

CITY OF PELHAM, ALABAMA

KOA LIFT STATION & LIFT STATION P UPGRADES

PROJECT #7225003 & #7225004

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DECEMBER 2024

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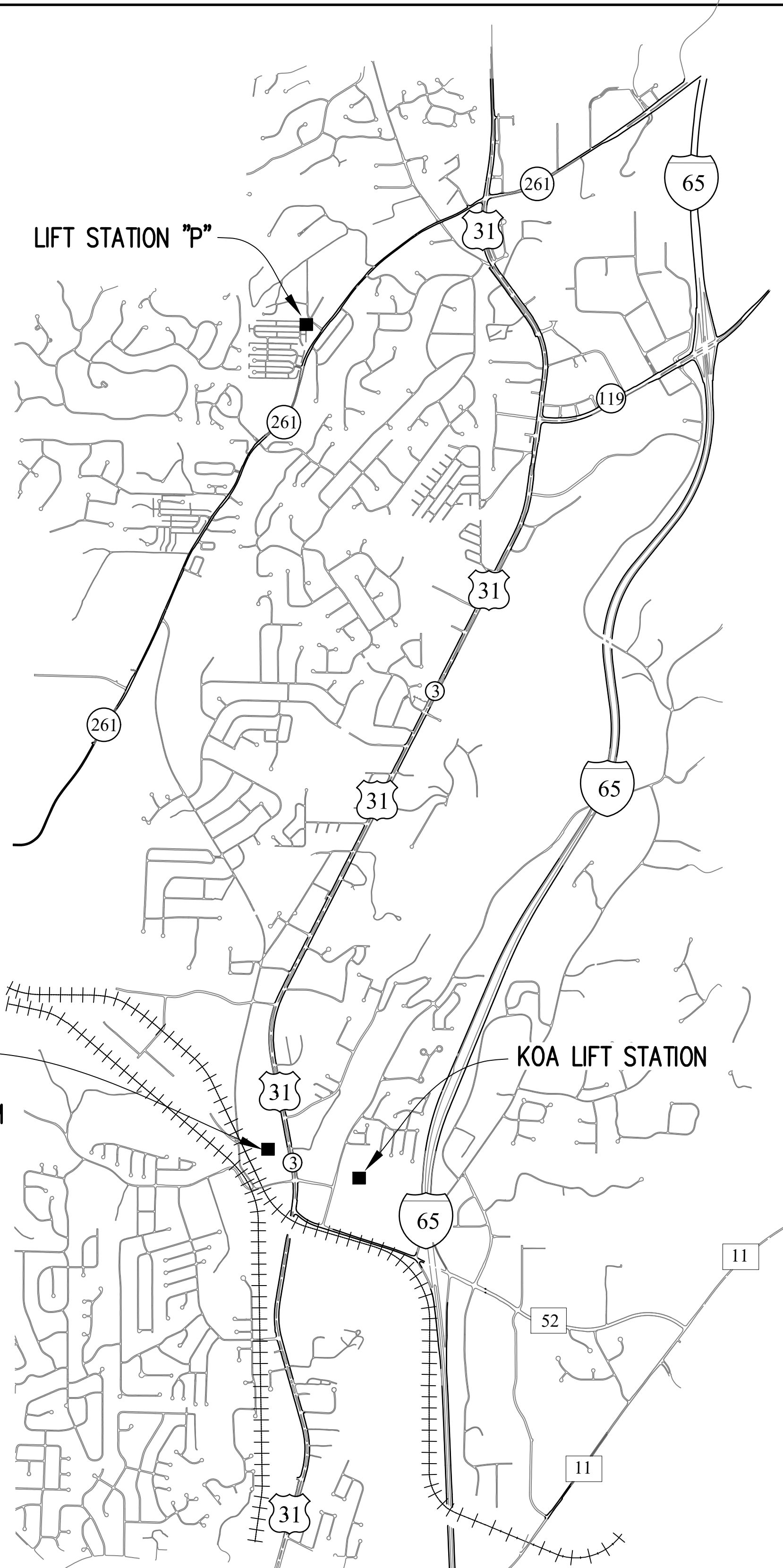
SHEET/DRAWING INDEX

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Municipal
Consultants,
Inc. Birmingham, Alabama



BID SET



BID OPENING LOCATION:
 PELHAM CITY HALL
 DSPW CONFERENCE ROOM
 3162 PELHAM PARKWAY

LOCATION MAP
 SCALE: N.T.S.

GENERAL NOTES

- SAFETY IS THE RESPONSIBILITY SOLELY OF THE CONTRACTOR. THE ENGINEER IS NOT RESPONSIBLE FOR SAFETY NOR THE MEANS AND METHODS OF THE CONTRACTOR. LIFT STATIONS, MANHOLES, ETC. ARE CONFINED SPACES WITH THE POTENTIAL FOR POISONOUS GASES, ATMOSPHERES DEFICIENT IN OXYGEN, AND OTHER SAFETY HAZARDS. THE CONTRACTOR SHALL TAKE ALL APPROPRIATE SAFETY MEASURES AND FULLY COMPLY WITH ALL OSHA REGULATIONS AND GUIDELINES, ETC. THE CONTRACTOR SHALL THOROUGHLY UNDERSTAND ALL THE DANGERS ASSOCIATED WITH WORK IN LIFT STATIONS AND MANHOLES, ETC.
- UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE/VERIFY LOCATIONS OF PERTINENT SEWER LINES AND FORCE MAINS. ALL SEWER LINES ARE TO REMAIN ACTIVE THROUGHOUT CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF EXISTING LINES DURING CONSTRUCTION.
- ALL CONSTRUCTION TO BE IN ACCORDANCE WITH PELHAM AND SHELBY COUNTY RULES AND REGULATIONS.

PROJECT NOTES

- ALL NUTS, BOLTS, HARDWARE, AND MISCELLANEOUS METALS IN WET WELL AND VALVE PIT SHALL BE TYPE 316 STAINLESS STEEL UNLESS NOTED OTHERWISE. CONTRACTOR SHALL APPLY A GENEROUS AMOUNT OF ANTI-SEIZE SPECIFICALLY DESIGNED FOR STAINLESS STEEL TO ALL S.S. BOLTS, EXCEPT BOLTS AT PUMP BASE ELBOW & S.S. PLATE (WHERE THREAD LOCK ADHESIVE SHALL BE USED).
- ALL MODIFICATIONS MUST BE PERFORMED IN A SEQUENCE TO MINIMIZE THE TIME THAT THE STATION IS OUT OF SERVICE. THE STATION CANNOT BE TAKEN OUT OF SERVICE EXCEPT IN A MANNER, TIME, AND DURATION ACCEPTABLE TO OWNER.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING TEMPORARY SHUT-DOWNS (ELECTRICAL) AND HANDLING OWNER'S PORTABLE GENERATOR EQUIPMENT FOR USE IN BYPASSING ELECTRICAL EQUIPMENT UNTIL NEW PUMP(S) ARE MADE OPERATIONAL. ONLY ONE EXISTING SUBMERSIBLE PUMP SHALL BE REMOVED FROM SERVICE AT A TIME. THE EXISTING PUMP SHALL NOT BE REMOVED AND REPLACED UNLESS THERE IS NO RAIN FORECASTED IN THE 7 DAY FORECAST AND IF THE TIMING IS ACCEPTABLE TO THE OWNER & ENGINEER.
- THE CONTRACTOR SHALL MAKE EXACT MEASUREMENTS PRIOR TO ORDERING MATERIALS.
- DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL FIELD MEASURE ALL AND MAKE APPROPRIATE ADJUSTMENTS.
- IN THE AREA AROUND THE SITE THERE IS EXISTING UNDERGROUND POWER, TELEPHONE, AND OTHER UTILITIES. LOCATION, SIZE, AND ROUTE IS UNKNOWN, CONTRACTOR SHALL VERIFY ALL.
- CONTRACTOR SHALL CAREFULLY COORDINATE BETWEEN EXISTING DFIELD CONDITIONS FOR REQUIRED MOUNTING LOCATIONS, PIPING, PLUMBING, ELECTRICAL, ETC...
- RESERVED
- CONTRACTOR SHALL PAINT ALL PROPOSED, PERMANENTLY EXPOSED PIPING (EXCEPT S.S.) PER SPECIFICATIONS.
- WHEN CONCRETE OR GROUT IS REMOVED, CHIP AND (OR GRIND) TO RELATIVELY SMOOTH SURFACE.
- THIS IS AN OPERATING SEWAGE LIFT STATION. THE CONTRACTOR WILL HAVE TO PROVIDE CONTINUOUS UNINTERRUPTED SERVICE THROUGHOUT THE DURATION OF THIS PROJECT.
- THE CONTRACTOR SHALL BE ON CALL AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR'S ON-SITE REPRESENTATIVE SHALL BE FULLY CAPABLE OF PROPERLY & IMMEDIATELY OPERATING THE BYPASS PUMPING SYSTEM.
- THE CONTRACTOR SHALL RECOVER ALL MATERIALS REMOVED, CUT, GROUND, ETC. AS PART OF DEMOLITION. IF ANY DEBRIS IS DROPPED INTO THE WET WELL, THE CONTRACTOR MUST RECOVER THAT ITEM IMMEDIATELY. DEBRIS COULD DAMAGE THE PUMPS AS THEY MAY NEED TO BE RETURNED TO SERVICE.
- ALL ITEMS REMOVED SHALL BE RETURNED TO THE OWNER AT HIS DISCRETION AND HIS LOCATION. ALL ITEMS THE OWNER DOES NOT WANT, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE SUITABLY DISPOSED OF.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY BACKUPS OR OVERFLOWS AND ANY SUBSEQUENT FINES, PENALTIES, AND ALL OTHER COSTS INCURRED.
- CONTRACTOR SHALL SUPPLY EROSION CONTROL BEST MANAGEMENT PRACTICES (BMPs) FOR ANY DISTURBED AREAS. ALL DISTURBED AREAS SHALL BE PERMANENTLY GRASSED AS REQUIRED AND BMPs NOT REMOVED UNTIL GRASSING IS SUFFICIENT.
- THE EXISTING HIGH WATER LEVEL ALARM FROM THE TELEMETRY SYSTEM SHALL REMAIN FUNCTIONAL CONTINUOUSLY THROUGHOUT CONSTRUCTION.

PARTIAL ANTICIPATED CONSTRUCTION SEQUENCE (KOA LIFT STATION):

- LOCATE ALL SURROUNDING UTILITIES AND POT HOLE AS NEEDED. INSTALL TEMPORARY FENCING AROUND SITE SO THAT SITE IS SECURE FROM THE PUBLIC.
 - PERFORM PARTIAL DEMOLITION AND CONSTRUCT ELEVATED PLATFORM.
 - INSTALL AS MUCH ELECTRICAL AS POSSIBLE WITHOUT INTERFERING WITH EXISTING ELECTRICAL (I.E. EXISTING STATION'S ELECTRICAL AND SUBMERSIBLE PUMPS SHALL CONTINUE TO OPERATE DURING THIS TIME).
 - PULL AND REPLACE ONE EXISTING SUBMERSIBLE PUMP. PERFORM PUMP START-UP WITH GENERATOR POWER THROUGH NEW GENERATOR PLUG/MANUAL TRANSFER SWITCH. OWNER SHALL FURNISH PORTABLE GENERATOR. CONTRACTOR SHALL BE RESPONSIBLE FOR HANDLING GENERATOR, MAKING CONNECTIONS, AND REFUELING AS NEEDED.
 - UPON SUCCESSFUL START-UP OF FIRST SUBMERSIBLE PUMP, CONTRACTOR SHALL COORDINATE WITH APCO TO SWAP UTILITY POWER FROM EXISTING ELECTRICAL TO NEW ELECTRICAL. STATION MUST BE OPERATED OFF OF PORTABLE GENERATOR POWER DURING THIS TIME UNTIL UTILITY POWER IS SUCCESSFULLY SWAPPED TO NEW ELECTRICAL.
 - PULL AND REPLACE SECOND EXISTING SUBMERSIBLE PUMP AND PERFORM START-UP.
 - PERFORM REMAINING DEMOLITION, FINAL FENCING, PAINTING, LANDSCAPING, ETC...
- NOTE THAT THIS CONSTRUCTION SEQUENCE IS BASED ON ONE METHOD OF BYPASSING THE LIFT STATION. OTHER METHODS MAY BE ACCEPTABLE. ALSO NOTE THAT THIS SEQUENCE IS NOT INTENDED TO BE A COMPLETE LIST OF WORK. CONTRACTOR SHALL COORDINATE ACTUAL CONSTRUCTION SEQUENCE AND BYPASS METHOD WITH OWNER AND ENGINEER PRIOR TO CONSTRUCTION.

ABBREVIATIONS

AL	AT	EA	EACH	LEN	LENGTH	OC	ON CENTER	SCH	SCHEDULE	W/	WITH
APPROX	ALUMINUM	EF	EACH FACE	MAX	MAXIMUM	OD	OUTSIDE DIAMETER	SECT	SECTION	W/O	WITHOUT
	APPROXIMATE	ELEC	ELECTRICAL	MGD	MILLION GALLONS PER DAY	OF	OUTSIDE FACE	SF	SQUARE FEET	WWF	WELDED WIRE FABRIC
CL	CENTER LINE	EL, ELEV	ELEVATION	MH	MANHOLE	PE	PLAIN END	SHT	SHEET	WWTP	WASTEWATER TREATMENT PLANT
CL	CLASS	EQ	EQUAL	MIN	MINIMUM	PL, PLS	PLATE, PLACES	SPECS	SPECIFICATIONS	X	BY
CONC	CONCRETE	EW	EACH WAY	MISC	MISCELLANEOUS	PSI	POUNDS PER SQUARE INCH	SQ	SQUARE		
CONN	CONNECTION	EX,EXIST	EXISTING	MJ	MECHANICAL JOINT	PVC	POLYVINYL CHLORIDE	STA	STATION		
CONT	CONTINUOUS	FL	FLANGED	N	NORTH	RECD	RECEIVED	STD	STANDARD		
DIA	DIAMETER	FT	FOOT	NTS	NOT TO SCALE	RED	REDUCER	ST STLSS	STAINLESS STEEL		
DI	DUCTILE IRON	IN	INCHES	NIC	NOT IN CONTRACT	REINF	REINFORCING	SS	SANITARY SEWER		
DIP	DUCTILE IRON PIPE	ID	INSIDE DIAMETER	NO, #	NUMBER	REQ'D	REQUIRED	TEMP	TEMPORARY BENCHMARK		
DWG	DRAWING	INV	INVERT	NTS	NOT TO SCALE	RJ	RESTRAINED JOINT	THK	THICKNESS		
								TYP	TYPICAL		

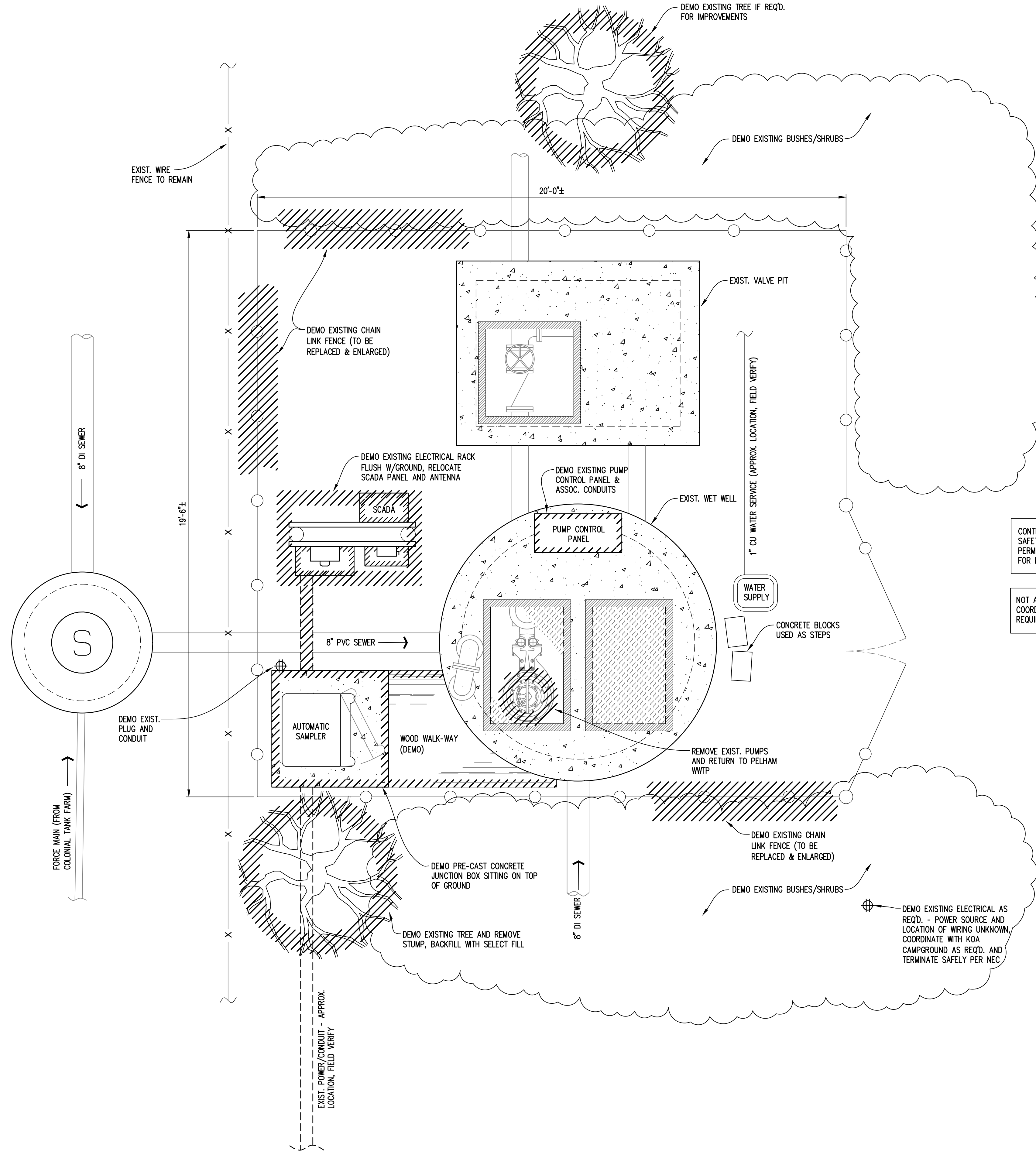
Municipal Consultants, Inc.
 200 Cahaba Park, South, Suite 212
 Birmingham, Alabama 35226
 (205) 622-0387

CITY OF PELHAM, ALABAMA
 KOA LIFT STATION & LIFT STATION P UPGRADES
 2024
 GRETCHEN DIFANTE, CITY MANAGER
 GARY W. WATERS, MAYOR

NOT VALID WITHOUT SIGNATURE

Title: LOCATION MAP AND NOTES
 Drawing: BID SET
 Project No.: 12 - 2024
 Date: AS SHOWN
 Scale: 1
 Sheet: 1

DEMOLISH



CONTRACTOR SHALL PROVIDE TEMPORARY CHAIN-LINK FENCING AND ORANGE SAFETY FENCE ALONG ENTIRE PERIMETER OF SITE CONTINUOUSLY UNTIL PERMANENT FENCING IS INSTALLED. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCKING FENCING AT ALL TIMES WHEN CONTRACTOR IS NOT ON-SITE.

NOT ALL DEMOLITION REQUIRED IS SHOWN, COORDINATE WITH OTHER PLANS AND REQUIREMENTS

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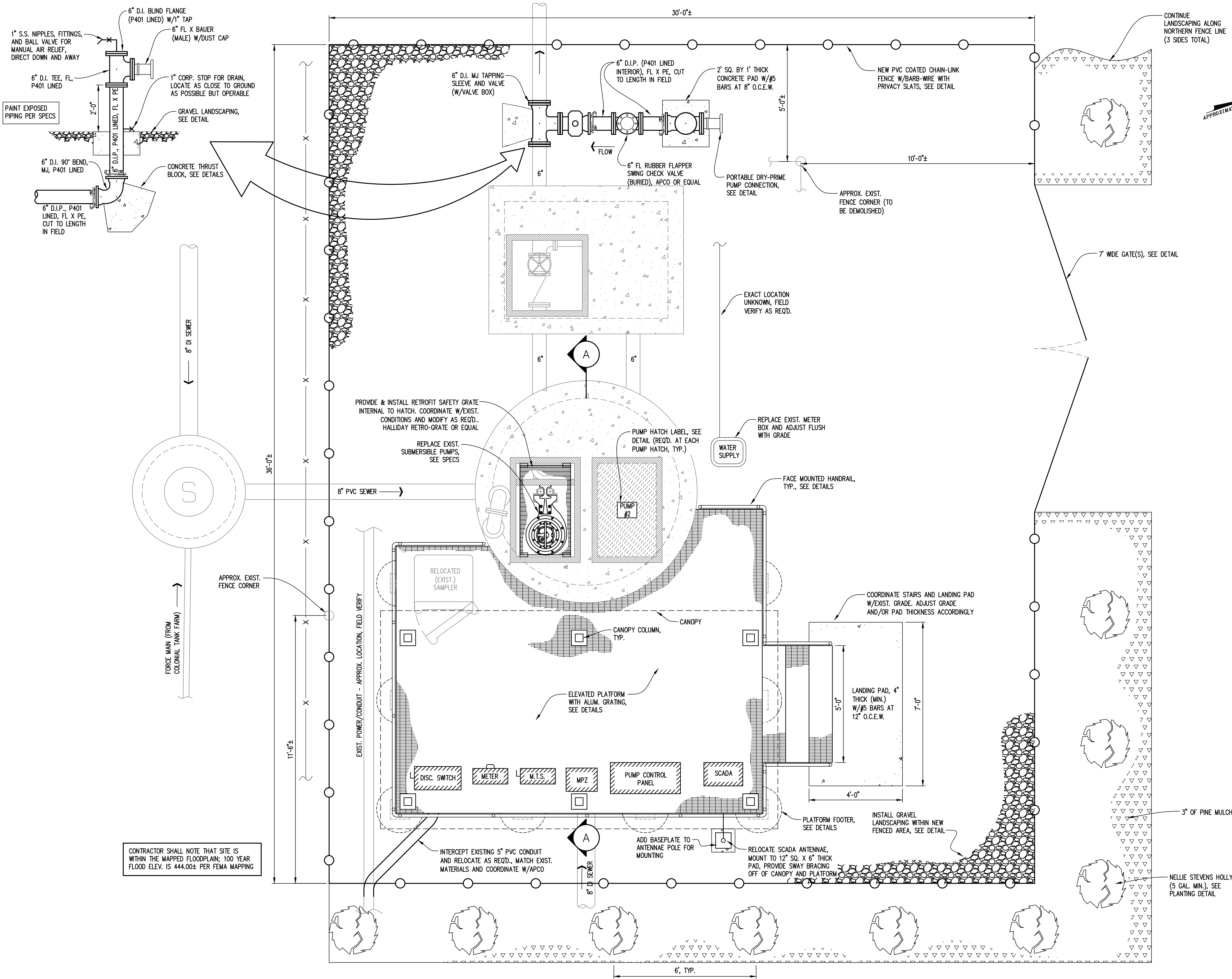
CITY OF PELHAM, ALABAMA
KOA LIFT STATION &
LIFT STATION P UPGRADES

Professional Engineer
No. 38301
ANDREW G. GOLDEN
1/16/2025
NOT VALID WITHOUT SIGNATURE

BAR = 1"

Drawing	Title	
Project No.	KOA LIFT STATION DEMO PLAN	
Date	12-2024	
Scale	1/2" = 1'-0"	
Sheet	2	BID SET

GARY W. WATERS, MAYOR
2024
GRETCHEM DIFANTE, CITY MANAGER



CONTRACTOR SHALL NOTE THAT SITE IS WITHIN THE MAPPED FLOODPLAIN; 100 YEAR FLOOD ELEV. IS 444.00± PER FEMA MAPPING

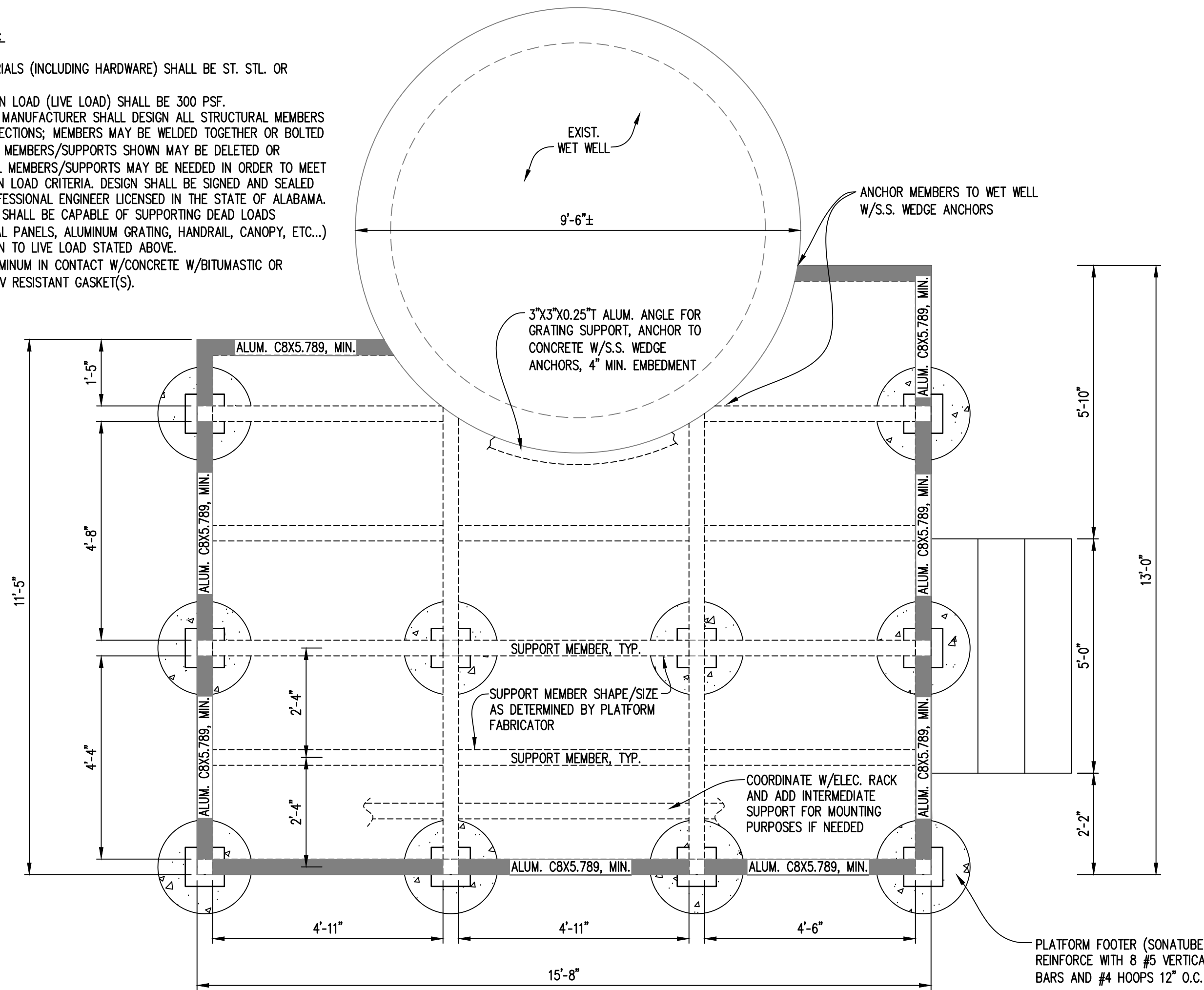


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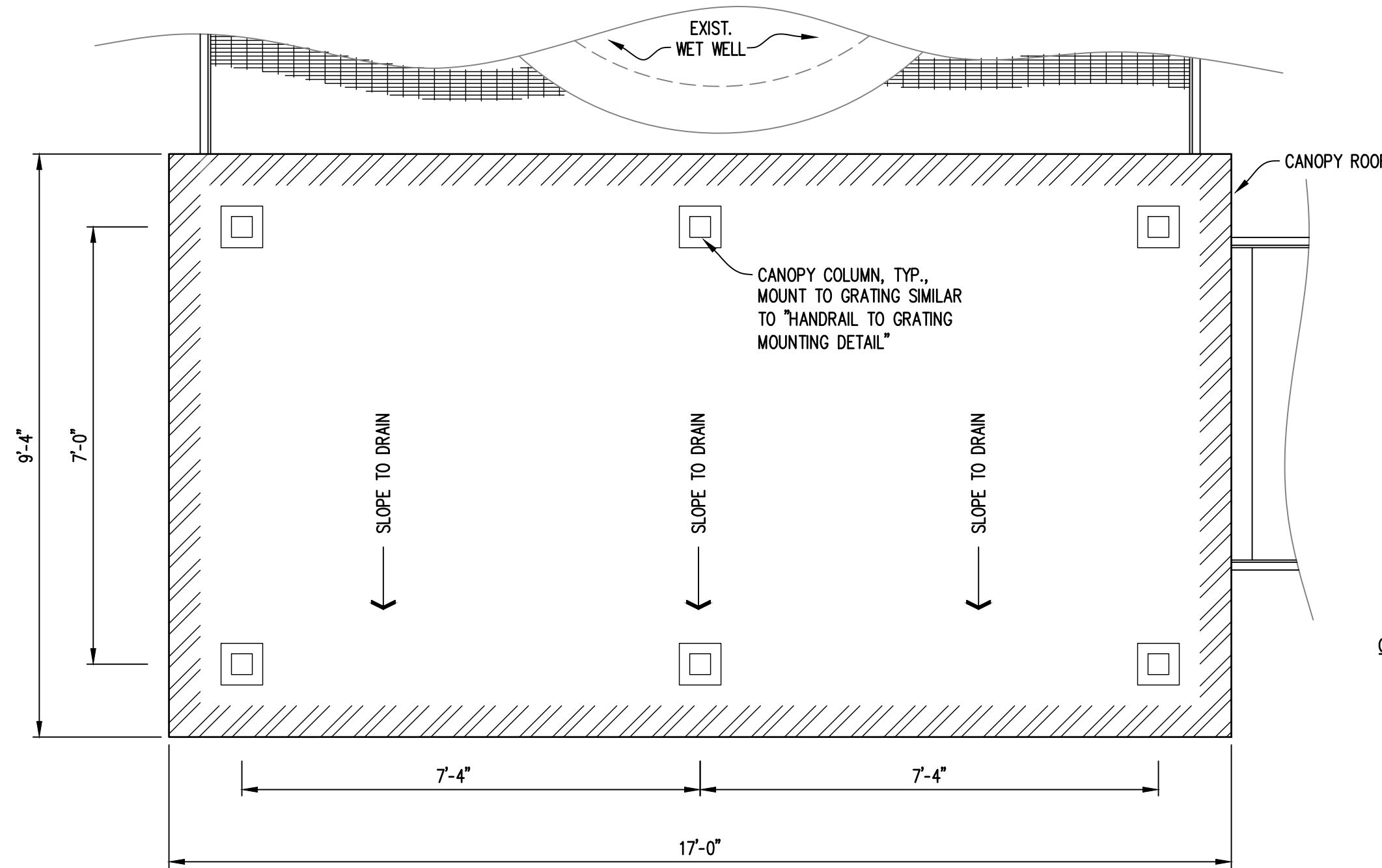
Drawing	Title	
	KOA LIFT STATION PLAN	
Project No.	12-2024	BID SET
Date	1/27/25	
Scale	1/2" = 1'-0"	3
Sheet		

PLATFORM NOTES:

1. ALL MATERIALS (INCLUDING HARDWARE) SHALL BE ST. STL. OR ALUMINUM.
2. MIN. DESIGN LOAD (LIVE LOAD) SHALL BE 300 PSF.
3. PLATFORM MANUFACTURER SHALL DESIGN ALL STRUCTURAL MEMBERS AND CONNECTIONS; MEMBERS MAY BE WELDED TOGETHER OR BOLTED TOGETHER. MEMBERS/SUPPORTS SHOWN MAY BE DELETED OR ADDITIONAL MEMBERS/SUPPORTS MAY BE NEEDED IN ORDER TO MEET THE DESIGN LOAD CRITERIA. DESIGN SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF ALABAMA. PLATFORM SHALL BE CAPABLE OF SUPPORTING DEAD LOADS (ELECTRICAL PANELS, ALUMINUM GRATING, HANDRAIL, CANOPY, ETC...) IN ADDITION TO LIVE LOAD STATED ABOVE.
4. PLATFORM SHALL BE CAPABLE OF SUPPORTING DEAD LOADS (ELECTRICAL PANELS, ALUMINUM GRATING, HANDRAIL, CANOPY, ETC...) IN ADDITION TO LIVE LOAD STATED ABOVE.
5. PAINT ALUMINUM IN CONTACT W/CONCRETE W/BITUMASTIC OR PROVIDE UV RESISTANT GASKET(S).



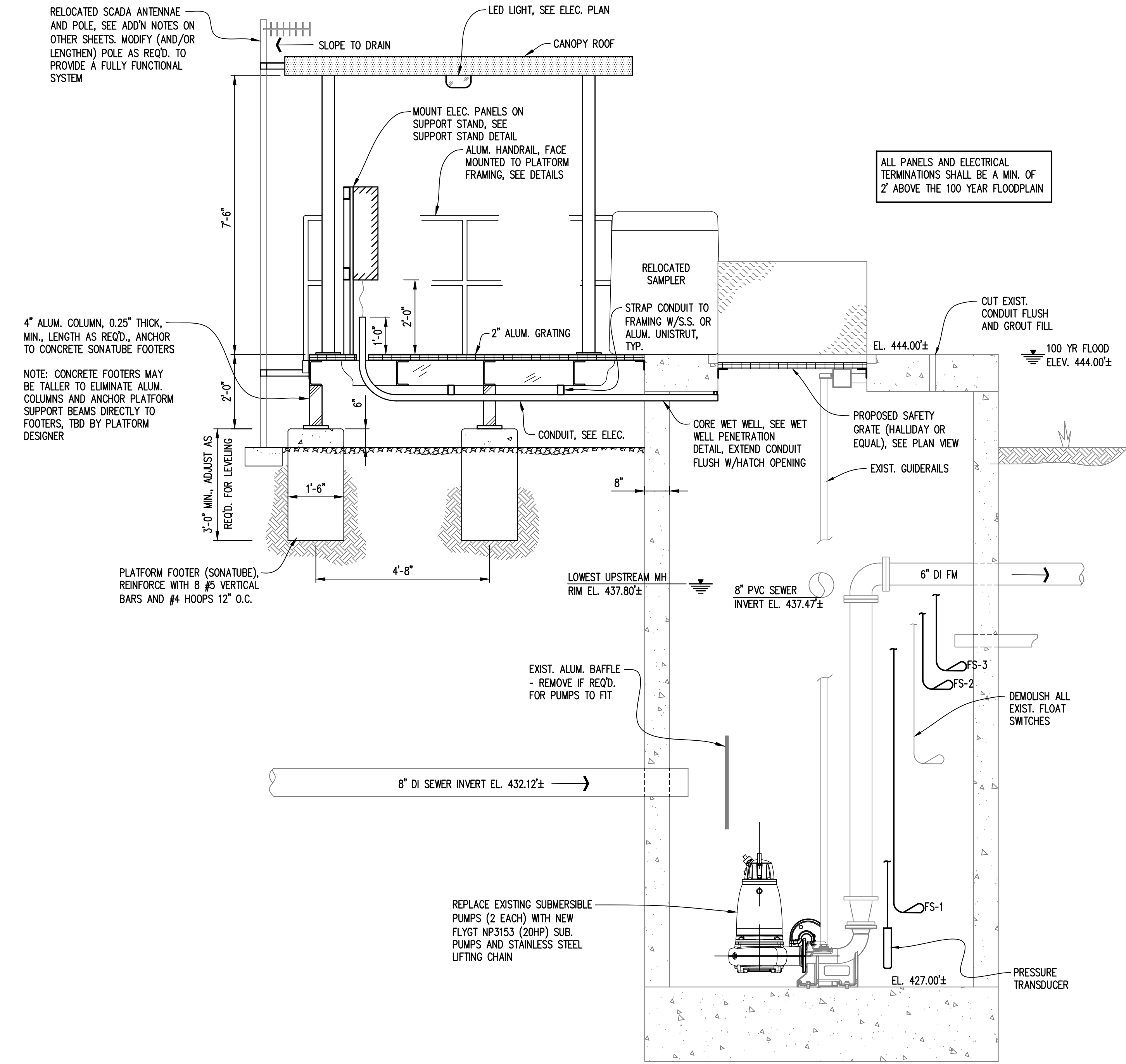
PLATFORM FRAMING PLAN (CONCEPTUAL)



CANOPY PLAN

CANOPY NOTES:

1. SEE CANOPY SPECIFICATIONS FOR OTHER REQUIREMENTS.
2. ALL MATERIALS (INCLUDING HARDWARE) SHALL BE ST. STL. OR ALUMINUM.
3. WIND LOAD RATING SHALL BE 115 MPH.
4. CANOPY MANUFACTURER SHALL DESIGN CONNECTIONS TO ELEVATED PLATFORM AND/OR EXIST. CONCRETE SLAB.
5. CANOPY SHALL BE CAPABLE OF SUPPORTING LIGHTING, SEE ELECTRICAL PLAN.



PROPOSED SECTION "A"

- SUGGESTED FLOAT OR SET POINTS:**
- FS-1 (BACKUP): LOW LEVEL CUT OFF EL. = 429.00
 - FS-2 (BACKUP): HIGH LEVEL ALARM EL./PUMP(S) ON = 435.00
 - FS-3: HIGH LEVEL ALARM (TO SCADA ONLY) = 435.50
 - SP-1: LOW LEVEL CUT OFF EL. = 429.00
 - SP-2: LEAD PUMP ON = 432.00
 - SP-3: LAG PUMP ON = 433.00
 - SP-4: HIGH LEVEL ALARM = 434.50
 - SP-5: LOW LEVEL ALARM = 428.00
- FS: DENOTES FLOAT SWITCH
SP: DENOTES SET POINT FOR SUBMERSIBLE TRANSDUCER

PUMP CRITERIA			
	PUMP	FLOW	HEAD
EXIST. CONDITIONS	FLYGT CP3127	375 GPM	74' TDH
PROPOSED (463 IMP.)	FLYGT NP3153	475 GPM	82' TDH

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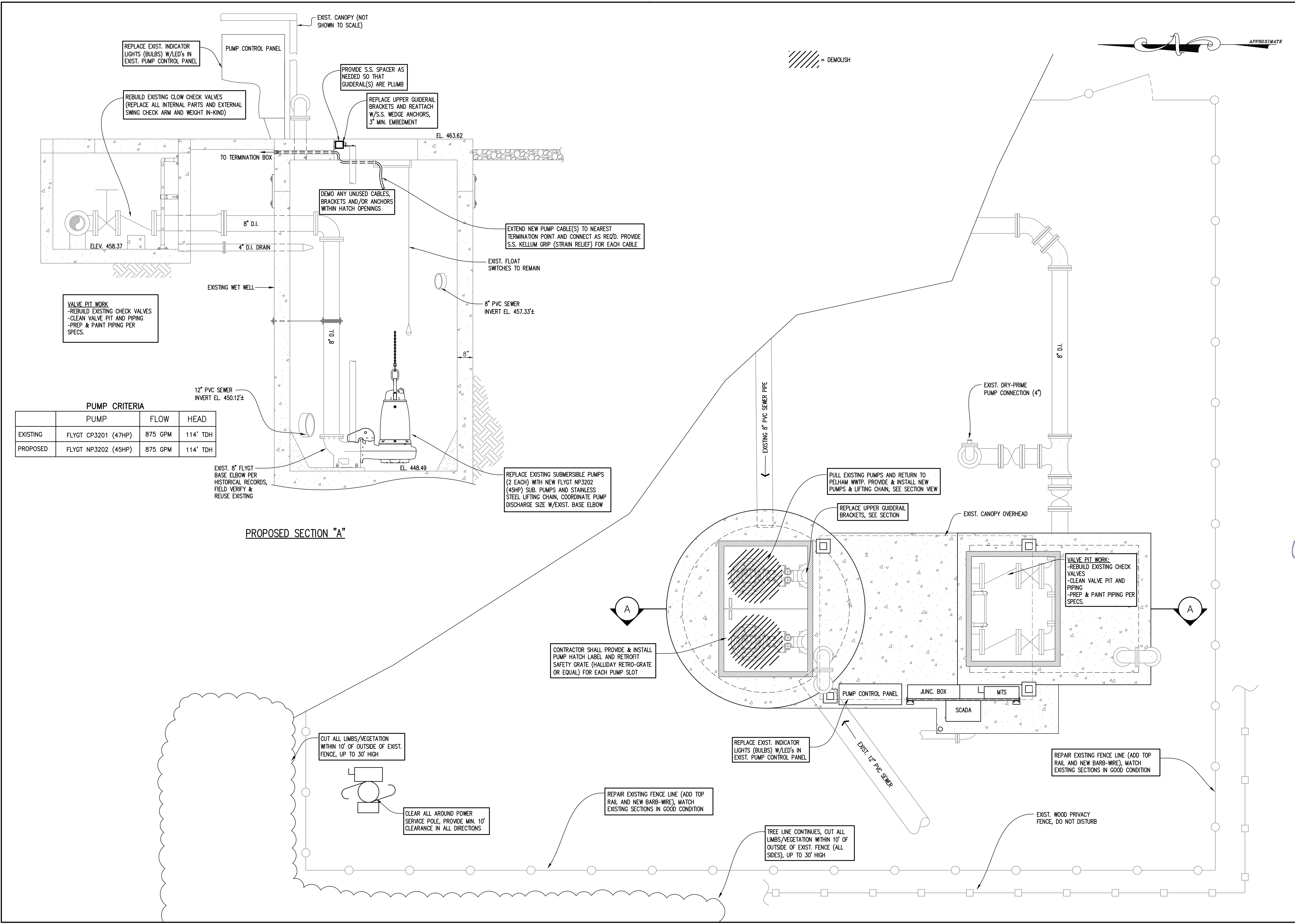
CITY OF PELHAM, ALABAMA
KOA LIFT STATION & LIFT STATION P UPGRADES

2024
GRETCHEN DIFANTE, CITY MANAGER

GARY W. WATERS, MAYOR

1/16/2025
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Drawing	Title	
Project No.	KOA LIFT STATION SECTION AND DETAILS	
Date	12-2024	
Scale	1/2" = 1'-0"	
Sheet	4	



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CITY OF PELHAM, ALABAMA
KOALIFT STATION & LIFT STATION P UPGRADES

Title
LIFT STATION P PLAN

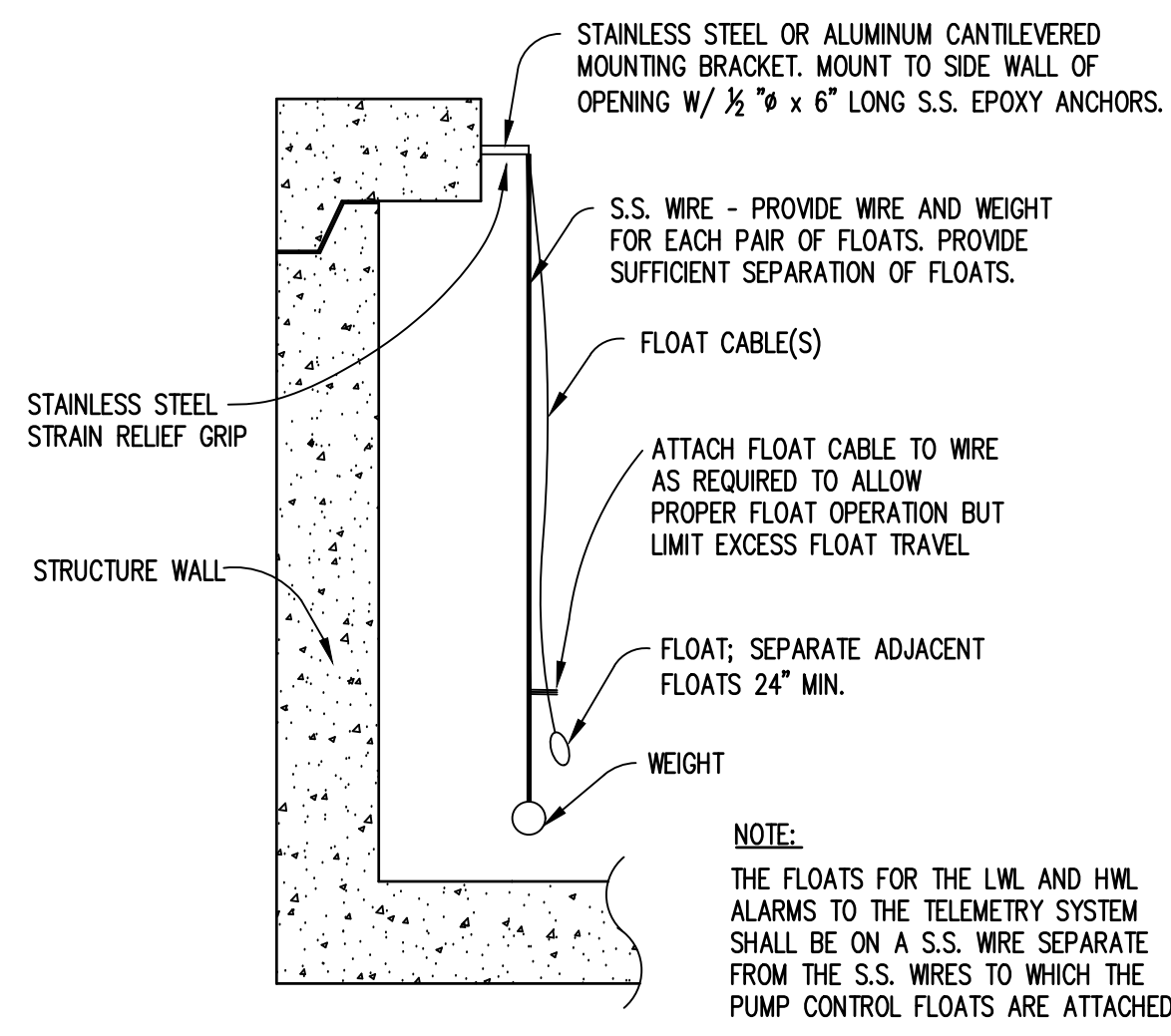
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Project No. 12-2024
Date 1/2"=1'-0"
Scale 1/2"=1'-0"
Sheet 5

Professional Engineer
No. 38301
ANDREW G. GOLDEN
1/16/2025
NOT VALID WITHOUT SIGNATURE

City Manager
GRETCHEN DIFANTE, CITY MANAGER

Mayor
GARY W. WATERS, MAYOR

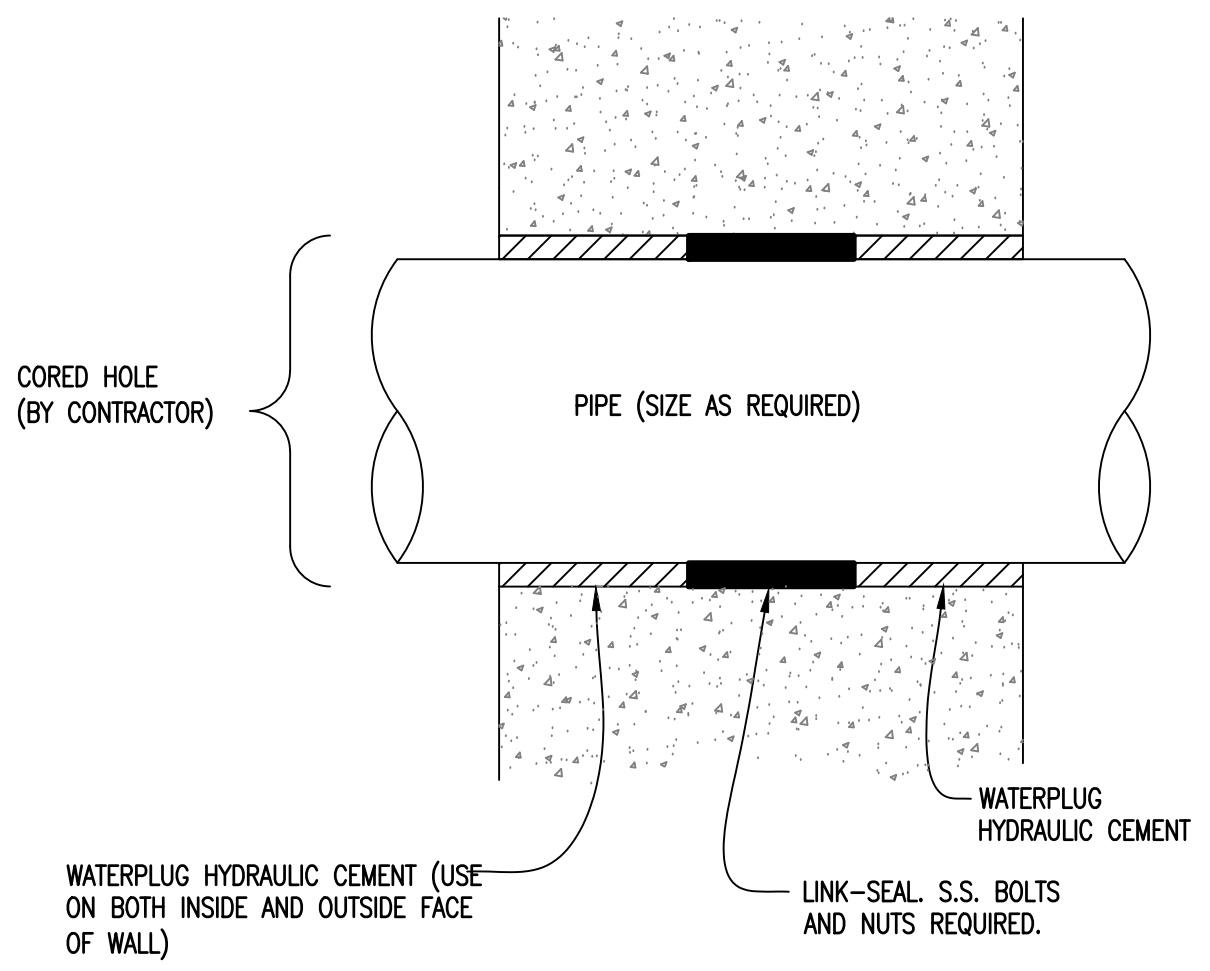
2024



NOTE: ALL ATTACHMENT HARDWARE TO BE STAINLESS STEEL.

FLOAT ATTACHMENT DETAIL

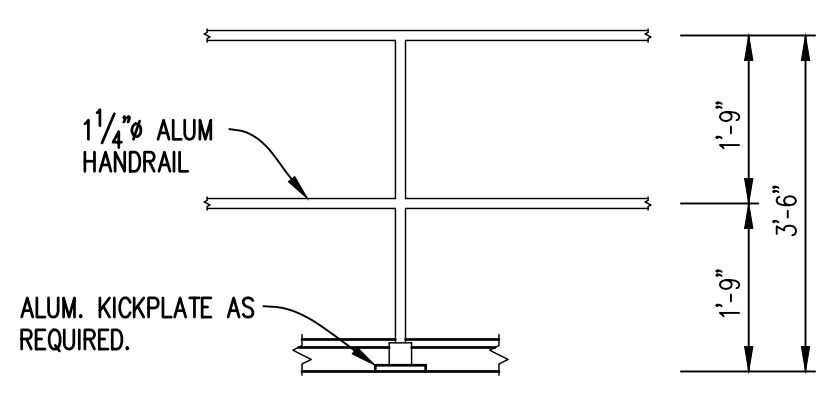
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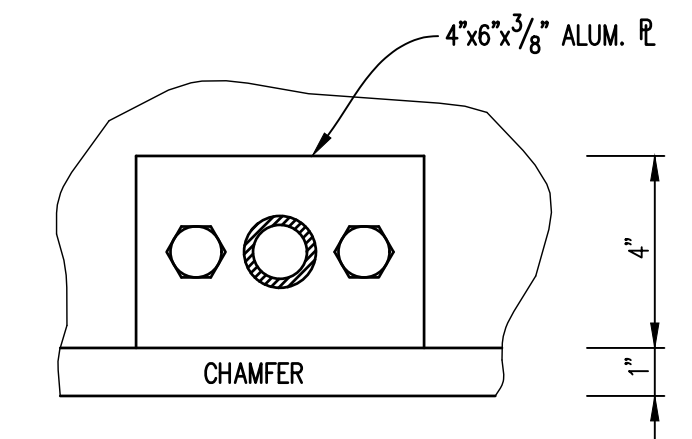
PIPE PENETRATION

SCALE: N.T.S.

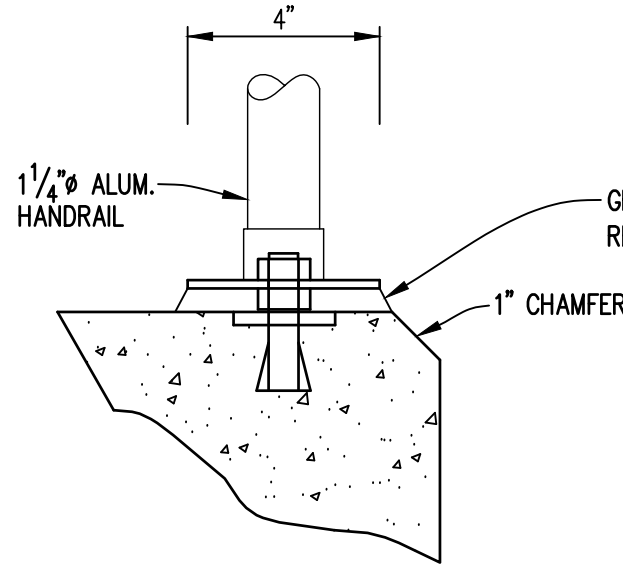
NOTE: ALUM KICKPLATES SHALL BE FURNISHED AT ALL NEW HANDRAIL LOCATIONS PER OSHA AND HIGHER THAN 6'-0" ABOVE FIN. GRADE, FLOOR OR BASIN BOTTOMS, ETC. KICK PLATES AT THESE LOCATIONS MAY NOT BE SHOWN IN SECTIONS, ELEVATIONS, ETC. BUT SHALL BE REQUIRED.



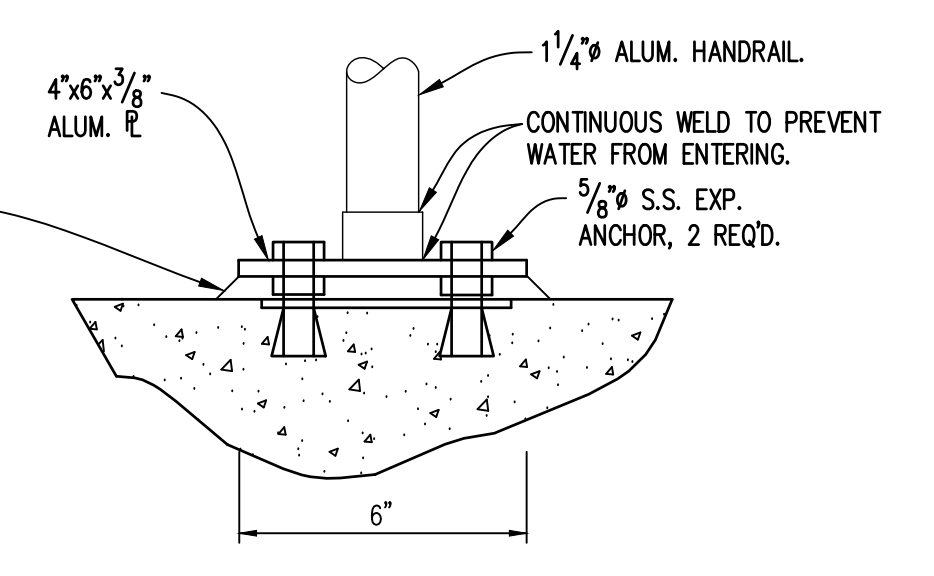
TYPICAL HANDRAIL ELEVATION



PLAN



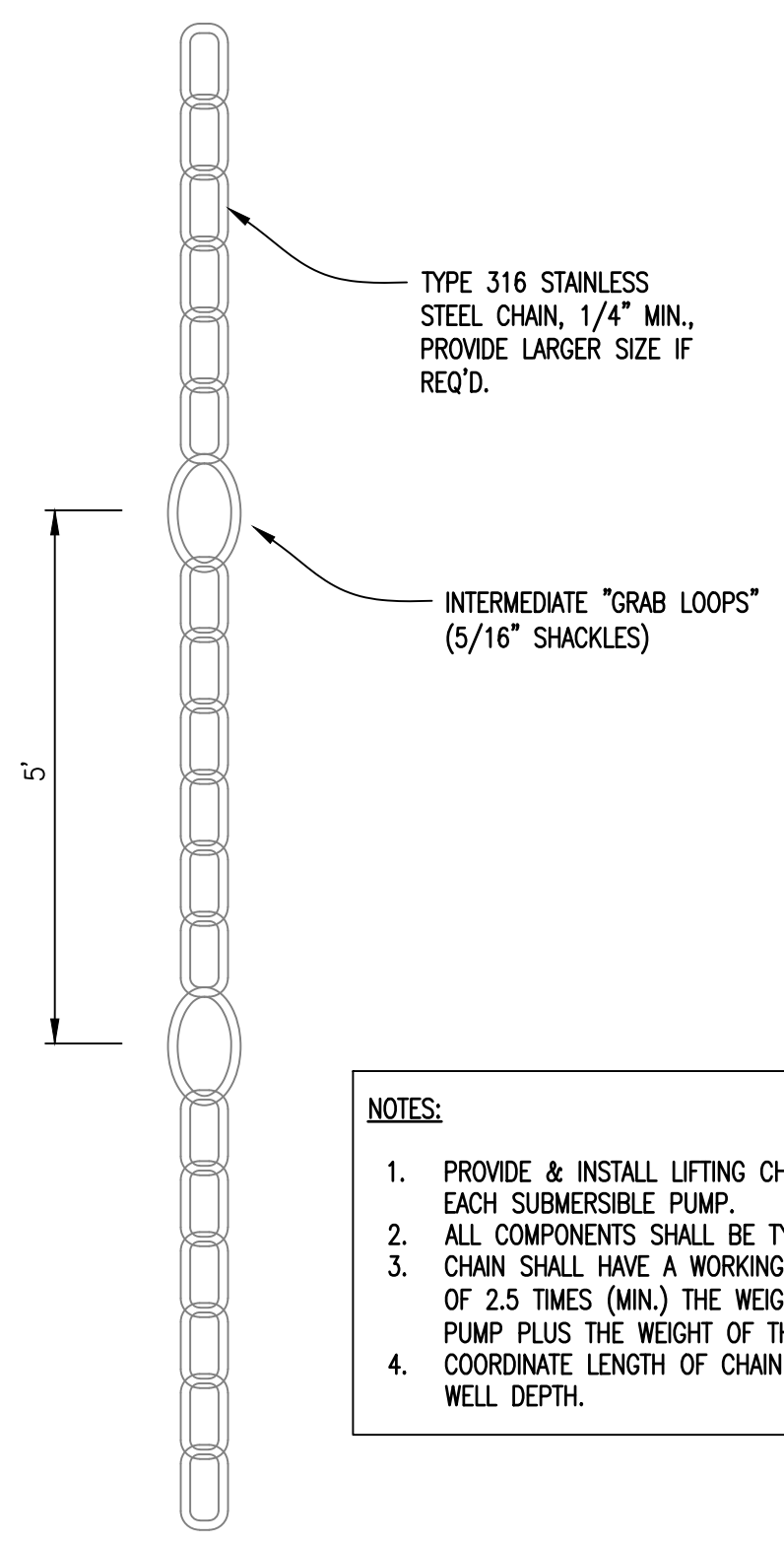
END ELEVATION - TOP MOUNTED



SIDE ELEVATION - TOP MOUNTED

TYPICAL HANDRAIL MOUNTING DETAIL

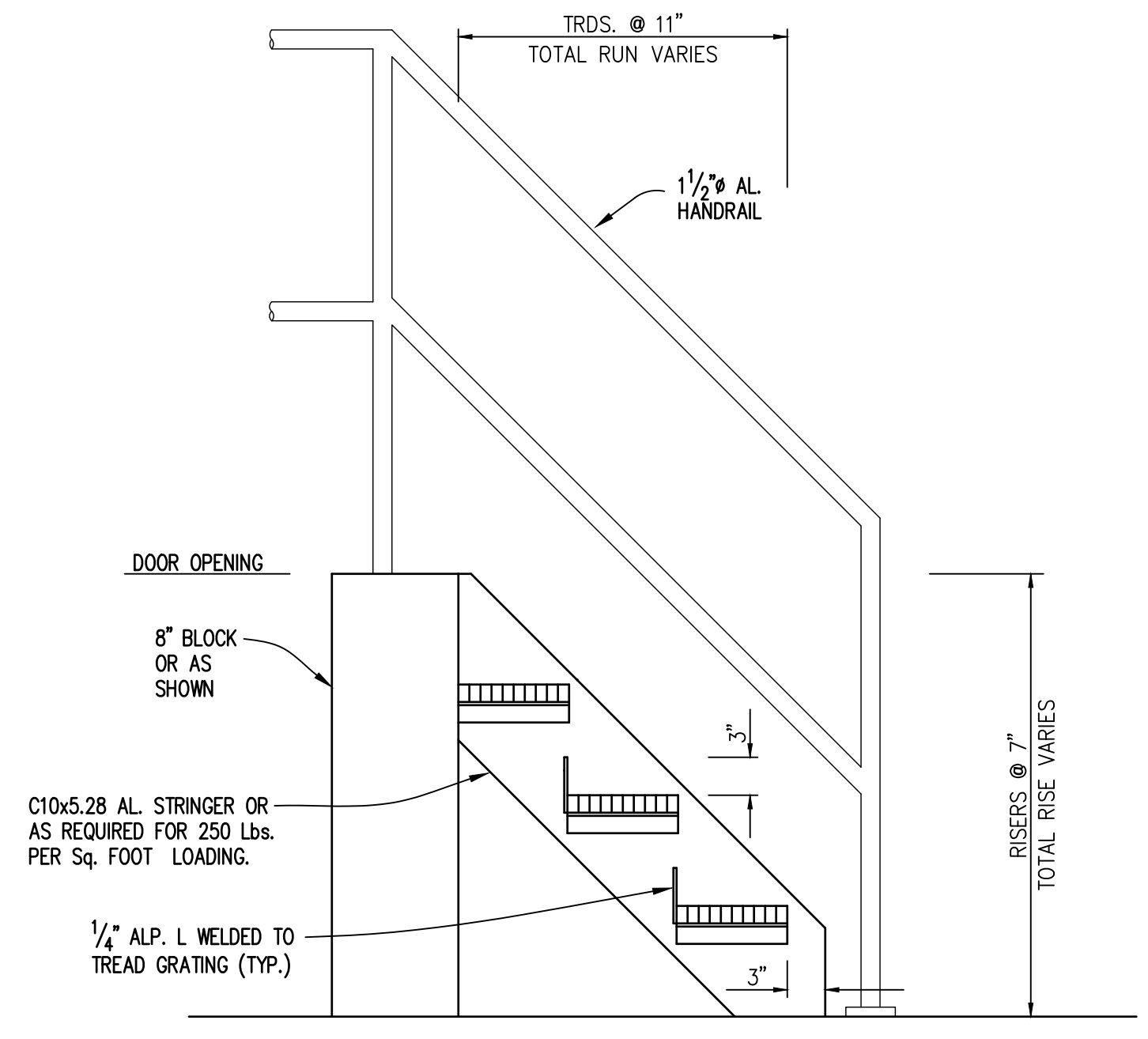
SCALE: N.T.S.



- NOTES:
1. PROVIDE & INSTALL LIFTING CHAIN WITH EACH SUBMERSIBLE PUMP.
 2. ALL COMPONENTS SHALL BE TYPE 316 S.S. CHAIN SHALL HAVE A WORKING LOAD RATING OF 2.5 TIMES (MIN.) THE WEIGHT OF THE PUMP PLUS THE WEIGHT OF THE CHAIN.
 3. COORDINATE LENGTH OF CHAIN WITH WET WELL DEPTH.

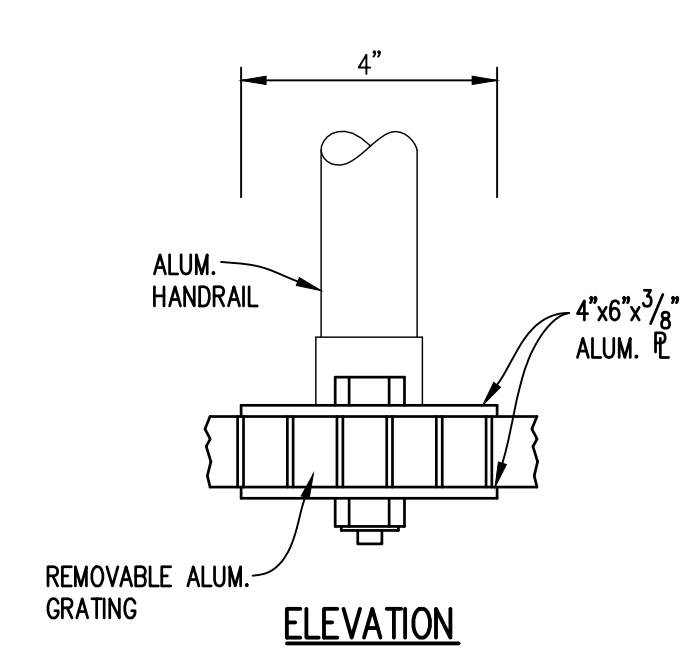
PUMP LIFTING CHAIN

SCALE: N.T.S.

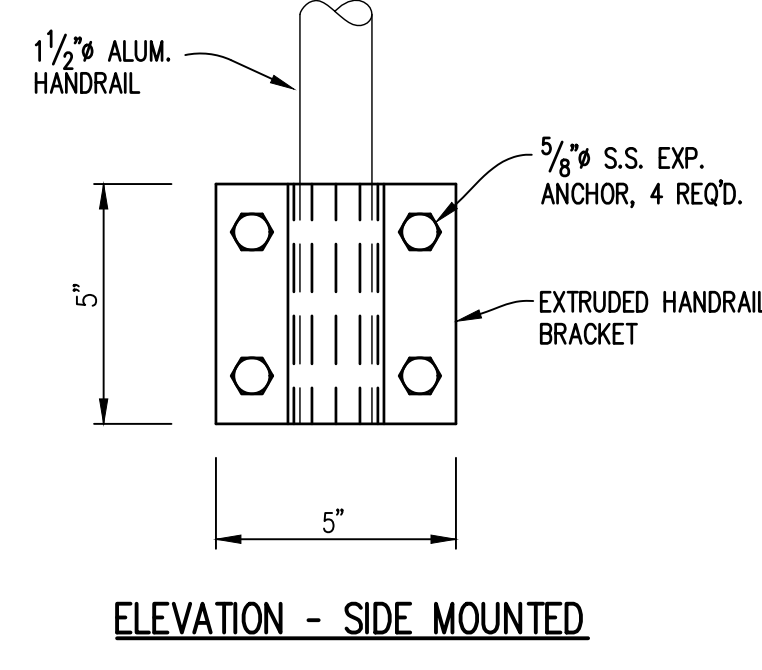


TYPICAL ALUMINUM STAIR ASSEMBLY

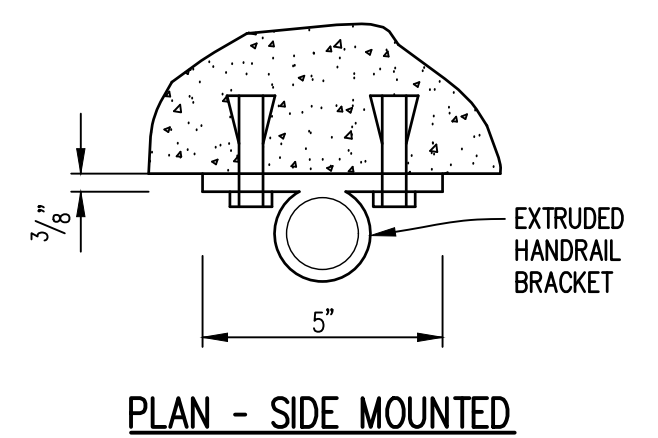
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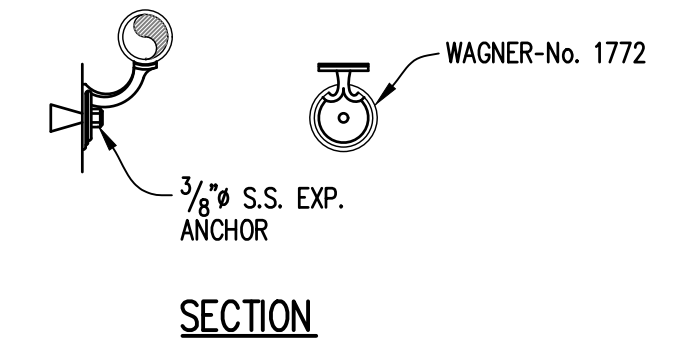
ELEVATION



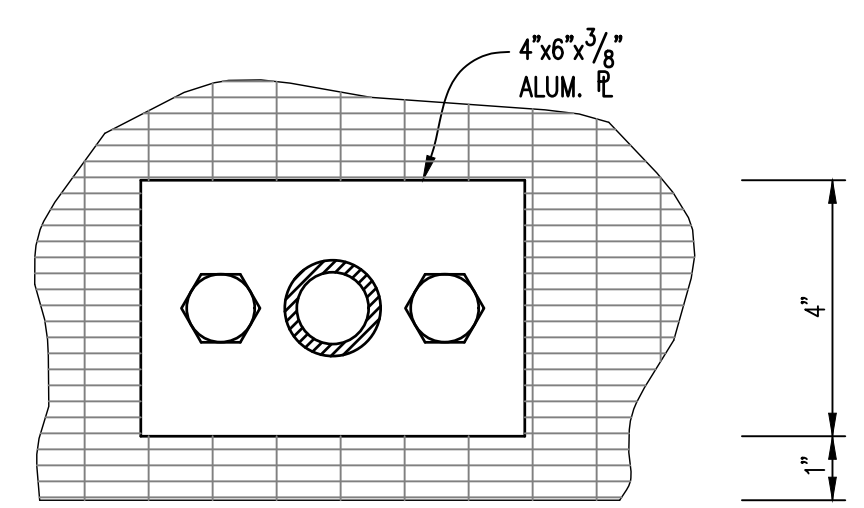
ELEVATION - SIDE MOUNTED



PLAN - SIDE MOUNTED



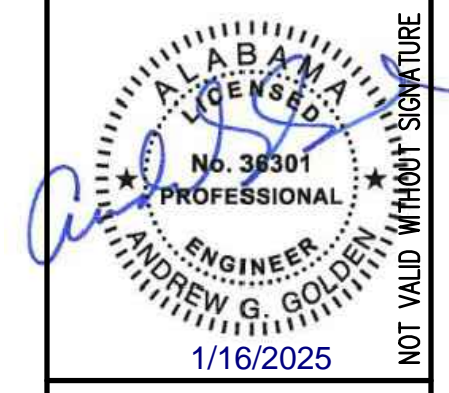
SECTION



PLAN

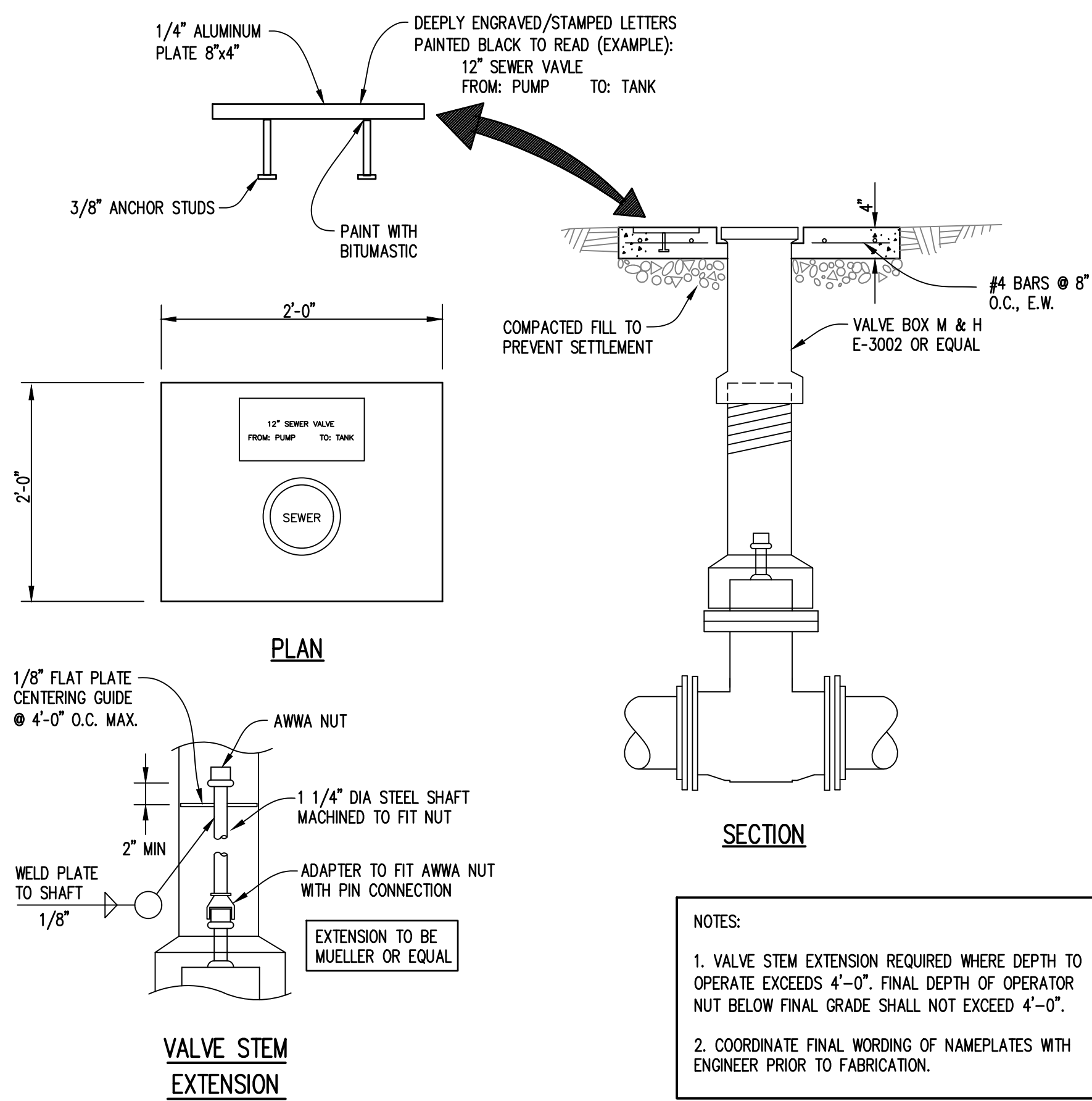
HANDRAIL TO GRATING MOUNTING DETAIL

SCALE: N.T.S.



BAR = 1"

Drawing	Title	
	STANDARD DETAILS	
Project No.	12 - 2024	BID SET
Date	AS SHOWN	
Scale	6	
Sheet		



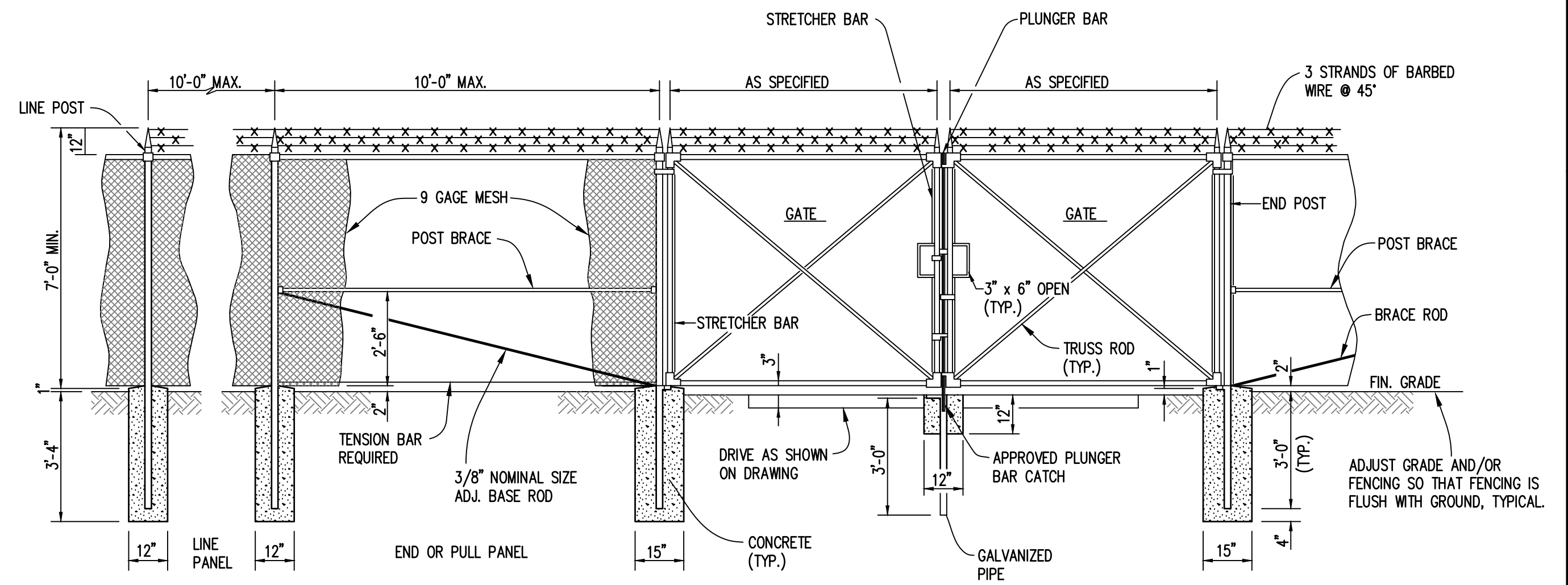
VALVE BOX DETAIL
SCALE: N.T.S.

TIE ROD SCHEDULE

TEST PRESSURE	250 PSI OR LESS	TIE RODS	
PIPE DIA. (IN.)		DIA. (IN.)	NO. REQ'D
2		5/8	2
3		5/8	2
6		3/4	2
8		3/4	2
10		3/4	4
12		3/4	4

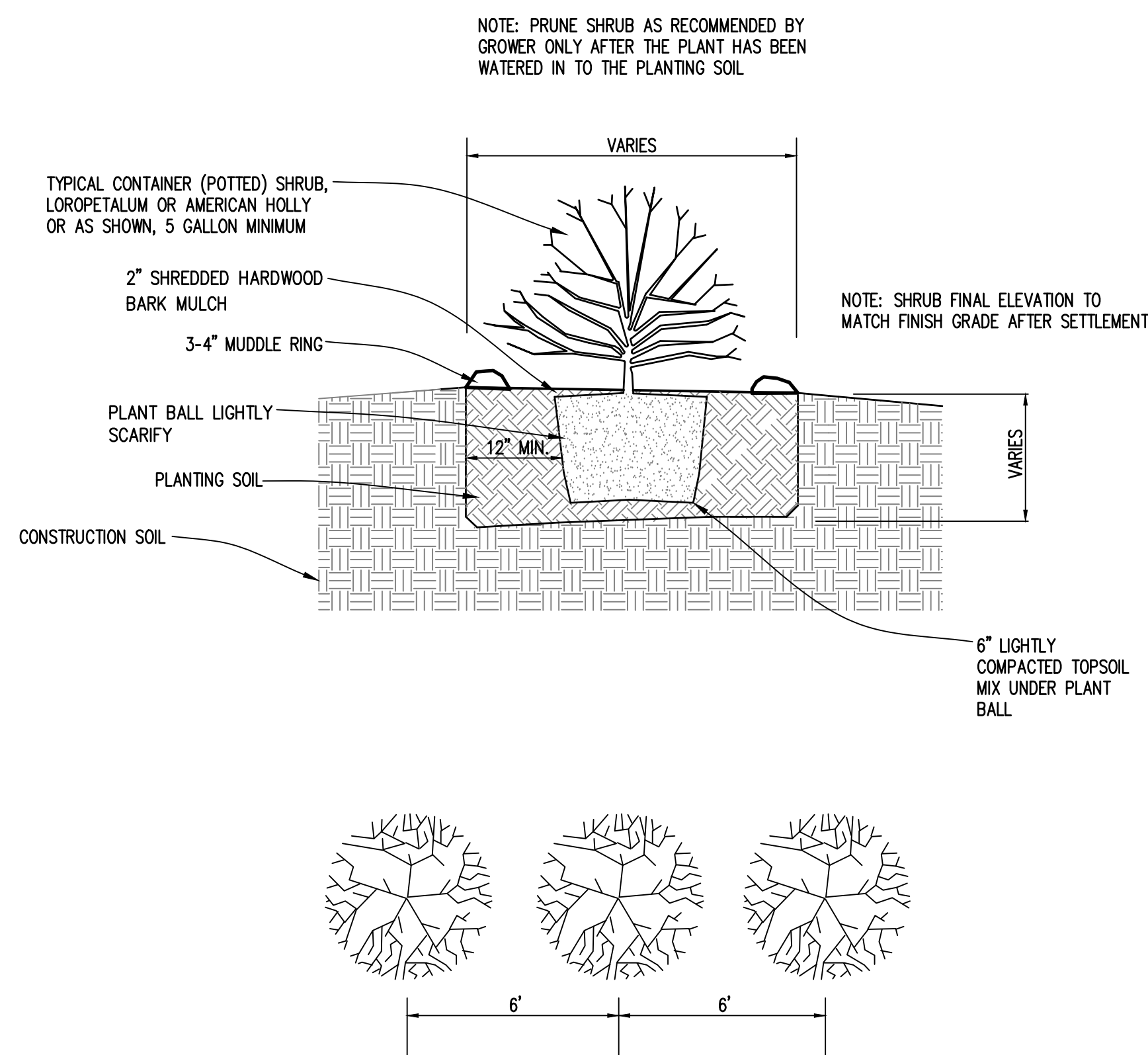
NOTE:
1. TIE RODS SHALL CONFORM TO ASTM A193 GRADE B7 AND NUTS SHALL CONFORM TO ASTM A194 GRADE 2H.

TIE-ROD SCHEDULE
SCALE: N.T.S.

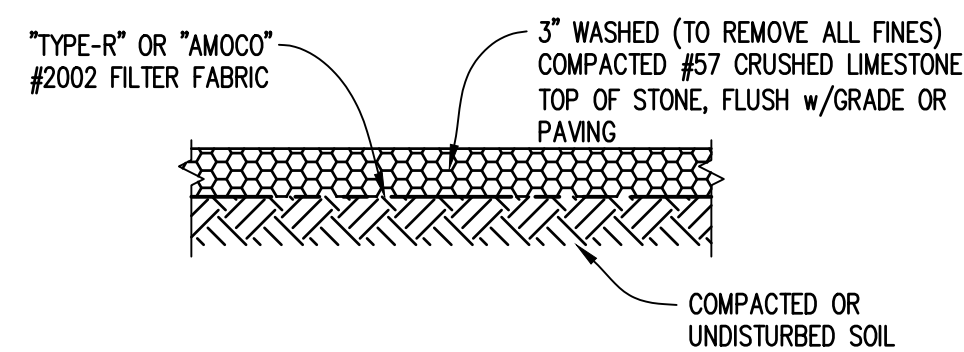


NOTES:
1. FENCING SHALL BE PVC COATED CHAIN-LINK WITH PRIVACY SLATS (PVC) FOR KOA LIFT STATION. COLORS SHALL BE SELECTED BY OWNER DURING SUBMITTALS.

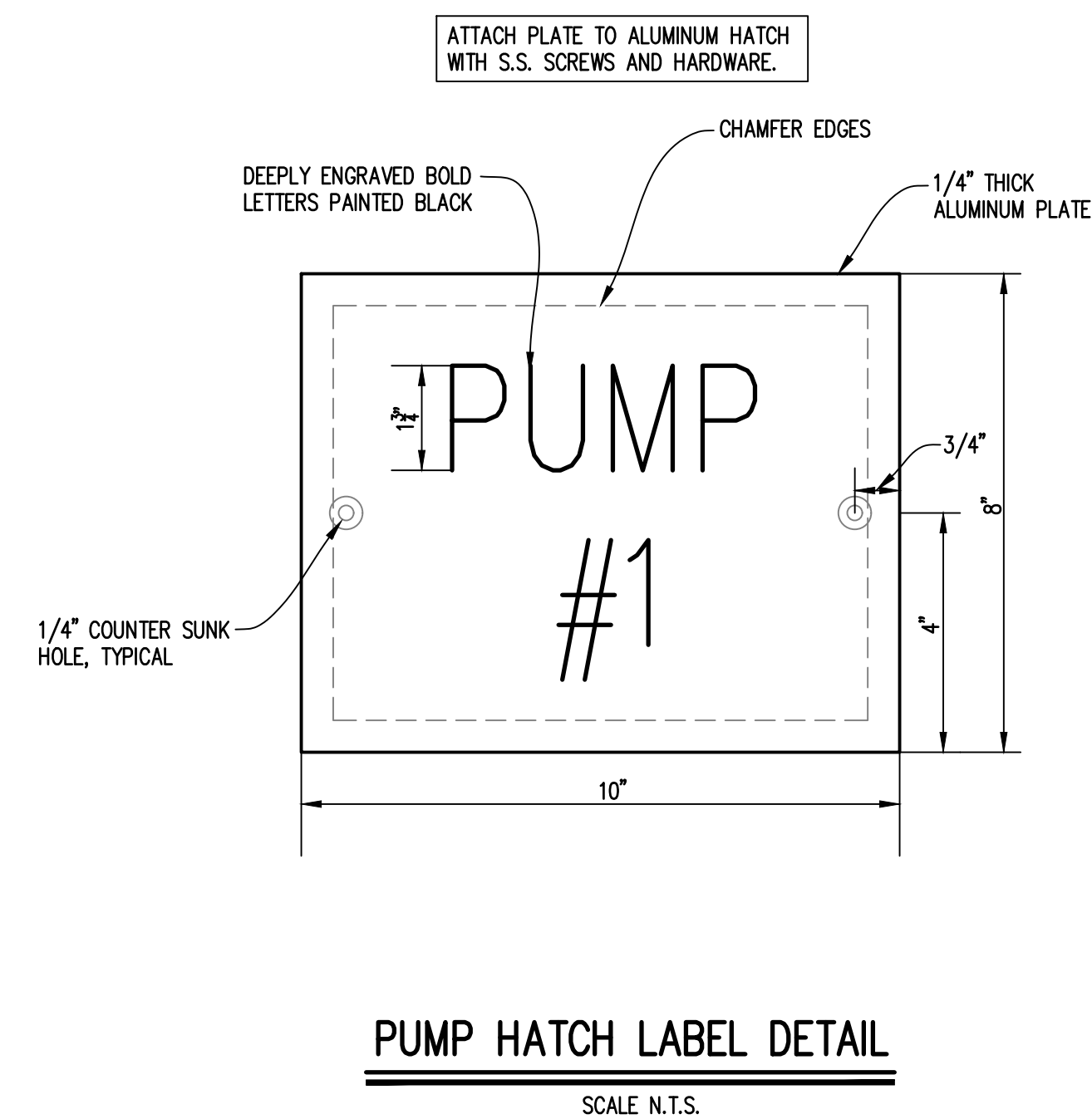
TYPE "A" CHAIN LINK FENCE DETAIL
SCALE N.T.S.



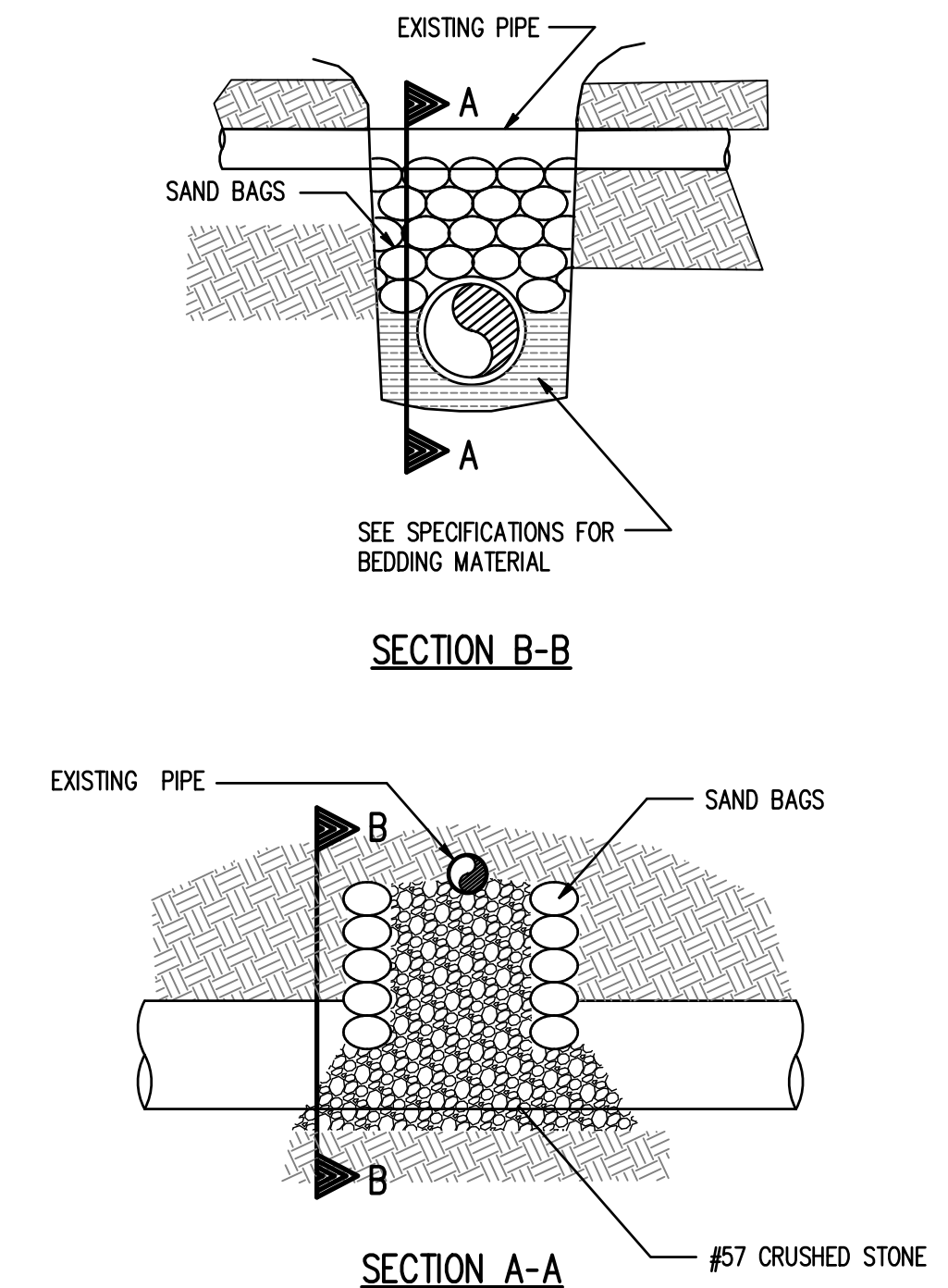
CONTAINER SHRUB PLANTING DETAIL
SCALE: N.T.S.



GRAVEL LANDSCAPING
SCALE: N.T.S.



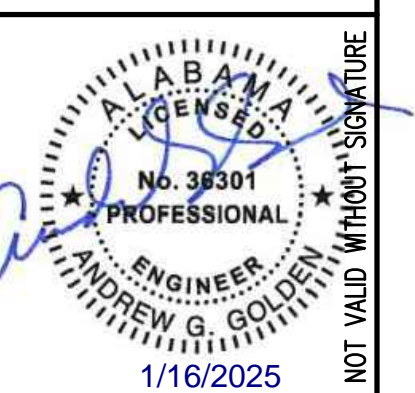
PUMP HATCH LABEL DETAIL
SCALE N.T.S.



TYPICAL METHOD OF PROTECTING UTILITIES OR OTHER PIPE CROSSINGS WHERE NOT LOCATED UNDER PAVING

ALL METHODS RESPONSIBILITY OF CONTRACTOR

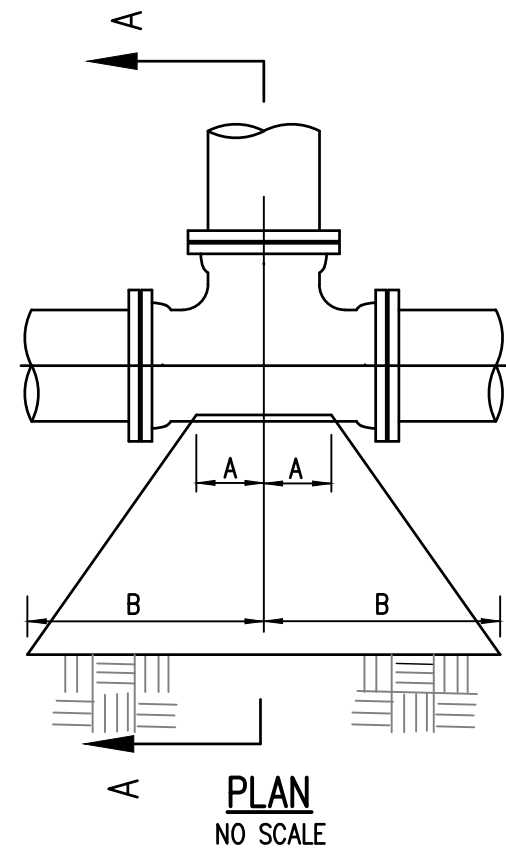
EXISTING UTILITY PROTECTION
SCALE N.T.S.



BAR = 1"

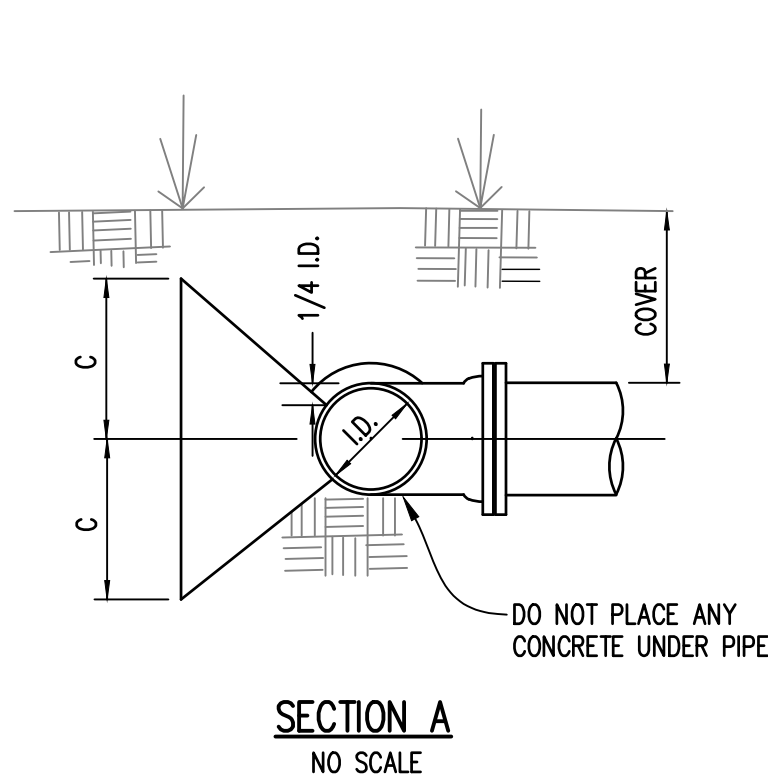
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STANDARD DETAILS
BID SET

Drawing
Project No.
Date 12 - 2024
Scale AS SHOWN
Sheet 7

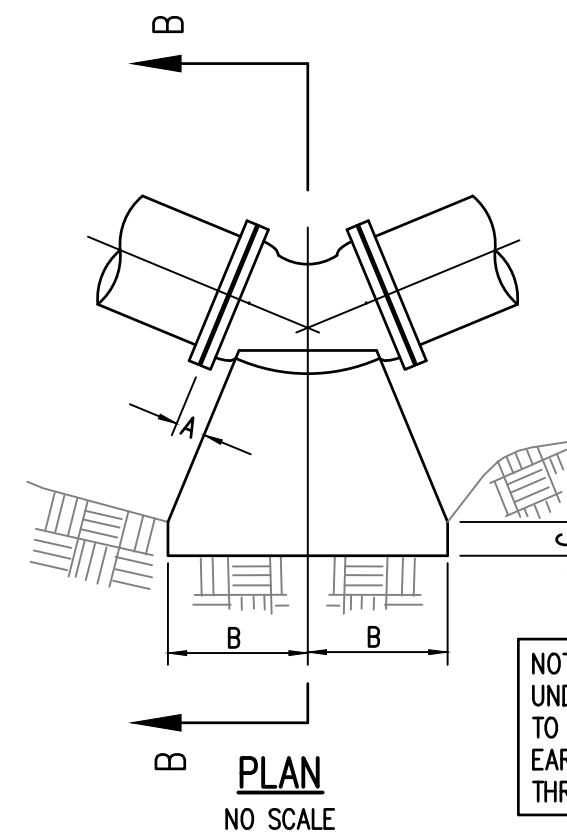


TYPICAL CONCRETE BRACING FOR TEES

PIPE DIA.	A	B	C	MIN. COVER
4"	5"	1'-0"	1'-0"	2'-6"
6"	6"	1'-0"	1'-0"	2'-6"
8"	8"	1'-6"	1'-6"	2'-6"
10"	10"	2'-0"	2'-0"	3'-0"
12"	10"	2'-0"	2'-0"	3'-0"
14"	1'-0"	2'-6"	2'-6"	3'-0"
16"	1'-0"	3'-0"	3'-0"	3'-0"
18"	1'-2"	3'-6"	3'-6"	3'-6"
20"	1'-4"	3'-6"	3'-6"	3'-6"
24"	1'-7"	4'-6"	3'-6"	3'-6"



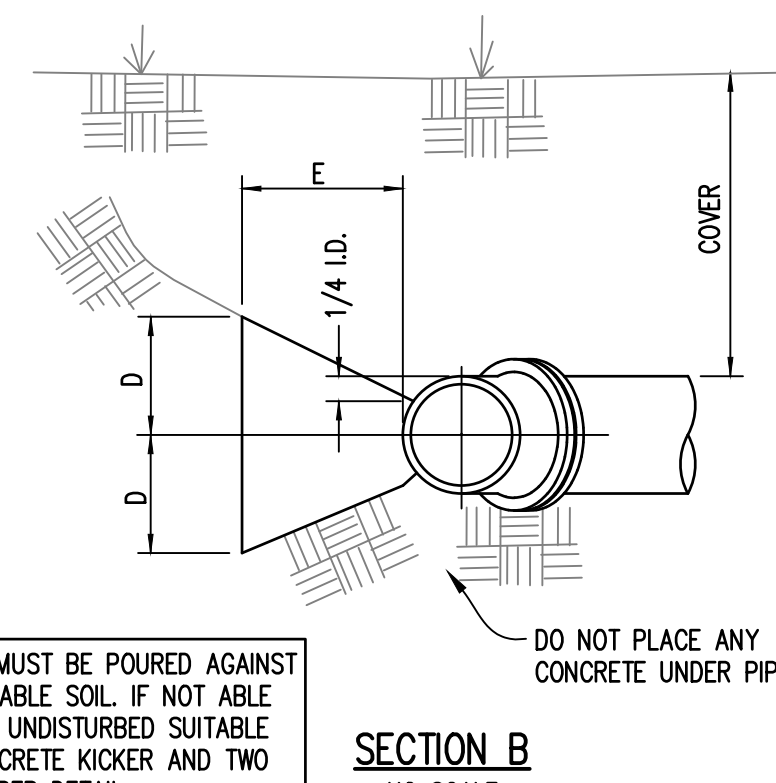
SECTION A
NO SCALE



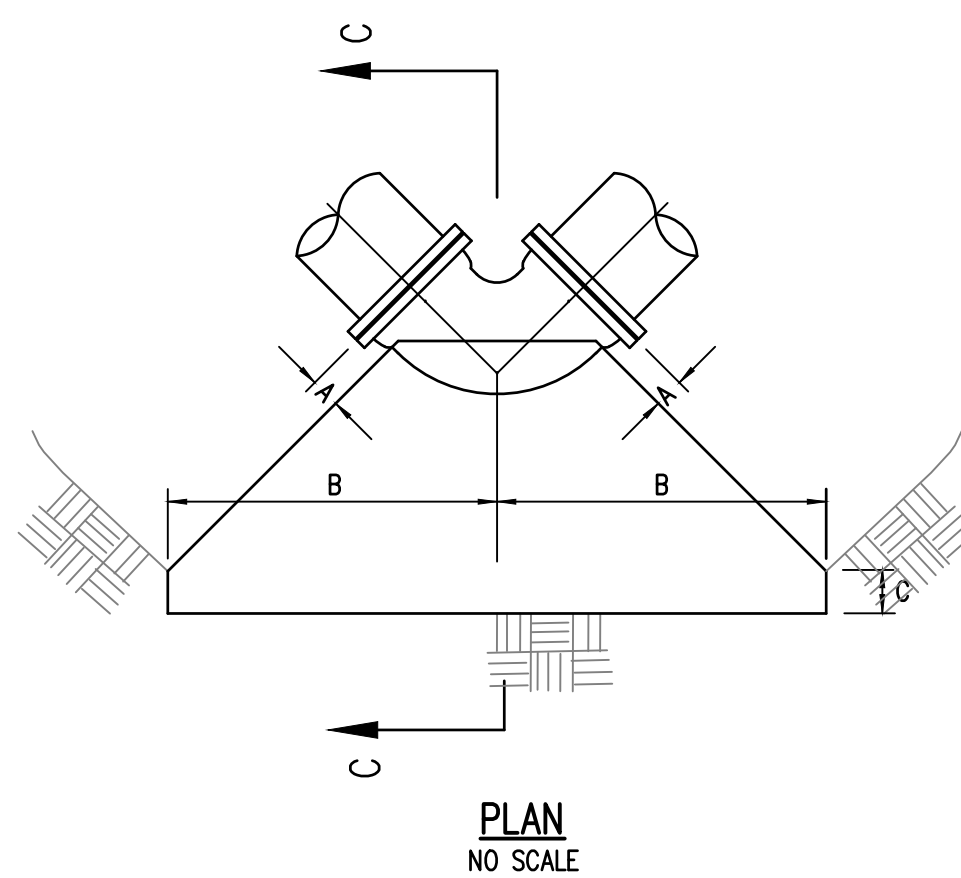
NOTE: CONCRETE MUST BE POURED AGAINST UNDISTURBED SUITABLE SOIL. IF NOT ABLE TO POUR AGAINST UNDISTURBED SUITABLE EARTH, POUR CONCRETE KICKER AND TWO THRUST COLLARS PER DETAIL.

TYPICAL CONCRETE BRACING FOR 45° BENDS

PIPE DIA.	A	B	C	D	E	MIN. COVER
4"	4 1/2"	1'-0"	1'-0"	1'-0"	1'-0"	2'-6"
6"	4 1/2"	1'-0"	9"	1'-0"	1'-2"	2'-6"
8"	4 1/2"	1'-6"	3"	1'-0"	1'-2"	2'-6"
10"	4 1/2"	1'-6"	-	1'-6"	1'-6"	3'-0"
12"	6"	2'-0"	-	2'-0"	2'-0"	3'-0"
14"	6"	2'-6"	-	2'-0"	2'-0"	3'-0"
16"	6"	2'-6"	-	2'-6"	2'-0"	3'-0"
18"	6"	3'-0"	-	2'-6"	2'-6"	3'-6"
20"	6"	3'-0"	-	3'-0"	2'-6"	3'-6"
24"	7"	3'-6"	-	3'-6"	2'-10"	3'-6"

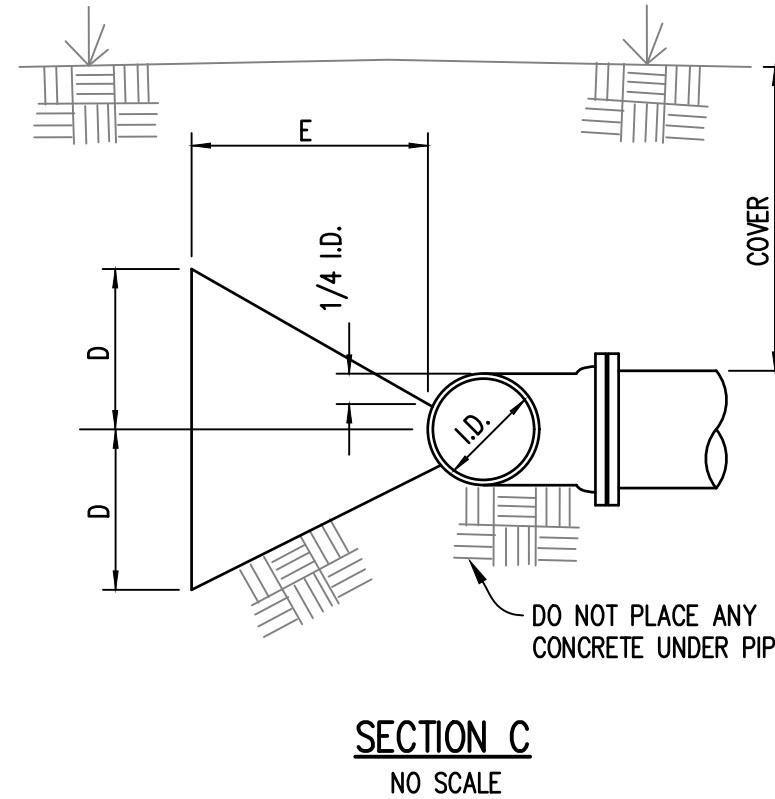


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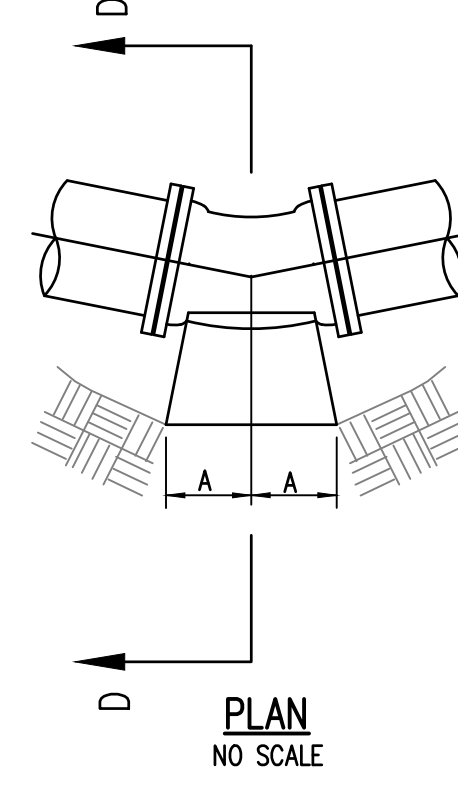


TYPICAL CONCRETE BRACING FOR 90° BENDS

PIPE DIA.	A	B	C	D	E	MIN. COVER
4"	4-1/2"	1'-0"	1'-8"	1'-0"	2'-0"	2'-6"
6"	4-1/2"	1'-6"	1'-7"	1'-0"	2'-0"	2'-6"
8"	4-1/2"	2'-0"	1'-6"	1'-6"	2'-6"	2'-6"
10"	4-1/2"	2'-0"	1'-1"	2'-0"	2'-6"	3'-0"
12"	4-1/2"	2'-6"	1'-0"	2'-6"	2'-6"	3'-0"
14"	6"	3'-0"	1'-2"	2'-6"	2'-6"	3'-0"
16"	6"	3'-6"	1'-0"	3'-0"	2'-6"	3'-0"
18"	6"	4'-0"	10"	3'-6"	3'-0"	3'-6"
20"	6"	4'-6"	11"	3'-6"	3'-0"	3'-6"
24"	7"	5'-6"	8"	3'-6"	3'-0"	3'-6"

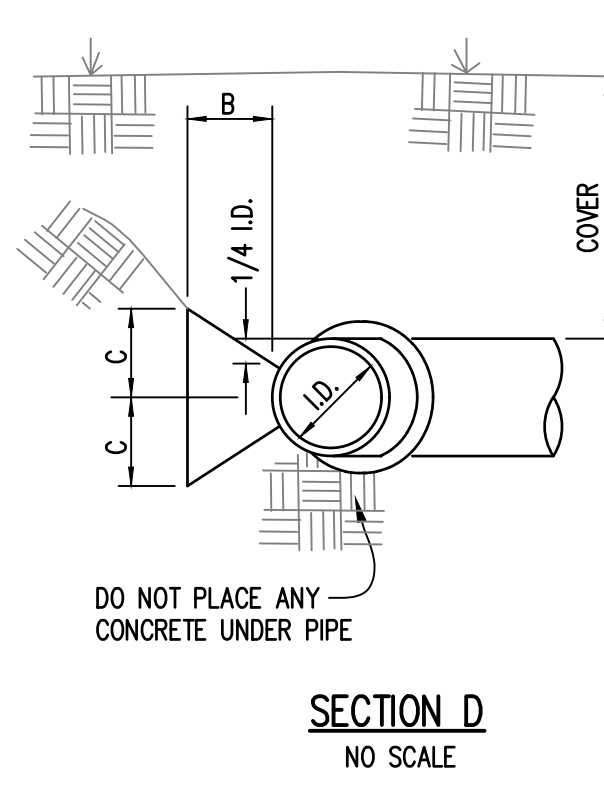


SECTION C
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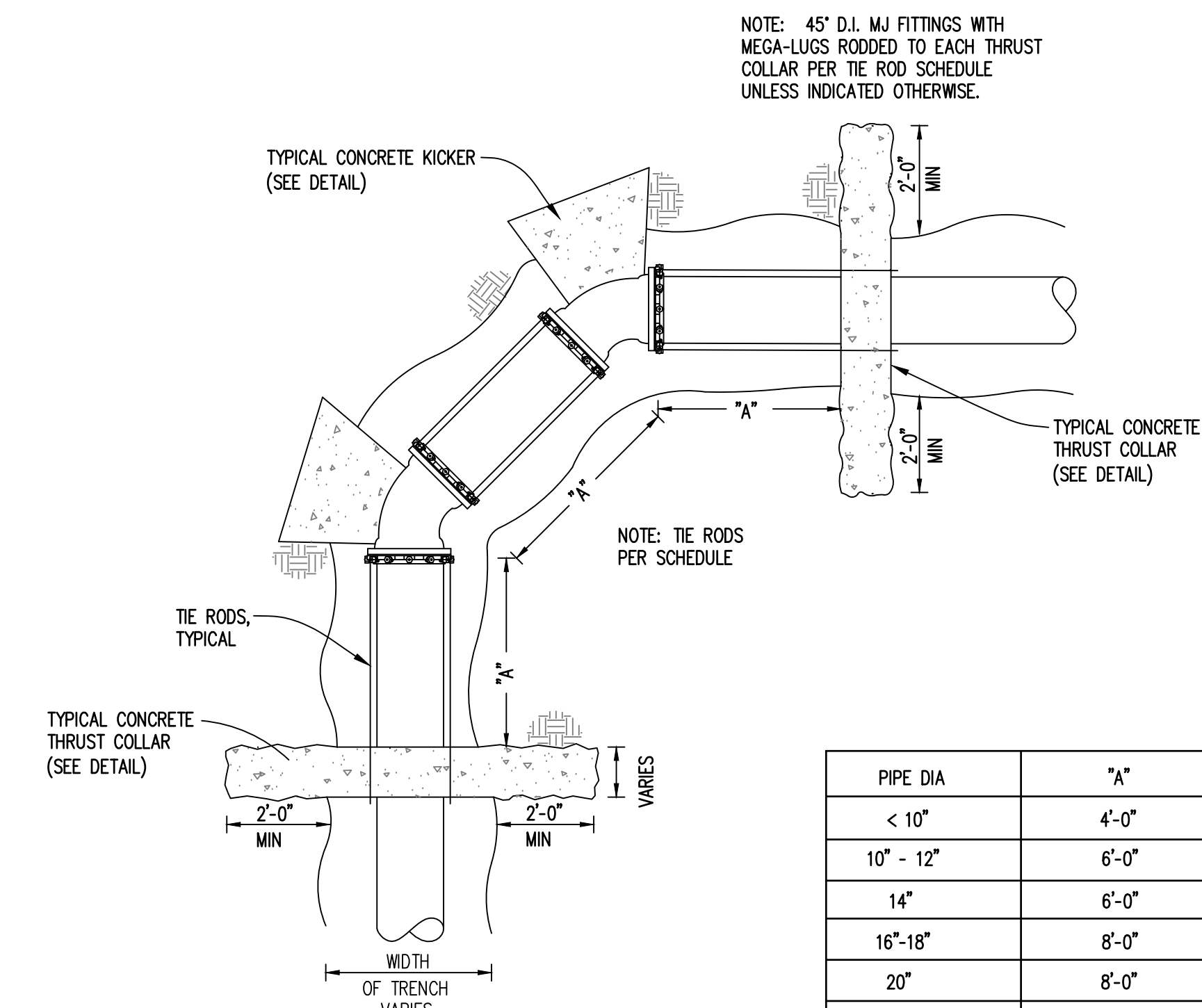


TYPICAL CONCRETE BRACING FOR 11 1/4° & 22 1/2° BENDS

22 1/2° BENDS						11 1/4° BENDS			
PIPE DIA.	A	B	C	MIN. COVER		A	B	C	MIN. COVER
4"	6"	1'-0"	6"	2'-6"		6"	1'-0"	6"	2'-6"
6"	1'-0"	1'-0"	6"	2'-6"		1'-0"	1'-0"	6"	2'-6"
8"	1'-0"	1'-0"	1'-0"	2'-6"		1'-0"	1'-0"	1'-0"	2'-6"
10"	1'-0"	1'-6"	1'-0"	3'-0"		1'-0"	1'-0"	1'-0"	3'-0"
12"	1'-6"	2'-0"	1'-0"	3'-0"		1'-0"	1'-6"	1'-0"	3'-0"
14"	1'-6"	2'-0"	1'-6"	3'-0"		1'-6"	1'-6"	1'-0"	3'-0"
16"	2'-0"	2'-0"	1'-6"	3'-0"		1'-6"	1'-6"	1'-0"	3'-0"
18"	2'-0"	2'-6"	2'-0"	3'-6"		1'-6"	2'-0"	1'-6"	3'-6"
20"	2'-6"	2'-6"	2'-0"	3'-6"		1'-6"	2'-0"	1'-6"	3'-6"
24"	2'-6"	3'-0"	2'-6"	3'-6"		2'-0"	2'-0"	2'-0"	3'-6"



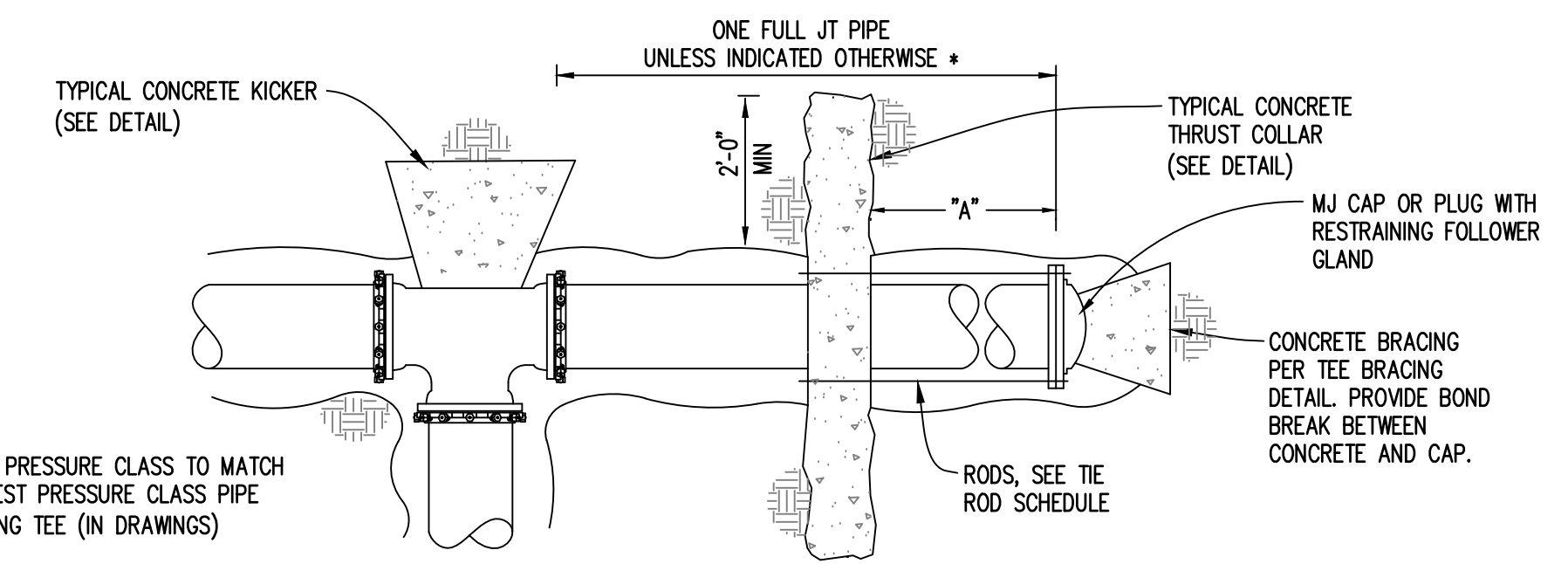
SECTION D
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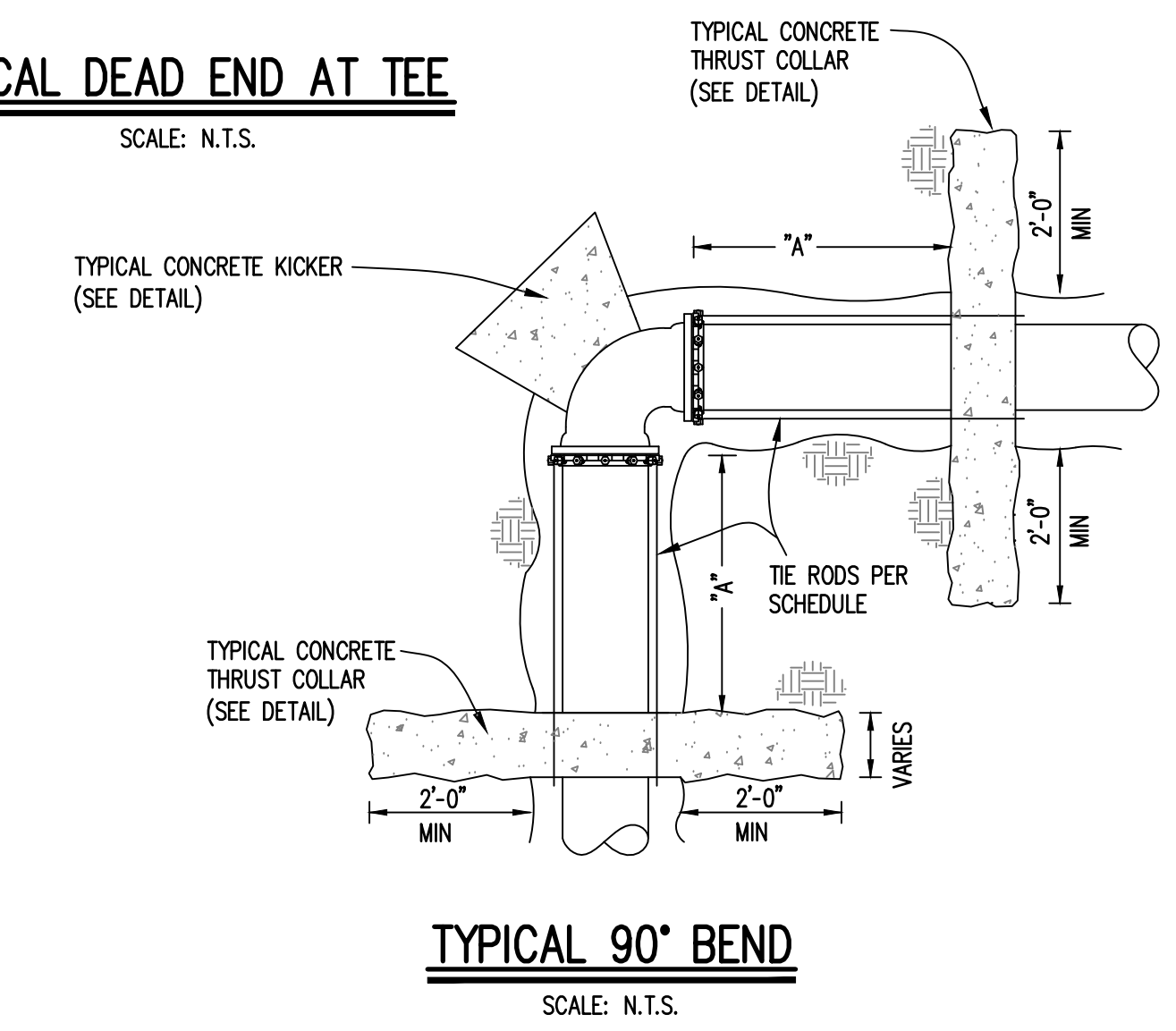
TYPICAL AT TWO 45° BENDS
SCALE: N.T.S.

PIPE DIA.	"A"	# RODS*
< 10"	4'-0"	2
10" - 12"	6'-0"	4
14"	6'-0"	5
16" - 18"	8'-0"	6
20"	8'-0"	7
24" - 30"	12'-0"	8

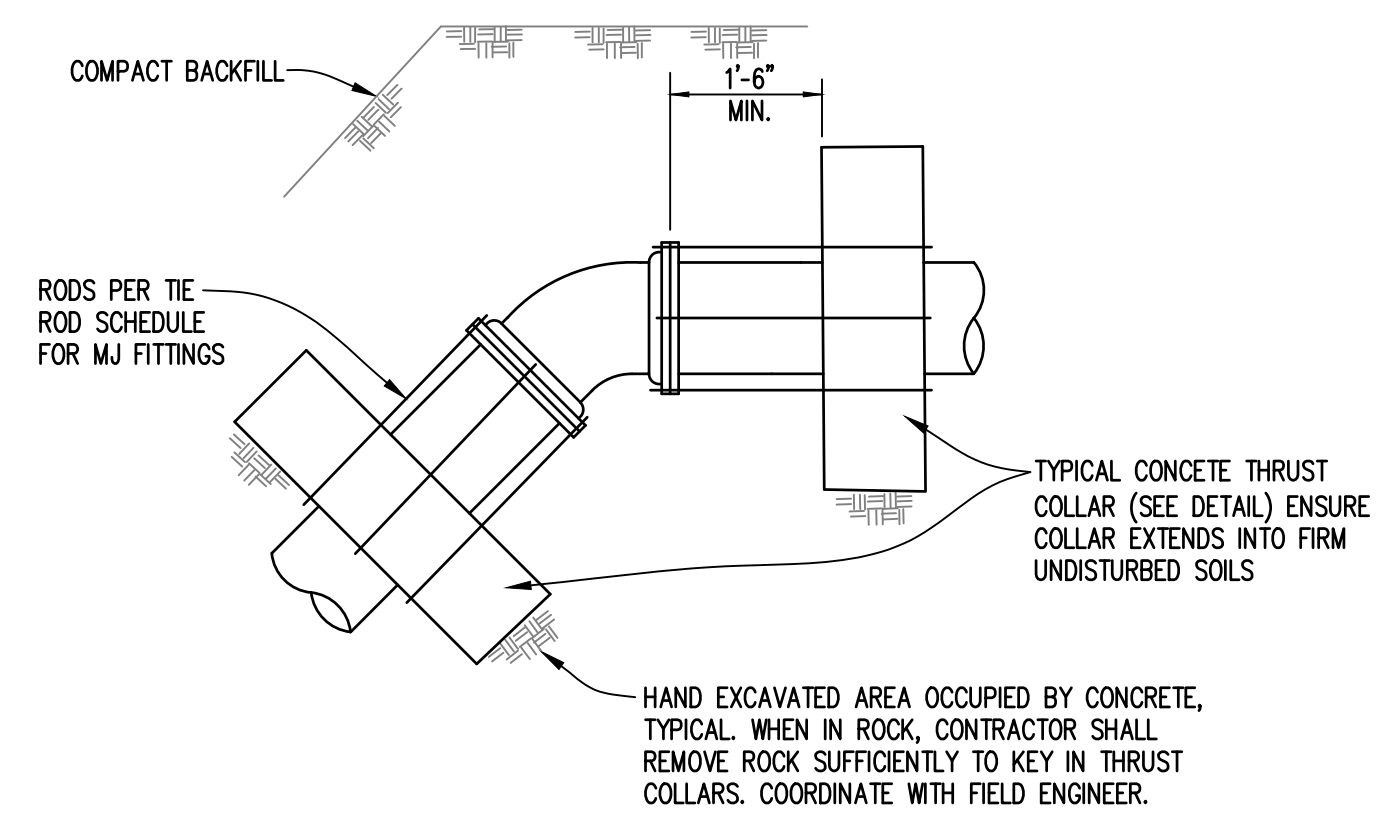
* SEE TIE ROD SCHEDULE



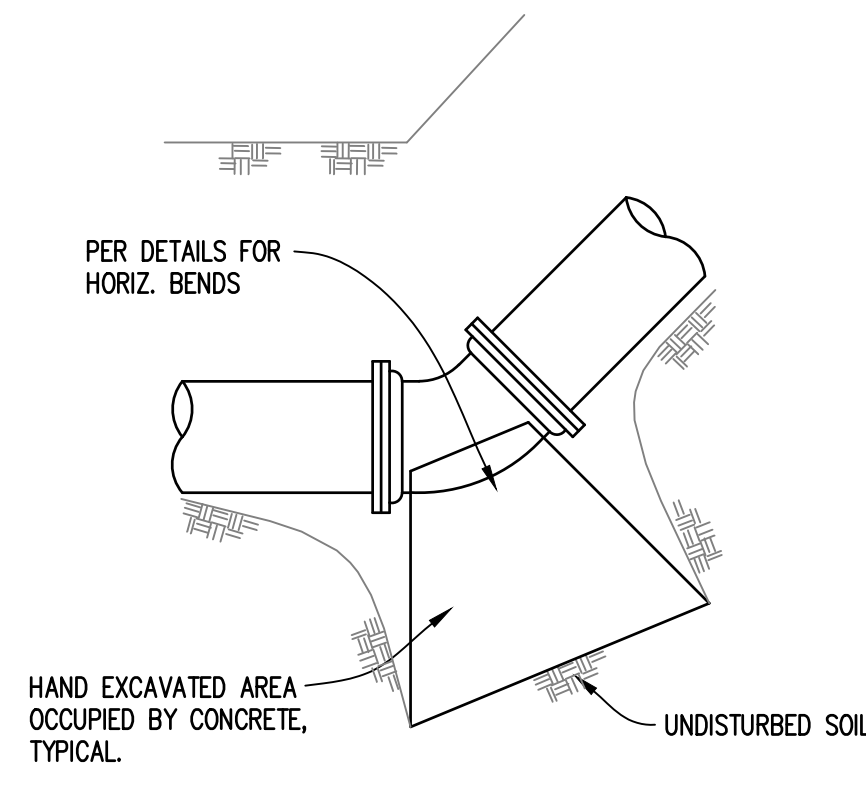
TYPICAL DEAD END AT TEE
SCALE: N.T.S.



TYPICAL 90° BEND
SCALE: N.T.S.



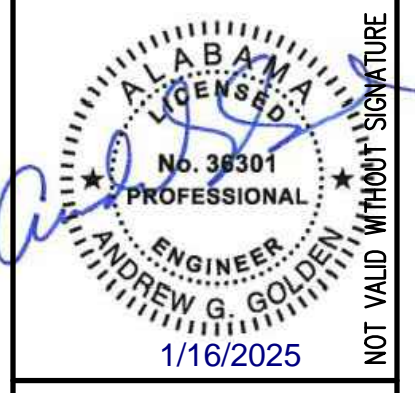
CONCRETE BRACING FOR VERTICAL BENDS DETAIL
SCALE: N.T.S.



GENERAL NOTES:

1. GENERAL DIMENSIONS SHALL BE CONSIDERED AS MINIMUMS, CONTRACTOR SHALL BE RESPONSIBLE FOR INCREASING DIMENSIONS AS REQUIRED FOR ACTUAL FIELD CONDITIONS ENCOUNTERED. CONTRACTOR TO ENSURE ALL THRUST RESTRAINT IS ADEQUATE.
2. ALL CONCRETE FOR THRUST RESTRAINT SHALL BEAR AGAINST FIRM UNDISTURBED SOILS.
3. CONTRACTOR SHALL WRAP ALL ACCESSORIES BOLTS, NUTS, CONNECTIONS, ETC. IN PLASTIC SUCH THAT THEY CAN BE REMOVED WITHOUT THE NEED FOR CONCRETE REMOVAL.
4. UNLESS INDICATED OTHERWISE IN PLANS, ALL FITTINGS SHALL BE MJ WITH RESTRAINING FOLLOWER GLANDS. RESTRAINING FOLLOWER GLANDS SHALL BE MEGA-LUG OR EQUAL. RETAINER GLANDS NOT ALLOWED.

NOTE: ENSURE ALL THRUST COLLARS ARE POURED AGAINST FIRM UNDISTURBED SOILS. HAND EXCAVATED AREA OCCUPIED BY CONCRETE, TYPICAL. WHEN IN ROCK, CONTRACTOR SHALL REMOVE ROCK SUFFICIENTLY TO KEY IN THRUST COLLARS. COORDINATE WITH FIELD ENGINEER.



BAR = 1"

Drawing	Title	
	STANDARD DETAILS	
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Sheet		

BMP GENERAL NOTES:

THE FOLLOWING REQUIREMENTS ARE TO BE CONSIDERED MINIMUM STANDARDS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING EROSION AND SEDIMENT CONTROL IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL LAWS, CODES AND REGULATIONS. CONTRACTOR SHALL NOTE THAT THE PROJECT IS LOCATED WITHIN THE ENVIRONMENTALLY SENSITIVE CAHABA RIVER WATERSHED. THE CONTRACTOR SHALL OBTAIN AN NPDES PERMIT FOR THE PROPOSED WORK AS REQUIRED BY THE ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (ADEM). BY BIDDING THE PROJECT, THE CONTRACTOR IS CERTIFYING THAT IF AWARDED THE CONTRACT, HE WILL BE THE SOLE PERMITEE ON THIS PERMIT AND THAT HE SHALL INDEMNIFY THE OWNER AGAINST AND SHALL BE SOLELY RESPONSIBLE FOR ANY FINES OR MONETARY DAMAGES ASSOCIATED WITH STORMWATER RUNOFF AND CONTROL.

1. THE CONTRACTOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES (BMP'S) FOR THE PREVENTION AND CONTROL OF NONPOINT SOURCES OF POLLUTANTS DURING AND AFTER PROJECT IMPLEMENTATION. THE CONTRACTOR, AT A MINIMUM, MUST IMPLEMENT BMP'S AS PROVIDED IN THE ALABAMA HANDBOOK FOR EROSION CONTROL, SEDIMENT CONTROL & STORMWATER MANAGEMENT ON CONSTRUCTION SITES & URBAN AREAS, AS AMENDED, AND THE EPA STORMWATER POLLUTION PREVENTION FOR CONSTRUCTION ACTIVITIES-DEVELOPING POLLUTION PREVENTION PLANS AND BEST MANAGEMENT PRACTICES, AS AMENDED. THE EROSION CONTROL DEVICES SHOWN ON THIS PLAN ARE A MINIMUM. ADDITIONAL DEVICES SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE OWNER AS REQ'D TO PREVENT SILTATION, EROSION, & OTHER DEGRADATION OR POLLUTION TO SITE OR ADJACENT PROPERTIES, STREAMS, DITCHES, PUBLIC ROADWAYS, ETC.

2. SITE GRADING SHALL BE MAINTAINED SO THAT NO UPSLOPE DRAINAGE ENTERS EXCAVATED OR DISTURBED AREAS.

3. TO THE EXTENT PRACTICAL, THE CONTRACTOR SHALL SCHEDULE HIS ACTIVITIES TO MINIMIZE THE AMOUNT OF AREA DISTURBED AT ANY ONE TIME.

4. ALL STOCKPILE EXCAVATED MATERIAL SHALL BE GRASSED OR COVERED WITHIN 72 HOURS OF STOCKPILING. GRASSING AND FERTILIZATION OF STOCKPILED SOILS SHALL BE AS PER THE ALABAMA HANDBOOK FOR EROSION CONTROL, SEDIMENT CONTROL & STORMWATER MANAGEMENT ON CONSTRUCTION SITES & URBAN AREAS. SEED RATES SPECIFIED IN THE MANUAL SHALL BE DOUBLED.

5. CONTRACTOR SHALL AS A MINIMUM INSPECT STORMWATER CONTROLS ONCE EVERY TWO WEEKS AND FOLLOWING A 1/2" OR GREATER RAINFALL IN ANY 24 HOUR PERIOD. SILT FENCING SHALL ALSO BE CHECKED WHEN WIND GUSTS EXCEED 25 MPH. DEFICIENCIES FOUND IN STORMWATER CONTROLS SHALL BE CORRECTED IMMEDIATELY. THE CONTRACTOR SHALL MAINTAIN A LOG OF ALL INSPECTION ACTIVITIES.

6. THE CONTRACTOR SHALL INSTALL SILT FENCING AROUND THE PROJECT PERIMETER PRIOR TO COMMENCING PROJECT. IN THE EVENT THAT THE PROJECT REQUIRES TEMPORARY CHANNELIZATION OF STORMWATER RUNOFF, THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN APPROPRIATE BMP CONTROLS (SETTLING BASINS, CHECK DAMS, ETC.)

7. PERMANENT VEGETATION OF ALL DISTURBED AREAS IS REQUIRED. ONCE ALL LAND DISTURBANCES HAVE CEASED & ALL DISTURBED AREAS ARE PERMANENTLY STABILIZED, EROSION CONTROL DEVICES SHALL BE REMOVED.

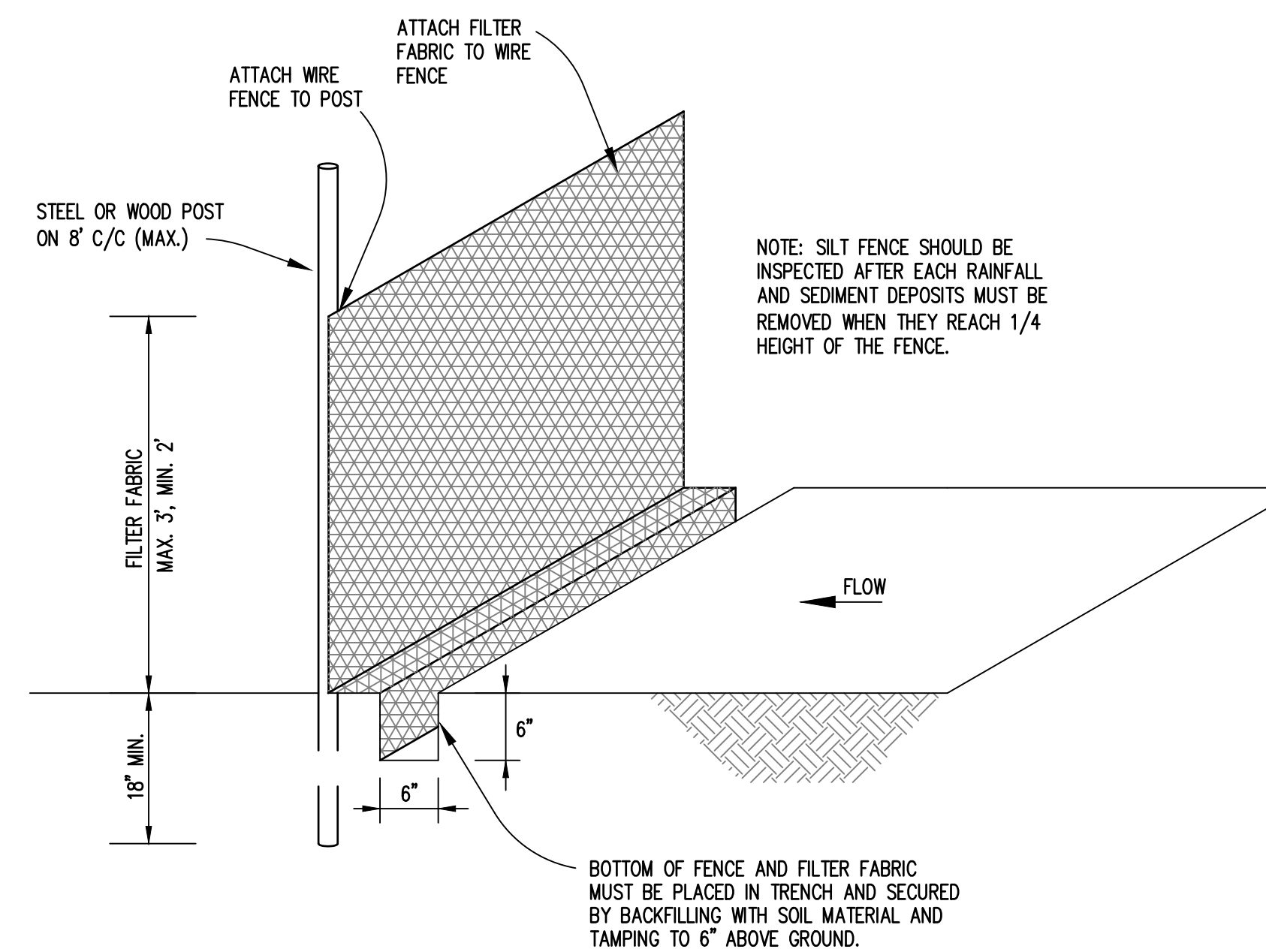
8. THE CONTRACTOR SHALL REMOVE ANY SEDIMENT TRACKED ON PUBLIC ROADWAYS IMMEDIATELY.

9. ALL DISTURBED AREAS LEFT INACTIVE FOR LONGER THAN 13 DAYS SHALL BE TEMPORARILY GRASSED OR COVERED TO PREVENT EROSION.

10. PERMANENT TURF REINFORCEMENT MATS ARE REQUIRED ON ALL SLOPES 2:1 OR STEEPER, AS WELL AS ALL DITCH LINES & SIDES.

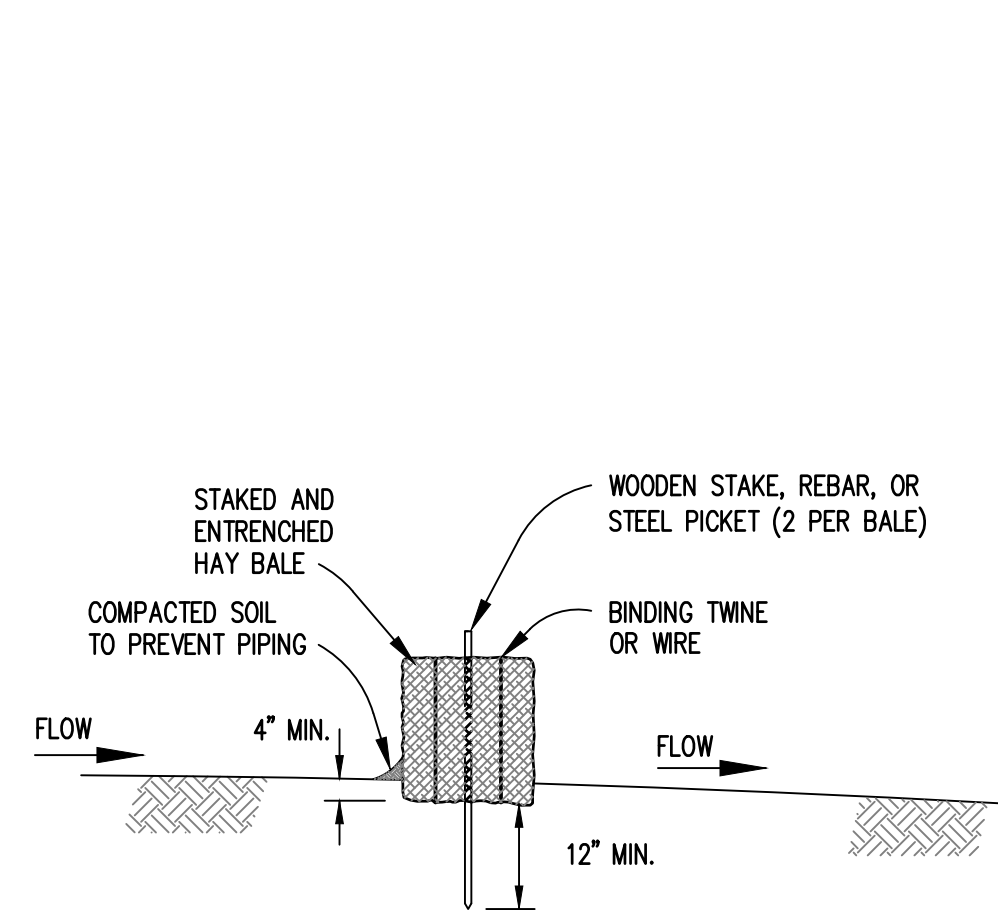
11. BMP MEASURES MAY BE SHOWN OUTSIDE OF CONSTRUCTION LIMITS AND/OR RIGHTS OF WAY FOR CLARITY. CONTRACTOR SHALL NOT INSTALL BMP'S BEYOND PROJECT BOUNDARIES.

12. CONTRACTOR IS RESPONSIBLE FOR THE RENEWAL OF ALL NPDES PERMITS AS REQUIRED FOR THE PROJECT.



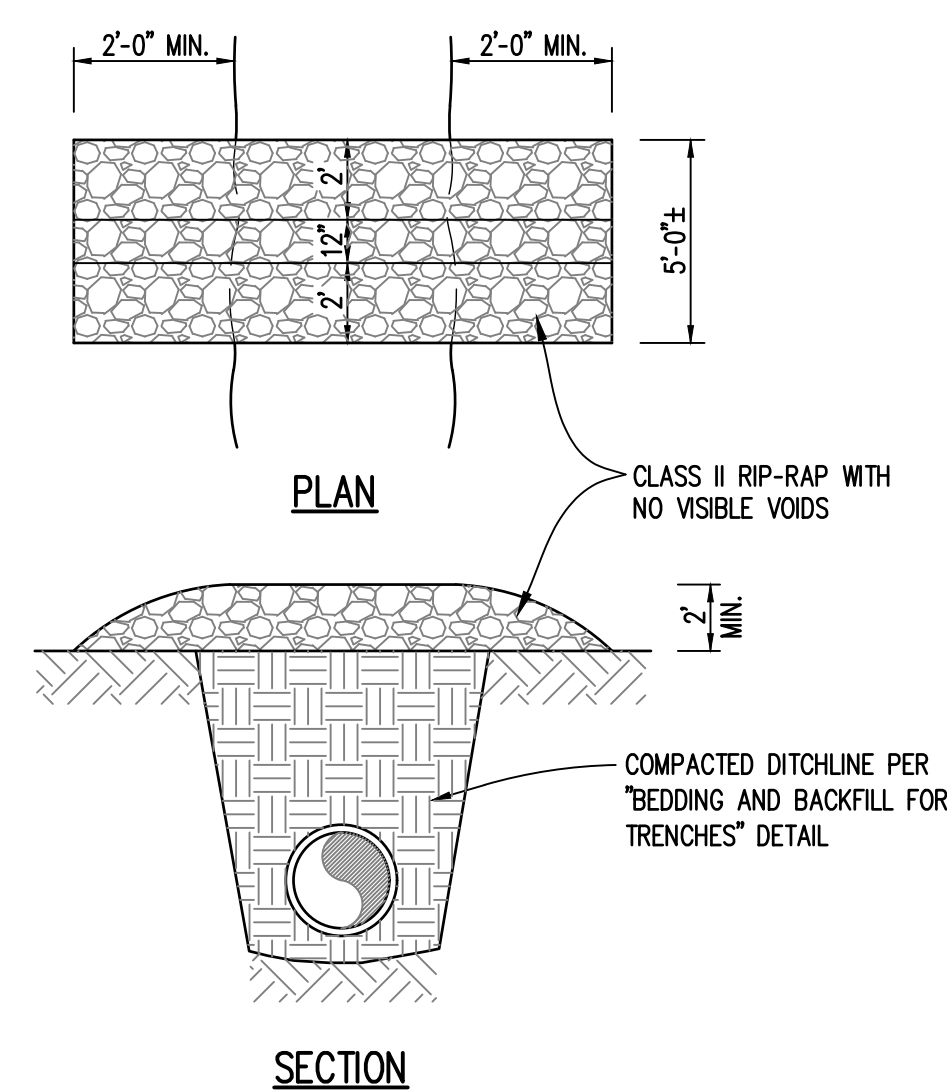
SILT FENCE DETAIL

SCALE: N.T.S.



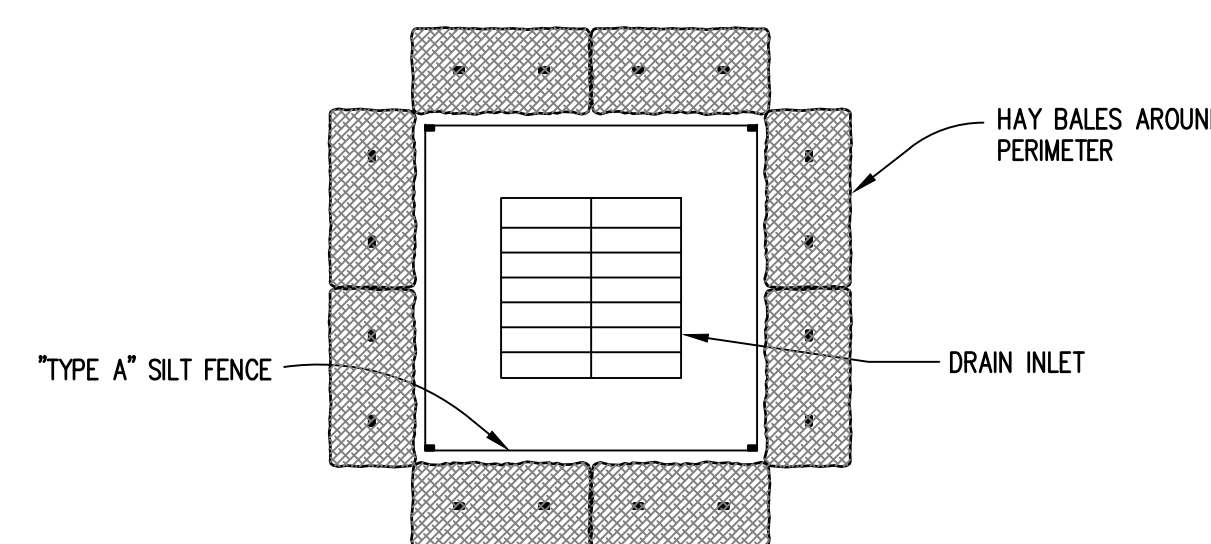
HAY BALE STAKING DETAIL

SCALE: N.T.S.



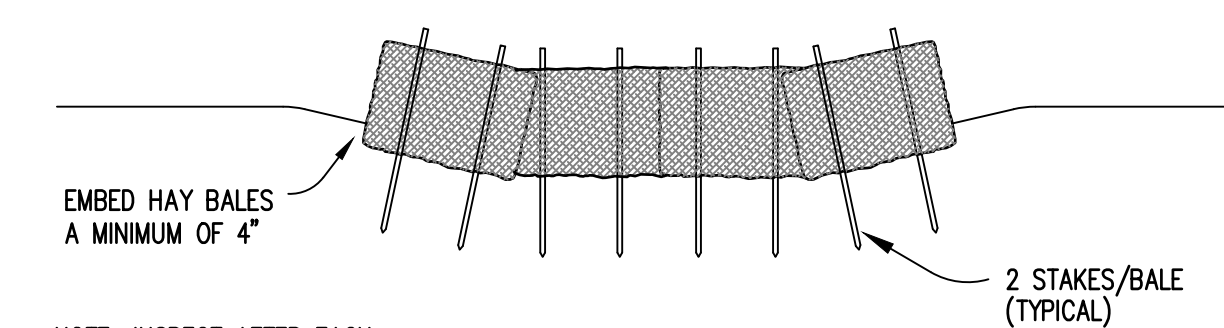
RIP-RAP DITCH CHECK DETAIL

SCALE: N.T.S.



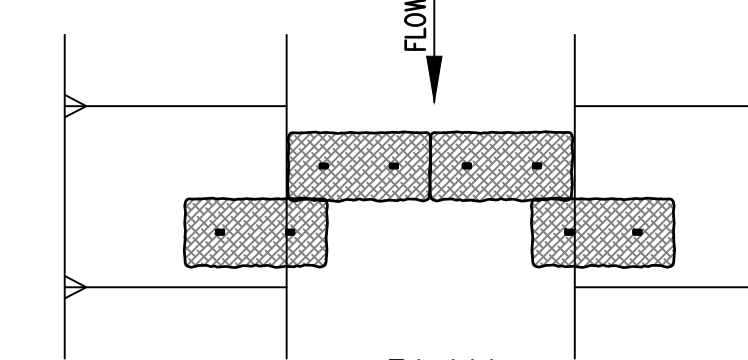
INLET PROTECTION DETAIL

SCALE: N.T.S.



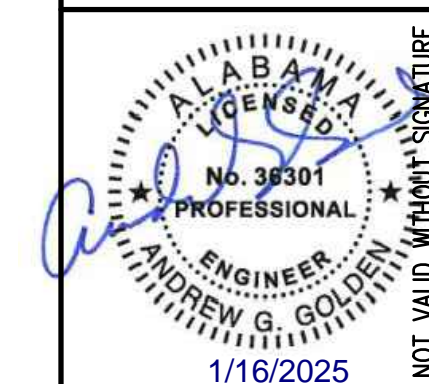
SECTION

SCALE: N.T.S.



HAY BALE DITCH CHECK DETAIL

SCALE: N.T.S.



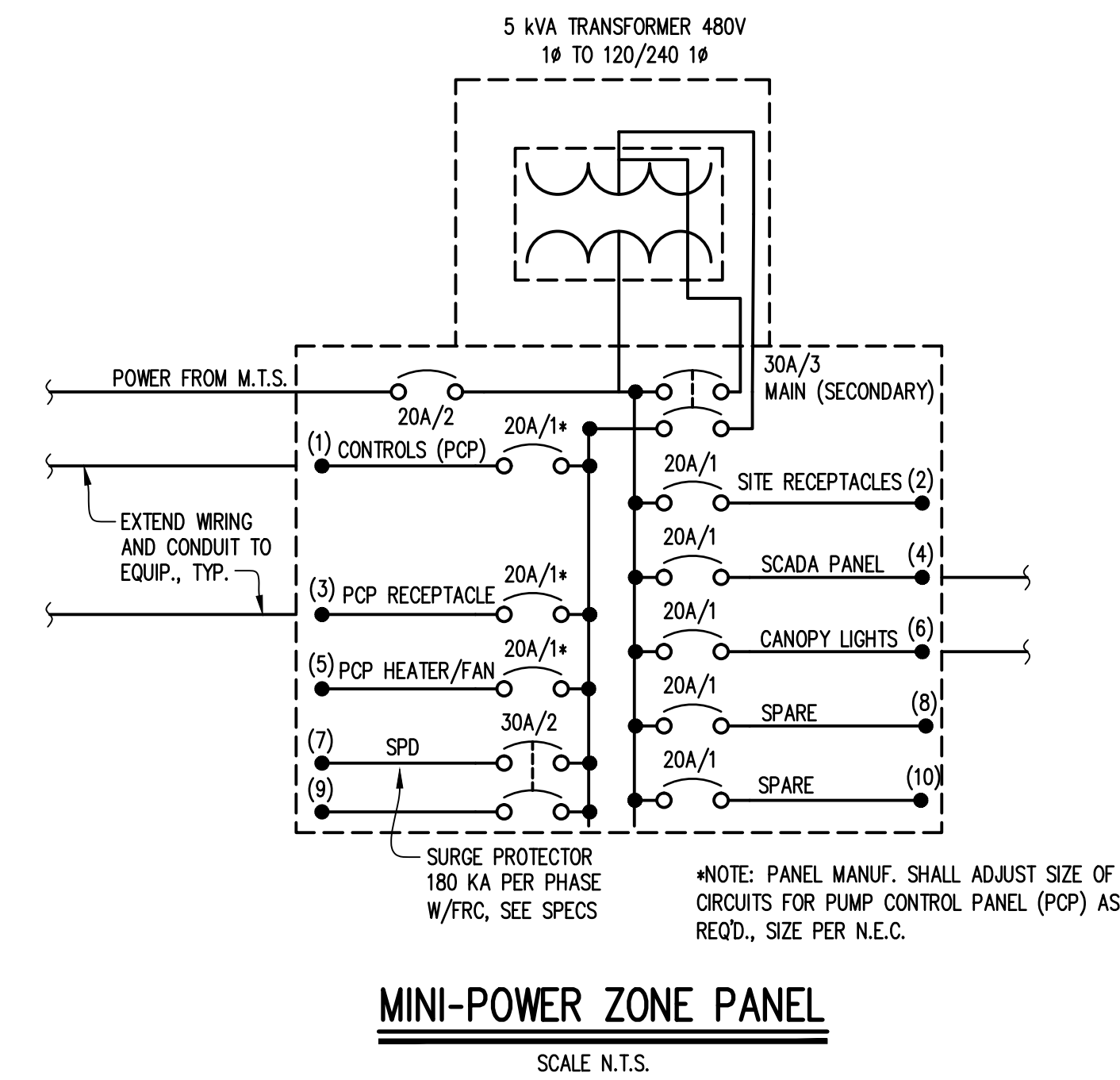
BAR = 1"

Drawing	Title	
	STANDARD DETAILS	
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	Scale	AS SHOWN
	Sheet	9

GENERAL ELECTRICAL CONTROL, INSTRUMENTATION & SCADA REQUIREMENTS

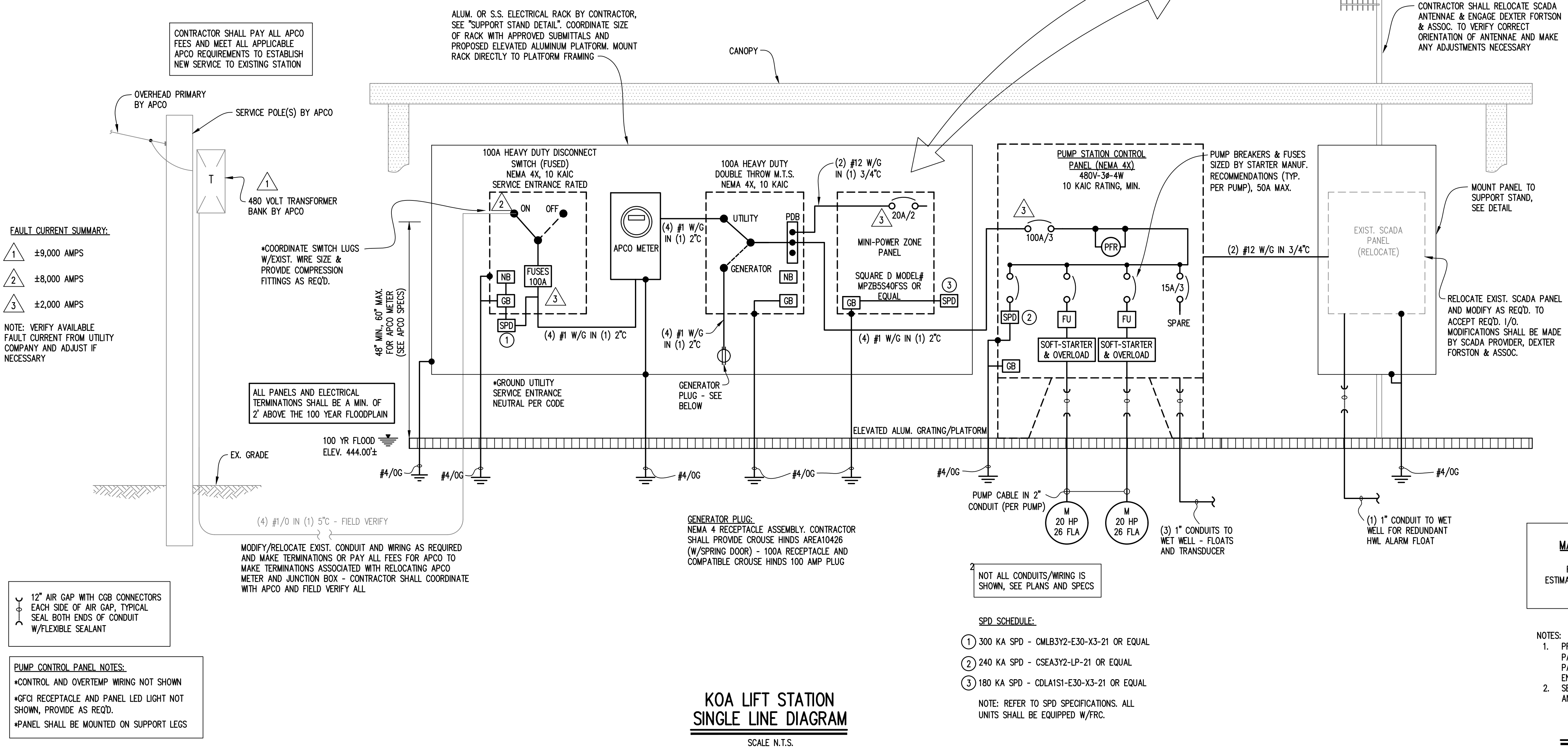
- SAFETY, INCLUDING BUT BY NO MEANS LIMITED TO COORDINATION WITH OTHERS FOR CIRCUITS OR EQUIPMENT THAT IS LIVE OR MAY BECOME LIVE, IS THE RESPONSIBILITY SOLELY OF THE CONTRACTOR. THE OWNER OR THE ENGINEER ARE NOT RESPONSIBLE FOR SAFETY.
- CONTRACTOR SHALL PROVIDE ALL MEANS, METHODS, AND MISCELLANEOUS APPURTENANCES, ETC., AS REQUIRED TO PERFORM AND PROPERLY COMPLETE THE WORK.
- DO ALL WORK IN COMPLIANCE WITH ALL APPLICABLE CODES, LAWS, AND ORDINANCES, THE NATIONAL ELECTRICAL CODE AND THE REGULATIONS OF THE LOCAL UTILITY COMPANIES. OBTAIN AND PAY FOR ANY AND ALL REQUIRED PERMITS, INSPECTIONS, CERTIFICATES OF INSPECTIONS AND APPROVAL, AND THE LIKE.
- PROVIDE GROUNDING AS REQUIRED BY CODE.
- INSTALL PULL CORD ("PC") IN EMPTY CONDUITS.
- ALL EXPOSED AND/OR VISIBLE CONDUIT, FITTINGS, WIREWAYS, GUTTERS, APPURTENANCES, ETC. SHALL BE ALUMINUM, EXCEPT LOW VOLTAGE CIRCUITS. CONDUIT BETWEEN PANELS MAY BE SEAL TITE FLEX CONDUIT WHERE NECESSARY.
- ALL HANGERS, UNISTRUT, CABLE TRAYS (WHERE AND IF SHOWN ON DRAWINGS), BRACKETS, ATTACHMENTS, CLAMPS, SCREWS, BOLTS, ANCHOR BOLTS, NUTS, WASHERS, HARDWARE, AND APPURTENANCES, ETC., USED SHALL BE STAINLESS STEEL OR ALUMINUM.
- ALL EXTERIOR DISCONNECT SWITCHES, EXTERIOR SAFETY SWITCHES, EXTERIOR LOCAL OPERATING SWITCHES, AND OTHER EXTERIOR DEVICES SHALL BE IN NEMA 4X STAINLESS STEEL ENCLOSURES, UNLESS OTHERWISE SPECIFICALLY CALLED OUT.
- PROVIDE GFCI RECEPTACLES ON ALL CIRCUITS POWERING RECEPTACLES THAT ARE OUTSIDE (INCLUDING THOSE UNDER SHEDS OR PARTIALLY ENCLOSED AREAS, ETC.), IN WET AREAS, OR IN POTENTIALLY WET AREAS, ETC. ALL SUCH RECEPTACLES SHALL BE WATERPROOF.
- THESE PLANS DO NOT, IN GENERAL, SHOW EXACT LOCATIONS OR CONFIGURATIONS OF CONDUIT ROUTING AND METHODS, INCLUDING THE METHOD OF ACCESSING STRUCTURES. THE CONTRACTOR SHALL PROPOSE TO THE ENGINEER AND OWNER HIS REQUESTED ROUTING (FOR BOTH NEW AND EXISTING STRUCTURES) FOR THEIR APPROVAL OR DENIAL OF APPROVAL. ROUTING WILL HAVE TO BE ADJUSTED IN THE FIELD TO AVOID NEW, PROPOSED, OR EXISTING PIPING, STRUCTURES, AND EQUIPMENT CONFLICTS, ETC.
- COORDINATE ALL WORK WITH INSTRUMENTATION AND SCADA.
- NO CONDUIT OR ELECTRICAL FACILITY OR APPURTENANCE SHALL BE INSTALLED IN A MANNER THAT CREATES A POTENTIAL TRIPPING HAZARD OR AN OBSTRUCTION TO PASSAGE OR HEADROOM, ETC.
- PROVIDE O & M MANUALS ON ALL ELECTRICAL GEAR AND CONTROL PANELS, ETC.
- PROPERLY PROTECT ALL CONDUIT AND WIRING FROM CONCRETE OR OTHER CORROSIVE MATERIALS.

- PROVIDE PERMANENT ENGRAVED LABELS ON ALL PANELS MOUNTED TO PANELS WITH S.S. SCREWS. COORDINATE FINAL WORDING OF LABELS WITH ENGINEER. PROVIDE ADDITIONAL WARNING LABELS ON PANELS OR BOXES OR MCC'S, ETC., WHERE POWER IS FED FROM MORE THAN ONE SOURCE OR WHERE TURNING OFF THE MAIN BREAKER OR SWITCH DOES NOT AUTOMATICALLY KILL ALL POWER INSIDE THE PANEL.
- PROVIDE REMOVABLE SEALANT (UNLESS PERMANENT SEALANT CALLED FOR) AT ALL CONDUIT ENTRY POINTS INTO WET WELLS, SUMPS, CHANNELS, TANKS, CHLORINE ROOMS, PANELS WHERE THE CONDUITS CARRY CIRCUITS THAT CONNECT (EITHER DIRECTLY OR INDIRECTLY) FROM SUCH AREAS AS THOSE JUST LISTED, ETC. TYPICAL.
- ALL SYSTEMS, ASSEMBLIES, AND COMPONENTS SHALL BE UL LISTED.
- KEEP FREE ENDS OF CABLE TIGHTLY CLOSED TO PREVENT THE ENTRANCE OF ANY MOISTURE DURING STORAGE AND AT ALL TIMES WHEN CABLE IS NOT BEING PULLED OFF A REEL, ETC.
- MANUFACTURERS OF ELECTRICAL EQUIPMENT, GEAR, CONTROL PANELS, MCC'S, CONTROLS, STARTERS, ETC., SHALL DESIGN AND SELECT THE PROPER TIMERS AND TIMING RELAYS ETC. REQUIRED TO PROVIDE FOR PROPER OPERATION OF ALL CONTROLLED EQUIPMENT AND MOTORS, ETC. TIME DELAYS ON MOTOR RESTARTS SHALL BE ADJUSTABLE UP TO ONE HOUR. LONGER DELAYS SHALL BE PROVIDED ON LARGER MOTORS OR WHERE THE MOTOR MANUFACTURER RECOMMENDS A LONGER PERIOD. THE CONTRACTOR SHALL PROPERLY ADJUST ALL THE TIMERS AT PROJECT STARTUP TO STAGGER EQUIPMENT STARTS AND TO PREVENT PROBLEMS DURING POWER TRANSFERS.
- THE CONTRACTOR SHALL ADJUST ALL EQUIPMENT, CONTROLS, RELAYS, APPURTENANCES, TIMERS, FLOATS, SETPOINTS, AND ALARMS, ETC., PRIOR TO STARTUP SUCH THAT THEY PROPERLY SERVE THEIR INTENDED PURPOSE AND DO NOT RESULT IN NUISANCE TRIPS OR ALARMS. COORDINATE WITH EQUIPMENT MANUFACTURERS AND PROVIDERS, ENGINEER, AND OWNER. ADJUST AS NECESSARY AFTER STARTUP.
- THE LOCATIONS SHOWN ON THE DRAWINGS FOR PANELS, STARTER, DISCONNECTS, AND ALL OTHER ELECTRICAL EQUIPMENT ARE CONCEPTUAL. TYPICAL FOR ALL EQUIPMENT. ACTUAL EQUIPMENT LAYOUT, SIZE, AND EQUIPMENT CONTROL PANEL LOCATION WILL VARY FROM THAT INDICATED. STUB UP ALL CONDUITS PER FINAL APPROVED SUBMITTAL DRAWINGS. THE CONTRACTOR SHALL VERIFY EXACT REQUIREMENTS FOR ALL EQUIPMENT. THE FINAL LOCATION SHALL BE BASED ON THE DIMENSIONS AND LOCATION OF THE ACTUAL EQUIPMENT FURNISHED AND SHALL PROVIDE THE CLEARANCES REQUIRED BY THE CODE, ETC. ALL GEAR AND PANELS, ETC., MUST FIT IN THE SPACE INDICATED ON THE DRAWINGS AND IN THE SPACE AVAILABLE.
- CONNECT SINGLE PHASE AND OTHER LOADS IN A MANNER TO BALANCE PHASE LOADING ON THE PANELS AND TRANSFORMERS.
- CONTROL DIAGRAMS AND SCHEMATICS CONTAINED IN THESE DRAWINGS ARE PROVIDED FOR CONCEPT ONLY. THESE DRAWINGS SHOW ONLY SOME OF THE REQUIREMENTS OF THE PROJECT. ALL DETAILS AND REQUIRED CONTROLS ARE NOT SHOWN. THE PANEL MANUFACTURER SHALL DESIGN THE PANELS AND PROVIDE ADDITIONAL RELAYS, SWITCHES, TIME DELAY RELAYS, AND OTHER COMPONENTS AND CIRCUITRY AS REQUIRED. COORDINATE WITH THE MANUFACTURERS OF ALL CONNECTING OR CONTROLLED EQUIPMENT FOR REQUIRED COMPONENTS. AS A MINIMUM, COORDINATE WITH MOTOR AND EQUIPMENT MANUFACTURERS, SCADA MANUFACTURER, VALVE MANUFACTURER, AND MANUFACTURERS OF INSTRUMENTATION ASSOCIATED WITH EQUIPMENT. THESE DRAWINGS AND THE SPECIFICATIONS SHALL BE USED BY THE STARTER MANUFACTURER TO DESIGN THE CONTROL DIAGRAMS AND WIRING, ETC. THE PANEL MANUFACTURER IS RESPONSIBLE FOR THE DETAILED DESIGN OF THE CONTROL SYSTEMS.



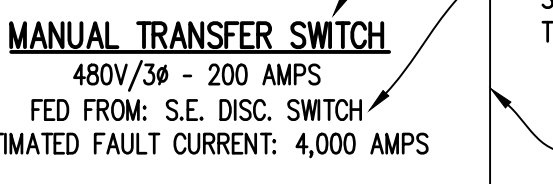
MINI-POWER ZONE PANEL

SCALE N.T.S.



KOA LIFT STATION SINGLE LINE DIAGRAM

SCALE N.T.S.



TYPICAL PANEL LABEL

SCALE N.T.S.

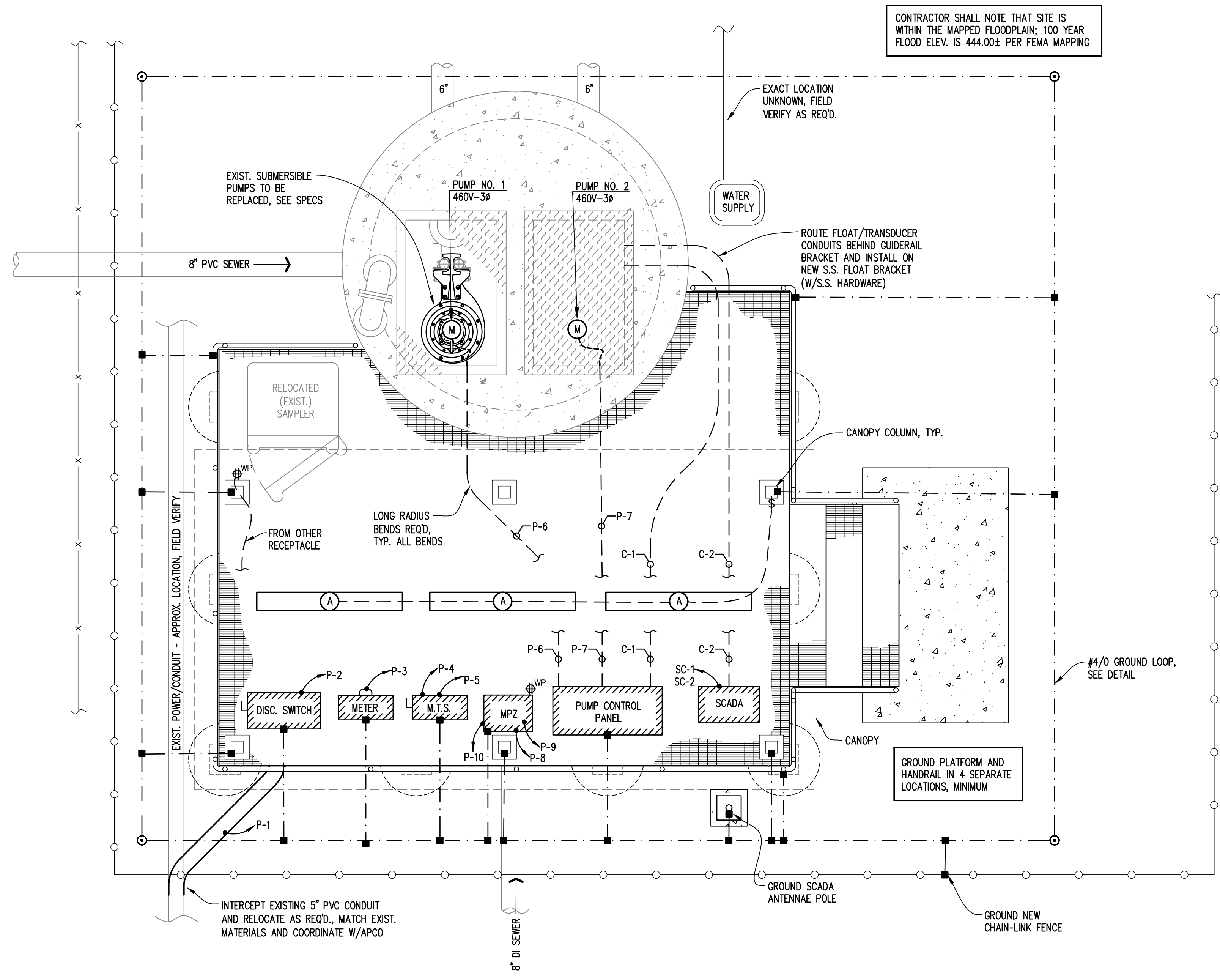
Municipal Consultants, Inc.
200 Century Park South, Suite 212
Birmingham, Alabama 35226
(205) 822-0387

CITY OF PELHAM, ALABAMA
KOA LIFT STATION & LIFT STATION P UPGRADES
2024
GRETCHEN DIFANTE, CITY MANAGER
CARY W. WATERS, MAYOR

Professional Engineer
FRANK M. GARDNER
1/16/25

BAR = 1"

Drawing	Title		Sheet
	KOA LIFT STATION SINGLE LINE DIAGRAM		
	Project No.	12 - 2024	
	Date	AS SHOWN	
Scale	10		BID SET



CONTRACTOR SHALL NOTE THAT SITE IS WITHIN THE MAPPED FLOODPLAIN; 100 YEAR FLOOD ELEV. IS 444.00± PER FEMA MAPPING

PLAN
SCALE: AS SHOWN

PARTIAL CONDUIT AND WIRING SCHEDULE					
MARK	FROM	TO	CONDUIT	WIRING	REMARKS
P-1	APCO POWER POLE	DISCONNECT SWITCH	5"	REUSE	COORDINATE WITH APCO AND PAY ALL APCO FEES
P-2	DISCONNECT SWITCH	APCO METER	2"	(4) #1 WITH #1G	COORDINATE WITH APCO AND PAY ALL APCO FEES
P-3	APCO METER	MANUAL TRANSFER SWITCH	2"	(4) #1 WITH #1G	
P-4	MANUAL TRANSFER SWITCH	MINI-POWER ZONE PANEL (MPZ)	3/4"	(2) #12 WITH #12G	
P-5	MANUAL TRANSFER SWITCH	PUMP CONTROL PANEL	2"	(4) #1 WITH #1G	INSTALL CONDUIT AND WIRING TO GENERATOR PLUG
P-6	PUMP CONTROL PANEL	PUMP #1	2"	PUMP CABLE	SEE AIR GAP DETAIL
P-7	PUMP CONTROL PANEL	PUMP #2	2"	PUMP CABLE	SEE AIR GAP DETAIL
P-8	MPZ PANEL	SCADA PANEL	3/4"	(2) #12 WITH #12G	
P-9	MPZ PANEL	CANOPY LIGHTS/SWITCH	3/4"	(2) #12 WITH #12G	
P-10	MPZ PANEL	SITE RECEPTACLES (2)	3/4"	(2) #12 WITH #12G	
C-1	PUMP CONTROL PANEL	WET WELL	(3) 1"	MANUF. CABLE	(2) FLOAT SWITCHES AND (1) SUBMERSIBLE TRANSDUCER
C-2	SCADA PANEL	WET WELL	1"	MANUF. CABLE	REDUNDANT HIGH LVL. ALARM FLOAT SWITCH
SC-1	PUMP CONTROL PANEL	SCADA PANEL	1"	(30) #14's	CONTROL AND ALARM
SC-2	PUMP CONTROL PANEL	SCADA PANEL	1"	(30) #14's	CONTROL AND ALARM, INCLUDING SPARES

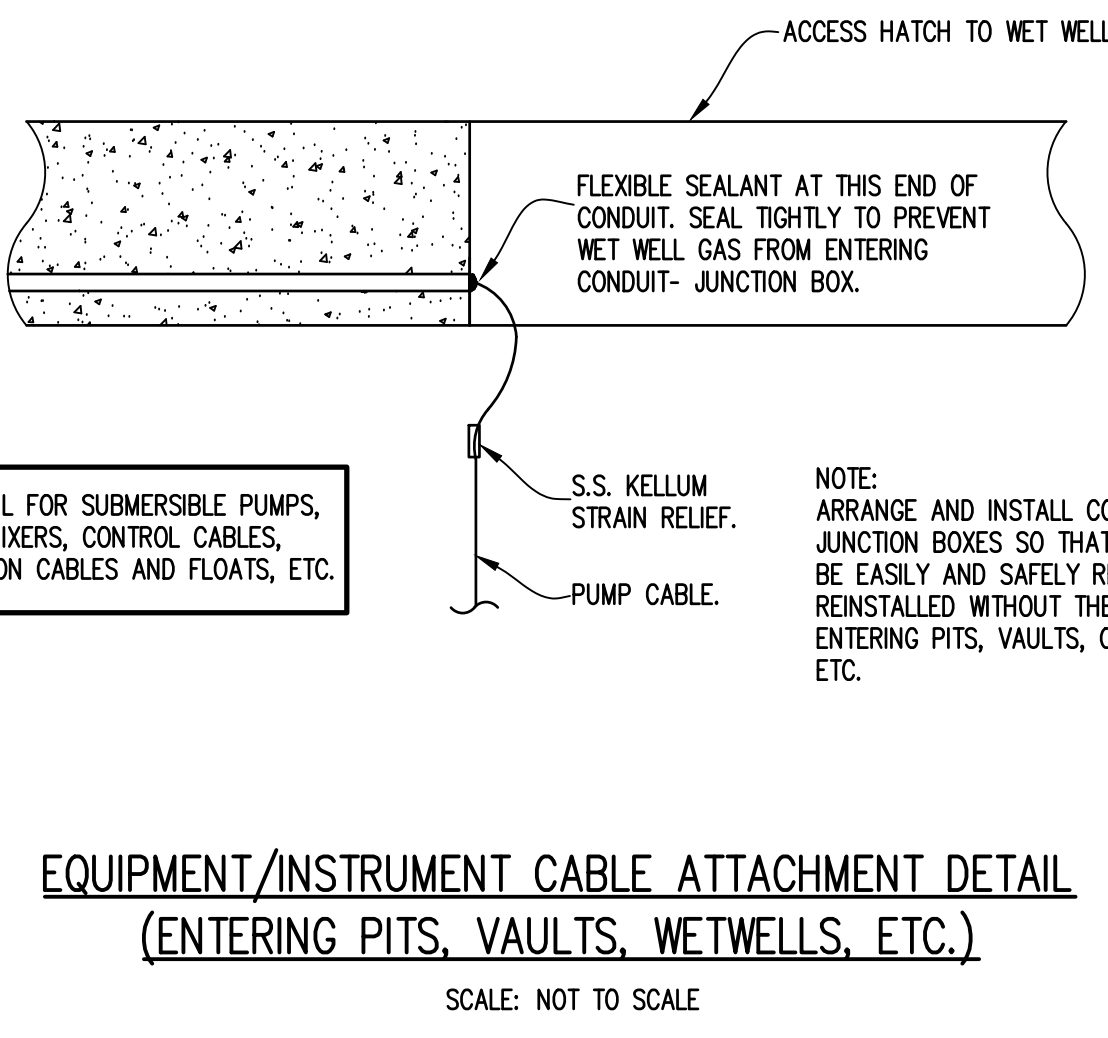
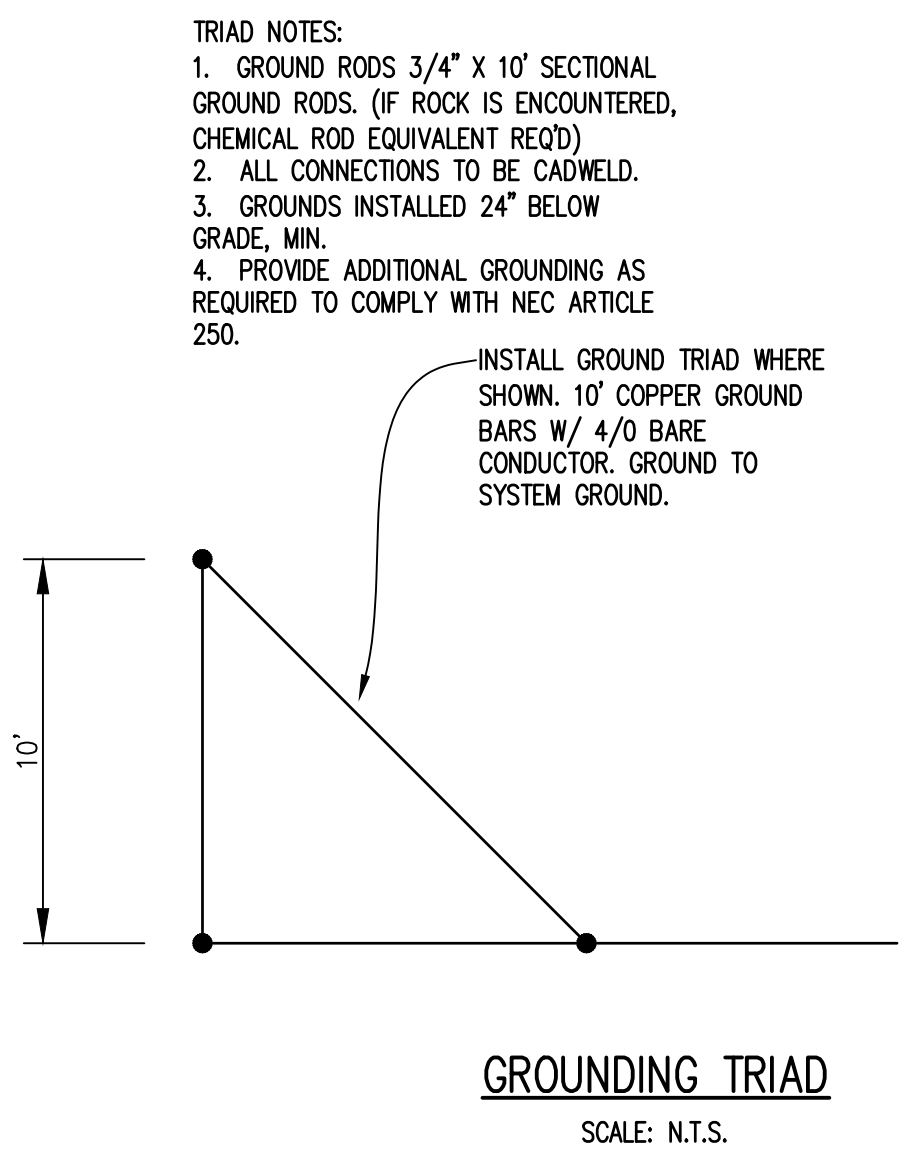
- NOTES:
- ALL MARKS INDICATE HOMERUN REQUIRED TO RESPECTIVE PANELS, SEE SCHEDULE. NOT ALL MARKS OR CIRCUITS ARE SHOWN.
 - NOT ALL CONDUIT AND CONDUCTORS ARE SHOWN. PROVIDE CONDUCTORS, CONDUITS, TERMINATIONS, JUNCTION BOXES, ETC. AS REQUIRED BY NEC, THE EQUIPMENT SUPPLIED, AND AS REQUIRED FOR A COMPLETE INSTALLATION.
 - COORDINATE WITH EQUIPMENT I/O REQUIREMENT.
 - ALL CONDUIT SHALL BE ALUMINUM. CONDUIT TO WET WELL SHALL BE ROUTED NEATLY BELOW THE PROPOSED PLATFORM AND ATTACHED TO THE PLATFORM FRAMING. PROVIDE AIR GAPS AND DUCT SEAL AS REQ'D. PAINT ALL ALUM. CONDUIT IN CONTACT WITH CONCRETE AND/OR GROUT WITH BITUMASTIC PAINT.

LEGEND

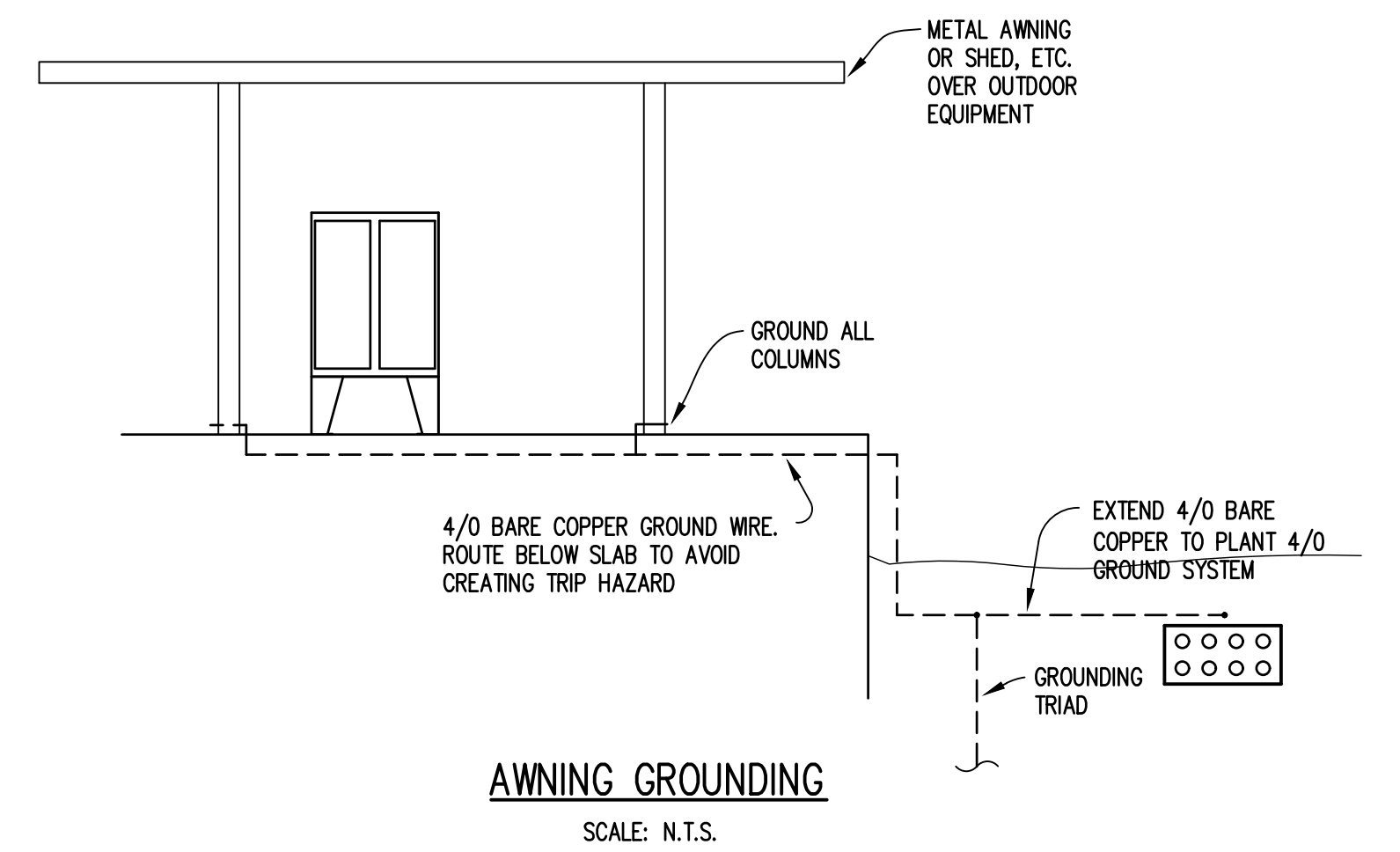
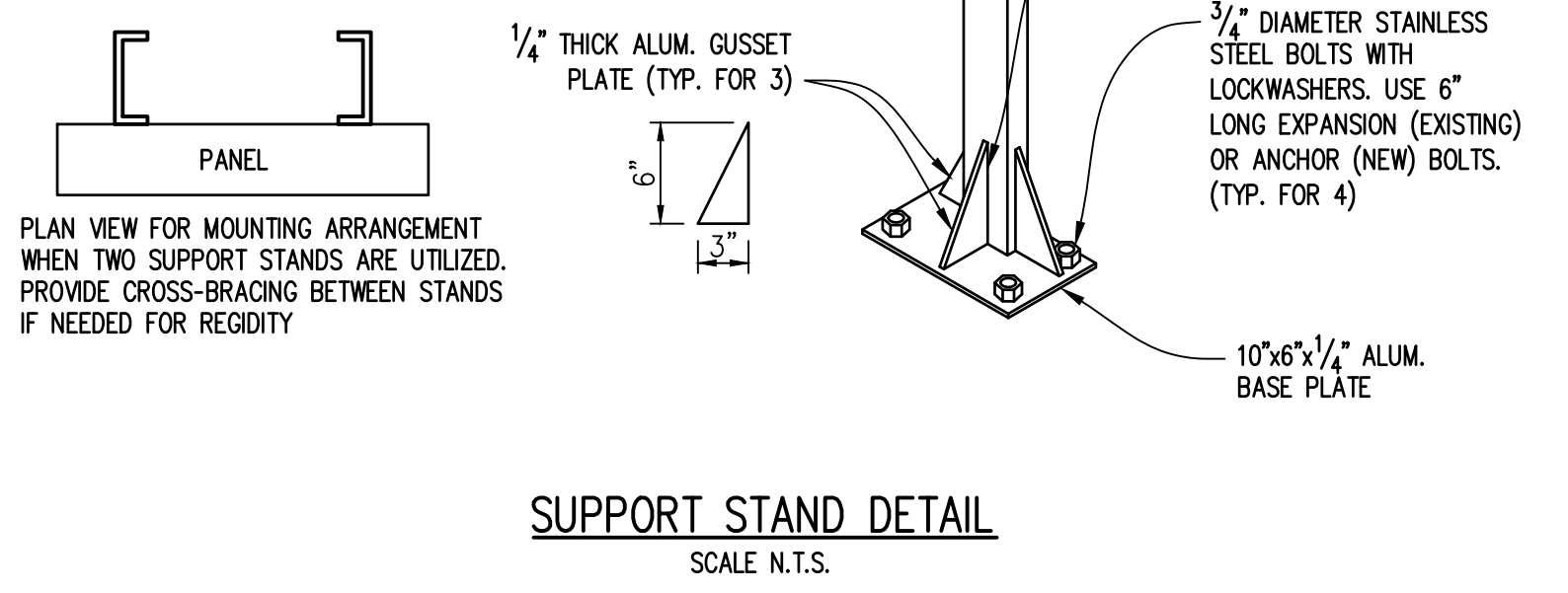
- ⊙ GROUND ROD - 3/4" x 10'-0" COPPER CLAD (IF ROCK IS ENCOUNTERED, CHEMICAL ROD EQUIVALENT REQ'D)
- GROUND CONNECTION - CADWELD WHERE BELOW GRADE OR CONCEALED - TWO BOLT LUG BOLTED WHERE EXPOSED.
- #4/0 BARE COPPER GROUND WIRE
- CONDUIT - SEE SCHEDULE
- WP WALL OUTLET - DUPLEX - 20A - 125V - 2P - 3W - GROUNDING - "GF" TYPE WEATHERPROOF - HUBBELL GF-5362 W/ WHILE-IN-USE WEATHERPROOF COVER
- ⓐ LIGHT FIXTURE "A" - COLUMBIA LXEM4-40ML-RFA-EU
- Ⓢ SWITCH OUTLET - 20A - 120-277VAC - HUBBELL 1220 - PROVIDE IN WEATHERPROOF HOUSING
- Ⓜ MOTOR OUTLET, SIZE AS SHOWN
- P-5 BRANCH CIRCUIT HOME RUN

NOTES

- ALL GROUND WIRES SHALL BE INSTALLED A MINIMUM OF 18" BELOW GRADE AND 3'-0" MINIMUM FROM STRUCTURES.
- COORDINATE WITH THE ELECTRICAL UTILITY AND PROVIDE ALL ITEMS AND WORK REQUIRED BY THE UTILITY FOR A COMPLETE SERVICE.
- PROVIDE GROUNDING AS REQUIRED BY APCO AND NEC FOR A SEPARATELY DERIVED GROUND.
- GROUNDING GRID AROUND STRUCTURES AND BUILDING SHALL BE AT OR BELOW THE LOWEST ELEVATION OF THE FOOTING.



- NOTE:
- DETAIL FOR LOCAL OPERATOR STATIONS, FLOWMETERS, SMALL DISCONNECT SWITCHES, AND OTHER SIMILAR SMALL DEVICES.
 - PROVIDE DUAL SUPPORT STANDS WITH FRAME FOR INSTRUMENTS WHERE LARGER PANELS OR TWO OR MORE DEVICES OR COMPONENTS ARE MOUNTED AT A SINGLE LOCATION, OR WHERE DESIRED FOR RIGIDITY.
 - COORDINATE AND INSTALL CONDUITS AND STANDS, ETC., SUCH THAT NO POTENTIAL TRIPPING HAZARD IS CREATED.
 - NEATLY GRIND SHARP EDGES AND CORNERS OF STANDS AND FRAMES, ETC.
 - WHERE DUAL STANDS ARE DESIRED FOR LARGER PANELS, ETC., INSTALL THE STANDS AND MOUNT THE PANELS SUCH THAT LONG DIMENSION OF THE SUPPORT CHANNEL IS PERPENDICULAR TO THE BACK OF THE CHANNEL. WITH THIS ARRANGEMENT THE BASEPLATE MUST NOT EXTEND BEYOND THE FOOTPRINT OF THE PANEL.



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CITY OF PELHAM, ALABAMA
KOA LIFT STATION & LIFT STATION P UPGRADES
2024
GRETCHEN DIFANTE, CITY MANAGER
GARY W. WATERS, MAYOR

Professional Engineer
FRANK M. CARTER
No. 60824
1/6/25
NOT VALID WITHOUT SIGNATURE

Title
KOA LIFT STATION ELECTRICAL PLAN

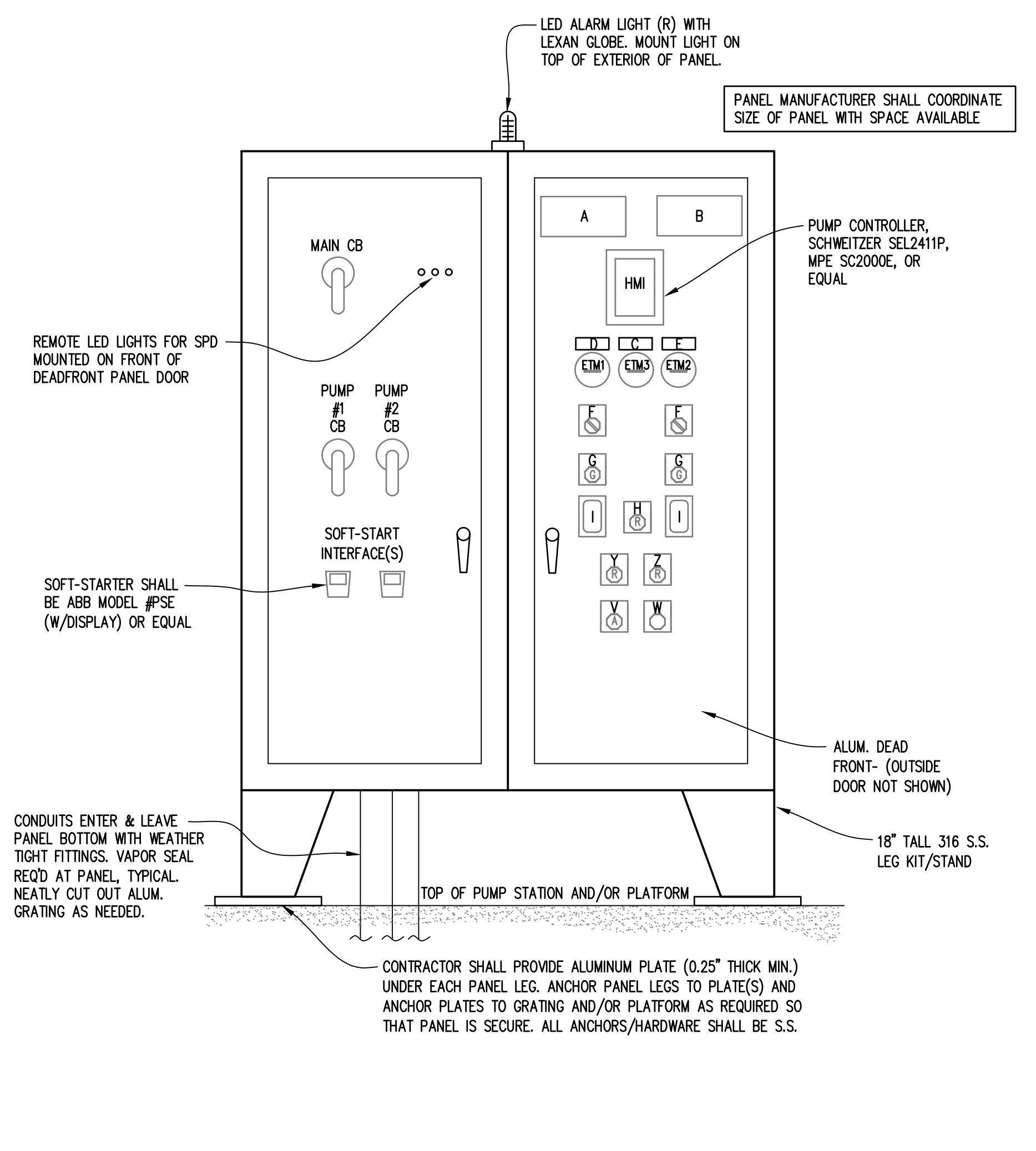
Drawing No.
12-2024

Date
1/2" = 1'-0"

Scale
11

Sheet
11

BID SET



- NOTES:**
1. ALL WIRING AND COMPONENTS TO MEET THE NATIONAL ELECTRIC CODE AND INDUSTRY STANDARD.
 2. ALL POWER WIRING-BLACK. ALL CONTROL WIRING-RED. NO POWER WIRE LESS THAN #12 GAUGE.
 3. ALL WIRES TO BE NUMBERED AND SAME NUMBER TO BE ON BOTH ENDS OF SAME WIRE.
 4. ALL CONTROL PANELS TO BE UL APPROVED.
 5. SHOP DRAWINGS SHALL BE APPROVED BEFORE PANEL MANUFACTURE.
 6. INDICATOR LIGHTS SHALL BE LED & "PUSH TO TEST".
 7. LAMINATED CONTROL SCHEMATIC TO BE PROVIDED AND STORED IN PANEL DOOR.
 8. DRAWINGS REFLECT GENERAL ELECTRICAL AND CONTROL REQUIREMENTS. CONTRACTOR AND CONTROL PANEL MANUFACTURER ARE RESPONSIBLE FOR SUPPLYING AND INSULATING ALL CONDUITS, WIRING, AND APPURTENANCES NECESSARY FOR A COMPLETELY OPERATIONAL SYSTEM.
 9. PUMP CONTROLLER SHALL BE SCHWEITZER SEL2411P, MPE SC2000E, OR EQUAL.
 10. SOFT STARTERS SHALL BE ABB, MODEL #PSE OR EQUAL WITH DISPLAY. ALL OVERLOAD/OVERCURRENT PROTECTION SHALL BE AS RECOMMENDED BY SOFT STARTER MANUFACTURER.
 11. PANEL MANUFACTURER SHALL MAKE ALL PROVISIONS NECESSARY TO ENSURE THAT THE CONTROL PANEL IS ADEQUATELY VENTILATED AND/OR COOLED.
 12. ALL ANALOG SIGNALS SHALL BE PROPERLY ISOLATED SO THAT THERE ARE NO SIGNAL INTERFERENCE(S).
 13. ALL PANELS SHALL BE PADLOCKABLE.
 14. ADEQUATE SPACE SHALL BE PROVIDED WITHIN THE PANEL FOR SPARE SPACE, SEE SPECS.

ENGRAVING SCHEDULE

ID NO.	WORDING
A	WARNING: EQUIPMENT STARTS AUTOMATICALLY. DISABLE REMOTE CAPABILITY PRIOR TO SERVICING EQUIPMENT.
B	WARNING: DO NOT OPERATE IN HAND POSITION WITH STATION UNATTENDED.
C	PUMP 1 AND PUMP 2
D	PUMP NO.1
E	PUMP NO.2
F	HAND/OFF/AUTO
G	PUMP RUNNING LIGHT
H	PUMP CONTROLLER FAULT
I	PUMP SUPERVISORY RELAY MODULE
K-T	RESERVED
U	RESERVED
V	BACKUP FLOATS ACTIVE
W	RESET
X	RESERVED
Y	HIGH WATER LEVEL ALARM
Z	LOW WATER LEVEL ALARM

SCADA AND CONTROL NOTES AND REQUIREMENTS:

1. THE CURRENT SCADA SUPPLIER IS DEXTER FORTSON & ASSOCIATES (DFA) - 205-432-2700. THE CONTRACTOR SHALL CONTRACT WITH DFA TO PROVIDE ALL NECESSARY COMPONENTS, PROGRAMMING, ANTENNAS, ETC. TO FULLY INCORPORATE ALL REQUIRED SIGNALS/ALARMS INTO EXISTING SCADA SYSTEM. THE SCADA SUPPLIER SHALL PROVIDE NEW DISPLAY SCREENS, ALARM TAGS, PROGRAM BUTTONS, ETC. AS REQUIRED BY THE OWNER DURING CONSTRUCTION.
2. SEE SCADA AND CONTROLS I/O TABLE FOR REQUIRED CONTACT INPUTS/OUTPUTS.
3. THE CONTRACTOR/SCADA SUPPLIER SHALL INCORPORATE ALL OF THE SIGNALS SHOWN IN THE SCADA AND CONTROL I/O TABLE INTO THE EXISTING SCADA PANEL AND SYSTEM UNDER THIS CONTRACT. THE CONTRACTOR/SCADA SUPPLIER SHALL MODIFY THE EXISTING SCADA PANEL AND PROGRAMMING AS REQUIRED TO INCORPORATE NEW SCADA I/O INDICATED. CONTRACTOR SHALL PROVIDE ALL SCADA COMPONENTS, EQUIPMENT, ETC. REQUIRED TO COMPLETE THE WORK REQUIRED.
5. THE SCADA PANEL SHALL SUPPLY POWER TO REMOTE DRY CONTACTS AS REQUIRED. CONTRACTOR SHALL VERIFY POWER SOURCES FOR ALL DRY CONTACTS AND OTHER SIGNALS SHALL BE PROPERLY COORDINATED DURING SUBMITTALS.
6. CONTRACTOR SHALL VERIFY ALL NEEDED INFORMATION REGARDING EXISTING SCADA PANEL REQUIRED TO COMPLETE IMPROVEMENTS AND REQUIRED WORK. THIS SHALL BE DONE PRIOR TO BIDDING. THE CONTRACTOR SHALL INCLUDE ANY AND ALL COSTS FOR ADDITIONAL EQUIPMENT, WIRES, BOXES, PROGRAMMING, ETC. INTO BID PRICE FOR A COMPLETE PROJECT. NO ADDITIONAL MONEY WILL BE GRANTED DURING CONSTRUCTION FOR FAILING TO DO THIS.
7. CONTRACTOR/SCADA SUPPLIER SHALL PROVIDE ALL NECESSARY SCADA COMPONENTS, EQUIPMENT, BOXES, WIRES, ANTENNAS, I/O TERMINAL CARDS, PLC'S, ETC. REQUIRED TO FULLY INCORPORATE ALL SIGNALS/ALARMS INTO EXISTING SCADA SYSTEM AND COMPLETE THE WORK REQUIRED.
8. THE SCADA SUPPLIER SHALL PERFORM ALL PROGRAMMING FOR SCADA OPERATIONS AT THE WIP EXISTING CONTROL COMPUTER AS REQUIRED. ALL ALARMS SHALL BE INCORPORATED/DISPLAYED INTO THE EXISTING ALARM SYSTEM TO DISPLAY ON SCREENS AND ANNUNCIATE AS REQUIRED. COORDINATE WITH THE OWNER/ENGINEER DURING CONSTRUCTION FOR PREFERENCES/REQUIREMENTS.
9. CHANGES TO SCADA SYSTEM SHOULD BE COORDINATED WITH THE OWNER/ENGINEER FOR SEQUENCING.
10. EXISTING HARDWARE MAY BE RE-USED IF CAPABLE OF SUPPORTING THE REQUIRED I/O. SCADA PROVIDER SHALL VERIFY ALL AND PROVIDE ANY ADDITIONAL HARDWARE (E.G. EXPANDED I/O AND/OR NEW PANEL) IF REQUIRED. SCADA PROVIDER SHALL BE RESPONSIBLE FOR MODIFYING EXISTING I/O AS NEEDED AND TERMINATING ALL NEW WIRING WITHIN RELOCATED (OR NEW) SCADA PANEL.

LEGEND
 DI = DISCRETE INPUT
 DO = DISCRETE OUTPUT
 AI = ANALOG INPUT
 AO = ANALOG OUTPUT
 DC = DIGITAL CONTROL/COMMUNICATIONS
 PCP = PUMP CONTROL PANEL

SCADA AND CONTROL I/O

#	DESCRIPTION	DI	DO	AI	AO	DC	COMMENTS
1	PUMP #1 RUNNING STATUS	1					FROM PUMP CONTROL PANEL
2	PUMP #2 RUNNING STATUS	1					FROM PUMP CONTROL PANEL
3	PUMP #1 IN AUTO STATUS	1					FROM PUMP CONTROL PANEL
4	PUMP #2 IN AUTO STATUS	1					FROM PUMP CONTROL PANEL
5	PUMP #1 IN HAND STATUS	1					FROM PUMP CONTROL PANEL
6	PUMP #2 IN HAND STATUS	1					FROM PUMP CONTROL PANEL
7	PUMP #1 FAULT	1					FROM PUMP CONTROL PANEL
8	PUMP #2 FAULT	1					FROM PUMP CONTROL PANEL
9	WET WELL HIGH LEVEL ALARM	1					FROM PUMP CONTROL PANEL
10	WET WELL LOW LEVEL ALARM	1					FROM PUMP CONTROL PANEL
11	PRESSURE TRANSDUCER LEVEL			1			FROM PUMP CONTROL PANEL
12	PCP POWER STATUS	1					FROM PUMP CONTROL PANEL
13	BACKUP FLOATS ACTIVE	1					FROM PUMP CONTROL PANEL
14	REDUNDANT HIGH LEVEL ALARM	1					FLOAT SWITCH DIRECTLY TO SCADA PANEL
15	PUMP CONTROLLER FAULT	1					FROM PUMP CONTROL PANEL
16	WET WELL LEVEL (TRANSDUCER)				1		TO CHART RECORDER

SCADA REQUIREMENTS

