTS, AND OTHER INSERTS SHALL B POSITIVELY SECURED IN PLACE BEFORE PLACING ANY CONCRETE.
6. SEE ARCHITECTURAL, MECHANICAL, ELECTRICAL AND OTHER DRAWINGS FOR ADDITIONAL OPENINGS IN THE SLABS AND WALLS. ALL OPENINGS SHALL BE FORMED AND SLEEVED BEFORE CONCRETE IS POURED. ADDITIONAL REINFORCEMENT IS NOT REQUIRED FOR OPENINGS WHOSE LONGER DIMENSION IS 12" OR LESS BUT INTERRUPTED BARS SHALL BE DEFLECTED AROUND THE OPENING.
7. CONTRACTOR SHALL PROVIDE ALL NECESSARY INCIDENTAL ITEMS LIKE INSERTS, TIES, CLIPS AND OTHER DEVICES EVEN THOUGH SUCH ITEMS MAY NOT BE SPECIFICALLY DESCRIBED OR INDICATED, BUT ARE NECESSARY TO PROPERLY COMPLETE THE WORK. ALL FORMWORK SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH ACI 347, LATEST EDITION.
8. ALUMINUM CONDUITS, SLEEVES OR PIPES SHALL NOT BE EMBEDDED IN CONCRETE UNLESS EFFECTIVELY COATED WITH AN APPROVED BITUMINOUS PAINT TO PREVENT CHEMICAL OR ELECTROLYTIC REACTION BETWEEN THE ALUMINUM AND CONCRETE OR REINFORCEMENT.
9. UNLESS NOTED OTHERWISE, ALL CONCRETE SLABS SHALL SLOPE TO DRAIN OR SUMP.
10. CHAMFER ALL EXPOSED EDGES OF CONCRETE 3/4" UNLESS NOTED OTHERWISE.
11. PLACE ½" EXPANSION JOINT MATERIAL BETWEEN EDGES OF SLABS AND VERTICAL SURFACES, UNLESS NOTED OTHERWISE.
12. PROVIDE CONSTRUCTION OR CONTROL JOINTS IN SLABS AND WALLS AT LOCATIONS SHOWN ON THE DRAWINGS, AT OFFSETS AND CHANGES IN DIRECTION AND AT 30 FEET MAXIMUM. CONSTRUCTION JOINTS IN WALLS SHALL BE LOCATED A MINIMUM OF 5'-0" FROM WALL INTERSECTION, UNLESS NOTED OTHERWISE. COLD JOINTS SHALL BE CLEANED AND MOISTENED JUST PRIOR TO SECOND POUR.
13. SUBMIT MIX DESIGNS FOR REVIEW AND APPROVAL BY THE ENGINEER BEFORE PLACING CONCRETE.
14. ALL LIQUID CONTAINING STRUCTURES SHALL INCLUDE AN APPROVED CRYSTALLINE WATERPROOFING ADMIXTURE PER SPECIFICATION 03300 2.2 B & C, UNLESS APPROVED OTHERWISE.

REINFORCING STEEL
1. BARS SHALL BE ROLLED FROM NEW BILLET-STEEL CONFORMING TO ASTM A615, GRADE 60. ALL REINFORCING STEEL SHALL BE FREE OF RUST, SCALE OR OTHER FOREIGN MATERIAL PRIOR TO PLACING CONCRETE.
2. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 OR A497.
3. REINFORCING STEEL IN PLACE SHALL BE REVIEWED BY THE ENGINEER PRIOR TO PLACING CONCRETE.
4. ALL LAP SPLICES SHALL BE MINIMUM 60 BAR DIAMETERS, UNLESS OTHERWISE NOTED, BUT NOT LESS THAN 24-INCHES.
5. SUBMIT REINFORCING STEEL SHOP DRAWINGS FOR REVIEW AND APPROVED BY ENGINEER BEFORE FABRICATION.
6. PROVIDE L-SHAPED CORNER BARS AT ALL CORNERS AND INTERSECTIONS. ALL CORNER BARS SHALL MATCH THE SIZE/SPACING OF THE TERMINATING BARS AND SHALL LAP THE TERMINATING BARS (UNLESS NOTED OTHERWISE).

STRUCTURAL STEEL
1. ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM A36 UNLESS NOTED OTHERWISE.
2. ALL STRUCTURAL STEEL SHALL BE DETAILS, FABRICATED AND ERECTED IN ACCORDANCE WITH THE A.I.S.C. MANUAL OF STEEL CONSTRUCTION, LATEST EDITION, AND CODES AND STANDARDS THEREIN.
3. UNLESS OTHERWISE NOTED, ALL BOLTS SHALL BE ASTM A325, EXCEPT ANCHOR BOLTS MAY BE ASTM A307. EACH BOLT SHALL BE INSTALLED WITH A HARDENED WASHER CONFORMING TO ASTM F436 UNDER THE HEAD OR NUT, WHICHEVER IS TURNED FOR TIGHTENING.
4. BEARING ON BOLT THREADS SHALL NOT BE PERMITTED.
5. SHOP AND FIELD CONNECTIONS MAY BE BOLTED OR WELDED AS APPROVED BY THE ENGINEER.
6. ALL WELDING SHALL BE DONE BY A CERTIFIED WELDER AS PRESCRIBED IN THE "STRUCTURAL WELDING CODE," AWS D1.1 OF THE AMERICAN SOCIETY OF WELDERS FOR THE TYPES OF WELDS REQUIRED ON THIS PROJECT.
7. FULL LENGTH MEMBERS SHALL BE FURNISHED UNLESS SPLICES ARE CALLED FOR ON THE DRAWINGS. NO SHOP SPLICE, FIELD SPLICE OR OTHER CONNECTION WILL BE PERMITTED UNLESS SUCH SPLICE OR DETAIL IS SHOWN ON THE SHOP DRAWINGS AND APPROVED BY THE ENGINEER.
8. CONNECTIONS SHALL BE DESIGNED AND CONSTRUCTED TO DEVELOP THE FULL STRENGTH OF THE MEMBER CONNECTED AND AS DETAILED ON THE DRAWINGS.

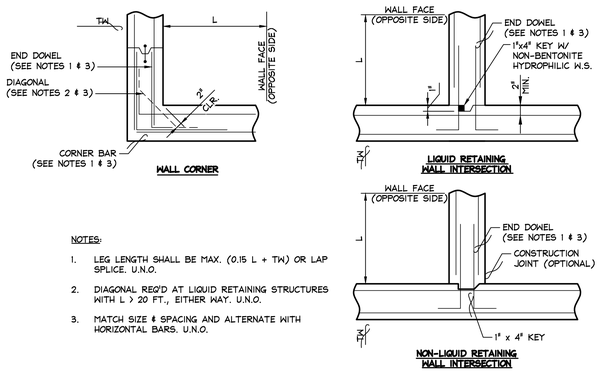
WATERSTOPS
1. PROVIDE CONTINUOUS PVC WATERSTOPS WHERE SHOWN ON THE DRAWINGS OR AT EXTERIOR WALL CONSTRUCTION JOINTS OR WATER RETAINING STRUCTURES, AND WHERE DIFFERENTIAL HEIGHTS OF FLUIDS EXIST ON EITHER SIDE OF WALL.
2. WATERSTOPS SHALL BE MANUFACTURED OF VIRGIN MATERIAL COMPOSED OF AN ELASTOMERIC POLYVINYL CHLORIDE COMPOUND MEETING THE REQUIREMENTS OF US ARMY CORPS OF ENGINEERS CRD-C572, UNLESS OTHERWISE NOTED.
3. HYDROPHILIC WATERSTOPS MAY BE INSTALLED WHERE INDICATED ON DRAWINGS OR AS APPROVED, AT LOCATIONS WHERE PVC W.S. WOULD NOT BE PRACTICAL. WATERSTOP SHALL BE COMPRISED OF NON-BENTONITE, MODIFIED CHLOROPRENE RUBBER.

REBAR SYMBOLS / ABBREVIATIONS

DIRECTION IN WHICH BARS EXTEND — LIMITS OF AREA COVERED BY OTHERS

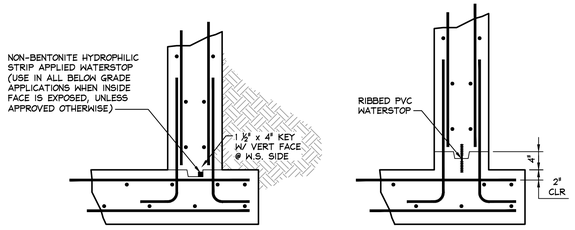
IF - INSIDE FACE	EW - EACH WAY	MB - MAIN BARS	DWL - DOWELS
OF - OUTSIDE FACE	SW - SHORT WAY	CB - CORNER BARS	ALT - ALTERNATE SPACING
NR - NEAR FACE	LW - LONG WAY	VB - VERTICAL BARS	SL - STAGGERING LAPS
FF - FAR FACE	MIN - MINIMUM	HRZ - HORIZONTAL BARS	CNT - CONTINUOUS
EE - EACH END	MAX - MAXIMUM	ADD'L - ADDITIONAL BARS	T&B - TOP & BOTTOM
ES - EACH SIDE			

@ - SPACING, CENTER TO CENTER 00-00 BAR LENGTH (FEET-INCHES)

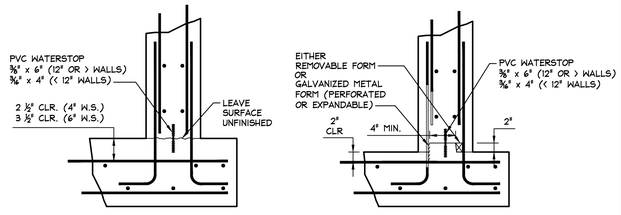


NOTES:
1. LEG LENGTH SHALL BE MAX. (0.15 L + TW) OR LAP SPLICE. U.N.O.
2. DIAGONAL REQ'D AT LIQUID RETAINING STRUCTURES WITH L > 20 FT., EITHER WAY. U.N.O.
3. MATCH SIZE & SPACING AND ALTERNATE WITH HORIZONTAL BARS. U.N.O.

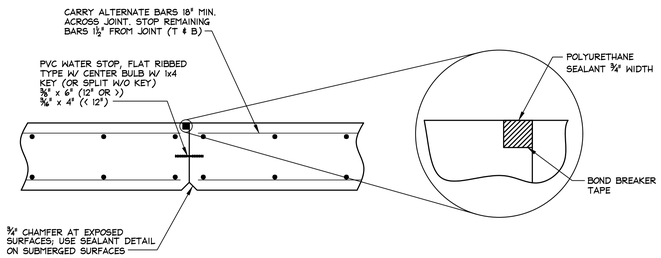
WALL CORNER & INTERSECTION DETAIL
N.T.S.



FOR WALLS 10'-0" OR GREATER IN HEIGHT, REFER TO THE GROUTING REQUIREMENTS IN SECTION 03300.3.4.F PRIOR TO PLACING CONCRETE.



BASE JOINT DETAILS
N.T.S.



CONTROL JOINT DETAIL "CL"
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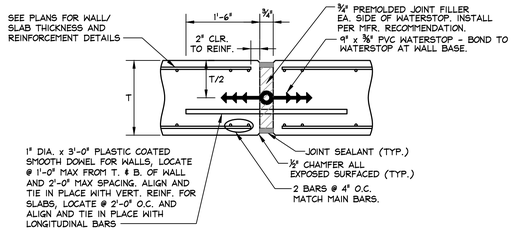
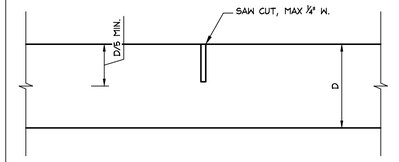
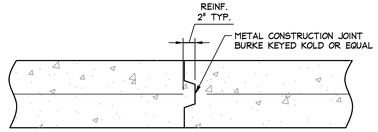


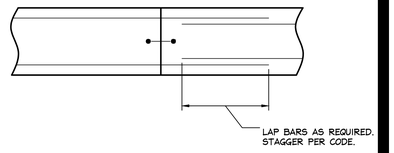
SLAB EXPANSION JOINT FOR WATER RETAINING STRUCTURES
N.T.S.



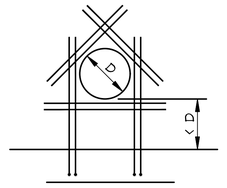
SAWED CONTROL JOINT DETAIL
N.T.S.



CRACK CONTROL JOINT EXPOSED AREA, NON-WATER BEARING
N.T.S.



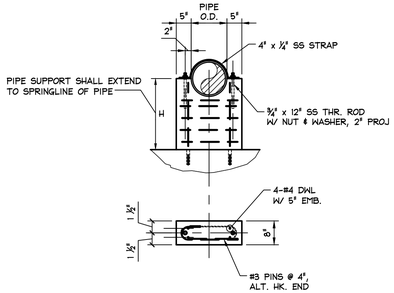
CONSTRUCTION JOINT DETAIL "CS"
N.T.S.



TYPICAL REINFORCEMENT AT OPENING/ PENETRATION DETAIL
N.T.S.

CONCRETE PIPE SUPPORT SCHEDULE			
PIPE DIA.	PIER WIDTH	H (MAX) (NOTE 1)	STRAP/A.B.
0" - 12"	8"	36"	4" x ¼" / 2-⅝"
14" - 18"	12"	30"	6" x ⅜" / 2-¾"
20" - 24"	12"	30"	6" x ⅜" / 4-¾"
> 24"	SEE PLANS		

NOTES:
1. HEIGHT LIMIT W/ LATERAL THRUST LOAD.
2. SCHEDULE APPLIES U.N.O. ON PLANS.
3. DESIGN BASED ON 100FT TDH.



CONCRETE PIPE SUPPORT DETAIL
N.T.S.

RELEASES

03/16/26	RELEASE FOR BID

WWTP IMPROVEMENTS
FOR THE
TOWN OF TIGNALL
WILKES COUNTY, GEORGIA

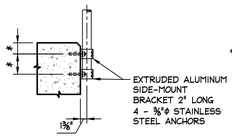
Carter & Sloope
CONSULTING ENGINEERS
1031 STONEBRIDGE PARKWAY. WATKINSVILLE, GA 30677 . 706.769.4119 TEL
GA COA LICENSE# PEF001004 EXPIRES 6/30/2026

THIS LINE IS ONE INCH LONG WHEN DRAWING IS PLOTTED FULL SCALE

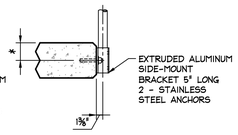
DSGN: MB	DRWN: JB
SCALE: AS SHOWN	
PROJ. NO.: T7040.003	
DATE: 03/16/26	SHEET NO.: 25

GEORGIA REGISTERED No. 25423 PROFESSIONAL ENGINEER MARTIN C. BOYD
03/12/2026
LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581
EXPIRES: 12/21/2026

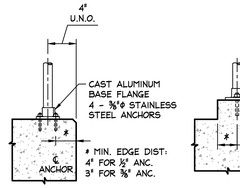
STRUCTURAL NOTES & DETAILS



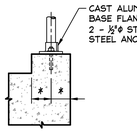
TYPICAL SIDE MOUNT CONNECTION TO CONCRETE WALL



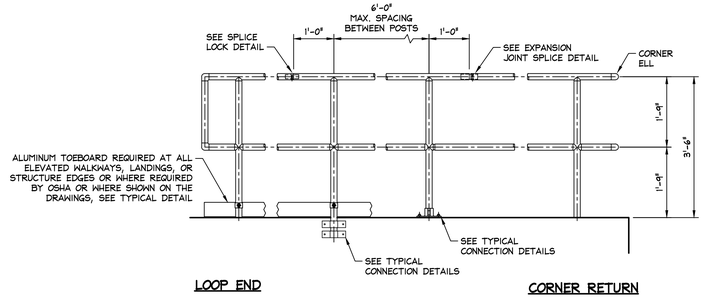
TYPICAL SIDE MOUNT CONNECTION TO CONCRETE SLAB



TYPICAL TOP MOUNT CONNECTION TO CONCRETE WALL



TYPICAL TOP MOUNT CONNECTION TO CONCRETE CURB

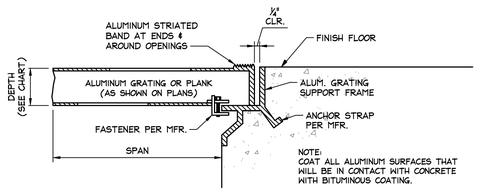


LOOP END

CORNER RETURN

TYPICAL OSHA GUARDRAIL

GUARDRAILS SHALL BE TOP-MOUNTED OR SIDE-MOUNTED, AS SHOWN ON PLANS



TYPICAL SECTION - GRATING/PLANK SUPPORT

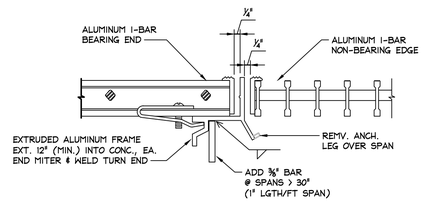
GRATING SCHEDULE	
MAX SPAN	DEPTH #
3'-6"	1"
4'-0"	1¼"
4'-6"	1½"
5'-6"	1¾"
6'-0"	2"

MINIMUM REQUIRED, ¼-INCH DEFLECTION w/ 100 PSF LOADING.

NOTE:
GRATING SUPPORT ANGLE SIZES SHALL BE BY GRATING MANUFACTURER. CONTRACTOR SHALL COORDINATE LOCATION OF ANCHOR STRAPS WITH ANY HANDRAIL PIPE SLEEVES.

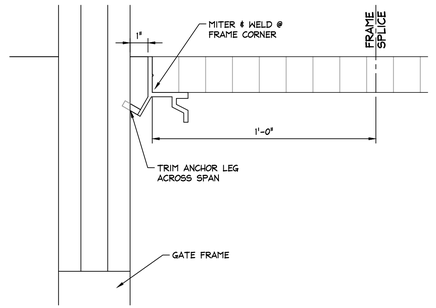
ALUMINUM GRATING/PLANKING DETAILS

N.T.S.



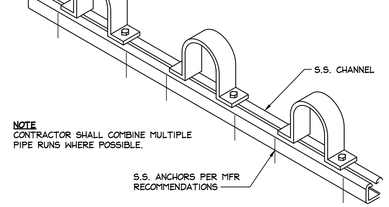
(1/26) TYPICAL SECTION - GRATING/PLANK SUPPORT OVER SPANS

N.T.S.



(2/26) GRATING SUPPORT AT GATE

N.T.S.



NOTE
CONTRACTOR SHALL COMBINE MULTIPLE PIPE RUNS WHERE POSSIBLE.

1. SUPPORT SPACING FOR STEEL PIPE AND COPPER TUBING SHALL NOT EXCEED FIVE (5) FEET.
2. SUPPORT SPACING FOR DUCTILE IRON PIPE SHALL NOT EXCEED TEN (10) FEET WITH A MINIMUM OF ONE SUPPORT PER PIPE SECTION.
3. SUPPORT SPACING FOR PVC PIPE SHALL MEET THE FOLLOWING SCHEDULE.

PIPE DIAMETER	MAXIMUM SPACING SCH. 40	MAXIMUM SPACING SCH. 80
¼"	3'6"	3'6"
⅜"	3'6"	4'0"
½"	4'0"	4'6"
¾"	4'0"	4'6"
1"	4'6"	5'0"
1½"	5'0"	5'6"
1½"	5'0"	5'6"
2"	5'0"	6'0"
2½"	6'0"	6'6"
3"	6'0"	7'0"
4"	6'6"	8'0"
5"	7'0"	8'0"
6"	7'6"	9'0"
8"	8'0"	9'6"
10"	8'6"	10'0"
12"	9'6"	10'6"

WALL CHANNEL PIPE SUPPORT LESS THAN 3"

N.T.S.

STRUCTURAL NOTES & DETAILS

RELEASES	
03/16/26	RELEASE FOR BID

WWTP IMPROVEMENTS
FOR THE
TOWN OF TIGNALL
WILKES COUNTY, GEORGIA

Carter & Sloope
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03/12/2026
LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581
EXPIRES: 12/21/2026

THIS LINE IS ONE INCH LONG WHEN DRAWING IS PLOTTED FULL SCALE

DSGN: MB	DRWN: JB
SCALE: AS SHOWN	
PROJ. NO.: T7040.003	
DATE: 03/16/26	SHEET NO.: 26

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STRUCTURAL PRACTICES

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Cd	CHECKDAM Cd-S STONE CHECK DAM Cd-Hb STRAW-BALE CHECK DAM Cd-Fs COMPOST FILTER SOCK			A small temporary barrier or dam constructed across a swale, drainage ditch or area of concentrated flow.
Ch	CHANNEL STABILIZATION Ch-1 CATEGORY 1 (0-5FT/SEC) Ch-2 CATEGORY 2 (5-10FT/SEC) Ch-3 CATEGORY 3 (<10FT/SEC)			Improving, constructing or stabilizing an open channel, existing stream, or ditch.
Co	CONSTRUCTION EXIT		Co (Label)	A crushed stone pad located at the construction site exit to provide a place for removing mud from tires thereby protecting public streets.
Cr	CONSTRUCTION ROAD STABILIZATION		Cr	A travelway constructed as part of a construction plan including access roads, subdivision roads, parking areas and other on-site vehicle transportation routes.
Dc	STREAM DIVERSION CHANNEL Dc-A GEOTEXTILE, POLYETHELENE FILM, OR SOD (0-2.5 FPS) Dc-B GEOTEXTILE ALONE (2.5-9.0 FPS) Dc-C CLASS 1 RIPRAP & GEOTEXTILE (9.0-13.0 FPS)		Dc	A temporary channel constructed to convey flow around a construction site while a permanent structure is being constructed.
Di	DIVERSION			An earth channel or dike located above, below, or across a slope to divert runoff. This may be a temporary or permanent structure.
Dn1	TEMPORARY DOWNDRAIN STRUCTURE		Dn1 (Label)	A flexible conduit of heavy-duty fabric or other material designed to safely conduct surface runoff down a slope. This is temporary and inexpensive.
Dn2	PERMANENT DOWNDRAIN STRUCTURE		Dn2 (Label)	A paved chute, pipe, sectional conduit or similar material designed to safely conduct surface runoff down a slope.
Fr	FILTER RING		Fr	A temporary stone barrier constructed at storm drain inlets and pond outlets.
Ga	GABION			Rock filter baskets which are hand-placed into position forming soil stabilizing structures.
Gr	GRADE STABILIZATION STRUCTURE		Gr	Permanent structures installed to protect channels or waterways where otherwise the slope would be sufficient for the running water to form gullies.
Lv	LEVEL SPREADER			A storm flow outlet device constructed at zero grade across the slope whereby concentrated runoff may be discharged at a non-erosive velocity onto undisturbed areas stabilized by existing vegetation.
Rd	ROCK FILTER DAM			A temporary stone filter dam installed across drainageways or in conjunction with a temporary sediment trap.
Re	RETAINING WALL		Re (Label)	A wall installed to stabilize out and fill slopes where maximum permissible slopes are not obtainable. Each situation will require special design.
Rt	RETRO FITTING Rt-P PERFORATED HALF-ROUND PIPE WITH STONE FILTER Rt-B SLOTTED BOARD DAM WITH STONE OR FILTER FABRIC Rt-Sg SILT CONTROL GATE		Rt (Label)	A device or structure placed in front of a permanent stormwater detention pond outlet structure to serve as a temporary sediment filter.
Sd1	SEDIMENT BARRIER Sd1-NS NONSENSITIVE AREAS Sd1-S SENSITIVE AREAS Sd1-BB BRUSH BARRIER		TYPE (Indicate type)	A barrier to prevent sediment from leaving the construction site. It may be sandbags, bales of straw or hay, brush, logs and poles, or a silt fence.
Sd2	INLET SEDIMENT TRAP Sd2-F FILTER FABRIC W/SUPPORTING FRAME Sd2-B BAFFLE BOX Sd2-Bg BLOCK & GRAVEL DROP INLET PROTECTION Sd2-G GRAVEL DROP INLET PROTECTION Sd2-S SOD INLET PROTECTION Sd2-P CURB INLET PROTECTION		(Indicate type)	A temporary protective device formed at or around an inlet to a storm drain to trap sediment.
Sd3	TEMPORARY SEDIMENT BASIN		Sd3 (Label)	A basin created by excavation or a dam across a waterway. The surface water runoff is temporarily stored allowing the bulk of the sediment to drop out.
Sd4	TEMPORARY SEDIMENT TRAP Sd4-A OVERFLOW Sd4-B COMBINATION STRAW BALE & SILT FENCE OUTLET Sd4-C ROCK OUTLET			A small temporary pond that drains a disturbed area so that sediment can settle out. The principle feature distinguishing a temporary sediment trap from a temporary sediment basin is the lack of a pipe or riser.
Sk	FILTER SURFACE SKIMMER		Sk (Label)	A buoyant device that releases/drains water from the surface of sediment ponds, traps or basins at a controlled rate of flow.
SpB	SEEP BERM		Spb (Label)	A linear control device constructed as a diversion perpendicular to the direction of the runoff to enhance dissipation and infiltration of runoff, while creating multiple sedimentation chambers with the employment of intermediate dikes.
Sr	TEMPORARY STREAM CROSSING Sr-B TEMPORARY BRIDGE CROSSING Sr-C TEMPORARY CULVERT CROSSING		Sr (Label)	A temporary bridge or culvert-type structure protecting a stream or watercourse from damage by crossing construction equipment.
St	STORMDRAIN OUTLET PROTECTION		St	A paved or short section of riprap channel at the outlet of a storm drain system preventing erosion from the concentrated runoff.
Su	SURFACE ROUGHENING		Su	A rough soil surface with horizontal depressions on a contour or slopes left in a roughened condition after grading.
Tc	TURBIDITY CURTAIN Tc-F FLOATING TURBIDITY CURTAIN Tc-S STAKED TURBIDITY CURTAIN		Tc	A floating or staked barrier installed within the water. (It may also be referred to as a floating boom, silt barrier or silt curtain).
Tp	TOPSOILING		Tp (Show Striping & Storage Areas)	Stripping off the more fertile top soil, storing it, then spreading it over the disturbed area after completion of construction activities.
Tr	TREE PROTECTION		Tr (Denote Tree Center)	To protect desirable trees from injury during construction activity.
Wt	VEGETATED WATERWAY OR STORMWATER CONVEYANCE CHANNEL	EROSION BLANKET	Wt	Paved or vegetative water outlets for diversions, terraces, berms, dikes or similar structures.

VEGETATIVE MEASURES

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Bf	BUFFER ZONE		Bf (Label)	An undisturbed natural "green belt" separating the land-disturbed site from surrounding property and bordering streams. It serves to reduce water velocity and remove some sediment. It is also at times a noise or "vision pollution" barrier.
Cs	COASTAL DUNE STABILIZATION (WITH VEGETATION)		Cs	Planting vegetation on dunes that are denuded, artificially construction, or renourished.
Ds1	DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)		Ds1	Establishing temporary protection for disturbed areas where seedlings may not have a suitable growing season to produce an erosion retarding cover.
Ds2	DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)		Ds2	Establishing a temporary vegetative cover with fast growing seedings on disturbed areas.
Ds3	DISTURBED AREA STABILIZATION (WITH PERMENANT SEEDING)		Ds3	Establishing a permanent vegetative cover such as trees, shrubs, vines, grasses, sod or legumes on disturbed areas.
Ds4	DISTURBED AREA STABILIZATION (SODDING)		Ds4	A permanent vegetative cover using sods on highly erodable or critically eroded lands.
Du	DUST CONTROL ON DISTURBED AREAS		Du	Controlling surface and air movement of dust on construction site, roadways and similar sites.
Fl-Co	FLOCCULANTS & COAGULANTS		Fl-Co	Formulated to assist in the solids/liquid separation of suspended particles in solution.
Sb	STREAMBANK STABILIZATION (USING PERMENANT VEGETATION)		Sb	The use of readily available native plant materials to maintain and enhance streambanks, or to prevent, or restore and repair small streambank erosion problems.
Ss	SLOPE STABILIZATION		Ss	A protective covering (blanket) used to prevent erosion and establish temporary or permanent vegetation on steep slopes, shore lines, or channels.
Tac	TACKIFIERS & BINDERS Tac-1 SYNTHETIC POLYMERS Tac-2 ORGANIC POLYMERS Tac-3 SYNTHETIC/ORGANIC BLENDS Tac-4 ORGANIC TACKIFIERS WITH SYNTHETIC FIBERS Tac-5 SYNTHETIC/ORGANIC BLENDS WITH SYNTHETIC FIBERS		Tac	Substance used to anchor straw or hay mulch by causing the organic material to bind together.

TEMPORARY VEGETATIVE COVERS

PLANT, PLANT RATE, AND PLANTING DATE FOR TEMPORARY COVER OR COMPANION CROPS[1]

SPECIES	BROADCAST RATES RATE/ACRE[2]	PLS*/1,000SF	RESOURCE AREA[3]	PLANTING DATES BY RESOURCE AREA[4] (J F M A M J J A S O N D)	REMARKS
BARLEY alone in mixture	3 bu. (144lbs) ½ bu. (24lbs)	3.3lbs 0.6lbs	M-L P C		14,000 seed per pound. Winter hardy. Use on productive soils.
LESPEDEZA, ANNUAL alone in mixture	40lbs 10lbs	0.9lbs 0.2lbs	M-L P C		200,000 seed per pound. May volunteer for several years. Use inoculate EL.
LOVEGRASS, WEEPING alone in mixture	4lbs 2lbs	0.1lbs 0.05lbs	M-L P C		1,500,000 seed per pound. May last for several years. Mix with *Sericea lespedeza.*
MILLET, BROWNTOP alone in mixture	40lbs 10lbs	0.9lbs 0.2lbs	M-L P C		137,000 seed per pound. Quick dense cover. Will provide excessive competition in mixtures if seeded at high rate.
MILLET, PEARL alone	50lbs	1.1lbs	M-L P C		88,000 seed per pound. Quick dense cover. May reach 5 feet in height. Not recommended for mixtures.
OATS alone in mixture	4 bu. (128lbs) 1 bu. (32lbs)	2.9lbs 0.7lbs	M-L P C		13,000 seed per pound. Use on productive soils. Not as winter hardy as rye or barley.
RYE alone in mixture	3 bu. (168lbs) ½ bu. (28lbs)	3.9lbs 0.6lbs	M-L P C		18,000 seed per pound. Quick cover. Drought tolerant and winter hardy.
RYEGRASS, ANNUAL alone	40lbs	0.9lbs	M-L P C		227,000 seed per pound. Dense cover. Very competitive and is not to be used in mixtures.
SUDANGRASS alone	60lbs	1.4lbs	M-L P C		55,000 seed per pound. Good on droughty sites. Not recommended for mixtures.
TRITICALE alone in mixture	3 bu. (144lbs) ½ bu. (24lbs)	3.3lbs 0.6lbs	C		Use on lower part of Southern Coast Plain and in Atlantic Coastal Flatwoods only.
WHEAT alone in mixture	3 bu. (180lbs) ½ bu. (30lbs)	4.1lbs 0.7lbs	M-L P C		15,000 seed per pound. Winter hardy.

[1]Temporary cover crops are very competitive and will crowd out perennials if seeded too heavily.
[2]Reduce seeding rates by 50% when drilled.
[3]M-L represents the Mountain; Blue Ridge; and Ridges and Valleys MLRAs
P represents the Southern Piedmont MLRA
C represents the Southern Coastal Plain; Sand Hills; Black Lands; and Atlantic Coast Flatwoods MLRAs
(see Figure 6-4.1, p6-40 of the Manual for Soil Erosion & Sediment Control in Georgia, 2016 Edition)
[4]Solid lines indicate optimum dates. Dotted lines indicate permissible but marginal dates.
*Pure Live Seed

FERTILIZER REQUIREMENTS

TYPE OF SPECIES	YEAR	ANALYSIS OR EQUIVALENT N-P-K	RATE	N TOP DRESSING RATE
1. COOL SEASON GRASSES	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500lbs/ac. 1000lbs/ac. 400lbs/ac.	50-100lbs/ac. 1/2/ - 30
2. COOL SEASON GRASSES AND LEGUMES	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500lbs/ac. 1000lbs/ac. 400lbs/ac.	0-50lbs/ac. 1/ - -
3. GROUND COVERS	First Second Maintenance	10-10-10 10-10-10 10-10-10	1300lbs/ac. 3/ 1300lbs/ac. 3/ 1100lbs/ac.	- - -
4. PINE SEEDLINGS	First	20-10-5	one 21-gram pellet per seedling placed in the hole	-
5. SHRUB LESPEDEZA	First Maintenance	0-10-10 0-10-10	700lbs/ac. 700lbs/ac. 4/	-
6. TEMPORARY COVER CROPS, SEEDED ALONE	First	10-10-10	500lbs/ac.	30lbs/ac. 5/
7. WARM SEASON GRASSES	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500lbs/ac. 800lbs/ac. 400lbs/ac.	50-100lbs/ac. 2/6/ 50-100lbs/ac. 2/ 30lbs/ac.
8. WARM SEASON GRASSES AND LEGUMES	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500lbs/ac. 1000lbs/ac. 400lbs/ac.	50lbs/ac./6/

1/ Apply in spring following seeding.
2/ Apply in split applications when high rates are used.
3/ Apply in 3 split applications.
4/Apply when plants are pruned.
5/Apply to grass species only.
6/Apply when plants grow to a height of 2 to 4 inches.

GENERAL EROSION CONTROL NOTES

1. ALL LAND DISTURBING ACTIVITIES SHALL BE CONDUCTED IN COMPLIANCE WITH THE "EROSION AND SEDIMENTATION ACT OF 1975" AS AMENDED TO DATE.
2. ALL MATERIALS USED FOR BMPS AND OTHER EROSION AND SEDIMENT CONTROL DEVICES AND PRACTICES SHALL BE FIRST-QUALITY AND DESIGNED TO WITHSTAND A MINIMUM 25-YEAR STORM EVENT.
3. ALL PERIMETER EROSION CONTROL AND STORMWATER MANAGEMENT DEVICES SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITIES. ALL OTHER BMPS SHALL BE INSTALLED PRIOR TO, OR CONCURRENT WITH LAND DISTURBING ACTIVITIES. THE LOCATION OF CERTAIN EROSION CONTROL DEVICES MAY REQUIRE ALTERING FROM THE LOCATIONS SHOWN ON THE DRAWINGS IF DRAINAGE PATTERNS DURING CONSTRUCTION DIFFER FROM THE FINAL GRADING PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION CONTROL FOR DRAINAGE PATTERNS CREATED AT VARIOUS STAGES DURING CONSTRUCTION. AT ALL TIMES, 67 CUBIC YARDS OF SEDIMENT STORAGE MUST BE AVAILABLE FOR EACH ACRE OF DRAINED LAND. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.
4. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED DAILY AND ANY DEFICIENCIES NOTED SHALL BE CORRECTED BY THE END OF THE DAY. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY BY ON-SITE OBSERVATIONS.
5. DIVERSION DITCHES, BERMS, AND TEMPORARY DOWN DRAINS SHALL BE USED DURING GRADING OPERATIONS TO PROVIDE SEDIMENT CONTROL FOR DISTURBED AREAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF THESE MEASURES DURING THE VARIOUS PHASES OF GRADING. THESE MEASURES MAY OR MAY NOT BE INDICATED ON THE DRAWINGS.
6. ALL SITE CLEARING AND GRUBBING SHALL BE KEPT TO AN ABSOLUTE MINIMUM. VEGETATION AND MULCH SHALL BE APPLIED TO APPLICABLE AREAS IMMEDIATELY AFTER GRADING IS COMPLETE. LAND DISTURBING SHALL BE SCHEDULED TO LIMIT EXPOSURE OF BARE SOILS TO EROSIVE ELEMENTS.
7. THE CONTRACTOR SHALL USE ALL MEANS NECESSARY TO LIMIT AND CONTROL DUST ON AND NEAR THE CONSTRUCTION SITE WHEN DUST IS CAUSED BY CONSTRUCTION OPERATIONS.
8. ALL CUT AND FILL SLOPES SHALL HAVE SILT FENCE INSTALLED AND MAINTAINED AT THE TOE OF SLOPES. THE CONTRACTOR SHALL FURNISH AND INSTALL DOUBLE ROWS OF TYPE "C" SILT FENCE AT THE TOE OF ALL SLOPES ADJACENT TO ALL STATE WATERS. INSTALL AND MAINTAIN SEDIMENT BARRIERS AROUND ALL INLETS AND BELOW ALL OUTLETS AND OTHER DISTURBANCES WHERE EROSIVE RUNOFF MAY LEAVE THE SITE.
9. ALL CUT AND FILL SLOPES MUST BE SURFACE ROUGHENED AND VEGETATED WITHIN SEVEN (7) DAYS OF THEIR GRADING.
10. THE CONTRACTOR SHALL NOT BE PERMITTED TO PLACE TRENCH DIRT ON THE SURFACE OF ASPHALT ROADWAYS. IF DIRT IS PLACED IN A DITCH SECTION, DITCH SHALL BE RE-GRADED TO EXISTING CONDITIONS, GRASSED AND MULCHED, AND CHECK DAMS (HAY BALES PREFERRED) PLACED IN THE DITCH.
11. ALL EXCAVATED DIRT SHALL BE PLACED ON THE HIGH SIDE OF THE TRENCH AWAY FROM CREEKS, RIVERS, AND OTHER STATE WATERS.
12. CONSTRUCTION ACTIVITIES SHALL BE PERFORMED IN COMPLIANCE WITH ALL APPLICABLE LAWS, RULES, AND REGULATIONS.
13. SEDIMENT BARRIERS SHALL MEET GEORGIA D.O.T. STANDARDS AND SPECIFICATIONS AND SHALL BE INSTALLED AS DESCRIBED HEREIN AND AS INDICATED ON THE DRAWINGS.
14. ESTABLISHMENT OF TEMPORARY AND PERMANENT VEGETATION FOR THIS PROJECT SHALL CONSIST OF GROUND PREPARATION, SEEDING OR HYDRO SEEDING AND MULCHING OF ALL DISTURBED AREAS IN THE PROJECT AREA, WHICH SHALL CONFORM TO THE SPECIFICATIONS AND THE FOLLOWING SCHEDULE:
MULCHING ALONE: SHALL BE USED ON ROUGH GRADED AREAS FOR UP TO SIX (6) MONTHS. IT SHALL BE APPLIED AT THE APPROPRIATE DEPTH, ANCHORED AND MAINTAIN A CONTINUOUS 90% COVER OR GREATER OF THE SOIL SURFACE.
TEMPORARY SEEDING: SHALL BE USED ON DISTURBED AREAS THAT WILL BE LEFT EXPOSED FOR LESS THAN SIX (6) MONTHS.
PERMANENT VEGETATION: SHALL BE USED ON ALL AREAS THAT ARE AT FINAL GRADE OR ON DISTURBED AREAS THAT WILL BE LEFT EXPOSED FOR MORE THAN SIX (6) MONTHS. SEE GRASSING TABLE AND MULCHING SCHEDULE ON THIS SHEET.
15. THE CONTRACTOR SHALL BEGIN GRASSING WITHIN SEVEN (7) DAYS AFTER THE COMPLETION OF ANY LAND DISTURBING ACTIVITY OR IF THE ACTIVITY IS DISCONTINUED FOR A PERIOD OF FOURTEEN (14) DAYS OR LONGER UNLESS INCLEMENT WEATHER PROHIBITS OR GRADING ACTIVITIES WILL BEGIN AGAIN IN LESS THAN TWENTY-ONE (21) DAYS. NO ADDITIONAL PAYMENT SHALL BE MADE FOR GRASSING THE SAME AREA MORE THAN ONCE.
16. EROSION CONTROL SLOPE STABILIZATION (Ss) AND/OR SODDING (Ds4) SHALL BE USED ON: (1) ALL SLOPES STEEPER THAN 2½ : 1 AND GREATER THAN OR EQUAL TO 10 FEET IN HEIGHT; (2) ALL CONCENTRATED FLOW AREAS; AND (3) CUTS AND FILLS ADJACENT TO STATE WATERS.
17. PERMANENT CONTROL STRUCTURES SHALL BE MAINTAINED BY THE CONTRACTOR FOR A PERIOD OF ONE (1) YEAR FOLLOWING ACCEPTANCE OF THE PROJECT.
18. TEMPORARY MEASURES, SUCH AS SILT FENCING, SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR ONCE THE AREA DRAINING TO THE BMP HAS REACHED FINAL STABILIZATION. FINAL STABILIZATION MEANS THAT ALL LAND-DISTURBING ACTIVITIES HAVE BEEN COMPLETED AND THAT FOR UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES, 100% OF THE SOIL SURFACE IS UNIFORMLY COVERED IN PERMANENT VEGETATION WITH A DENSITY OF 70% OR GREATER, OR EQUIVALENT PERMANENT STABILIZATION MEASURES (SUCH AS GABIONS, RIP-RAP, PERMANENT MULCH, GEOTEXTILES) HAVE BEEN USED.
19. MAINTENANCE PROGRAM: ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONTINUOUSLY MAINTAINED BY THE CONTRACTOR. ALL DEVICES SHOULD BE CLEANED OUT BEFORE THEY REACH HALF FULL. CLEANOUT OF SEDIMENT CONTROL STRUCTURES WILL BE ACCOMPLISHED BY SPREADING ON SITE. SEDIMENT BARRIERS SHALL REMAIN IN PLACE AT ALL TIMES UNTIL ALL SEDIMENT CONTRIBUTING AREAS ARE FULLY STABILIZED.
20. NPDES GENERAL PERMIT: A GENERAL NPDES PERMIT FOR STORM WATER DISCHARGES RELATED TO CONSTRUCTION ACTIVITIES IS REQUIRED ON ALL PROJECTS THAT DISTURB 1.0 OR MORE ACRES OF LAND. AS REQUIRED BY GENERAL NPDES PERMIT NO. GAR100001 FOR STAND ALONE CONSTRUCTION PROJECTS, THE CONTRACTOR IS REQUIRED TO ACT AS PRIMARY PERMITTEE FOR HIS SPECIFIC DIVISION OF WORK AND MUST FOLLOW ALL RULES AND REGULATIONS AS REQUIRED BY THE GENERAL NPDES PERMIT AND PAY ALL NECESSARY PERMIT FEES.
21. ACCORDING TO O.C.G.A. 12-5-51 (OFFICIAL CODE OF GEORGIA ANNOTATED), ANY PERSON WHO INTENTIONALLY OR NEGLIGENTLY CAUSES OR PERMITS ANY SEWAGE, WASTES, OIL, SCUM, FLOATING DEBRIS, OR OTHER SUBSTANCES, INCLUDING BUILDING MATERIALS, TO BE SPILLED, DISCHARGED, OR DEPOSITED IN THE WATERS OF THE STATE, MAY BE HELD LIABLE IN DAMAGES TO THE STATE. NECESSARY SANITARY CONVENIENCES FOR THE USE OF LABORERS ON THE WORK SITE SHALL BE PROVIDED AND MAINTAINED BY THE CONTRACTOR IN SUCH A MANNER AND AT SUCH POINTS AS APPROVED BY THE ENGINEER. THEIR USE SHALL BE STRICTLY ENFORCED.
22. THE CONTRACTOR MAY BE SUBJECT TO THE RESPONSIBILITIES, LIABILITIES AND PENALTIES UNDER THE GEORGIA HAZARDOUS WASTE MANAGEMENT ACT, O.C.G.A. 12-8-60, ET SEQ. OR UNDER CHAPTER 14 OF TITLE 12 OF THE OFFICIAL CODE OF GEORGIA ANNOTATED, OR UNDER SECTION 311 OF THE CLEAN WATER ACT, OR SECTION 106 OF COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT.
23. THE CONTRACTOR SHALL DISPOSE OF ALL SOLID WASTE MATERIALS SUCH AS TRASH AND DEBRIS RESULTING FROM CLEARING OPERATIONS AND CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH BOTH THE AIR QUALITY CONTROL (CHAPTER 391-3-1) AND THE SOILD WASTE MANAGEMENT (CHAPTER 391-3-4) OF THE RULES AND REGULATIONS OF THE ENVIRONMENTAL PROTECTION DIVISION OF THE GEORGIA DEPARTMENT OF NATURAL RESOURCES.

PERMANENT VEGETATIVE COVERS

PLANT, PLANT RATE, AND PLANTING DATE FOR PERMANENT COVER

SPECIES	BROADCAST RATES RATE/ACRE[1]	PLS[2]/1,000SF	RESOURCE AREA[3]	PLANTING DATES BY RESOURCE AREA[4] (J F M A M J J A S O N D)	REMARKS
BAHIA, PENSACOLA alone or with temporary cover with other perennials	60lbs 30lbs	1.4lbs 0.7lbs	P C		166,000 seed per pound. Low growing. Sod forming. Slow to establish. Plant with a companion crop. Will spread into bermuda pastures and lawns. Mix with Sericea lespedeza or weeping lovegrass.
BAHIA, WILMINGTON alone or with temporary cover with other perennials	60lbs 30lbs	1.4lbs 0.7lbs	M-L P		Same as above.
BERMUDA, COMMON HULLED SEED alone with other perennials	10lbs 6lbs	0.2lbs 0.7lbs	P C		1,787,000 seed per pound. Quick cover. Low growing and sod forming. Full sun. Good for athletic fields.
BERMUDA, COMMON UNHULLED SEED with temporary cover with other perennials	10lbs 6lbs	0.2lbs 0.1lbs	P C		Plant with winter annuals. Plant with Tall Fescue.
BERMUDA SPRIGS COASTAL, COMMON, MIDLAND OR TIFT 44 COASTAL, COMMON, OR TIFT 44 TIFT 78	40ft³ or sod plugs 3'x3'	0.9ft³	M-L P C C		A cubic foot contains approximately 650 sprigs. A bushel contains 1.25 cubic feet or approximately 800 sprigs. Same as above. Southern Coastal Plain only.
CENTIPEDE	Block Sod Only		P C		Drought tolerant. Full sun or partial shade. Effective adjacent to concrete and in concentrated flow areas. Irrigation is needed until fully established. Do not plant near pastures. Winter hardy as far as north Athens and Atlanta.
CROWNVETCH with winter annuals or cool season grasses	15lbs	0.3lbs	M-L P		100,000 seed per pound. Dense growth. Drought tolerant and fire resistant. Attractive rose, pink, and white blossoms spring to late fall. Mix with 30lbs of Tall Fescue or 15lbs of Rye. Inoculate see with M inoculant. Use from North Atlanta and Northward.
FESCUE, TALL alone with other perennials	50lbs 30lbs	1.1lbs 0.7lbs	M-L P		227,000 seed per pound. Use alone only on better sites. Mix with perennial lespedeza or Crownvetch. Apply top dressing in spring following fall plantings. Not for heavy use areas or athletic fields.
LESPEDEZA SERICEA scarified	60lbs	1.4lbs	M-L P C		350,000 seed per pound. Widely adapted. Low maintenance. Mix with Weeping lovegrass, common bermuda, bahia, or tall fescue. Takes 2 to 3 years to become fully established. Excellent on road banks. Inoculate seed with EL inoculant.
unscarified	75lbs	1.7lbs	M-L P C		Mix with Tall fescue or winter annuals.
seed-bearing hay	3 tons	1,338lbs	M-L P C		Cut when seed mixture is mature, but before it shatters. Add Tall fescue or winter annuals.
LESPEDEZA scarified unscarified	60lbs 75lbs	1.4lbs 1.7lbs	M-L P C M-L P C		300,000 seed per pound. Height of growth is 18 to 24 inches. Advantageous in urban areas. Spreading-type growth. New growth has bronze coloration. Mix with Weeping lovegrass, common bermuda, bahia, tall fescue or winter annuals. Do not mix with Sericea lespedeza. Slow to develop solid stands. Inoculate seed with EL inoculant.
LESPEDEZA, SHRUB plants	3'x3'		M-L P C		Provide wildlife food and cover.
LOVEGRASS, WEEPING alone with other perennials	4lbs 2lbs	0.1lbs 0.05lbs	M-L P C		1,500,000 seed per pound. Quick cover. Drought tolerant. Grows well with Sericea lespedeza on roadbanks.
MAIDENCANE sprigs	2'x3' spacing		ALL		For very wet sites. May clog channels. Dig sprigs from local sources. Use along river banks and shorelines.
PANICGRASS, ATLANTIC COASTAL	20lbs	0.5lbs	P C		Grows well on coastal sand dunes, borrow areas, and gravel pits. Provides winter cover for wildlife. Mix with Sericea lespedeza except on sand dunes.
REED CANARY GRASS alone with other perennials	50lbs 30lbs	1.1lbs 0.7lbs	M-L P		Grows similar to Tall fescue.
SUNFLOWER, 'AZTEC' MAXIMILLIAN	10lbs	0.2lbs	M-L P C		227,000 seed per pound. Mix with Weeping lovegrass or other low-growing grasses or legumes.

[1]Reduce seeding rates by 50% when drilled.
[2]PLS is an abbreviation for Pure Live Seed. Refer to Section V.E. of the Manual for Erosion and Sediment Control in Georgia, 2016 Edition.
[3]M-L represents the Mountain; Blue Ridge; and Ridges and Valleys MLRAs
P represents the Southern Piedmont MLRA
C represents the Southern Coastal Plain; Sand Hills; Black Lands; and Atlantic Coast Flatwoods MLRAs (see Figure 6-4.1, p6-40 of the Manual for Soil Erosion & Sediment Control in Georgia, 2016 Edition
[4]Solid lines indicate optimum dates. Dotted lines indicate permissible but marginal dates.

GEORGIA REGISTERED No. 25423 PROFESSIONAL ENGINEER MARTIN C. BOYD
03/12/2026
LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581
EXPIRES: 12/21/2026

VEGETATIVE-STRUCTURAL PRACTICES AND ESPC NOTES

RELEASES	
03/16/26	RELEASE FOR BID

WWTP IMPROVEMENTS
FOR THE
TOWN OF TIGNALL
WILKES COUNTY, GEORGIA

Carter & Sloope
CONSULTING ENGINEERS
[illegible]
GA COA LICENSE# PEF001004 EXPIRES 6/30/2026

THIS LINE IS ONE INCH LONG WHEN DRAWING IS PLOTTED FULL SCALE

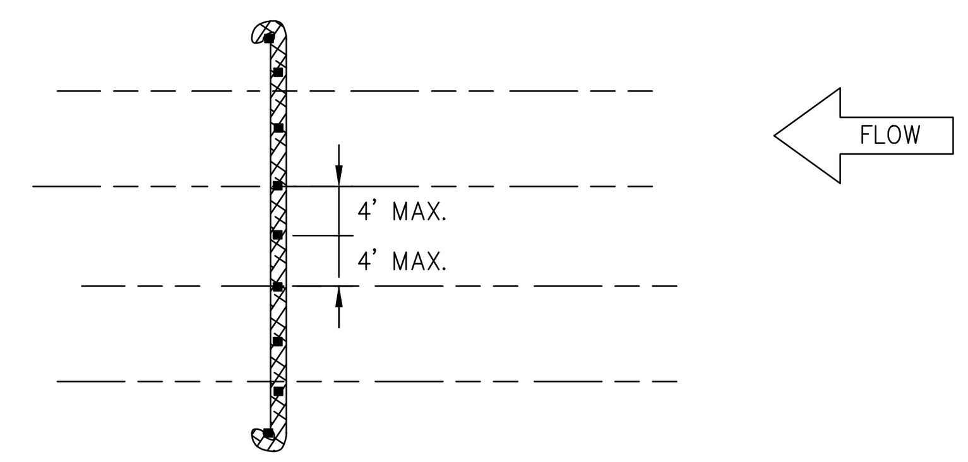
DSGN: MB	DRWN: JB
SCALE: AS SHOWN	
PROJ. NO.: T7040.003	
DATE: 03/16/26	SHEET NO.: EC1

D:\AUTODESK\DC\ACCDOCS\CARTERSLOOPE\T7040.003 WWTP IMPROVEMENTS\PROJECT FILES\CADD\WORKING DRAWINGS\EROSION CONTROL

COMPOST SOCKS FOR CHECK DAMS

TYPICAL PLAN

Cd-Fs

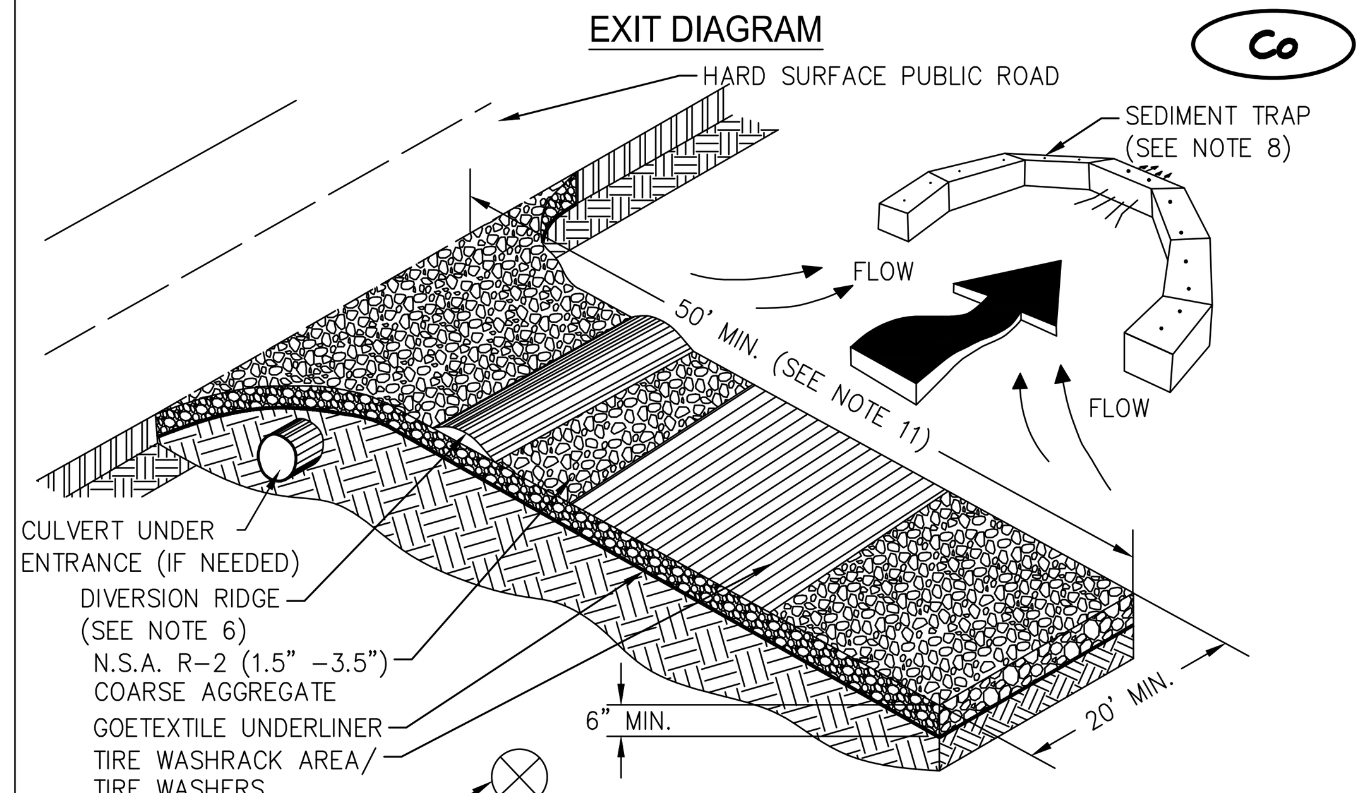


NOTES:
1. ALL MATERIAL TO MEET SPECIFICATIONS.
2. PLACE ONE STAKE AT THE CENTER OF THE DITCH/CHANNEL. ALSO PLACE STAKES AT THE BED/BANK JUNCTION AND AT END OF THE DEVICE NOT SPACED MORE THAN 4 FEET APART.
3. SEDIMENT SHOULD BE REMOVED FROM BEHIND THE CHECK DAM ONCE THE ACCUMULATED HEIGHT HAS REACHED ½ THE HEIGHT OF THE CHECK DAM.
4. CHECK DAMS CAN BE DIRECT SEEDED AT THE TIME OF INSTALLATION.
5. MINIMUM STAKING DEPTH FOR SAND, SILT, AND CLAY SHALL BE 18".

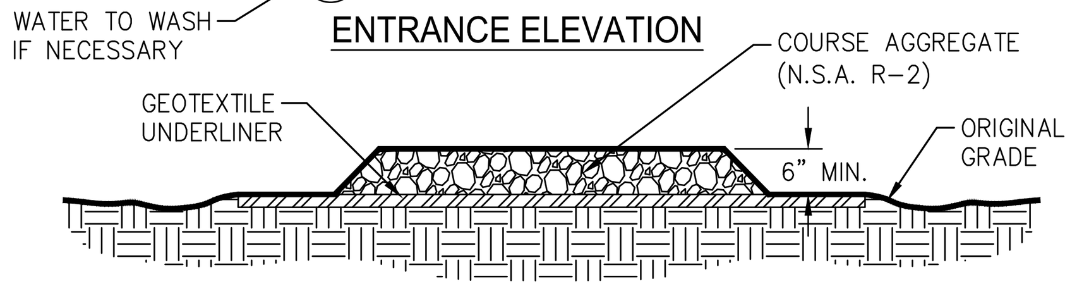
CRUSHED STONE CONSTRUCTION EXIT

Co

EXIT DIAGRAM



ENTRANCE ELEVATION

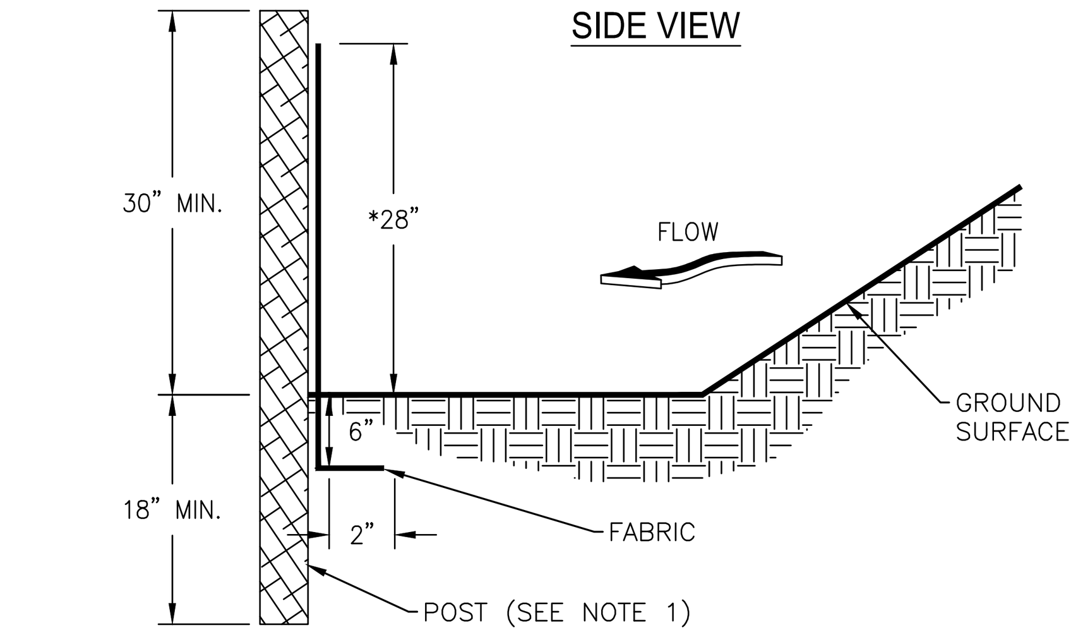


NOTES:
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).
4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%..
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVE MUD AND DIRT.
10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
11. WHEN THE CONSTRUCTION IS LESS THAN 50' FROM THE PAVED ACCESS, THE LENGTH SHALL BE FROM THE EDGE OF EXISTING PAVEMENT TO THE PERMITTED BUILDING BEING CONSTRUCTED.

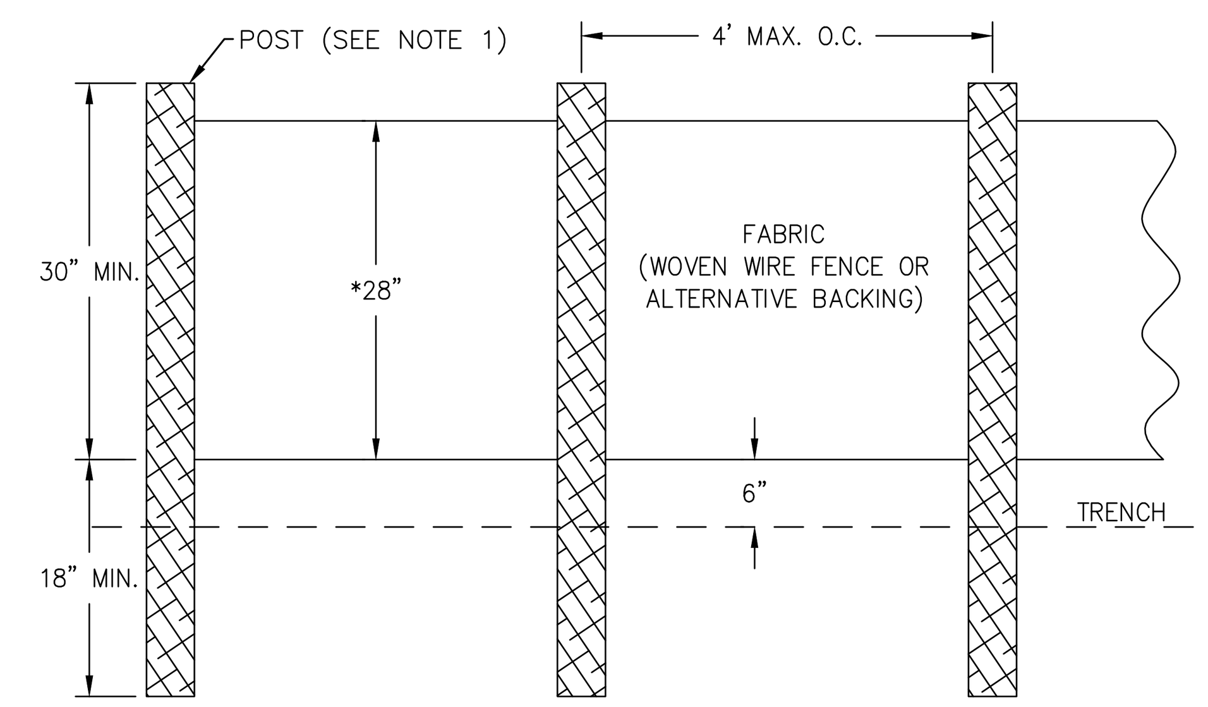
SILT FENCE - TYPE SENSITIVE (TYPE C)

SIDE VIEW

Sd1-S



FRONT VIEW

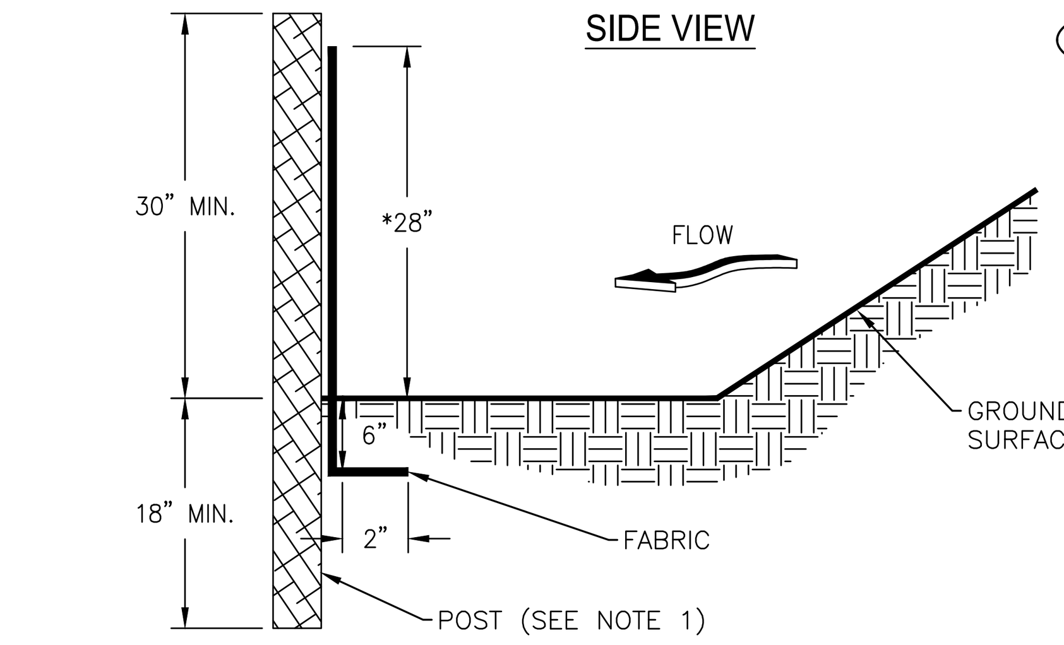


NOTES:
1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
2. HEIGHT (*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

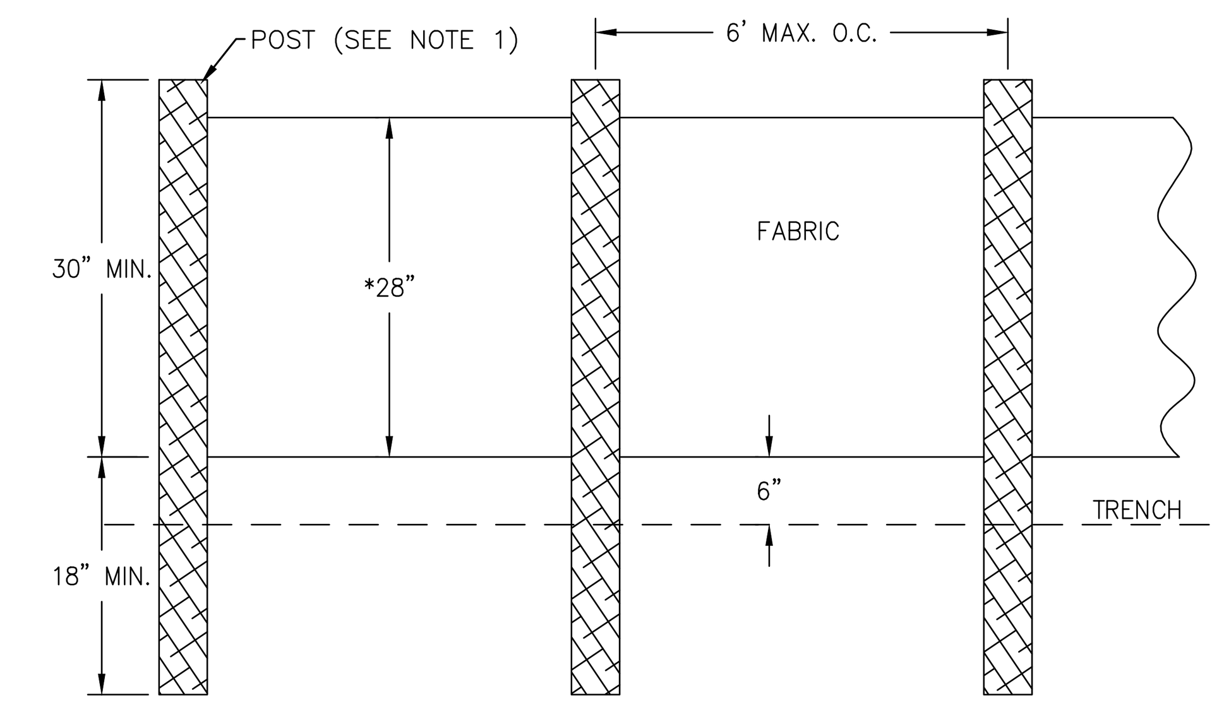
SILT FENCE - TYPE NON-SENSITIVE (TYPE A & B)

SIDE VIEW

Sd1-NS



FRONT VIEW

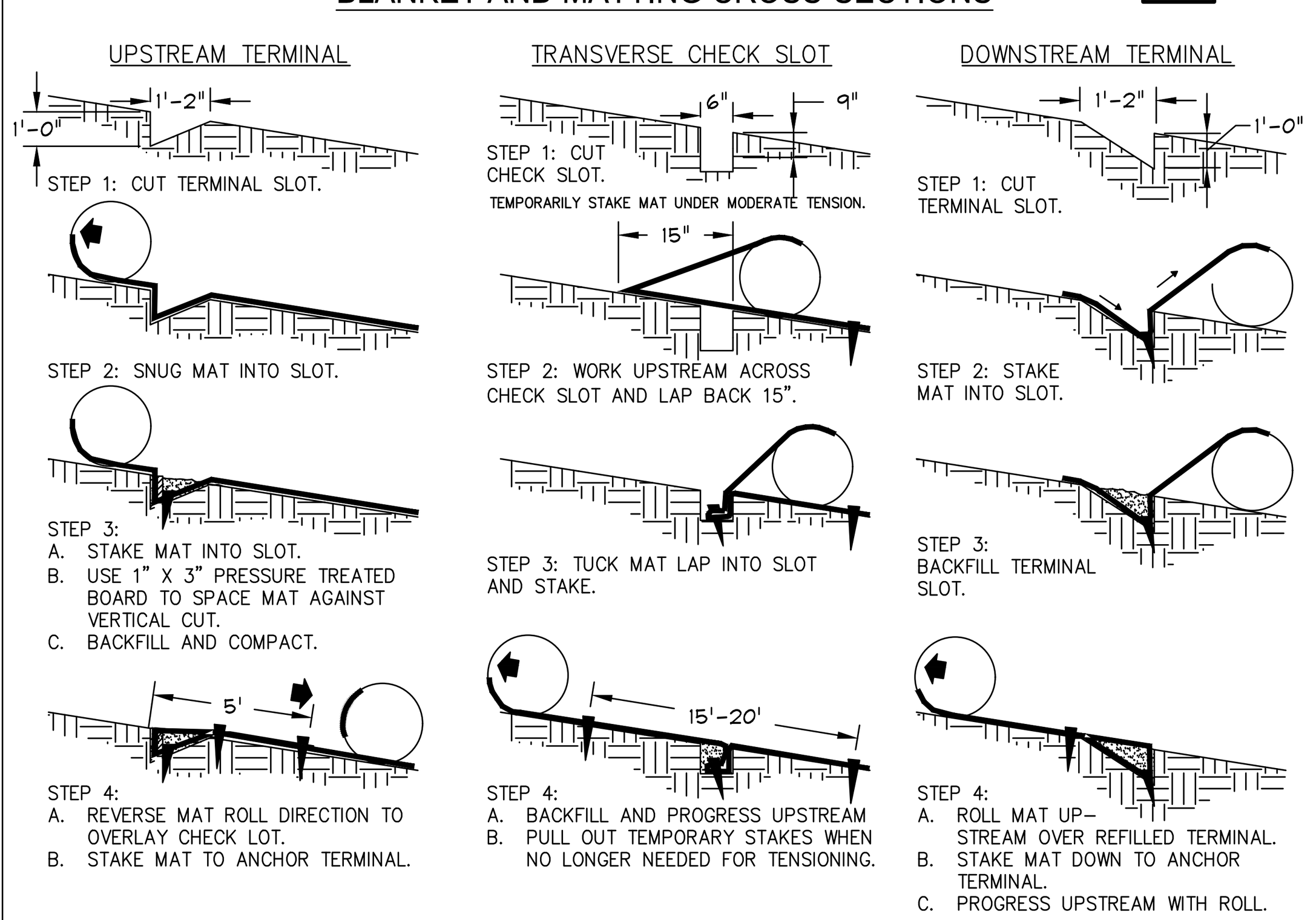


NOTES:
1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
2. HEIGHT (*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

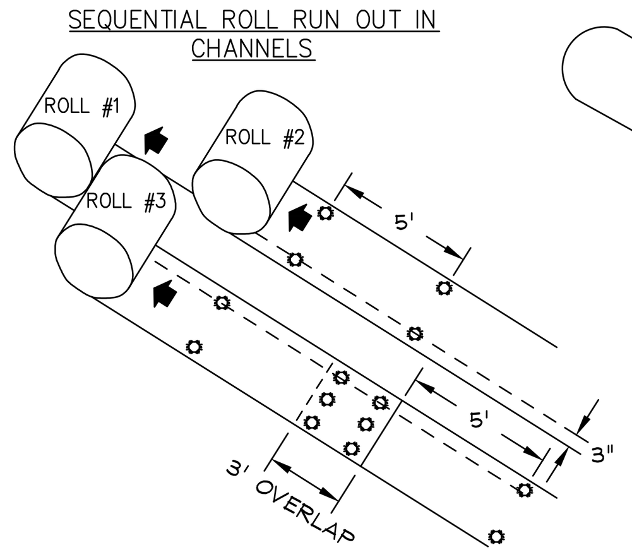
TYPICAL INSTALLATION GUIDELINES FOR ROLLED EROSION CONTROL PRODUCTS (RECP)

BLANKET AND MATTING CROSS-SECTIONS

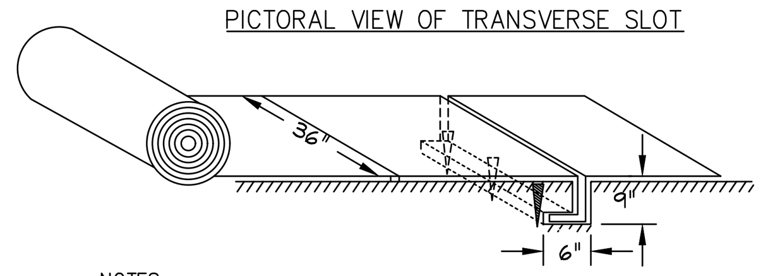
Ss



SEQUENTIAL ROLL RUN OUT IN CHANNELS



PICTORAL VIEW OF TRANSVERSE SLOT

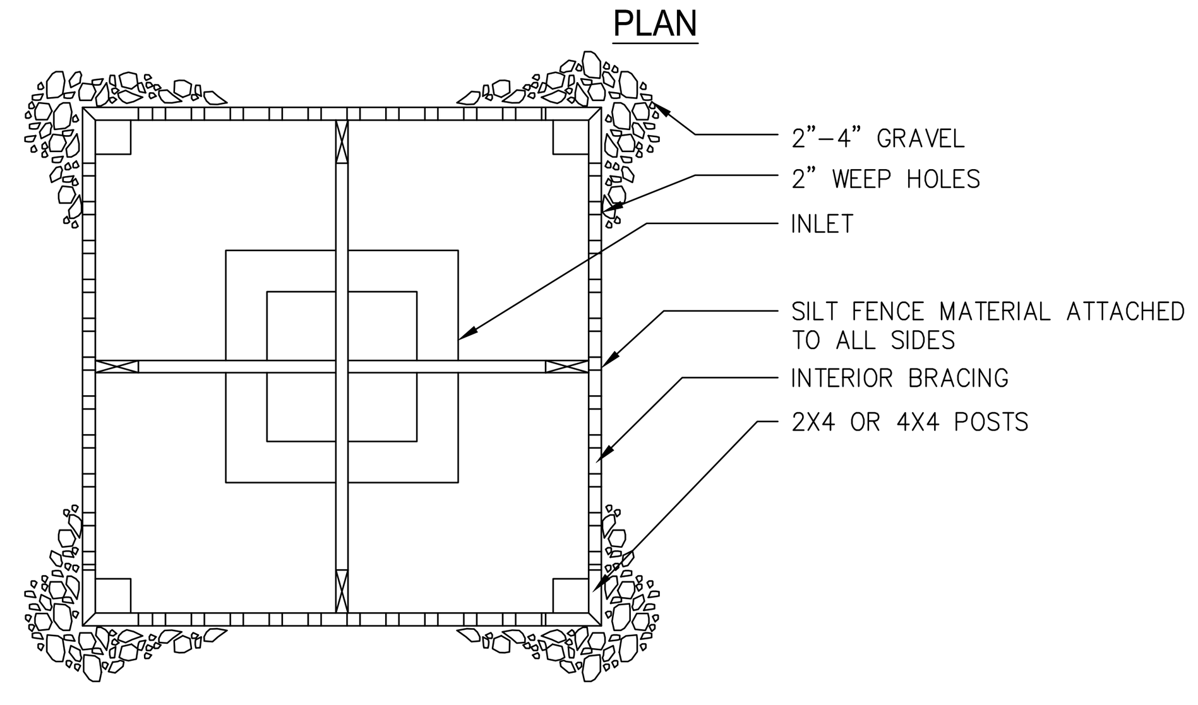


NOTES:
1. START AT DOWNSTREAM TERMINAL AND PROGRESS UPSTREAM.
2. FIRST ROLL IS CENTERED LONGITUDINALLY IN MID-CHANNEL AND PINNED WITH TEMPORARY STAKES TO MAINTAIN ALIGNMENT.
3. SUBSEQUENT ROLLS FOLLOW IN STAGGERED SEQUENCE BEHIND THE FIRST ROLL. USE THE CENTER ROLL FOR ALIGNMENT TO THE CHANNEL CENTER.
4. WORK OUTWARDS FROM THE CHANNEL CENTER TO THE EDGE.
5. USE 3" OVERLAPS AND STAKE AT 5' INTERVALS ALONG THE SEAMS.
6. USE 3' OVERLAPS AND SHINGLE DOWNSTREAM TO CONNECT THE LINING AT THE ROLL ENDS.

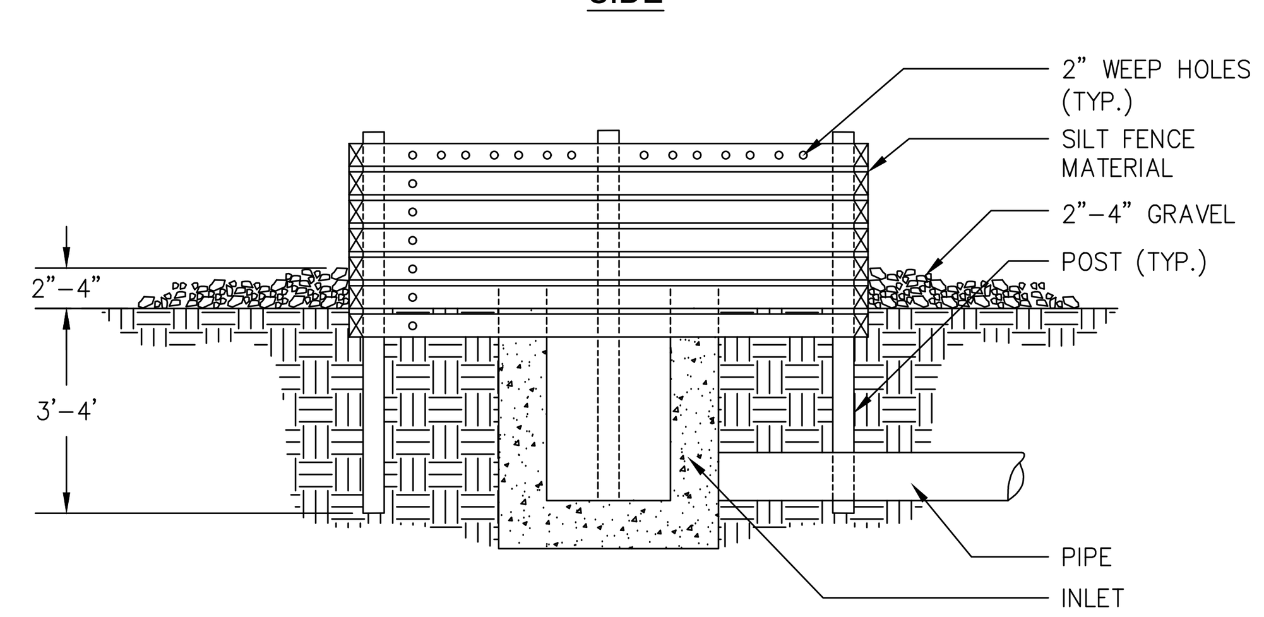
BAFFLE BOX

Sd2-B

PLAN



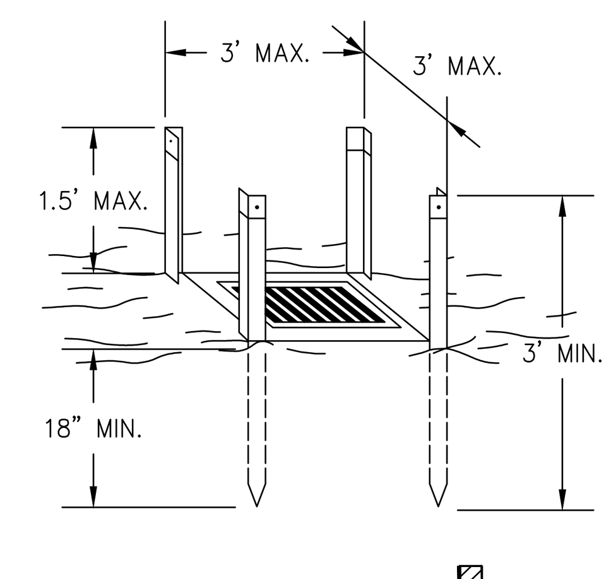
SIDE



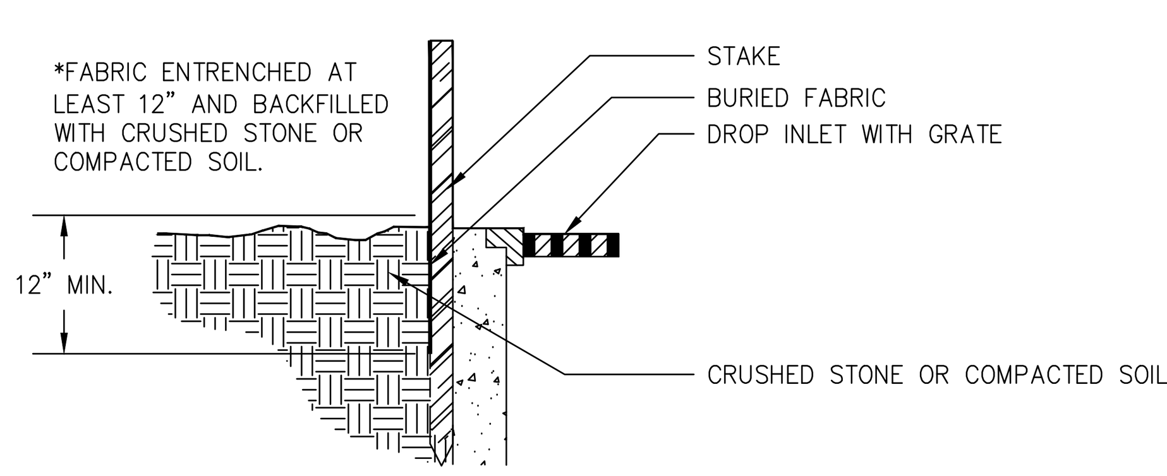
FABRIC AND SUPPORTING FRAME FOR INLET PROTECTION

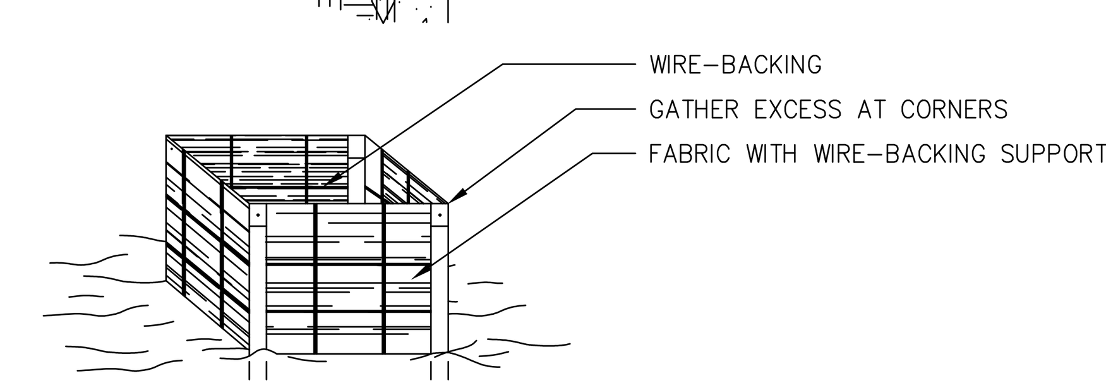
Sd2-F

STEEL FRAME AND SILT FENCE INSTALLATION



NOTES:
1. DESIGN IS FOR SLOPES NO GREATER THAN 5% (NOT DESIGNED FOR CONCENTRATED FLOWS).
2. THE STEEL POSTS SUPPORTING THE SILT FENCE MATERIAL SHOULD BE SPACED EVENLY AROUND THE PERIMETER OF THE INLET (MAXIMUM OF 3' APART).
3. THE STEEL POSTS SHOULD BE SECURELY DRIVEN AT LEAST 18" DEEP.
4. THE FABRIC SHOULD BE ENTRENCHED AT LEAST 12" AND THEN BACKFILLED WITH CRUSHED STONE OR COMPACTED SOIL.

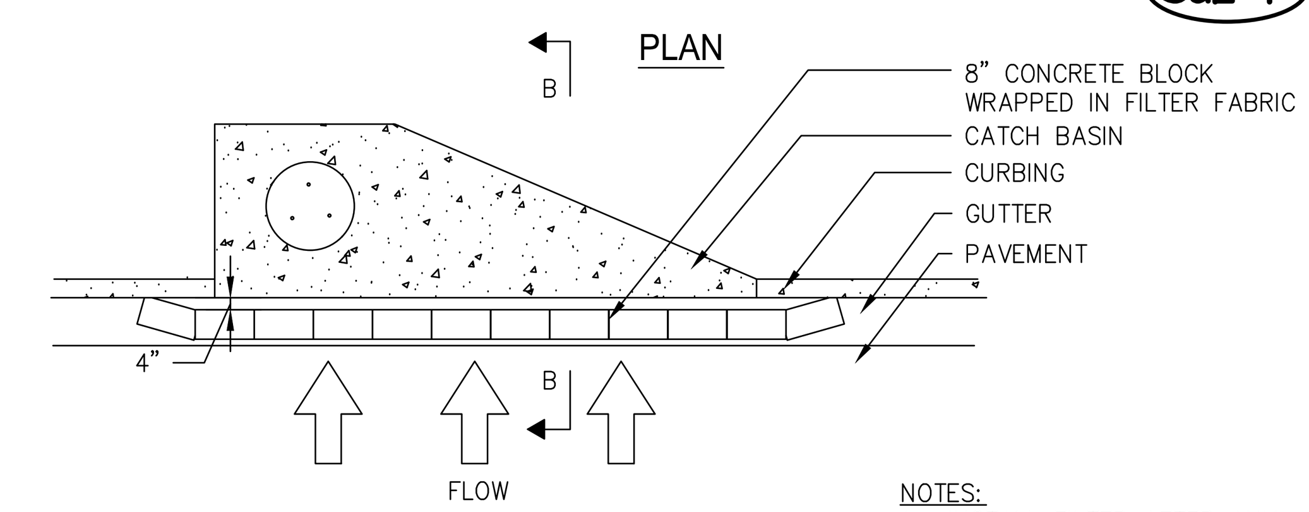




CURB INLET FILTER "PIGS IN BLANKET"

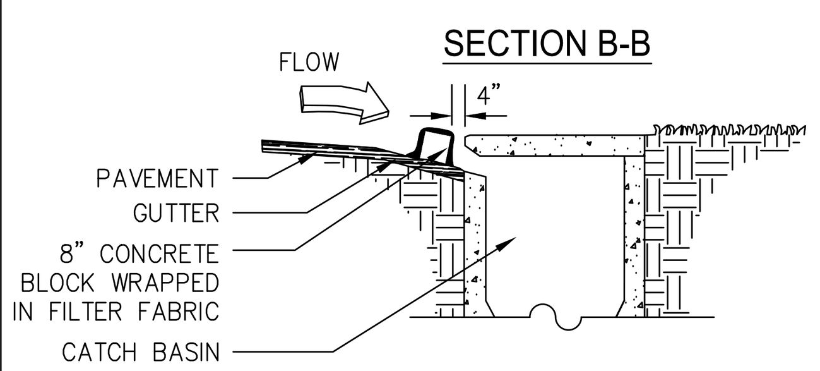
Sd2-P

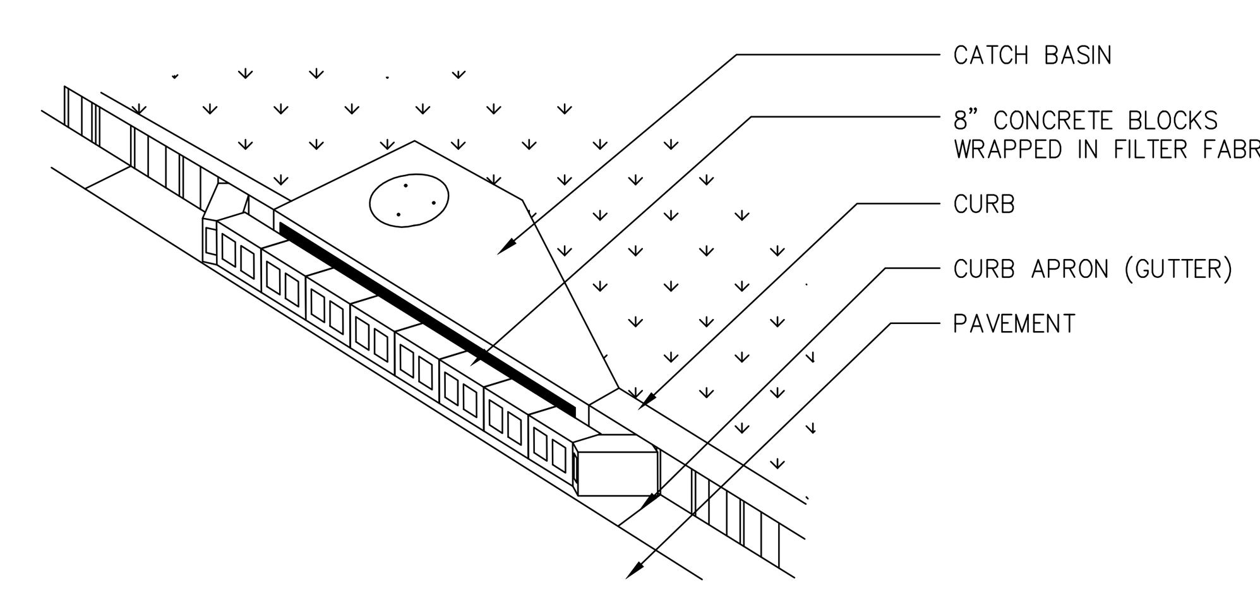
PLAN



NOTES:
1. INSTALL FILTER AFTER ANY ASPHALT PAVEMENT INSTALLATION.
2. WRAP 8" CONCRETE BLOCKS IN FILTER FABRIC AND SPAN ACROSS CATCH BASIN INLET.
3. FACE OPENINGS IN BLOCKS OUTWARD.
4. LEAVE A GAP OF APPROXIMATELY 4 INCHES BETWEEN THE CURB AND THE FILTERS TO ALLOW FOR OVERFLOW TO PREVENT HAZARDOUS PONDING.
5. INSTALL OUTLET PROTECTION BELOW STORM DRAIN OUTLETS.

SECTION B-B





RELEASES

03/16/26	RELEASE FOR BID

WWTP IMPROVEMENTS
FOR THE
TOWN OF TIGNALL
WILKES COUNTY, GEORGIA

Carter & Sloope
CONSULTING ENGINEERS
GA COA LICENSE# PEF001004 EXPIRES 6/30/2026

THIS LINE IS ONE INCH LONG WHEN DRAWING IS PLOTTED FULL SCALE

DSGN: MB	DRWN: JB
SCALE: AS SHOWN	
PROJ. NO.: T7040.003	
DATE: 03/16/26	SHEET NO.: EC2

03/12/2026

LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581
EXPIRES: 12/21/2026

EROSION & SEDIMENTATION CONTROL DETAILS

DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)

Ds1

DEFINITION
Applying plant residues or other suitable materials, produced on the site if possible, to the soil surface.

CONDITIONS
Mulch or temporary grassing shall be applied to all exposed areas within 14 days of disturbance. Mulch can be used as a singular erosion control device for up to six months, but it shall be applied at the appropriate depth, depending on the material used, anchored, and have a continuous 90% cover or greater of the soil surface. Maintenance shall be required to maintain appropriate depth and 90% cover. Temporary vegetation may be employed instead of mulch if the area will remain undisturbed for less than six months. If an area will remain undisturbed for greater than six (6) months, permanent vegetative techniques shall be employed. Refer to Ds2 –Disturbed Area Stabilization (With Temporary Seeding), Ds3 – Disturbed Area Stabilization (With Permanent Seeding), and Ds4 – Disturbed Area Stabilization (With Sodding).

SPECIFICATIONS
MULCHING WITHOUT SEEDING
This standard applies to graded or cleared areas where seedings may not have a suitable growing season to produce an erosion retardant cover, but can be stabilized with a mulch cover.

Site Preparation
1. Grade to permit the use of equipment for applying and anchoring mulch.
2. Install needed erosion control measures as required such as dikes, diversions, berms, terraces and sediment barriers.
3. Loosen compact soil to a minimum depth of 3 inches.

Mulching Materials
Select one of the following materials and apply at the depth indicated:
1. Dry straw or hay shall be applied at a depth of 2 to 4 inches providing complete soil coverage. One advantage of this material is easy application.
2. Wood waste (chips, sawdust or bark) shall be applied at a depth of 2 to 3 inches. Organic material from the clearing stage of development should remain on site, be chipped, and applied as mulch. This method of mulching can greatly reduce erosion control costs.
3. Polyethylene film shall be secured over banks or stockpiled soil material for temporary protection. This material can be salvaged and reused.

Applying Mulch
When mulch is used without seeding, mulch shall be applied to provide full coverage of the exposed area.
1. Dry straw or hay mulch and wood chips shall be applied uniformly by hand or by mechanical equipment.
2. If the area will eventually be covered with perennial vegetation, 20–30 pounds of nitrogen per acre in addition to the normal amount shall be applied to offset the uptake of nitrogen caused by the decomposition of the organic mulches.
3. Apply polyethylene film on exposed areas.

Anchoring Mulch
1. Straw or hay mulch can be pressed into the soil with a disk harrow with the disk set straight or with a special "packer disc". Disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disk should be dull enough not to cut the mulch but to press it into the soil leaving much of it in an erect position. Straw or hay mulch shall be anchored immediately after application. Straw or hay mulch spread with special blower–type equipment may be anchored. Tackifers, binders, and hydraulic mulch with tackifiers specifically designed for tacking straw can be substituted for emulsified asphalt. Please refer to specification Tac–Tackifers. Plastic mesh or netting with mesh no larger than one inch by one inch shall be installed according to manufacturer's specifications.
2. Netting of the appropriate size shall be used to anchor wood waste. Openings of the netting shall not be larger than the average size of the wood waste chips.
3. Polyethylene film shall be anchor trenched at the top as well as incrementally as necessary.

DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)

Ds2

DEFINITION
The establishment of temporary vegetative cover with fast growing seedings for seasonal protection on disturbed or denuded areas.

REQUIREMENT FOR REGULATORY COMPLIANCE
Mulch or temporary grassing shall be applied to all exposed areas within 14 days of distur bance. Temporary grassing, instead of mulch, can be applied to rough graded areas that will be exposed for less than six months. If an area is expected to be undisturbed for longer than six months, permanent perennial vegetation shall be used. If optimum planting conditions for temporary grassing is lacking, mulch can be used as a singular erosion control device for up to six months but it shall be applied at the appropriate depth, anchored, and have a continuous 90% cover or greater of the soil surface. Refer to specification Ds1–Disturbed Area Stabilization (With Temporary Seeding)

CONDITIONS
Temporary vegetative measures should be coordinated with permanent measures to assure economical and effective stabilization. Most types of temporary vegetation are ideal to use as companion crops until the permanent vegetation is established. Note: Some species of temporary vegetation are not appropriate for companion crop plantings because of their potential to out–compete the desired species (e.g. annual ryegrass). Contact NRCS or the local SWCD for more information.

SEEDING RATES FOR TEMPORARY SEEDING
Refer to *Temporary Vegetative Covers* Chart

SPECIFICATIONS
Grading and Shaping
Excessive water run–off shall be reduced by properly designed and installed erosion control practices such as closed drains, ditches, dikes, diversions, sediment barriers and others. No shaping or grading is required if slopes can be stabilized by hand–seeded vegetation or if hydraulic seeding equipment is to be used.

Seedbed Preparation
When a hydraulic seeder is used, seedbed preparation is not required. When using conventional or hand–seeding, seedbed preparation is not required if the soil material is loose and not sealed by rainfall. When soil has been sealed by rainfall or consists of smooth cut slopes, the soil shall be pitted, trenched or otherwise scarified to provide a place for seed to lodge and germinate.

Lime and Fertilizer
Agricultural lime is required unless soil tests indicate otherwise. Apply agricultural lime at a rate determined by soil test for pH. Quick acting lime should be incorporated to modify pH during the germination period. Bio stimulants should also be considered when there is less than 3% organic matter in the soil. Graded areas require lime application. Soils must be tested to determine required amounts of fertilizer and amend ments. Fertilizer should be applied before land preparation and incorporated with a disk, ripper, or chisel. On slopes too steep for, or inaccessible to equipment, fertilizer shall be hydraulically applied, preferably in the first pass with seed and some hydraulic mulch, then topped with the remaining required application rate.

Seeding
Select a grass or grass–legume mixture suitable to the area and season of the year. Seed shall be applied uniformly by hand, cyclone seeder, drill, culti–packer–seeder, or hydraulic seeder (slurry including seed and fertilizer). Drill or cultipacker seeders should normally place seed one–quarter to one–half inch deep. Appropriate depth of planting is ten times the seed diameter. Soil should be "raked"lightly to cover seed with soil if seeded by hand.

Mulching
Temporary vegetation can, in most cases, be established without the use of mulch, provided there is little to no erosion potential. However, the use of mulch can often accelerate and enhance germination and vegetation establishment. Mulch without seeding should be considered for short term protection. Refer to Ds1 – Disturbed Area Stabilization (With Mulching Only).

Irrigation
During times of drought, water shall be applied at a rate not causing runoff and erosion. The soil shall be thoroughly wetted to a depth that will insure germination of the seed. Subsequent applications should be made when needed.

DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)

Ds3

DEFINITION
The planting of perennial vegetation such as trees, shrubs, vines, grasses, or legumes on exposed areas for final permanent stabilization. Permanent perennial vegetation shall be used to achieve final stabilization.

CONDITIONS
Permanent perennial vegetation is used to provide a protective cover for exposed areas including cuts, fills, dams, and other denuded areas.

SEEDING RATES FOR PERMANENT SEEDING
Refer to *Permanent Vegetative Covers* Chart

SPECIFICATIONS
Grading and Shaping
Grading and shaping may not be required where hydraulic seeding and fertilizing equipment is to be used. Vertical banks shall be sloped to enable plant establishment.

When conventional seeding and fertilizing are to be done, grade and shape where feasible and practical, so that equipment can be used safely and efficiently during seedbed preparation, seeding, mulching and maintenance of the vegetation. Concentrations of water that will cause excessive soil erosion shall be diverted to a safe outlet. Diversions and other treatment practices shall conform with the appropriate standards and specifications.

Seedbed Preparation
Seedbed preparation may not be required where hydraulic seeding and fertilizing equipment is to be used. When conventional seeding is to be used,seedbed preparation will be done as follows:

Broadcast plantings
1. Tillage at a minimum, shall adequately loosen the soil to a depth of 4 to 6inches; alleviate compaction; incorporate lime and fertilizer; smooth and firm the soil; allow for the proper placement of seed, sprigs, or plants; and allow for the anchoring of straw or hay mulch if a disk is to be used.
2. Tillage may be done with any suitable equipment.
3. Tillage should be done on the contour where feasible.
4.On slopes too steep for the safe operation of tillage equipment, the soil surface shall be pitted or trenched across the slope with appropriate hand tools to provide two places 6 to 8 inches apart in which seed may lodge and germinate. Hydraulic seeding may also be used

Individual Plants
1. Where individual plants are to be set, the soil shall be prepared by excavating holes, opening furrows, or dibble planting.
2. For nursery stock plants, holes shall be large enough to accommodate roots without crowding.
3. Where pine seedlings are to be planted, subsoil under the row 36 inches deep on the contour four to six months prior to planting. Subsoiling should be done when the soil is dry, preferably in August or September.

Planting
Hydraulic Seeding
Mix the seed (inoculated if needed), fertilizer, and wood cellulose or wood pulp fiber mulch with water and apply in a slurry uniformly over the area to be treated. Apply within one hour after the mixture is made.

Conventional Seeding
Seeding will be done on a freshly prepared and firmed seedbed. For broadcast planting, use a cultipacker seeder, drill, rotary seeder, other mechanical seeder,or hand seeding to distribute the seed uniformly over the area to be treated. Cover the seed lightly with 1/8 to 1/4 inch of soil for small seed and 1/2 to 1 inch for large seed when using a cultipacker or other suitable equipment.

No–Till Seeding
No–till seeding is permissible into annual cover crops when planting is done following maturity of the cover crop or if the temporary cover stand is sparse enough to allow adequate growth of the permanent (perennial) species. No–tillseeding shall be done with appropriate no–till seeding equipment. The seed must be uniformly distributed and planted at the proper depth.

Individual Plants
Shrubs, vines and sprigs may be planted with appropriate planters or hand tools. Pine trees shall be planted manually in the subsoil furrow. Each plant shall be set in a manner that will avoid crowding the roots. Nursery stock plants shall be planted at the same depth or slightly deeper than they grew at the nursery. The tips of vines and sprigs must be at or slightly above the ground surface. Where individual holes are dug, fertilizer shall be placed in the bottom of the hole, two inches of soil shall be added and the plant shall be set in the hole.

Mulching
Mulch is required for all permanent vegetation applications. Mulch applied to seeded areas shall achieve 75% soil cover. Select the mulching material from the following and apply as indicated:
1. Dry straw or dry hay of good quality and free of weed seeds can be used. Dry straw shall be applied at the rate of 2 tons per acre. Dry hay shall be applied at a rate of 2 1/2 tons per acre.
2. Wood cellulose mulch or wood pulp fiber shall be used with hydraulic seeding. It shall be applied at the rate of 500 pounds per acre. Dry straw or dry hay shall be applied (at the rate indicated above) after hydraulic seeding.
3. One thousand pounds of wood cellulose or wood pulp fiber, which includes a tackifier, shall be used with hydraulic seeding on slopes 3/4:1 or steeper.
4. Sericea lespedeza hay containing mature seed shall be applied at a rate of three tons per acre.
5. Pine straw or pine bark shall be applied at a thickness of 3 inches for bedding purposes. Other suitable materials in sufficient quantity may be used where ornamentals or other ground covers are planted. This is not appropriate for seeded areas.
6. When using temporary erosion control blankets or block sod, mulch is not required.
7. Bituminous treated roving may be applied on planted areas on slopes, in ditches or dry waterways to prevent erosion. Bituminous treated roving shall be applied within 24 hours after an area has been planted. Application rates and materials must meet Georgia Department of Transportation specifications.

Wood cellulose and wood pulp fibers shall not contain germination or growth inhibiting factors. They shall be evenly dispersed when agitated in water. The fibers shall contain a dye to allow visual metering and aid in uniform application during seeding.

Applying Mulch
Straw or hay mulch will be spread uniformly within 24 hours after seedingand/or planting. The mulch may be spread by blower–type spreading equipment,other spreading equipment or by hand. Mulch shall be applied to cover 75% of the soil surface.Wood cellulose or wood fiber mulch shall be applied uniformly with hydraulic seeding equipment.

Anchoring Mulch
Anchor straw or hay mulch immediately after application by one of the following methods:
1. Hay and straw mulch shall be pressed into the soil immediately after the mulch is spread. A special "packer disk"' or disk harrow with the disks set straight may be used. The disks may be smooth or serrated and should be 20inches or more in diameter and 8 to 12 inches apart. The edges of the disks shall be dull enough to press the mulch into the ground without cutting it,leaving much of it in an erect position. Mulch shall not be plowed into the soil.
2. Synthetic tackifiers or binders approved by GDOT shall be applied in conjunction with or immediately after the mulch is spread. Synthetic tackifiers shall be mixed and applied according to manufacturer's specifications. Refer to Tb – Tackifiers and Binders.
3. Rye or wheat can be included with Fall and Winter plantings to stabilize the mulch. They shall be applied at a rate of one–quarter to one half bushel per acre.
4. Plastic mesh or netting with mesh no larger than one inch by one inch may be needed to anchor straw or hay mulch on unstable soils and concentrated flow areas. These materials shall be installed and anchored according to manufacturer's specifications.

Irrigation
Irrigation shall be applied at a rate that will not cause runoff.

DUST CONTROL ON DISTURBED AREAS

Du

DEFINITION
Controlling surface and air movement of dust on construction sites, roads, and demolition sites.

PURPOSE
– To prevent surface and air movements of dust from exposed soil surfaces.
– To reduce the presence of airborne substances that may be harmful or injurious to human health, welfare, or safety, or to animals or plant life.

CONDITIONS
This practice is applicable to areas subject to surface and air movement of dust where on and off–site damage may occur without treatment.

METHODS AND MATERIALS
A. Temporary Methods

Mulches. See standards Ds1 – Disturbed Area Stabilization (With Mulching Only). Synthetic resins may be used instead of asphalt to bind mulch material. refer to specification Tac – Tackifiers. Resins should be used according to manufacturer's recommendations.

Vegetative Cover. See specification Ds2 – Disturbed Area Stabilization (With Temporary Seeding).

Spray–on Adhesives. These are used on mineral soils (not effective on muck soils). Keep traffic off these areas. Refer to specification Tac – Tackifiers.

Tillage. This practice is designed to roughen and bring clods to the surface. It is an emergency measure that should be used before wind erosion starts. Begin plowing on windward side of site. Chisel–type plows spaced about 12 inches apart, spring–toothed harrows, and similar plows are examples of equipment that may produce the desired effect.

Irrigation. This is generally done as an emergency treatment. Site is sprinkled with water until the surface is wet. Repeat as needed.

Barriers. Solid board fences, snowfences, burlap fences, crate walls, bales of hay and similar material can be used to control air currents and soil blowing. Barriers placed at right angles to prevailing currents at intervals of about 15 times their height are effective in controlling wind erosion.

Calcium Chloride. Apply at rate that will keep surface moist. May need retreatment.

B. Permanent Methods

Permanent Vegetation. See specification Ds3 – Disturbed Area Stabilization (With Permanent Vegetation). Existing trees and large shrubs may afford valuable protection if left in place.

Topsoiling. This entails covering the surface with less erosive soil material. See specification Tp – Topsoiling.

Stone. Cover surface with crushed stone or coarse gravel. See specification Cr – Construction Road Stabilization.

TOPSOILING

Tp

DEFINITION
Stripping off the more fertile top soil, storing it, then spreading it over the disturbed area after completion of construction activities.

PURPOSE
To provide a suitable soil medium for vegeta–tive growth on areas where other measures will not produce or maintain a desirable stand.

CONDITIONS
This practice is recommended for sites of 2:1 or flatter slopes where:
1. The texture of the exposed subsoil or parent material is not suitable to produce adequate vegetative growth.
2. The soil material is so shallow that the rooting zone is not deep enough to support plants with continuing supplies of moisture and food.
3. The soil to be vegetated contains material toxic to plant growth.

CONSTRUCTION SPECIFICATIONS
Materials
Topsoil should be friable and loamy, free of debris, objectionable weeds and stones and contain no toxic substance that may be harmful to plant growth. A pH range of 5.0–7.5 is accept–able. Soluble salts should not exceed 500 ppm.

Testing
Field exploration should be made to deter–mine whether the quantity and quality of surface soil justifies stripping.

Stripping
Stripping should be confined to the immediate construction area.
A 4 to 6 inch stripping depth is common, but may vary depending on the particular soil.

Topsoil pH
If pH value is less than 6.0, lime shall be ap–plied and incorporated with the topsoil to adjust the pH to 6.5 or higher. Topsoils containing soluble salts greater than 500 parts per million shall not be used.

Stockpiles
The location of topsoil stockpiles should not obstruct natural drainage or cause off–site envi–ronmental damage.

Stabilization
Stockpiles shall be contained by sediment barriers to prevent sedimentation on adjacent ar–eas. Stockpiles shall be stabilized in accordance with specifications Ds1 and Ds2 – Disturbed Area Stabilization (With Mulching) and (With Temporary Grassing), respectively, or Tac– Tackifiers.

Site Preparation
(Where topsoil is to be added)

Topsoiling – When topsoiling, maintain needed erosion control practices such as diversions, grade stabilization structures, berms, dikes, level spread–ers, waterways, sediment basins, etc.

Grading – Grades on the areas to be topsoiled that have been previously established shall be maintained.

Liming – Soil tests should be used to determine the pH of the soil. Where the pH of the subsoil is 5.0 or less or composed of heavy clays, agricultural limestone shall be spread at the rate of 100 pounds per 1,000 square feet. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedure.

Bonding – Use one of the following methods to insure bonding of topsoil and subsoil:
1. Tilling. After the areas to be topsoiled have been brought to grade, and immediately prior to dumping and spreading the topsoil, the subgrade shall be loosened by discing or scarifying to a depth of at least 3 inches to permit bonding of the topsoil to the subsoil.
2. Tracking. Passing a bulldozer over the entire surface area of the slope to leave horizontal depressions.

Applying Topsoil
1. Topsoil should be handled only when it is dry enough to work without damaging soil structure.
2. A uniform application of 5 inches (unsettled) is recommended, but may be adjusted at the discretion of the design professional.

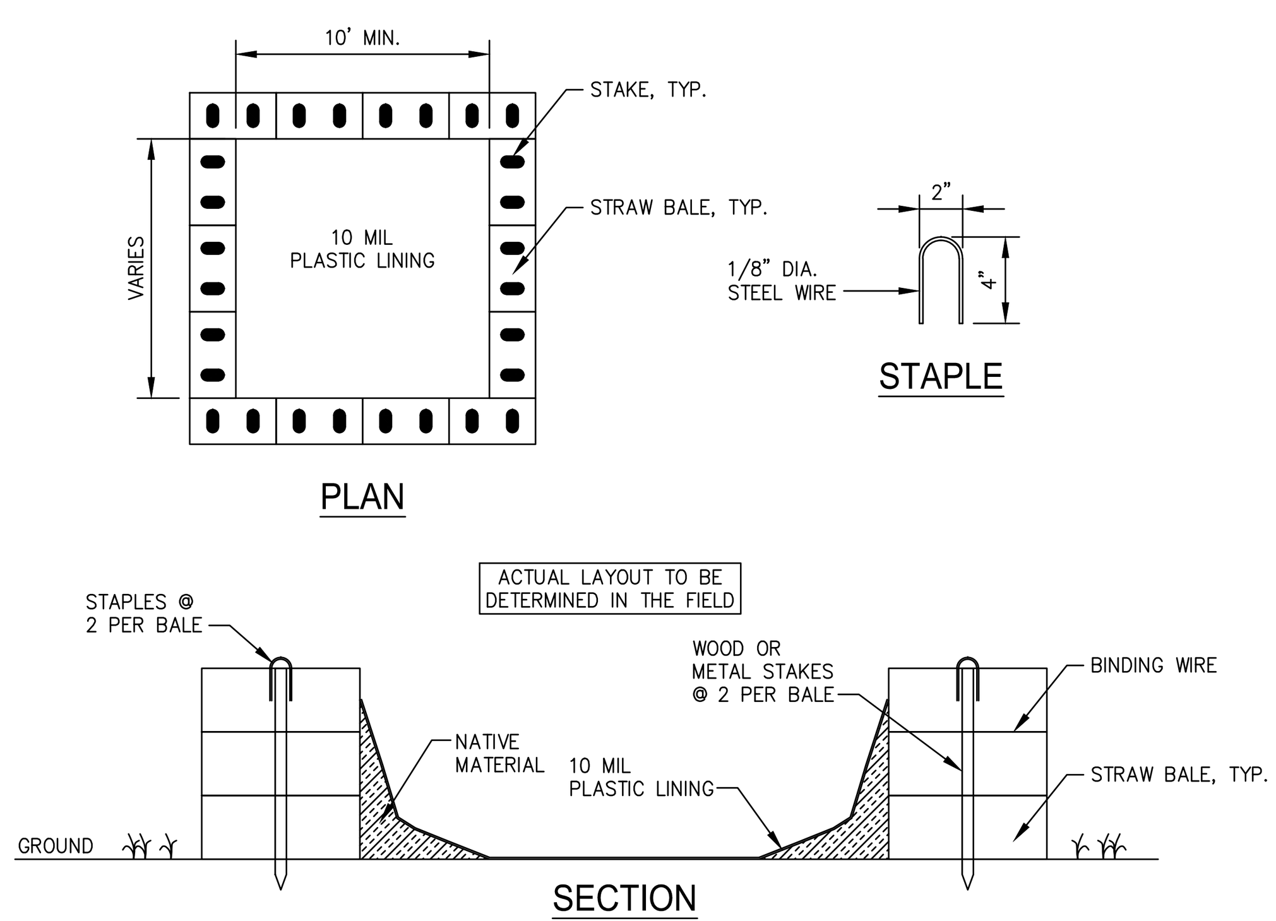
Cubic Yards Of Topsoil Required For Application To Various Depths

Depth (IN)	Per 1,000 SQFT	Per Acre
1	3.1	134
2	6.2	268
3	9.3	403
4	12.4	537
5	15.5	672
6	18.6	806

CONCRETE TRUCK WASHOUT

Wo

NOTES:
1. NO CONCRETE TRUCKS WILL BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ONSITE.
2. THE WASHING OF READY–MIX CONCRETE DRUMS & DUMP TRUCK BODIES USED IN THE DELIVERY OF PORTLAND CEMENT CONCRETE IS PROHIBITED ON THIS SITE. IN ACCORDANCE WITH STANDARD SPECIFICATIONS, 107–LEGAL REGULATIONS & RESPONSIBILITY TO THE PUBLIC, ONLY THE DISCHARGE "CHUTE" UTILIZED IN PORTLAND CEMENT CONCRETE DELIVERY MAY BE RINSED FREE OF FRESH CONCRETE REMAINS. THE CONTRACTOR SHALL EXCAVATE A PIT OUTSIDE OF STATE WATER BUFFERS, AT LEAST 25 FEET FROM ANY STORM DESIGN & OUTSIDE OF THE TRAVEL WAY, INCLUDING SHOULDERS, FOR A WASH PIT AREA. THE PIT SHALL BE LARGE ENOUGH TO STORE ALL WASH–DOWN WATER WITHOUT OVERTOPPING THE PIT. IMMEDIATELY AFTER THE WASH–DOWN OPERATIONS ARE COMPLETED AND AFTER THE WASH–DOWN WATER HAS SOAKED INTO THE GROUND, THE PIT SHALL BE FILLED IN, AND GROUND ABOVE SHALL BE GRADED TO MATCH THE ELEVATION OF THE SURROUNDING AREAS SMOOTHED OUT. ALTERNATIVE WASH–DOWN PLANS MUST BE APPROVED BY THE PROJECT ENGINEER.
3. NEVER DISPOSE OF WASH–DOWN WATER DOWN A STORM DRAIN. WASH–DOWN WATER PIT LOCATION MAY BE RELOCATED AS LONG AS THE FOLLOWING APPLY:
 3.1. THE PIT IS LOCATED AWAY FROM A STORM DRAIN, STREAM, OR RIVER;
 3.2. THE PIT IS ACCESSIBLE TO THE VEHICLE BEING USED FOR WASH–DOWN;
 3.3. THE PIT HAS ENOUGH VOLUME FOR WASH–DOWN WATER, AND;
 3.4. MAKE SURE YOU HAVE PERMISSION TO USE THE AREA FOR WASH–DOWN
4. ON SOME SITES, YOU MAY NOT HAVE PERMISSION OR ACCESS TO A LOCATION WHICH ALLOWS FOR A WASH–DOWN PIT. IN THOSE CASES, THE CONTRACTOR MAY HAVE TO WASH–DOWN INTO A WHEEL BARREL OR OTHER CONTAINER AND CARRY THE CONTAINER FOR TRANSPORT TO A PROPER DISPOSAL SITE. FOR ADDITIONAL INFORMATION, REFER TO THE GEORGIA ENVIRONMENTAL ASSISTANCE PROGRAMS' "A GUIDE FOR READY MIX CHUTE/HOPPER WASH–DOWN."



RELEASES

03/16/26	RELEASE FOR BID

WWTP IMPROVEMENTS
FOR THE
TOWN OF TIGNALL
WILKES COUNTY, GEORGIA

Carter & Sloope
CONSULTING ENGINEERS
GA COA LICENSE# PEF001004 EXPIRES 6/30/2026

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 25423 MARTIN C. BOYD
03/12/2026

LEVEL II CERTIFIED DESIGN PROFESSIONAL, CERT. #3581
EXPIRES: 12/21/2026

THIS LINE IS ONE INCH LONG WHEN DRAWING IS PLOTTED FULL SCALE

DSGN: MB	DRWN: JB
SCALE: AS SHOWN	
PROJ. NO.: T7040.003	
DATE: 03/16/26	SHEET NO.: EC3

EROSION & SEDIMENTATION CONTROL DETAILS