

Exhibit 2

Engineering Plans, Maps, and Drawings

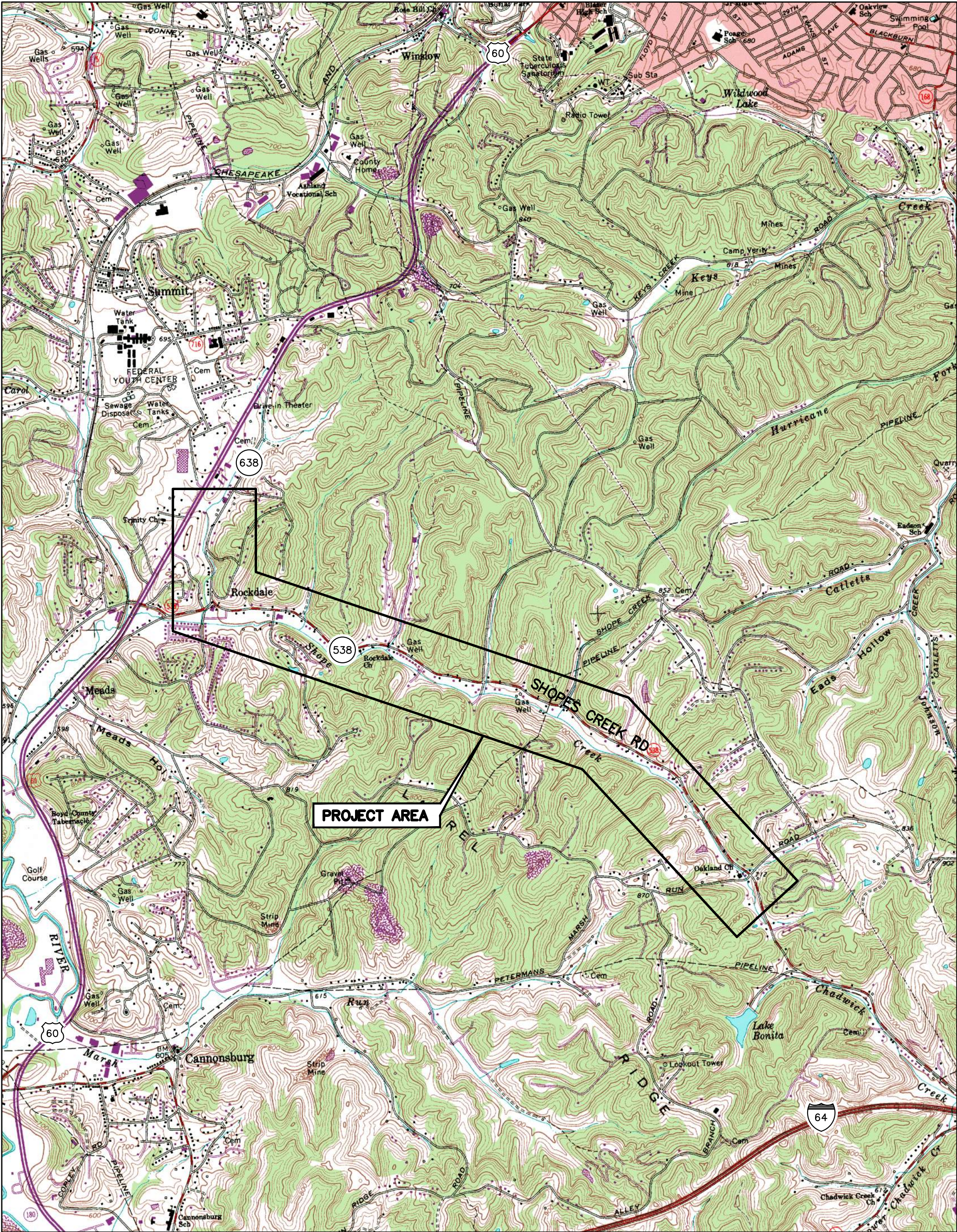
WATER SYSTEM IMPROVEMENTS SHOPES CREEK ROAD AREA

CANNONSBURG WATER DISTRICT
CANNONSBURG, KENTUCKY
FEBRUARY 2023



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USGS MAP
1" = 2,000'

CONTRACT NO.
691-21-01
2023

STATE OF KENTUCKY
LARRY BENJAMIN ALLEN
30144
LICENSED PROFESSIONAL ENGINEER
11/13/24

ELECTRICAL

STATE OF KENTUCKY
DAVID M. HOWELL
29100
LICENSED PROFESSIONAL ENGINEER
11-12-24

CIVIL

STATE OF KENTUCKY
DAVID M. HOWELL
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STRUCTURAL

STATE OF KENTUCKY
JOHN D. PRINCE
22505
LICENSED PROFESSIONAL ENGINEER
11-13-24

HVAC/PLUMBING

WATER SYSTEM IMPROVEMENTS
SHOPES CREEK ROAD AREA
CANNONSBURG WATER DISTRICT
CANNONSBURG, KENTUCKY

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BUD NOTE:
KENTUCKY STATUTES (KRS 367.4901 THROUGH 367.4917) REQUIRE THAT ALL EXCAVATORS PLANNING EXCAVATION OR DEMOLITION WORK SHALL NOTIFY ALL UTILITY COMPANIES IN THE AREA AND/OR AN UNDERGROUND PROTECTION SERVICE SUCH AS BUD (1-800-752-6007 OR 811) AT LEAST TWO (2) WORKING DAYS BEFORE COMMENCING WORK TO ALERT UTILITY COMPANIES IN THE AREA WITH UNDERGROUND FACILITIES OF THE PLANNED EXCAVATION OR DEMOLITION ACTIVITIES.

CLIENT REVIEW

BELL (QA) REVIEW

DIVISION OF WATER REVIEW

BID DOCUMENTS

RECORD DRAWINGS

bell

engineering

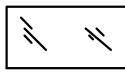
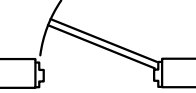
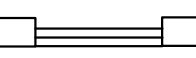
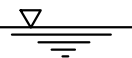
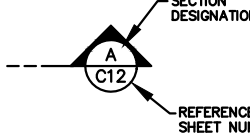
2480 fortune drive, suite 350
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GENERAL LEGEND FOR BOOSTER PUMP STATION

EXISTING	NEW

ASPHALT PAVING	
PAVING OVERLAY	
CONCRETE PAVING	
GRAVEL DRIVE	
ITEMS TO BE DEMOLISHED	
ITEMS TO BE DEMOLISHED/ ABANDONED IN PLACE	

STRUCTURES	
	GLASS
	DOOR
	WINDOW
	DOOR/WINDOW IDENTIFICATION
	DOOR/WINDOW IDENTIFICATION
	WATER LEVEL
	GATE/GUIDE IDENTIFICATION
	POLYETHYLENE FILM
	FILTER FABRIC
	SECTION CUT
	ROCK
	EARTH
	CRUSHED STONE
	NEW STRUCTURAL CONCRETE
	EXISTING CONCRETE
	PRECAST CONCRETE
	GROUT 2" THK OR LESS
	GROUT 2" THK OR MORE
	NEW BRICK
	NEW CONC. BLOCK
	NORTH ARROW

VALVES & PIPING (BUILDING PLANS & SECTIONS)		NEW
EXISTING OR SCHEMATIC		
	PRESSURE RELIEF (FLAP) VALVE	
	PNEUMATICALLY OPERATED VALVE	
	HYDRAULICALLY OPERATED VALVE	
	ELECTRICALLY OPERATED VALVE	
	CHECK VALVE	
	GATE or PLUG VALVE	
	BUTTERFLY VALVE	
	3-WAY VALVE	
	4-WAY VALVE	
	PINCH VALVE	
	MAGNETIC FLOW METER	
	BACKFLOW PREVENTION DEVICE	
	90° BEND	
	90° BEND TURNED DOWN/AWAY	
	90° BEND TURNED UP/FORWARD	
	BASE BEND	
	CROSS	
	TEE	
	TEE TURNED DOWN/AWAY	
	TEE TURNED UP/FORWARD	
	BASE TEE	
	WYE/LATERAL	
	FLANGED COUPLING ADAPTER W/ANCHORS	
	COUPLING	
	CONCENTRIC REDUCER	
	ECCENTRIC REDUCER	
	BLIND FLANGE or PLUG	
	UNION	
	FLANGED PIPE	
	DUCTILE IRON MECHANICAL JOINT PIPE	
	REINFORCED CONCRETE PIPE	
	PLASTIC PIPE	
	COPPER PIPE	

NOTE:
EXISTING PIPE FITTINGS TO BE RELOCATED
ARE SHOWN AS SINGLE LINE PIPING, DARKER
THAN OTHER EXISTING PIPING.

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ARE SHOWN AS SINGLE LINE PIPING, DARKER
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LIST OF ABBREVIATIONS

AL.	ALUMINUM	INFL.	INFLUENT
ALUM.	ALUMINUM SULFATE	INV.	INVERT
ALS.	ALUMINUM SULFATE	MH.	MANHOLE
APPROX.	APPROXIMATELY	MJ.	MECHANICAL JOINT
B'FLY.	BUTTERFLY VALVE	NPW.	NON-POTABLE WATER
B'FLY.	BUTTERFLY VALVE	NTS.	NOT TO SCALE
BY.	BUTTERFLY VALVE	ODE.	OXIDATION DITCH EFFLUENT
CE.	CLARIFIER EFFLUENT	ODI.	OXIDATION DITCH INFLUENT
CIRC.	CIRCULAR	P.	POLYMER SOLUTION
CK.	CHECK VALVE	P.	PUMP STATION
CL.	CLARIFIER INFLUENT	PE.	POLYETHYLENE
CONC.	CONCRETE	POT.	POTABLE WATER
CONT.	CONTINUOUS	PS.	PLANT SEWER
Cu.	COPPER	PSD.	PLANT SEWER PUMP STATION DISCHARGE
CV.	CHECK VALVE	REG.	REGRADE
DRAIN.	DISINFECTANT FEED	REG.	REGRADE
DF.	DISINFECTANT FEED	PSW.	PANT SERVICE WATER
DR.	DRAIN	PW.	PLANT WATER
DIA.	DIAMETER	PW-NPW.	PLANT WATER-NON-POTABLE WATER
DI.	DUCTILE IRON	RAS.	RETURN ACTIVATED SLUDGE
DI.	DUCTILE IRON MECHANICAL JOINT	RJ.	RESTRAINED JOINT
EFF.	EFFLUENT	RS.	RAW SEWAGE
ELEVATION.	ELEVATION	RWI.	RAW WATER INTAKE
E.F.	EACH FACE	SCS.	SCREENED SEWAGE
E.S.	EACH SIDE	SPECS.	SPECIFICATIONS
EX.	EXISTING	SPACED.	SPACED
FDN.	FOUNDATION	SS.	SANITARY SEWER
FE.	FINAL EFFLUENT	STN. STL.	STAINLESS STEEL
FFE.	FINISHED FLOOR ELEVATION	T/S.	TOP OF SLAB
GALV.	GALVANIZED	TYPICAL.	TYPICAL
GV.	GATE VALVE	WAS.	WASTE ACTIVATED SLUDGE
HOPE.	HIGH DENSITY POLYETHYLENE	WTP.	WATER TREATMENT PLANT
HR.	HANDRAIL	WWTP.	WASTEWATER TREATMENT PLANT
HWL.	HIGH WATER LEVEL		

(OTHER LEGENDS MAY EXIST ON OTHER
DRAWINGS WHICH CONTAIN SYMBOLS
OR ABBREVIATIONS NOT SHOWN HERE)

WATER MAIN LEGEND

EXISTING	WATER MAIN	PROPOSED
	DIM J BEND (INCLUDED IN UNIT PRICE OF PIPE)	
	SLEEVE	
	WATER VALVE	
	FLUSHING HYDRANT	
	TEST METER ASSEMBLY	
	WATER LINE MARKER	
	WATER METER ASSEMBLY	
	WATER METER ASSEMBLY W/ (PRESSURE REDUCER)	
	AIR RELEASE VALVE ASSEMBLY (AUTOMATIC, MANUAL)	
	CROSS DRAIN PIPE	
	COVER (CASING) PIPE	
	DIR J W/ FIELD LOK	
	EXISTING COMM MANHOLE	
	EXISTING CONCRETE BOX CULVERT SIZE LISTED IS APPROXIMATE	

BEFORE YOU DIG

The contractor is instructed to call 1-800-752-6007 to reach KY 811, the one-call system for information on the location of existing underground utilities. The call is to be placed a minimum of two (2) and no more than ten (10) business days prior to excavation. The contractor should be aware that owners of underground facilities are not required to be members of the KY 811 one-call Before-U-Dig (BUD) service. The contractor must coordinate excavation with the utility owners, including those whom do not subscribe to KY 811. It may be necessary for the contractor to contact the County Court Clerk to determine what utility companies have facilities in the area.

GENERAL NOTES

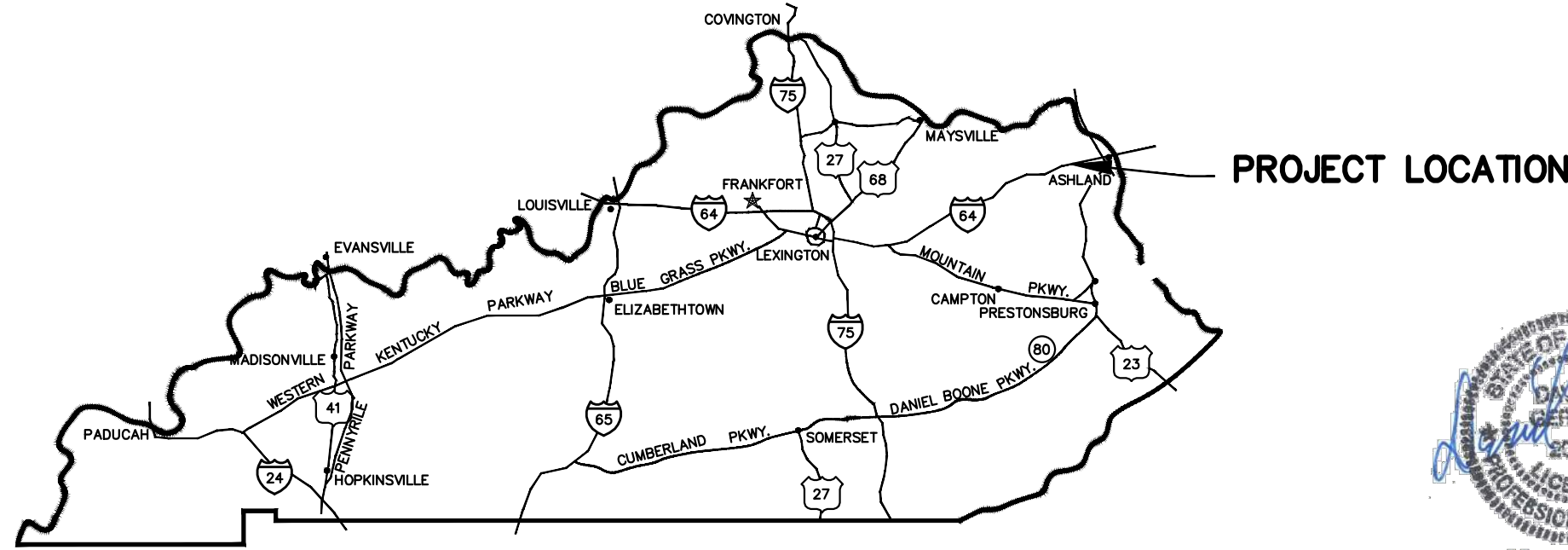
- EFFORTS HAVE BEEN MADE TO INDICATE LOCATIONS OF EXISTING STRUCTURES, PIPING AND UTILITIES. HOWEVER, THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE SITE AND OTHER EXISTING CONDITIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN INFORMATION DEPICTED BY THE CONSTRUCTION DRAWINGS AND ACTUAL FIELD CONDITIONS, WHICH WOULD SIGNIFICANTLY ALTER THE DESIGN INTENT OF CONSTRUCTION DRAWINGS PRIOR TO COMMENCING HIS CONSTRUCTION OPERATIONS. DIMENSIONS OF EXISTING STRUCTURES AND/OR SITE RESTRICTIONS ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND CONFIRM ALL DIMENSIONS AND ELEVATIONS OF EXISTING STRUCTURES AND TOPOGRAPHY IN THE FIELD NECESSARY FOR HIS CONSTRUCTION OPERATION.
- THE CONTRACTOR SHALL USE ALL POSSIBLE CARE DURING EXCAVATION ON THE PROJECT SO AS NOT TO DISTURB OR DAMAGE ANY EXISTING UTILITY OR STRUCTURE NOT SCHEDULED FOR DEMOLITION WHETHER DEPICTED OR NOT IN THE CONSTRUCTION DRAWINGS. ANY DAMAGE TO THE ABOVE MENTIONED ITEMS CAUSED DIRECTLY OR INDIRECTLY BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO THE OWNER TO A CONDITION EQUAL TO THAT WHICH EXISTED PRIOR TO BEING DAMAGED.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT ALL EXISTING UTILITY OWNERS AND HAVE THEM FIELD LOCATE THEIR EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION ACTIVITIES.
- THE CONTRACTOR SHALL CONTACT AND OBTAIN THE PERMISSION OF EXISTING UTILITY OWNERS 48 HOURS (MIN.) PRIOR TO ANY CONSTRUCTION ACTIVITY INTERRUPTING OPERATION OF SAID UTILITY.

KENTUCKY TRANSPORTATION CABINET (KYTC) NOTES

- WATER LINES TO BE CONSTRUCTED WITHIN THE KENTUCKY TRANSPORTATION CABINET RIGHT-OF-WAY. TRENCHES SHALL BE OF A DEPTH SUFFICIENT TO PROVIDE A MINIMUM COVER OF 42" FROM THE GROUND SURFACE TO THE TOP OF THE PIPE AND BE LOCATED APPROXIMATELY AS SHOWN UNLESS OTHERWISE NOTED. SEE INDIVIDUAL SHEETS FOR DETAILS.
- ALL BORES UNDER KYTC RIGHT-OF-WAY SHALL BE A MINIMUM OF 42" DEPTH UNDER BOTTOM OF DITCH LINE TO TOP OF PROPOSED BORE AND/OR CASING PIPE ON BOTH SIDES OF THE HIGHWAY.
- ROCK BLASTING: THERE SHALL BE NO BLASTING WITHIN STATE RIGHT-OF-WAY WITHOUT WRITTEN CONSENT FROM THE KENTUCKY TRANSPORTATION CABINET.
- PROTECTION OF EXISTING PAVING: CARE SHALL BE TAKEN BY THE CONTRACTOR TO AVOID CRACKING OR BREAKING OF THE BITUMINOUS PAVING. ALL DAMAGE TO THE EXISTING PAVING CAUSED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER. PAVING PROTECTION SHALL BE ACCOMPLISHED BY THE USE OF RUBBER AND STREET PAVED MACHINERY OR OTHER APPROVED EQUIPMENT WELL SUITED FOR THIS TYPE OF CONSTRUCTION.
- BANK AND DITCH PROTECTION EXCAVATION: DURING CONSTRUCTION ALL EMBANKMENTS, REFILLS AND EXCAVATIONS SHALL BE KEPT SHAPED AND DRAINED BY THE CONTRACTOR. DITCHES AND DRAINS ALONG THE HIGHWAYS SHALL BE MAINTAINED IN SUCH A MANNER AS TO DRAIN EFFECTIVELY AT ALL TIMES.
- PRIVATE ENTRANCE ROAD: ALL ROADWAYS AND DRIVEWAYS WITHIN THE WORK LIMITS OF STATE RIGHT-OF-WAYS SHALL BE REFILLED TO THE NATURAL SURFACE OF THE GROUND WITH APPROVED MATERIAL. THE MATERIAL SHALL BE PLACED AND COMPACTED TO A SMOOTHNESS SUITABLE FOR TRAFFIC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THESE ROADWAYS UNTIL THE RESTORATION IS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL NOTE THAT ALL PRIVATE BUSINESS AND RESIDENTS ALONG THE ROUTE OF THE PROPOSED CONSTRUCTION MUST HAVE ACCESS TO THEIR PROPERTIES AT ALL TIMES DURING CONSTRUCTION.
- PROTECTION OF EXISTING DRAINAGE CULVERTS: AT LOCATIONS WHERE THE PROPOSED WATER MAIN IS PARALLEL WITH OR CROSSING AN EXISTING STORM SEWER, THE COST OF RELAYING EXISTING CULVERT PIPES OR THE EXTRA DEPTH REQUIRED TO AVOID THE EXISTING CULVERT IS CONSIDERED INCIDENTAL TO CONSTRUCTION AND IS NOT A PAY ITEM.
- SOME EXISTING UTILITIES HAVE NOT BEEN SHOWN: THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL EXISTING UTILITIES. THE CONTRACTOR SHALL COORDINATE WITH THE REPRESENTATIVES OF THE VARIOUS UTILITIES WHEN WORKING NEAR ANY EXISTING UTILITY. NO ADDITIONAL PAYMENT TO THE CONTRACTOR WILL BE MADE FOR EXTRA DEPTH REQUIRED TO AVOID ANY EXISTING UTILITY.
- FINAL LOCATION OF FLUSHING HYDRANT ASSEMBLIES SHALL BE MADE IN THE FIELD IN CONJUNCTION WITH KYTC PERSONNEL. BREAKAWAY COMPONENTS SHALL BE USED AT NO ADDITIONAL COST TO THE OWNER IF THE FLUSHING HYDRANT ASSEMBLIES CANNOT BE LOCATED OUTSIDE THE CLEAR ZONE.
- PRIOR TO BEGINNING OF WORK ON KENTUCKY TRANSPORTATION RIGHTS-OF-WAY THE CONTRACTOR SHALL HAVE COMPLETED THE KENTUCKY TRANSPORTATION CABINET'S WORK ZONE TRAFFIC CONTROL EMPLOYEE QUALIFICATION PROGRAM. INDIVIDUALS PERFORMING FLAGGING OPERATIONS ON ANY KENTUCKY ROADWAY MUST BE QUALIFIED AND CERTIFIED BY THE KENTUCKY TRANSPORTATION CABINET. INDIVIDUALS WHO PLACE, MONITOR, AND MAINTAIN TRAFFIC CONTROL DEVICES ON PUBLIC ROADWAYS IN KENTUCKY SHALL HAVE SUCCESSFULLY COMPLETED THE WORK ZONE TRAFFIC CONTROL TECHNICIAN PROGRAM. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR PREPARING AND IMPLEMENTING THE TRAFFIC CONTROL PLAN. THE INDIVIDUALS RESPONSIBLE FOR THIS WORK SHALL HAVE SUCCESSFULLY COMPLETED THE WORK ZONE TRAFFIC CONTROL SUPERVISOR PROGRAM. FOR MORE INFORMATION ON THE WORK ZONE TRAFFIC CONTROL EMPLOYEE QUALIFICATION PROGRAM AS PRESENTED BY THE TECHNOLOGY TRANSFER PROGRAM, KENTUCKY TRANSPORTATION CENTER, UNIVERSITY OF KENTUCKY CALL THE CENTER'S TOLL FREE NUMBER 1-800-432-0719 OR CONTACT THE DEPARTMENT OF HIGHWAYS, DISTRICT 9, 822 ELIZAVILLE, FLEMINGSBURG KENTUCKY 41041. PHONE 606-854-2551.
- ALL NEW WATER LINES SHALL BE INSTALLED AT OR BEYOND THE BACK OF THE DITCH LINE. NO VALVES OR LINES SHALL BE INSTALLED IN THE FLOWLINE OF THE DITCH REGARDLESS OF THE DEPTH.
- ALL NEW WATER LINE SHALL BE INSTALLED AROUND ANY KYTC DRAINAGE STRUCTURES AT DISTANCE WHICH WILL NOT INTERFERE WITH MAINTENANCE OPERATIONS. INSTALLING OVER TOP OF DRAINAGE STRUCTURES IS PROHIBITED.
- IN THE EVENT HIGHWAY ENTRANCE PIPES ARE DAMAGED AND OR REMOVED DURING THE CONSTRUCTION PROCESS THEY SHALL BE REPLACED. REPLACEMENT PIPES SHALL HAVE A MINIMUM DIAMETER OF 15 INCHES REGARDLESS OF THE PIPE DIAMETER BEING REPLACED.
- FACILITIES WITHIN THE ROW SHALL BE RESTORED TO THE EQUIVALENT OF THEIR ORIGINAL CONDITION.

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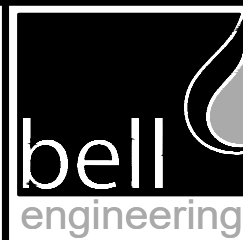
STATE MAP
NOT TO SCALE

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GRAPHIC SCALE
SCALE: AS NOTED

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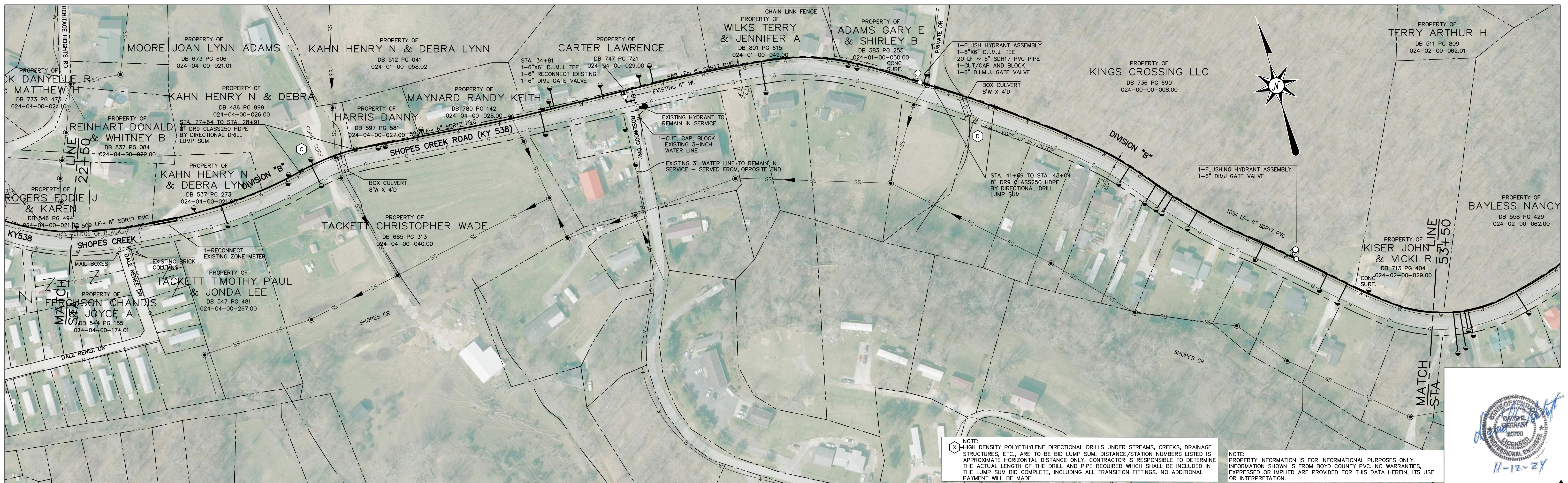
Lexington, KY (502) 278-5412
Hopkinsville, KY (270) 886-5466
Somerset, KY (606) 485-4011



WATER SYSTEM IMPROVEMENTS
SHOPS CREEK ROAD AREA
CANNONSURG WATER DISTRICT
CANNONSURG, KENTUCKY

PROJECT MAP, GENERAL NOTES & LEGEND

DIVISION	-
CONTRACT NO.	691-21-01
DATE	SEPTEMBER 2021
SHEET NO.	01 OF 17



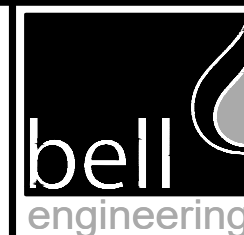
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GRAPHIC SCALE

SCALE: 1" = 100'

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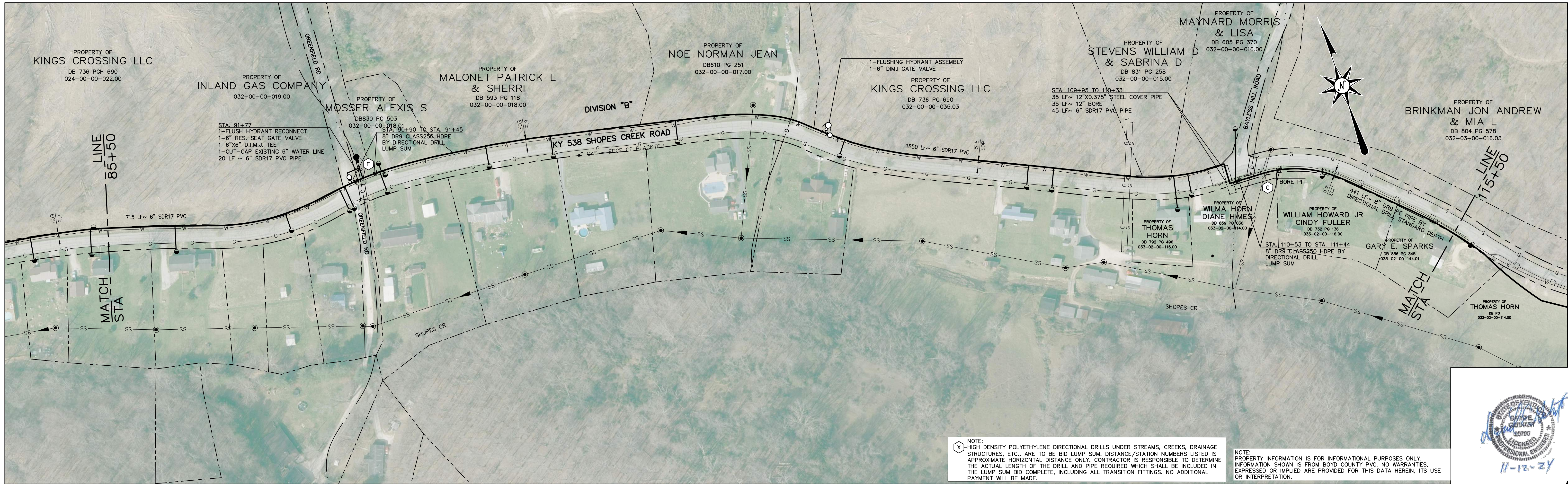
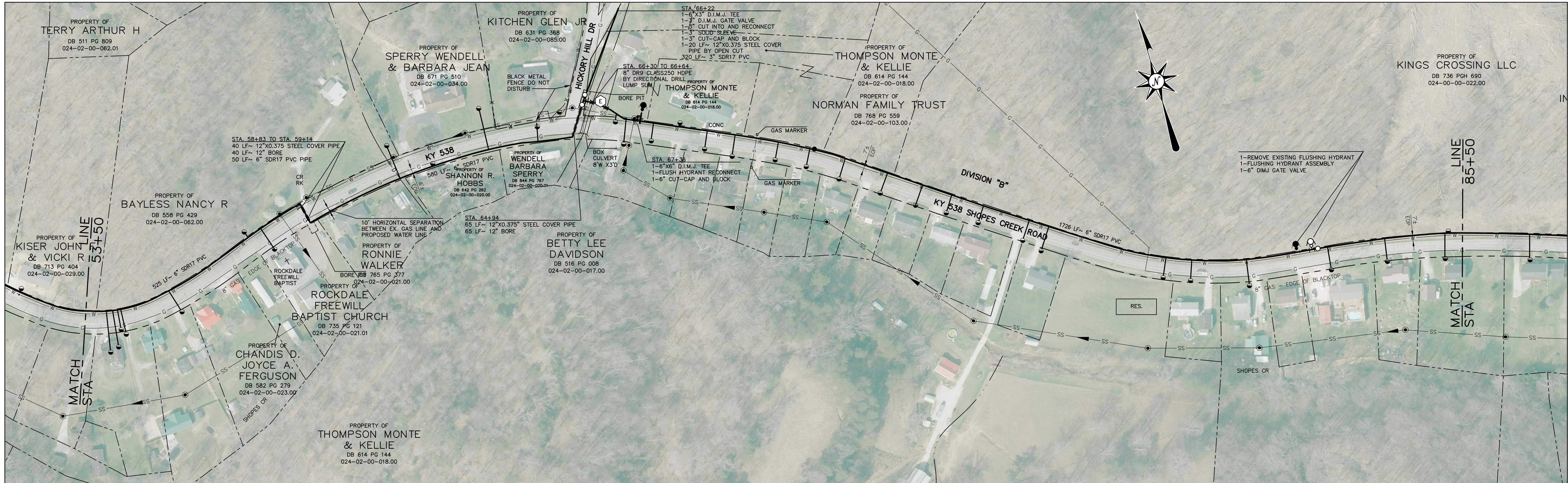


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WATER SYSTEM IMPROVEMENTS
SHOPES CREEK ROAD AREA
CANNONBURG WATER DISTRICT
CANNONBURG, KENTUCKY

ALONG KY 638 MIDLAND TRAIL ROAD
AND KY 538 SHOPES CREEK ROAD

DIVISION	"A" & "B"
CONTRACT NO.	691-21-01
DATE	SEPTEMBER 2021
SHEET NO.	02 OF 17



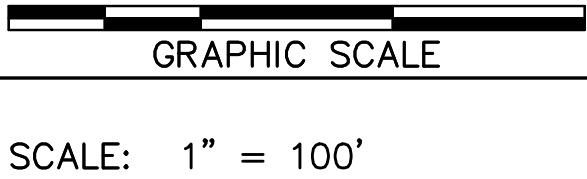
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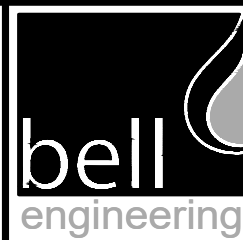
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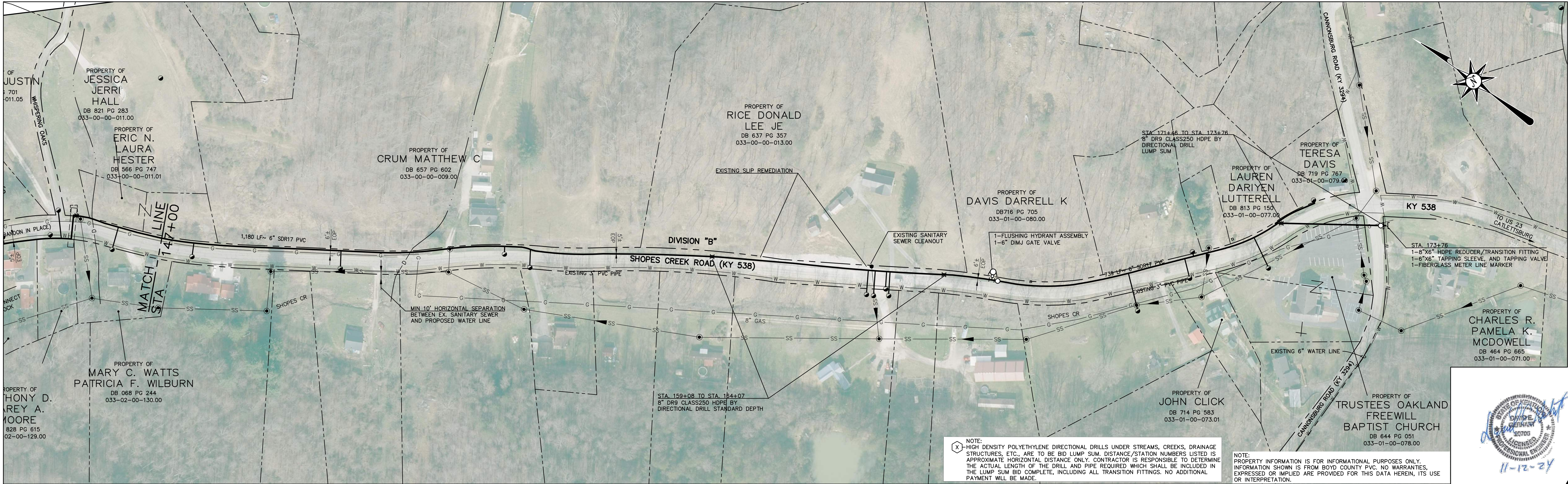
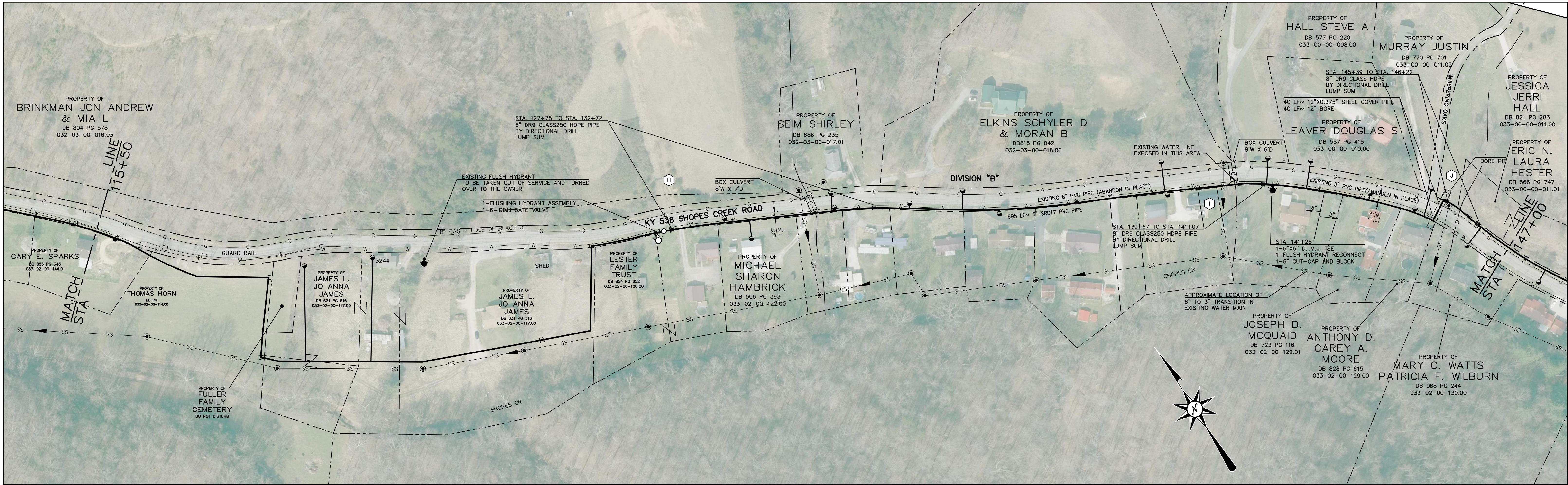


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WATER SYSTEM IMPROVEMENTS
SHOPE'S CREEK ROAD AREA
CANNONSBURG WATER DISTRICT
CANNONSBURG, KENTUCKY

ALONG KY 538 SHOPE'S CREEK ROAD

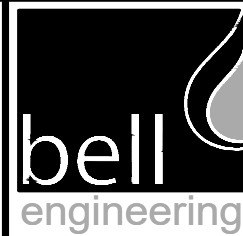
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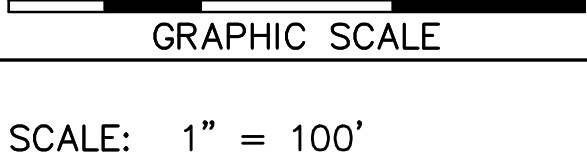
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Hopkinsville, KY (270) 886-5466
Somerset, KY (606) 485-4011

WATER SYSTEM IMPROVEMENTS
SHOPE'S CREEK ROAD AREA
CANNONSBURG WATER DISTRICT
CANNONSBURG, KENTUCKY

ALONG KY 538 SHOPE'S CREEK ROAD

DIVISION	"B"
CONTRACT NO.	691-21-01
DATE	SEPTEMBER 2021
SHEET NO.	04 OF 17

DESIGNER	ELL	DATE	BY	REVISION
DRAWN	CRB			
CHECKED	ELL			
APPROVED	DEG			



THE WORK SHOWN ON THESE PLANS WAS CREATED FOR CANNONSBURG WATER DISTRICT TO SHOW AN APPROXIMATE SITE LOCATION FOR INFORMATIONAL PURPOSES ONLY. THE PLANS SHOW COMPILED INFORMATION FROM THE BOYD COUNTY PVA AND CANNONSBURG WATER DISTRICT. THE WORK PERFORMED ON THIS DOCUMENT DOES NOT REPRESENT A BOUNDARY SURVEY.

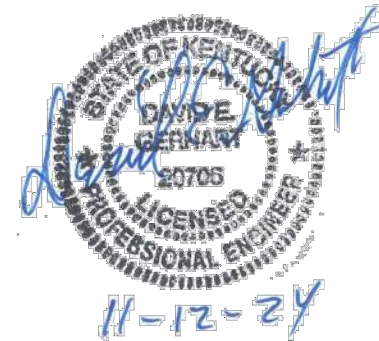


PROPERTY OF
ROBINETTE JAMES & BETH
DB 437 PG 499
024-01-00-028.00

PROPERTY OF
TAYLOR TOMMY D
& ELLEN FAYE
DB 641 PG 444
024-07-00-078.00

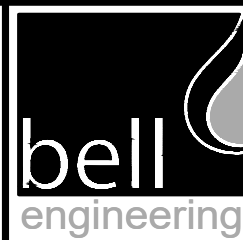


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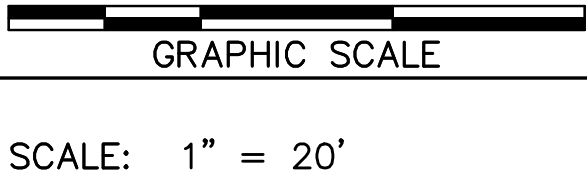


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WATER SYSTEM IMPROVEMENTS
SHOPE'S CREEK ROAD AREA
CANNONSBURG WATER DISTRICT
CANNONSBURG, KENTUCKY

DEMO SHEET ALONG KY 638 MIDLAND
TRAIL ROAD AND KY 538 SHOPE'S CREEK
ROAD

DESIGNER	ELL	DATE		BY		REVISION	
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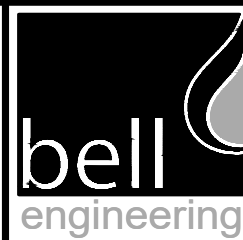
DIVISION	—
CONTRACT NO.	691-21-01
DATE	SEPTEMBER 2021
SHEET NO.	05 OF 17



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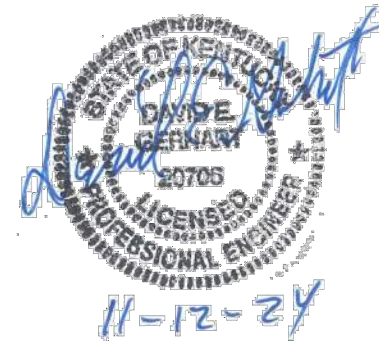


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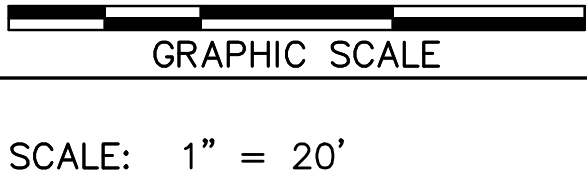
WATER SYSTEM IMPROVEMENTS
SHOPS CREEK ROAD AREA
CANNONSURG WATER DISTRICT
CANNONSURG, KENTUCKY

PROPOSED PUMP STATION, MASTER
METER, BOOSTER CHLORINATOR, AND
ZONE METER
KY 638 MIDLAND TRAIL

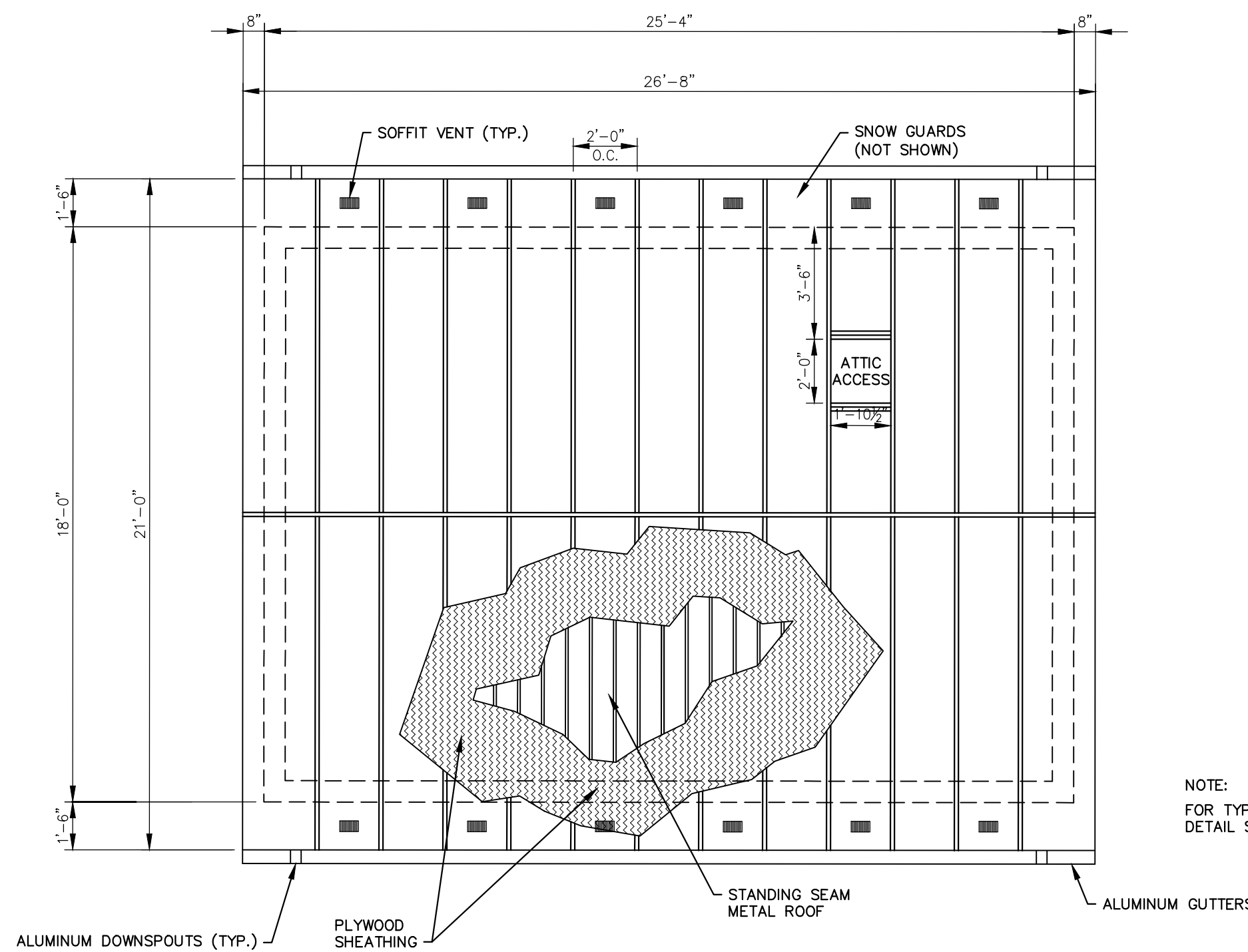
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DIVISION	-
CONTRACT NO.	691-21-01
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NOTE:
THE NUMBER AND SIZE OF THE ROOF VENTS THAT NEED TO BE PROVIDED SHALL BE BASED ON TOTAL ROOF VENT AND RIDGE VENT AREA BEING AT LEAST 0.75 SF OF FREE AREA. THE NUMBER OF SOFFIT VENTS NEEDED SHALL BE BASED ON PROVIDING AT LEAST 0.85 SF OF FREE AREA.

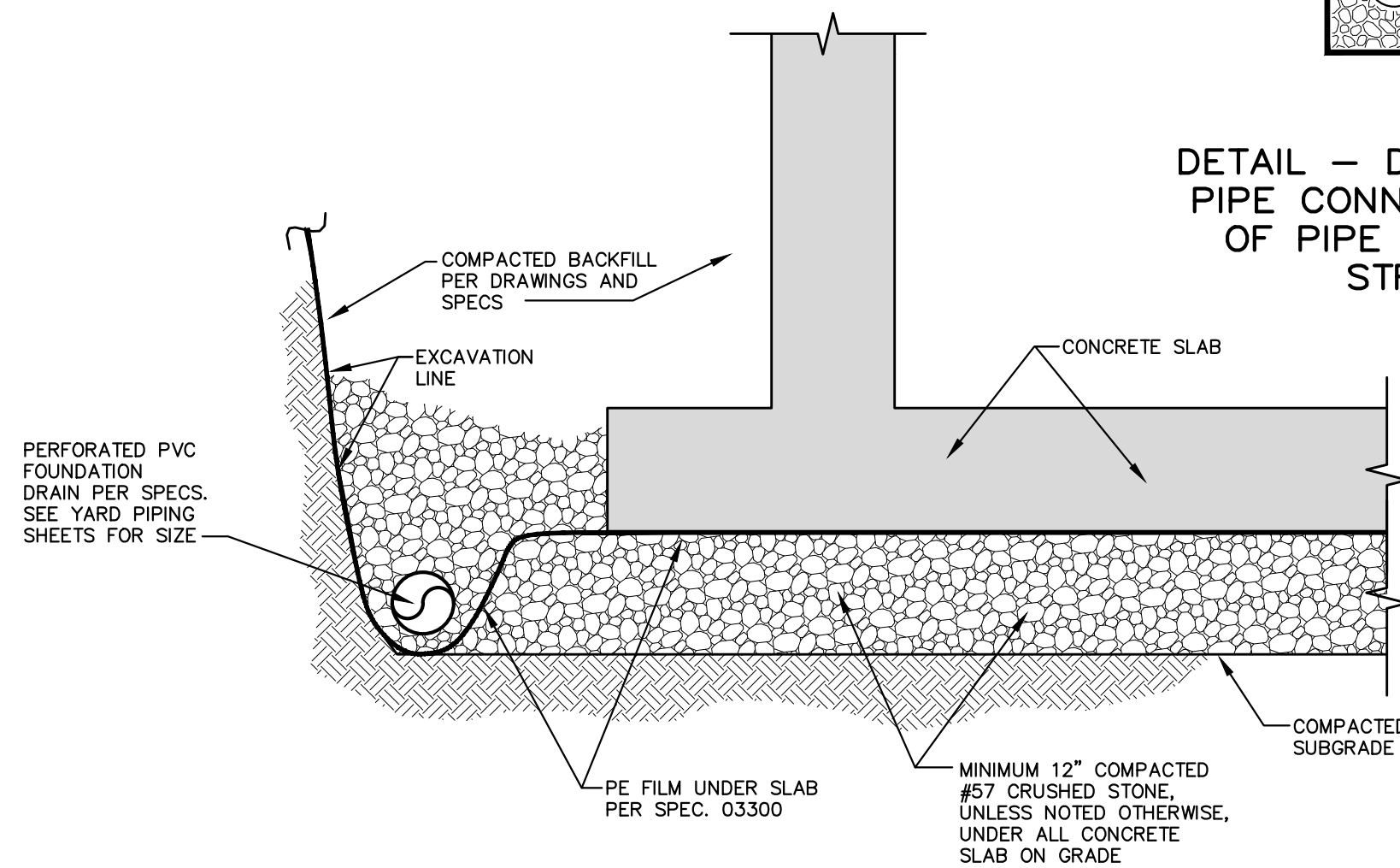
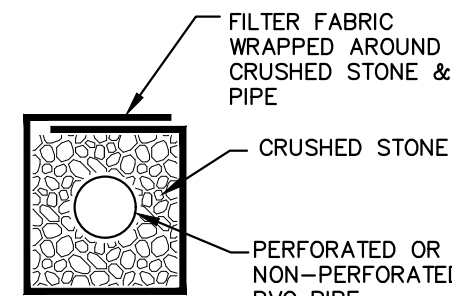
ROOF PLAN

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

NOTE:
FOR ROOF CONSTRUCTION NOTES SEE SHEET 12.



NOTE:
FOR TYPICAL ROOF EDGE DETAIL SEE SHEET NO. 11



TYPICAL STRUCTURE SUBGRADE TREATMENT AND DRAINAGE CARRIER PIPE DETAIL

NOT TO SCALE

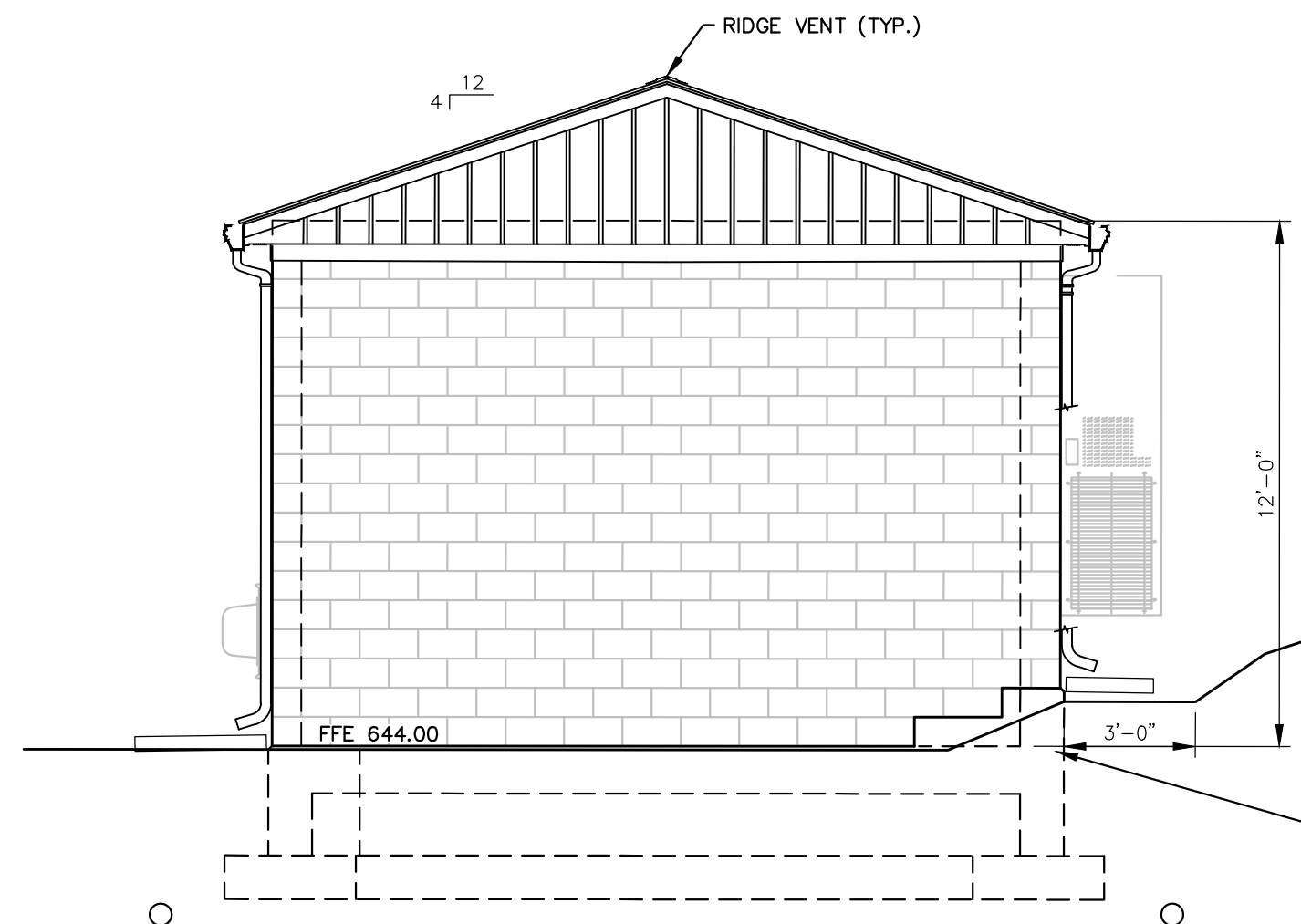
SMOOTH FACE BLOCK REQUIRED BEHIND WP UNIT. CONTRACTOR TO VERIFY PER SHOP DRAWINGS LOCATION, WIDTH & HEIGHT OF WP-1 UNIT PRIOR TO INSTALLING SMOOTH FACE BLOCK. NO SMOOTH FACE BLOCK TO BE VISIBLE AFTER WP UNIT HAS BEEN INSTALLED.

NOTE:
CONTRACTOR COORDINATE FOUNDATION STEM WALL STEPS WITH GRADING PLAN, TYP.

12" D.I. OUT TO SUGAR HILL TANK

NORTH ELEVATION

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



SEE SUBGRADE DRAINAGE DETAILS THIS SHEET

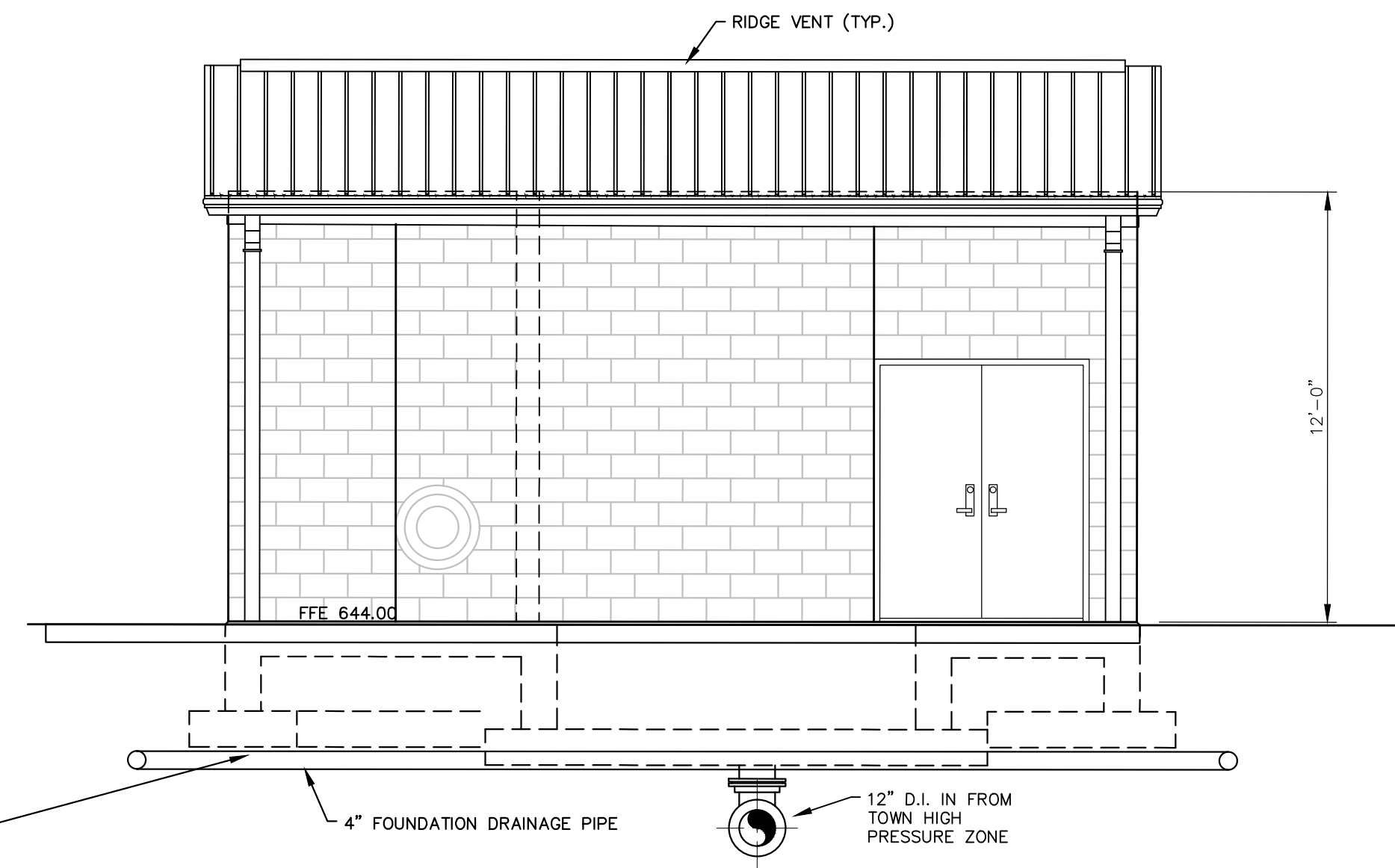
NOTE:
DOWNSPOUTS SHALL COME TO WITHIN 3 INCHES OF SPASH BLOCKS

NOTE:
CONTRACTOR COORDINATE FOUNDATION STEM WALL STEPS WITH GRADING PLAN, TYP.

SEE SUBGRADE DRAINAGE DETAILS THIS SHEET

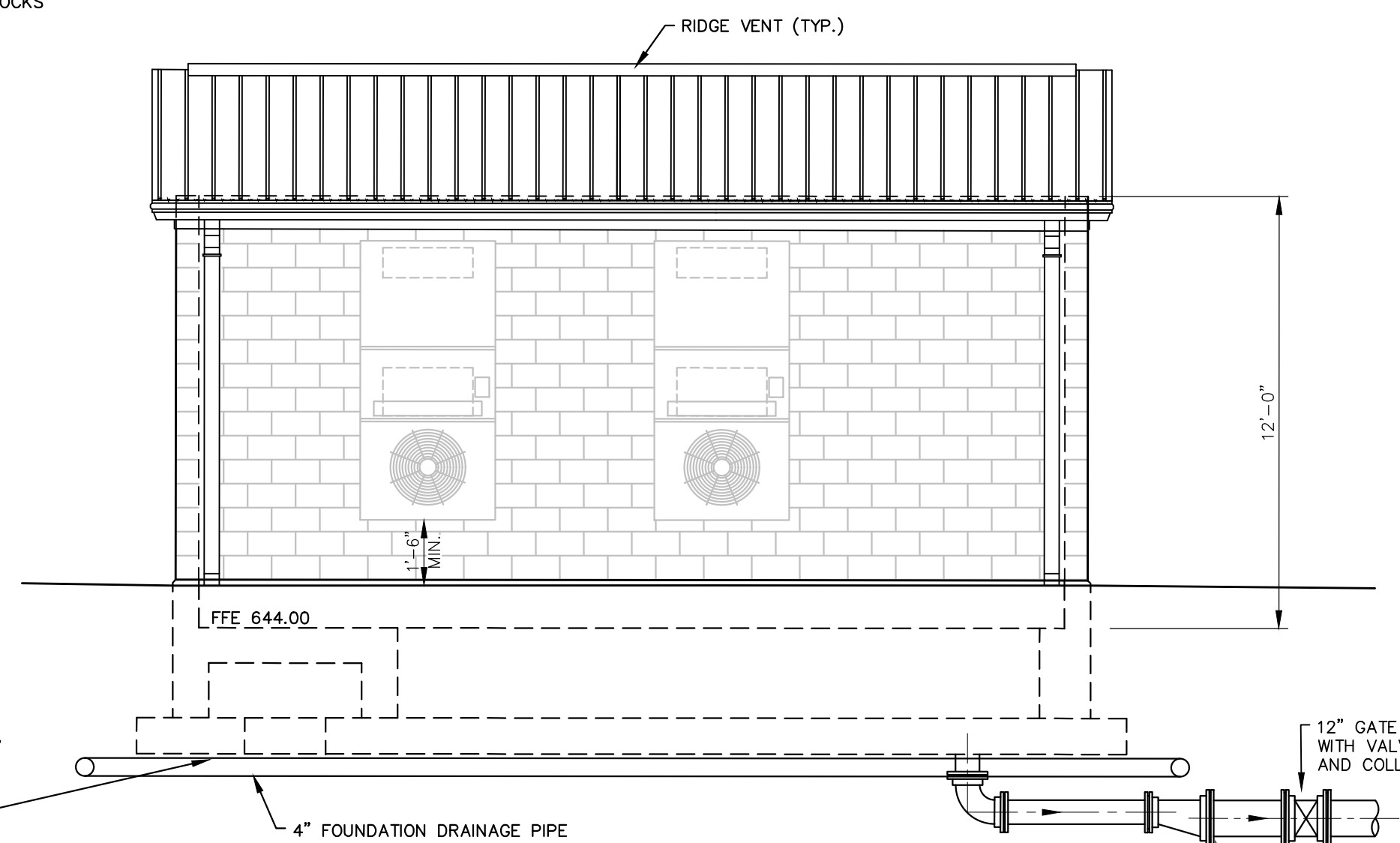
SOUTH ELEVATION

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



WEST ELEVATION

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



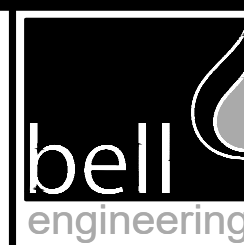
EAST ELEVATION

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

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GRAPHIC SCALE
SCALE: AS NOTED

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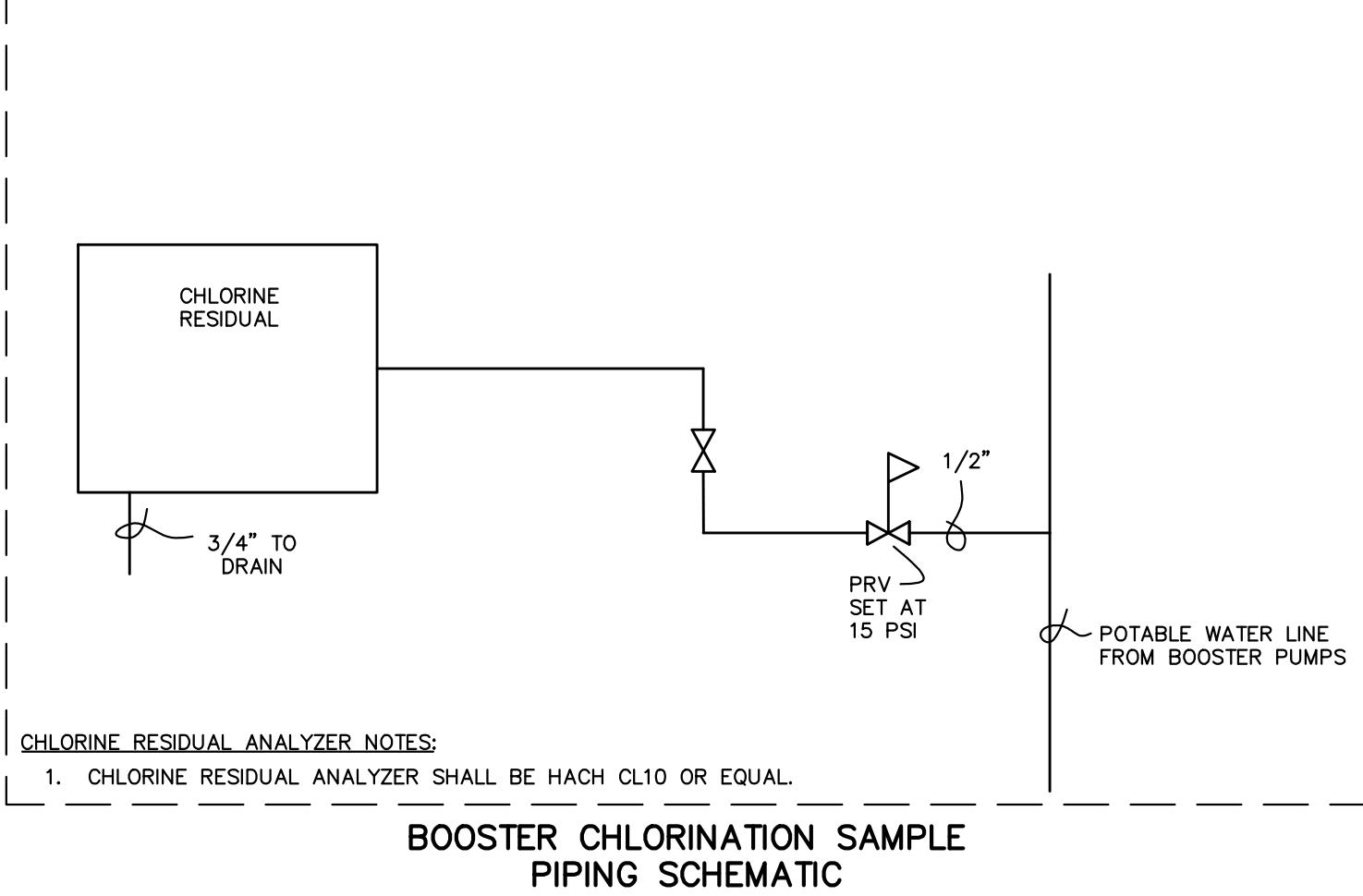
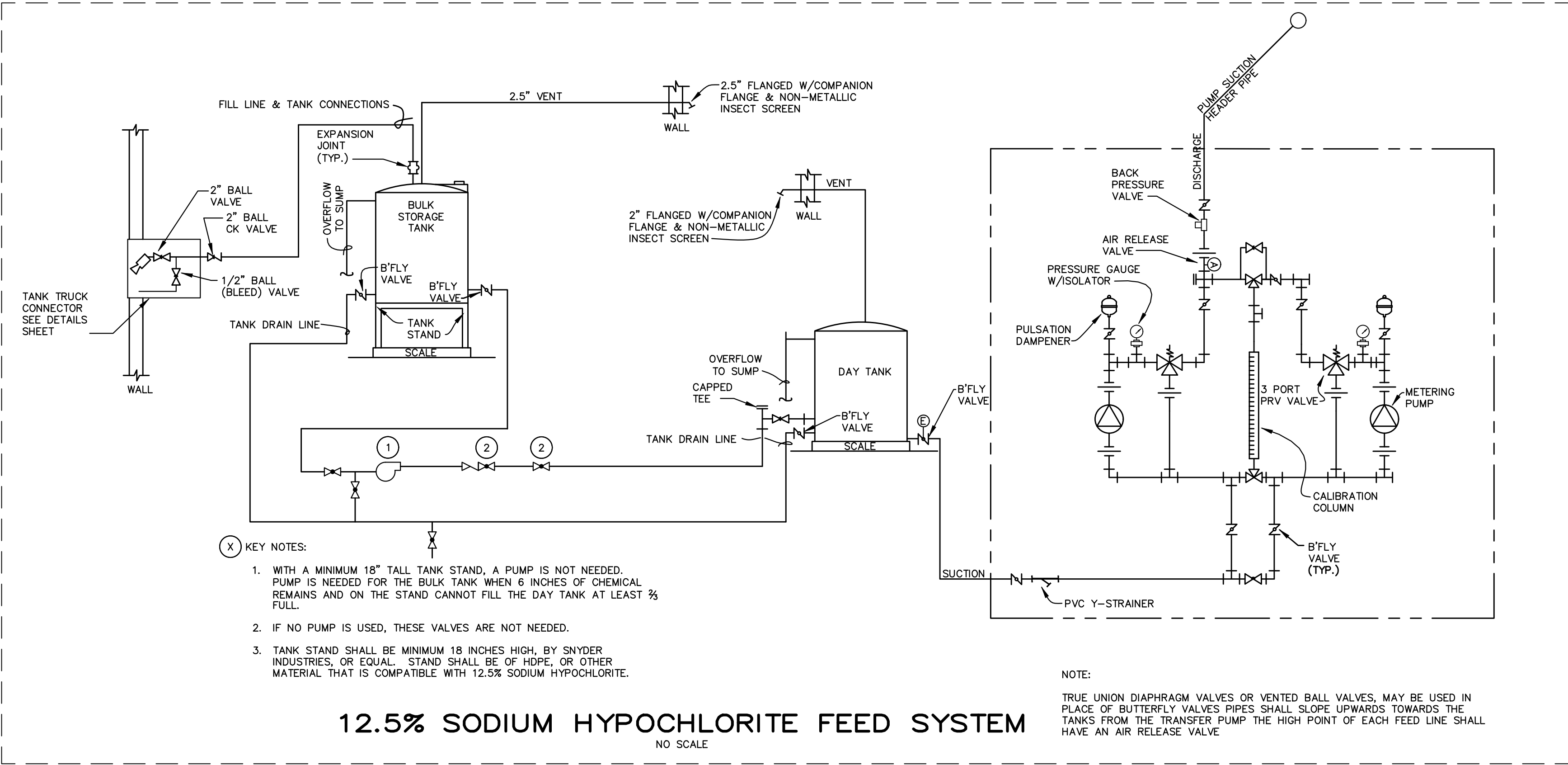
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WATER SYSTEM IMPROVEMENTS
SHOPS CREEK ROAD AREA
CANNONSURG WATER DISTRICT
CANNONSURG, KENTUCKY

SHOPS CREEK
BOOSTER PUMP STATION
BUILDING ELEVATIONS
AND ROOF PLAN

DIVISION	-
CONTRACT NO.	691-21-01
DATE	SEPTEMBER 2021
SHEET NO.	08 OF 17





METERING PUMPS											
NO.	FEED SYSTEM PROVIDED BY	CHEMICAL SYSTEM	NOMINAL METERING PUMP OR FEEDER SUCTION / DISCHARGE LINE SIZE	MINIMUM PUMP DESIGN PRESSURE PSIG	NOMINAL FEED RATE GPH (mg/l)**	MINIMUM PUMP RATE SUPPLIED GPH**	MINIMUM NOMINAL TURNDOWN RATIO	NUMBER OF PUMPS SUPPLIED / INSTALLED	METERING PUMP OR EQUAL TO BE SUPPLIED	COMMENTS ¹	CHEMICAL SYSTEM
1	Contractor	12.5% Sodium Hypochlorite	3/8" /3/8"	45	*0.8 (2.0)	1,000	1000 : 1 .00	2 / 2	Watson-Marlow Qdos	The minimum pump output shall be no more than 0.004 gph	12.5% Sodium Hypochlorite
** The nominal feed rate of 2.0 mg/l at 1000 gpm (1.44 MGD) is equal to 0.7619 gph (18.29 GPD) and the nominal feed rate of 2.0 mg/l at 100 gpm is equal to 0.008 gph 1.829 GPD). The feed pump shall be able to handle these flows and everything in between.											

DAY/FEED TANKS											
NO.	TANK PROVIDED BY *	CHEMICAL SYSTEM	DAY TANK MINIMUM NOMINAL CAPACITY AND SIZE	DAY TANK MINIMUM USABLE ² VOLUME	DAY TANK MATERIAL OF CONSTRUCTION	DAY TANK LEVEL MEASUREMENT TYPE ⁴	I & C METERING PROVIDED BY	SIGHT GAUGE DISPLAY INCREMENTS (gal)	MINIMUM SCALE CAPACITY (lbs)	COMMENTS	CHEMICAL SYSTEM
1	Contractor	12.5% Sodium Hypochlorite	25 gallons (14" dia x 40" OTH)	19 gallons	HDPE	21-3/4" x 15-3/4" Scale	Contractor	N/A	0.2	Minimum scale capacity is 400 lbs	12.5% Sodium Hypochlorite
2											
¹ SS = Straight Side Height, OTH = Overall Tank Height ² The minimum usable volume is the volume in the straight side area of the tank minus volume lost to pump suction and overflow nozzle placement. ³ Sight gauge consisting of clear tube & valves or semi-transparent tank. ⁴ The scale size may increase if a day tank with a larger diameter is provided. The maximum tank diameter for this scale size (Force Flow WR400) is 19 inches.											

SUPPLY or BULK/MINI-BULK TANKS														
NO.	TANK PROVIDED BY	CHEMICAL SYSTEM OR TANK CONTENTS	STORAGE	BULK TANK MINIMUM NOMINAL CAPACITY AND SIZE	BULK TANK MAXIMUM USABLE VOLUME ^{1,2}	NUMBER OF TANKS	BULK TANK LEVEL MEASUREMENT TYPE	BULK TANK MATERIAL OF CONSTRUCTION	I & C METERING PROVIDED BY	BULK TANK FILL LINE SIZE & MATERIAL OF CONSTRUCTION	BULK TANK FILL CONNECTION SIZE & MATERIAL OF CONSTRUCTION	MINIMUM PIPE SIZE & MATERIAL BULK TANK TO TRANSFER PUMP	MINIMUM PIPE SIZE & MATERIAL TRANSFER PUMP TO DAY TANK	CHEMICAL SYSTEM OR TANK CONTENTS
1	Contractor	12.5% Sodium Hypochlorite	Mini-Bulk	110 gallons (32" dia x 41"H)	100	1	36" x 36" Scale	HDPE	Contractor	2" CPVC	2" - Male Camlock by Female Thread - Glass Filled Polypropylene	3/4" PVC	3/4" PVC	12.5% Sodium Hypochlorite
¹ The usable tank volume should be between 80 and 100 gallons. ² The minimum usable volume is the volume in the straight side area of the tank minus volume lost to pump suction and overflow nozzle placement.														

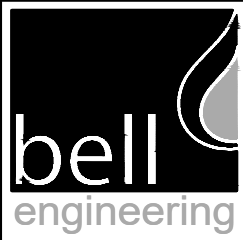
*CHEMICAL CHARACTERISTICS					
CHEMICAL*	NOMINAL SOLUTION STRENGTH PERCENT	SPECIFIC GRAVITY	VISCOSITY in CENTIPOISE @ 68 DEGREES FAHRENHEIT	pH	FREEZING POINT - DEGREES FAHRENHEIT
Coagulant - DelPac	100	1.23	*	2 - 3.5	-26.0
Coagulant - 1750 ION	100	1.3 - 1.35	*	3.0 - 4.0	22
Coagulant - Aluminum Sulfate (Alum)	49	1.335	23.00	2.4	2
Sodium Hydroxide	25	1.26	7.50	14.0	4.0
¹ Sodium Hypochlorite - 12.5%	12.5	1.27	*	13.0	-11.0
Carbon Slurry	17	1	*	6.75-7.25	32.0
Sodium Permanganate	20 - 40	1.16	*	5 - 8	24.8
Potassium Permanganate	3	1.05	1.00		
Hydrofluosilicic Acid	22 - 25	1.23	*	1.2	-4.0
Citric Acid	50	1.24	*	2.0	23.0
² Phosphoric Acid	75	1.69	2.4 - 9.4	1.08	0.50
Sodium Bisulfite	20 - 41	1.2 - 1.4	*	4.0 - 5.5	39.00
³ Hydrogen Peroxide - 7.5%	35	1.13	*	2.0 - 3.7	6 @ 20% to -27 @ 35%
PolyPhosphate		1.25		5.5 - 7 @ 1%	
* Data provided where available. Not all chemicals listed may be used in the project. ¹ Sodium Hypochlorite will be purchased as a nominal 12.5% solution and be diluted to roughly 6.25% solution on site. Data is for 12.5% unless noted otherwise. ² The pH of phosphoric acid is based on a 1 molar solution. ³ Hydrogen Peroxide will be purchased in 20% or 30% solution and diluted down to <8% on site. Data is for 35% unless otherwise noted.					

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GRAPHIC SCALE
SCALE: AS NOTED

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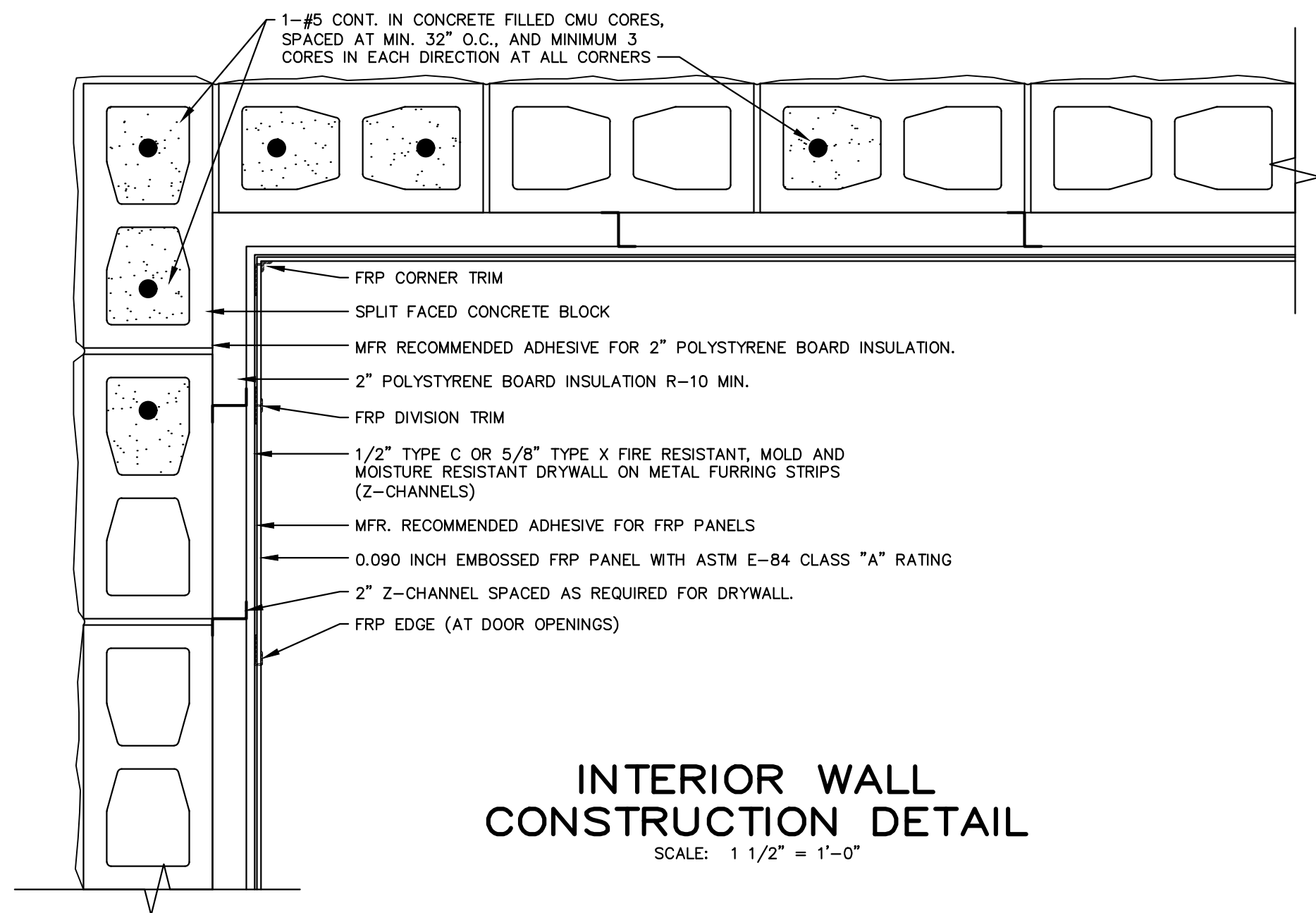


WATER SYSTEM IMPROVEMENTS
SHOPES CREEK ROAD AREA
CANNONSBURG WATER DISTRICT
CANNONSBURG, KENTUCKY

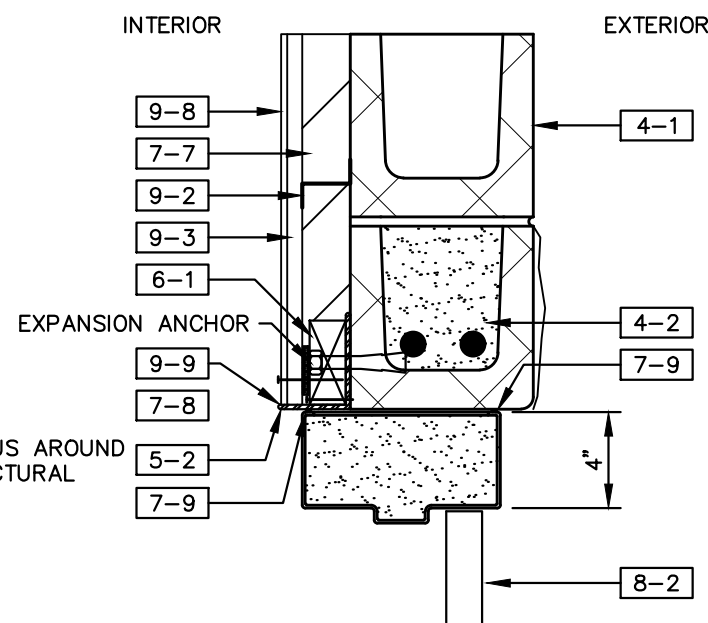
CHEMICAL FEED SCHEMATICS AND
CHEMICAL EQUIPMENT SCHEDULES

DIVISION	-
CONTRACT NO.	691-21-01
DATE	SEPTEMBER 2021
SHEET NO.	10 OF 17

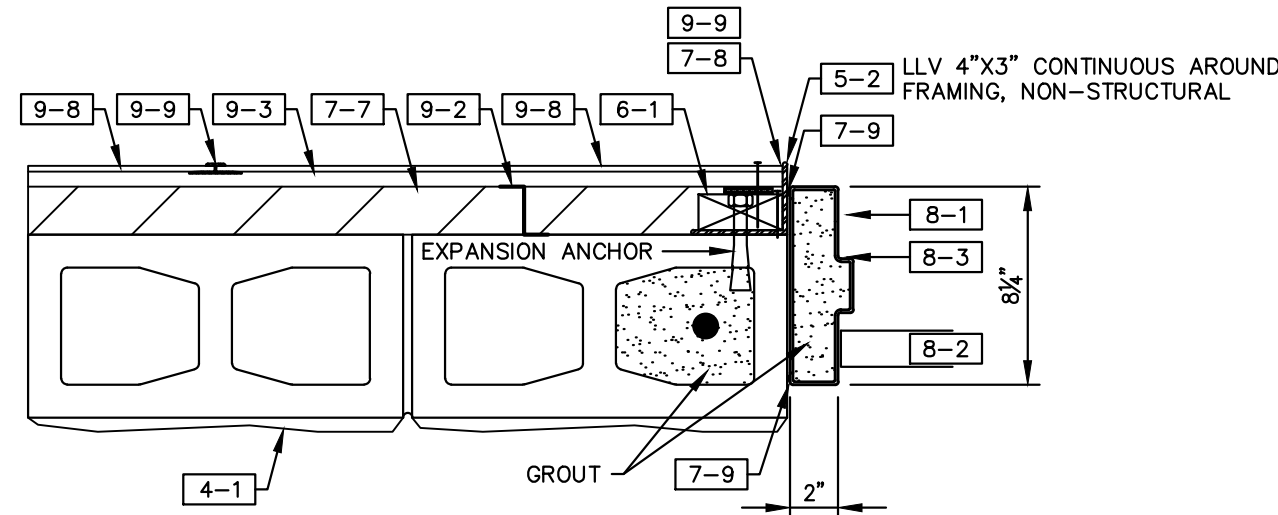




INTERIOR WALL
CONSTRUCTION DETAIL
SCALE: 1 1/2" = 1'-0"



DOOR HEAD — EXTERIOR
SCALE: 1 1/2" = 1'-0"



DOOR JAMB — EXTERIOR
SCALE: 1 1/2" = 1'-0"

KEYNOTE MATERIAL LEGEND

MASONRY 04000

- 4-1 CMU — 04200
4-2 BOND BEAM — SEE DETAIL, SHT. 12 — 04200

METALS 05000

- 5-2 STEEL ANGLE — SEE STRUCTURAL DWGS — 05120

WOOD AND PLASTICS 06000

- 6-1 PRESSURE TREATED WOOD BLOCKING — 06105

THERMAL AND MOISTURE PROTECTION 07000

- 7-7 EXTRUDED POLYSTYRENE — 07210
7-8 JOINT SEALANT — 07920
7-9 JOINT SEALANT W/ BACKER ROD — 07920

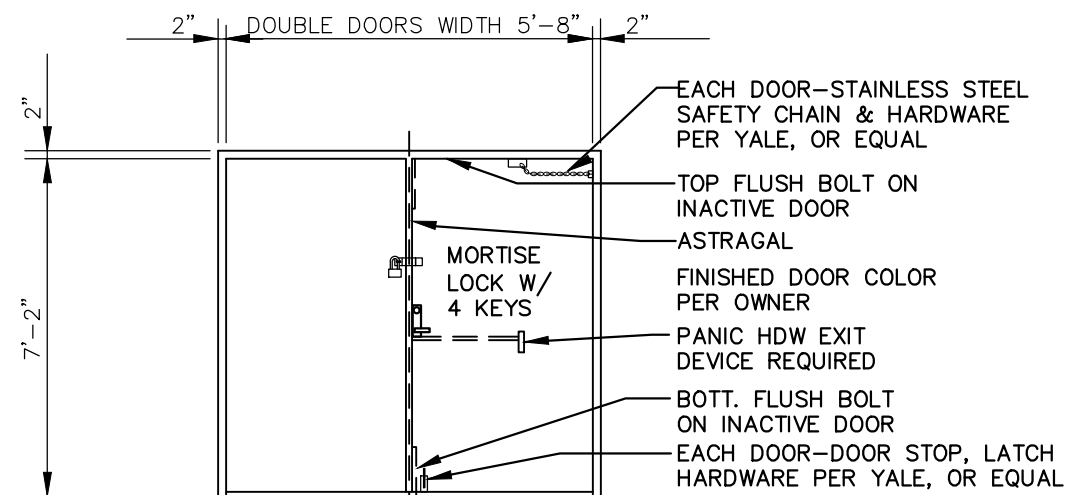
DOORS AND WINDOWS 08000

- 8-1 HOLLOW METAL FRAME — 08111
8-2 HOLLOW METAL DOOR — 08111
8-3 JAMB ANCHORS (3 PER JAMB) — 08111

FINISHES 09000

- 9-2 NON-STRUCTURAL 16GA METAL Z FURRING — 09221
9-3 GYPSUM BOARD — 09290
9-8 FRP WALL PANELS — 09770
9-9 FRP PANEL MOLDING AND TRIM — 09770

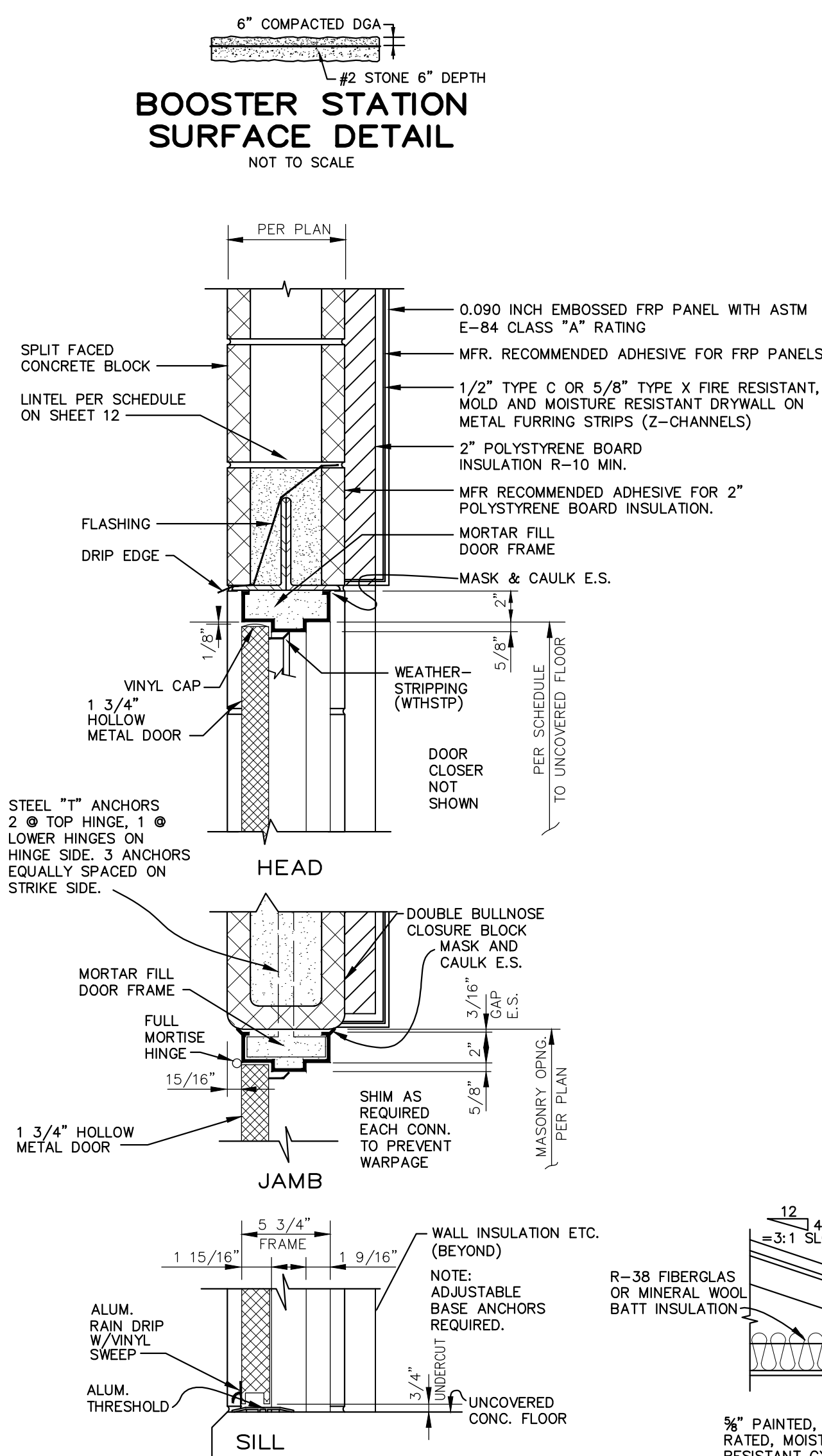
ACCEPTABLE MFR. PRODUCTS DESIGNATING THE QUALITY, TYPE, FUNCTION AND ETC..	
SIZE	3'-0" x 7'-2"
SINGLE DOOR AND FRAME	SEE SPECIFICATION SECTION 08220 FOR THE FRP DOOR AND FRAME REQUIREMENTS.
ENTRANCE LOCKSET	YALE — MORTISE — MONROE MOSL — (F04) — SL8807FL — US 32D W/ 4 KEYS & ARE KEYED PER OWNERS REQUEST
HINGE BUTTS	HAGER — MORTISE — BB1199 — 4 1/2"x 4 1/2" — US32D
THRESHOLD	NAT. GUARD PROD.—8424 — ALUMINUM
CRASH STOP	IVES — 115 — 25 1/2" LGTH. THRU BOLT FASTENING
FLUSH BOLT (TOP AND BOTTOM)	IVES — 458 — US26D
RAIN DRIP	NAT. GUARD PROD.—101AV — ANO. ALUM.
WEATHER—STRIPPING	NAT. GUARD PROD.—110NA — ANO. ALUM. (HEAD & JAMB)
SWEEP	NAT. GUARD PROD.—600 ANO. ALUM. & NYLON
MORTISE LOCK EXIT DEVICE	DETEX SERIES 30 — CYLINDER DOGGING



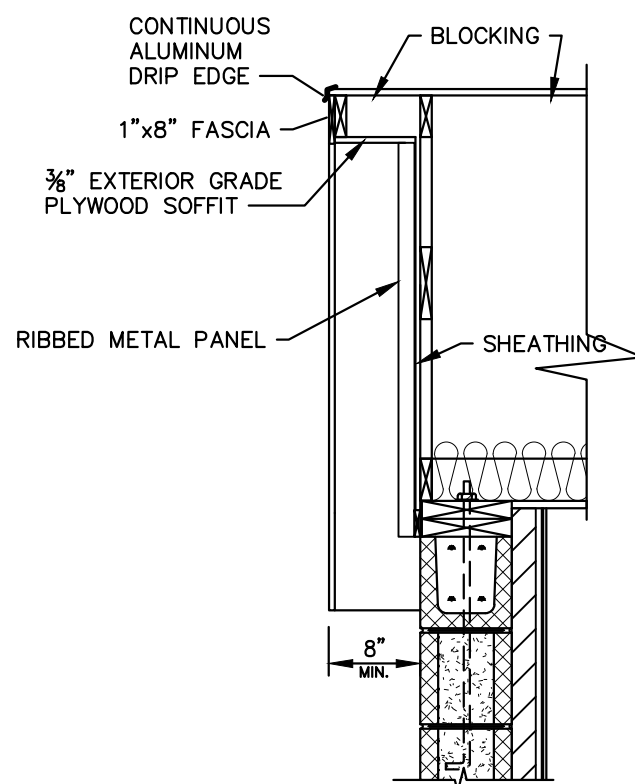
TYPE FF
DOUBLE DOORS (PR. DR.) W/FRAME
ELEVATION

DOOR FRAME AND HARDWARE SPECIFICATIONS:
DOOR SHALL BE HOLLOW METAL RESISTANCE TO HIGH IMPACT, HIGH FREQUENCY USE, CORROSION AND HEAT TRANSMISSION ARE THE GOVERNING FACTORS REQUIRING THE DOOR TO MEET DURABILITY STANDARDS OF THE STEEL DOOR INSTITUTE (SDI) STANDARD DATA SERIES ANSI/SDI A250.8 CLASSIFICATION TYPE III, MAXIMUM DUTY OR NAAMM STANDARD CHEM-1-74. DOOR SHALL HAVE PASSED AND SHALL MEET THE REQUIREMENTS OF ANSI STANDARD A250.4, TWIST TEST AND 1 MILLION CYCLE SWING TEST.

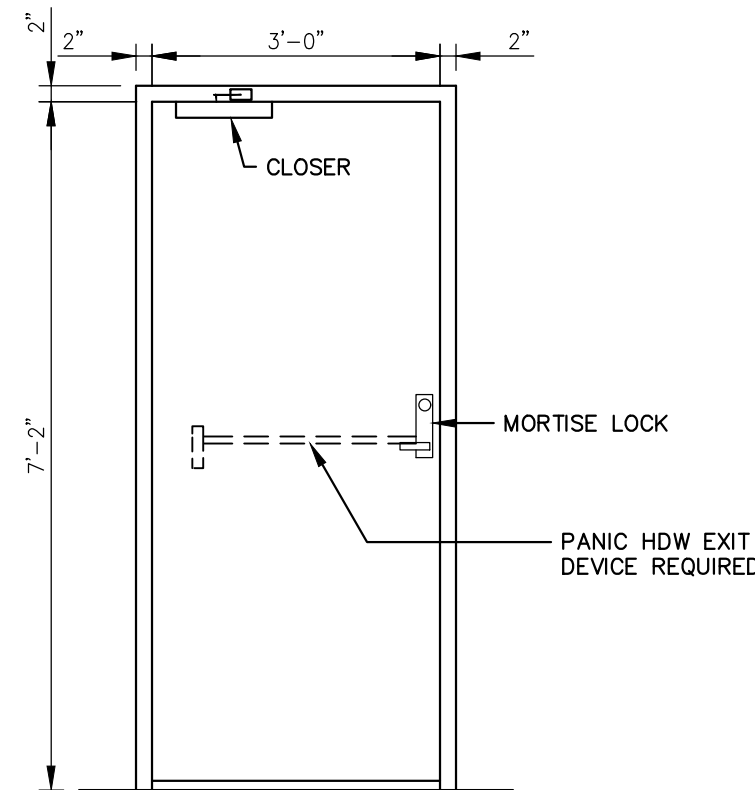
ACCEPTABLE MFR. PRODUCTS DESIGNATING THE QUALITY, TYPE, FUNCTION AND ETC..	
SIZE	5'-8" x 7'-2" RHR AND LHR ACTIVE
DOUBLE DOOR AND FRAME	CECO 1 3/4" IMPERIAL MAXIM (IU), 14 GAUGE HOT DIP GALV. STL. ASTM A924 AND A653, DOOR WITH MERCURY OR WEATHER KERF FRAME DOOR AND FRAME TO BE U FACTOR 0.091 R FACTOR: U FACTOR DOOR 0.38, R FACTOR DOOR 2.63 PER NFRC 102-2014 AND DEFINED BY NFRC 102-2014, ASTM C1199 AND ASTM C1363
ENTRANCE LOCKSET	YALE — MORTISE — MONROE MOSL — (F04) — SL8807FL — US 32D W/ 4 KEYS & ARE KEYED PER OWNERS REQUEST
HINGE BUTTS	HAGER — MORTISE — BB1199 — 4 1/2"x 4 1/2" — US32D
THRESHOLD	NAT. GUARD PROD.—8424 — ALUMINUM
CRASH STOP	IVES — 115 — 25 1/2" LGTH. THRU BOLT FASTENING
FLUSH BOLT (TOP AND BOTTOM)	IVES — 458 — US26D
STEEL ASTRAGAL	FURNISHED BY DOOR MANUFACTURER
RAIN DRIP	NAT. GUARD PROD.—101AV — ANO. ALUM.
WEATHER—STRIPPING	NAT. GUARD PROD.—110NA — ANO. ALUM. (HEAD & JAMB)
SWEEP	NAT. GUARD PROD.—600 ANO. ALUM. & NYLON
MORTISE LOCK EXIT DEVICE	DETEX SERIES 30 — CYLINDER DOGGING



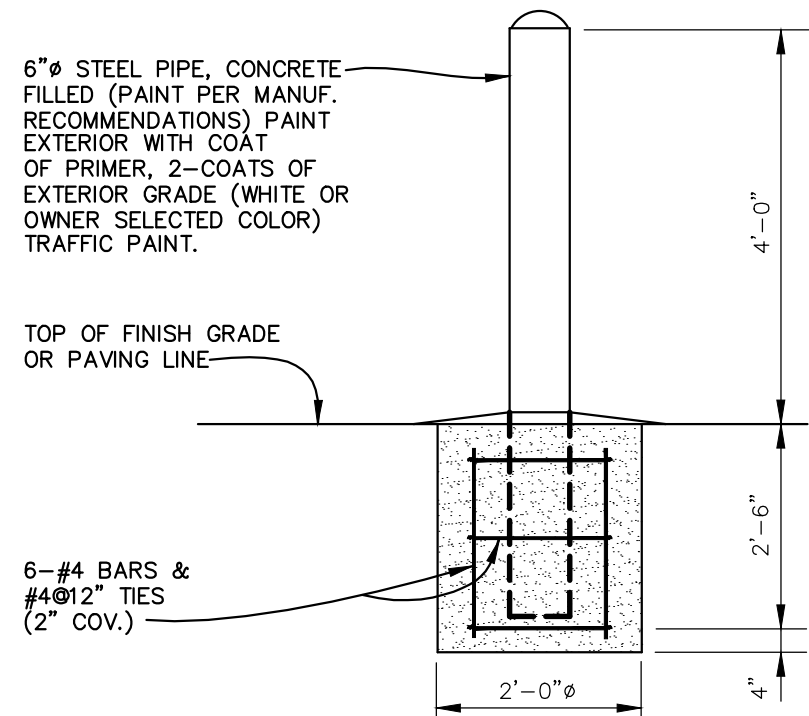
HOLLOW METAL DOOR
EXTERIOR DOOR SETTING
IN 8" CMU WALLS
SCALE: 1 1/2"=1'-0"



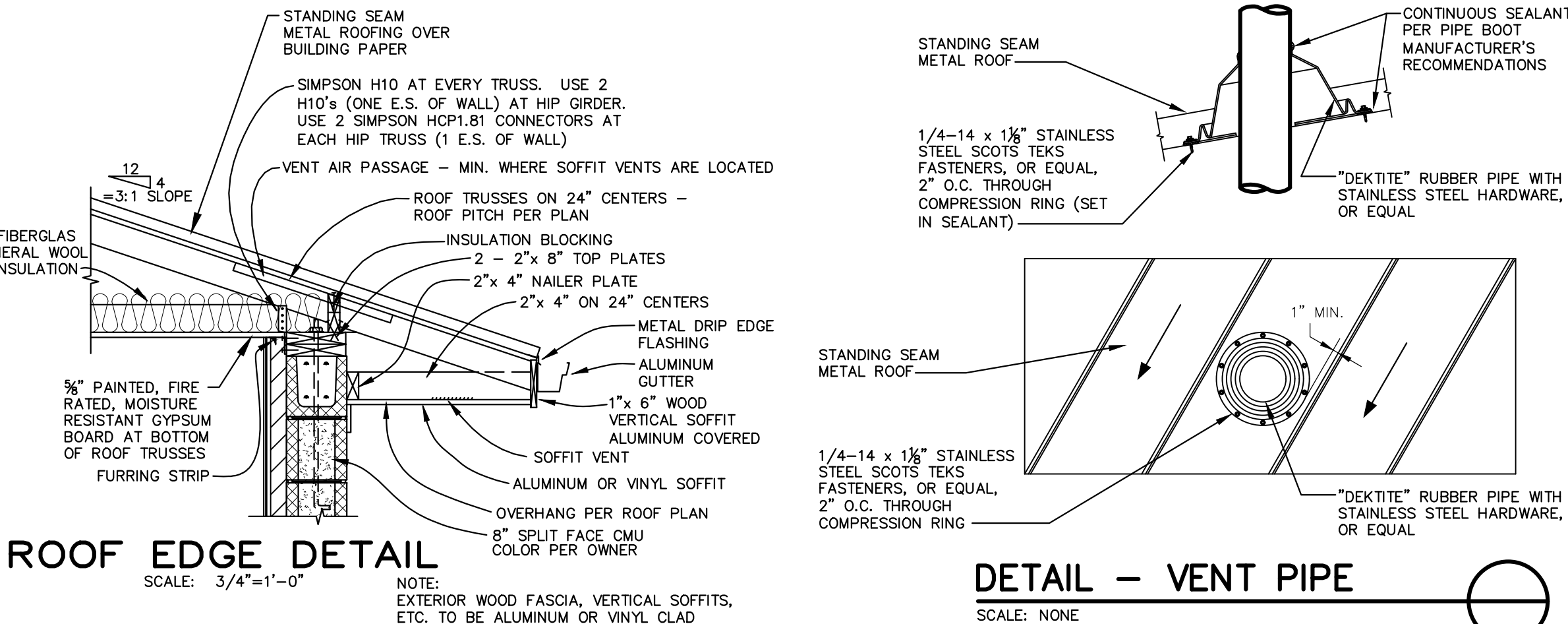
GABLE EDGE DETAIL
SCALE: 3/4" = 1'-0"



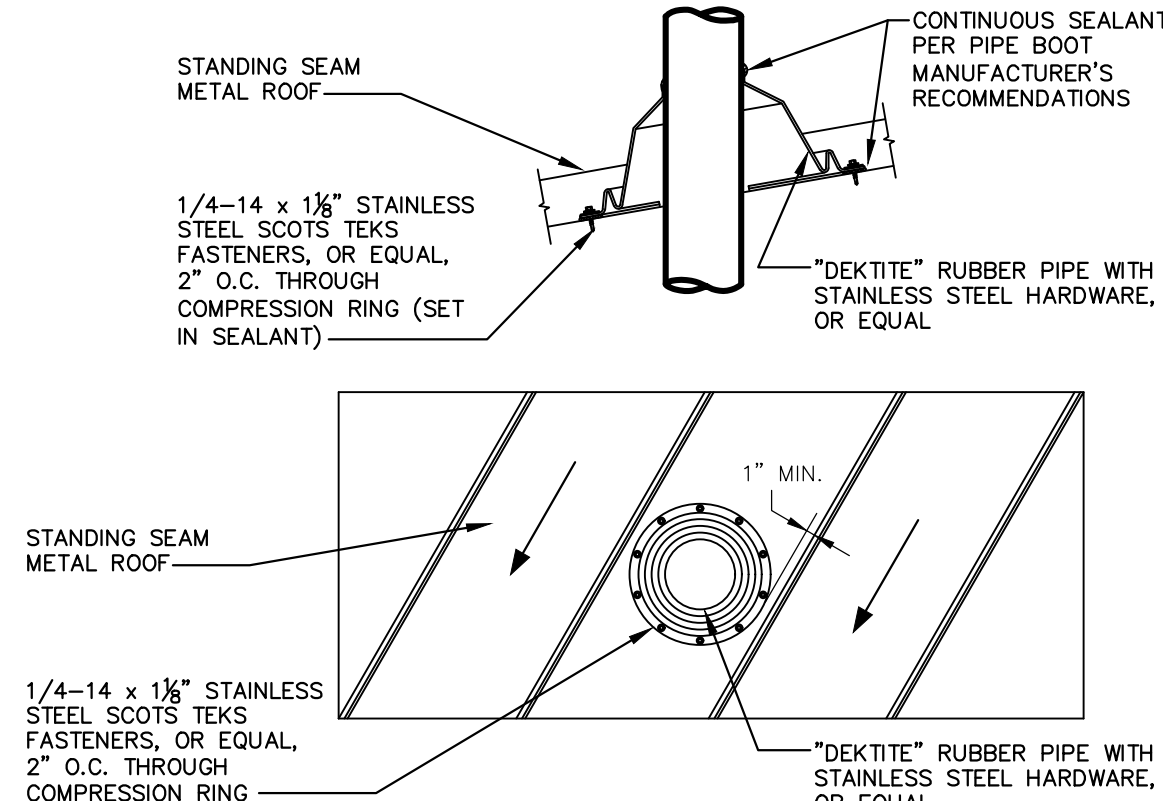
TYPE F
SINGLE DOOR WITH FRAME
NOT TO SCALE



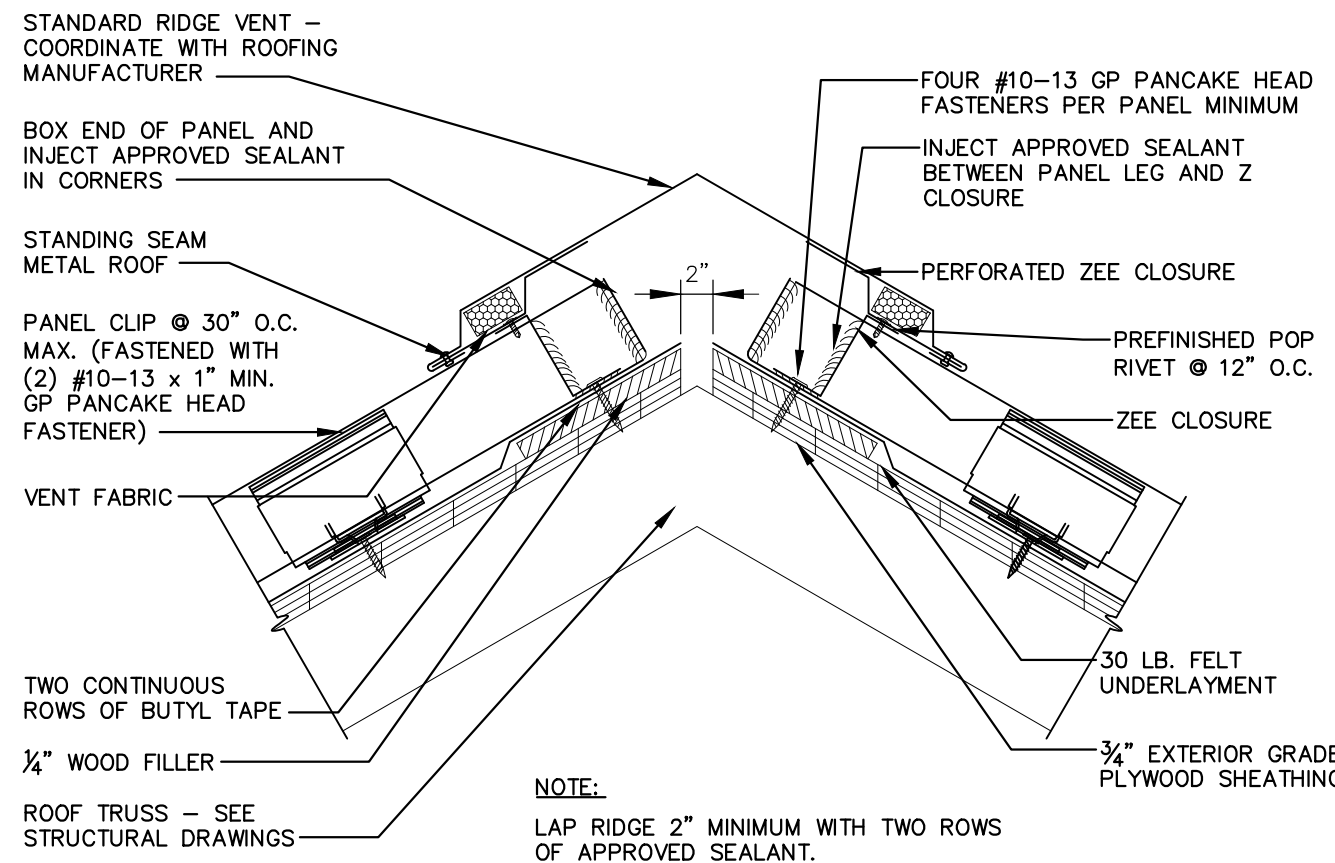
GUARD POST DETAIL
SCALE: 3/4"=1'-0"
(SEE PLAN VIEW)



ROOF EDGE DETAIL
SCALE: 3/4"=1'-0"



DETAIL — VENT PIPE
SCALE: NONE



DETAIL — RIDGE VENT
SCALE: NONE

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GRAPHIC SCALE	
SCALE:	AS NOTED

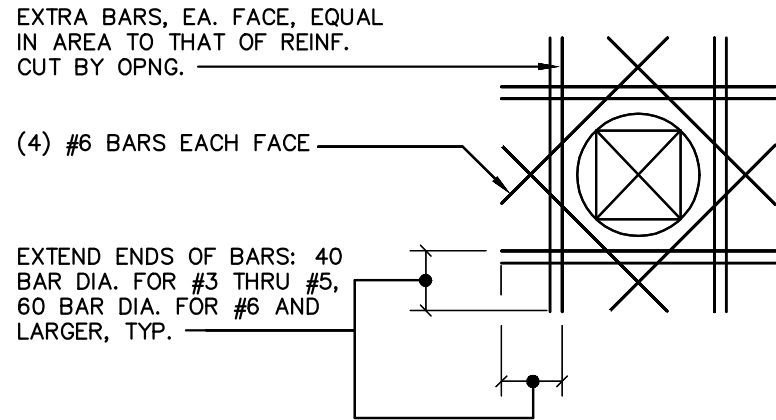
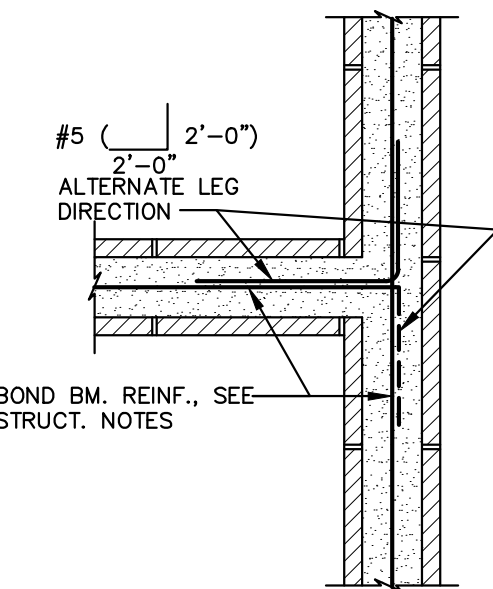
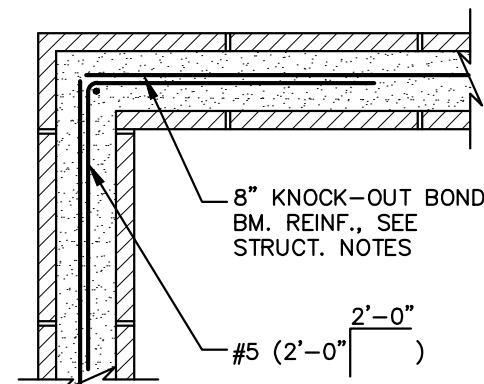
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WATER SYSTEM IMPROVEMENTS
SHOPES CREEK ROAD AREA
CANNONBURG WATER DISTRICT
CANNONBURG, KENTUCKY

BOOSTER PUMP STATION
MISCELLANEOUS DETAILS

DIVISION	—
CONTRACT NO.	691-21-01
DATE	SEPTEMBER 2021
SHEET NO.	11 OF 17



TYPICAL DETAIL @ BOND BEAM CORNERS

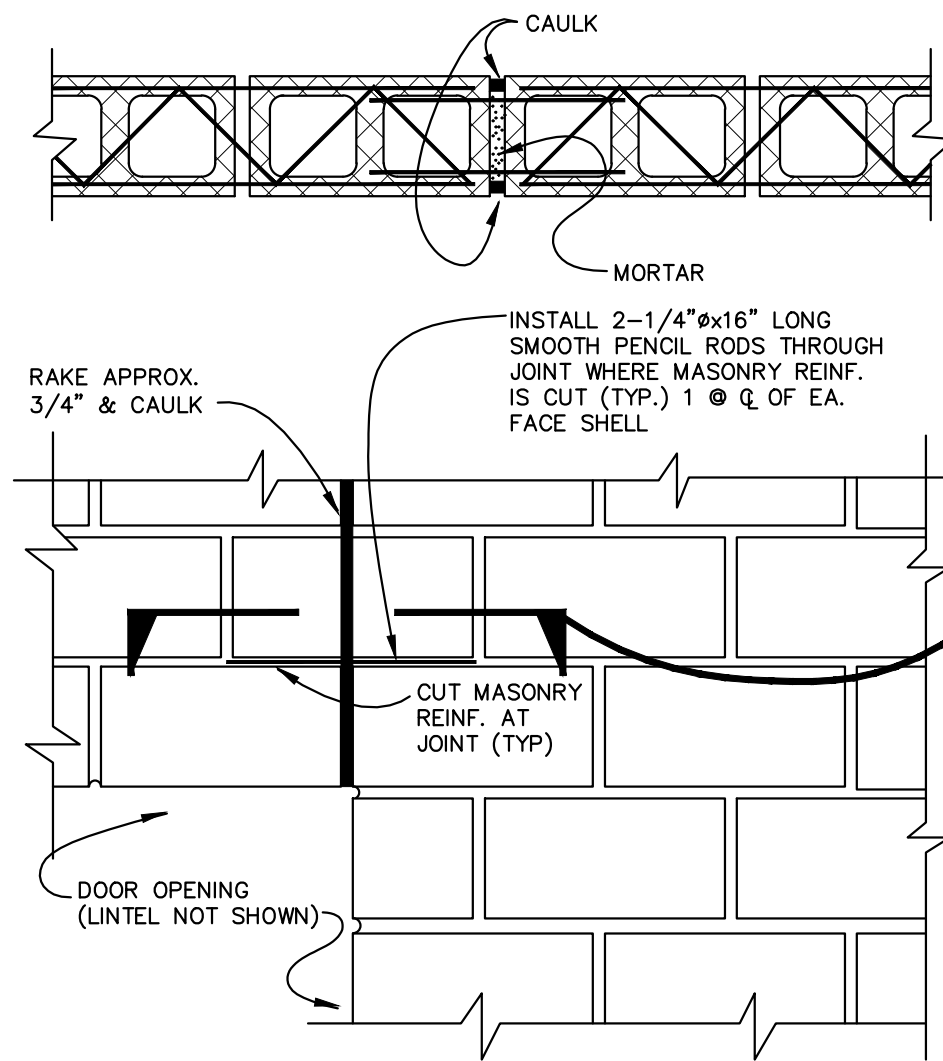
NOT TO SCALE

TYPICAL DETAIL @ BOND BEAM INTERSECTION, U.N.O.

NOT TO SCALE

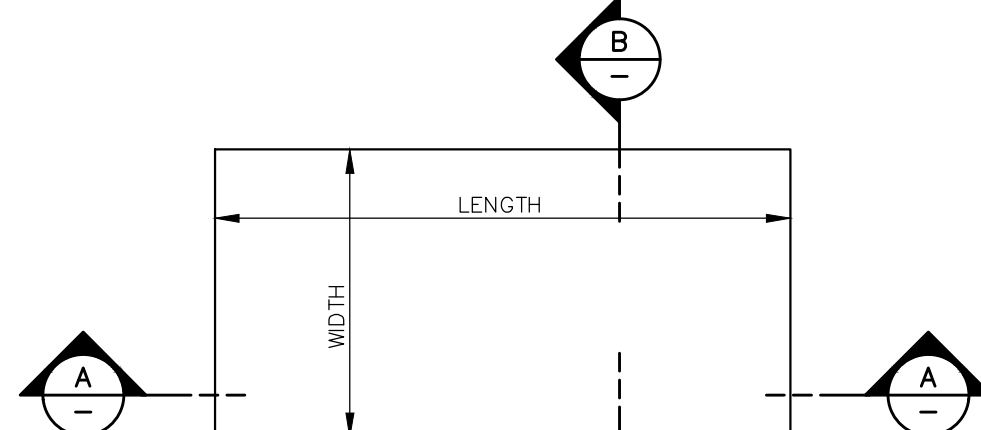
ADDITIONAL REINFORCING FOR SLAB/WALL OPENINGS

NOT TO SCALE



CONTROL JOINT AT DOORS

NOT TO SCALE



EQUIPMENT BASE PLAN

HEIGHT

SECTION A

SECTION B

TYPICAL EQUIPMENT BASE REINFORCING

GENERAL STRUCTURAL NOTES

- CONTRACTOR NOTES
 - THE CONTRACT DRAWINGS REPRESENT THE DESIRED RESULT OF CONSTRUCTION. THE METHODS OF CONSTRUCTION AND THE RISKS INVOLVED DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL MAINTAIN THE STRUCTURAL INTEGRITY OF ALL STRUCTURES AT ALL STAGES OF CONSTRUCTION.
 - THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO CONSTRUCTION AND SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO COMMENCING ANY PERTINENT WORK.
 - ANY SUBSTITUTIONS PROPOSED BY THE CONTRACTOR SHALL BE APPROVED BY THE ENGINEER PRIOR TO COMMENCING ANY PERTINENT WORK.
 - LOAD-CARRYING STRUCTURAL COMPONENTS SHALL BE FABRICATED, CONSTRUCTED, AND INSTALLED IN ACCORDANCE WITH THE STRUCTURAL PLANS. IF THERE IS A DISCREPANCY OF DEPICTION OF A STRUCTURAL COMPONENT IN ANOTHER PLAN SECTION, THE STRUCTURAL PLANS SHALL CONTROL, UNLESS PRIOR WRITTEN AUTHORIZATION FROM THE ENGINEER IS PROVIDED.
 - ALL DEMOLITION DEBRIS SHALL BE REMOVED FROM SITE & DISPOSED OF AT NO ADDITIONAL COST TO THE OWNER UNLESS NOTED OTHERWISE.
 - ALL NECESSARY SHORING IS THE RESPONSIBILITY OF THE CONTRACTOR.
- MASONRY
 - ALL CONCRETE MASONRY UNITS (CMUS) SHALL BE OF LOAD-BEARING TYPE WITH A MINIMUM COMPRESSIVE STRENGTH OF $F'_m = 1,500$ PSI AT 28 DAYS. UNITS SHALL MEET THE CURRENT SPECIFICATION OF ASTM C90.
 - ALL WALLS WHICH ARE NOT EXPOSED TO EARTH OR WEATHER SHALL BE 2-CELL BLOCK, MADE OF LIGHTWEIGHT AGGREGATE. ALL WALLS WHICH ARE EXPOSED TO EARTH OR WEATHER SHALL BE 2-CELL BLOCK, MADE OF NORMAL-WEIGHT AGGREGATE.
 - ALL MORTAR FOR UNIT MASONRY SHALL COMPLY WITH THE REQUIREMENTS OF ASTM C270, TYPE S.
 - HORIZONTAL WIRE REINFORCING SHALL BE 9 GAUGE CONTINUOUS LADDER-TYPE UNITS, WHICH COMPLY WITH ASTM A82, AND SHALL BE SPACED AT 16" O.C.
 - PROVIDE A BOND BEAM AT THE TOP AND BOTTOM OF ALL LOAD-BEARING AND NON-LOAD BEARING CMU WALLS. IN EXTERIOR AND LOAD-BEARING WALLS, PROVIDE ADDITIONAL BOND BEAMS AT 4'-0" O.C. VERTICALLY. BOND BEAMS SHALL BE REINFORCED WITH 1-#4 CONTINUOUS BAR, UNLESS NOTED OTHERWISE.
 - VERTICAL REINFORCING SHALL BE OF SIZE AND SPACING PER PLAN, PLUS ONE ADDITIONAL BAR AT EACH DOOR/WINDOW JAMB (AND ABOVE AND BELOW DOOR/WINDOW OPENINGS), AND AT EACH BUILDING CORNER AND WHERE ADDITIONAL REINFORCING IS INDICATED.
 - SPLICES IN CONTINUOUS VERTICAL OR HORIZONTAL REINFORCING BARS SHALL BE PER ACI-308 OR 48 BAR DIAMETERS, WHICHEVER IS GREATER, UNLESS NOTED OTHERWISE. SPLICES SHALL BE CONTINUOUS OR SPLICED WITH DOWELS AT CORNERS.
 - FILL CELLS OF BLOCK AT VERTICAL REINFORCING AND WHERE INDICATED WITH CONCRETE, HAVING A MAXIMUM 3/8" LARGE AGGREGATE ("GROUT"), A MINIMUM COMPRESSIVE STRENGTH OF 2,500 PSI AT 28 DAYS, AND COMPLYING WITH ASTM C476.
 - ALL LOAD-BEARING CMU WALLS SHALL BE CONSTRUCTED SUCH THAT BLOCK IS INTERLOCKING AT ALL WALL CORNERS AND INTERSECTIONS. A VERTICAL COLD JOINT SHALL NOT BE PERMITTED AT THE JUNCTURE OF TWO LOAD-BEARING CMU WALLS. ALL NON-LOAD BEARING CMU WALLS SHALL BE CONSTRUCTED SUCH THAT THE BLOCK IS INTERLOCKING AT THE CORNER/ INTERSECTION OF AT LEAST ONE END OF THE WALL.
 - IF A WALL REINFORCEMENT THAT IS INTERRUPTED SHALL BE OFFSET AND CONTINUED IMMEDIATELY ADJACENT.

INFORMATION REQUIRED BY 2015 IBC / 2018 KBC SECTION 1603

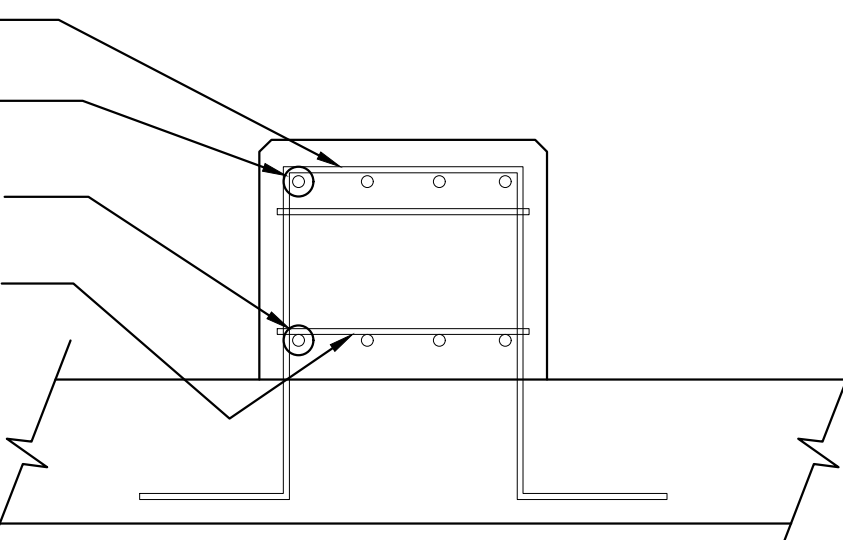
1603.1.1	FLOOR LIVE LOAD	100 PSF UNIF / 2,000 LB CONC
2	WALKWAYS & STAIRS:	100 PSF UNIF / 300 LB CONC
1603.1.2	ROOF LIVE LOAD	
1	ALL ROOFED STRUCTURES:	20 PSF UNIF / 300 LB CONC
1603.1.3	ROOF SNOW LOAD DATA	
1	GROUND SNOW LOAD (P_g)	20 PSF
2	FLAT-ROOF SNOW LOAD (P_f)	15.1 PSF
3	SNOW EXPOSURE FACTOR (C_e)	0.9
4	SNOW LOAD IMPORTANCE FACTOR (I_s)	1.2
5	THERMAL FACTOR (C_t)	1.0
1603.1.4	WIND DESIGN DATA	
1	ULTIMATE DESIGN WIND SPEED (V_{ult})	120 MPH
2	RISK CATEGORY	IV
3	WIND EXPOSURE	C
4	INTERNAL PRESSURE COEFFICIENT (GC_{pi})	N/A (ENCLOSED SIMPLE DIAPHRAGM, LOW RISE)
5	DESIGN WIND PRESSURES	15.1 PSF (LATERAL) -19.1 PSF (VERTICAL)
1603.1.5	EARTHQUAKE DESIGN DATA	
1	RISK CATEGORY	IV
2	SEISMIC IMPORTANCE FACTOR (I_e)	1.50
3	MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETERS:	
A.	S_s	0.162G
B.	S_1	0.076G
D.		
4	SITE CLASS	D
5	DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS:	
A.	S_{ds}	0.173G
B.	S_{d1}	0.122G
C.		
6	SEISMIC DESIGN CATEGORY	C
7	BASIC SEISMIC FORCE-RESISTING SYSTEM:	
A.	BUILDING FRAME SYSTEM ORDINARY REINFORCED MASONRY SHEAR WALLS	
8	DESIGN BASE SHEAR (V_u)	0.130W
9	SEISMIC RESPONSE COEFFICIENT (C_s)	0.130
10	RESPONSE MODIFICATION COEFFICIENT (R)	2.0
11	ANALYSIS PROCEDURE USED:	EQUIVALENT LATERAL FORCE PROCEDURE (ELFP)
1603.1.6	GEOTECHNICAL INFORMATION	
1	ALLOWABLE BEARING CAPACITY	1,500 PSF
1603.1.7	FLOOD DESIGN DATA	NOT APPLICABLE
1603.1.8	SPECIAL LOADS	NOT APPLICABLE

SPECIAL INSPECTIONS

- THE SPECIAL INSPECTION AGENCY WILL BE LE GREGG ASSOCIATES | 2456 FORTUNE DRIVE, SUITE 155 | LEXINGTON, KENTUCKY | 40509 | (859) 252-7558 PHONE.
- THE FOLLOWING IS A PARTIAL LISTING OF OPERATIONS WHICH ARE SUBJECT TO SPECIAL INSPECTIONS, IN ACCORDANCE WITH 2015 IBC / 2018 KBC. THIS IS NOT INTENDED TO BE A COMPLETE LISTING, AS A THOROUGH OUTLINE IS PROVIDED IN THE IBC / KBC, AND IS HEREBY INCLUDED BY REFERENCE. ADDITIONAL INFORMATION IS ALSO INCLUDED IN SPECIFICATION SECTION 01420. SPECIAL INSPECTIONS SHALL BE REQUIRED FOR THE FOLLOWING TYPES OF WORK:
 - CONCRETE CONSTRUCTION: INCLUDING REINFORCEMENT, FORMWORK, DELIVERY, AND PLACEMENT.
 - MASONRY CONSTRUCTION: INCLUDING CMU WALLS AND ALL ASSOCIATED APPURTENANCES.
 - WOOD CONSTRUCTION: INCLUDING MEMBER SIZE AND PLACEMENT, VERIFICATION OF FABRICATOR APPROVAL, OBSERVATION OF ERECTION FOR PROPER TECHNIQUES.
 - SOILS: VERIFICATION AND INSPECTION OF SOILS, DENSITIES, LIFT THICKNESSES, AND DESIGN BEARING CAPACITIES.

NOTES:

- BARS "A" SHALL MATCH THE BAR SIZE AND SPACING OF THE SLAB REINFORCEMENT RUNNING IN THE "WIDTH" DIRECTION, WHILE RESPECTING THE COVER REQUIREMENTS OF THE EQUIPMENT BASE. IF THIS QUANTITY OF BARS IS ODD, ROUND UP TO THE NEAREST EVEN NUMBER AND EVENLY DISTRIBUTE.
- BARS "B" AND "C" SHALL BE QUANTIFIED AS "#5@10\"", ROUNDING UP TO NEAREST EVEN NUMBER. IF "HEIGHT" IS LESS THAN 14", OMIT BARS "C".
- BARS "D" SHALL MATCH THE SIZE AND SPACING OF BARS "A". IF "HEIGHT" IS LESS THAN 14", OMIT BARS "D".
- EQUIPMENT BASE SHALL BE SAME CONCRETE MIX AS THE SLAB, UNLESS NOTED OTHERWISE. PROVIDE CHAMFER AT CORNERS U.N.O. PROVIDE 2" CONCRETE COVER OVER REINFORCEMENT.
- ADJUST BAR SPACING TO ACCOMMODATE EQUIPMENT & PIPING. BARS SHALL BE ADJUSTED SYMMETRICALLY TO ALLOW EQUIPMENT AND PIPING TO BE CENTERED.
- DIMENSIONS OF EQUIPMENT BASE ARE PER PLAN OR EQUIPMENT MANUFACTURER.



TYPICAL EQUIPMENT BASE REINFORCING

TRUSS NOTES:

- PREFABRICATED ROOF TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH THE NATIONAL DESIGN SPECIFICATIONS FOR STRESS-GRADE LUMBER AND ITS FASTENINGS, AS RECOMMENDED BY THE NATIONAL FOREST PRODUCTS ASSOCIATION.
- DESIGN TRUSS LOADINGS:
ROOF TRUSSES: TOP CHORD DEAD LOAD: 10 PSF
TOP CHORD LIVE LOAD: 20 PSF (SNOW)
BOTTOM CHORD DEAD LOAD: 10 PSF
WIND LOAD: 70 MPH
- TRUSS MANUFACTURER SHALL SUBMIT ERECTION PLAN AND SHOP DRAWINGS BEARING THE SEAL OF AN ENGINEER REGISTERED IN THE STATE OF KENTUCKY CONFORMING TO THE DESIGN CRITERIA SPECIFIED HEREIN FOR APPROVAL AND PRIOR TO FABRICATION. SUBMITTED DATA TO CONTAIN:
 - DESIGN LOADINGS AND ALLOWABLE STRESS INCREASES EMPLOYED
 - CALCULATED TRUSS MEMBER STRESSES
 - RATED LOAD CAPACITY OF THE TRUSS MEMBER CONNECTORS
 - SIZE, SPECIES AND STRESS-GRADE OF LUMBER EMPLOYED
 - FABRICATION DETAILS INDICATING LOCATIONS OF CONNECTORS
 - PERMANENT BRIDGING AND/OR BRACING LOCATIONS
 - HANDLING AND ERECTION INSTRUCTIONS
 - TRUSS TO TRUSS CONNECTION
- FAILURE TO FURNISH ANY OF THE ABOVE REQUIRED DATA WILL BE REGARDED AS AMPLE REASON FOR THE REJECTION OF THE SHOP DRAWINGS. THE CONTRACTOR SHALL APPROVE FABRICATION AND INSTALLATION DRAWINGS SHOWING SIZE, SHAPE AND LAYOUT PRIOR TO SUBMITTAL FOR REVIEW BY THE ENGINEER.
- CONNECTOR PLATES SHALL BE A MINIMUM OF 0.036" AND SHALL BE MANUFACTURED FROM MATERIAL MEETING THE REQUIREMENTS OF ASTM A446 GRADE A STEEL. PLATES SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A5252 G60 SPECIFICATIONS.
- TRUSS MEMBERS SHALL BE ACCURATELY CUT AND FABRICATED TO INSURE AMPLE MEMBER BEARING AND TRUSS UNIFORMITY WITHIN THE TOLERANCES ESTABLISHED BY THE "TRUSS PLATE INSTITUTE QUALITY CONTROL MANUAL COM-84"
- FOR TRUSSES OVER 35' SPAN, ALL LUMBER SHALL BE NO. 1 GRADE MINIMUM, INCLUDING THE WEBS.
- FOR TRUSSES UP TO 35' SPAN, ALL LUMBER SHALL BE NO. 2 GRADE MINIMUM.

GENERAL NOTES FOR ROOF CONSTRUCTION:

- THE ROOF SHALL BE THE GABLE ROOF TYPE. TRUSSES SHALL BE PITCHED TYPE WITH 4:12 SLOPE (3" IN 12"). RAFTERS SHALL BE NOTCHED AT THE NAILER PLATE AND TOENAILED WITH TWO 10d NAILS EACH SIDE.
- PLYWOOD SHEATHING FOR ROOF SHALL BE EXTERIOR GRADE - APA RATED FOUR BY EIGHT FOOT SHEETS, 5/8 INCH THICK. PLY CLIPS SHALL BE PROVIDED BETWEEN EACH RAFTER. PROVIDE PREFORMED ALUMINUM BLOCKING FOR ALL EXPOSED ENDS OR EDGES. NAIL WITH 6d COMMON NAILS SPACED 6 INCHES APART ON THE EDGES AND 12 INCHES APART FOR INTERMEDIATE NAILING.
- PROVIDE PARTIAL HEIGHT BLOCKING AT NAILER PLATE BETWEEN CEILING JOISTS TO RETAIN INSULATION. INSULATION SHALL BE R-38.
- CONTINUOUS 0.025 INCH GAUGE WHITE ALUMINUM 4 INCH GUTTERING SHALL BE PROVIDED ON THE BUILDING WITH THE NUMBER OF DOWNSPOUTS AS SHOWN. GUTTERS SHALL BE HUNG USING BRACKET TYPE HANGERS. DOWNSPOUTS SHALL BE CORRUGATED RECTANGULAR TYPE MOUNTED WITH BRACKETS. GUTTER HANGERS SHALL BE 3 FT. O.C.
- SNOW GUARDS SHALL BE PROVIDED BETWEEN EACH METAL RIDGE.

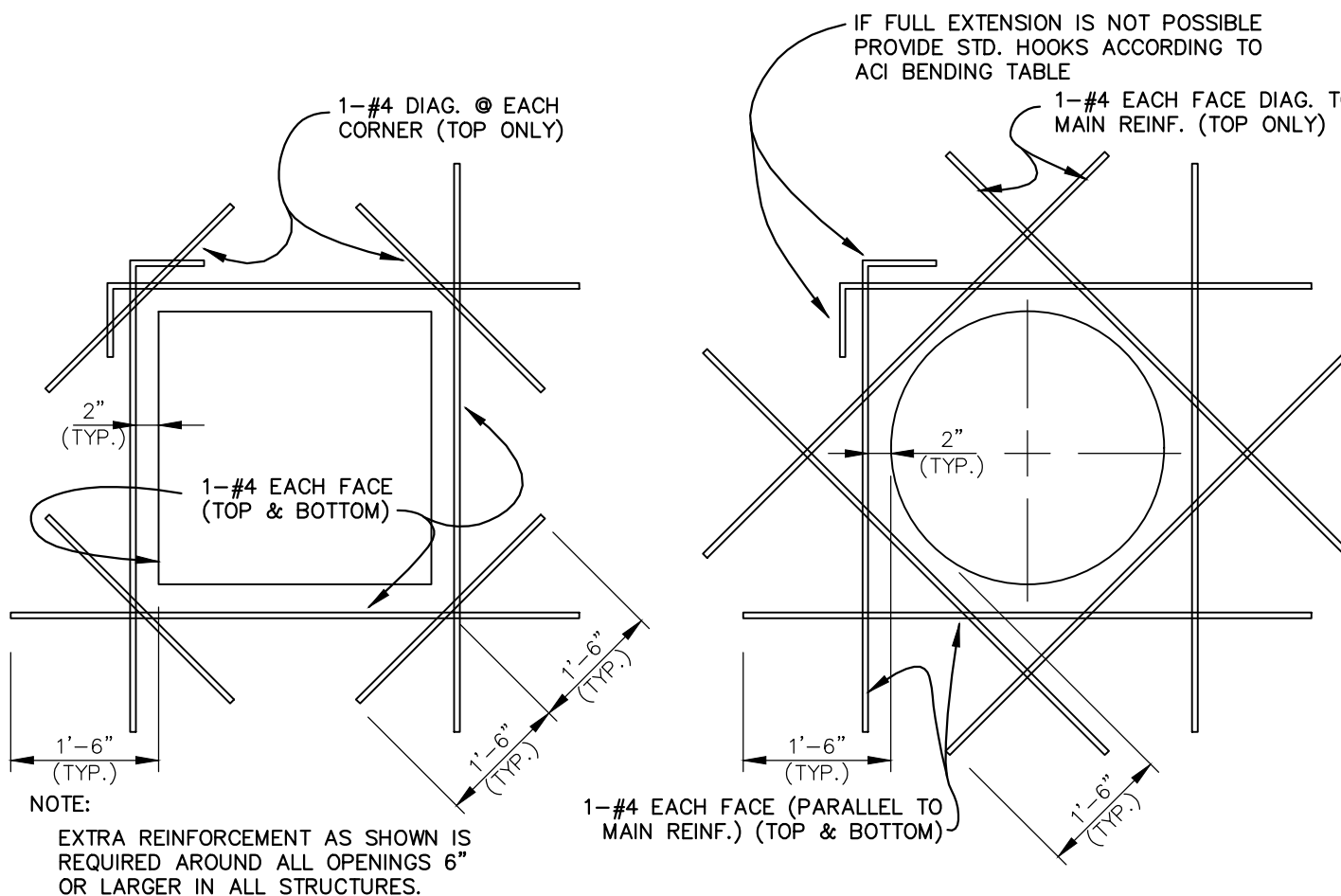
MINIMUM NAILING SCHEDULE

ALL NAILS SHALL BE COMMON WIRE NAILS. WHERE NAILS TEND TO SPLIT THE WOOD, HOLES SHALL BE SUBDRILLED. UNLESS OTHERWISE NOTED NAILING SHALL NOT BE LESS THAN THE FOLLOWING:

JOISTS TO BEARING - TOE NAIL EA. SIDE	2 - 16d
DOUBLE JOISTS:	
NOT BLOCKED APART - STAGGERED	16d @ 16"
BLOCKED APART - EA. BLOCK, EA. SIDE	2 - 16d
BLOCKING BETWEEN JOISTS:	
TO BEARING - TOE NAIL EA. SIDE	2 - 16d
TO JOIST 10" IN DEPTH AND GREATER:	
THRU NAIL, ONE END	3 - 20d
TOE NAIL EA. SIDE, OPP. END	3 - 16d
TO JOIST 8" IN DEPTH AND LESS:	
THRU NAIL, ONE END	2 - 16d
TOE NAIL EA. SIDE, OPP. END	2 - 16d
BRIDGING TO JOISTS - TOE NAIL EA. END	2 - 8d
STUDS TO BEARING - TOE NAIL EA. SIDE	2 - 16d
MULTIPLE STUDS	16d @ 12" O.C.
CORNER STUDS AND ANGLES	16d @ 30" O.C.
DOUBLE TOP PLATE:	
LOWER PLATE TO TOP OF STUD	3 - 16d
UPPER PLATE TO LOWER PLATE - STAGGERED	16d @ 18" O.C.
UPPER PLATE TO LOWER PLATE AT INTERSECTION	3 - 16d
PLATE TO JOIST OR BEARING	16d @ 16" O.C.
3/8" PLYWOOD SHEATHING	8d @ 6" O.C. @ PANEL EDGES
(HORIZONTAL OR VERTICAL)	8d @ 12" O.C. @ INTER. SUPPORTS
1/2", 5/8", OR 3/4" PLYWOOD SHEATHING:	
10d @ 6" O.C. @ PANEL EDGES	
10d @ 12" O.C. @ INTERMEDIATE SUPPORTS	
1/4" PLYWOOD FOR SUB-FLOOR:	
4d @ 4" O.C. @ PANEL EDGES	
4d @ 8" O.C. @ INTERMEDIATE SUPPORTS	
FURRED CEILING:	
2 x 2 HANGERS TO ROOF OR CEILING JOINTS	2 - 12d
1 x 4 FURRING STRIPS TO UNDERSIDE OF JOIST	
EA. BEARING, ON STRAIGHT & ONE SLANT	2 - 8d

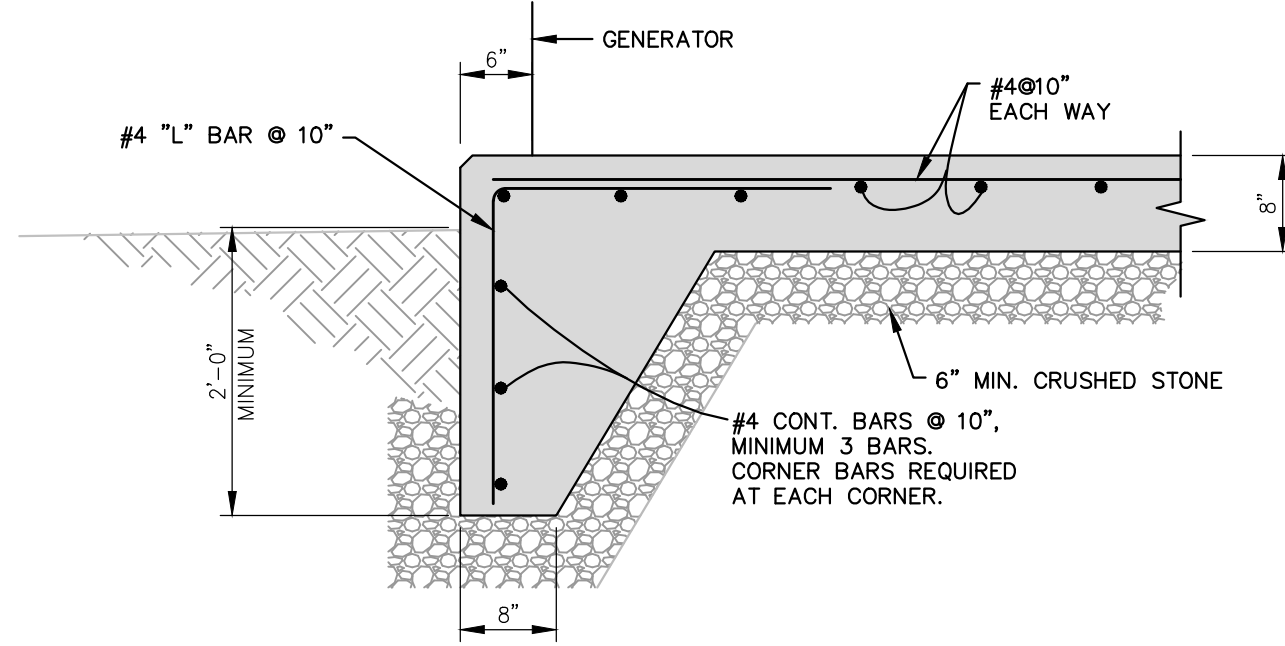
LINTEL SCHEDULE				
Masonry Opening (M.O.) Width				
Nominal Masonry Size	>8'-0" to 2'-0"	>2'-0" to 4'-0"	>4'-0" to 6'-0"	>6'-0" to 8'-0"
8" CMU	8"x8" HIGH LINTEL	8"x16" HIGH LINTEL w/ (1) #5	8"x16" HIGH LINTEL w/ (2) #5	8"x16" HIGH LINTEL w/ (2) #7

- ALL LINTELS SHALL HAVE MIN. 8" BEARING AT EACH END.
- PROVIDE LINTEL BLOCKS FOR LINTELS.
- MASONRY LINTELS SHALL BE AS SPECIFIED, FILLED MONOLITHICALLY WITH GROUT. STEEL REINFORCEMENT SHALL BE PLACED AT BOTTOM OF LINTEL BLOCK WITH 2" MIN. COVER, AS SHOWN, UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL COORDINATE WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS TO PROVIDE LINTELS FOR OPENINGS NOT SHOWN.



TYPICAL REINFORCEMENT AROUND OPENINGS IN WALLS & FLOORS

NOT TO SCALE



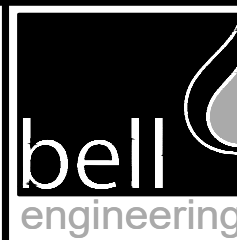
TYPICAL GENERATOR PAD DETAIL

NOT TO SCALE

DESIGNER	DMH	DATE	BY	REVISION
DRAWN	LGL			
CHECKED	DMH			
APPROVED	DMH			

GRAPHIC SCALE
SCALE: AS NOTED

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WATER SYSTEM IMPROVEMENTS
SHOPE'S CREEK ROAD AREA
CANNONBURG WATER DISTRICT
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BOOSTER PUMP STATION
STRUCTURAL DETAILS

DIVISION	-
CONTRACT NO.	691-21-01
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SHEET NO.	12 OF 17

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GENERAL PIPING NOTES BPS

PROVIDE A LEAK FREE CONNECTION ANY PLACE WHERE PIPE TRANSITIONS FROM PVC TO COPPER OR PVC TO METAL. THE LEAK FREE CONNECTION SHALL CONSIST OF SOME FORM OF TRANSITION FITTING SUCH AS SPEARS MANUFACTURING COMPANY'S METAL-TO-PLASTIC TRANSITIONS, STRAUB PIPE JOINT OR EQUAL.

PROVIDE SCHEDULE 80 PVC PIPE FOR ALL CHEMICAL FILL, TRANSFER, AND FEED CARRIER PIPING EXCEPT FOR THE FOLLOWING: PROVIDE SCHEDULE 80 CPVC FOR THE SODIUM HYPOCHLORITE BULK TANK FILL PIPING. WHERE CHEMICAL LINES LEAVE BUILDINGS OR STRUCTURES AND TRAVEL UNDERGROUND IN COVER PIPES HDPE PIPE/TUBING MAY BE USED WHEN IT IS COMPATIBLE WITH THE CHEMICAL IT IS CARRYING. THE HDPE PIPE/TUBING SHALL BE ONE CONTINUOUS PIECE EXCEPT WHERE NOT POSSIBLE IN WHICH CASE THE NUMBER OF JOINTS SHALL BE KEPT TO A MINIMUM. THE NUMBER OF JOINTS SHALL BE KEPT TO A MINIMUM REGARDLESS OF THE TYPE OF PIPE USED WHEN PIPE IS RUN UNDERGROUND.

PROVIDE CLEAR SCHEDULE 40 PVC PIPE AND WHITE SCHEDULE 40 PVC FITTINGS FOR ALL CHEMICAL LINE COVER PIPE (SECONDARY CONTAINMENT PIPE) NOT UNDERGROUND. WHEN UNDERGROUND, COVER PIPE MAY BE SCHEDULE 80 PVC, SCHEDULE 80 CPVC, MINIMUM DR 9 HDPE, OR MINIMUM DR 9 PP. THE COVER PIPE MATERIAL USED SHALL BE COMPATIBLE WITH THE CHEMICALS IN THE CARRIER PIPES WHICH IT CONTAINS.

PROVIDE PVC, PVDF OR PTFE TUBING, AS APPROPRIATE FOR THE CHEMICAL, FOR THE LAST COUPLE FEET OF LINE JUST PRIOR TO AND AFTER METERING PUMPS AND FOR THE LAST COUPLE FEET OF CHEMICAL FEED LINE, JUST PRIOR TO CONNECTING TO THE FEED LOCATION(S).

PROVIDE A DRAIN PORT (TEE WITH THREADED PLUG) APPROXIMATELY EVERY 20 LINEAR FEET OF PIPE FOR THE SECONDARY (CONTAINMENT) PIPING OR AS RECOMMENDED BY THE DOUBLE CONTAINMENT PIPING MANUFACTURER, WHICHEVER IS SHORTER. PROVIDE A MINIMUM OF ONE DRAIN PORT, REGARDLESS OF LINE LENGTH.

PROVIDE A DOUBLE CONTAINED PIPING SYSTEM, UNLESS NOTED OTHERWISE, FOR ALL CHEMICAL LINES. TANK VENT AND OVERFLOW LINES DO NOT NEED TO BE DOUBLE CONTAINED. NON-PUMPED CHEMICAL LINES INSIDE CHEMICAL CONTAINMENT SUMPS WHERE THE CONTAINMENT WALLS ARE LESS THAN 6 FEET HIGH SHALL BE PROVIDED WITH DOUBLE CONTAINED PIPING OR OTHER ENGINEER APPROVED MEANS OF CHEMICAL SPRAY DEFLECTION TO PREVENT LEAKING CHEMICAL FROM LEAVING THE

CONTAINMENT SUMP. SPLASH CURTAINS ARE AN APPROVED MEANS OF SPRAY DEFLECTION. ALL CHEMICAL FEED LINES IN PIPE TRENCHES WITH SOLID COVERS DO NOT NEED TO BE DOUBLE CONTAINED.

PAINT/STENCIL THE COVER PIPE IN DOUBLE CONTAINED CHEMICAL LINES APPROXIMATELY EVERY 10 FEET AND AS NOTED IN SECTION 09800.

PROVIDE EXPANSION JOINTS, EXPANSION BENDS, STRAUB PIPE COUPLINGS, OR EQUAL DESIGNED FOR PIPE EXPANSION OR CONTRACTION, ETC., FOR ALL PLASTIC PIPE RUNS AS RECOMMENDED BY THE PIPE MANUFACTURER / SUPPLIER.

PROVIDE TYPE K OR TYPE L COPPER PIPE OR TUBING, AS SPECIFIED, FOR ALL POTABLE WATER, PLANT SERVICE WATER AND SAMPLE LINES 2.5 INCH AND SMALLER UNLESS SHOWN OTHERWISE ON THE DRAWINGS. PROVIDE DUCTILE IRON PIPE, AS SPECIFIED AND SHOWN ON THE DRAWINGS, FOR ALL POTABLE WATER AND PLANT SERVICE WATER LINES 3 INCHES AND LARGER. AS AN ALTERNATIVE, THREADED SCHEDULE 40 TYPE 304L/316L STAINLESS STEEL MAY BE USED FOR 2 INCH AND SMALLER WATER LINES AND SCHEDULE 10S TYPE 304L/316L STAINLESS STEEL PIPE MAY BE USED FOR 2.5 INCH AND LARGER WATER LINES.

WHERE STAINLESS STEEL PIPING IS SHOWN ON THE DRAWINGS, AS A MINIMUM, FLANGES SHALL BE PROVIDED WHERE SHOWN WHERE IT IS NOT SHOWN, FLANGES OR UNIONS, ETC., SHALL BE PROVIDED WHICH ALLOW FOR EASY REMOVAL OF VALVES, INSTRUMENTATION, ETC. FLANGES SHALL BE MADE OF 304L STAINLESS STEEL UNLESS ANOTHER MATERIAL IS NOTED OR SPECIFIED.

PROVIDE BOLTED DOWN DUCTILE IRON BASE FITTINGS WHERE BASE FITTINGS ARE CALLED FOR UNLESS NOTED OTHERWISE.

PROVIDE RED VALVE, SNYDER'S FLEXMASTER, GARLOCK OR EQUAL EXPANSION JOINTS FOR ALL PIPING CONNECTIONS TO PLASTIC OR FRP TANKS AND RED VALVE, PROCO, GARLOCK OR EQUAL EXPANSION JOINTS TO ALL PUMPS. THE EXPANSION JOINTS MATERIAL OF CONSTRUCTION SHALL BE COMPATIBLE WITH THE LIQUID FLOWING THROUGH THE LINE. THE EXPANSION JOINT SHALL AS A MINIMUM HAVE A PRESSURE RATING OF 50 PSI AND A VACUUM RATING OF 15 INCHES OF MERCURY WHEN USED ON TANKS OR PUMP SUCTION LINES AND A MINIMUM PRESSURE RATING OF 150 PSI WHEN USED ON PUMP DISCHARGE LINES UNLESS NOTED OTHERWISE. ALL EXPANSION JOINTS USED ON PUMP SUCTION AND DISCHARGE PIPING SHALL INCLUDE CONROL RODS/UNITS OR THE PIPING SHALL BE OTHERWISE RESTRAINED

AS REQUIRED BY THE EXPANSION JOINT SUPPLIER.

FOR WATER PIPES THROUGH CONCRETE WALLS, PROVIDE PIPES GROUTED IN PLACE UNLESS NOTED OR SHOWN OTHERWISE SUCH AS TO USE LINK SEALS OR EQUAL. IF THE PIPE IS TO BE FORMED IN THE WALL WHEN POURED IT SHALL HAVE A CONTINUOUSLY WELDED OR OTHERWISE ATTACHED WATER STOP AROUND THE FULL CIRCUMFERENCE OF THE PIPE IF THE PIPE IS UNDERGROUND OR IN A WATER HOLDING BASIN OR TANK WHERE WATER COULD PASS THROUGH THE WALL.

PROVIDE COVER PIPE WITH LINK SEALS OR EQUAL OR PIPING SPACERS FOR ALL CHEMICAL LINES THROUGH CONCRETE WALLS AS APPROPRIATE. PROVIDE LINK SEALS OR EQUAL UNLESS SHOWN OTHERWISE, BETWEEN THE CARRIER PIPE AND THE COVER PIPE FOR ALL CHEMICAL PIPES TRAVERSING FROM INDOORS TO OUTDOORS OR VICE VERSA.

WHERE LINK-SEALS OR EQUAL ARE SHOWN OR CALLED FOR GROUT SHALL NOT BE USED TO FILL THE ANNULAR SPACE AROUND THE PIPE UNLESS THE CAVITY LEAKS WATER AND ALL POSSIBLE ADJUSTMENTS TO THE LINK-SEALS OR EQUAL HAVE BEEN MADE. IF THE CAVITY IS FOUND TO LEAK WATER PRIOR TO OR DURING THE WARRANTY PERIOD THE CONTRACTOR SHALL ADJUST THE LINK-SEAL(S) OR EQUAL TO FIX THE PROBLEM. IF IT IS DETERMINED THAT THE LINK-SEAL OR EQUAL ALONE CANNOT ELIMINATE THE LEAK, THE CONTRACTOR SHALL PLACE NON-SHRINK GROUT IN THE CAVITY.

ALL CHEMICAL FEED LINES THAT END WITH A CONNECTION TO A PIPE SHALL HAVE AN INJECTION QUILL. PROVIDE INJECTION QUILLS WITH SAF-T SEAL ELASTOMERIC TIPS FOR SODIUM HYPOCHLORITE LINES. INJECTION QUILLS SHALL EXTEND IN MINIMUM OF ONE THIRD (1/3) OF THE WAY INTO THE PIPE BUT HALF WAY IS PREFERRED. SEE THE CHEMICAL INJECTION QUILL OR DIFFUSER PIPE DETAIL ON THE DRAWINGS FOR MORE INFORMATION. INJECTION QUILLS AND DIFFUSER PIPES SHALL BE RETRACTABLE UNITS OF PVC OR CPVC AS MANUFACTURED BY SAF-T-FLO OR EQUAL FOR PIPES 12 INCHES IN DIAMETER AND SMALLER. WHERE PIPES ARE LARGER THAN 12 INCHES IN DIAMETER, THE IN-PIPE VELOCITY IS GREATER THAN 6 FEET PER SECOND THE DIFFUSER PIPES SHALL BE METALLIC AND COMPATIBLE WITH THE CHEMICAL BEING FED.

WHERE TAPS ARE REQUIRED, THEY CAN BE MADE DIRECTLY INTO DUCTILE IRON PIPE WHEN THE TAP IS 1 INCH OR SMALLER AND SMALLER. WHERE PIPES ARE LARGER THAN 12 INCHES IN DIAMETER, THE TAP IS TO BE MADE BY A MINIMUM 30 FT-LBF OF TORQUE MATERIALS. TAPPING SADDLES/SERVICE CLAMPS SHALL BE USED. TAPS MADE DIRECTLY INTO DUCTILE IRON PIPE SHALL USE 2 LAYERS OF THREAD SEALANT TAPE WITH THE CORPORATION STOP, ETC., TIGHTENED TO A MINIMUM 30 FT-LBF OF TORQUE OR TO A HIGHER TORQUE VALUE IF NEEDED TO PREVENT

LEAKAGE. TAPPING SADDLES SHALL BE MANUFACTURED SPECIFICALLY FOR USE WITH THE PIPE UPON WHICH IT IS TO BE INSTALLED. SERVICE CLAMPS FOR USE ON DUCTILE IRON PIPE SHALL BE BRONZE, DOUBLE STRAP, MUELLER BR2B SERIES, FORD OR EQUAL FOR SERVICE/FEEDER LINES CARRYING WATER, AND FOR SERVICE/FEEDER LINES CARRYING CHEMICALS THE SERVICE SADDLE SHALL BE STAINLESS STEEL, MINIMUM TYPE 304/304L AS MANUFACTURED BY ROMAC INDUSTRIES SERIES 300, FORD, SMITH-BLAIR, OR EQUAL. SERVICE CLAMPS ON PVC AND POLYETHYLENE PIPE SHALL BE BRONZE WIDE STRAP, 2 PIECE FOR 2 THROUGH 8-INCH MAINS MUELLER H-01300 SERIES AND FOR 10 INCH AND LARGER, 3 PIECE MUELLER H13000 SERIES, FORD, OR EQUAL FOR SERVICE/FEEDER LINES CARRYING WATER AND FOR SERVICE/FEEDER LINES CARRYING CHEMICALS THE SERVICE SADDLE SHALL BE AS NOTED FOR DUCTILE IRON PIPE. FOR TAPS 4 INCH AND LARGER TAPPING SLEEVES OF STAINLESS STEEL WITH A PRESSURE RATING OF 150 PSI OR AS NEEDED FOR THE LINE TO BE TAPPED SHALL BE PROVIDED AS MANUFACTURED BY ROMAC INDUSTRIES, FORD, SMITH-BLAIR, OR EQUAL OR OF DUCTILE IRON RATED FOR 250 PSI THROUGH 24 INCH AS MANUFACTURED BY AMERICAN FLOW CONTROL SERIES 2800, OR EQUAL.

PIPES LEAVING STRUCTURES SHALL HAVE JOINTS LOCATED APPROXIMATELY WHERE SHOWN. THE CONTRACTOR MAY PLACE A JOINT CLOSER TO THE STRUCTURE'S WALL IF THE JOINT LOCATION IS NOT DIMENSIONED OR OTHERWISE NOTED WITH THE MINIMUM DISTANCE FROM THE WALL BEING 6 INCHES UNLESS WALL PIPE IS USED.

ALL PLANT WATER, POTABLE WATER, SAMPLE PIPING AND CHEMICAL SYSTEM PIPING AND APPURTENANCES INCLUDING TUBING SHALL BE DESIGNED TO HAVE A MAXIMUM OPERATING/WORKING PRESSURE OF AT LEAST 150 PSIG AT 73.4 DEGREES FAHRENHEIT UNLESS NOTED OTHERWISE.

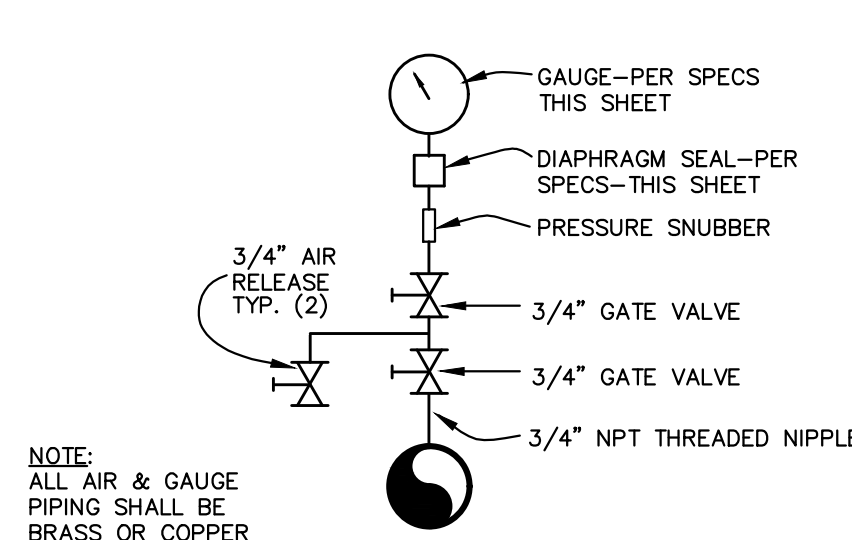
WHERE A PIECE OF EQUIPMENT HAS A MAXIMUM OPERATING PRESSURE OF LESS THAN 150 PSI AND THE WATER SUPPLY LINE HAS A PRESSURE GREATER THAN THE EQUIPMENT CAN HANDLE A PRESSURE REDUCING VALVE SHALL BE PROVIDED.

A MINIMUM OF 2 WRAPS OF TEFLON TAPE OR OTHER COMPATIBLE THREAD WRAP SHALL BE PLACED AROUND THE THREADS OF CORPORATION STOPS, OR OTHER THREADED ITEMS THAT WILL BE THREADED INTO PIPES TO ENSURE WATER TIGHTNESS AND PROTECT THE THREADS FROM CHEMICALS, ETC.

CHEMICAL COVER PIPES LOCATED UNDER FLOOR SLABS SHALL BE CONCRETE ENCASED WHEN THE SLAB IS ABOVE SOIL.

DIAPHRAGM SEAL SPECS

LIQUID FILLED DIAPHRAGM SEALS SHALL BE INSTALLED ON ALL GAUGES. DIAPHRAGM SEALS SHALL BE OF THE CONTINUOUS DUTY TYPE, 3 PIECE CONSTRUCTION WITH 1/4" FLUSHING CONNECTION 316 STAINLESS STEEL LOWER HOUSING AND DIAPHRAGM MATERIALS, 1/4" GAUGE CONNECTION AND 1/2" LOWER CONNECTION. VITON DIAPHRAGMS ARE REQUIRED ON LOW RANGE PRESSURE APPLICATIONS (LESS THAN 15 PSIG). HOUSING BOLTS SHALL ALSO BE STAINLESS STEEL. ACCEPTABLE MODELS ARE MARSH 42-01, HELICORD 100-H, OR EQUAL. DIAPHRAGM SEALS SHALL BE "PERMANENTLY" ATTACHED TO GAUGES BY INSTALLATION OF A LEAD SEALED WIRE CONNECTING THE TWO. THIS IS TO PREVENT ACCIDENTAL LOSS OF FILL FLUID. FILL FLUID SHALL BE FACTORY INSTALLED SILICONE. ALL GAUGES SHALL BE PRECALIBRATED.



GAUGE SPECIFICATIONS

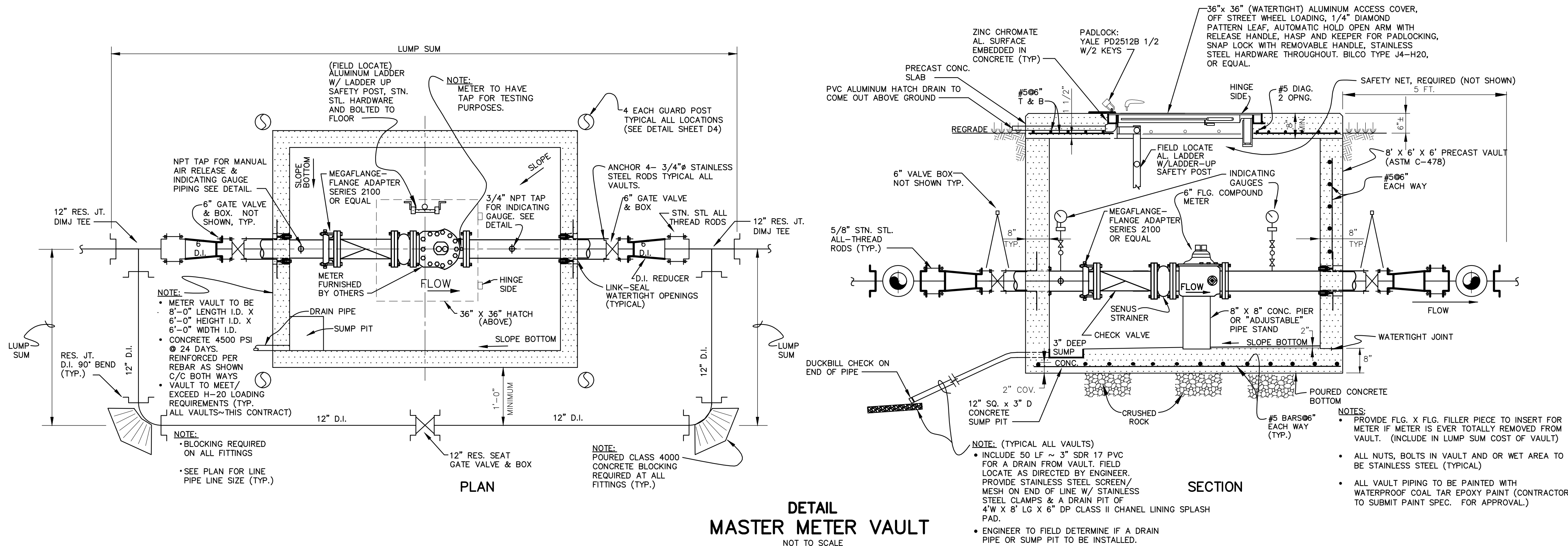
GAUGE SHALL HAVE PHOSPHOR BRONZE BOURDON TUBES, WHITE LAMINATED PHENOL DIALS. GAUGES SHALL BE 4 1/2" AND HAVE MICROMETER ADJUSTMENT OF POINTERS AND BLACK PHENOL, BLACK CAST IRON, BRASS OR ALUMINUM CASE AND RING, ROTARY GEAR DESIGN, CORROSION RESISTANT, STN. STL. MOVEMENT, BLOWOUT PROTECTION, AND BRONZE SOCKETS W/ WRENCH FLATS. ACCURACY SHALL BE WITHIN 1/2 OF 1% OF THE SCALE RANGE. THEY SHALL BE MANUFACTURED BY HELICORD GAUGE DIVISION, "410", JAMES P. MARSH CORP. "MASTERGAUGE", ASHROFT, U.S. GAUGE, OR EQUAL. ALL GAUGES SHALL BE PRECALIBRATED.

AIR RELEASE & GAUGE ASSEMBLIES

NOT TO SCALE

PRESSURE GAUGE RANGE TABLE

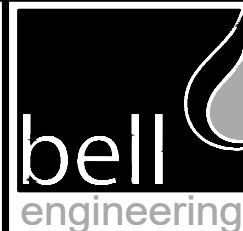
	RANGE		FIGURE INTERVAL		MINOR GRADATION	
	INNER-psi	OUTER-ft H ₂ O	psi	ft H ₂ O	psi	ft H ₂ O
SUCTION	0/60	0/140	5	20	1	2
DISCHARGE	0/300	0/690	25	50	5	10



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GRAPHIC SCALE	
SCALE: AS NOTED	

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WATER SYSTEM IMPROVEMENTS
SHOPS CREEK ROAD AREA
CANNONSURG WATER DISTRICT
CANNONSURG, KENTUCKY

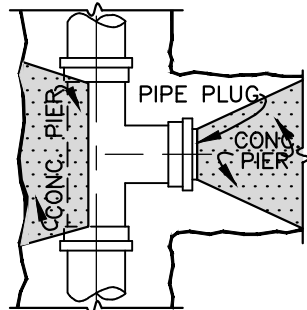
MASTER METER VAULT DETAILS,
GENERAL PIPING NOTES, AND PRESSURE GAUGE
DETAILS

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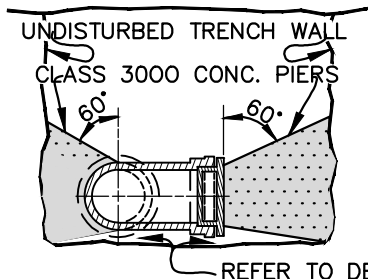


BOXLOK VALVE BOX ALIGNMENT DEVICE MODEL 2
TO BE INSTALLED IN ALL NEW VALVE BOXES
NOT TO SCALE

NOTE:
FITTINGS SHALL BE WRAPPED WITH 8 MIL. POLYETHYLENE AT ALL THRUST BLOCKS, PLACED SO FITTINGS, BOLTS AND NUTS DO NOT COME IN CONTACT WITH CONCRETE. IF MECHANICAL JOINT PLUG IS USED ON THE BRANCH, NO BLOCKING WILL BE REQUIRED ON THE PLUG. THE SIDE OF THE TEE SHALL BE BLOCKED IN ALL CASES.

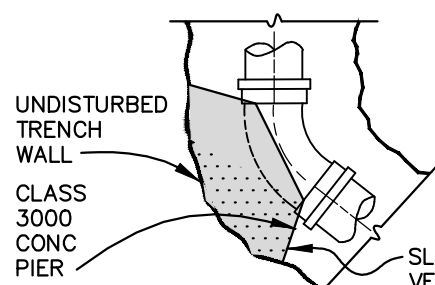


PLAN



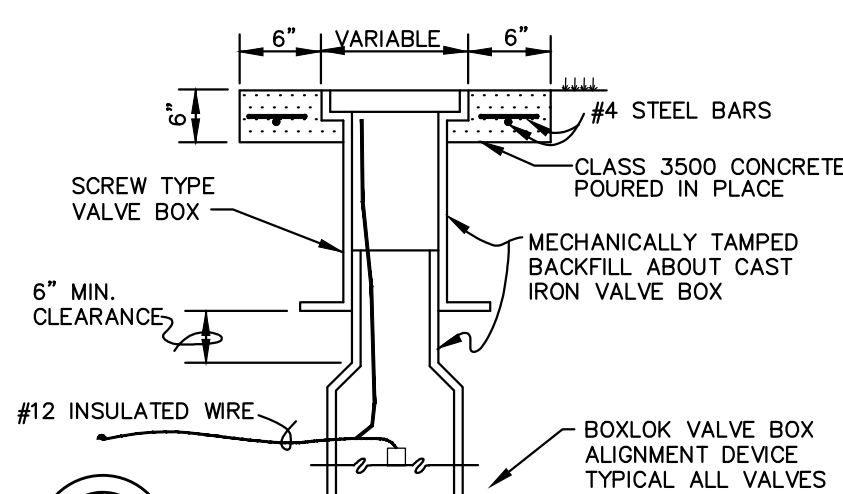
SECTION

TYPICAL DETAIL OF CONCRETE
BLOCKING AT TEES & PLUGS

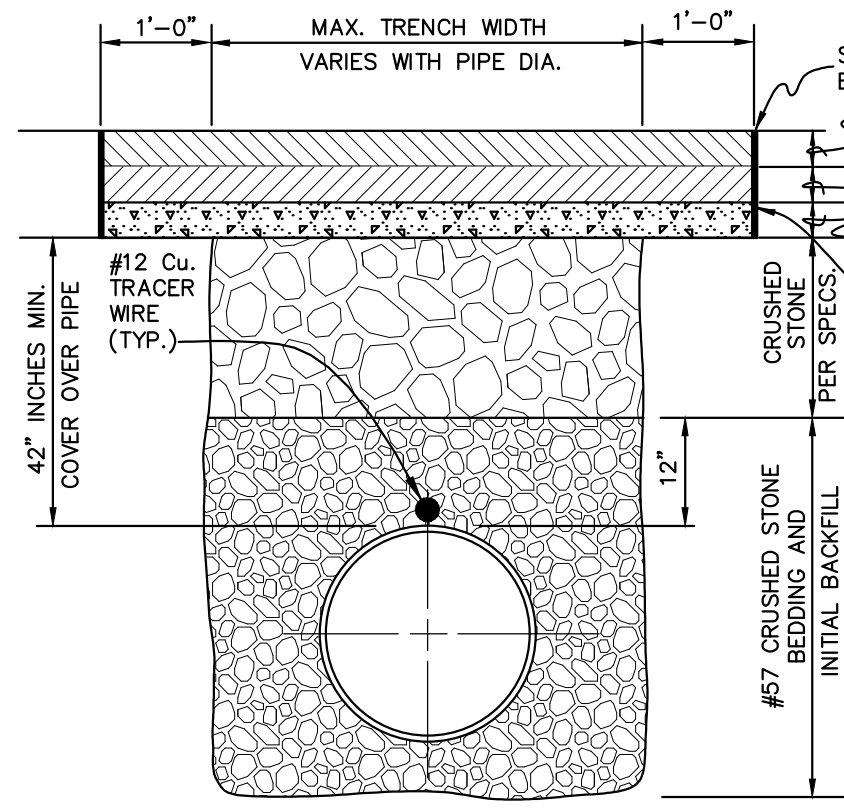


PLAN

TYPICAL DETAIL OF CONCRETE
BLOCKING AT HORIZONTAL BENDS
NOT TO SCALE

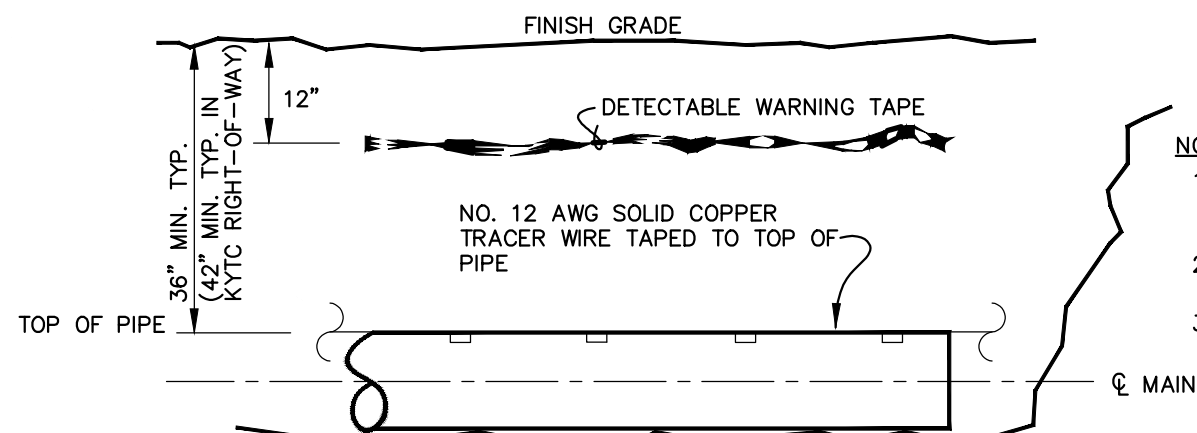


CONCRETE VALVE
BOX COLLAR
NOT TO SCALE
(REQUIRED ON ALL VALVES)



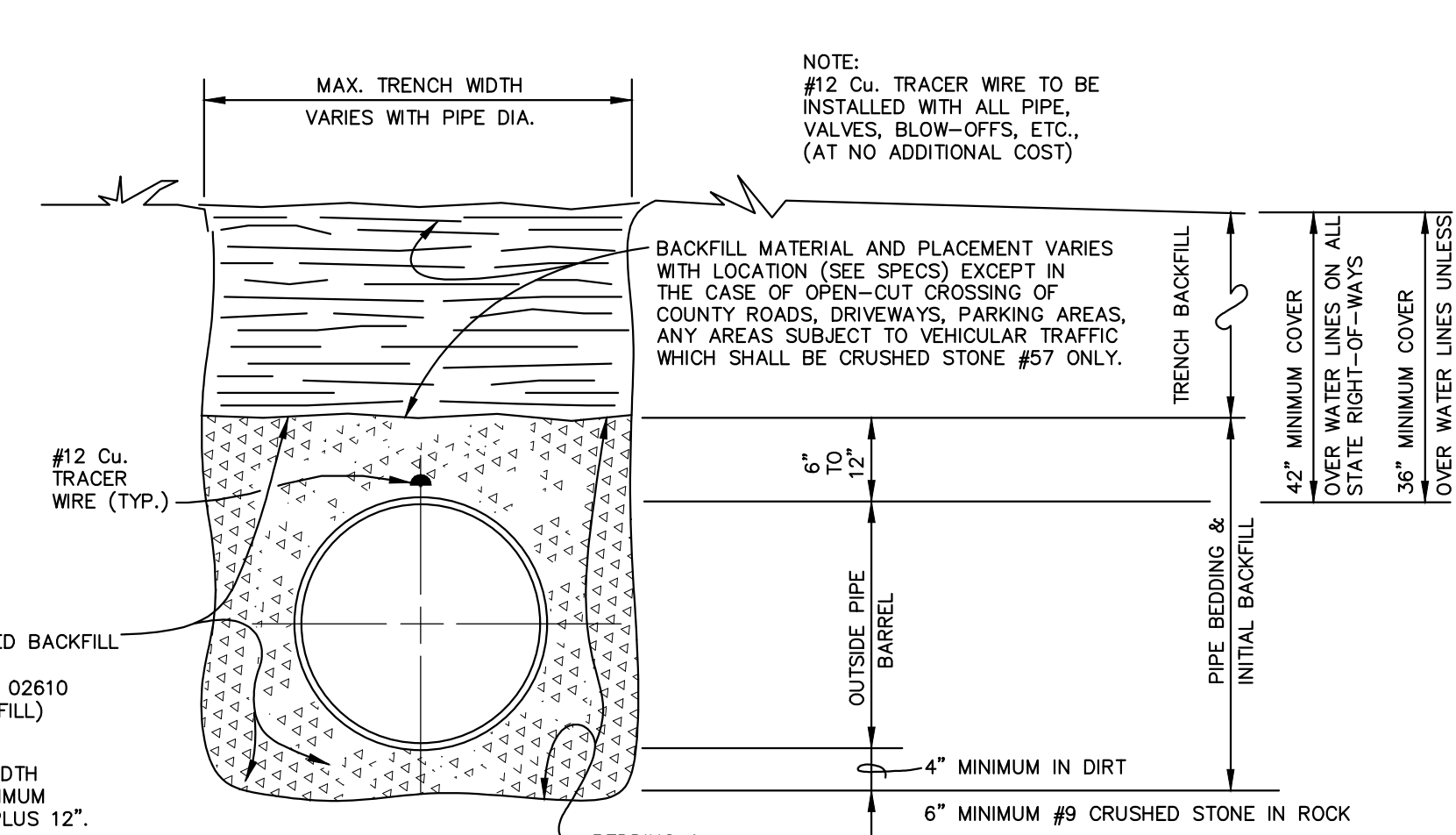
NOTE:
WHERE EXISTING ROAD/DRIVE SURFACE IS CONCRETE, SUBSTITUTE CONCRETE FOR BITUMINOUS CONCRETE, OF DEPTH EQUAL TO EXISTING CONCRETE DEPTH.

TRENCH DETAIL
TYPICAL OPEN CUT CROSSING OF
COUNTY ROADS AND DRIVEWAYS
NOT TO SCALE

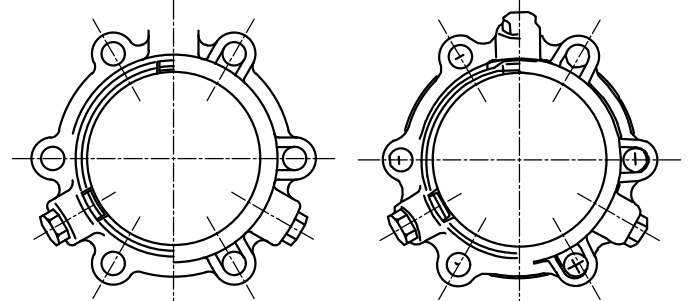


- NOTES:
1. PVC, PE OR D.I. WATERLINE TO BE BACKFILLED 2 FEET- THEN PLACE DETECTABLE TAPE DIRECTLY OVER PIPE.
 2. TAPE TO BE TIED TO ALL MAIN LINES, SERVICE LINES, VALVES, WATER METERS AND HYDRANTS.
 3. NO. 12 AWG COPPER TRACER WIRE SHALL BE PULLED INTO ALL VALVE BOXES WITH LOOP FOR TEST/LOCATOR EQUIPMENT ACCESS.

TYPICAL PVC, D.I. OR POLYETHYLENE WL WITH
NO. 12 AWG TRACER WIRE AND
DETECTABLE TAPE INSTALLATION
NOT TO SCALE



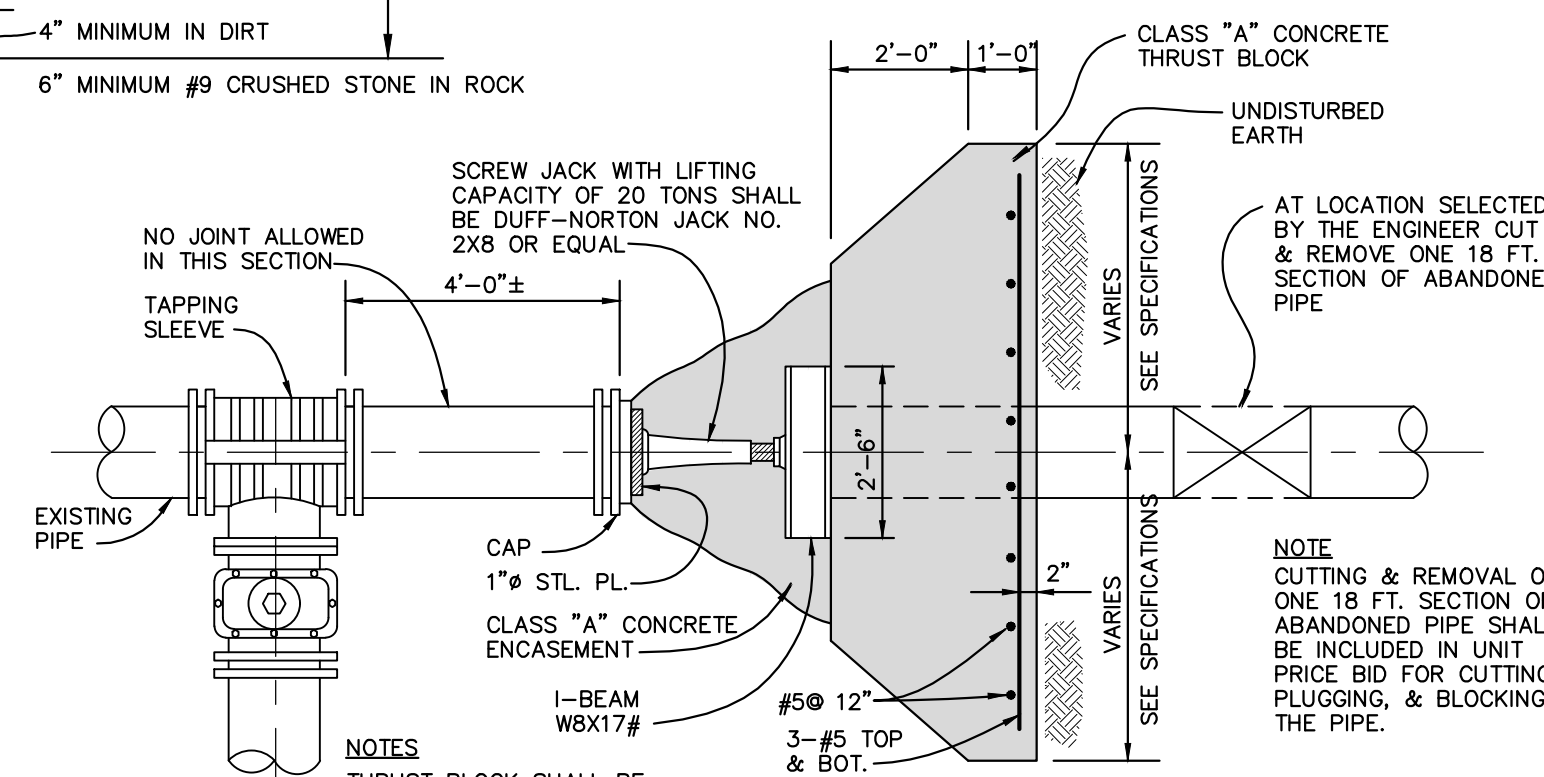
DETAIL
BEDDING & BACKFILL
WATER MAIN INSTALLATION
NOT TO SCALE



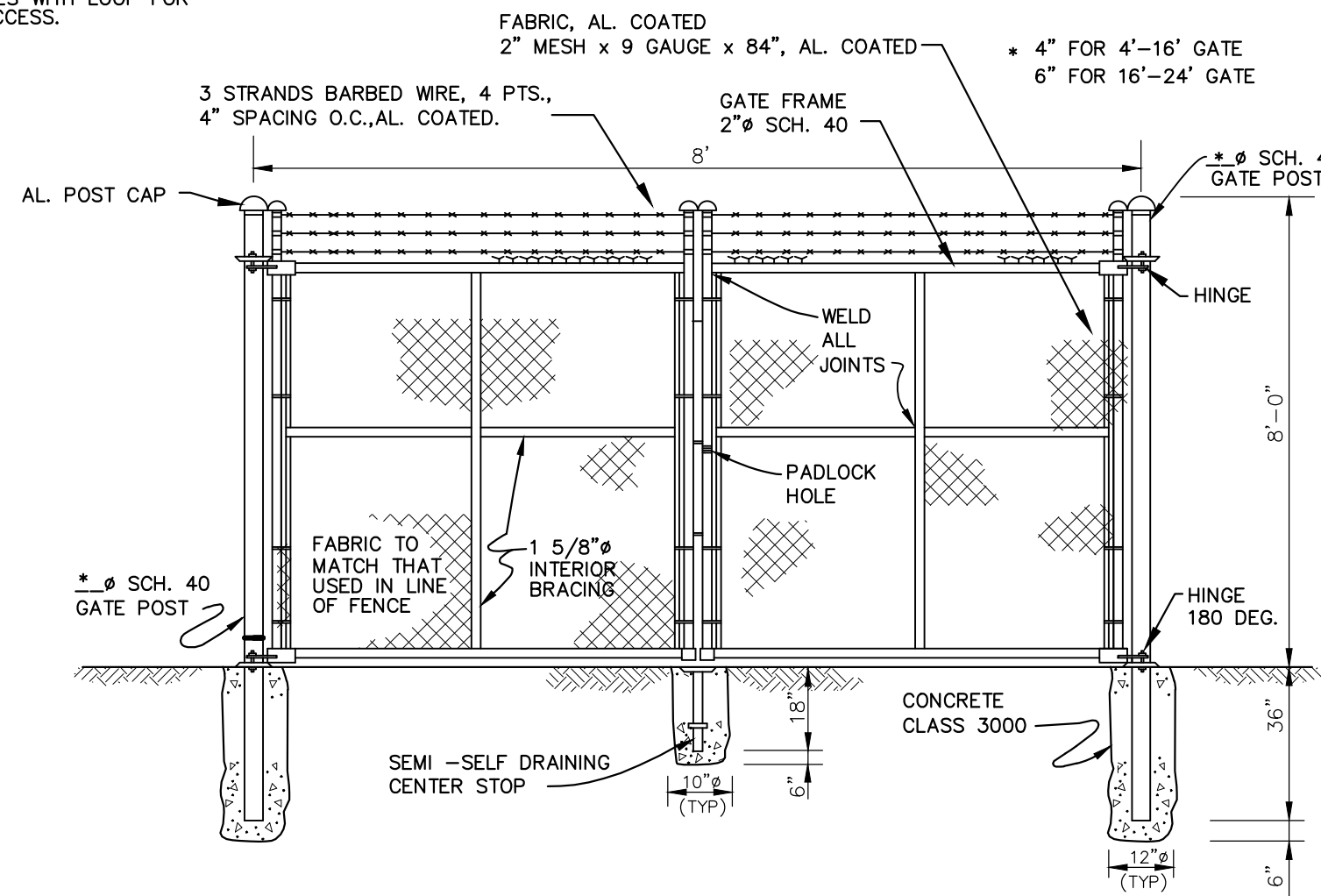
REAR VIEW
SECTION A-A
FRONT VIEW
SECTION B-B

MEGALUG
JOINT RESTRAINT
NOT TO SCALE

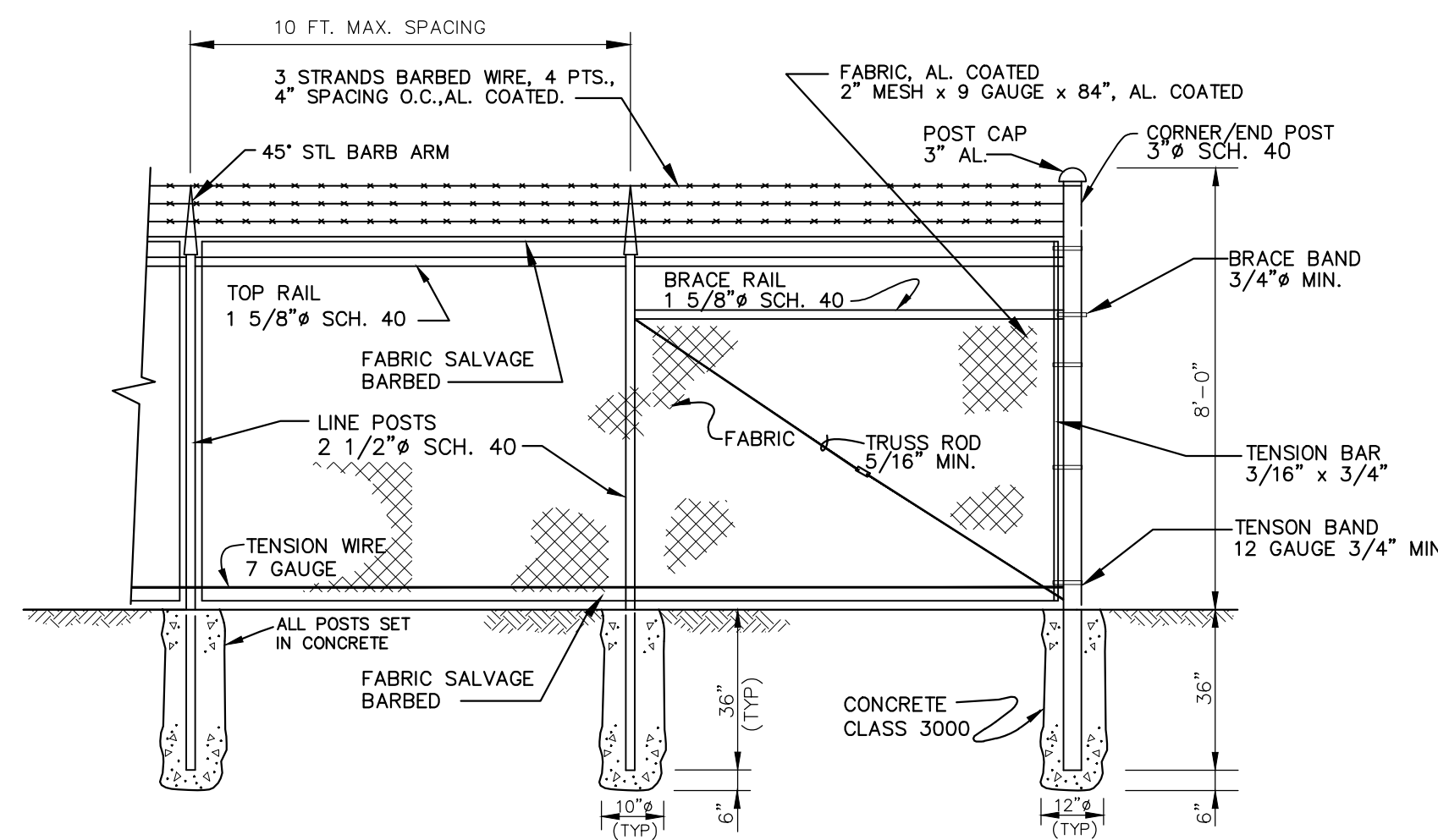
NOTE:
WATER WORKING
PRESSURE 250 PSI MIN.
SIZES 3"-48"
PRODUCT OF EBAA
IRON, INC. OR EQUAL



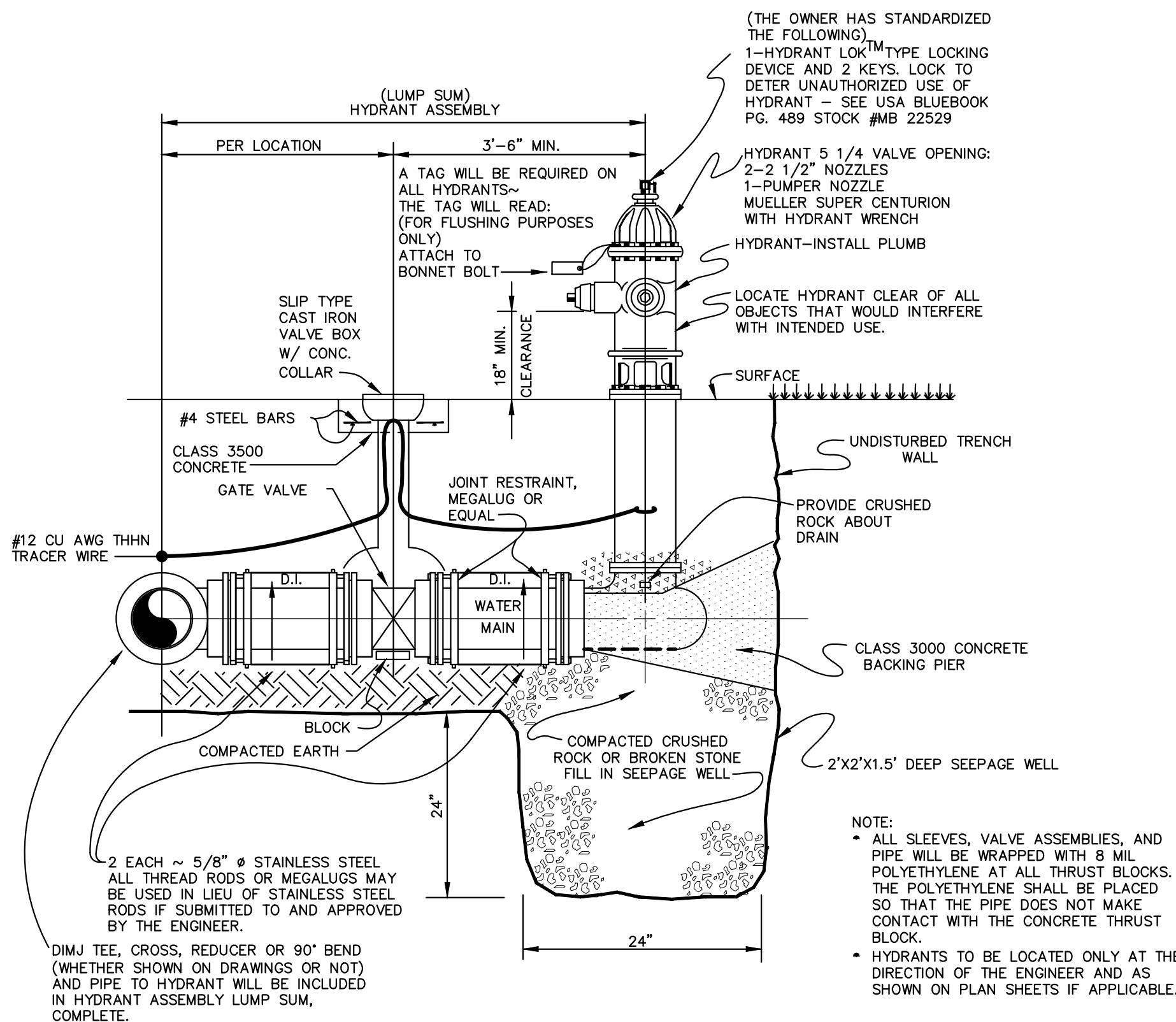
TYPICAL DETAIL CUTTING & BLOCKING
AT TAP INTO EXISTING LINE
(LUMP SUM)
NOT TO SCALE



DETAIL - DOUBLE GATE
NOT TO SCALE



DETAIL - SECURITY FENCE
NOT TO SCALE

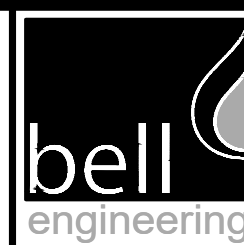


FLUSHING HYDRANT ASSEMBLY
(LUMP SUM)
NOT TO SCALE

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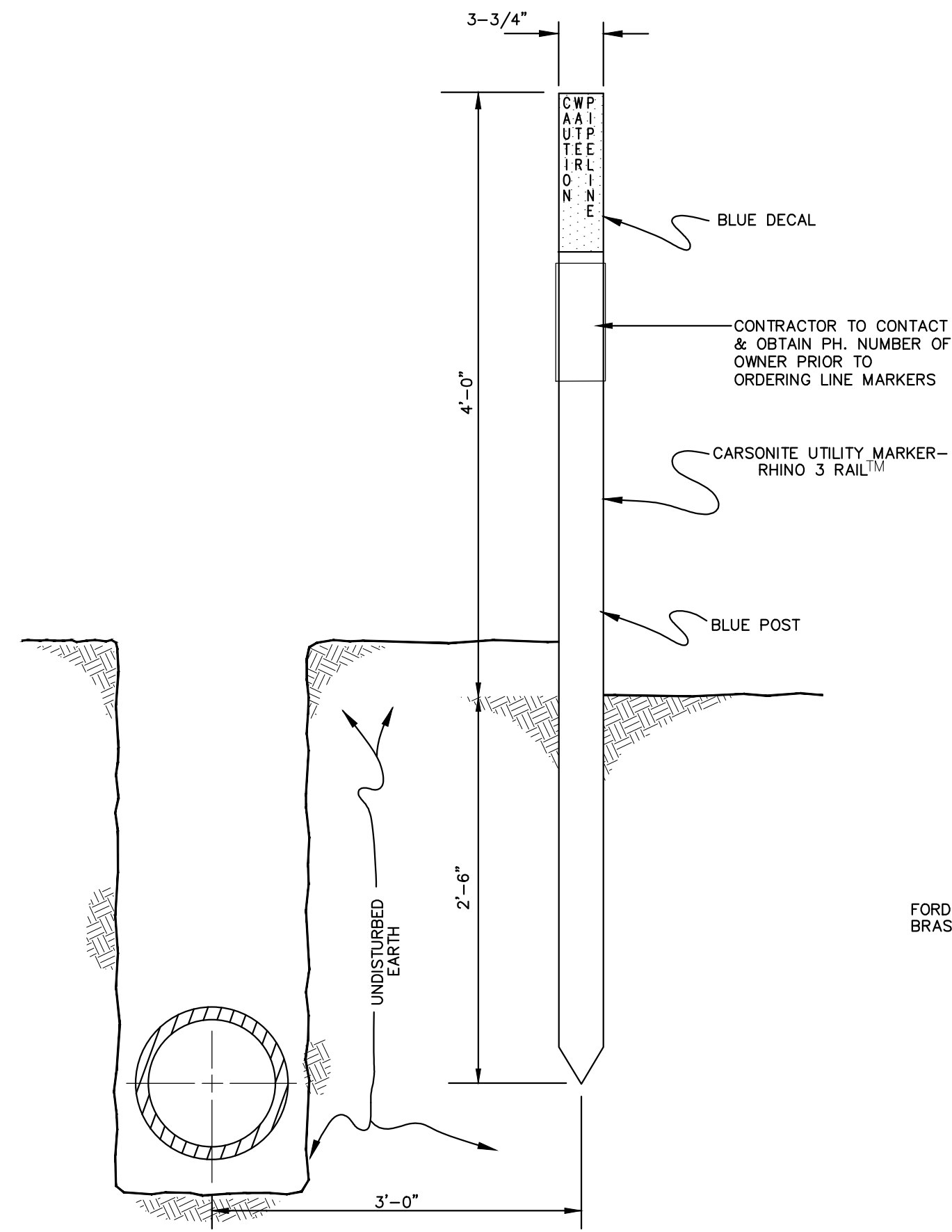
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WATER SYSTEM IMPROVEMENTS
SHOPE'S CREEK ROAD AREA
CANNONBURG WATER DISTRICT
CANNONBURG, KENTUCKY

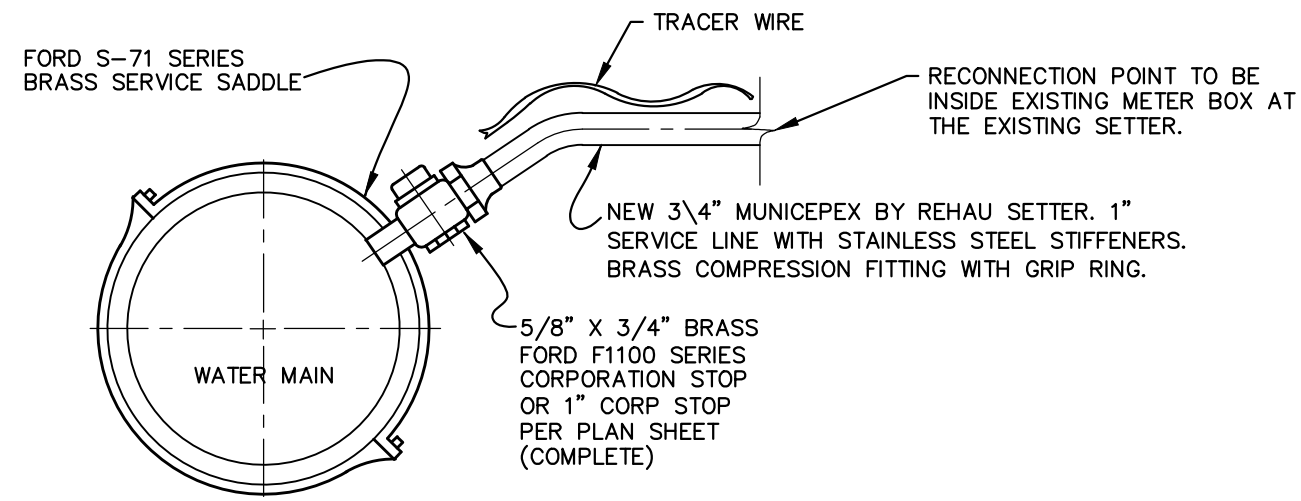
MISCELLANEOUS DETAILS

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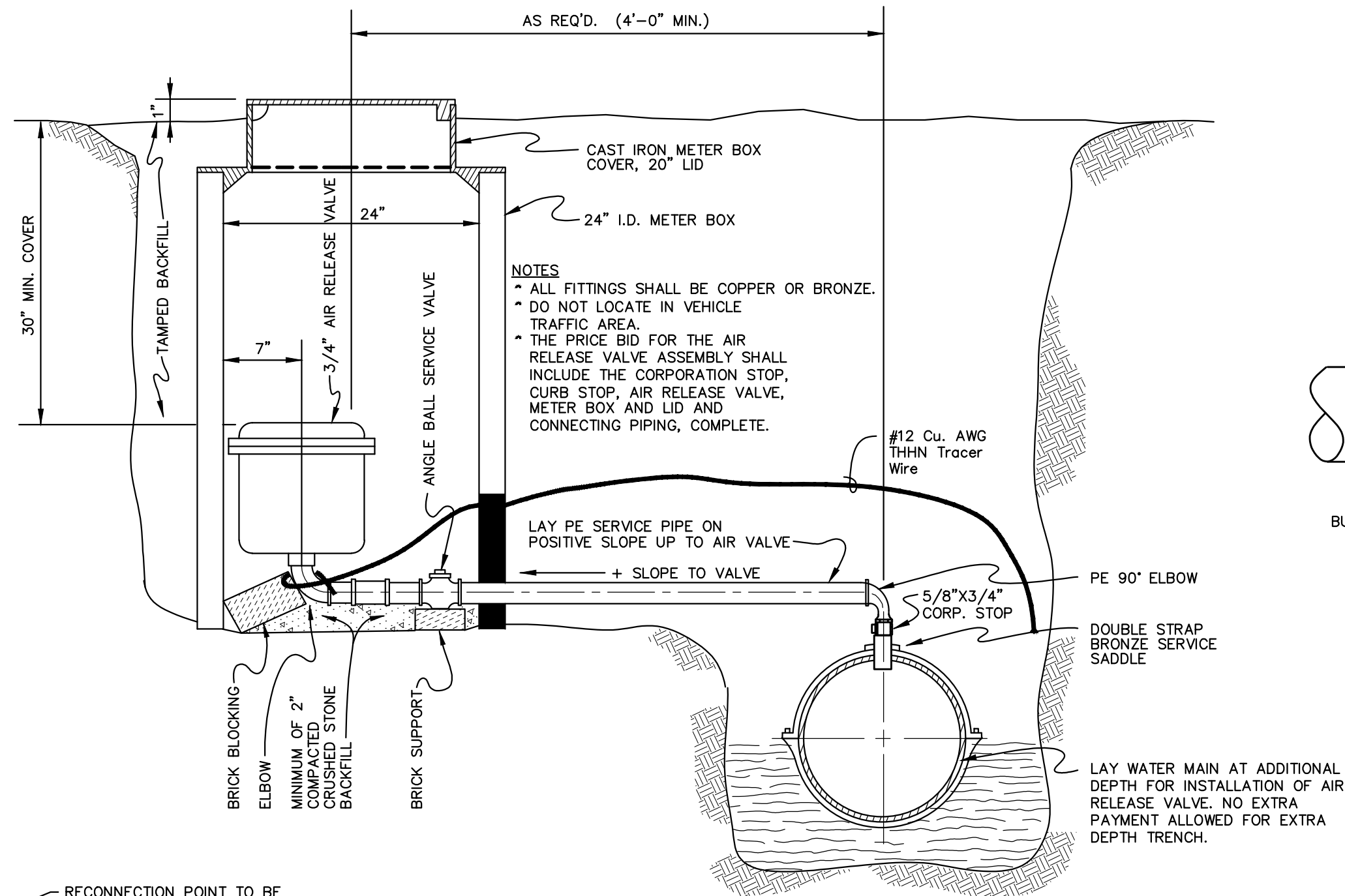




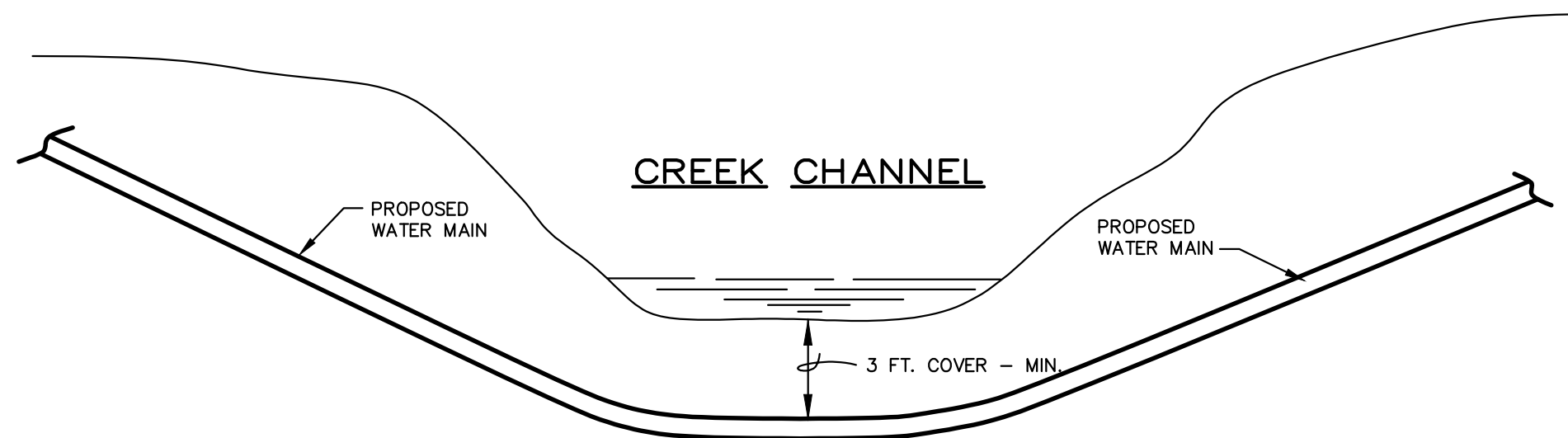
DETAIL
FLEXIBLE FIBERGLASS COMPOSITION
LINE MARKER
NOT TO SCALE



RECONNECT TO
EXISTING METER
NOT TO SCALE

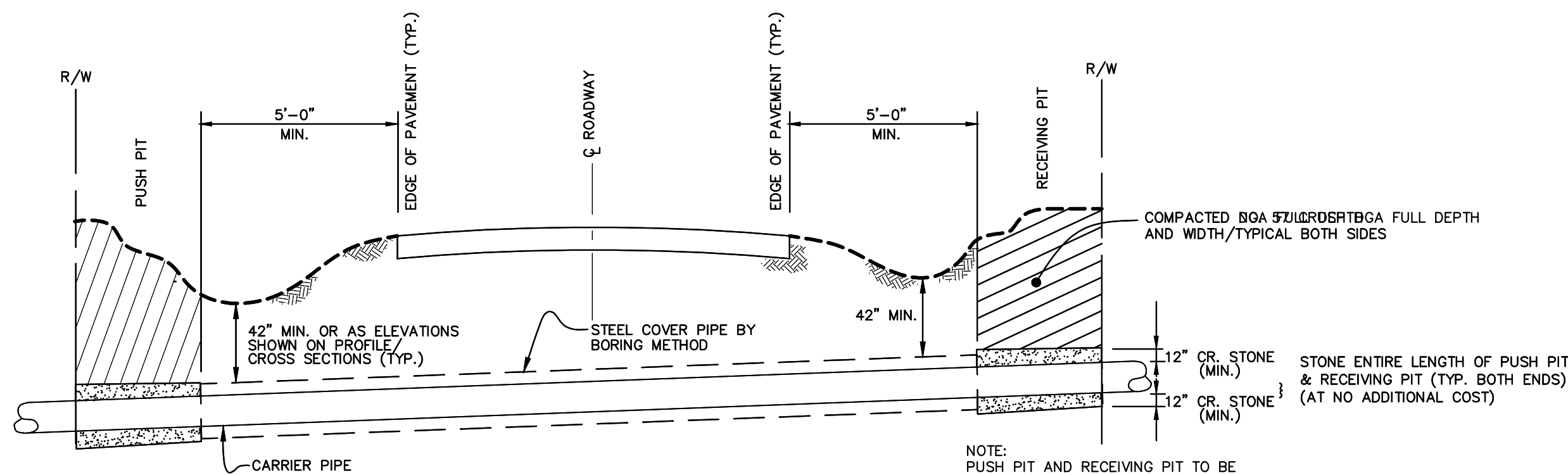


AUTOMATIC AIR RELEASE
VALVE ASSEMBLY
NOT TO SCALE



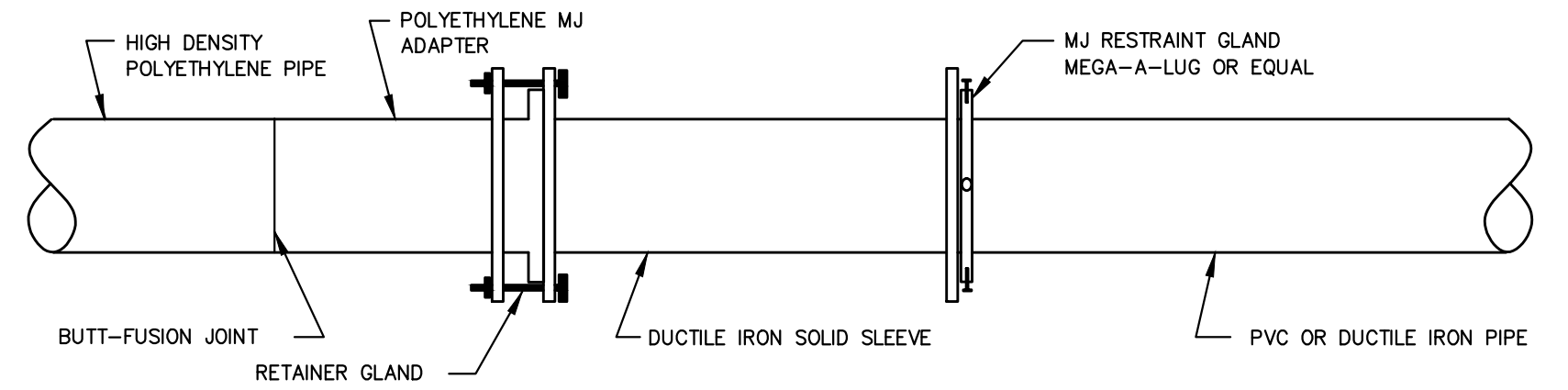
CONTRACTOR TO INSTALL WATER MAIN EXTRA DEPTH,
AS NECESSARY TO FIT CREEK CHANNEL.

TYPICAL SECTION
WATER MAIN @
CREEK CROSSING
NOT TO SCALE

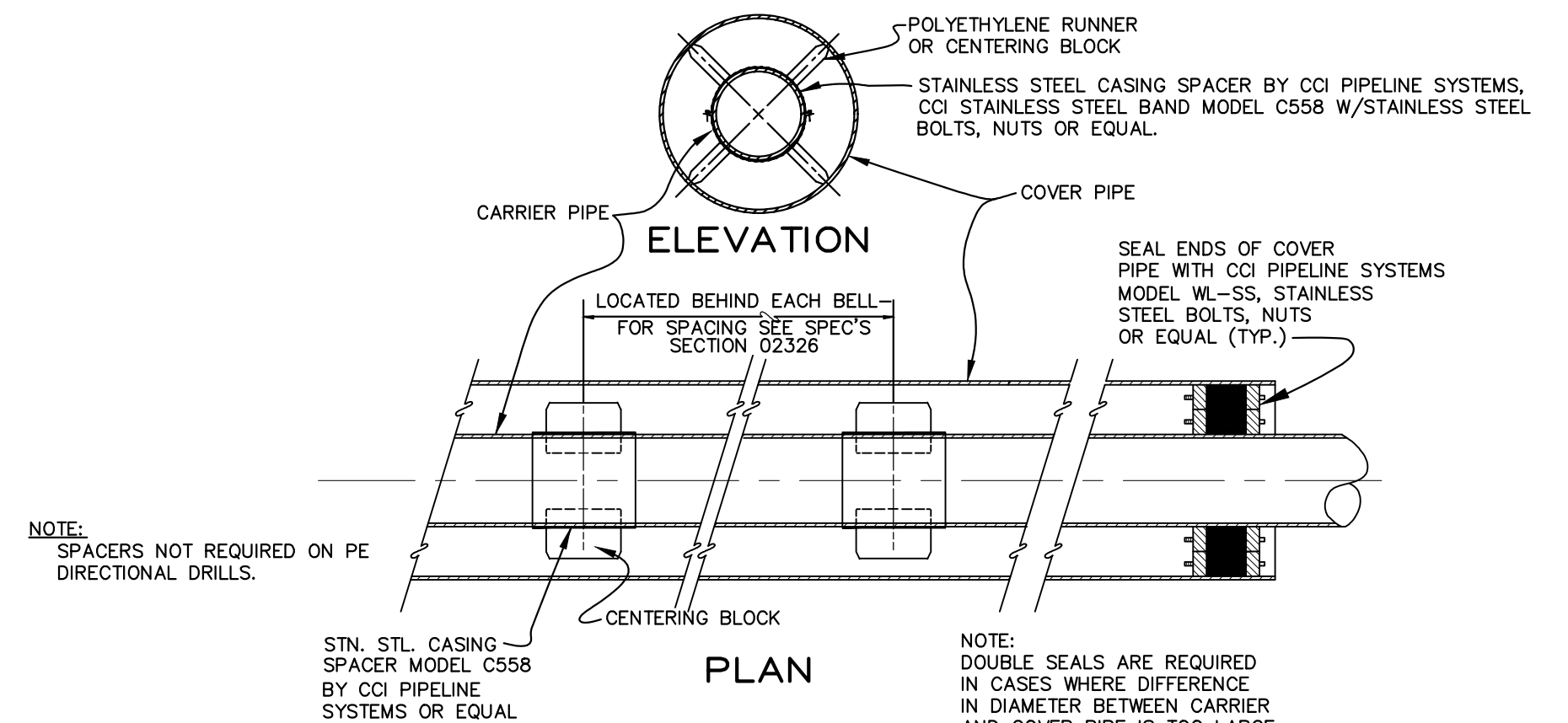


DETAIL
TYPICAL HIGHWAY BORING
NOT TO SCALE

NOTE:
PUSH PIT AND RECEIVING PIT TO BE
BACKFILLED AND THOROUGHLY
COMPACTED WITH #57 CRUSHED STONE.
ALL DITCH LINES TO BE LEFT OPEN.
SEED AND STRAW ALL AREAS DISTURBED
BY THIS WORK IMMEDIATELY AFTER
COMPLETING WORK. ALL DISTURBED
ASPHALT OR CONCRETE SURFACES TO
BE REPLACED WITH A MIN. OF 6" THICK
ASPHALT OR CONCRETE.
IF BORE PI IS IN APPROVED AREA CAST
OF SURFACE RESTORATION SHALL BE
INCLUDED IN THE UNIT PRICE FOR
BORING. NO ADDITIONAL PAYMENT WILL
BE MADE.



HDPE TO PVC/DUCTILE
IRON PIPE
TRANSITION DETAIL
ON DIRECTIONAL BORES
NOT TO SCALE
(TYPICAL EACH END)

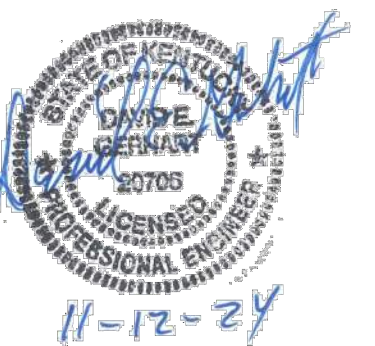


DETAIL
CARRIER PIPE POSITIONING
IN COVER PIPE
NOT TO SCALE



ORANGE POLYPROPYLENE
NOT IN SERVICE
HYDRANT BAG DETAIL
NOT TO SCALE

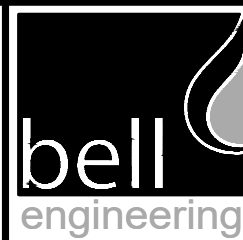
- NOTE:
1. ALL NEW HYDRANTS INSTALLED SHALL BE COVERED WITH "NOT IN SERVICE" BAG UNTIL THEY ARE PUT IN SERVICE.
 2. ALL EXISTING HYDRANTS SHALL BE COVERED WITH "NOT IN SERVICE BAG" ONCE THE EXISTING LINE IS TAKEN OUT OF SERVICE UNTIL THE EXISTING HYDRANTS ARE REMOVED.
 3. ALL EXISTING HYDRANTS AND HYDRANT VALVES SHALL BE REMOVED AND TURNED OVER TO THE OWNER. EXISTING WATER MAIN SHALL BE PLUG/CAPPED AND HOLE BACKFILLED TO MATCH ADJACENT SURFACE I.E. CONCRETE, ASPHALT, GRASS.



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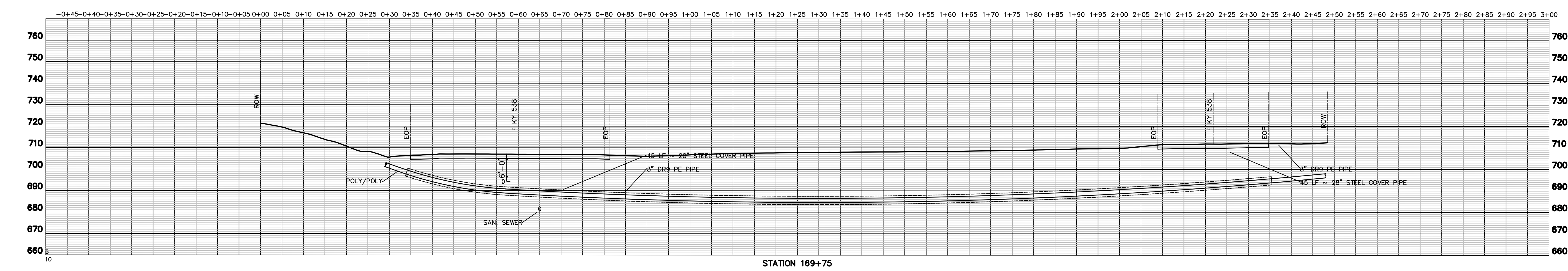
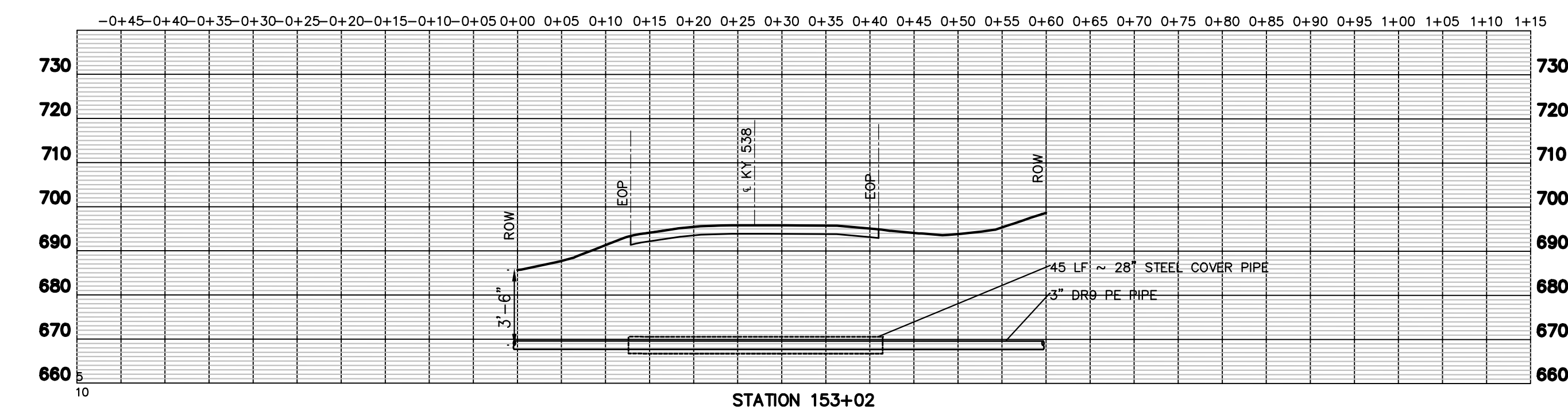
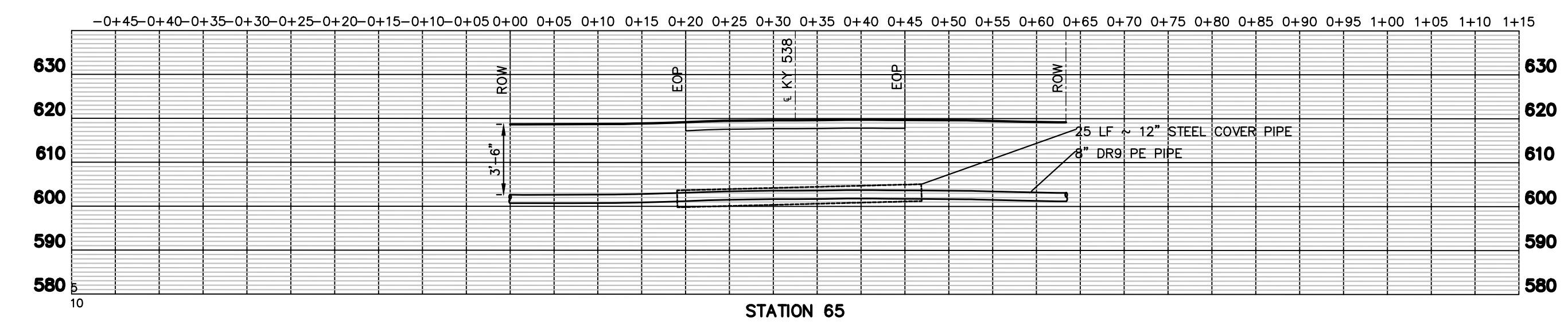
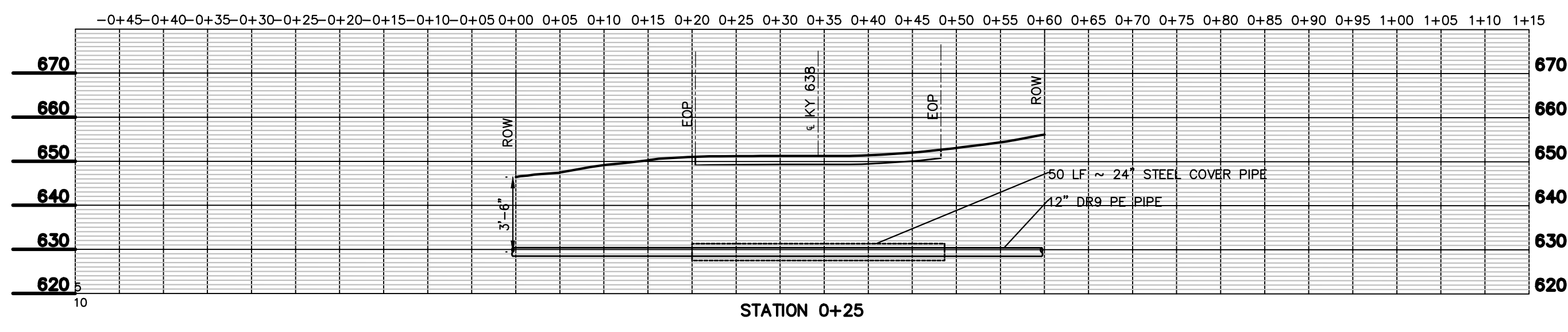
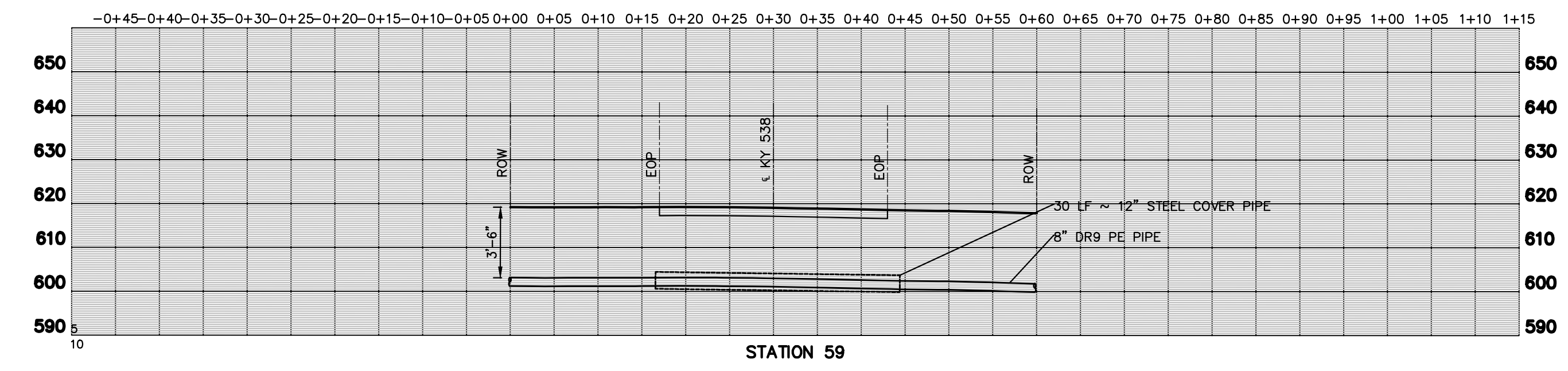
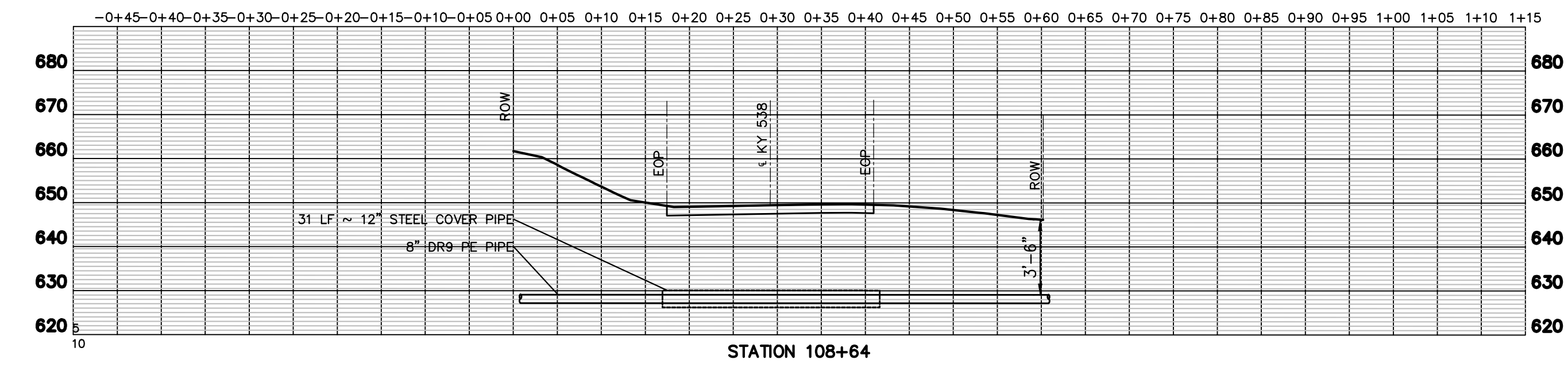


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WATER SYSTEM IMPROVEMENTS
SHOPES CREEK ROAD AREA
CANNONSBURG WATER DISTRICT
CANNONSBURG, KENTUCKY

MISCELLANEOUS DETAILS

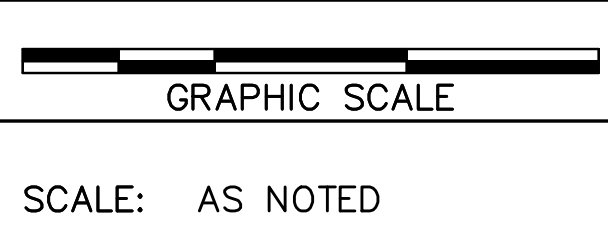
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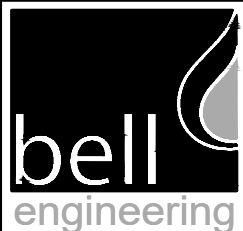
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J:\CANNONBURG\SHOPS CREEK ROAD AREA\CAD Design\12-69121DW16.dwg-16, Plotted Mon, 02 Dec 2024 - 11:03am by twester

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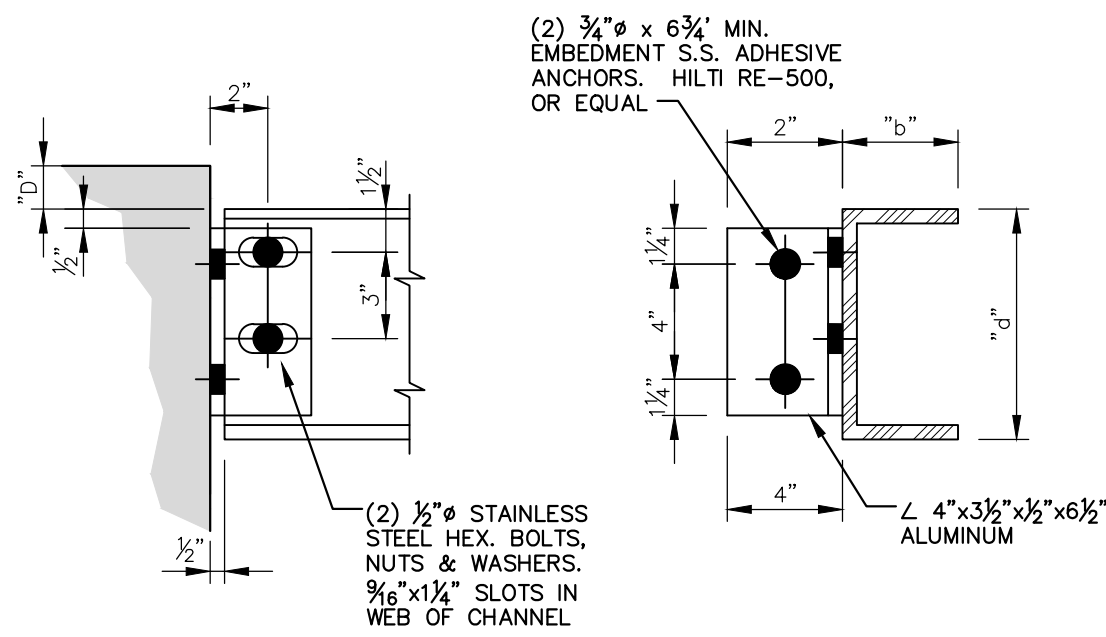
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WATER SYSTEM IMPROVEMENTS
SHOPS CREEK ROAD AREA
CANNONBURG WATER DISTRICT
CANNONBURG, KENTUCKY

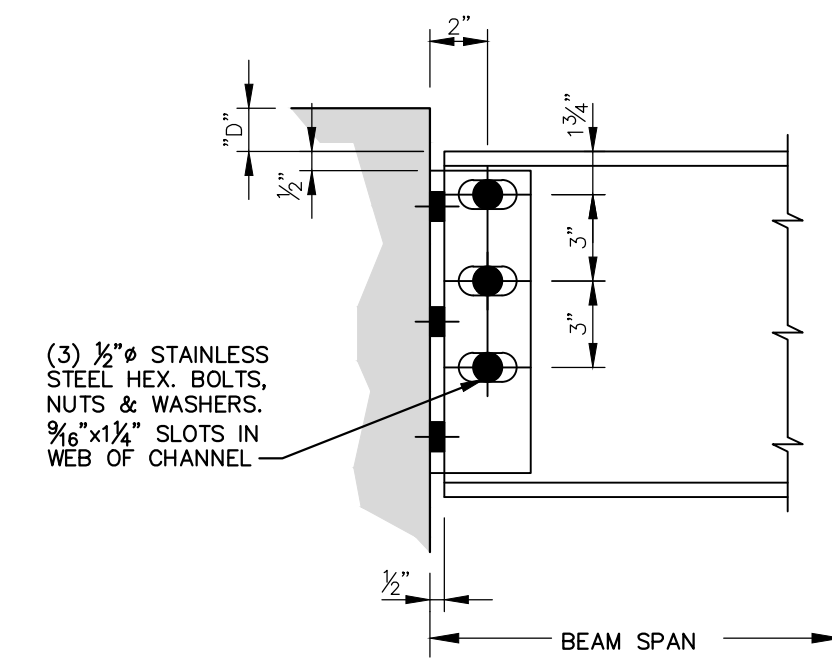
PIPELINE ROAD CROSSING SECTIONS

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GRATING SUPPORT BEAM CONNECTION
TYPE 1

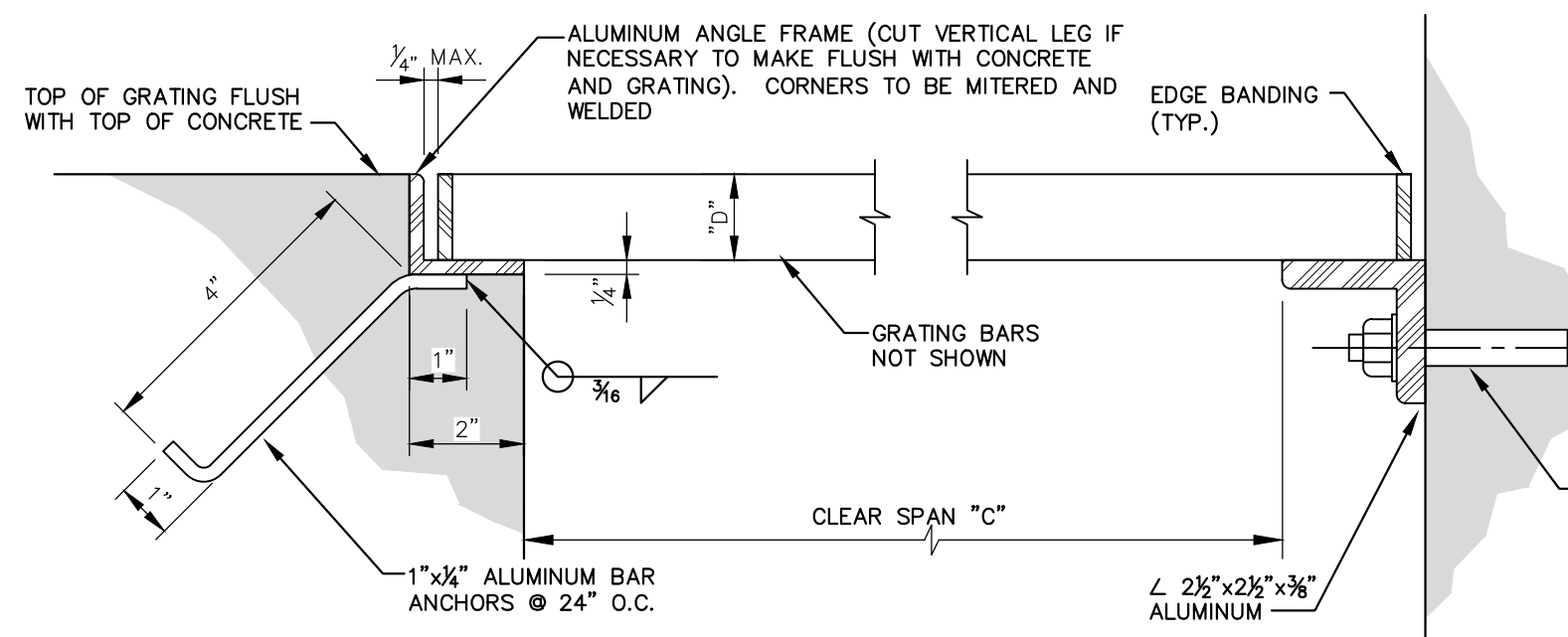


GRATING SUPPORT BEAM CONNECTION
TYPE 2

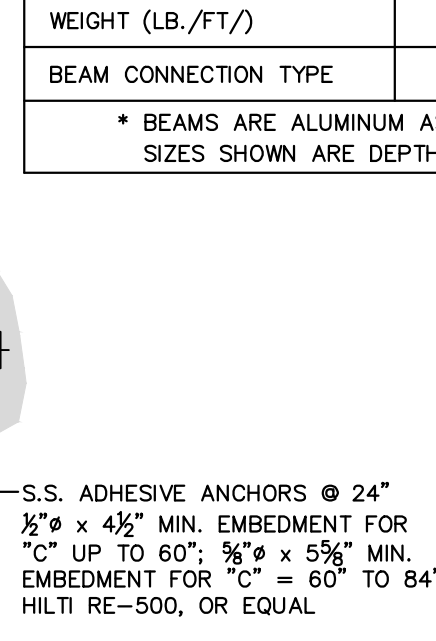
DATA APPLIES UNLESS NOTED OTHERWISE

GRATING SUPPORT BEAM CHART					
BEAM SPAN (FEET)	6	8	10	12	14
BEAM SIZE *	C6 x 3.25	C8 x 3.75	C10 x 4.25	C12 x 5.0	C12 x 5.0
WEIGHT (LB./FT.)	4.030	5.789	8.360	11.822	11.822
BEAM CONNECTION TYPE	1	1	2	2	2

* BEAMS ARE ALUMINUM ASSOCIATION STANDARD CHANNELS. SIZES SHOWN ARE DEPTH d x FLANGE WIDTH b.



EMBEDDED SUPPORT



SURFACE MOUNTED SUPPORT

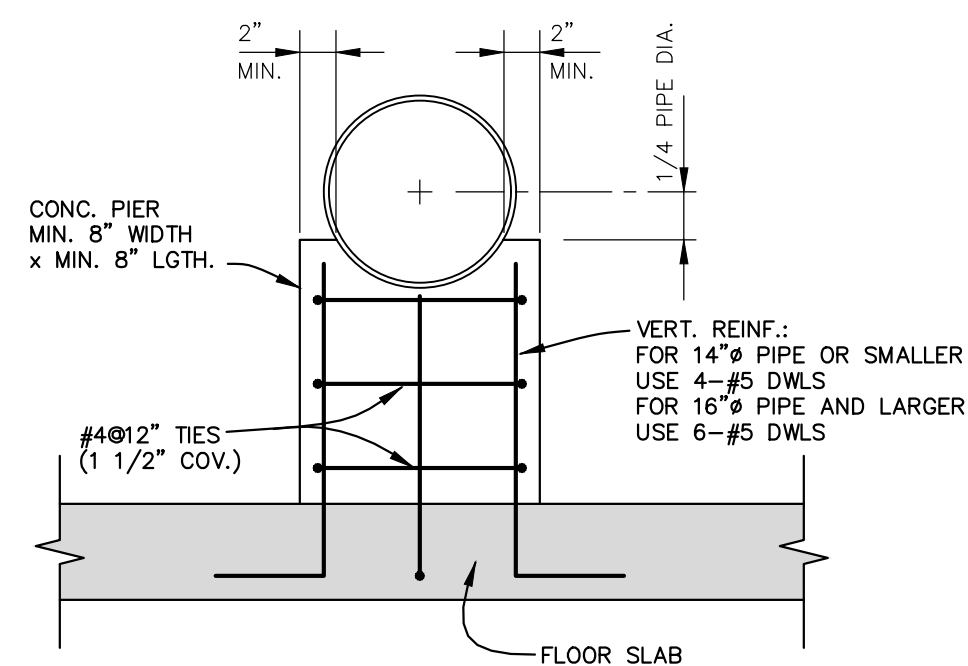
DATA APPLIES UNLESS NOTED OTHERWISE

GRATING SCHEDULE	
SPAN	DEPTH (MIN.)
0'-0" TO 3'-0"	1"
3'-0" TO 4'-0"	1 1/4"
4'-0" TO 4'-6"	1 1/2"
4'-6" TO 5'-0"	1 3/4"
5'-0" TO 5'-6"	2"
5'-6" TO 6'-0"	2 1/4"
6'-0" TO 6'-6"	2 1/2"

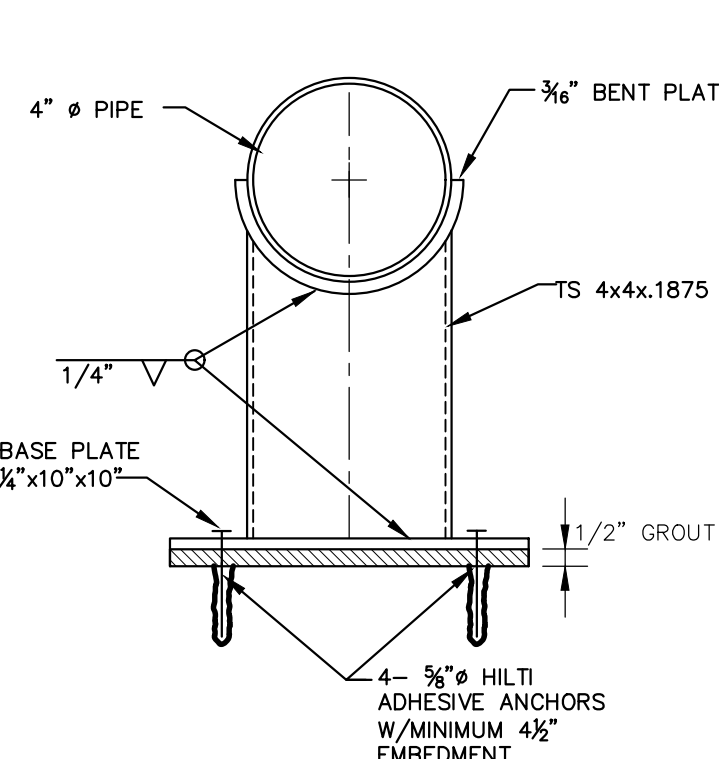
GRATING SHALL NOT SPAN MORE THAN 6'-6" UNLESS SPECIAL PROVISION IS MADE BY THE ENGINEER.

ALUMINUM GRATING DETAILS
NOT TO SCALE

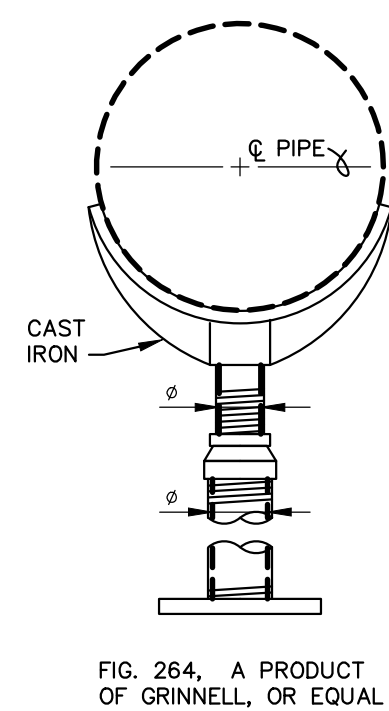
NOTE: UNLESS OTHERWISE NOTED, GRATING SHALL BE ALUMINUM I-BAR TYPE WITH MINIMUM 3/16" BEARING BARS SPACED NOT MORE THAN 1 3/8" C/C AND CROSS BARS SPACED NOT MORE THAN 4" C/C. COORDINATE SCHEDULE WITH STRUCTURE PLANS. PROVIDE SAME DEPTH WHERE REQUIRED TO MATCH ADJACENT SPANS IN SAME OR ADJOINING STRUCTURES



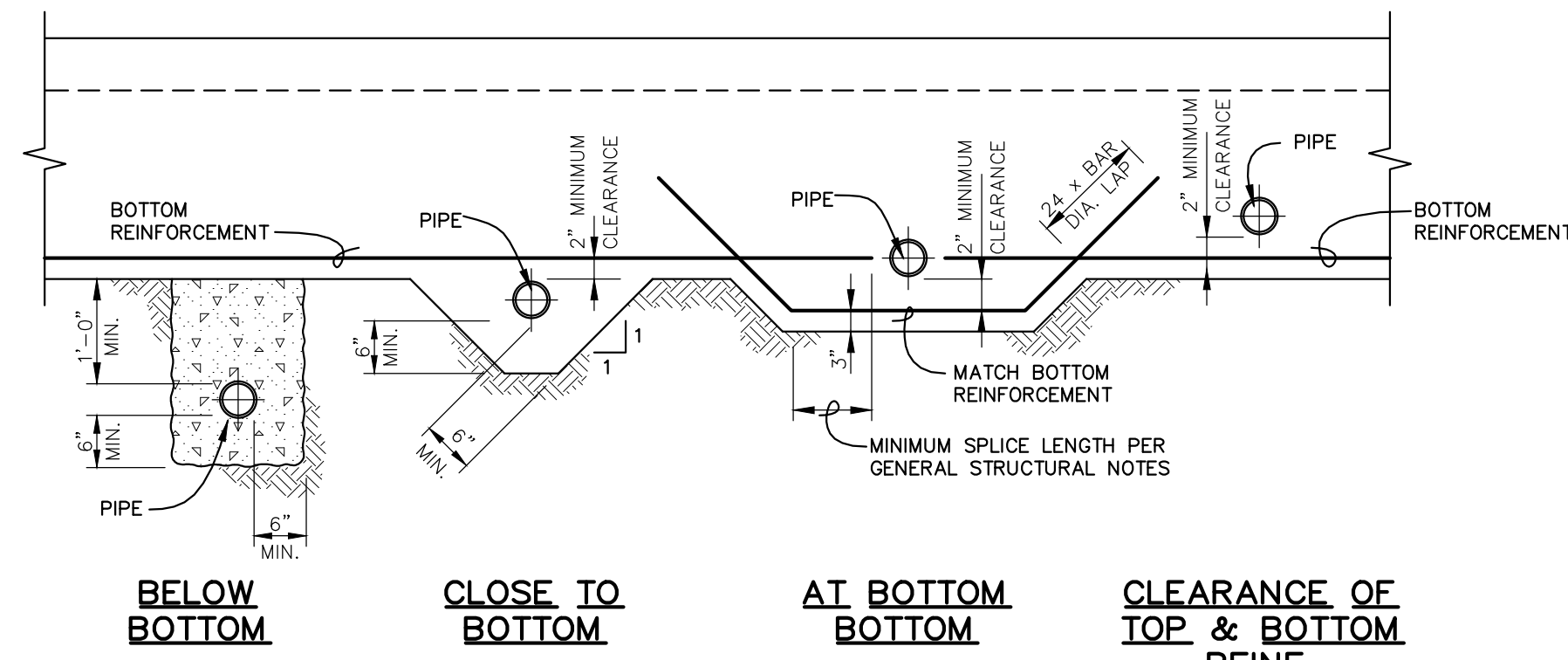
TYPICAL CONCRETE PIPE SUPPORT
PIER TO CONCRETE FLOOR
NOT TO SCALE



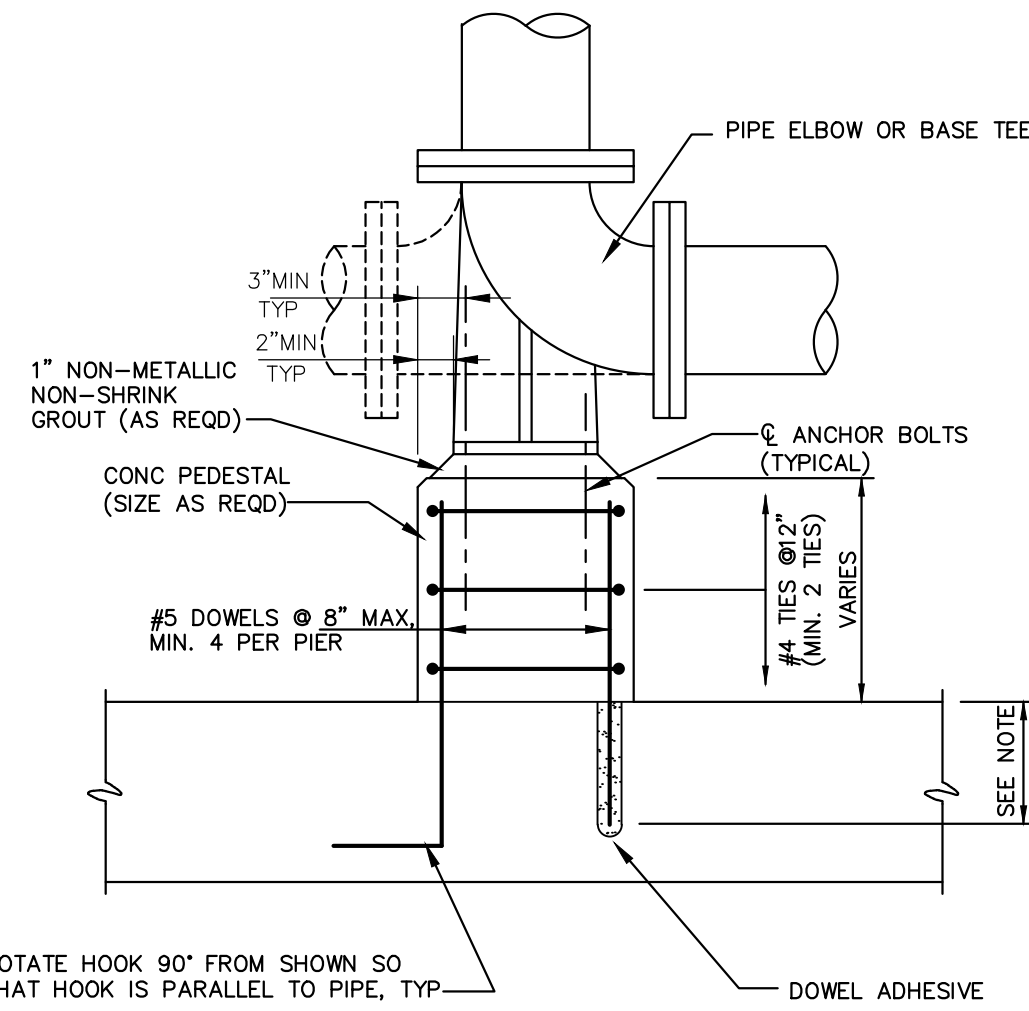
PIPE SUPPORT
NOT TO SCALE



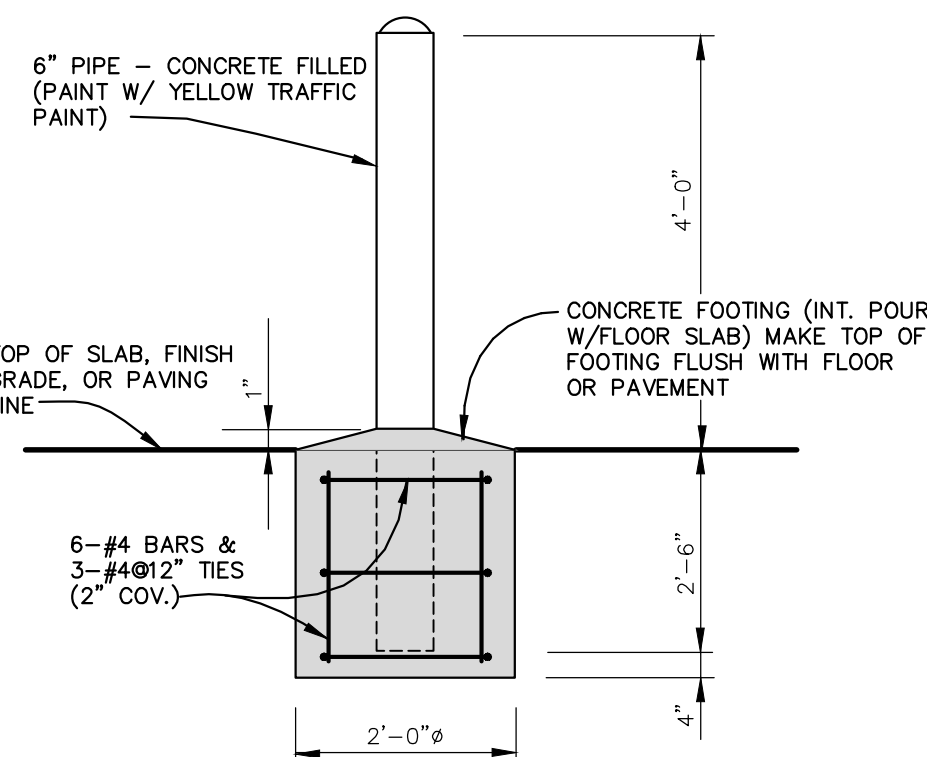
ADJUSTABLE PIPE
SADDLE SUPPORT
NOT TO SCALE



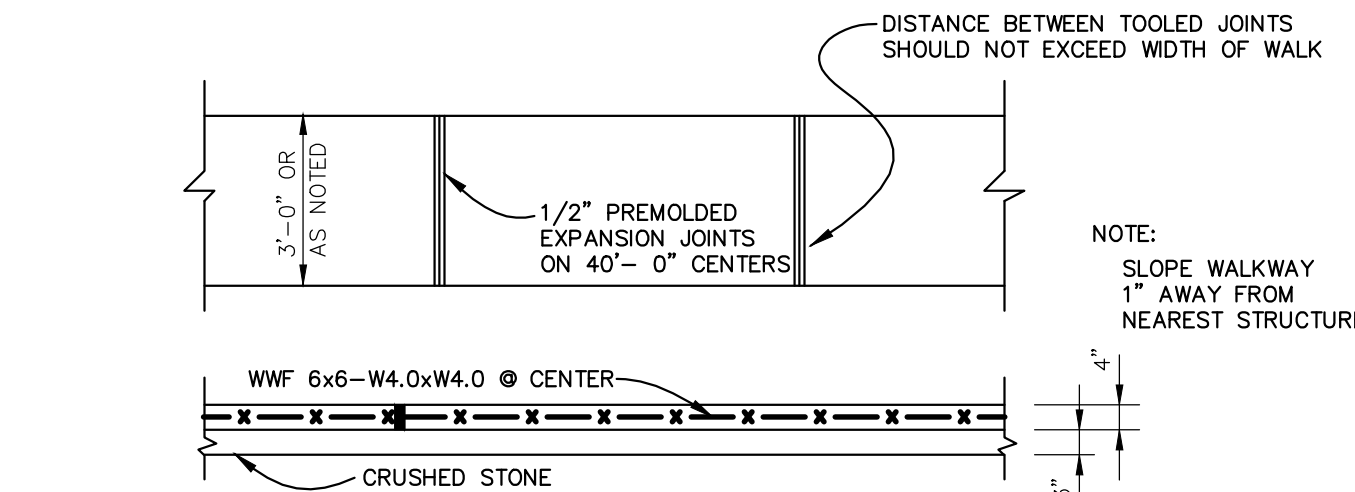
PIPE PERPENDICULAR TO
GRADE BEAM OR FOOTING
NOT TO SCALE



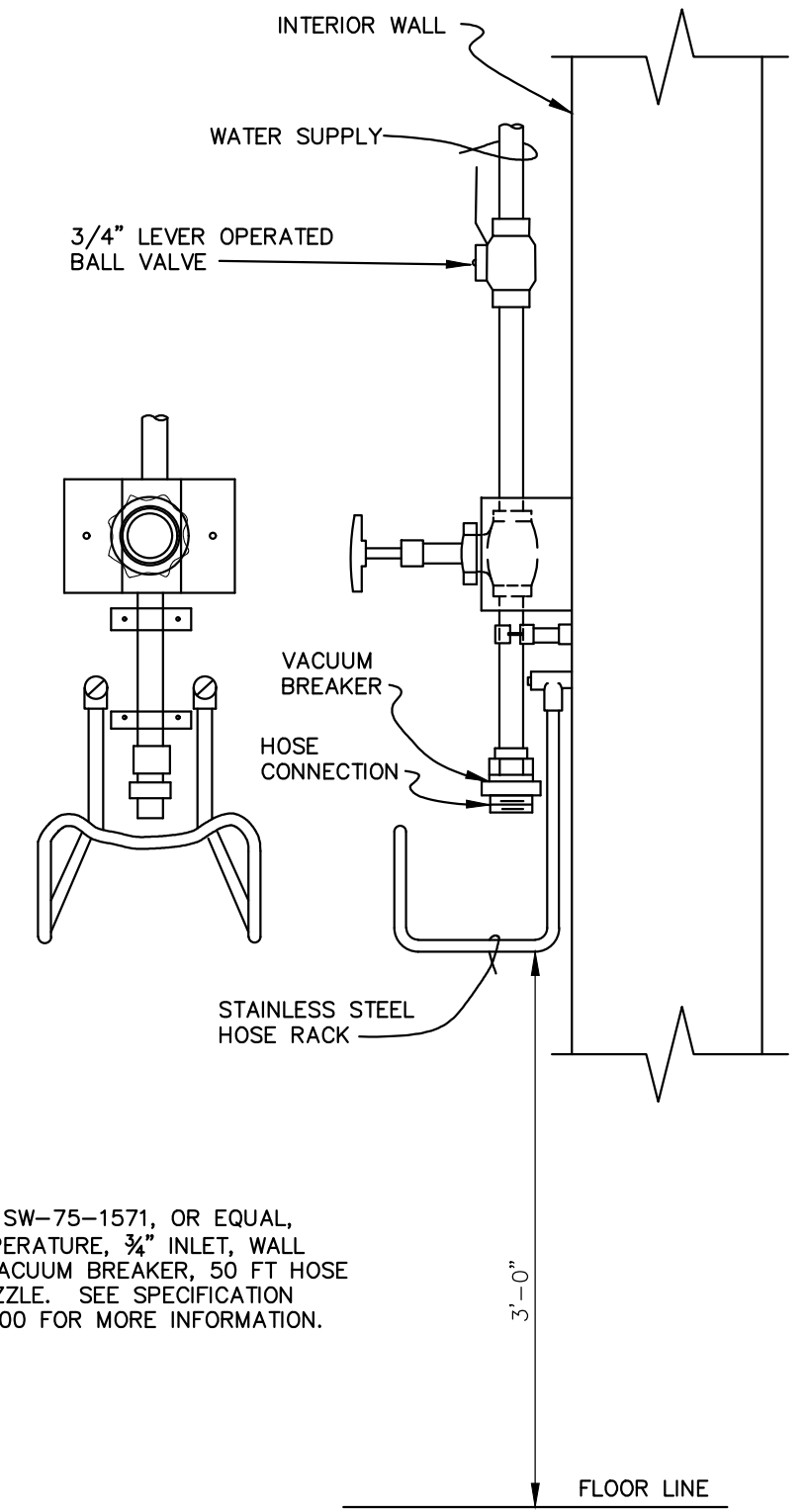
SUPPORT PIER UNDER
BASE ELBOW OR BASE TEE
NOT TO SCALE



DETAIL - GUARD POST
NOT TO SCALE

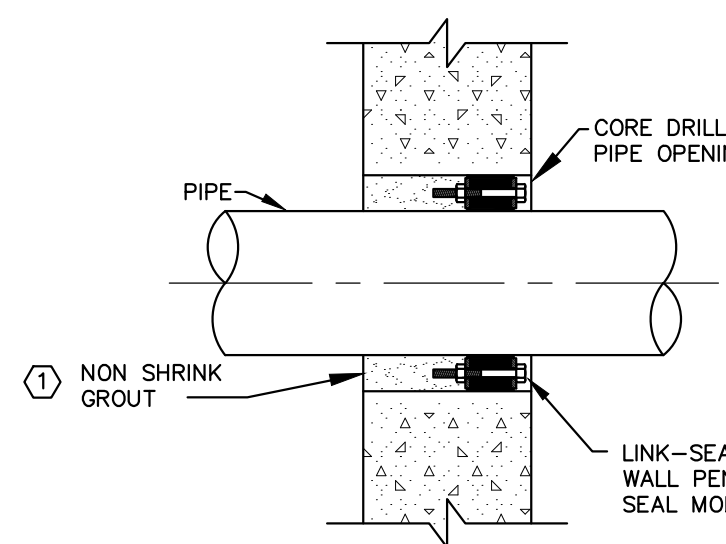


TYPICAL EXTERIOR WALKS
NOT CANTILEVERED FROM STRUCTURES
NOT TO SCALE

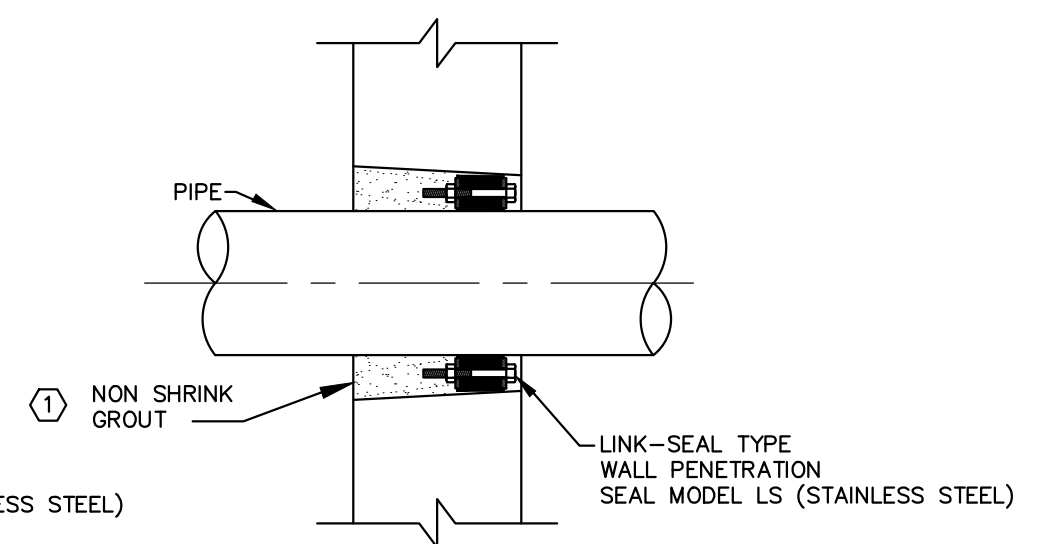


SINGLE TEMPERATURE HOSE STATION
(BLENDING HOSE STATION SIMILAR)
NOT TO SCALE

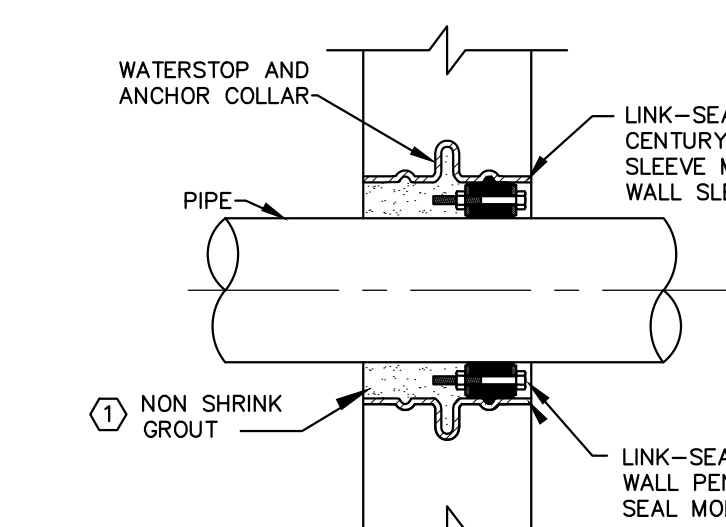
DETAIL - DRAINAGE CARRIER
PIPE CONNECTING SECTIONS
OF PIPE NOT ALONGSIDE
STRUCTURES
NOT TO SCALE



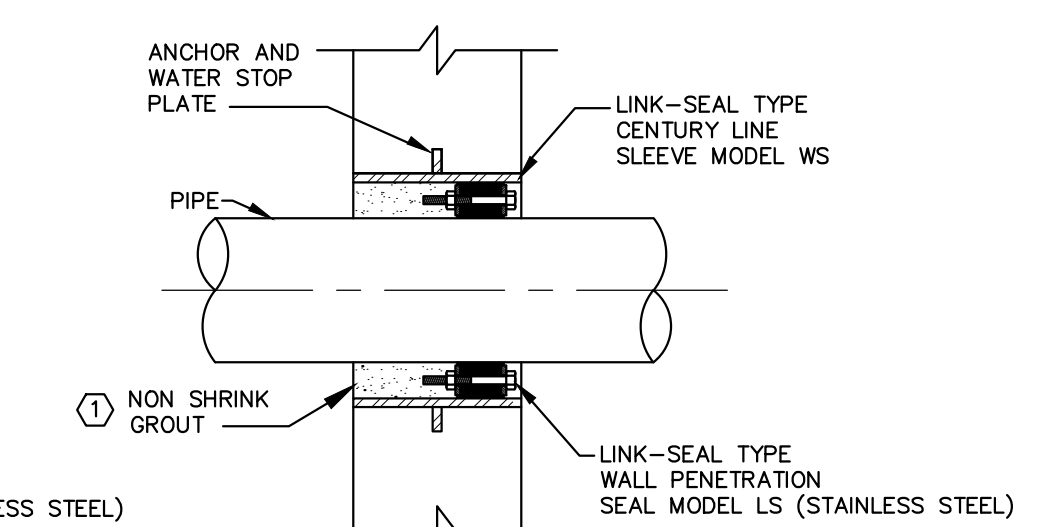
CORE PIPE OPNG. IN NEW
OR EXISTING WALL OR SLAB



BOX-OUT PIPE OPNG. IN NEW
WALL OR SLAB



WALL SLEEVE IN NEW
WALL OR SLAB



WALL SLEEVE IN NEW
WALL OR SLAB

PIPE PENETRATION THROUGH
CONCRETE WALLS AND SLABS
NOT TO SCALE

① WHERE LINK-SEALS ARE CALLED FOR GROUT SHALL NOT BE USED UNLESS THE CAVITY LEAKS WATER AND ALL POSSIBLE ADJUSTMENTS TO THE LINK-SEAL(S) HAVE BEEN MADE. IF THE CAVITY IS FOUND TO LEAK WATER PRIOR TO OR DURING THE WARRANTY PERIOD THE CONTRACTOR SHALL ADJUST LINK-SEAL(S) TO FIX THE PROBLEM. IF IT IS DETERMINED THAT THE LINK-SEAL ALONE CANNOT ELIMINATE THE LEAKING, THE CONTRACTOR SHALL PLACE NON-SHRINK GROUT IN THE CAVITY AS SHOWN.

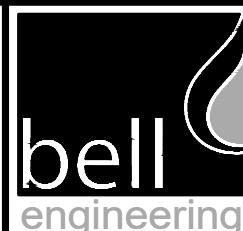


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GRAPHIC SCALE	
SCALE:	AS NOTED

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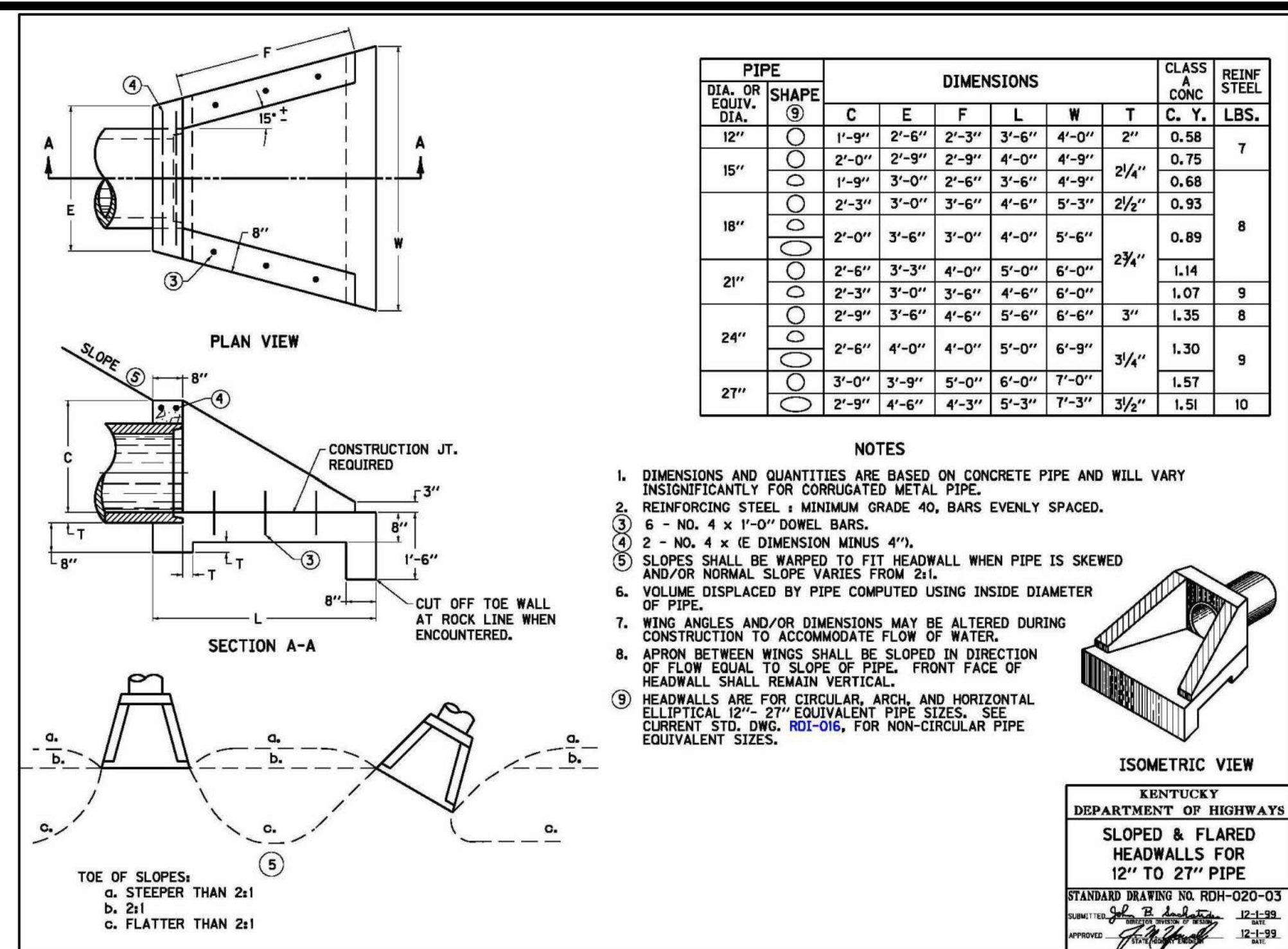
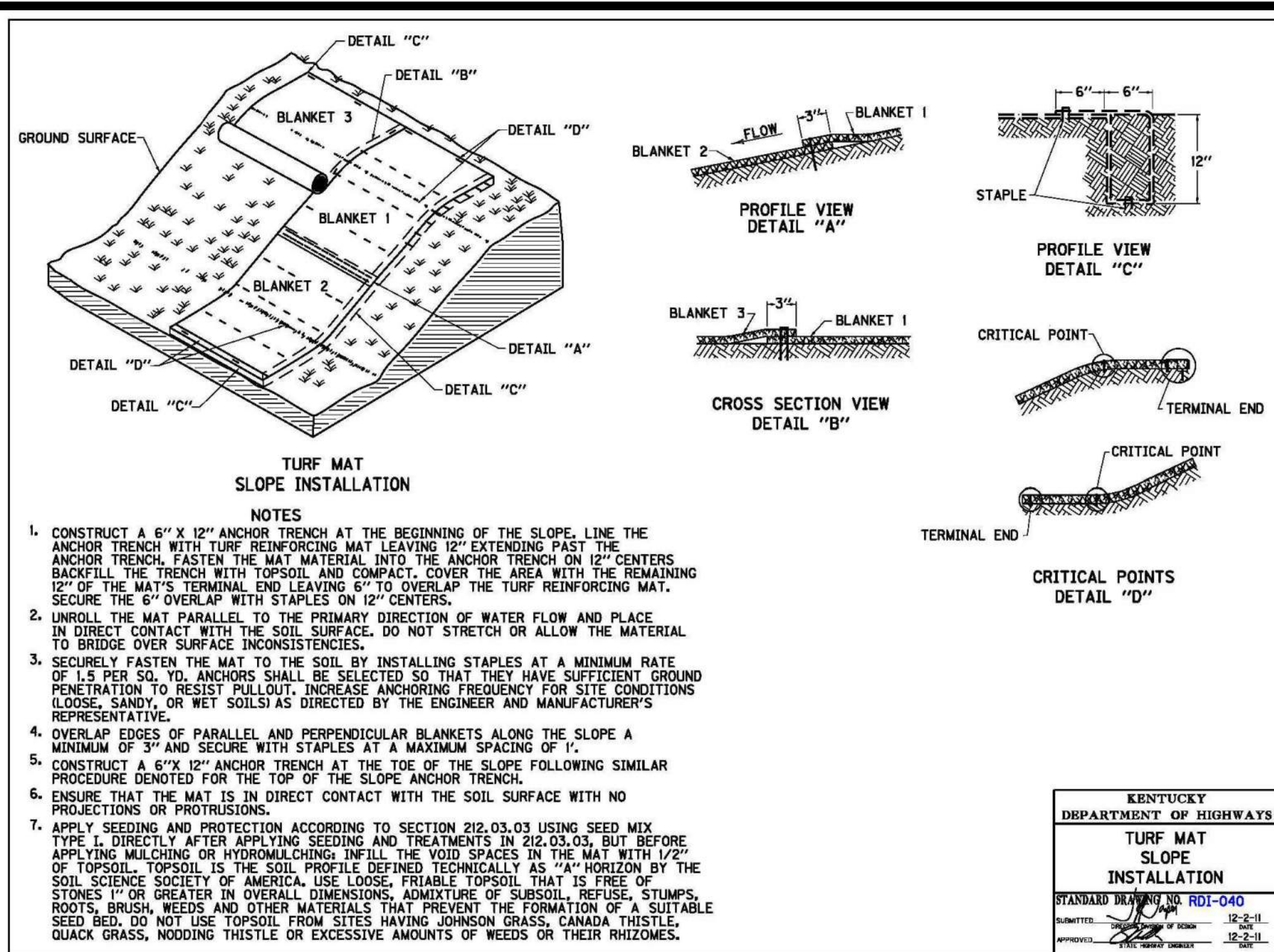
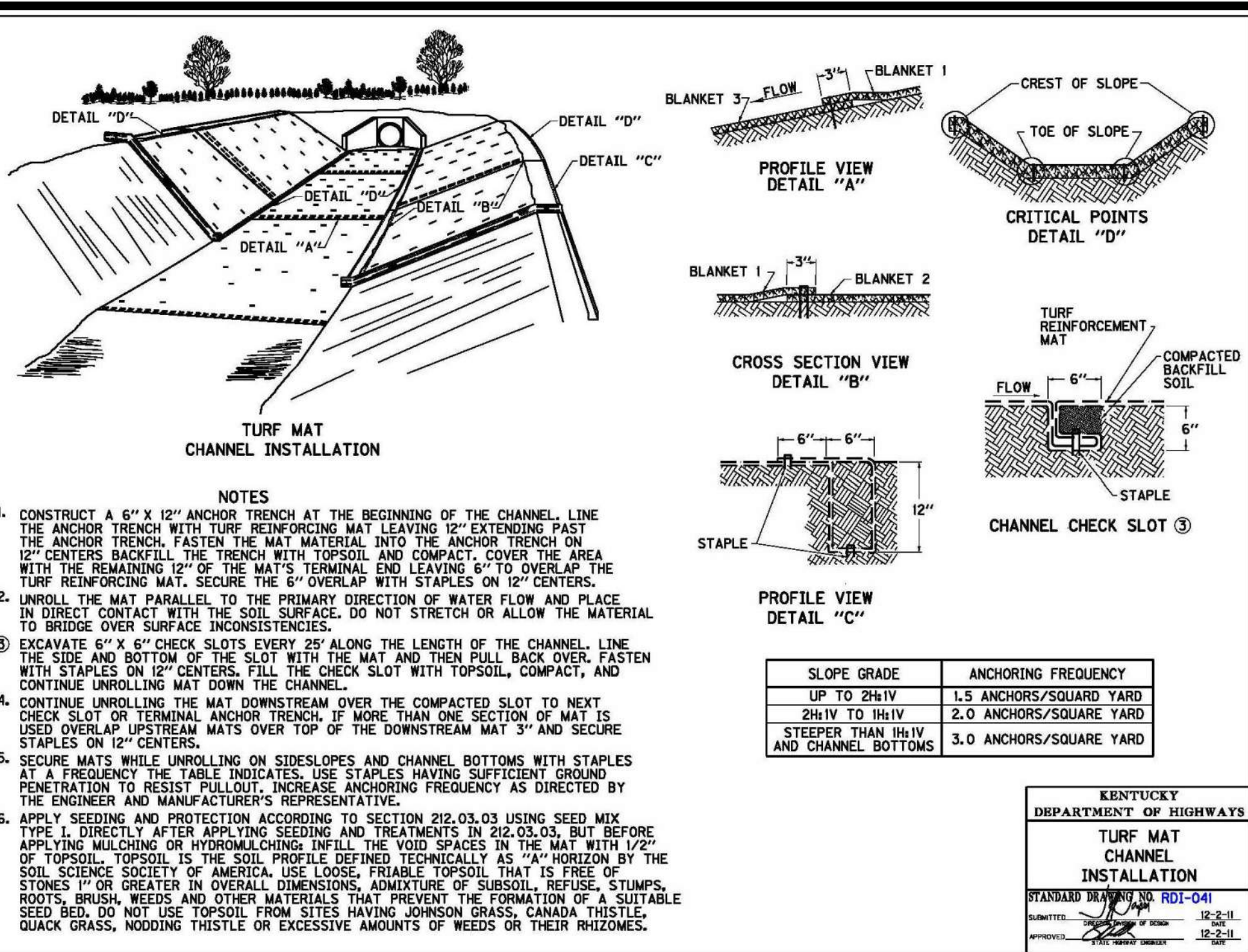


WATER SYSTEM IMPROVEMENTS
SHOPE'S CREEK ROAD AREA
CANNONBURG WATER DISTRICT
CANNONBURG, KENTUCKY

MISCELLANEOUS DETAILS

DIVISION	-
CONTRACT NO.	691-21-01
DATE	SEPTEMBER 2021
SHEET NO.	17 OF 17

J:\CANNONSURG\SHOPS CREEK ROAD AREA\CAD Design\11-691210\DWG ECI.dwg-EC1 Plotted Mon, 02 Dec 2024 - 11:00am by twbwr



GENERAL NOTES FOR EROSION PREVENTION AND SEDIMENT CONTROL

THE CONTRACTOR SHALL SUBMIT A NOTICE OF INTENT (NOI) FORM TO THE KENTUCKY DIVISION OF WATER AT LEAST 48 HOURS BEFORE ANY CONSTRUCTION BEGINS.

AT THE SAME TIME THE CONTRACTOR SHALL SUBMIT A COPY OF THE NOI TO THE LOCAL MUNICIPALITY.

THE CONTRACTOR SHALL PREPARE AND IMPLEMENT A "STORM WATER POLLUTION PREVENTION PLAN OR BEST MANAGEMENT PRACTICES PLAN (BMP)" AND KEEP A COPY OF THE PLAN ON SITE. THE CONTRACTOR SHALL USE SPECIFICATION SECTION 02370 - EROSION PREVENTION AND SEDIMENT CONTROL - AS A STARTING POINT AND MODIFY THIS INFORMATION AS NEEDED FOR ACTUAL SITE CONDITIONS. THE PLAN SHALL BE PREPARED ACCORDING TO THE CURRENT EDITION OF THE "KENTUCKY EROSION PREVENTION AND SEDIMENT CONTROL FIELD GUIDE" (KEPSCFG). A COPY OF THE DETAILED EROSION CONTROL PLAN, WHICH HAS BEEN PREPARED BY THE CONTRACTOR, SHALL BE SUBMITTED TO THE MUNICIPALITY AND THE ENGINEER FOR REVIEW AT LEAST 48 HOURS PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES.

ALL STORM DRAINS THAT DISCHARGE INTO A DRAINAGE CHANNEL, STREAM, LAKE, ETC., AND NOT ONTO AN OPEN FIELD SHALL HAVE AN INLET SEDIMENT CONTROL DEVICE INSTALLED DURING CONSTRUCTION. THE DEVICE SHALL BE SIMILAR TO THE SILTSACK AS MANUFACTURED BY ACF ENVIRONMENTAL OR DANDY BAG II BY DANDY PRODUCTS, OR EQUAL.

ROCK CHECKS SHALL BE USED TO TRAP SEDIMENT TRAVELING ALONG DRAINAGE CHANNELS, ETC., STRAW BALES ARE NOT ACCEPTABLE.

ANY CONSTRUCTION ACCESS ROAD, ETC., THAT JOINS ANY PAVED DRIVEWAY, OR ROAD SHALL HAVE A CRUSHED STONE ENTRANCE CREATED ACCORDING TO THE DRAWINGS AND THE KENTUCKY "EROSION PREVENTION AND SEDIMENT CONTROL FIELD GUIDE".

STORM WATER RUNOFF FROM UNDISTURBED AREAS SHALL BE DIVERTED AROUND CONSTRUCTION SITES BY THE USE OF DIVERSION BERMS OR DIVERSION DITCHES.

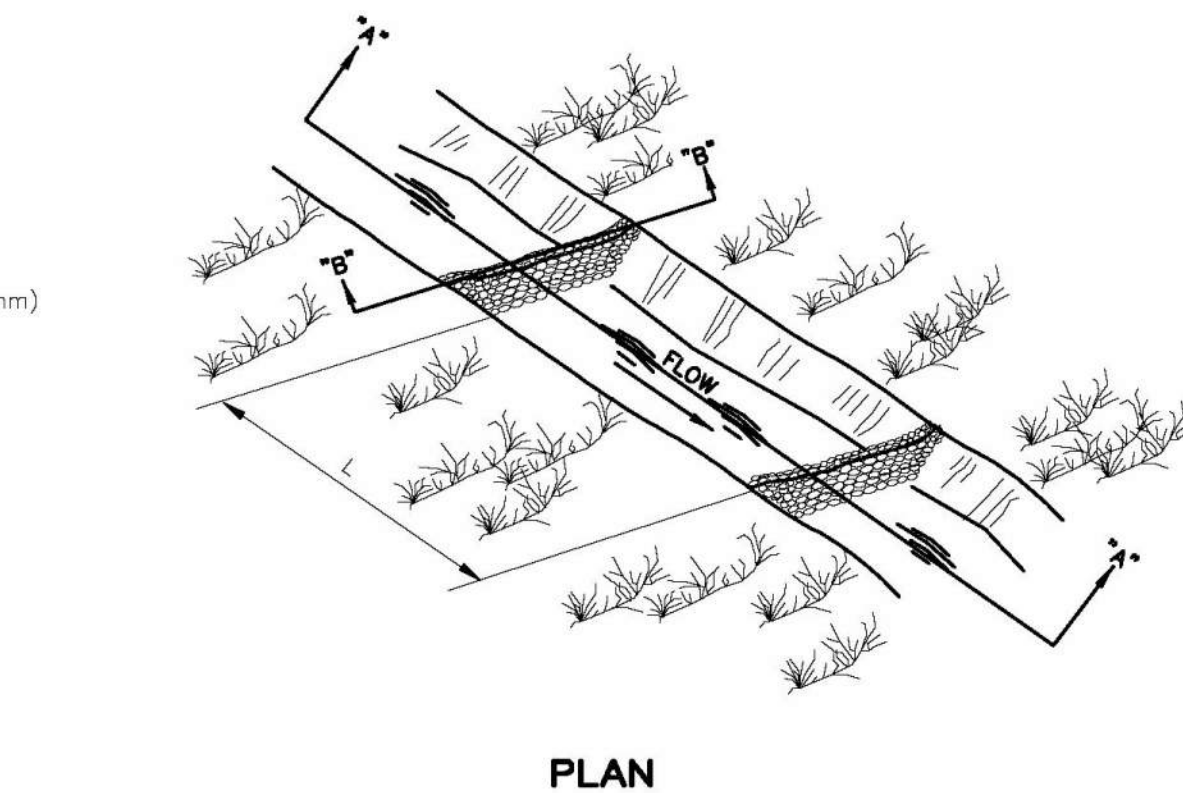
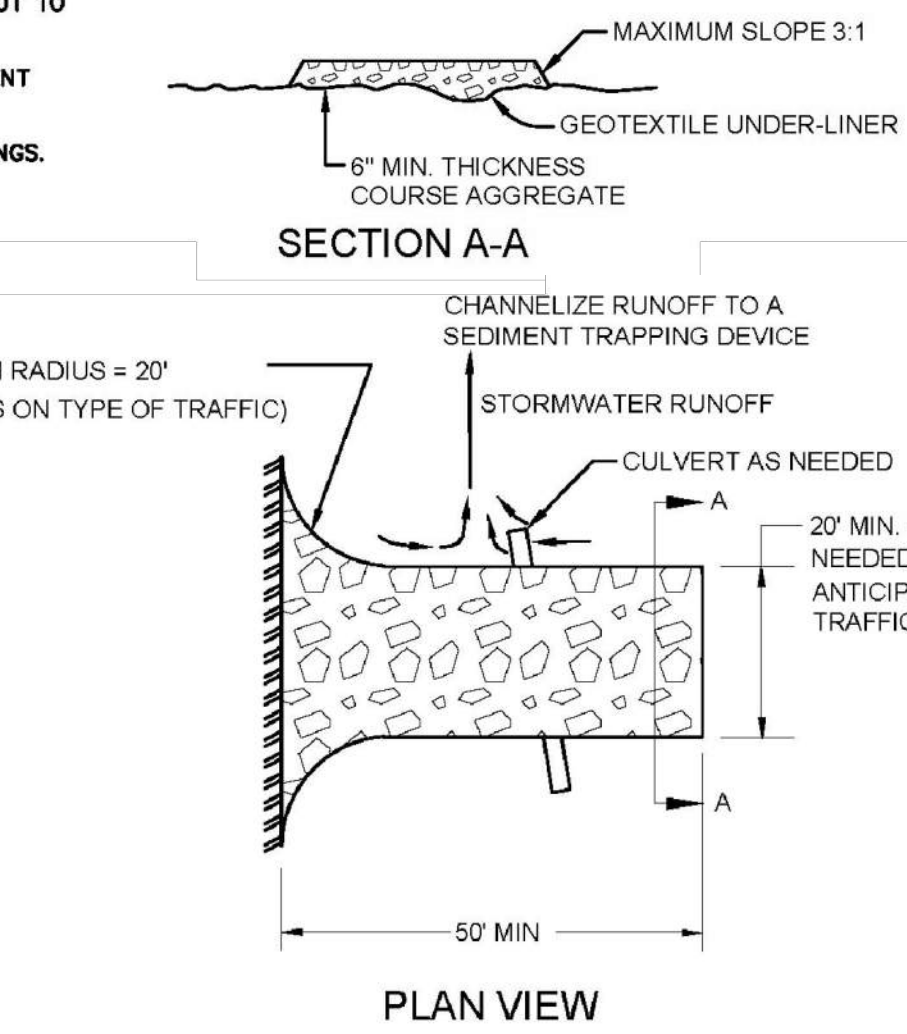
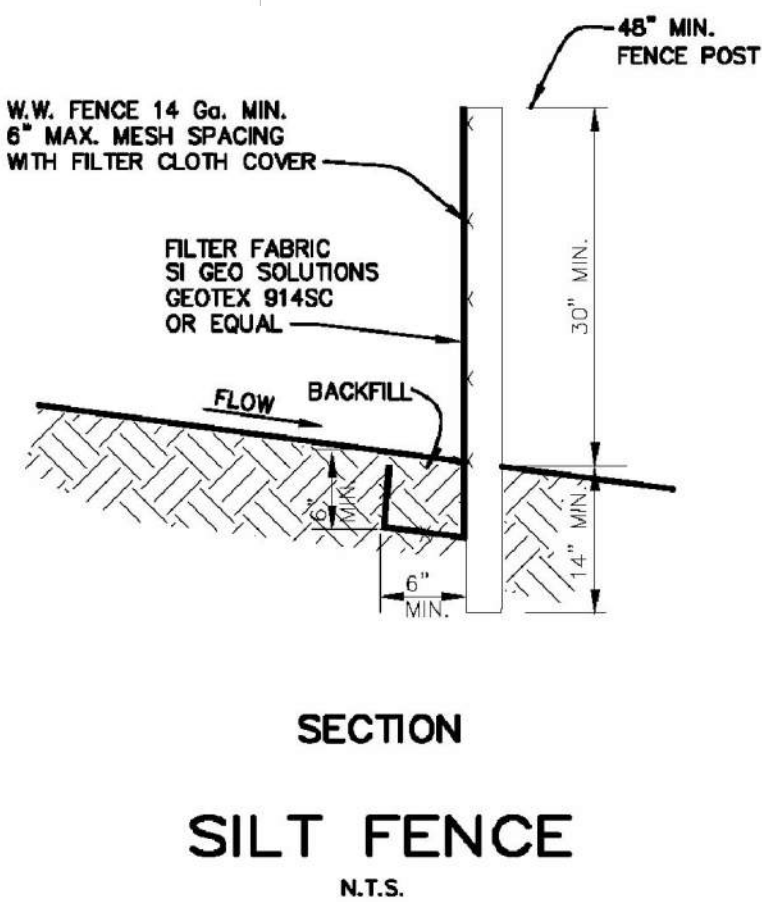
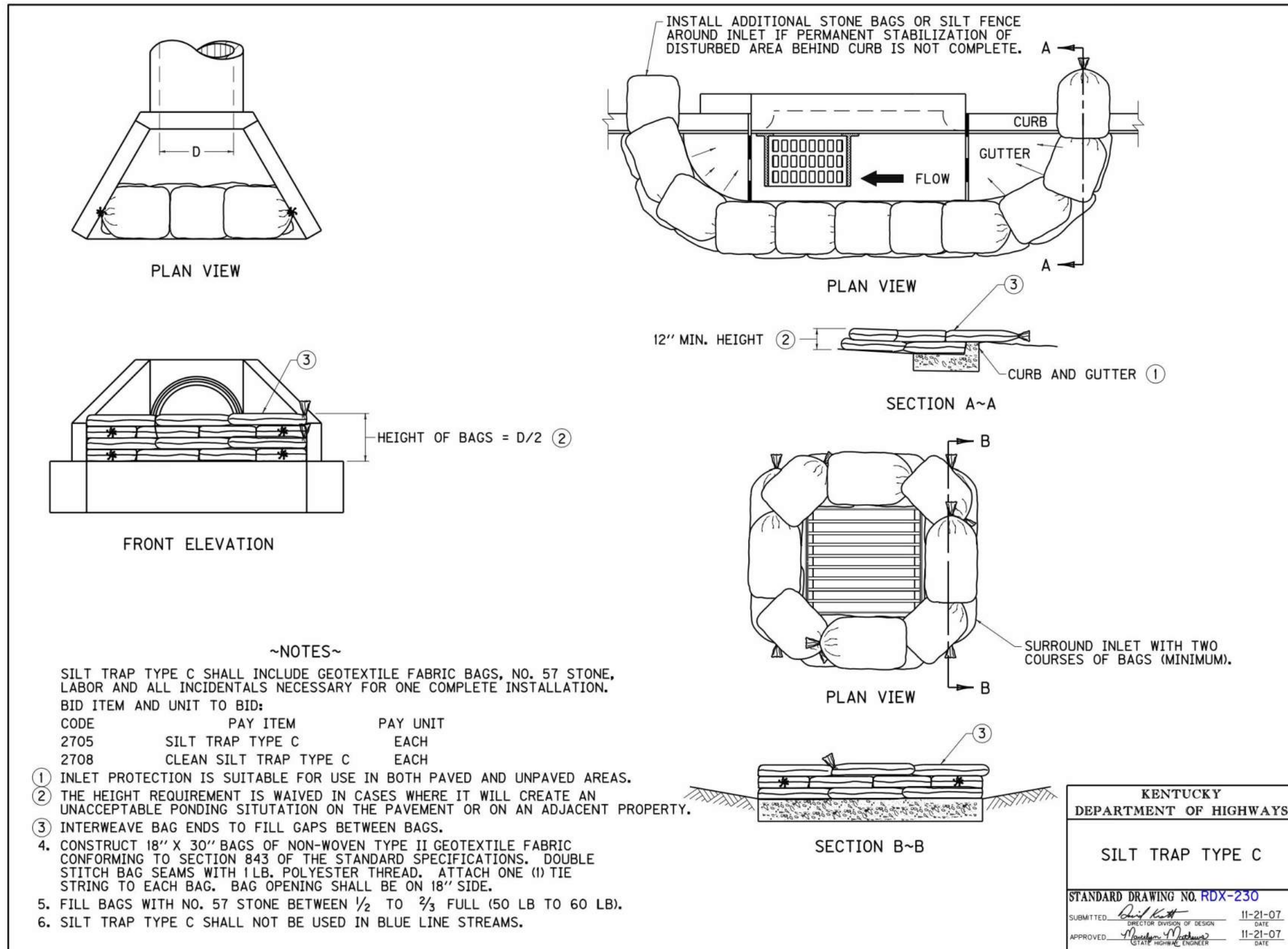
SILT FENCES SHALL BE USED TO TRAP SEDIMENT FROM SEDIMENT LADEN STORM WATER ROLLING DOWN HILLS, ETC., ACCORDING TO THE DRAWINGS AND THE KENTUCKY "EROSION PREVENTION AND SEDIMENT CONTROL FIELD GUIDE".

ANY PLACE WHERE THE SOIL HAS BEEN DISTURBED AND MAY SEE PERIODS OF 21 DAYS OR LONGER WITHOUT DISTURBANCE SHALL BE PROTECTED FROM EROSION BY THE USE OF GRASS SEED AND MULCH, EROSION CONTROL BLANKETS, ETC., AS SPECIFIED IN THE KENTUCKY "EROSION PREVENTION AND SEDIMENT CONTROL FIELD GUIDE". THE TYPE OF GRASS SEED TO BE USED, ETC., SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS OR IF NOT SPECIFIED SHALL BE BY THE KEPSCFG.

WHEN SILT FENCES AND OTHER SEDIMENT TRAPPING DEVICES BECOME FULL THEY SHALL BE CLEANED OUT TO NEAR NEW INSTALLATION CONDITIONS AND PUT BACK INTO SERVICE.

ANY DISTURBED AREA WITH A SLOPE OF 3:1 OR GREATER SHALL BE PROTECTED BY TURF REINFORCEMENT MATS AS DETAILED ON DRAWINGS.

ALL DRAINAGE DITCHES ARE TO BE PROTECTED BY TURF REINFORCEMENT MATS AS DETAILED ON DRAWINGS.



NOTE:

SPACING OF PREFABRICATED DITCH CHECKS SHALL BE THE SAME AS STONE DITCH CHECKS.

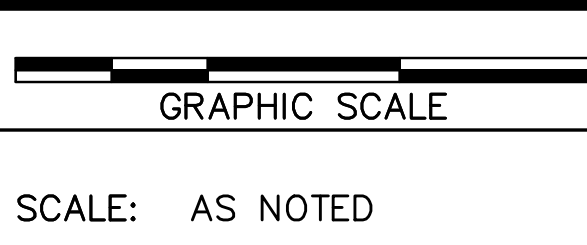
THE MINIMUM DITCH DEPTH IS 1' (300mm)

STONE SHALL BE ACCORDING TO THE "EROSION PREVENTION AND SEDIMENT CONTROL FIELD GUIDE"

L=PER KENTUCKY DIVISION OF WATER KPDES DIVISION "EROSION PREVENTION AND SEDIMENT CONTROL FIELD GUIDE".

- STONE SIZE - TWO-INCH STONE SHALL BE USED, OR RECYCLED CONCRETE EQUIVALENT.
- LENGTH - THE CONSTRUCTION ENTRANCE SHALL BE AS REQUIRED TO STABILIZE HIGH TRAFFIC AREAS BUT NOT LESS THAN 50 FT.
- THICKNESS - THE STONE LAYER SHALL BE AT LEAST 6 IN. THICK.
- WIDTH - THE ENTRANCE SHALL BE AT LEAST 20 FT. WIDE, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
- BEDDING - A GEOTEXTILE SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE. IT SHALL HAVE A GRAB TENSILE STRENGTH OF AT LEAST 200 LB AND A MULLEN BURST STRENGTH OF AT LEAST 190 LB.
- CULVERT - A PIPE OR CULVERT SHALL BE CONSTRUCTED UNDER THE ENTRANCE IF NEEDED TO PREVENT SURFACE WATER FLOWING ACROSS THE ENTRANCE FROM BEING DIRECTED OUT ONTO PAVED SURFACES.
- MAINTENANCE - TOP DRESSING OF ADDITIONAL STONE SHALL BE APPLIED AS CONDITIONS DEMAND. MUD SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADS, OR ANY SURFACE WHERE RUNOFF IS NOT CHECKED BY SEDIMENT CONTROLS SHALL BE REMOVED IMMEDIATELY. REMOVAL SHALL BE ACCOMPLISHED BY SCRAPING OR SWEEPING.
- CONSTRUCTION ENTRANCES SHALL NOT BE RELIED UPON TO REMOVE MUD FROM VEHICLES AND PREVENT OFF-SITE TRACKING. VEHICLES THAT ENTER AND LEAVE THE CONSTRUCTION SITE SHALL BE RESTRICTED FROM MUDDY AREAS.

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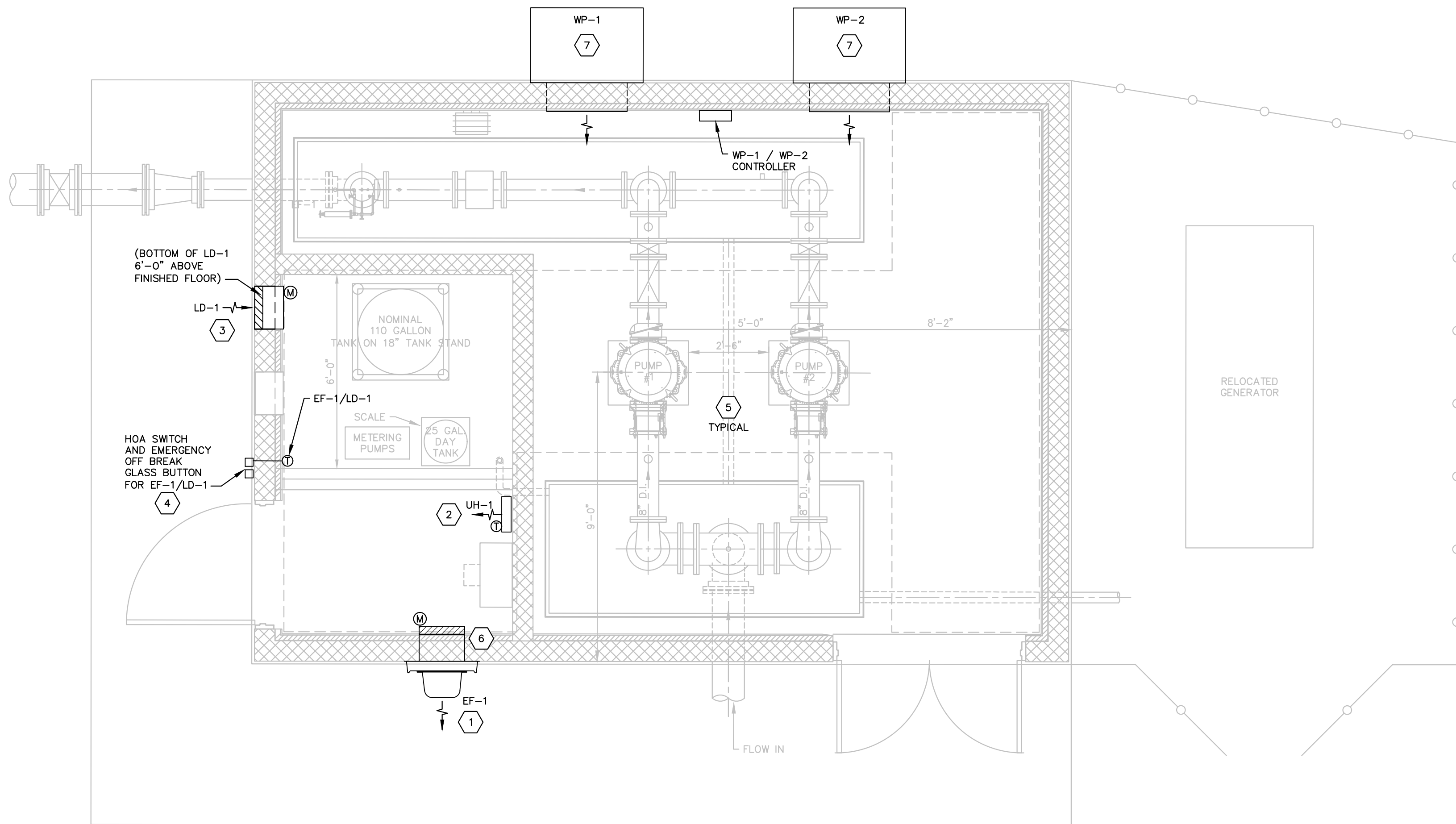
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WATER SYSTEM IMPROVEMENTS
SHOPS CREEK ROAD AREA
CANNONSURG WATER DISTRICT
CANNONSURG, KENTUCKY

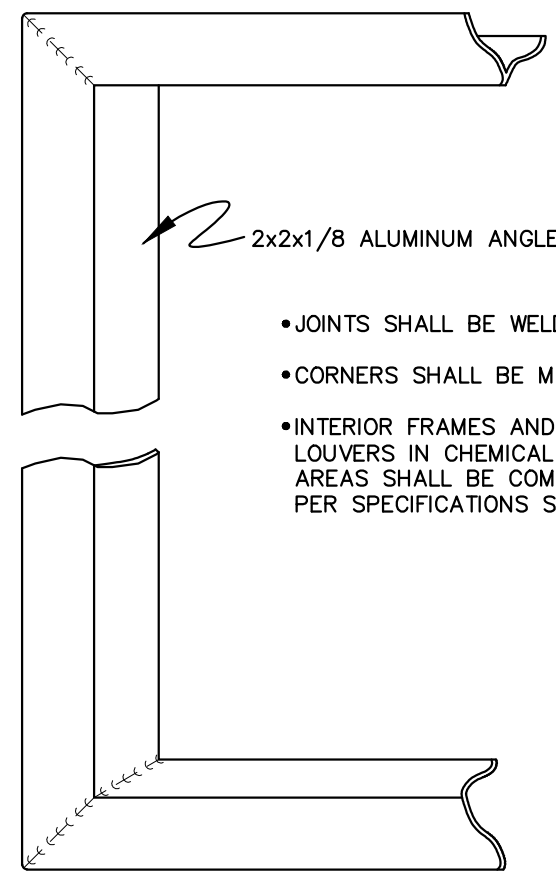
EROSION CONTROL

DIVISION	-
CONTRACT NO.	691-21-01
DATE	SEPTEMBER 2021
SHEET NO.	EC1 OF EC1



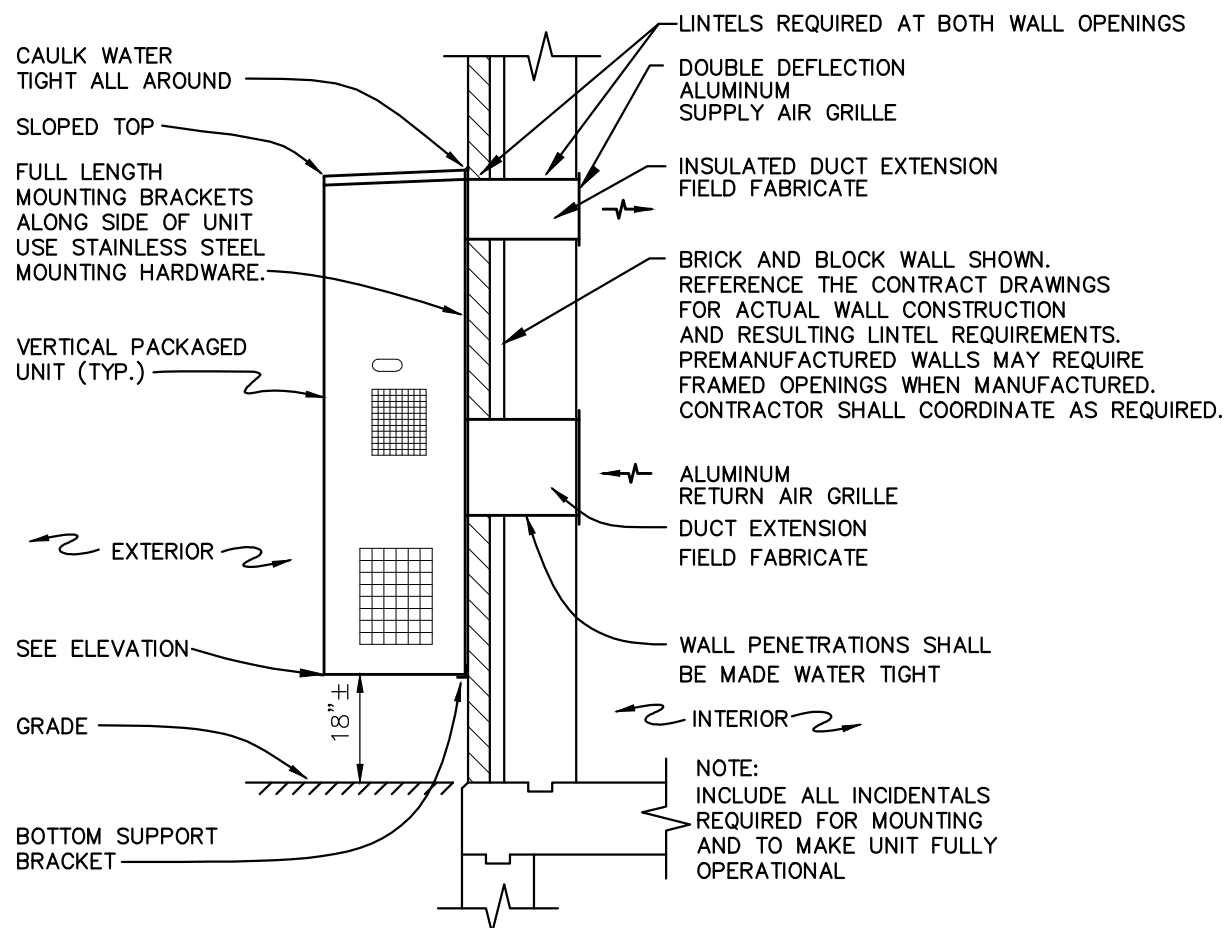
BOOSTER PUMP STATION
HVAC PLAN

3/8" = 1'-0"



INTERIOR PERIMETER FRAME
FOR WALL LOUVERS

NOT TO SCALE



VERTICAL PACKAGED UNIT
DETAIL

NOT TO SCALE

HVAC NOTES:

1. EXHAUST FAN EF-1, FULL WALL SLEEVE, MOTORIZED BACKDRAFT DAMPER REQUIRED, POWER OPEN, SPRING CLOSE. TRIM ALL AROUND INTERIOR OF ROUGH CUT OPENING. TWIN CITY FIBER AIR (SWARTWOUT) MODEL 12SA2, 531 CFM AT 3/8" SP, 1/8 HP, 1140 RPM, 120V/1P FAN. DAMPER JUST INSIDE ROOM IN WALL SLEEVE EXTENSION.
2. UNIT HEATER UH-1 SHALL HAVE INTEGRAL THERMOSTAT (50 TO 90F) AND CONTACTORS. MARKEL MODEL 3420. IT SHALL BE 4,000 WATT (240V / 1 PHASE).
3. COMBINATION LOUVER/DAMPER LD-1 SHALL HAVE FULL WALL SLEEVE AND INTERIOR PERIMETER FRAME AROUND ROUGH OPENING. RUSKIN MODEL ELC6375DAX, 16" WIDE X 24" HIGH, 531 CFM AT 0.05 SP, 6" DEEP ALUMINUM FRAME, RECESSED WITH EXTENDED SILL, INSECT SCREEN, 0.9 SF FREE AREA, 593 FPM VELOCITY. KYNAR COLOR SELECTION DURING SHOP DRAWING REVIEW.
4. CONTROLS FOR EF-1/LD-1: INTERIOR CHROMOLOX WCR THERMOSTAT (COOLING), HOA SWITCH AND ALLEN BRADLEY BREAK GLASS EMERGENCY OFF SWITCH ON OUTSIDE WALL, BOTH TO BE WATER PROOF OR HAVE WATERPROOF COVERS.
5. SEE ELECTRICAL DRAWINGS FOR FINAL REQUIRED VOLTAGE/PHASE OF UH-1, EF-1, LD-1, AND MOTORIZED BACKDRAFT DAMPERS AT EF-1 AND LD-1.
6. FULL WALL SLEEVE WITH DAMPER EXTENSION INTO ROOM AND A POWER OPEN SPRING RETURN DAMPER MOTOR. BOTTOM OF EF-1 WALL OPENING AT 2 FT AFF.
7. COORDINATE WITH PRIME CONTRACTOR TO ENSURE THAT SMOOTH FACE BLOCK IS INSTALLED WHERE THE WP UNIT(S) WILL BE MOUNTED ON THE EXTERIOR WALL. VERIFY SIZE AND LOCATION OF MOUNTING AREA FOR SMOOTH FACE BLOCK USING APPROVED SHOP DRAWING. NO SMOOTH FACE BLOCK SHALL BE VISIBLE AFTER THE WP UNIT(S) HAS BEEN INSTALLED.

WALL MOUNTED AC UNIT

TAG	LOCATION OR AREA SERVED	MANUFACTURER	MODEL (INDOOR / OUTDOOR)	CFM	EXTERNAL STAT. PRESS (INCHES)	COOLING TOTAL/SENSIBLE (MBH)	HEAT PUMP HEATING (MBH)	SUPP. ELEC. HEAT (KW)	SEER / EER	VOLT / PHASE	REMARKS	WEIGHT (LBS)
WP - 1	BOOSTER PUMP STATION	MARVAIR	MAA 2060 AD (2 STAGE)	1,800	0.25	54 / 36.5	0.0	6.0	NA / 11	480 / 3	1, 2, 3, 4, 5	545
WP - 2	BOOSTER PUMP STATION	MARVAIR	MAA 2060 AD (2 STAGE)	1,800	0.25	54 / 36.5	0.0	6.0	NA / 11	480 / 3	1, 2, 3, 4, 5	545

GENERAL COMMENTS: See remarks below. UNITS REQUIRE 2 STAGE COMPRESSORS, LOW AMBIENT CONTROL, AND FULL FLOW ENTHALPY CONTROLLED ECONOMIZER.

SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. ALTERNATE MANUFACTURERS WILL BE CONSIDERED. PROOF OF EQUALITY IS THE CONTRACTOR'S RESPONSIBILITY.
INSTALL ENGRAVED EQUIPMENT TAGS (BLACK TEXT ON WHITE BACKGROUND) ON ALL MAJOR EQUIPMENT AND ASSOCIATED CONTROLS.
COOLING PERFORMANCE DESIGN CONDITIONS: 95F OUTDOOR, 80F DB / 67F WB INDOOR. HEAT PUMP HEATING PERFORMANCE DESIGN CONDITIONS: 17F OUTDOOR, 70F DB INDOOR.
VERIFY WEIGHTS AND DIMENSIONS WITH EQUIPMENT FROM FINAL ACCEPTED SHOP DRAWINGS. PROVIDE STRUCTURAL SUPPORT AND FRAMING FOR WALL MOUNTED EQUIPMENT AS REQUIRED.
FOR EACH UNIT NOTED ABOVE, A FULL FLOW ECONOMIZER WITH ENTHALPY CONTROL, DAMPER CONTROLLED AIR MIXING, AND INTERNAL PRESSURE RELIEF IS REQUIRED.
FOR INSTALLATION INTO NEW BLOCK WALLS WITH BOND BEAMS, IF WALL REINFORCEMENT IS INTERRUPTED, OFFSET IT ABOVE OR BELOW THE WALL OPENING TO ENSURE IT REMAINS CONTINUOUS.
FOR INSTALLATION ONTO SPLIT FACE BLOCK WALLS, INSTALL SMOOTH FACE BLOCK WHERE UNIT AND MOUNTING FLANGES WILL BE TO MAKE A SECURE AND GAP FREE CONNECTION. SMOOTH FACE BLOCK FOR MOUNTING SHALL NOT EXTEND GREATER THAN 2 INCHES BEYOND THE MOUNTING PERIMETER OF THE UNIT.

REMARKS:

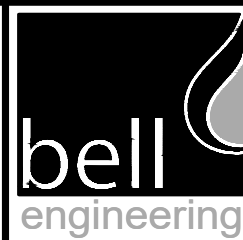
1. VERTICAL PACKAGED WALL MOUNT UNIT WITH: LOW AMBIENT PACKAGE (FOR OPERATION DOWN TO 20 DEGREES F.), DELUXE ALUMINUM SUPPLY AND RETURN GRILLES, 4 FACTORY FILTERS, BLANK OFF PLATE TO RESTRICT OUTSIDE AIR UNLESS ECONOMIZER IS NOTED, TIME DELAY, THERMAL EXPANSION VALVE, ANTI SHORT CYCLE TIMER, HIGH PRESSURE SWITCH, LOSS OF CHARGE, UTILIZE R-410a REFRIGERANT, LOCKOUT RELAY, TIMED LOW PRESSURE BYPASS, WALL SLEEVE, FACTORY INSTALLED DISCONNECT, COLOR SELECTION DURING SHOP DWG. REVIEW, SCROLL COMPRESSOR, SINGLE POINT POWER ENTRY, SLOPED TOP, STAINLESS MOUNTING HARDWARE. CHECKLIST, TEST, AND STARTUP WITH A WRITTEN REPORT TO ENGINEER SHALL BE PERFORMED BY A TECHNICIAN FROM THE MANUFACTURER'S REPRESENTATIVE AND SHALL BE INCLUDED IN THE BID PRICE.
2. UNIT SHALL HAVE A DIRTY FILTER INDICATOR, STAINLESS STEEL FASTNERS & DRAIN PAN, THERMAL EXPANSION VALVE, LOW AMBIENT CONTROL WITH FAN CYCLE CONTROL AND EVAP FREEZE SENSOR
3. VERTICAL PACKAGED WALL MOUNTED UNIT SHALL HAVE BUILT-IN FACTORY INSTALLED ECONOMIZER WITH USER ADJUSTABLE ENTHALPY CONTROLLER, INTEGRAL PRESSURE RELIEF, AND MIXED AIR SENSOR TO MODULATE DAMPER FOR CORRECT MIX OF RETURN AND OUTDOOR AIR TO MAINTAIN A 50 TO 63 DEGREE F SUPPLY.
4. VERTICAL PACKAGED WALL MOUNTED UNIT SHALL HAVE 2 STAGESCROLL COMPRESSOR WITH FIRST STAGE COOLING APPROXIMATELY 65% OF THE TOTAL COOLING CAPACITY.
5. THE MANUFACTURER'S COMMSTAT 4 TELECOM HVAC CONTROLLER CAPABLE OF CONTROLLING UP TO 2 UNITS, EACH WITH A 2 STAGE COMPRESSOR AND FULL FLOW ECONOMIZER IS REQUIRED INCLUDING FURNISHING AND INSTALLING CONDUIT AND WIRE FOR REMOTE SENSORS.

11 / 13 / 2024

DESIGNER	JDP	DATE	BY	REVISION
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CHECKED	JDP			
APPROVED	JDP			

GRAPHIC SCALE
SCALE: AS NOTED

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WATER SYSTEM IMPROVEMENTS
SHOPES CREEK ROAD AREA
CANNONBURG WATER DISTRICT
CANNONBURG, KENTUCKY

BOOSTER PUMP STATION
HVAC PLAN

DIVISION	-
CONTRACT NO.	691-21-01
DATE	SEPTEMBER 2021
SHEET NO.	M1 OF M1

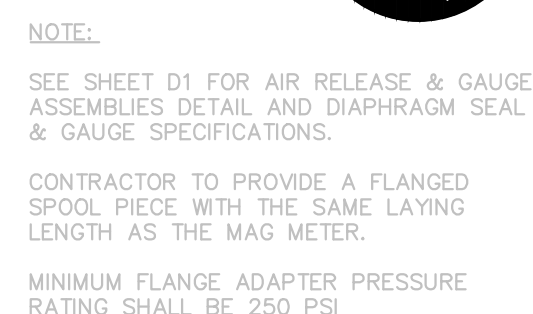


ABBREVIATION OR ACRONYM	DESCRIPTION	ABBREVIATION OR ACRONYM	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
A	AMPERE	PS	PRESSURE SWITCH		THERMOSTAT		REMOTE LOCATION FROM STARTER		FUSED CUTOUT
AF	AMPERE FRAME	PVC	POLY-VINYL CHLORIDE		MOTOR DISCONNECT SWITCH (NONFUSED SAFETY SWITCH) UNLESS OTHERWISE NOTED		ELAPSED TIME METER		SECTIONALIZING SWITCH (3 PHASE)
AFF	ABOVE FINISHED FLOOR OR DECK TO CENTERLINE	PWR	POWER		MOTOR (A NUMBER SUBSTITUTED FOR THE LETTER M IN THE CIRCLE IS THE NAMEPLATE HP)		MOTOR STARTER COIL		NEW OVERHEAD WIRING (NUMBER OF HASH MARKS INDICATES NUMBER OF PHASES - 3 PHASE SHOWN)
AFC	AUTOMATIC FREQUENCY CONTROL (ALSO SEE VFD)	P/W	PLYWOOD		EXPLOSION PROOF JUNCTION BOX		AUTO TRANSFORMER		EXISTING OVERHEAD WIRING (3 PHASE SHOWN)
AHU	AIR HANDLING UNIT	RECEPT	RECEPTACLE		JUNCTION BOX - SMALL		TIMER CLUTCH (OR SOLENOID)		EXISTING UNDERGROUND CONDUIT
AT	AMPERE TRIP	R/C	REMOTE CONTROL		JUNCTION BOX - SQUARE\RECTANGULAR - LARGE		IN CONTROL CIRCUITS INFERS MECHANICAL INTERLOCKING IN SITE PLANS AND BUILDING PLANS MAY INFER UNDERGROUND OR CONCEALED CONDUITS, HIDDEN LINES, ETC.		NEW UNDERGROUND CONDUIT
ATS	AUTOMATIC TRANSFER SWITCH	RV	RELIEF VENT		MAGNETIC COMBINATION STARTER		KEY INTERLOCK		MANHOLE OR PULLBOX
AWG	AMERICAN WIRE GAUGE	SHT	SHEET		CCTV CAMERA OUTLET		CIRCUIT BREAKER; THERMAL MAGNETIC TYPE, SINGLE POLE		KEYNOTE
ATRV	AUTOTRANSFORMER REDUCED-VOLTAGE	SIG	SIGNAL		CABLE TV OR ANTENNA CABLE OUTLET		CIRCUIT BREAKER; THERMAL MAGNETIC TYPE, 2 POLE		CALL SWITCH
BC	BARE COPPER	SMR	SURFACE-METAL-RACEWAY		CCTV MONITOR OUTLET		CIRCUIT BREAKER; THERMAL MAGNETIC TYPE, 3 POLE		WALL MOUNTED SPEAKER OR ALARM HORN
C	CONDUIT (RACEWAY)	S/N	SOLID NEUTRAL		TELEPHONE OUTLET FLOORBOX MOUNTED		CIRCUIT BREAKER; MAGNETIC TYPE, SINGLE POLE		PASSIVE INFRARED MOTION DETECTOR, ARROW DENOTES CURTAIN DIRECTION
⊙	AT	SP	SINGLE POLE		TELEPHONE OUTLET		END-OF-LINE RESISTOR		MAGNETIC CONTACT, DOOR MOUNTED
CB	CIRCUIT BREAKER	SS	STAINLESS STEEL		COMPUTER DATA OUTLET		MAGNETIC CONTACT, WINDOW MOUNTED		HEAT DETECTOR, GENERAL (SUBSCRIPT INDICATES RATE OF RISE OR FIXED TEMPERATURE)
CCTV	CLOSED CIRCUIT TELEVISION	SVCS	SERVICE(S)		DATA OUTLET, FLOORBOX MOUNTED		SMOKE DETECTOR GENERAL (SUBSCRIPT INDICATES PHOTOELECTRIC OR IONIZATION)		FIRE ALARM MANUAL PULL STATION
CKT	CIRCUIT	STA	STATION		GENERATOR/PHASE CONVERTER		FIRE ALARM HORN/SPEAKER WITH BUILT-IN STROBE		SPRINKLER SYSTEM FLOW SWITCH
C/L	CENTERLINE	STD	STANDARD		EXHAUST FAN/VENTILATOR		TAMPER SWITCH		RELAY IN FIRE ALARM SCHEMATICS
CLG	CEILING	SW	SWITCH		COMBINATION POWER/TELEPHONE FLOORBOX		MAGNETIC DOOR HOLDER		DUCT SMOKE DETECTOR
CTL	CONTROL	TEL	TELEPHONE		CONDUIT SLEEVED THROUGH WALL		FIREMANS TELEPHONE STATION		MUSHROOM HEAD EMERGENCY SWITCH
CU	COPPER OR IN HVAC CONTEXT 'CONDENSING UNIT'	TM	THERMAL MAGNETIC		LIGHTING ARRESTOR		PRESSURE DETECTOR IN FIRE ALARM SCHEMATICS		LEVEL DETECTOR IN FIRE ALARM SCHEMATICS
Δ/Y	DELTA/WYE	TS	TAMPER SWITCH		CAPACITOR		BELL FOR FIRE ALARM SYSTEM		FIRE EXTINGUISHER, DRY CHEMICAL ABC RATED
DACT	DIGITAL ALARM COMMUNICATOR TRANSMITTER	TV	TELEVISION		GROUND		FIRE EXTINGUISHER, HALON TYPE		GAS DETECTOR
DB	DIRECT BURIAL	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR		MULTI-OUTLET STRIP (PLUGMOLD)		FLAME DETECTOR		
DN	DOWN	UG	UNDERGROUND		TRANSFORMER				
DP\ST	DOUBLE POLE-SINGLE THROW	UH	UNIT HEATER		LIGHTING PANELBOARD (IN ONE-LINE OR RISER DIAGRAMS)				
EC	EMPTY CONDUIT	UV	UNIT VENTILATOR		CIRCUIT BREAKER (GENERAL), 2 POLE				
EF	EXHAUST FAN	V	VOLTAGE OR VOLTS		CIRCUIT BREAKER (GENERAL), 3 POLE OR MOLDED CASE SWITCH				
EG	EQUIPMENT GROUND	VFD	VARIABLE FREQUENCY DRIVE		GROUND FAULT PROTECTED CIRCUIT BREAKER, 3 POLE				
EJ	EXPANSION JOINT	W	WIRE		GROUND FAULT PROTECTED CIRCUIT BREAKER, ONE LINE DIAGRAM REPRESENTATION				
EL	ELEVATION	WP	WEATHERPROOF						
ELEC	ELECTRIC	W/	WITH						
EOL	END-OF-LINE	XFMR	TRANSFORMER						
EMERG	EMERGENCY								
EM#	EMERGENCY LIGHT								
ES	EMERGENCY SOLENOID								
EUH	ELECTRIC UNIT HEATER								
EW	ELECTRIC WATER COOLER								
EW	ELECTRIC WALL HEATER OR WATER HEATER								
EX	EXISTING								
FA	FIRE ALARM								
FACP	FIRE ALARM CONTROL PANEL								
FCU	FAN COIL UNIT								
FIXT	FIXTURE								
FTG	FITTING								
FOR	'FORWARD-OFF-REVERSE' SELECTOR SWITCH								
FS	FLOAT SWITCH								
FSS	FUSED SAFETY SWITCH								
FVNR	FULL VOLTAGE, NON-REVERSING								
GEN	GENERATOR								
GFCI	GROUND FAULT CURRENT INTERRUPTING								
GND	GROUND								
GNDG	GROUNDING								
HOA	'HAND-OFF-AUTOMATIC' SELECTOR SWITCH								
HP	HORSEPOWER								
HPU	HEAT PUMP UNIT								
HTC	HIGH TEMPERATURE CUTOFF								
JB	JUNCTION BOX								
KVA	KILOVOLT-AMPERES								
KWH	KILOWATT-HOUR								
KCML	THOUSAND CIRCULAR MILS								
LF	LIGHTING FIXTURE (LUMINAIRE)								
LOR	'LOCAL-OFF-REMOTE' SELECTOR SWITCH								
LTG	LIGHTING								
LTS	LIGHTS								
LS	LIMIT SWITCH								
LV	LOW VOLTAGE								
LVDT	LINEAR VARIABLE DIFFERENTIAL TRANSFORMER								
MATV	MASTER ANTENNA TELEVISION								
MAU	MAKE UP AIR UNIT								
M/C	MAGNETIC CONTRACTOR CONTROL								
MCB	MAIN CIRCUIT BREAKER								
MCP	MOTOR CIRCUIT PROTECTOR								
MCC	MOTOR CONTROL CENTER								
MDP	MAIN DISTRIBUTION PANEL								
MFR	MANUFACTURER								
MH	MANHOLE								
MIN	MINIMUM								
MLO	'MAIN LUGS ONLY'								
MTG HGT	MOUNTING HEIGHT								
MTD	MOUNTED								
MV	MEDIUM VOLTAGE								
NA	NOT APPLICABLE								
NC	NORMALLY CLOSED								
NEC	NATIONAL ELECTRICAL CODE								
NFSS	NON-FUSIBLE SAFETY SWITCH								
NL	NON LINEAR								
NO	NORMALLY OPEN								
NS	NORMAL SOLENOID								
NTS	'NOT TO SCALE'								
OH	OVERHEAD								
OL	OVERLOAD								
P	POLE								
PMT	PAD MOUNTED TRANSFORMER								
OT	OVER TEMPERATURE								
PH OR ∅	PHASE								
PNL	PANEL								

SYMBOL	DESCRIPTION
	SIGNIFIES EXISTING RACEWAY AND WIRES UNLESS OTHERWISE NOTED
	SIGNIFIES ONE HOT WIRE AND ONE NEUTRAL WIRE BACK TO A LIGHTING PANEL BOARD (120 VOLT) UNLESS OTHERWISE NOTED
	SIGNIFIES TWO HOT WIRES AND ONE NEUTRAL WIRE BACK TO A LIGHTING PANELBOARD (240 VOLT) UNLESS OTHERWISE NOTED
	SIGNIFIES MULTIPLE CIRCUITS IN RACEWAY
	SIGNIFIES A CONNECTION OF TWO WIRES (1-HOT, 1 NEUTRAL) BETWEEN TWO RECEPTACLES, LIGHTS, ETC., UNLESS OTHERWISE NOTED
	CONDUIT WITH PULL WIRE OR GROUND WIRE
	SIGNIFIES A CONDUIT CARRYING TWO SWITCH WIRES BETWEEN TWO 3-WAY SWITCHES AND CARRYING TWO POWER WIRES (1-HOT, 1-NEUTRAL) TO THE NEXT FIXTURE UNLESS OTHERWISE NOTED
	SIGNIFIES THREE HOT WIRES GOING TO A 3∅ MOTOR CONTROL CENTER (USUALLY FROM A MOTOR OR A 3∅ HEATER) UNLESS OTHERWISE NOTED
	SINGLE POLE SWITCH UNLESS OTHERWISE NOTED
	KEY OPERATED SWITCH
	SWITCH WITH PILOT LIGHT
	DIMMER SWITCH
	TIME SWITCH
	3-WAY SWITCH
	4-WAY SWITCH
	WEATHERPROOF SWITCH
	MANUAL STARTING SWITCH WITH OL PROTECTION (FOR FRACTIONAL HP MOTORS)
	120 VOLT DUPLEX RECEPTACLE OUTLET (1-HOT AND 1-NEUTRAL WIRE)
	SWITCHED DUPLEX RECEPTACLE
	120 VOLT DUPLEX RECEPTACLE OUTLET-WEATHERPROOF
	120 VOLT SINGLE RECEPTACLE OUTLET
	DUPLEX RECEPTACLE, FLUSH FLOORBOX MOUNTED
	MOTOR CIRCUIT PROTECTOR
	MOTOR CONTROL CENTER
	MAIN DISTRIBUTION PANEL
	MANUFACTURER
	MANHOLE
	MINIMUM
	'MAIN LUGS ONLY'
	MOUNTING HEIGHT
	MOUNTED
	MEDIUM VOLTAGE
	NOT APPLICABLE
	NORMALLY CLOSED
	NATIONAL ELECTRICAL CODE
	NON-FUSIBLE SAFETY SWITCH
	NON LINEAR
	NORMALLY OPEN
	NORMAL SOLENOID
	'NOT TO SCALE'
	OVERHEAD
	OVERLOAD
	POLE
	PAD MOUNTED TRANSFORMER
	OVER TEMPERATURE
	PHASE
	PANEL

SYMBOL	DESCRIPTION
	THERMOSTAT
	MOTOR DISCONNECT SWITCH (NONFUSED SAFETY SWITCH) UNLESS OTHERWISE NOTED
	MOTOR (A NUMBER SUBSTITUTED FOR THE LETTER M IN THE CIRCLE IS THE NAMEPLATE HP)
	EXPLOSION PROOF JUNCTION BOX
	JUNCTION BOX - SMALL
	JUNCTION BOX - SQUARE\RECTANGULAR - LARGE
	MAGNETIC COMBINATION STARTER
	CCTV CAMERA OUTLET
	CABLE TV OR ANTENNA CABLE OUTLET
	CCTV MONITOR OUTLET
	TELEPHONE OUTLET FLOORBOX MOUNTED
	TELEPHONE OUTLET
	COMPUTER DATA OUTLET
	DATA OUTLET, FLOORBOX MOUNTED
	GENERATOR/PHASE CONVERTER
	EXHAUST FAN/VENTILATOR
	COMBINATION POWER/TELEPHONE FLOORBOX
	CONDUIT SLEEVED THROUGH WALL
	CONDUIT TURNED UP
	CONDUIT TURNED DOWN
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	SPEAKER GENERAL
	CLOCK, SINGLE FACE
	CLOCK, DOUBLE FACE
	FLUORESCENT LTG. FIXTURE - CONTINUOUS ROW
	LIGHTING ARRESTOR
	CAPACITOR
	GROUND
	MULTI-OUTLET STRIP (PLUGMOLD)
	TRANSFORMER
	LIGHTING PANELBOARD (IN ONE-LINE OR RISER DIAGRAMS)
	CIRCUIT BREAKER (GENERAL), SINGLE POLE, OR A REPRESENTATION OF A 2 OR 3 POLE BREAKER ON THE ONE LINE DIAGRAM.
	RELAY CONTACTS (NORMALLY OPENED)
	RELAY CONTACTS (NORMALLY CLOSED)
	THERMAL OVERLOAD PROTECTION
	MOTOR (IN CONTROL CIRCUIT DRAWINGS)
	FUSE
	DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	AUTOMATIC TRANSFER SWITCH
	FLOAT SWITCH
	TEMPERATURE SWITCH (THERMOSTAT)
	PRESSURE SWITCH
	LIMIT SWITCH
	DOT INDICATES A CONNECTION OF TWO WIRES
	RELAY OR CONTACTOR COIL R, CR, AR, ETC. IN THE SYMBOL
	SOLENOID VALVE COIL
	TIMER MOTOR
	PILOT LIGHT IN CONTROL CIRCUIT

SYMBOL	DESCRIPTION
	REMOTE LOCATION FROM STARTER
	ELAPSED TIME METER
	MOTOR STARTER COIL
	AUTO TRANSFORMER
	TIMER CLUTCH (OR SOLENOID)
	IN CONTROL CIRCUITS INFERS MECHANICAL INTERLOCKING IN SITE PLANS AND BUILDING PLANS MAY INFER UNDERGROUND OR CONCEALED CONDUITS, HIDDEN LINES, ETC.
	KEY INTERLOCK
	CIRCUIT BREAKER; THERMAL MAGNETIC TYPE, SINGLE POLE
	CIRCUIT BREAKER; THERMAL MAGNETIC TYPE, 2 POLE
	CIRCUIT BREAKER; THERMAL MAGNETIC TYPE, 3 POLE
	CIRCUIT BREAKER; MAGNETIC TYPE, SINGLE POLE
	BATTERY
	CIRCUIT BREAKER; MAGNETIC ONLY TYPE, 2 POLE
	CIRCUIT BREAKER; MAGNETIC ONLY TYPE, 3 POLE
	CIRCUIT BREAKER (GENERAL), 2 POLE
	CIRCUIT BREAKER (GENERAL), 3 POLE OR MOLDED CASE SWITCH

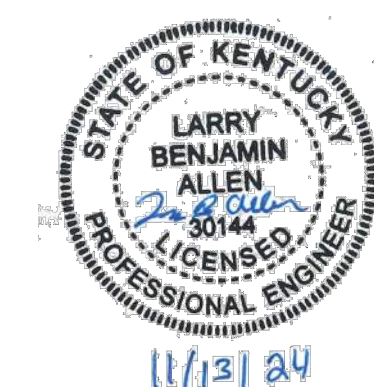


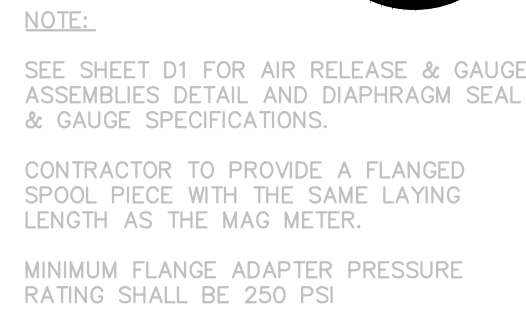
ELECTRICAL LP PANEL SCHEDULE



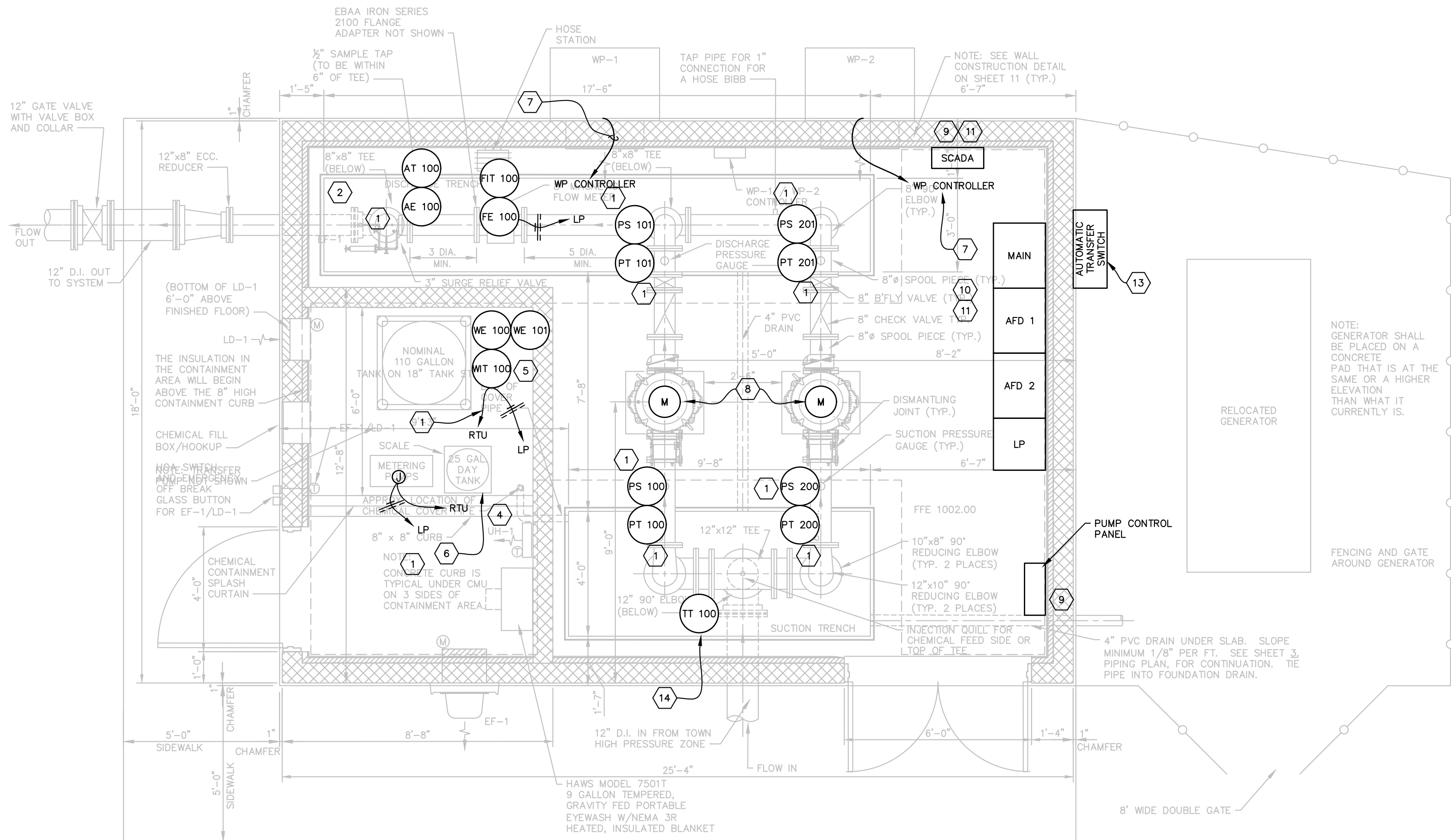
- NOTES
1. PROVIDE NEMA 4X SINGLE PHASE SIZE 1 COMBINATION STARTER WITH DISCONNECT. SEE EXHAUST FAN CONTROL CIRCUIT
2. CHEMICAL SCALE WITH PRIMARY CABLE PER DIVISION 11
3. PROVIDE 2 #18 STP, 3/4"C FOR HYPO SPEED AND 4 #14, 1 #14 GND, 3/4" C FOR HYPO CALL TO RUN SIGNALS.
4. PROVIDE HAND-OFF-AUTO SWITCH WITH PILOT LIGHT AND A BREAK-GLASS EMERGENCY SWITCH FOR FAN EF-1
5. PROVIDE THERMOSTAT CABLE 1 #14G, 3/4"C
6. 2-2#18 STP, 1#14G, 3/4"C
7. PROVIDE #2 GEC, 3/4"C AND PROVIDE #2 BUILDING GROUND LOOP PER DETAIL
8. RE-INSTALL EXISTING BACKUP GENERATOR AND TRANSFER SWITCH. MOUNT TRANSFER SWITCH TO WALL. RE-INSTALL #2 GEC SERVICE TO GENERATOR. INCLUDE FLEX CONNECTION BETWEEN GAS SERVICE AND GENERATOR SKID. GAS SERVICE TO BE 11-14 IN W.C. WITH FLOW RATE OF 1807432 BTU/HR.
9. INSTALL NEW CONDUIT BETWEEN TRANSFER SWITCH AND GENERATOR FOR POWER CONDUCTORS AND CONTROL SIGNALS. SEE ONE-LINE FOR POWER CONDUCTORS AND INSTALL (6) #2 THWN FOR CONTROL SIGNALS.

DIVISION	—
CONTRACT NO.	691—21—01
DATE	SEPTEMBER 2021
SHEET NO.	E02 OF E07





DIVISION	—
CONTRACT NO.	691-21-01
DATE	SEPTEMBER 2021
SHEET NO.	E03 OF E07



NOTE:
MINIMUM DISMANTLING JOINT
SUCTION PRESSURE IS 150 PSI

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

NOTE:

SEE SHEET D1 FOR AIR RELEASE & GAUGE
ASSEMBLIES DETAIL AND DIAPHRAGM SEAL
& GAUGE SPECIFICATIONS.

CONTRACTOR TO PROVIDE A FLANGED
SPOOL PIECE WITH THE SAME LAYING
LENGTH AS THE MAG METER.

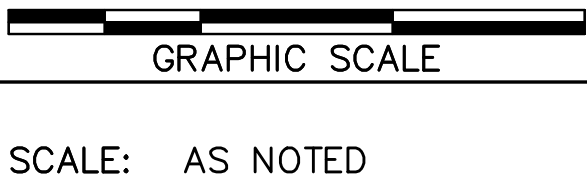
MINIMUM FLANGE ADAPTER PRESSURE
RATING SHALL BE 250 PSI

INSTRUMENTATION SCHEDULE								
TAG	DESCRIPTION	TYPE	RANGE	UNITS	OUTPUT	POWER	SENSOR MOUNTING	TRANS. MOUNTING
FT-100	FLOW TRANSMITTER	FLOW	0-500	GPM	4-20 mA	LOOP	ANSI FLANGE	ANSI FLANGE
PT-100	SUCTION PRESSURE TRANSMITTER	PRESSURE	0-250	PSIG	4-20 mA	LOOP	ANSI FLANGE	ANSI FLANGE
PT-101	DISCHARGE PRESSURE TRANSMITTER	PRESSURE	0-250	PSIG	4-20 mA	LOOP	ANSI FLANGE	ANSI FLANGE
PT-200	SUCTION PRESSURE TRANSMITTER	PRESSURE	0-250	PSIG	4-20 mA	LOOP	ANSI FLANGE	ANSI FLANGE
PT-201	DISCHARGE PRESSURE TRANSMITTER	PRESSURE	0-250	PSIG	4-20 mA	LOOP	ANSI FLANGE	ANSI FLANGE
WT-100	SCALE TRANSMITTER	SCALE	0-500	LBS	4-20 mA	LOOP	PAD	PAD
WE-100	DAY TANK SCALE	SCALE	0-500	LBS	4-20 mA	LOOP	PAD	PAD
WE-101	BULK TANK SCALE	SCALE	0-500	LBS	4-20 mA	LOOP	PAD	PAD
AT-100	RESIDUAL CHLORINE	CHLORINE ANALYZER	0-5	MG/L	4-20 mA	120VAC	WALL MOUNT	WALL MOUNT
TIT-100	AMBIENT AIR TEMPERATURE / HUMIDITY TRANSMITTER	TEMPERATURE	0-100 F	DEGREES	4-20 mA	LOOP		WALL
PS-100	SUCTION PRESSURE ALARM	PRESSURE SWITCH			DI	LOOP	ANSI FLANGE	ANSI FLANGE
PT-100	DISCHARGE PRESSURE ALARM	PRESSURE SWITCH			DI	LOOP	ANSI FLANGE	ANSI FLANGE
PS-201	SUCTION PRESSURE ALARM	PRESSURE SWITCH			DI	LOOP	ANSI FLANGE	ANSI FLANGE
PS-200	DISCHARGE PRESSURE ALARM	PRESSURE SWITCH			DI	LOOP	ANSI FLANGE	ANSI FLANGE

SCADA IO TABLE												
TAG	TYPE	UNIT	CONTROL	MONITOR	TREND	HISTORIZE	TOTALIZE	ALARM	AVERAGE	REPORT	SECURITY	NOTES
WT-100	AI	LBS	X	X						X		
AIT-100	AI	MB / L	X	X	X	X	X	X		X		ALARM LOW AND HIGH LEVELS, PROVIDE HOURLY LOG REPORT
HYPO METER PUMP #1 SPEED FEEDBACK	AI	%		X	X	X	X	X				
HYPO METER PUMP #2 SPEED FEEDBACK	AI	%		X	X	X	X	X				
FT-100	AI	FT		X	X	X	X					
PT-100	AI	PSI		X	X	X	X	X				SUCTION PRESSURE
PT-101	AI	PSI		X	X	X	X	X				DISCHARGE PRESSURE
PT-200	AI	PSI		X	X	X	X	X				SUCTION PRESSURE
PT-201	AI	PSI		X	X	X	X	X				DISCHARGE PRESSURE
RTU BATTERY ALARM	AI	V						X		X		
PUMP 1 SPEED FEEDBACK	AI	HZ		X	X	X						
PUMP 2 SPEED FEEDBACK	AI	HZ		X	X	X						
PUMP 3 SPEED FEEDBACK	AI	HZ		X	X	X						
AMBIENT AIR TEMPERATURE	AI	DEGREES		X	X			X		X		ALARM AT 82 DEGREES
AMBIENT AIR HUMIDITY	AI	PERCENT		X	X			X				
PUMP 1 SPEED COMMAND	AO	HZ	X									
PUMP 2 SPEED COMMAND	AO	HZ	X									
PUMP 3 SPEED COMMAND	AO	HZ	X									
HYPO METER PUMP #1 RUN STATUS	DI			X		X		X		X		ALARM FAIL TO START, REPORT # OF STARTS AND RUNTIME
HYPO METER PUMP#1 FAULT	DI			X		X		X		X		
HYPO METER PUMP #2 RUN STATUS	DI			X		X		X		X		ALARM FAIL TO START, REPORT # OF STARTS AND RUNTIME
HYPO METER PUMP#2 FAULT	DI			X		X		X		X		
HVAC SUMMARY ALARM	DI			X		X		X				
FT-100	DI	FT		X	X	X	X	X				
PS-100	DI			X				X				SUCTION PRESSURE ALARM
PS-101	DI			X				X				DISCHARGE PRESSURE ALARM
PS-200	DI			X				X				SUCTION PRESSURE ALARM
PS-201	DI			X				X				DISCHARGE PRESSURE ALARM
RTU POWER LOSS ALARM	DI							X		X		
RTU SURGE PROTECTION ALARM	DI							X		X		
PUMP 1 RUNNING STATUS	DI									X		
PUMP 1 OVERTEMP	DI							X				
PUMP 1 DRIVE FAULT	DI							X				
PUMP 2 RUNNING STATUS	DI									X		
PUMP 2 OVERTEMP	DI							X				
PUMP 2 DRIVE FAULT	DI							X				
PUMP 3 RUNNING STATUS	DI									X		
PUMP 3 OVERTEMP	DI							X				
PUMP 3 DRIVE FAULT	DI							X				
HYPO METER PUMP #1 PERMISSIVE	DO		X			X						
HYPO METER PUMP #2 PERMISSIVE	DO		X			X						
PUMP 1 START	DO		X									
PUMP 2 START	DO		X									
PUMP 3 START	DO		X									

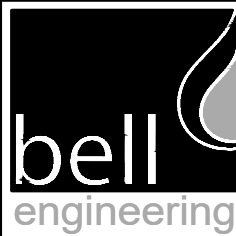
- NOTES:
1. PROVIDE 2 #18 STP, 1 #14, 3/4" C. FROM METER TO RTU
 2. CHEMICAL SCALE WITH PRIMARY CABLE PER DIVISION 11
 3. PROVIDE 2 #18 STP, 3/4" C FOR HYPO SPEED AND 4 #14, 1 #14 GND, 3/4" C FOR HYPO CALL TO RUN SIGNALS.
 4. PROVIDE 10 #18 STP, 1" C AND 12 #14, 1#14 GND, 3/4" C
 5. PROVIDE LOCKABLE 20A / 1 P SAFETY SWITCH FOR VALVE
 6. HYPO DISCHARGE SAFETY VALVE, PROVIDE INTERLOCK WITH PUMP CONTROL PANEL, IF NO PUMPS ARE RUNNING, THE VALVE IS CLOSED.
 7. PROVIDE THERMOSTAT CABLE 1 #14G, 3/4" C
 8. 2-2#18 STP, 1#14G, 3/4" C
 9. PROVIDE (8) #18 STP, 1#14G, 1" C FROM PUMP CONTROL PANEL TO SCADA PANEL. SIGNALS FOR OVER TEMP, DRIVE FAULT, AND SCADA FAULT FOR 2 PUMPS.
 10. PROVIDE (6) #18 STP, 1#14G, 1" C FROM PUMP CONTROL PANEL TO MCC. SIGNALS FOR PUMP CALL AND RUN STATUS, AFD1, AFD2.
 11. PROVIDE (4) #18 STP, 1#14G, 1" C FROM SCADA PANEL TO MCC. SIGNALS FOR PUMP SPEED REFERENCE AND PUMP SPEED FEEDBACK. AFD 1, AFD 2, AND SPARE FOR AFD 3
 12. 2-2#18 STP, 1#14G, 3/4" C BETWEEN HVAC CONTROL PANEL AND SCADA
 13. INSTALL NEW CONDUIT BETWEEN TRANSFER SWITCH AND GENERATOR FOR POWER CONDUCTORS AND CONTROL SIGNALS, SEE ONE-LINE FOR POWER CONDUCTORS AND INSTALL (6) #12 THWN FOR CONTROL SIGNALS.
 14. AMBIENT AIR TEMPERATURE AND HUMIDITY INDICATING TRANSMITTER, OMEGA HX93B OR EQUAL, WALL MOUNTED, (3) #18 STP IN 3/4" CONDUIT. CONNECT TO STATION SCADA ANALOG INPUT. ALARM ON HIGH TEMPERATURE 82 DEGREES.

DESIGNER	LBA	DATE	BY	REVISION
DRAWN	TEW			
CHECKED	LBA			
APPROVED	LBA			



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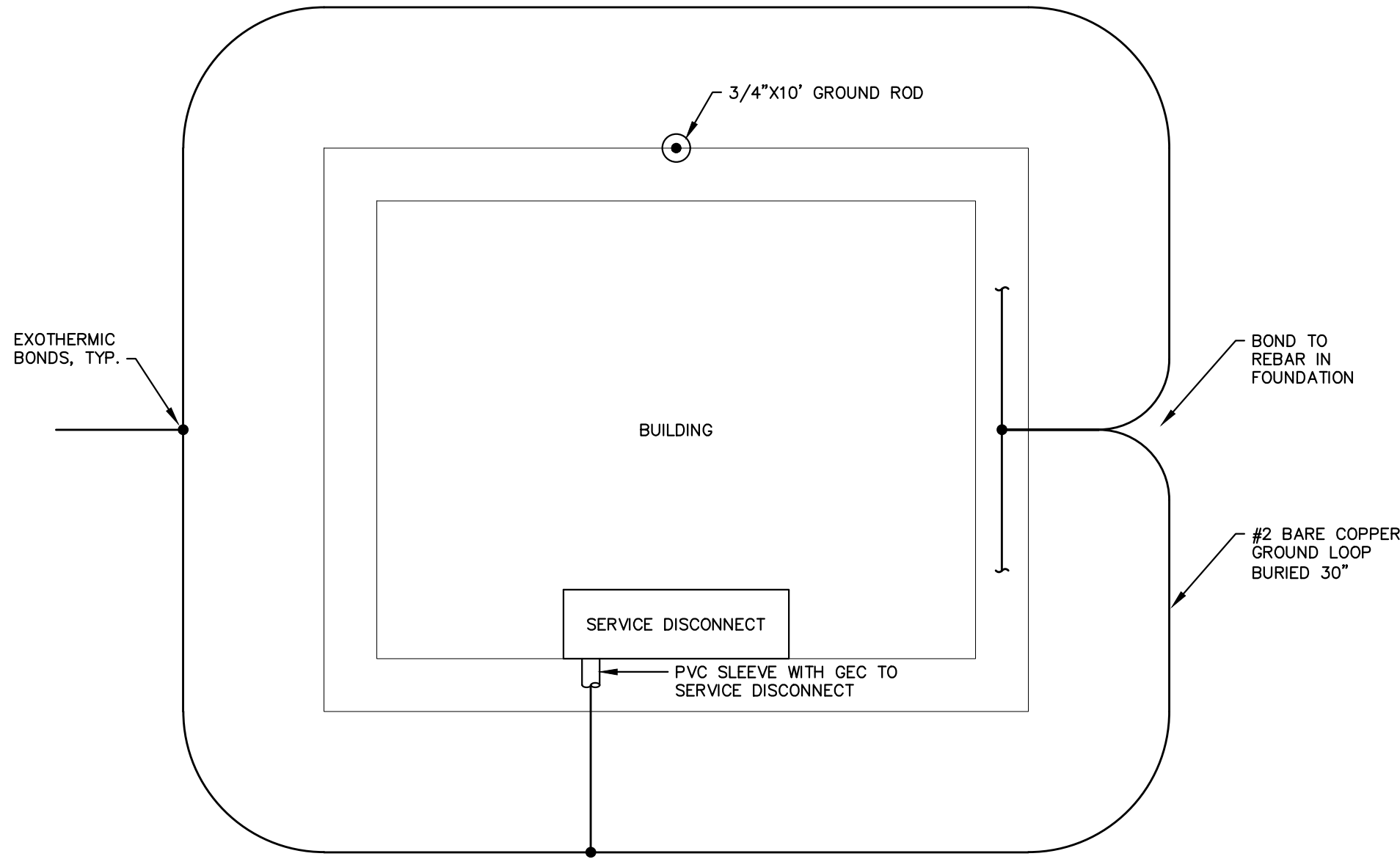
WATER SYSTEM IMPROVEMENTS
SHOPE'S CREEK ROAD AREA
CANNONBURG WATER DISTRICT
CANNONBURG, KENTUCKY

INSTRUMENTATION PLAN

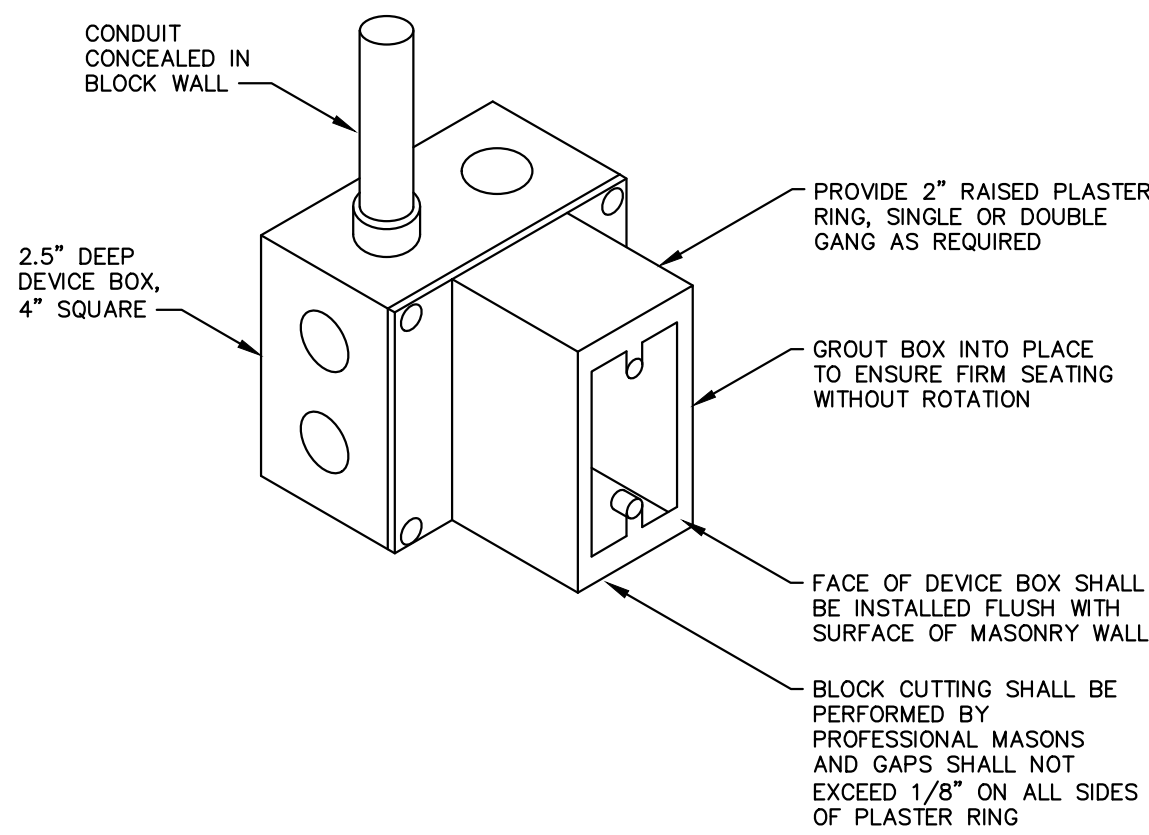
DIVISION	-
CONTRACT NO.	691-21-01
DATE	SEPTEMBER 2021
SHEET NO.	E04 OF E07



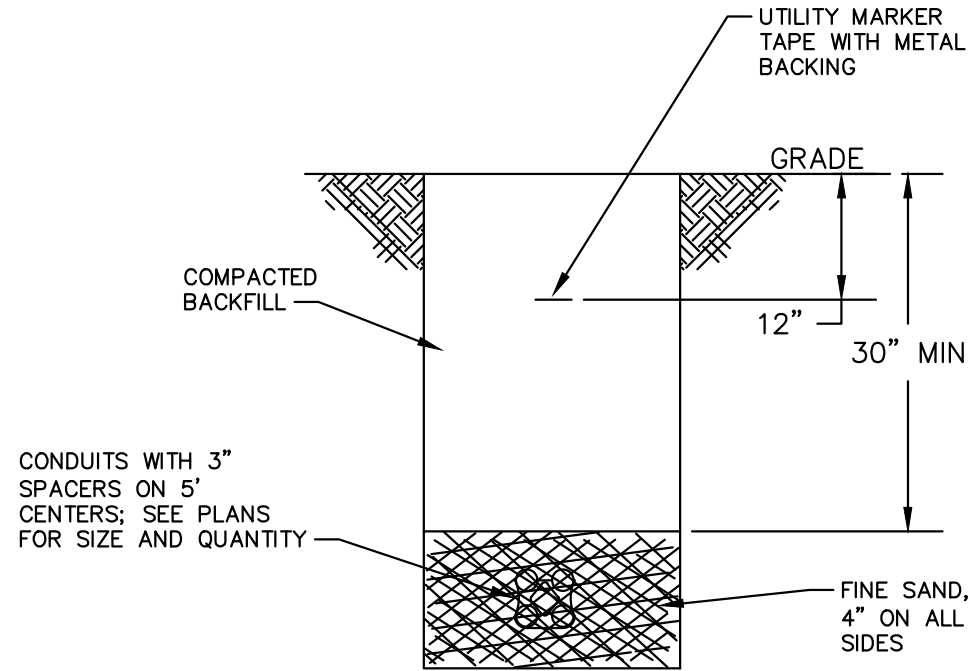
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BUILDING GROUNDING DETAIL
NOT TO SCALE



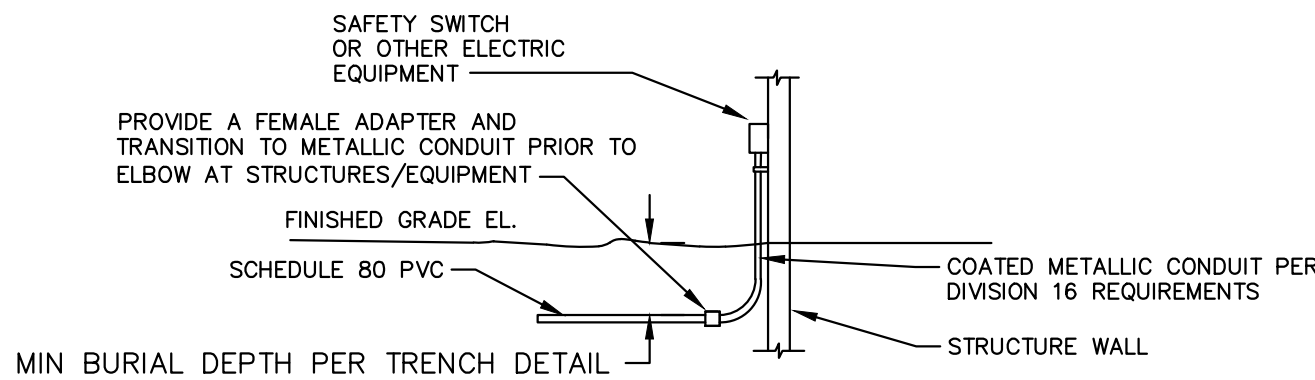
TYPICAL OUTLET
JUNCTION BOX DETAIL
NOT TO SCALE



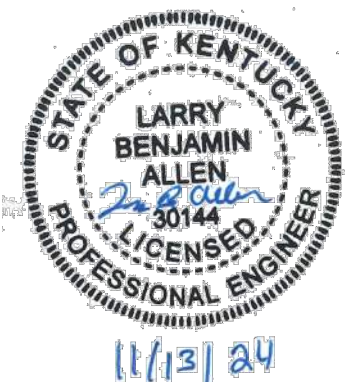
TYPICAL TRENCH DETAIL 1
NOT TO SCALE

TRENCHING NOTES:

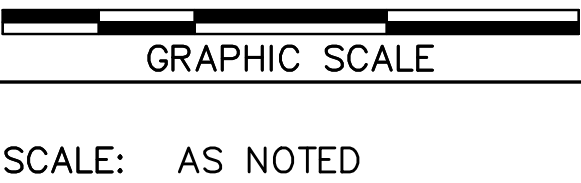
- PROVIDE PULL CORD IN ALL CONDUITS.
- UTILITY MARKER TAPE SHALL RUN THE ENTIRE LENGTH OF DUCT BANK.
- MAINTAIN MINIMUM 36" SPACING BETWEEN OTHER SITE PIPING, INCLUDING WATER, AND GAS.



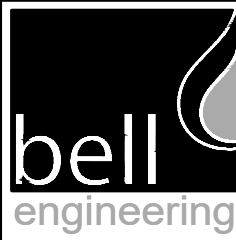
TYPICAL UNDERGROUND PVC CONDUIT
TRANSITION TO METALLIC CONDUIT DETAIL 3
NOT TO SCALE



DESIGNER	LBA	DATE	BY	REVISION
DRAWN	TEW			
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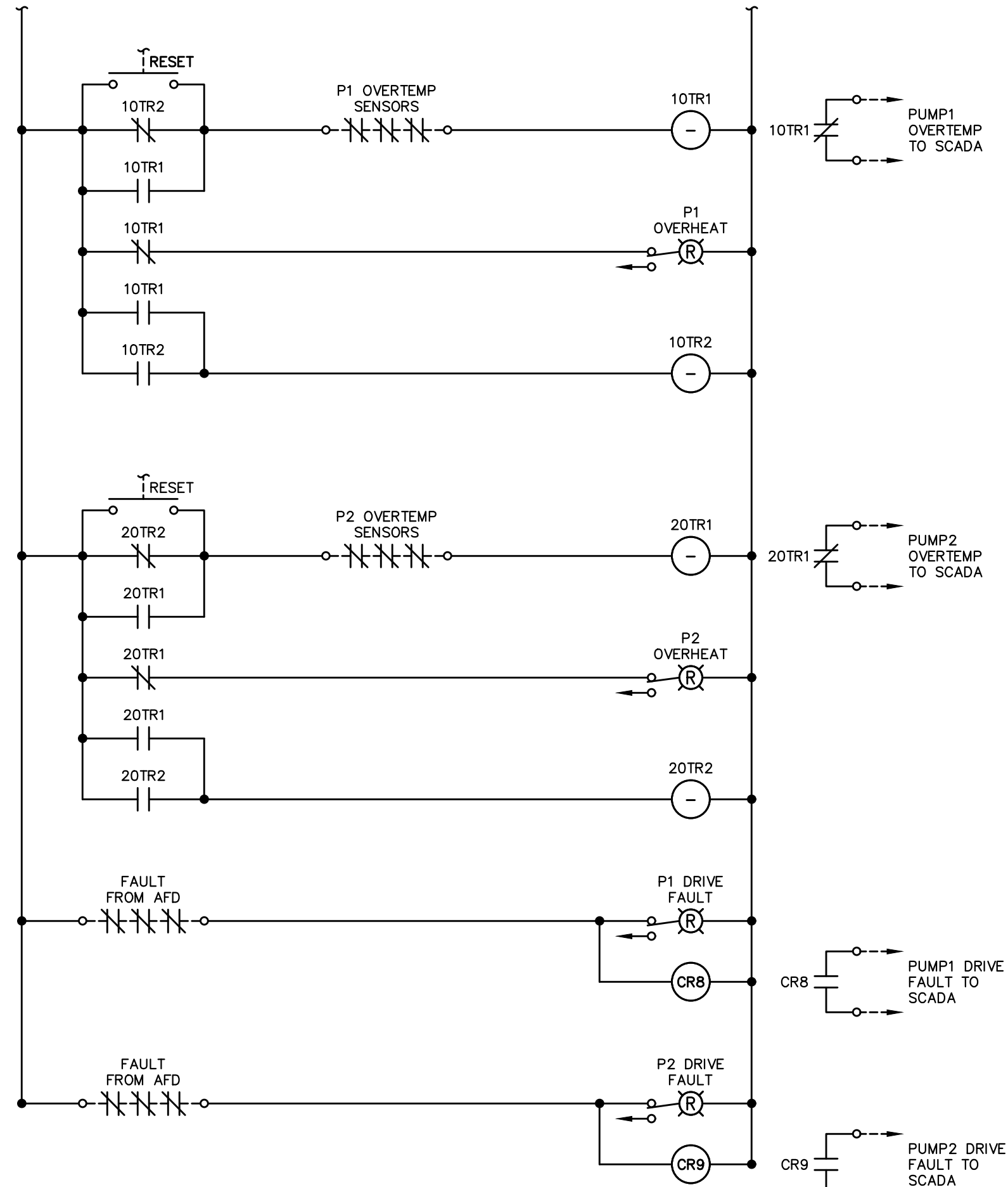
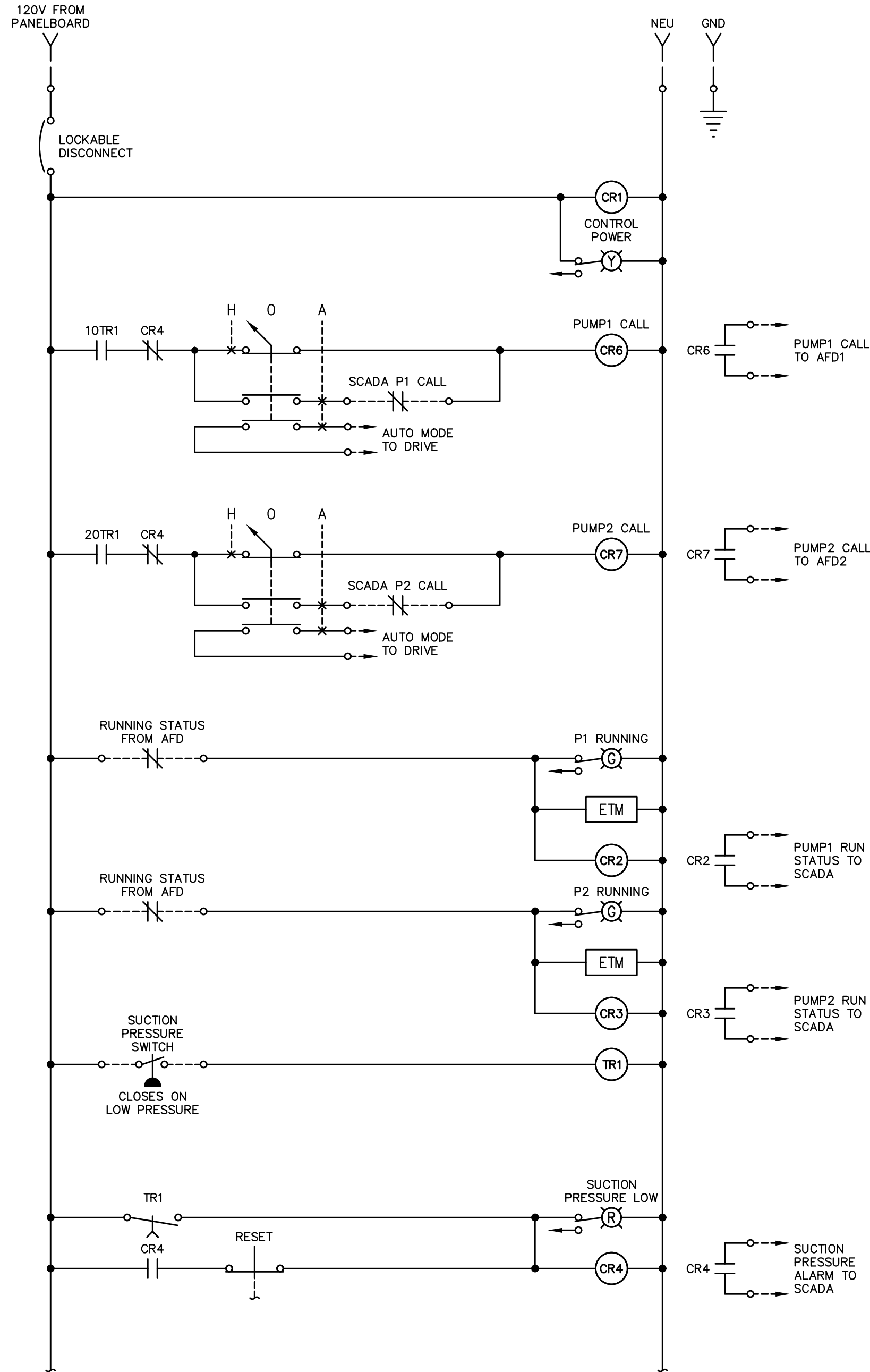


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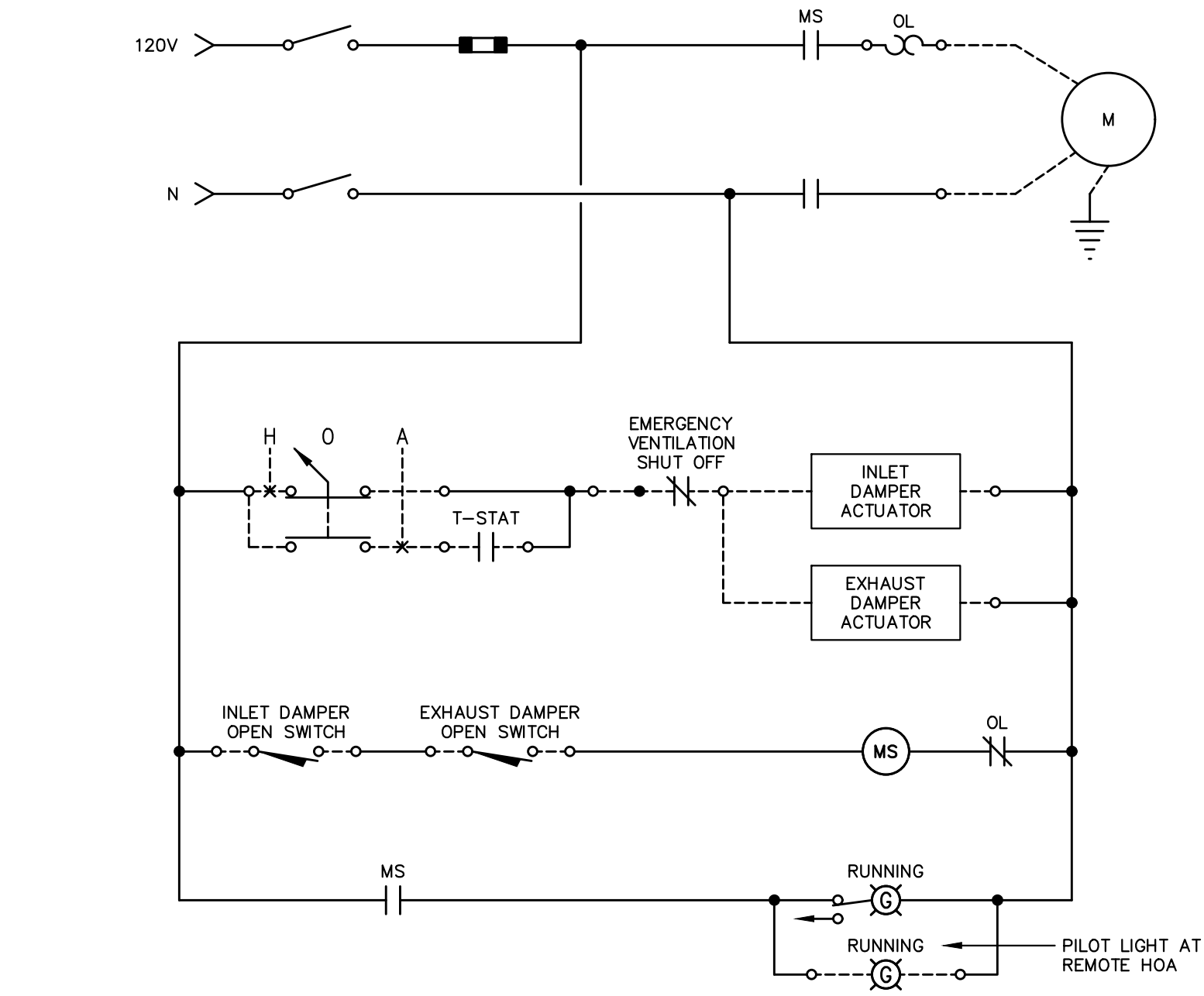
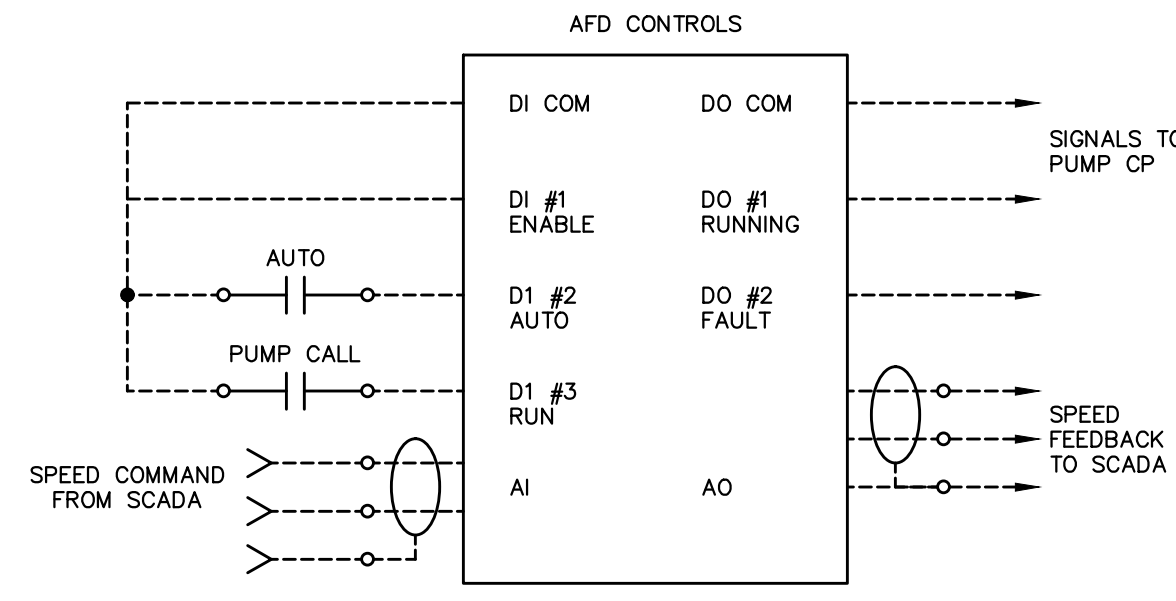
WATER SYSTEM IMPROVEMENTS
SHOPS CREEK ROAD AREA
CANNONSURG WATER DISTRICT
CANNONSURG, KENTUCKY

ELECTRICAL DETAILS

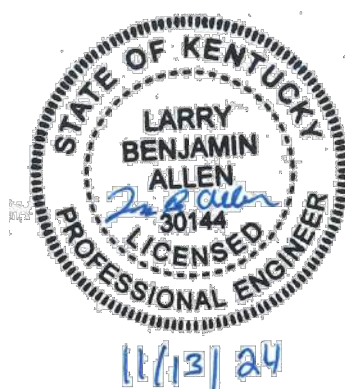
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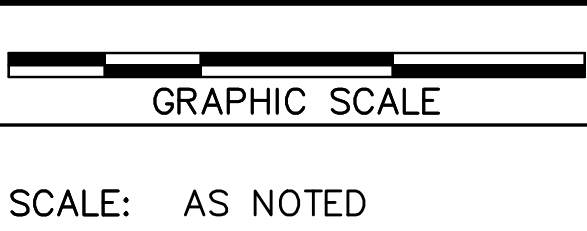
- IN HAND MODE, SPEED SHALL BE SET FROM DRIVE INTERFACE MODULE. IN AUTO MODE, SPEED SHALL BE SET IN PRESET FREQUENCY PARAMETER.
- DRIVES SHALL BE WALL-MOUNTED SEPARATE FROM PANEL AS INDICATED ON PLANS.
- PANEL TO INCLUDE SPARE SPACE AND TERMINALS TO EXPAND TO 3 PUMP CONTROL PANEL.
- PUMPS RUN ALTERNATING BASED ON TIME.



EXHAUST FAN/LOUVER
CONTROL CIRCUIT WITH REMOTE HOA SWITCH
NOT TO SCALE



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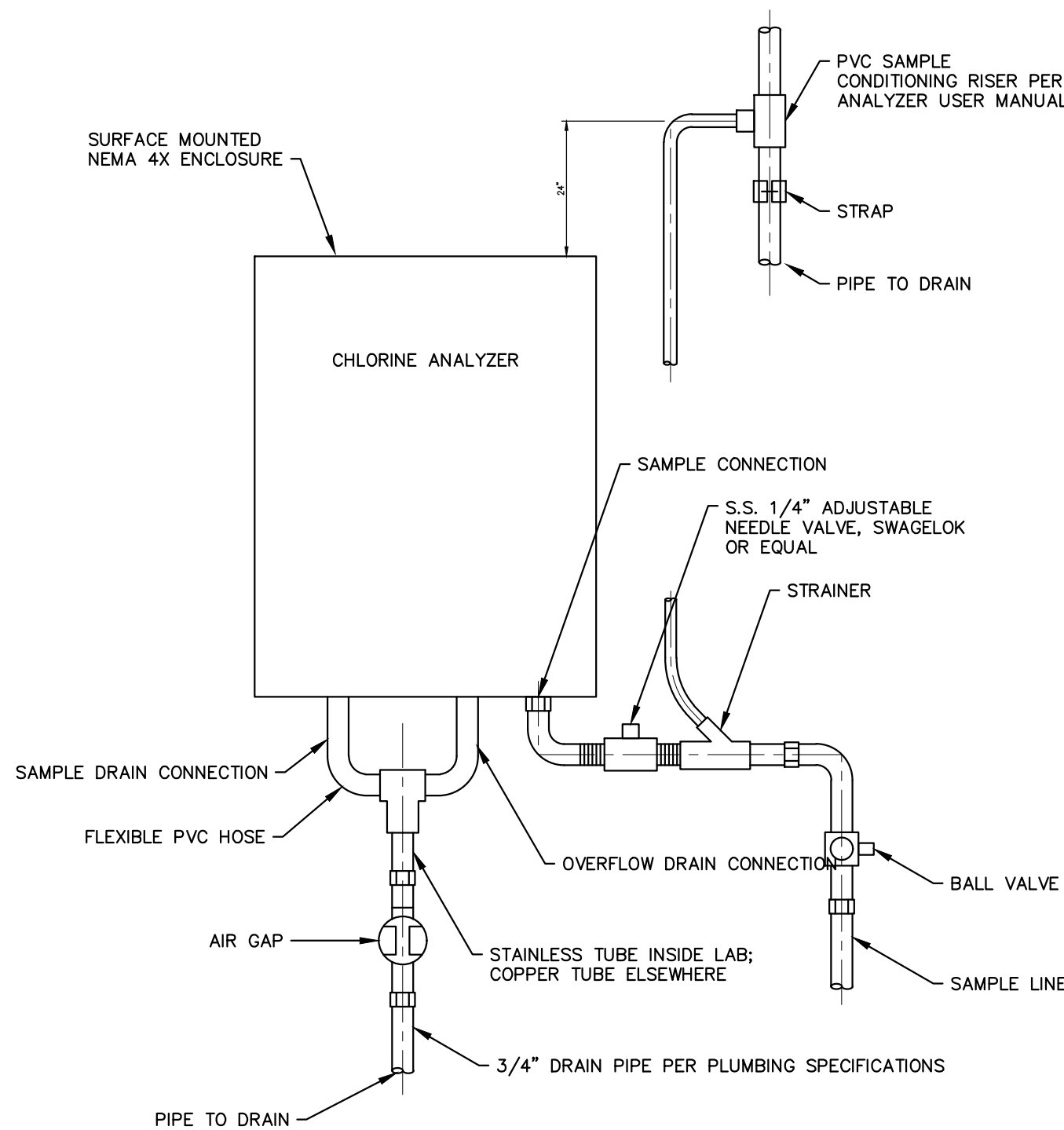
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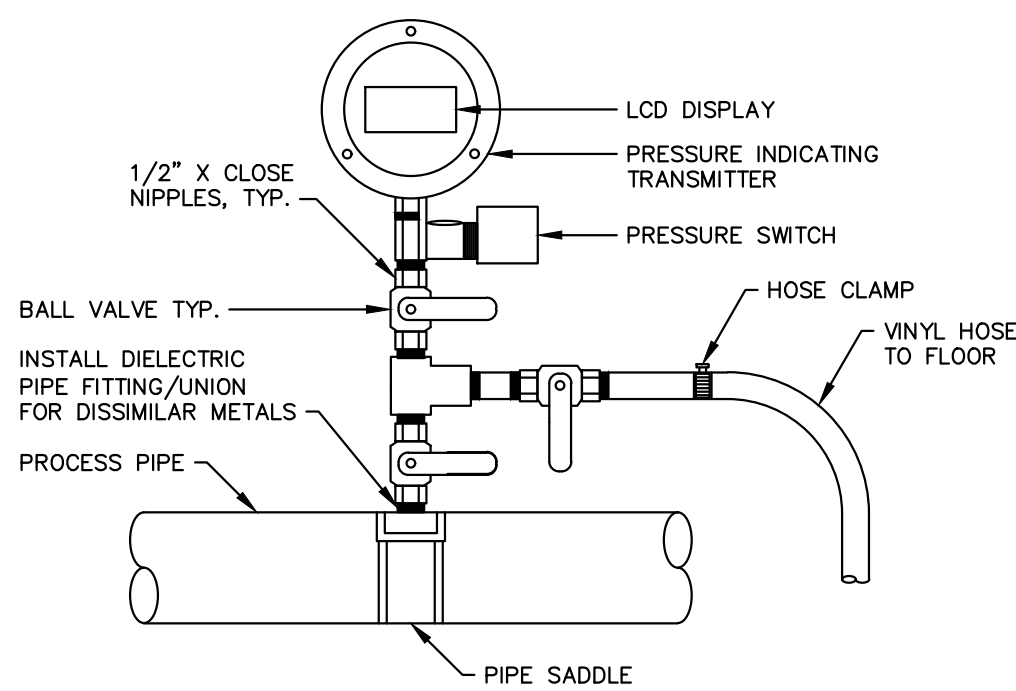
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ELECTRICAL WIRING DIAGRAMS

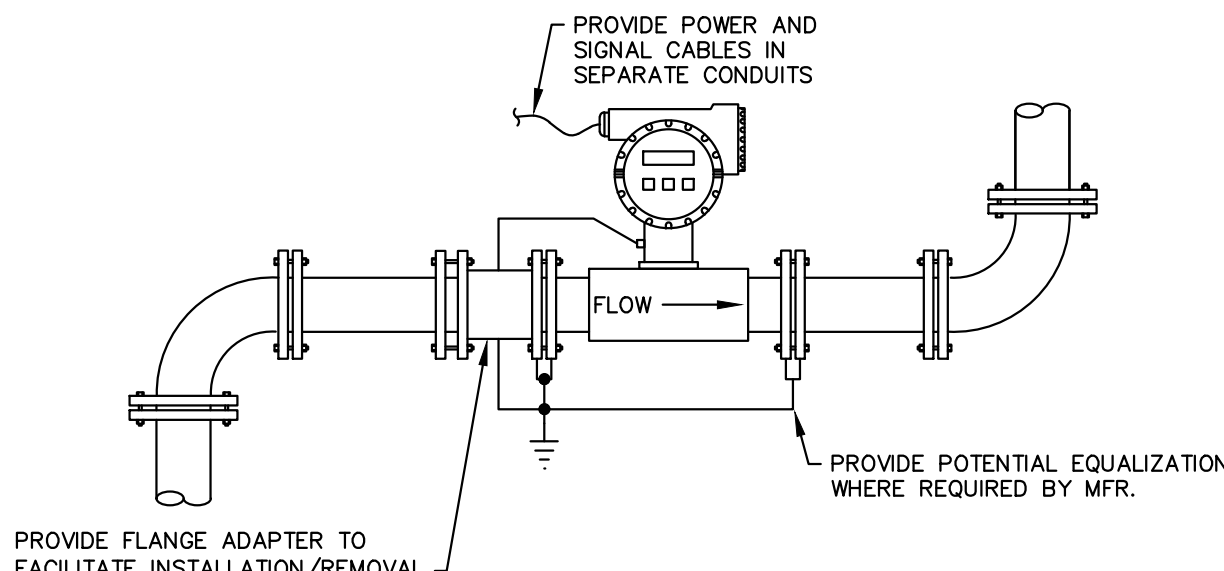
DIVISION	-
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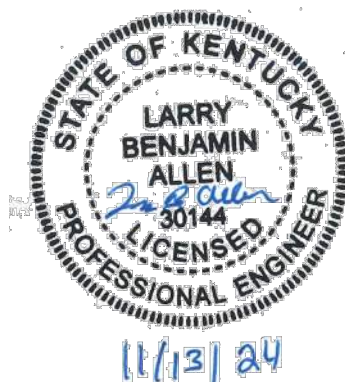
CHLORINE ANALYZER DETAIL
NOT TO SCALE
NOTE: ALL FITTINGS SHALL BE STAINLESS STEEL WHERE AVAILABLE.



PRESSURE SWITCH PIPING DETAIL
NOT TO SCALE



MAGMETER INSTALLATION DETAIL
NOT TO SCALE

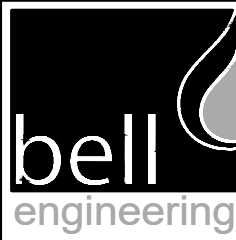


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GRAPHIC SCALE
SCALE: AS NOTED

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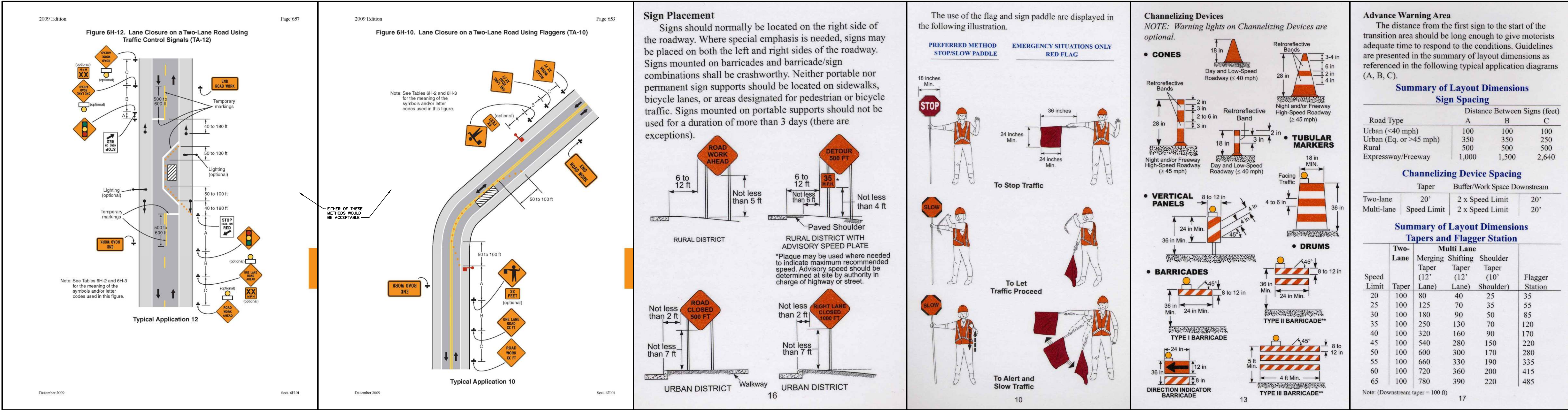


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WATER SYSTEM IMPROVEMENTS
SHOPES CREEK ROAD AREA
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CANNONSBURG, KENTUCKY

INSTRUMENTATION DETAILS

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112.03.01 GENERAL TRAFFIC CONTROL

MAINTAIN THE PORTION OF THE PROJECT USED BY PUBLIC TRAFFIC, AND ADEQUATELY ACCOMMODATE THROUGH AND LOCAL TRAFFIC. THE DEPARTMENT'S INTENT IS FOR THE TRAFFIC CONTROL PLAN AND DEVICES TO PROVIDE THE PUBLIC A SAFE AND MANAGEABLE ROADWAY. IN THE EVENT THE CONTRACTOR FEELS ADDITIONAL MEASURES ARE NECESSARY TO PROTECT THE WORK, THESE CHANGES SHALL BE DISCUSSED WITH THE ENGINEER AND IF AGREED UPON WILL BE PAID AT CONTRACT BID PRICES OR ADDED BY SUPPLEMENTAL AGREEMENT. THE DEPARTMENT WILL BE RESPONSIBLE FOR NORMAL ROUTINE MAINTENANCE ACCORDING TO SUBSECTION 105.11. FURNISH, ERECT, AND MAINTAIN ALL TRAFFIC CONTROL DEVICES, INCLUDING SIGNS, SIGNALS, CHANNELIZATION DEVICES, TEMPORARY PAVEMENT MARKINGS, PILOT CARS AND OTHER ITEMS NECESSARY TO MAINTAIN TRAFFIC ACCORDING TO THE STANDARD DRAWINGS, MUTCD, PLANS, TCP, AND THE ATSSA "QUALITY STANDARD FOR WORK ZONE TRAFFIC CONTROL DEVICES" MANUAL THROUGHOUT THE DURATION OF THE PROJECT.

WORK ZONE TRAFFIC CONTROL (DIST. 9)

PRIOR TO BEGINNING OF WORK ON KENTUCKY TRANSPORTATION RIGHTS-OF-WAY THE CONTRACTOR SHALL HAVE COMPLETED THE KENTUCKY TRANSPORTATION CABINET'S WORK ZONE TRAFFIC CONTROL EMPLOYEE QUALIFICATION PROGRAM. INDIVIDUALS PERFORMING FLAGGING OPERATIONS ON ANY KENTUCKY ROADWAY MUST BE QUALIFIED AND CERTIFIED BY THE KENTUCKY TRANSPORTATION CABINET. INDIVIDUALS WHO PLACE, MONITOR, AND MAINTAIN TRAFFIC CONTROL DEVICES ON PUBLIC ROADWAYS IN KENTUCKY SHALL HAVE SUCCESSFULLY COMPLETED THE WORK ZONE TRAFFIC CONTROL TECHNICIAN PROGRAM. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR PREPARING AND IMPLEMENTING THE TRAFFIC CONTROL PLAN, THE INDIVIDUALS RESPONSIBLE FOR THIS WORK SHALL HAVE SUCCESSFULLY COMPLETED THE WORK ZONE TRAFFIC CONTROL SUPERVISOR PROGRAM. FOR MORE INFORMATION ON THE WORK ZONE TRAFFIC CONTROL EMPLOYEE QUALIFICATION PROGRAM AS PRESENTED BY THE TECHNOLOGY TRANSFER PROGRAM, KENTUCKY TRANSPORTATION CENTER, UNIVERSITY OF KENTUCKY CALL THE CENTER'S TOLL FREE NUMBER 1-800-432-0719 OR CONTACT THE DEPARTMENT OF HIGHWAYS, DISTRICT 9, 822 ELIZAVILLE, FLEMINGSBURG KENTUCKY 41041, PHONE 606-854-2551.



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TRAFFIC CONTROL PLAN

DIVISION	—
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SHEET NO.	TC-1 OF TC-1