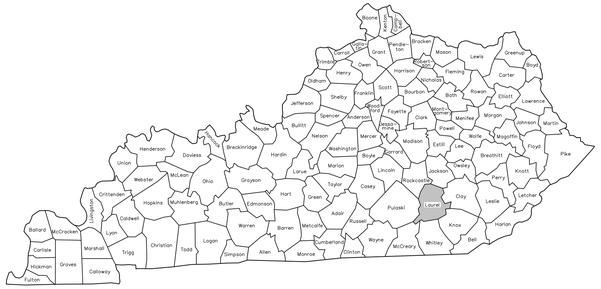
EAST LAUREL WATER DISTRICT

OLD SALEM ROAD/McWHORTER ROAD SYSTEM IMPROVEMENTS

CONTRACT 2

LAUREL COUNTY, KENTUCKY



INDEX OF SHEETS

DESCRIPTION	SHEET NO.
COVER SHEET	
GENERAL NOTES	1
TOPOGRAPHICAL LAYOUT	2
OLD SALEM ROAD (WEST)	3
MAPLESVILLE SCHOOL ROAD	4 - 7
OLD SALEM ROAD (EAST)	8 - 9
HODGE ROAD (ALT 1)	10
NORTH LAUREL HIGH SCHOOL WL (ALT 2)	11
KY 472 PUMP STATION SITE PLAN	12
KY 472 PUMP STATION PLAN/SECTIONS	13
PUMP STATION DETAILS	14
DIRECTIONAL BORE-LITTLE LAUREL RIVER	B1
MISCELLANEOUS DETAILS	D1 - D3
ELECTRICAL PLANS	E1 - E4
STRUCTURAL PLANS	S1 - S5

Prepared By:

KENVIRONS

Civil & Environmental Engineers

STATE OF KENTUCKY JOHN SIMS 36737 LICENSED PROFESSIONAL ENGINEER

Digitally signed by JD Sims
Date: 2025.09.09 11:58:45 -04'00'

STATE OF KENTUCKY JOHN SIMS 36737 LICENSED PROFESSIONAL ENGINEER

QA/QC: _____ DATE: _____

n:\PJ\2020\529\Plans\contract 2\00-Cover.dwg, 6/17/2025 3:26:59 PM, jpowell

GENERAL NOTES

1. Stations shown on the water line are for reference only and do not reflect the actual linear lengths of pipe required for construction. It shall be the responsibility of the Contractor to verify all pipe lengths required.

2. The Contractor shall restrict all construction activities to within the limits of the provided easements, and/or fee parcels secured unless otherwise approved by the Owner in writing. The Contractor shall be solely liable for any and all work he performs outside of the boundaries and for the restoration of all surfaces disturbed by construction activities within permanent and temporary easement areas and fee parcels, to a condition equal to or better than as originally existed prior to construction, and to the satisfaction of the subject property owner and the Project Owner.

3. The Contractor is solely responsible for determination of the existence and location of any and all other buried utilities in the vicinity of his work. Utilities shown on the Project Drawings are purported to be approximate only and not warranted to be complete nor accurately located. Additional buried utility lines, other than as shown on the Project Drawings, may exist in the vicinity of the Project Work. The Contractor shall contact local utilities and/or locating service at least 48 hours prior to commencing work on the Project and cause the buried utilities to be surface marked prior to excavation.

4. All excavation in the vicinity of any existing fiber optic telecommunication line(s) shall be conducted in the presence of an authorized representative of the owner of said fiber optic line(s) and in a manner (i.e. hand digging, hydro–excavation, etc.) specifically approved and supervised by the representative of the Owner of said fiber optic line(s).

5. All pipe trench under any public street or highway pavement or any residential or commercial driveway or entrance, including stone travel way surface, shall be backfilled fully with compacted No. 9 crushed stone and the surface repaired as shown on the detail sheets of these Project Drawings.

6. The Contractor shall be responsible for all traffic control measures necessary for the safe execution of his work, including but not limited to flaggers, traffic signage, barricades, construction fencing and nighttime warning lights. Traffic safety provisions shall be employed by the Contractor in accordance with the Standards of the applicable State and Local Public Highway Authorities.

7. The Contractor shall conduct his work such as to maintain at least one (1) emergency vehicle access route to every property in the Project area at all times during the construction period.

8. All excavation shall be considered unclassified excavation. No additional payment shall be due and payable to the Contractor for excavation and removal of rock or for the required dewatering of any trench or other excavation.

9. All work shall be provided in accordance with the construction authorization (permit) issued by the Kentucky Department for Environmental Protection, Division of Water. The Owner will secure said authorization and deliver a copy to the Contractor, to be maintained on–site during construction.

10. All work shall be provided in compliance with all applicable local, state, and national building and electrical codes.

11. All work shall be executed in compliance with the current workplace safety regulations of the U.S. Department of Labor, Occupational Safety and Health Administration (O.S.H.A.).

12. Any work within Kentucky State Highway right–of–way shall be provided in accordance with the Kentucky Transportation Cabinet/Department of Highways "Standard Specifications for Road and Bridge Construction", 2008 edition and as approved by the duly authorized KDOH authority on the site.

13. Existing utility lines may be cathodically protected. Any ductile iron pipe, fittings or appurtenances within 100' of said protected utility lines shall comply with ASTM A674 (polyethylene encasement), latest revision, and at no additional cost to the Owner.

14. The Contractor shall repair/replace any and all existing utility lines and equipment damaged by the Contractor's work, to the satisfaction of the damaged utility and at no additional cost to the Owner.

15. The Contractor shall protect all sewers, drainage culverts, and storm sewers in the vicinity of their work, and shall repair or replace all culverts damaged by their work at no additional cost to the Owner.

16. Prior to cutting existing driveways or limiting or restricting access, the Contractor shall notify the property owner/occupant at least 24 hours in advance and shall schedule their work such as to restrict access to any individual property not more than 6 hours in one (1) day.

17. Pipe crossing or installed under bituminous paved surfaces shall be open (saw) cut and repaired as specified, unless otherwise shown and noted on the Project Drawings to be bored and jacked.

18. If applicable, the Owner will secure authorization for construction encroachment within Kentucky State Highway right–of–way and deliver same to the Contractor. The Contractor shall not commence any work within Kentucky State Highway right–of–way until they have received written authorization from the Kentucky Department of Highways (KDOH) to do so, including all terms of the authorization.

19. The Contractor shall be responsible for securing any and all street/road–cut permits from City and County highway authorities as necessary to lawfully construct the Project within City/County public street/road right–of–way.

20. The Contractor shall be responsible for securing and posting any and all construction bonds required by the City and/or County Roadway Authorities, as applicable, for construction within the public right–of–way. The cost of said bond(s) shall be included in the Contractor's Bid.

GENERAL NOTES (cont.)

21. The contractor shall obtain and pay for all grading, storm water, etc. permits, if required to complete the work. The contractor shall maintain compliance with all conditions, limitations and stipulations of all permits. The contractor shall not commence work, except mobilization, until he has obtained all required permits for said work. The contractor shall supply the owner with copies of all permits within 24 hours of receipt. A KPDES Storm Water Discharge Permit will be required for this project. The contractor shall fill out, sign and submit the Notice of Intent (NOI) and the Notice of Termination (NOT). The Notice to Proceed will not be issued until acknowledgement of submission of the NOI has been received from Division of Water.

22. After the project is constructed and complete, it shall be the responsibility of the Contractor to provide the Engineer with one set of "As–Built" drawings before the final payment is released to the Contractor. The "As–Built" drawings shall include, at a minimum, the distance to each gate valve, fire hydrant, blowoff assembly, air release valve, leak detection meter, or any other appurtenance installed from two permanent features visible on the plan drawings, the distance between the pipeline and any permanent features visible on the plan drawings a minimum of every 300 feet. Each water meter shall be located by distances from two permanent features visible on the plan drawings.

23. The Contractor shall be responsible for coordinating all construction work with local utility companies and other concerned parties.

24. The Contractor shall have on hand at the job site 11 1/4", 22 1/2", 45° and 90° bends for use where necessary for proper installation.

25. Pipe joint deflection shall not exceed 2°. Bending of PVC pipe will not be allowed.

26. At some locations, the Contractor may be required to provide extra cover over line. Cost of extra cover is to be included in unit price bid for line installation and no separate payment will be made for such extra cover. All such locations are shown on the plans.

27. Connecting new lines to existing lines is subsidiary to the contract unless specifically itemized in the Bid Schedule. It includes fittings, sleeves, etc., but does not include gate valves, which are an extra pay item.

28. All fittings, thrust restraints and appurtenances to construct the pipelines as shown shall be included in the unit cost for the pipe and are not separate pay items.

29. Ductile iron pipe shall be installed in accordance with Standard AWWA C150/ANSI A21.50 Laying Condition Type 3 unless otherwise noted.

30. It is the responsibility of the Contractor to comply with all regulations regarding the effect on the environment from the discharge of chlorinated water. See Technical Specifications for methods of sterilization and for disposing of heavily chlorinated water.

31. The time period for pressure testing in this project shall be 6 hours.

32. Tracer Tape and Tracer Wire shall be installed with the PVC pipe. See Technical Specifications and the miscellaneous details drawings.

33. During the process of tapping asbestos concrete mains, the contractor shall conform to OSHA regulations governing the handling of hazardous waste. Pieces of asbestos concrete resulting from the tap shall be double bagged, placed in a rigid container and disposed of in an approved landfill.

34. A mandrel/pig shall be used for the preliminary cleaning of each section of piping prior to desinfection for all waterlines 3–inches or greater prior to pressure testing and sterilization. This is not a separate bid item and shall be included in the unit price for pipe. See Technical Specifications.

35. The GENERAL CERTIFICATION – NATIONWIDE PERMIT #58 – UTILITY LINE BACKFILL AND BEDDING is contained in the Specifications. The Contractor shall read, understand and comply with the requirements and procedures. All crossings of streams that appear as a blue line on a USGS 7.5 minute topographical map shall be accomplished in accordance with: PERMIT #58, UTILITY LINE BACKFILL AND BEDDING. It is the intent of the plans to identify a stream crossing at each blue line stream. Small creek crossings, less than 15 feet measured from top of bank to top of bank, may be accomplished by trenching when the stream is in a no–flow condition. If the stream is in a flow condition, the crossing shall be accomplished by directional boring or other method that complies with the General Certification and is approved by the Engineer. Specific details for stream crossings are contained in the Miscellaneous Details. Bid items for specific stream crossings may be contained in the Bid Schedule with the type of crossing shown on the Plan Sheets. Payment shall be "Each" for directional bores of small stream crossings. All small stream crossings in the project shall be considered the same regardless of width (up to 15 L.F.) or depth. It is the responsibility of the Contractor to determine an average unit price that will be used for payment for each instance a blue line stream is crossed. Stream crossings may be added, for extended lines beyond those shown on the plans, at the same unit price providing the crossings are reasonably similar to those in the initial project. Stream crossings may be deleted, without effecting the unit price, if a line is deleted or shortened. Payment for specific bid item directional bored stream crossings shall be "Lump Sum".

36. Rough cleanup is included in the unit price for pipe installation and must be done before payment for pipe will be approved.

37. All water main fittings shall be ductile iron, mechanical joint compact fittings for water service complying with AWWA Standard C153. Unless otherwise specifically shown or noted, no PVC fitting, other than in–line repair couplings, will be accepted.

38. All water main fittings shall be anchored with poured concrete thrust blocks as shown in the miscellaneous details drawings. Wrap fittings in minimum 5–mil plastic (PVC) wrap prior to forming and pouring the block.

39. No water service shall be activated until the new work has been completed, sterilized, and tested in accordance with the Contract Documents and accepted in writing by the Owner.

ENVIRONMENTAL NOTES

1. When crossing all streams, silt barriers, ie. straw bales or silt fences, shall be put in place to prevent sediment runoff into stream. Conventional stream crossings shall be accomplished during low flow periods. Stream banks shall be reseeded with native vegetation beneficial to wildlife immediately following completion of the stream crossing. Disturbed surfaces shall be restored to original contours and excess materials removed to a properly confined area.

2. If the removal of any trees greater than (6) inches in diameter at breast height is required, The tree removed shall be accomplished between October 15 and March 31.

3. Any excavation by the Contractor that uncovers a historical or archaeological artifact shall be immediately reported to the Owner and Engineer. Construction shall be temporarily halted pending the notification process and further directions after consultation with the State Historic Preservation Ofiicer (SHPO).

HIGHWAY DEPARTMENT NOTES

1. Underground utilities constructed inside state right of way shall be installed with a minimum depth of cover of 42 inches.

2. Underground utilities crossing any paved driveway inside state right of way shall be installed by boring unless written permission to open cut is obtained from the property owner.

3. Underground utilities shall not be installed in embankment fills or between edge of pavement and ditchline unless specifically noted on permitted plans.

4. Contact KYTC–DOH district office prior to beginning work.

5. All affected KYTC ditchlines shall remain free of excess silt or erosion and constructed to the normal typical section of the roadway with a minimum depth of 18 inches from the shoulder break point.

6. All necessary steps shall be taken to prevent erosion or siltation of the public right–of–way, adjoining property and waterways.

In compliance with the Kentucky Dig Law, the Contractor shall call (800) 752–6007 (Kentucky811) toll free or dial 811 a minimum of two and no more than ten business days prior to excavation for information of the location of existing underground utilities. It will be the Contractors responsibility to coordinate excavation with all Utility Owners.

GENERAL NOTES

EAST LAUREL WATER DISTRICT
OLD SALEM ROAD/McWHORTER ROAD SYSTEM IMPROVEMENTS
CONTRACT 2

STATE OF KENTUCKY
JOHN SIMS
36737
LICENSED PROFESSIONAL ENGINEER

DRAWN BY: JRP
CHECKED BY: PWB
CHECKED BY: BRW
DATE: March 2024
SCALE: NO SCALE
REVISIONS

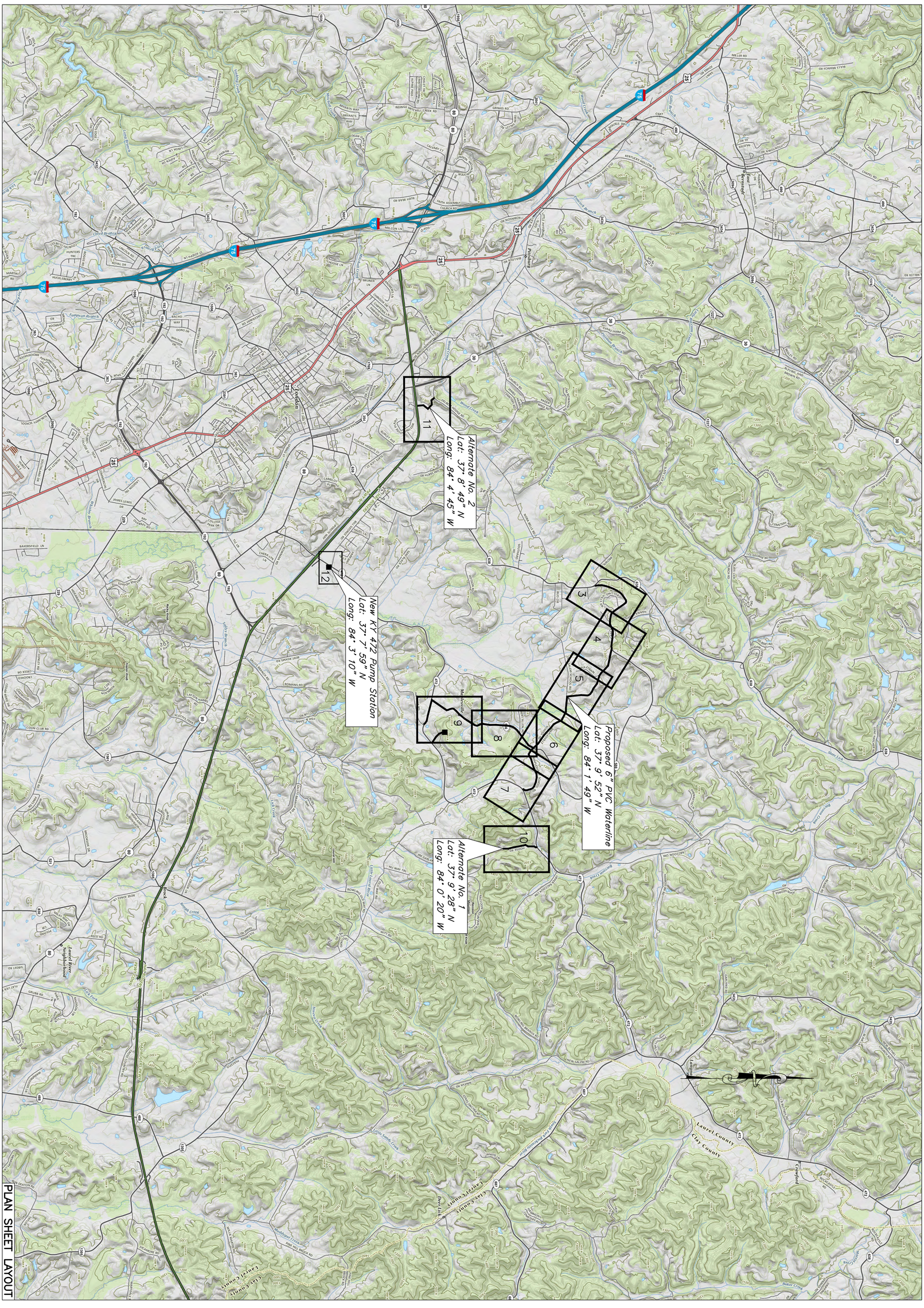
KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

SHEET NO.
1

n:\PU\2020\2Plans\contract 2\01-General Notes.dwg, 6/17/2025 3:24:55 PM, jpowell

n:\P\2020052\Plans\contract 2\02-Sheet Layout.dwg, 6/17/2025 3:27:24 PM, jpowell



PLAN SHEET LAYOUT

SHEET NO. 2

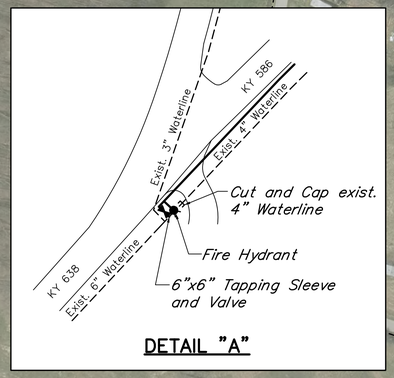
PROJECT NO. 2020052

KENVIRONS
Civil & Environmental Engineers

DRAWN BY: PTH	
CHECKED BY: EWB	
CHECKED BY: BRW	
DATE: March 2024	
SCALE: 1"=2,000'	
REVISIONS	

STATE OF KENTUCKY
JOHN SIMS
36737
PROFESSIONAL ENGINEER

EAST LAUREL WATER DISTRICT
OLD SALEM ROAD/McWHORTER ROAD SYSTEM IMPROVEMENTS
CONTRACT 2



DETAIL "A"

McWHORTER ROAD/KY 638

Exist. 3" Waterline

ROBERT BROWN ROAD

5+00

10+00

15+00

6" PVC, SDR 17

OLD SALEM ROAD/KY 586

Exist. 4" Waterline (To be abandoned)

Air Release Valve (At high point)

Fire Hydrant

6" Gate Valve

CODY ROAD

20+00

See Detail "A" for Tie-in Detail

STA. 0+00 BEGIN
OLD SALEM ROAD/KY 586 (WEST)

NOTE:

Reconnect 20 existing meter services to new 6" Waterline. Each meter shall be reconnected using new service tubing.

Exist. 6" Waterline

McWHORTER ROAD/KY 638

To London

CREECH ROAD

25+00

MATCH STA. 30+00
(See Sheet 04)

RUSH ROAD

OLD SALEM ROAD/KY 586 (WEST)

EAST LAUREL WATER DISTRICT
OLD SALEM ROAD/McWHORTER ROAD SYSTEM IMPROVEMENTS
CONTRACT 2

STATE OF KENTUCKY
JOHN SIMS
36737
LICENSED PROFESSIONAL ENGINEER

DRAWN BY: PTH
CHECKED BY: BRW
DATE: March 2024
SCALE: 1"=100'

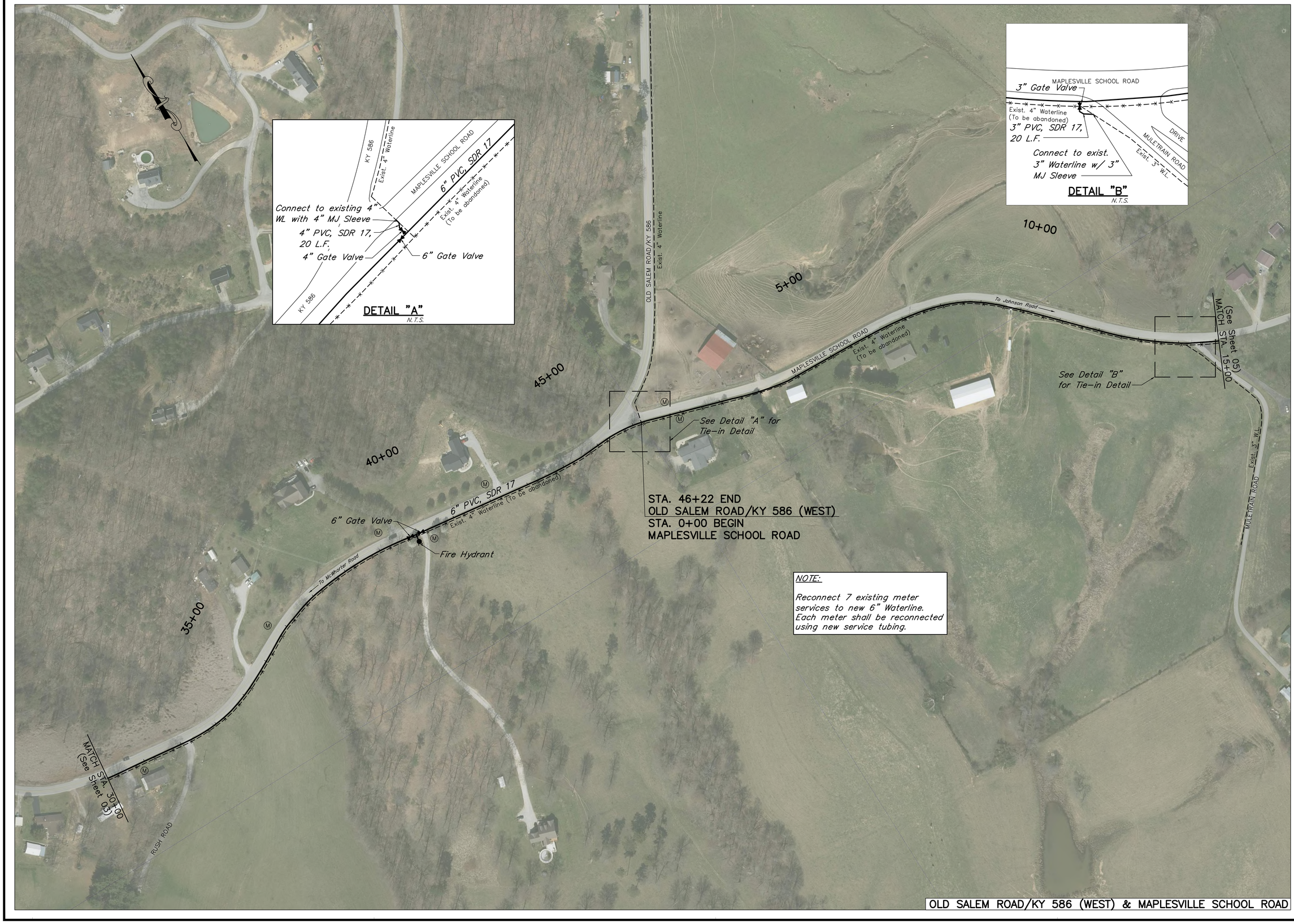
REVISIONS

KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

SHEET NO.
3

n:\PJ\2020\52\Plans\contract 2\03 Old Salem Road West.dwg, 6/17/2025 3:27:41 PM, jpinnell



EAST LAUREL WATER DISTRICT
OLD SALEM ROAD/McWHORTER ROAD SYSTEM IMPROVEMENTS
CONTRACT 2

STATE OF KENTUCKY
JOHN SIMS
36737
LICENSED PROFESSIONAL ENGINEER

DRAWN BY: PTH
PROOF BY: JWB
CHECKED BY: BRW
DATE: March 2024
SCALE: 1"=100'
REVISIONS

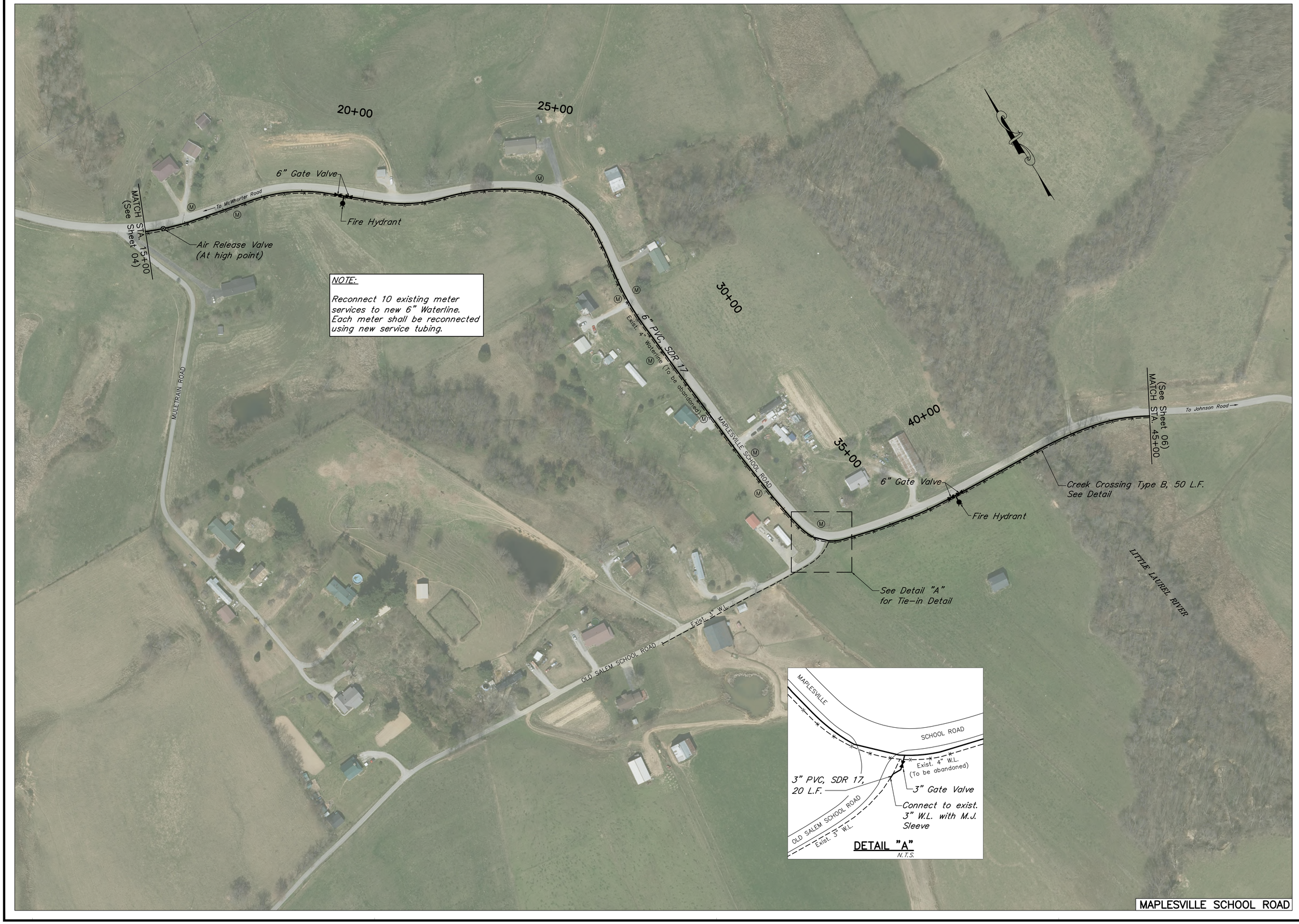
KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

SHEET NO.
4

n:\P\2020052\Plans\contract 2\04-Maple School Road.dwg 6/17/2025 1:28:07 PM, jpowell

EAST LAUREL WATER DISTRICT
OLD SALEM ROAD/McWHORTER ROAD SYSTEM IMPROVEMENTS
CONTRACT 2



STATE OF KENTUCKY
JOHN SIMS
36737
LICENSED PROFESSIONAL ENGINEER

DRAWN BY: PTH
TRACED BY: PTH
CHECKED BY: BRW
DATE: March 2024
SCALE: 1"=100'

REVISIONS			

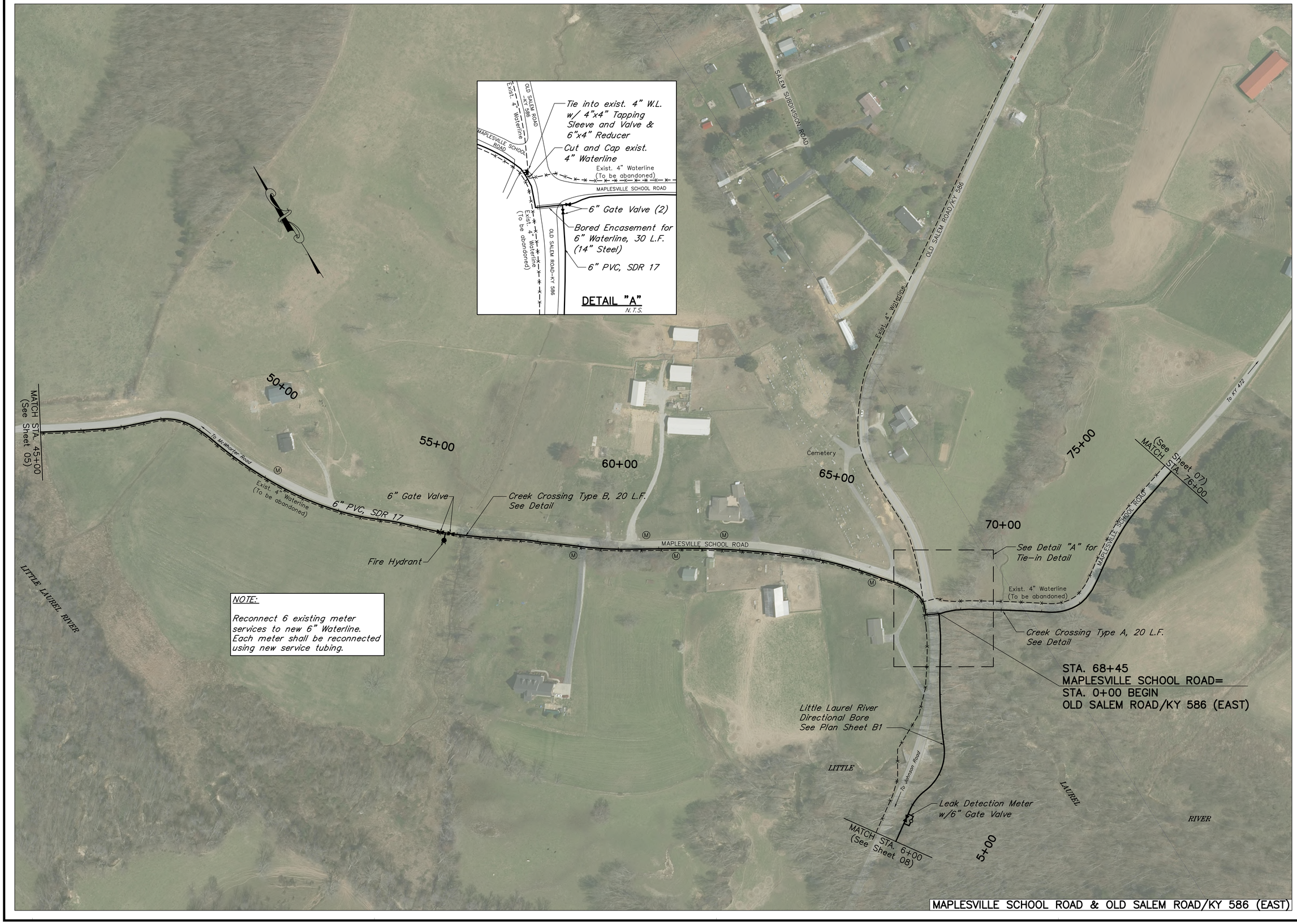
KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

SHEET NO.
5

n:\2020052\Plan\contract 2\05-Maple School Road.dwg, 6/17/2025 3:28:33 PM, jpowell

EAST LAUREL WATER DISTRICT
OLD SALEM ROAD/McWHORTER ROAD SYSTEM IMPROVEMENTS
CONTRACT 2



MAPLESVILLE SCHOOL ROAD & OLD SALEM ROAD/KY 586 (EAST)

STATE OF KENTUCKY
JOHN SIMS
36737
LICENSED PROFESSIONAL ENGINEER

DRAWN BY: PTH
DESIGNED BY: JWB
CHECKED BY: BRW
DATE: March 2024
SCALE: 1"=100'

REVISIONS			

KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

SHEET NO.
6

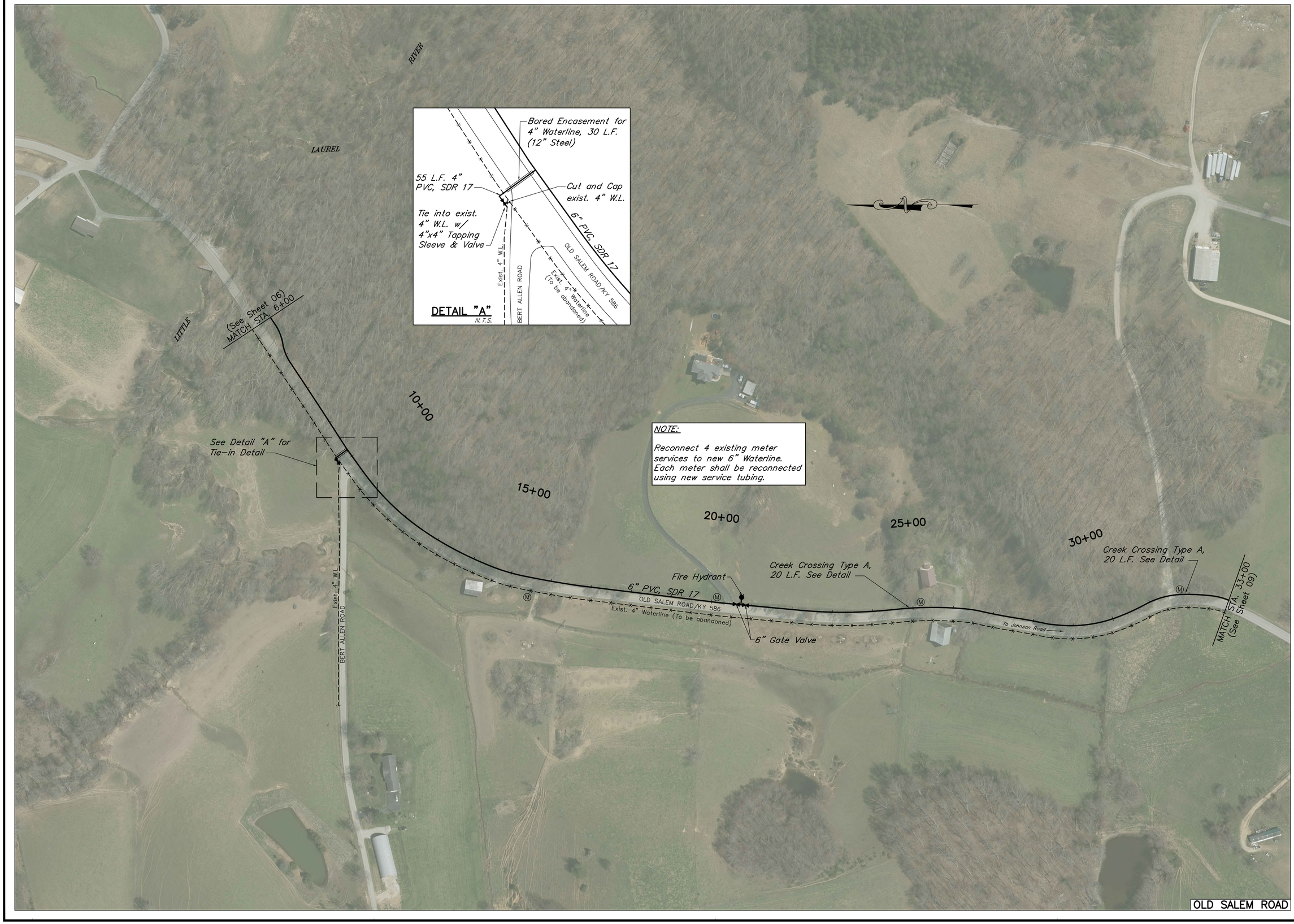
n:\PJ\2020052\Plans\contract 2\06-Maple School Road.dwg 6/17/2025 1:29:27 PM, jpowell

n:\P\2020052\Plans\contract 2\07-Maple School Road.dwg, 6/17/2025 3:29:30 PM, jpowell

SHEET NO. 7	PROJECT NO. 2020052	KENVIRONS Civil & Environmental Engineers	DRAWN BY: PTH CHECKED BY: EWB CHECKED BY: BRW DATE: March 2024 SCALE: 1"=100' REVISIONS	STATE OF KENTUCKY JOHN SIMS 36737 PROFESSIONAL ENGINEER LICENSED

EAST LAUREL WATER DISTRICT
OLD SALEM ROAD/McWHORTER ROAD SYSTEM IMPROVEMENTS CONTRACT 2

EAST LAUREL WATER DISTRICT
OLD SALEM ROAD/McWHORTER ROAD SYSTEM IMPROVEMENTS
CONTRACT 2



DETAIL "A"
N.T.S.

NOTE:

Reconnect 4 existing meter services to new 6" Waterline. Each meter shall be reconnected using new service tubing.

JOHN SIMS
36737
LICENSED PROFESSIONAL ENGINEER
STATE OF KENTUCKY

DRAWN BY: PTH
PROJECTED BY: BWB
CHECKED BY: BRW
DATE: March 2024
SCALE: 1"=100'

REVISIONS

KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

SHEET NO.
8

EAST LAUREL WATER DISTRICT
OLD SALEM ROAD/McWHORTER ROAD SYSTEM IMPROVEMENTS
CONTRACT 2

Bored Encasement for 6" Waterline, 30 L.F. (14" Steel)

6" Gate Valve

Fire Hydrant

Tie into exist. 6" Waterline w/ 6"x6" Tapping Sleeve & Valve

850± L.F. 6" PVC, SDR 17

To Hatcher School Road

Exist. 6" Waterline

Pipeline Contractor shall terminate Pipeline Contract at existing fence with 6" Gate Valve and Blowoff

Proposed 139,000 Gallon Ground Water Storage Tank (Not in this Contract)

Fire Hydrant

Bored Encasement for 6" Waterline, 30 L.F. (14" Steel)

Exist. 6" Waterline HATCHER ROAD

Tie into exist. 6" Waterline w/ 6"x6" Tapping Sleeve & Valve

35+00

(See Sheet 08) MATCH STA. 33+00

Creek Crossing Type B, 25 L.F. See Detail

40+00

6" PVC, SDR 17

Fire Hydrant

6" Gate Valve

50+00

45+00

Air Release Valve (At high point)

OLD SALEM ROAD/KY 586

CALLOWAY CT.

Exist. 3" W.L.

55+00

1,350± L.F. 6" PVC, SDR 17

JOHNSON ROAD/KY 472

NOTE:

Reconnect 8 existing meter services to new 6" Waterline. Each meter shall be reconnected using new service tubing.

See Detail "A" for Tie-in Detail

Exist. 4" Waterline (To be abandoned)

Fire Hydrant

STA 59+00 END
OLD SALEM ROAD/KY 586 (EAST)

6" Gate Valve

Cut and Cap exist. 4" Waterline

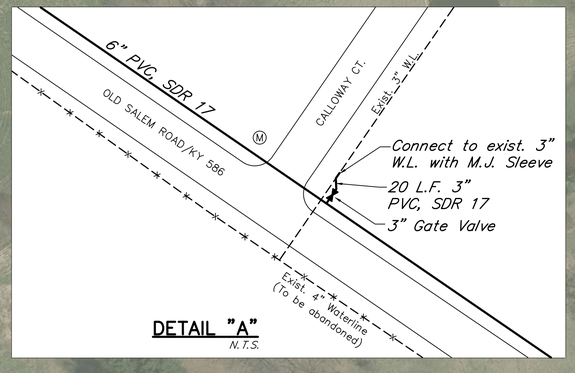
Tie into exist. 4" Waterline w/ 4"x4" Tapping Sleeve and Valve

40± L.F. 4" PVC, SDR 17

Bored Encasement for 4" Waterline, 30 L.F. (12" Steel)

OLD SALEM ROAD/KY 586 (EAST)

DETAIL "A"
N.T.S.



JOHN SIMS 36737 LICENSED PROFESSIONAL ENGINEER
STATE OF KENTUCKY

DRAWN BY: JRP
CHECKED BY: PWB
CHECKED BY: BRW
DATE: March 2024
SCALE: 1"=100'
REVISIONS

KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

SHEET NO.
9

n:\P\2020052\Plans\contract 2\09-Old Salem Road East.dwg, 6/17/2025 3:30:29 PM, jpowell

HODGE ROAD (ALTERNATE 1)

EAST LAUREL WATER DISTRICT
OLD SALEM ROAD/McWHORTER ROAD SYSTEM IMPROVEMENTS
CONTRACT 2

STATE OF KENTUCKY
JOHN SIMS
36737
LICENSED PROFESSIONAL ENGINEER

DRAWN BY: JRP
REVIEWED BY: PWB
CHECKED BY: BRW
DATE: March 2024
SCALE: 1"=100'

REVISIONS

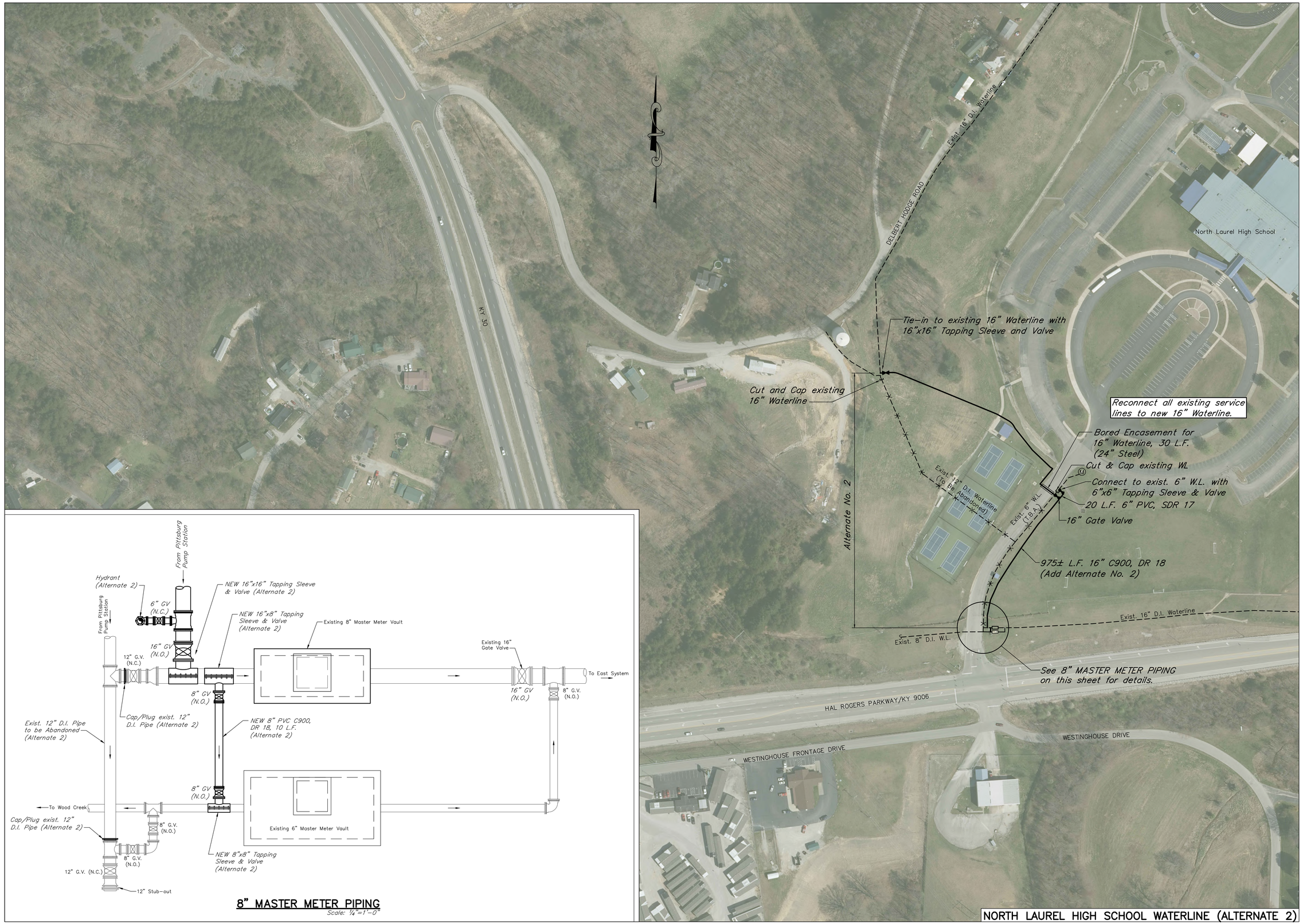
KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

SHEET NO.
10

n:\P\2020052\Plan\contract 2\10 Hodge Road.dwg, 6/17/2025 3:39:39 PM, gsnell

EAST LAUREL WATER DISTRICT
OLD SALEM ROAD/McWHORTER ROAD SYSTEM IMPROVEMENTS
CONTRACT 2



NORTH LAUREL HIGH SCHOOL WATERLINE (ALTERNATE 2)

8" MASTER METER PIPING

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

JOHN SIMS 36737 LICENSED PROFESSIONAL ENGINEER
STATE OF KENTUCKY

DRAWN BY: JKP
CHECKED BY: JDS
DATE: March, 2024
SCALE: 1"=100'
REVISIONS

KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

SHEET NO.
11

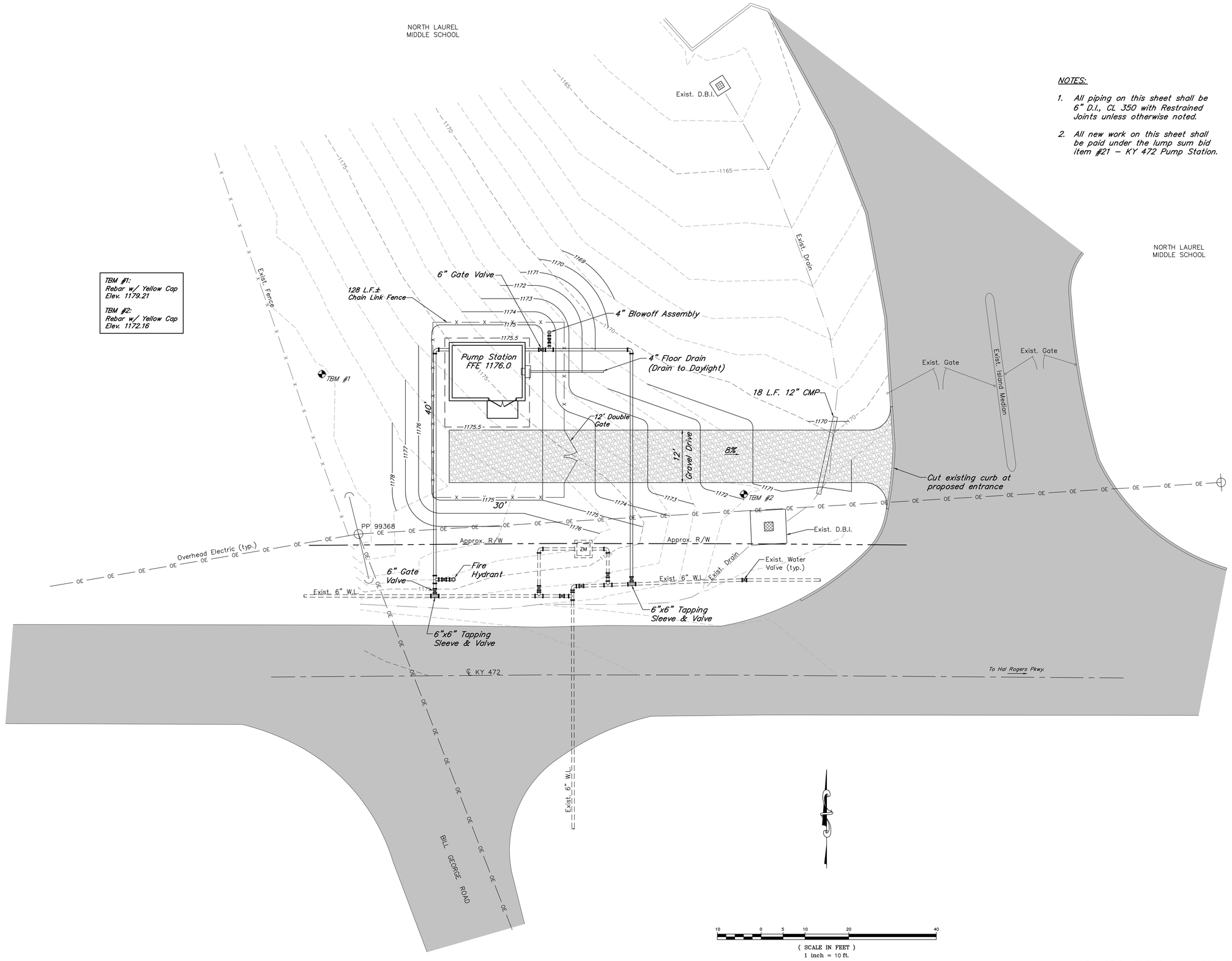
EAST LAUREL WATER DISTRICT
OLD SALEM ROAD/McWHORTER ROAD SYSTEM IMPROVEMENTS
CONTRACT 2

NOTES:

1. *All piping on this sheet shall be 6" D.I., CL 350 with Restrained Joints unless otherwise noted.*
2. *All new work on this sheet shall be paid under the lump sum bid item #21 – KY 472 Pump Station.*

TBM #1:
Rebar w/ Yellow Cap
Elev. 1179.21

TBM #2:
Rebar w/ Yellow Cap
Elev. 1172.16



KY 492 PUMP STATION SITE PLAN

JOHN SIMS
36737
LICENSED PROFESSIONAL ENGINEER
STATE OF KENTUCKY

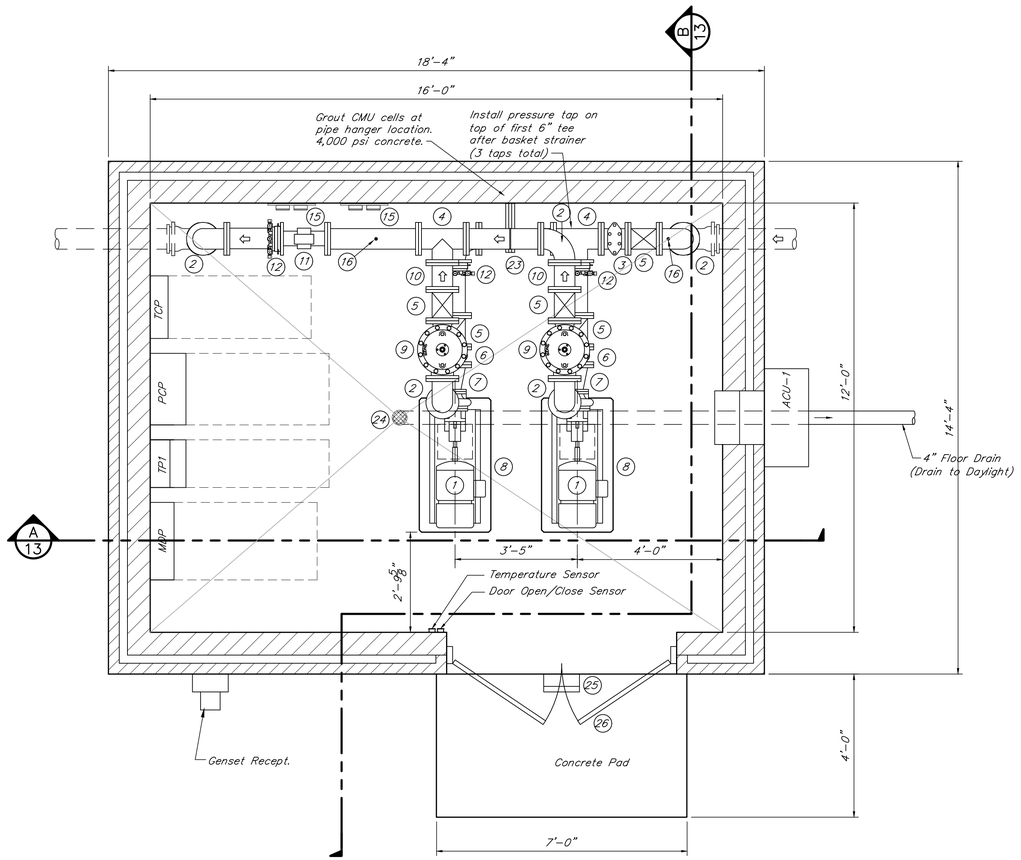
DRAWN BY: JKP
CHECKED BY: BWB
CHECKED BY: BWB
DATE: March 2024
SCALE: 1" = 10'
REVISIONS

KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

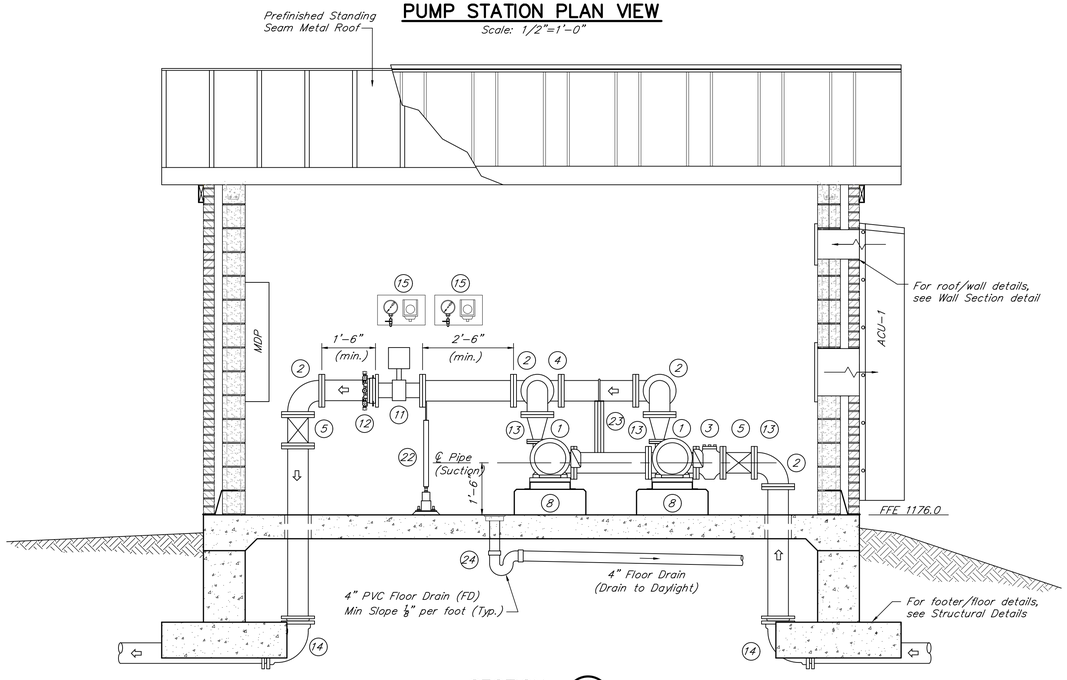
SHEET NO.
12

n:\P\2020052\Plans\contract 2\12 KY 472 Site Plan.dwg, 6/17/2025 3:31:04 PM, jgorrell



PUMP STATION PLAN VIEW

Scale: 1/2"=1'-0"



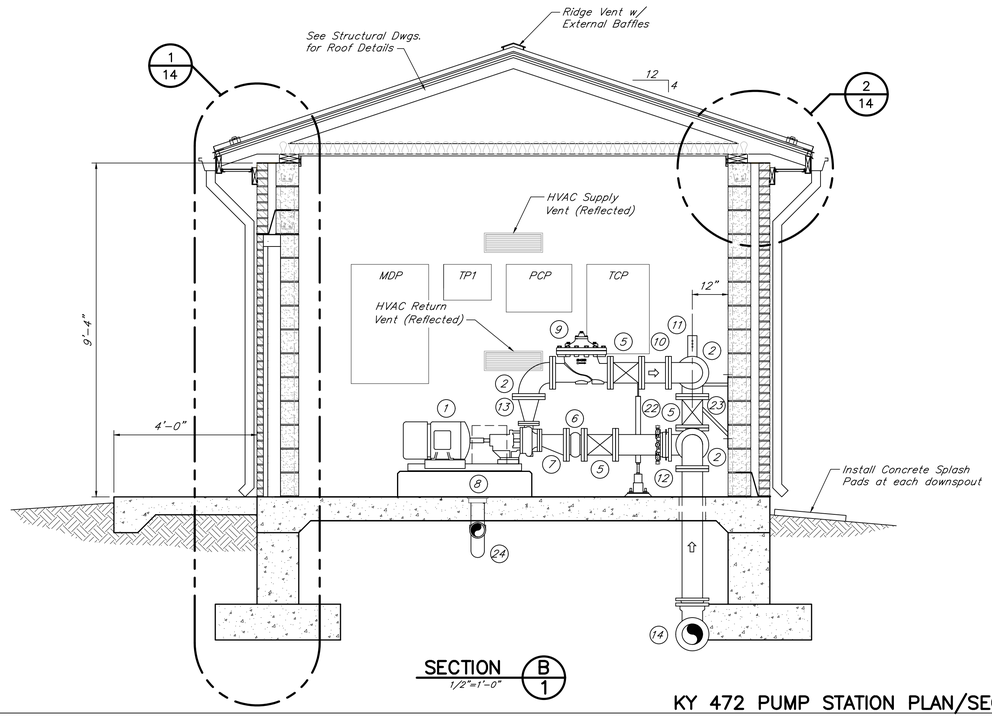
SECTION A/1

1/2"=1'-0"

KY 472 PUMP STATION		
ITEM	QTY.	DESCRIPTION
1	2	Pumps: 15 Hp, 230/460V/3PH/60Hz 350 GPM @ 90' TDH; 3,530 RPM
2	5	6" 90° Elbow
3	1	6" Plate Strainer
4	2	6" Tee
5	6	6" Gate Valve
6	2	6" Metrasphere Coupling w/ Control Rods (or equal)
7	2	6"x3" Eccentric Reducer
8	2	Pump Pedestal (Cast in Place)
9	2	6" Booster Pump Control Valve
10	2	9" Spool
11	1	6" Mag Meter – 300 psi operating pressure
12	3	6" Flanged Coupling Adapter (FCA)
13	2	6"x2 ½" Concentric Reducer
14	2	6" 90° Elbow, MJ
15	3	Pressure Gauge w/ Pressure Transducer
16	4	1/4" Stop Cock
17	1	Telemetry Panel
18	1	Main Distribution Panel
19	1	Pump Control Panel
20	1	Panel A
21	0	Not Used
22	4	Pipe Supports
23	1	Pipe Support Bracket w/ U-bolt
24	1	Floor Drain and 4" PVC Sch. 80 Drain Pipe w/ Trap
25	1	Outdoor Light Fixture w/ Dusk to Dawn Sensor
26	2	36" Insulated Steel Doors

GENERAL NOTES

1. All yard piping shall be ductile iron, CL 350 pipe. All Ductile Iron Piping shall have restrained gaskets. All M.J. fittings, valves, etc. shall be restrained with EBAA IRON MEGALUG Series 1100 or approved equal.
2. The Contractor shall coordinate with the pump Supplier and Engineer regarding the base and other pump dimensions. This coordination is absolutely necessary to assure that the concrete pump pedestals are constructed to the desired dimensions.
3. All couplings and flanged coupling adaptors shall be rodded through the adjacent flanges and bolted securely.
4. Provide pipe sleeves for all penetrations of walls and floor.
5. Pipe drainage from any pump, valve, or device within the pump station shall utilize PVC conduit through the floor slab to the floor drain piping below slab.
6. Caulk all control joints, construction joints including slab to wall joint, and frame installations.
7. All conduits shall be aluminum. Seal the tubing raceways.
8. Use shark bite fittings with all tubing.
9. Construct a ¾" chamfer at all construction joints and corners.
10. Floor shall be sloped to drain between ¼" & ⅛" per foot.
11. Contractor shall be responsible for interior paint coatings. See Specification Section 09900 "General Painting" for Schedule.



SECTION B/1

1/2"=1'-0"

KY 472 PUMP STATION PLAN/SECTION

EAST LAUREL WATER DISTRICT
OLD SALEM ROAD/McWHORTER ROAD SYSTEM IMPROVEMENTS
CONTRACT 2

STATE OF KENTUCKY
JOHN SIMS
36737
LICENSED PROFESSIONAL ENGINEER

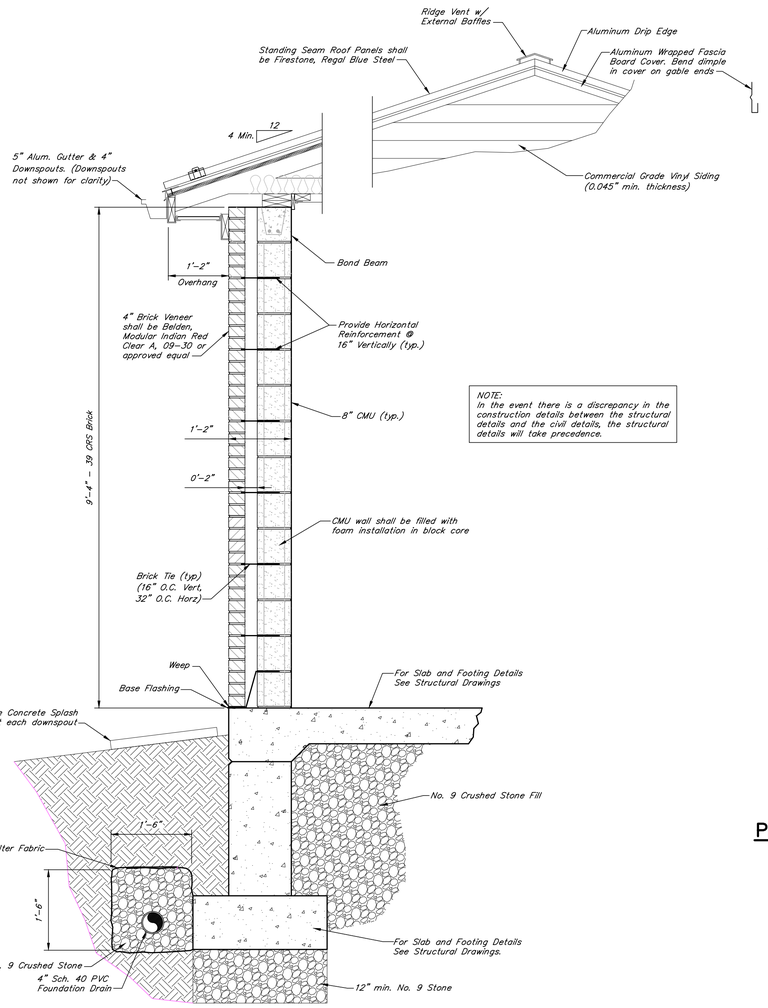
DRAWN BY: JKP
CHECKED BY: JWB
CHECKED BY: BRW
DATE: March 2024
SCALE: As Noted
REVISIONS

KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

SHEET NO.
13

n:\P\2020052\Plans\contract 2\13 KY 472 Floor Plan.dwg, 6/17/2025 3:31:09 PM, jpowell



NOTE:
In the event there is a discrepancy in the construction details between the structural details and the civil details, the structural details will take precedence.

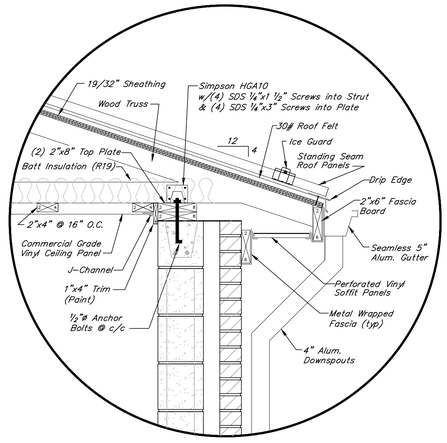
NOTES:

1. WOOD TRUSSES

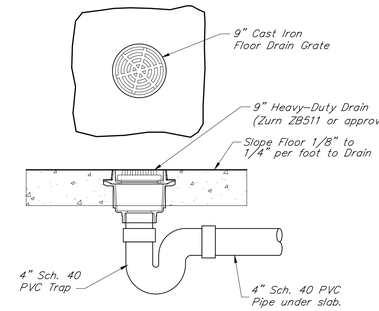
Wood trusses to be designed by the manufacturer. Trusses shall meet all applicable building codes and the standards of the Truss Plate Institute. Design criteria shall be as follows:
- Span..... 1.3'-4" (Out to out of bearing)
- Spacing..... 24" o.c.
- Max Deflection... L/240 (where L=span)
- Top dead load... 15psf
- Bottom dead load... 15psf
- Top live load... 30psf

2. Provide lintels over all openings with lintel block grouted solid with 2-#5 Bars. Length of lintels shall be at least equal to the rough opening plus 8-inch bearing on each side of opening. The lintel block shall have the same face as the wall block.

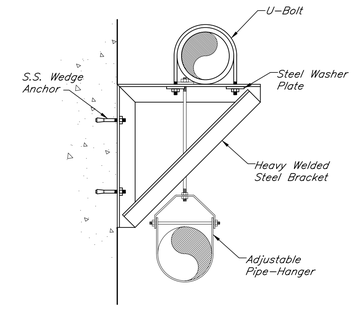
SECTION 1/14
3/4"=1'-0"



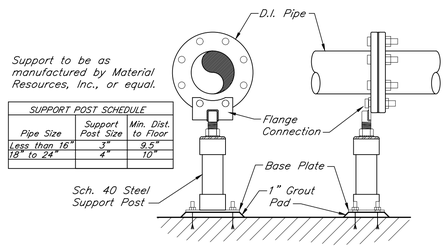
DETAIL 2/13
1"=1'-0"



FLOOR DRAIN
1" = 1'-0"

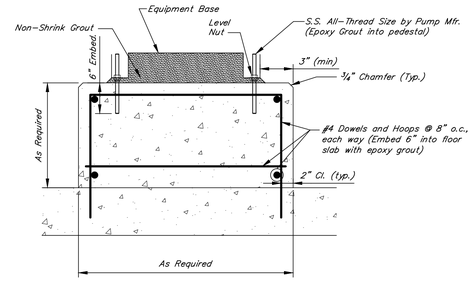


PIPE BRACKET AND HANGER DETAIL
N.T.S.

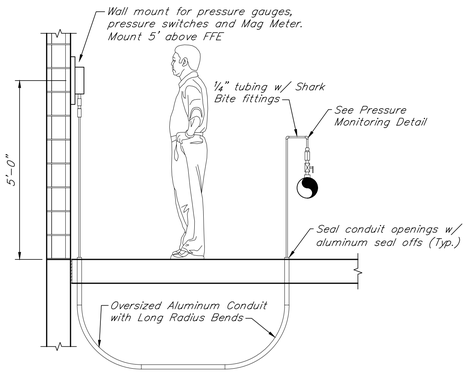


SUPPORT POST SCHEDULE		
Pipe Size	Support Post Size	Min. Dist. to Floor
Less than 16"	3"	9.5"
18" to 24"	4"	10"

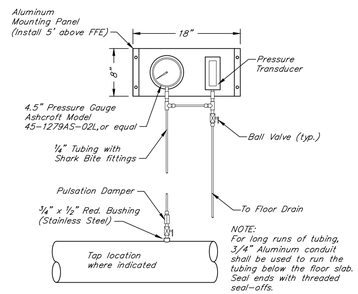
FLANGED PIPE SUPPORT
N.T.S.



TYPICAL PUMP & EQUIPMENT PEDESTAL CONCRETE SUPPORT REINFORCEMENT
N.T.S.



PRESSURE TAP CONNECTION
N.T.S.



PRESSURE MONITORING PANELS
1"=1'-0"

EAST LAUREL WATER DISTRICT
OLD SALEM ROAD/McWHORTER ROAD SYSTEM IMPROVEMENTS
CONTRACT 2

STATE OF KENTUCKY
JOHN SIMS 36737
LICENSED PROFESSIONAL ENGINEER

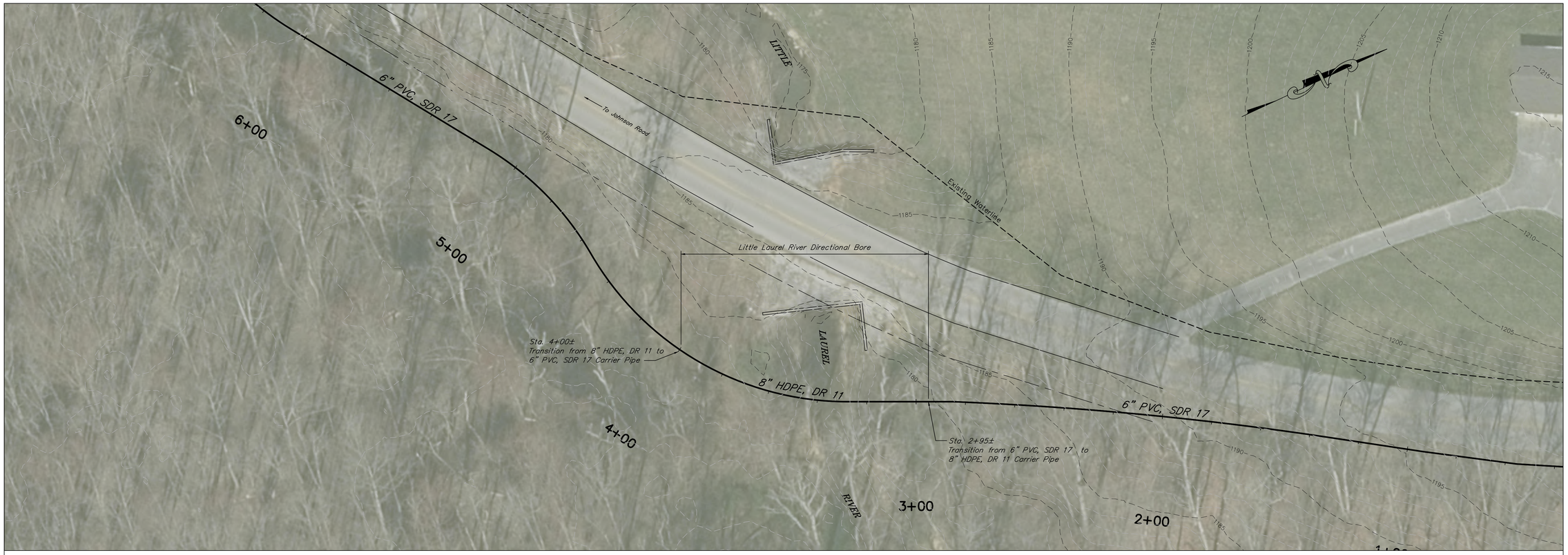
DRAWN BY: JKP
CHECKED BY: BRW
DATE: March 2024
SCALE: As Noted
REVISIONS

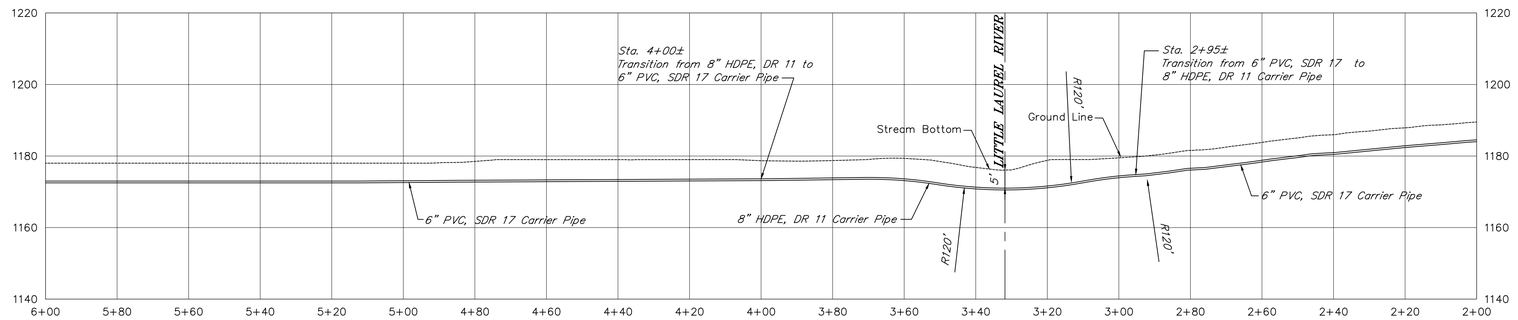
KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

SHEET NO.
14

PUMP STATION DETAILS





LITTLE LAUREL RIVER DIRECTIONAL BORE

Scale: 1"=20'

LITTLE LAUREL RIVER DIRECTIONAL BORE–PLAN/PROFILE (ALTERNATE NO. 2)

EAST LAUREL WATER DISTRICT
OLD SALEM ROAD/McWHORTER ROAD SYSTEM IMPROVEMENTS
CONTRACT 2

STATE OF KENTUCKY
JOHN SIMS
36737
LICENSED PROFESSIONAL ENGINEER

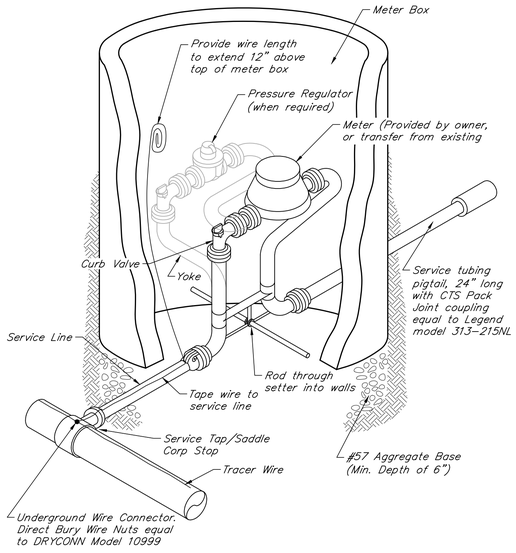
DRAWN BY: PTH
CHECKED BY: BWB
CHECKED BY: BRW
DATE: March 2024
SCALE: 1"=20'
REVISIONS

KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

SHEET NO.
B1

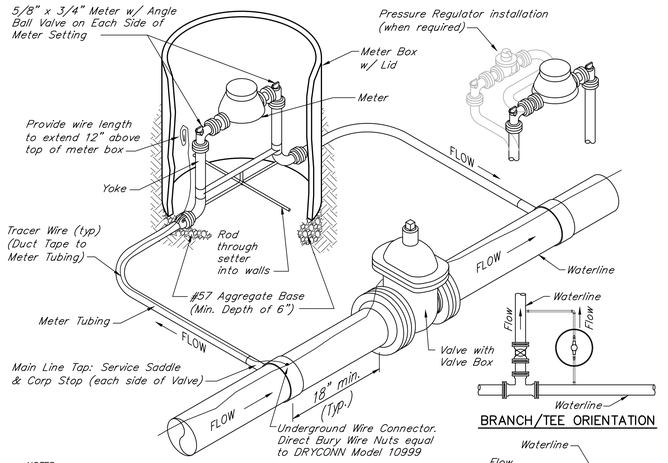
n:\P\2020052\Plans\contract 2\B1 Directional Bore.dwg 6/17/2025 3:31:26 PM jpowell



NOTES:

1. This detail reflects typical meters 1" and smaller with standard pressure regulators.
2. Meter setting shall be placed inside property line as directed by the Engineer.
3. See Technical Specifications for more detail on meter box, lid, and yoke/setter requirements.
4. Service tubing pigtail to be incidental to Meter Setting.

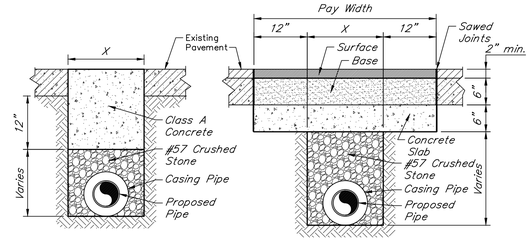
METER SETTING
N.T.S.

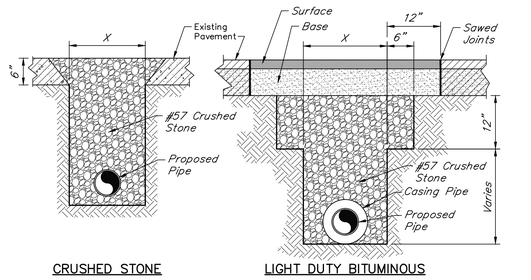


NOTES:

1. Leak detection Meters shall be installed where indicated on the Plans.
2. Gate Valves are a Separate Pay Item. Bid Item for Leak Detection Meters shall include the Main Line Taps, Piping, Meter Box, Setter, Ball Valves, and Meter in accordance with the Detail Shown on this drawing.
3. When installed for Creek Crossings, a second Gate Valve shall be installed on the water main a minimum of 500 feet from the Leak Detection Meter.

LEAK DETECTION METER
N.T.S.

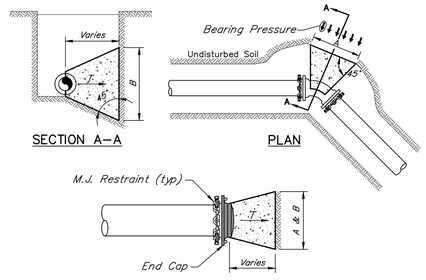




NOTES:

1. The maximum allowable distance for dimension X shall be calculated as follows: X=pipe diameter+24"
2. Mechanically tamped #57 crushed stone aggregate in layers not to exceed 6"
3. Concrete slab under bituminous surface to extend 12" on each side to trench
4. Replace concrete or bituminous pavement with new pavement same thickness as existing pavement
5. Casing pipe is not required under private driveways

PAVEMENT REPLACEMENT
N.T.S.



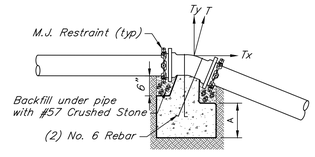
NOTES:

1. Thrust restraint table is based on pipeline pressure of 200 psi and earthbearing capacity of 1500 psf. During construction, the specific soil type may be evaluated and concrete thrust block size revised at the discretion of the Engineer.
2. On large diameter pipes where space limitations or construction difficulties render concrete thrust blocks not feasible or impractical, a joint restraint system may be used. This restrained joint system must be approved by the Engineer.
3. Concrete shall be 3000 psi minimum conforming to KYTC Specifications 601.
4. Accessibility to fittings and bolts must be maintained.
5. Wrap fittings in plastic prior to placing concrete.

HORIZONTAL THRUST BLOCK SCHEDULE

PIPE SIZE (INCHES)	90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND		TEE/END CAP	
	A	B	A	B	A	B	A	B	A	B
3 & 4	3'-3"	1'-8"	2'-4"	1'-2"	1'-8"	1'-0"	1'-0"	1'-0"	2'-8"	1'-4"
6	4'-8"	2'-4"	3'-5"	1'-8"	2'-6"	1'-3"	1'-6"	1'-0"	3'-10"	2'-0"
8	6'-0"	3'-0"	4'-5"	2'-3"	3'-2"	1'-7"	2'-3"	1'-2"	5'-0"	2'-6"
10	7'-6"	3'-9"	5'-5"	2'-9"	3'-10"	2'-0"	2'-9"	1'-5"	6'-3"	3'-2"
12	8'-10"	4'-5"	6'-6"	3'-3"	4'-8"	2'-4"	3'-4"	1'-8"	7'-5"	3'-9"
14	10'-3"	5'-2"	7'-6"	3'-9"	5'-4"	2'-8"	3'-10"	2'-0"	8'-8"	4'-4"
16	11'-8"	5'-10"	8'-7"	4'-4"	6'-1"	3'-0"	4'-4"	2'-2"	9'-9"	4'-11"
18	13'-0"	6'-6"	9'-7"	4'-9"	6'-10"	3'-5"	4'-10"	2'-5"	11'-0"	5'-6"
20	14'-5"	7'-3"	10'-7"	5'-4"	7'-7"	3'-9"	5'-4"	2'-8"	12'-2"	6'-1"
24	17'-3"	8'-8"	12'-8"	6'-4"	9'-0"	4'-6"	6'-5"	3'-3"	14'-6"	7'-3"

HORIZONTAL THRUST BLOCK
N.T.S.



NOTES:

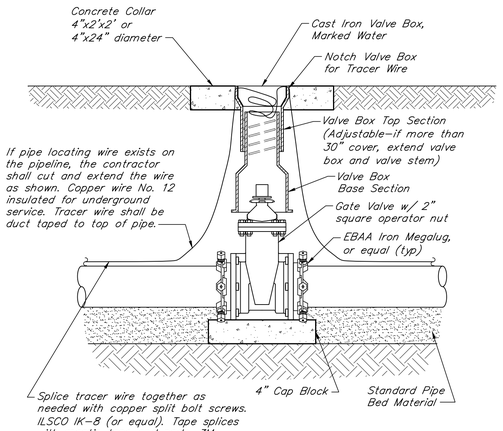
1. Thrust restraint table is based on pipeline pressure of 200 psi and earth bearing capacity of 1500 psf. During construction, the specific soil type may be evaluated and concrete thrust block size revised at the discretion of the Engineer.
2. On large diameter pipes where space limitations or consfuction difficulties render concrete thrust blocks not feasible or impractical, a joint restraint system may be used. This restrained joint system must be approved by the Engineer.
3. Concrete shall be 3000 psi minimum conforming to KYTC Specifications 601.
4. Accessibility to fittings and bolts must be maintained.
5. Wrap fittings in plastic prior to placing concrete.

V=Volume of gravity block in C.F.
A=Bearing Area for T in S.F.

VERTICAL THRUST BLOCK SCHEDULE

PIPE SIZE (INCHES)	90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND	
	V	A	V	A	V	A	V	A
3 & 4	29	2	20	1	11	1	6	1
6	64	5	46	2	25	1	13	1
8	114	8	81	4	43	1	23	1
10	174	12	123	5	66	2	35	1
12	248	17	176	8	95	2	50	1
14	337	23	238	10	128	3	67	1
16	439	29	311	13	167	4	88	1
18	555	37	393	16	211	5	111	1
20	685	46	484	20	260	6	137	2
24	985	66	696	29	374	8	197	2

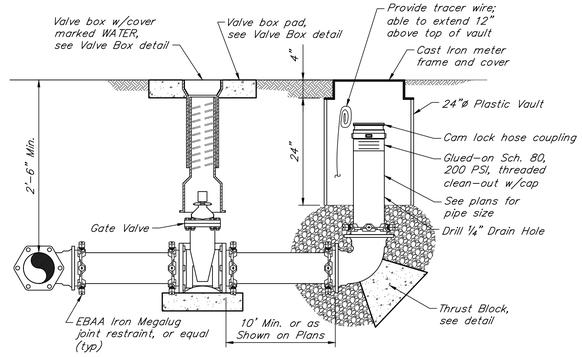
VERTICAL THRUST BLOCK
N.T.S.



Note:

See Specifications for piping materials and piping joints.

VALVE BOX INSTALLATION
N.T.S.



Notes:

1. If the Blowoff Assembly is in-line, the assembly shall provide bell restraint at the closest pipe joint behind the valve. Engineer to verify the restrained length and number of split restraint bell harnesses to be used.
2. Mechanical joint fittings may be restrained using ¾" allthread rods, duc-lugs, and HD nuts, in lieu of Megalug restraints.
3. All discharge shall be dechlorinated as directed in the technical specifications.

BLOWOFF ASSEMBLY DETAIL
N.T.S.

MISCELLANEOUS DETAILS

EAST LAUREL WATER DISTRICT
OLD SALEM ROAD/McWHORTER ROAD SYSTEM IMPROVEMENTS CONTRACT 2

STATE OF KENTUCKY
JOHN SIMS 36737
LICENSED PROFESSIONAL ENGINEER

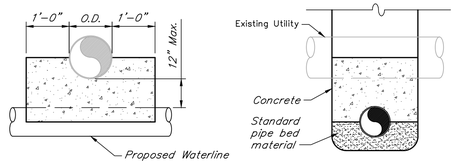
DRAWN BY: PTH
CHECKED BY:
CHECKED BY:
DATE: March 2024
SCALE: As Noted
REVISIONS

KENVIRONS
Civil & Environmental Engineers

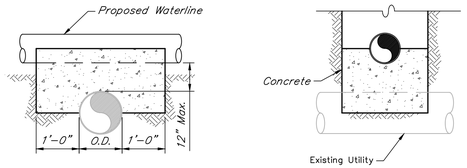
PROJECT NO.
2020052

SHEET NO.
D1

n:\P\2020052\Plans\contract 2\DETAILS.dwg, 6/17/2025 1:31:48 PM, jgarrett



SIDE VIEW (BELOW) END VIEW (BELOW)

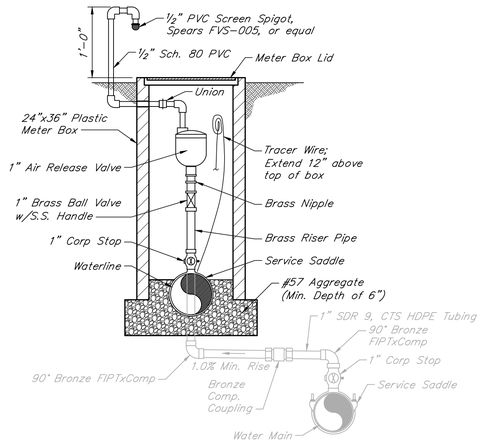


SIDE VIEW (ABOVE) END VIEW (ABOVE)

NOTES:

1. Concrete shall be used when clearance between Waterline and existing utility is 12" or less.
2. "Existing Utility" includes typical non-contaminating utilities, including but not limited to, water, natural gas, telecom, electrical, storm sewer. When crossing sanitary sewer or other potential contaminants, see detail "SANITARY SEWER CROSSING".

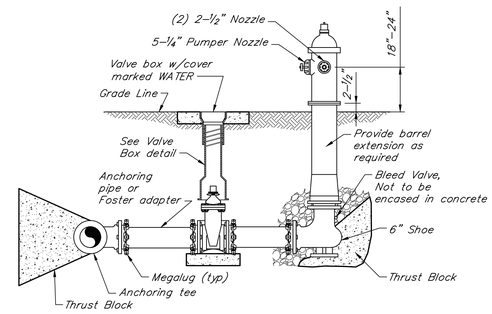
UTILITY CROSSING
N.T.S.



NOTES:

1. All fittings shall be lead free, and NSF 61 certified.
2. When the Waterline is located in a road or ditchline, the Air Release Valve is to be located as directed by the Engineer, and connected by a ¾" Service line installed with a constant upgrade from the Waterline to ARV connection.

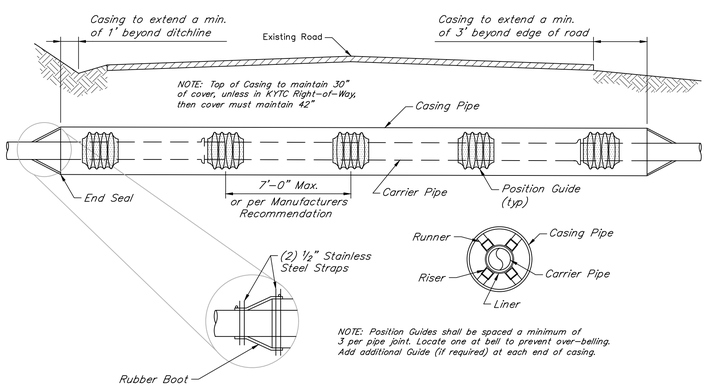
AUTOMATIC ARV INSTALLATION
N.T.S.



NOTES:

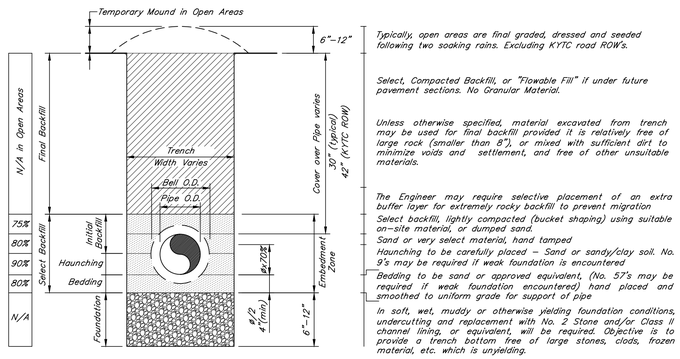
1. Fire hydrant shall be rotated to reflect orientation as shown on plans, or as directed by Owner/Engineer
2. Assembly includes branch pipe, fittings, gate valve and valve box, concrete base, thrust blocks, and M.J. restraints

FIRE HYDRANT
N.T.S.



NOTE: Position Guides shall be spaced a minimum of 3 per pipe joint. Locate one at bell to prevent over-belling. Add additional Guide (if required) at each end of casing.

ROADWAY CROSSING INSTALLATION
N.T.S.



NOTES:

1. No rocks larger than 1-1/2" allowed in embedment zone.
2. Typical desired densities in open areas are depicted above in the boxes to the left of the figure. In other laying situations, more stringent selection, placement and compaction will be required.
3. Trench width should be no wider than necessary for adequate work room and to assure safe working conditions. Nominal outside diameter (O.D.) pipe plus 6" on each side is typically considered minimal.

TRENCH BACKFILL OPEN AREAS – PLASTIC PIPE
N.T.S.

MISCELLANEOUS DETAILS

EAST LAUREL WATER DISTRICT
OLD SALEM ROAD/McWHORTER ROAD SYSTEM IMPROVEMENTS
CONTRACT 2

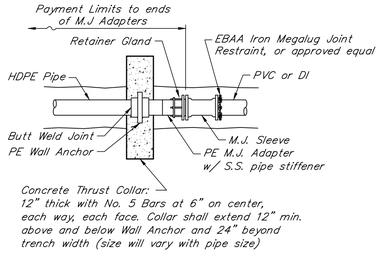
STATE OF KENTUCKY
JOHN SIMS 36737
LICENSED PROFESSIONAL ENGINEER

DRAWN BY: EPTH
CHECKED BY:
CHECKED BY:
DATE: March 2024
SCALE: As Noted
REVISIONS

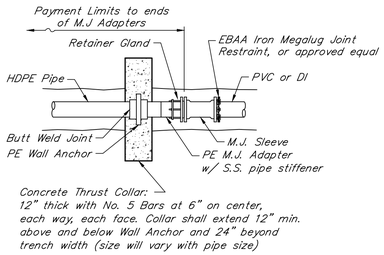
KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

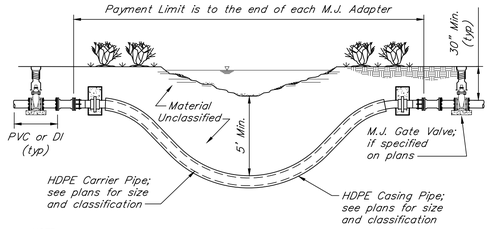
SHEET NO.
D2



END TREATMENT



END TREATMENT

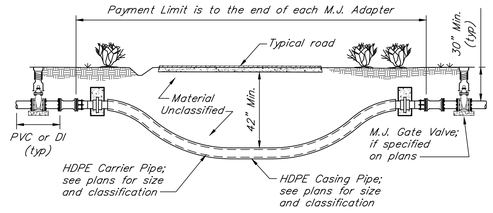


NOTE:

Payment shall be "Lump Sum" for specific individual Bid Items for Directional Bores of large stream crossings and/or some classified small streams where the physical crossing characteristics differ significantly from the other small streams in the project. Determination of required length is responsibility of Contractor. When a creek crossing test meter is shown on the drawings and it is necessary to tap the HDPE pipe for the meter connection, the tapping saddle specifically manufactured for HDPE pipe shall be used.

DIRECTIONAL BORE FOR STREAM CROSSINGS

N.T.S.

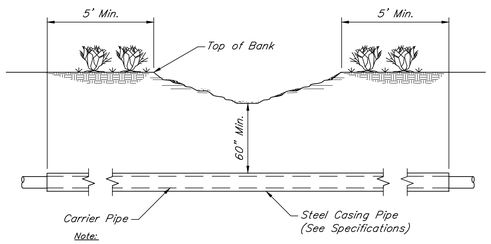


NOTE:

Payment of Directional Bores shall be done in the form of a "Lump Sum" payment, and will be reflected as such when bid. Determining the required pipe length, for both carrier and casing pipe, and the appurtenances necessary to accomplish the bore between the two M.J. adapters is responsibility of the Contractor. All fittings to be restrained using EBAA Iron Megalug, or approved equal.

DIRECTIONAL BORE—WITH CASING

N.T.S.

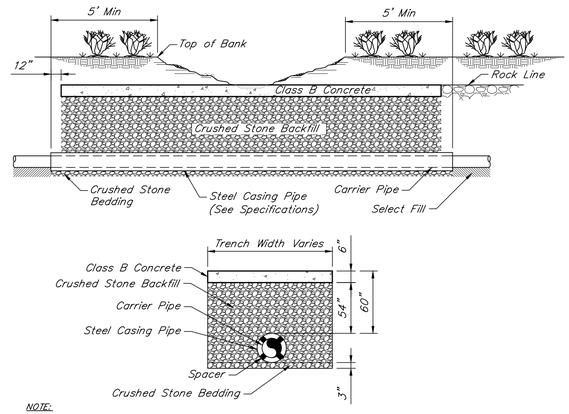


Note:

This crossing shall be made with appropriate fittings to prevent excess joint deflection. Normally four (4) fittings will be required. The contractor, at his option, may provide extra approach trench depth to avoid use of fittings. Allowable deflection of pipe may not be exceeded under any circumstance. See Roadway Crossing Installation for spacer placement.

STREAM CROSSING IN EARTH (TYPE A)

N.T.S.



NOTE:

This crossing shall be made with appropriate fittings to prevent excess joint deflection. Normally four (4) fittings will be required. The contractor, at his option, may provide extra approach trench depth to avoid use of fittings. Allowable deflection of pipe may not be exceeded under any circumstance. See Roadway Crossing Installation detail for spacer placement

STREAM CROSSING IN SOLID ROCK (TYPE B)

N.T.S.

MISCELLANEOUS DETAILS

EAST LAUREL WATER DISTRICT
OLD SALEM ROAD/McWHORTER ROAD SYSTEM IMPROVEMENTS CONTRACT 2

STATE OF KENTUCKY
JOHN SIMS
36737
LICENSED PROFESSIONAL ENGINEER

DRAWN BY: DPH
PROOFED BY:
CHECKED BY:
DATE: March 2024
SCALE: As Noted
REVISIONS

KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

SHEET NO.
D3

ELECTRICAL ABBREVIATIONS

A	AMPERE
AF	AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AFD	ADJUSTABLE FREQUENCY DRIVE
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BC	BARE COPPER
C	CONDUIT (RACEWAY)
@	AT
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
C/L	CENTERLINE
CLG	CEILING
CP	CONTROL PANEL
CT	CURRENT TRANSFORMER OR CONSTANT TORQUE
CTL	CONTROL
CU	COPPER OR CONDENSING UNIT
Δ/Y	DELTA/WYE
DB	DIRECT BURIAL
DN	DOWN
DPST	DOUBLE POLE-SINGLE THROW
EC	EMPTY CONDUIT
EF	EXHAUST FAN
EG	EQUIPMENT GROUND
EGC	EQUIPMENT GROUND CONDUCTOR
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC
EOL	END-OF-LINE
EMERG	EMERGENCY
EUH	ELECTRIC UNIT HEATER
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WALL HEATER/WATER HEATER
EX	EXISTING
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FO	FIBER OPTIC
FVNR	FULL VOLTAGE, NON-REVERSING
GEC	GROUNDING ELECTRODE CONDUCTOR
GFCI OR GFI	GROUND FAULT CURRENT INTERRUPTING
GND	GROUND
HOA	HAND-OFF-AUTO SELECTOR SWITCH
HP	HORSEPOWER
J OR JB	JUNCTION BOX
KVA	KILOVOLT-AMPERES
KWH	KILOWATT-HOUR
KCMIL	THOUSAND CIRCULAR MILS
LF	LIGHTING FIXTURE (LUMINAIRE)
LM	LUMEN
LTG	LIGHTING
LTS	LIGHTS
LS	LIMIT SWITCH
LV	LOW VOLTAGE
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
MTD	MOUNTED
MV	MEDIUM VOLTAGE
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NL	NON LINEAR
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OH	OVERHEAD
OL	OVERLOAD
P	POLE
OT	OVER TEMPERATURE
PH OR ø	PHASE
PNL	PANEL
PVC	POLY-VINYL CHLORIDE
PWR	POWER
RECEPT	RECEPTACLE
SHT	SHEET
S/N	SOLID NEUTRAL
SP	SINGLE POLE
SPD	SURGE PROTECTION DEVICE
SS	STAINLESS STEEL
STA	STATION
STD	STANDARD
STIC	SHIELDED TWISTED INSTRUMENT CABLE
SW	SWITCH
TB	TERMINAL BOX
TEL	TELEPHONE
TM	THERMAL MAGNETIC
TS	TAMPER SWITCH
TV	TELEVISION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
UG	UNDERGROUND
UH	UNIT HEATER
V	VOLTAGE OR VOLTS
W	WIRE
WP	WEATHERPROOF
W/	WITH
XFMR	TRANSFORMER

ELECTRICAL PLAN SYMBOLS

- ELECTRICAL CIRCUIT: SHORT=PHASE CONDUCTOR; LONG = NEUTRAL, DASHED = EQUIPMENT GROUND
- EMERGENCY CIRCUIT
- SWITCH: 3=3 WAY; 4=4 WAY; K=KEY; WP= WEATHERPROOF; M=MOTOR STARTER; PL=PILOT LT
- DUPLEX RECEPTACLE: WP = WEATHERPROOF; GFI = GROUND FAULT; NUMBER = MOUNTING HEIGHT
- SINGLE RECEPTACLE
- 208 or 240 VOLT RECEPTACLE
- DUPLEX RECEPTACLE, FLUSH FLOORBOX MOUNTED
- SPECIAL PURPOSE RECEPTACLE OUTLET
- THERMOSTAT
- MOTOR
- JUNCTION BOX – SMALL
- JUNCTION BOX – FLUSH-MOUNTED
- SAFETY SWITCH – NONFUSED UNLESS NOTED OTHERWISE
- MAGNETIC COMBINATION STARTER – THREE PHASE
- MAGNETIC COMBINATION STARTER – SINGLE PHASE
- TELECOM OUTLET: D = DATA; T = TELEPHONE; C = CABLE; NUMBER = QTY OF CABLES & JACKS
- CONDUIT TURNED UP
- CONDUIT TURNED DOWN
- WALL MOUNTED SPEAKER OR ALARM HORN
- PANELBOARD (SURFACE MOUNTED)
- PANELBOARD (FLUSH MOUNTED IN WALL)
- HEATER-WALL MOUNTED
- EXHAUST FAN/VENTILATOR
- SPEAKER GENERAL
- CLOCK
- EXISTING POWER POLE
- NEW POWER POLE
- LIGHTING POLE
- PHOTO CELL
- MANHOLE
- PULLBOX
- MUSHROOM HEAD EMERGENCY SWITCH
- DUCT SMOKE DETECTOR
- HEAT DETECTOR
- SMOKE DETECTOR
- FIRE ALARM MANUAL PULL STATION
- FIRE ALARM HORN/STROBE
- FIRE ALARM STROBE
- FIRE ALARM ZONE ADDRESSABLE MODULE
- SPRINKLER SYSTEM FLOW SWITCH
- TAMPER SWITCH
- MAGNETIC DOOR HOLDER
- KEYNOTE
- CALL SWITCH
- PASSIVE INFRARED MOTION DETECTOR
- ALL WORK IN THE ROOM/AREA SHALL CONFORM TO THE NEMA RATING INDICATED
- ELECTRICAL LINE UNDERGROUND
- ELECTRICAL LINE OVERHEAD
- INSTRUMENTATION LINE UNDERGROUND
- INSTRUMENTATION LINE OVERHEAD
- TELEPHONE LINE UNDERGROUND
- TELEPHONE LINE OVERHEAD
- GROUND ROD

ELECTRICAL DIAGRAM SYMBOLS

- TRANSFORMER
- CAPACITOR
- GROUND
- CURRENT TRANSFORMER
- POTENTIAL TRANSFORMER
- CIRCUIT BREAKER (GENERAL)
- CIRCUIT BREAKER, THERMAL-MAGNETIC
- CIRCUIT BREAKER, MAGNETIC-ONLY
- GROUND FAULT PROTECTED CIRCUIT BREAKER
- RELAY CONTACTS (NORMALLY OPENED)
- RELAY CONTACTS (NORMALLY CLOSED)
- THERMAL OVERLOAD PROTECTION
- FUSE
- DOT INDICATES A CONNECTION OF TWO WIRES
- TERMINALS FOR CONNECTION OF REMOTE WIRING
- RELAY/CONTACTOR COIL: C = CONTRACTOR; CR = CONTROL RELAY; TR = TIMING RELAY; M = MOTOR
- HAND-OFF-AUTOMATIC SWITCH
- FULL VOLTAGE NON-REVERSING MOTOR STARTER; X = NEMA SIZE
- PILOT LIGHT: R = RED; G = GREEN; A = AMBER; W = WHITE
- PILOT LIGHT – PUSH-TO-TEST
- MOTOR
- FUSED DISCONNECT SWITCH
- FLOAT SWITCH
- TEMPERATURE SWITCH (THERMOSTAT)
- PRESSURE SWITCH
- LIMIT SWITCH
- SOLENOID VALVE COIL
- ELAPSED TIME METER
- PUSHBUTTONS, N.C. & N.O. RESPECTIVELY
- SELECTOR SWITCH – TWO POSITION
- TIMER RELAY CONTACT: NORMALLY OPEN – TIMED OPEN UPON DEENERGIZATION
- TIMER RELAY CONTACT: NORMALLY CLOSED –TIMED CLOSE UPON DEENERGIZATION
- TIMER RELAY CONTACT: NORMALLY OPEN – TIMED CLOSE UPON ENERGIZATION
- TIMER RELAY CONTACT: NORMALLY CLOSED –TIMED OPEN UPON ENERGIZATION
- TRANSFER SWITCH
- GENERATOR
- EXTERNAL WIRING
- EMERGENCY STOP BUTTON

ELECTRICAL DEVICE MOUNTING HEIGHT SCHEDULE

DEVICE	HEIGHT AFF	REMARKS
RECEPTACLE – LOW	1'-4"	TO BOTTOM OF DEVICE BOX
LIGHT SWITCH	4'-0"	TO BOTTOM OF DEVICE BOX
CONTROL STATIONS & PUSH-BUTTONS	4'-0"	TO BOTTOM OF DEVICE BOX
PANELBOARDS & CONTROL PANELS	6'-6"	TO TOP OF BOX
SAFETY SWITCH	4'-0"	TO TOP OF BOX
THERMOSTAT	4'-8"	TO BOTTOM OF DEVICE BOX
EMERGENCY LIGHT FIXTURES	7'-4"	TO BOTTOM OF DEVICE BOX

LOCATION	CONDUCTORS	I/O TAG	TYPE	UNIT	CONTROL	MONITOR	TREND	HISTORIZE	TOTALIZE	AVERAGE	ALARM	REPORT	NOTES
KY-472 BPS	INTERNAL	POWER LOSS ALARM	DI								X		
	2#14	DOOR OPEN ALARM	DI								X		
	2#14	HEAT PUMP UNIT ALARM	DI								X		
	2#14	PUMP 1 CALL-TO-RUN	DO		X								
	2#14	PUMP 1 RUNNING STATUS	DI			X		X				X	REPORT # STARTS & RUNTIMES
	2#14	PUMP 1 OVERTEMP	DI								X		
	2#14	PUMP1 OVERLOAD	DI								X		
	2#14	PUMP 2 CALL-TO-RUN	DO		X								
	2#14	PUMP 2 RUNNING STATUS	DI			X		X					REPORT # STARTS & RUNTIMES
	2#14	PUMP 2 OVERTEMP	DI								X		
	2#14	PUMP 2 OVERLOAD	DI								X		
	2#14	SUCTION PRESSURE ALARM	DI								X		
	2#18 STIC	FLOWRATE	AI	GPM		X	X	X					
	2#18 STIC	FLOW TOTAL PULSE	DI	GAL					X			X	REPORT DAILY & MONTHLY FLOW
	2#18 STIC	SUCTION PRESSURE	AI	PSIG		X	X	X			X		
	2#18 STIC	SUCTION PRESSURE PRE-STRAINER	AI	PSIG		X	X	X			X		
	2#18 STIC	DISCHARGE PRESSURE	AI	PSIG		X	X	X			X		

SCADA I-O TABLE

WALL MOUNT PACKAGED HEAT PUMP SCHEDULE

TAG	MODEL	COOLING		TOTAL COOLING MBH	SENSIBLE COOLING MBH	EER ARI-390	HEATING @ 5°F MBH	COP @ 5°F	VOLTAGE / PHASE	OA CFM	FAN			ELEC. HEAT KW
		EAT DB/WB	OAT DB								CFM	ESP	RPM	
HPU-472	W18H	80/67	95	17.5	13.1	11.3	7.0	1.61	230/1ø	20	600	0.1	A/R	4.0

NOTES:
1. REFER TO HEAT PUMP SPECIFICATION FOR ADDITIONAL REQUIREMENTS
2. HEAT PUMP SHALL BE BARD OR APPROVED EQUAL
3. PROVIDE MOTORIZED FRESH AIR DAMPER
4. PROVIDE DIGITAL PROGRAMMABLE AUTO-CHANGEOVER THERMOSTAT
5. PROVIDE CUSTOM-COLOR – OWNER TO SELECT COLOR DURING SUBMITTAL REVIEW

LIGHT FIXTURE SCHEDULE

TYPE	MANUFACTURER	CATALOG SERIES	LAMPS	VOLTAGE	MOUNTING	DESCRIPTION	SYMBOL
LF-1	HOLOPHANE OR APPROVED EQUAL	EMS LED	6000 LM LED	120V	SURFACE	LINEAR FIXTURE, FIBERGLASS N4X WET LOCATION, CLEAR ACRYLIC DIFFUSER, 6KV/3KA SURGE, 5-YR WARRANTY, MEDIUM DISTRIBUTION, 4000K, 80 CRI	
LF-1E	HOLOPHANE OR APPROVED EQUAL	EMS LED	LM LED	120V	SURFACE	SAME AS LF-1 WITH 90 MINUTE EMERGENCY BATTERY	
LF-2	HOLOPHANE OR APPROVED EQUAL	HLWPC2	11700 LM LED	120V	WALL	WALLPACK, ALUMINUM POWDER-COAT, WET LOCATION IP-65, COLOR SELECTION BY OWNER, 10KV/10KA SURGE, FULL CUTOFF, 4000K, TYPE 3 MEDIUM DISTRIBUTION, 70 CRI, 5-YEAR WARRANTY	
LF-3	HOLOPHANE OR APPROVED EQUAL	CZAFB	225 LM	120VAC	SURFACE	EMERGENCY EGRESS FIXTURE, WET LOCATION, ALUMINUM POWDER-COAT, DARK BRONZE, COLD RATED TO -22F, 5-YR WARRANTY, PHOTOCELL NORMALLY ON WITH BATTERY	

ELECTRICAL SYMBOLS, ABBREVIATIONS, & SCHEDULES

EAST LAUREL WATER DISTRICT
WATER SYSTEM IMPROVEMENTS
CONTRACT 2
LAUREL COUNTY, KENTUCKY

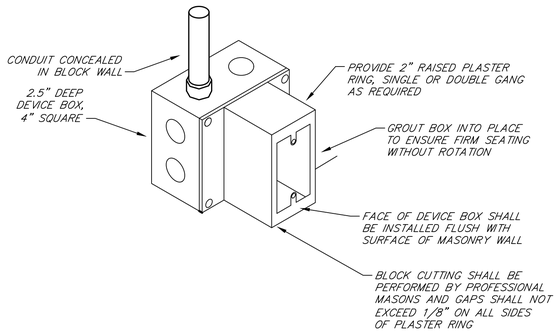
BENJAMIN L. MURPHY 25348 LICENSED PROFESSIONAL ENGINEER STATE OF KENTUCKY 5/5/2023

DRAWN BY: JM
DESIGNED BY: BLM
CHECKED BY: BRW
DATE: July 2022
SCALE: N/A
REVISIONS

KENVIRONS Civil & Environmental Engineers

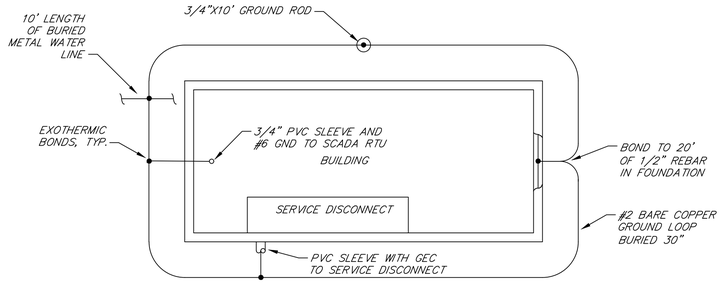
PROJECT NO. 2020052

SHEET NO. E-1



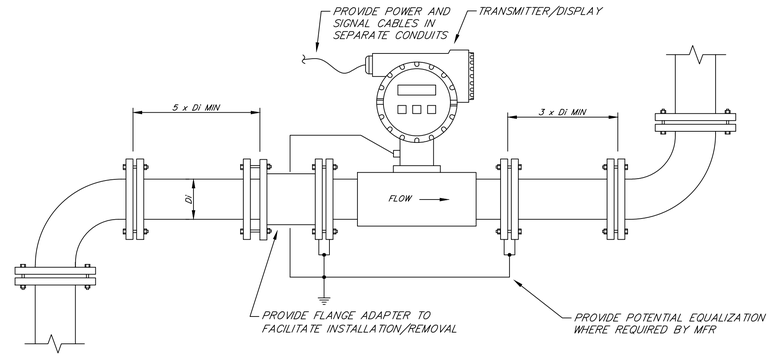
MASONRY DEVICE BOX DETAIL

NOT TO SCALE



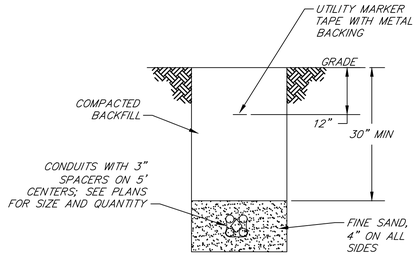
TYPICAL BUILDING GROUNDING DETAIL

N.T.S.



MAGMETER INSTALLATION DETAIL

N.T.S.

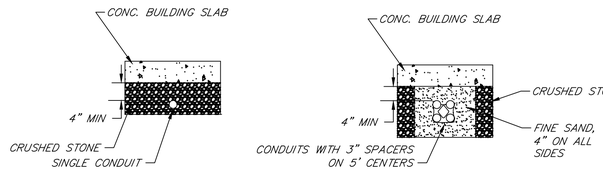


TYPICAL TRENCH DETAIL

N.T.S.

TRENCHING NOTES:

- UTILITY MARKER TAPE SHALL RUN THE ENTIRE LENGTH OF DUCT BANK.
- MAINTAIN MINIMUM 12" SPACING BETWEEN INSTRUMENTATION AND POWER.
- MAINTAIN MINIMUM 36" SPACING BETWEEN OTHER SITE PIPING, INCLUDING WATER, AND GAS.

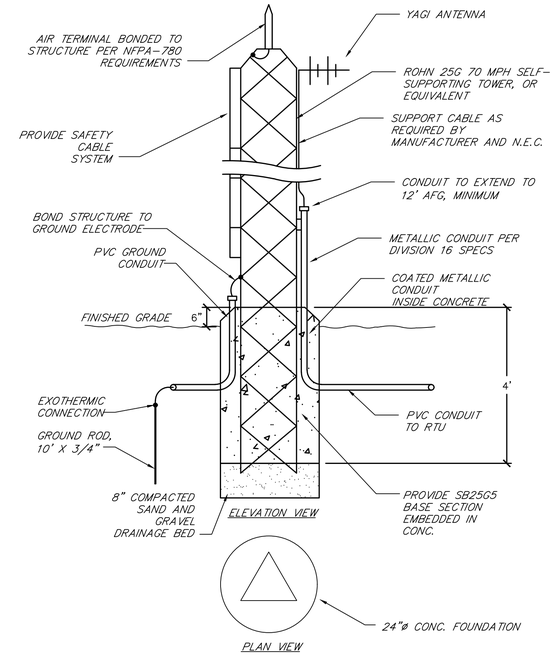


SINGLE CONDUIT MULTIPLE CONDUITS

CONDUIT INSTALLATION UNDER BUILDING SLAB

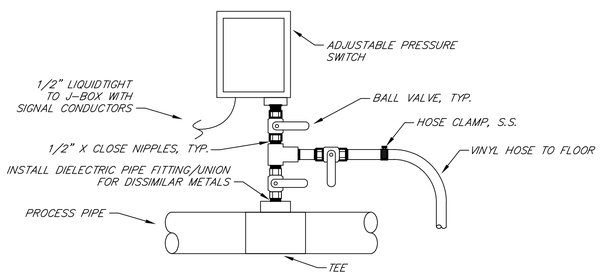
N.T.S.

NOTE: CONDUITS SHALL BE INSTALLED DEEPER WHERE NECESSARY TO PREVENT CURVED PORTION OF ELBOW FROM BEING EXPOSED ABOVE GRADE



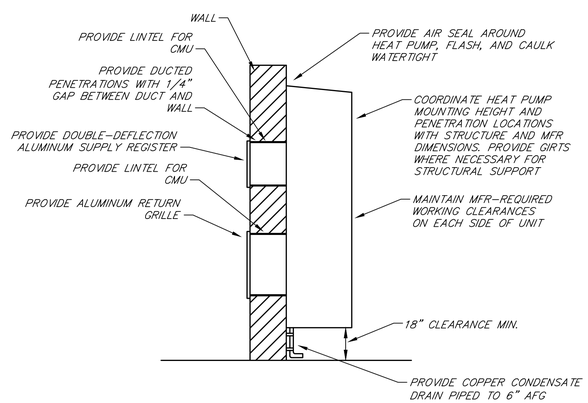
ANTENNA TOWER DETAIL – 20'

NOT TO SCALE



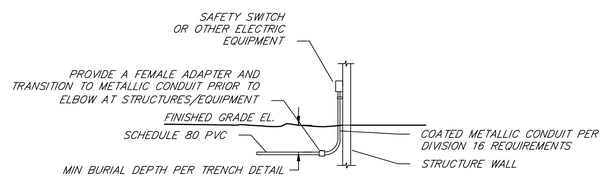
PRESSURE SWITCH INSTALLATION DETAIL

N.T.S.



WALL-MOUNT HEAT PUMP INSTALLATION DETAIL

N.T.S.



NOTE:
ALL UNDERGROUND PVC CONDUITS SHALL TRANSITION TO METALLIC PRIOR TO EMERGING FROM GRADE OR SLAB. SEE SECTION 16020 FOR ACCEPTABLE CONDUIT TYPES

TYPICAL UNDERGROUND PVC CONDUIT TRANSITION TO METALLIC CONDUIT

NOT TO SCALE

ELECTRICAL DETAILS

EAST LAUREL WATER DISTRICT
WATER SYSTEM IMPROVEMENTS
CONTRACT 2
LAUREL COUNTY, KENTUCKY

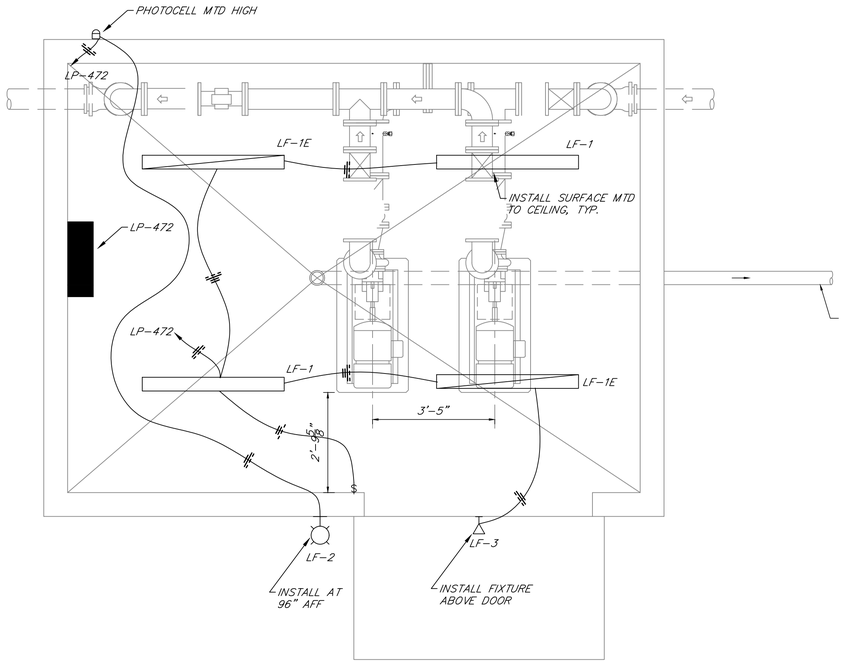
STATE OF KENTUCKY
BENJAMIN L. MURPHY
25348
LICENSED PROFESSIONAL ENGINEER
5/15/2025

DRAWN BY: PLM
CHECKED BY: BRW
DATE: July 2022
SCALE: N/A
REVISIONS

KENVIRONS
Civil & Environmental Engineers

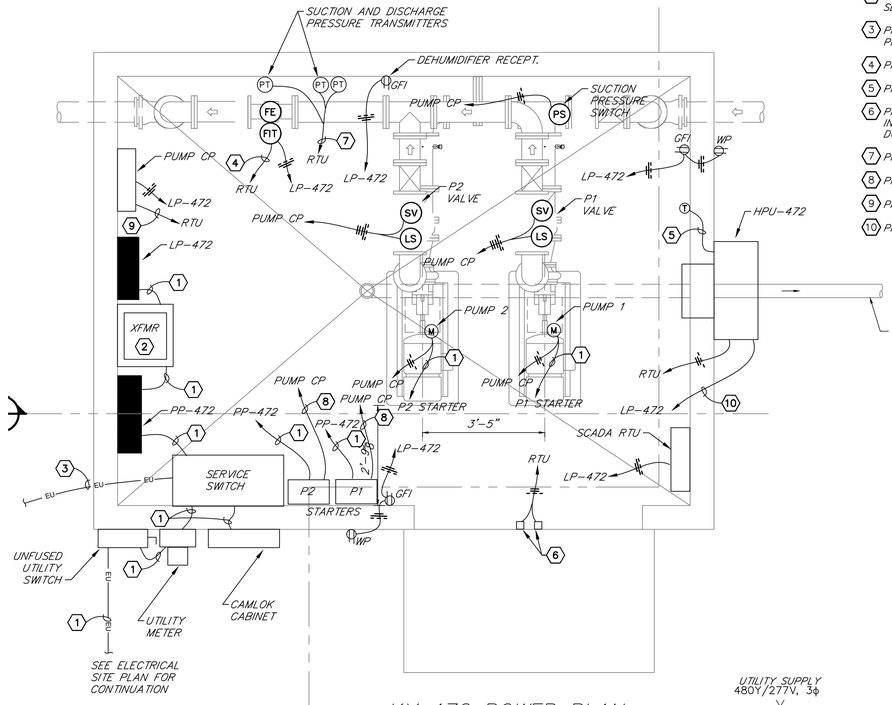
PROJECT NO.
2020052

SHEET NO.
E-2



KY 472 LIGHTING PLAN

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



KY 472 POWER PLAN

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

GENERAL SHEET NOTES:

- INTERIOR ELECTRICAL EQUIPMENT SHALL BE NEMA 1 OR NEMA 12. EXTERIOR EQUIPMENT SHALL BE NEMA 3R

SHEET NOTES:

1. SEE ONE-LINE DIAGRAM, THIS SHEET, FOR REQUIREMENTS
2. PROVIDE TRANSFORMER MTD ON 4" CONC. PAD. SEE ONE-LINE DIAGRAM FOR REQUIREMENTS
3. PROVIDE #2 GEC, 3/4" PVC CONDUIT AND PROVIDE BUILDING GROUND LOOP PER DETAIL
4. PROVIDE 2-2#18 STIC, 1#14G, 3/4"C
5. PROVIDE THERMOSTAT CABLE, 1#14G, 3/4"C
6. PROVIDE DOOR CONTACT SWITCHES CONNECTED IN SERIES TO TRIGGER ALARM WHEN EITHER DOOR IS OPENED
7. PROVIDE 3-2#18 STIC, 1#14G, 1"C
8. PROVIDE 10#14, 1#14G, 3/4"C
9. PROVIDE 20#14, 1#14G, 1"C
10. PROVIDE 2#8, 1#10G, 3/4"C

PANEL:	PP-472							VOLTAGE:			480V, 3Ø, 3W	
ENCLOSURE:	NEMA-1							MAINS AMPACITY:			100A	
MOUNTING:	WALL							MAIN C.B. SIZE:			MLO	
LOCATION:	KY 472 P.S.							TOTAL SPACES:			30	

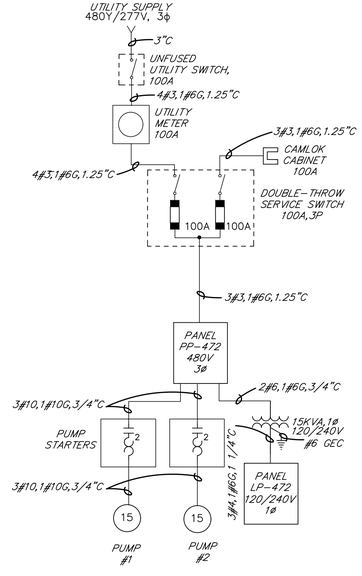
CIRCUIT DESCRIPTION	VA	POLES	BREAKER	NO	PHASE A VA	PHASE B VA	PHASE C VA	NO.	BREAKER	POLES	VA	CIRCUIT DESCRIPTION
SPD		3	30A	1	5600	----------	----------	2	50A	3	5600	PUMP #1 AFD
				3	----------	5600	----------	4			5600	
				5	----------	----------	5600	6			5600	
PANEL LP-472 TRANSFORMER	3000	2	60A	7	3000	----------	----------	8	50A	3		Pump #2 AFD
	3000			9	----------	3000	----------	10				
				11	----------	----------	0	12				
SPARE		3	25A	13	0	----------	----------	14	50A	3		SPARE
				15	----------	0	----------	16				
				17	----------	----------	0	18				
				19	0	----------	----------	20				
				21	----------	0	----------	22				
				23	----------	----------	0	24				
				25	0	----------	----------	26				
				27	----------	0	----------	28				
				29	----------	----------	0	30				
TOTAL VA PER PHASE:					8600	8600	5600					
TOTAL AMPS PER PHASE					31	31	20.2	TOTAL PANEL VA: 22800				

NOTES:
1. PROVIDE AN INTEGRAL SPD, 80KA MIN

PANEL:	LP-472							VOLTAGE:			120/240V, 1Ø, 3W	
ENCLOSURE:	NEMA 1							MAINS AMPACITY:			100A	
MOUNTING:	WALL							MAIN C.B. SIZE:			80A	
LOCATION:	KY 472 P.S.							TOTAL SPACES:			18	

CIRCUIT DESCRIPTION	VA	POLES	BREAKER	NO	PHASE A VA	PHASE B VA	NO.	BREAKER	POLES	VA	CIRCUIT DESCRIPTION
SPD		2	30A	1	0	----------	2	30A	2		SPARE
				3	----------	0	4				
LIGHTING-INTERIOR	700	1	20A	5	1200	----------	6	15A	1	500	SCADA RTU
RECEPTACLES	600	1	20A	7	----------	700	8	15A	1	100	FLOWMETER
RECEPTACLES	600	1	20A	9	600	----------	10	15A	1		SPARE
PUMP CP	200	1	20A	11	----------	1700	12	20A	1	1500	DEHUMIDIFIER
LIGHTING-EXTERIOR	100	1	20A	13	100	----------	14	15A	1		SPARE
HPU-472	4500	2	40A	15	----------	4500	16	15A	1		SPARE
	4500	2	40A	17	4500	----------	18	15A	1		SPARE
TOTAL VA PER PHASE:					6400	6900					
TOTAL AMPS PER PHASE:					53.3	57.5	TOTAL PANEL VA: 13300				

NOTES:
1. PROVIDE AN INTEGRAL SURGE PROTECTION DEVICE (SPD)



KY 472 ONE-LINE DIAGRAM

KY 472 PUMP STATION ELECTRICAL PLANS

EAST LAUREL WATER DISTRICT
WATER SYSTEM IMPROVEMENTS
CONTRACT 2
LAUREL COUNTY, KENTUCKY

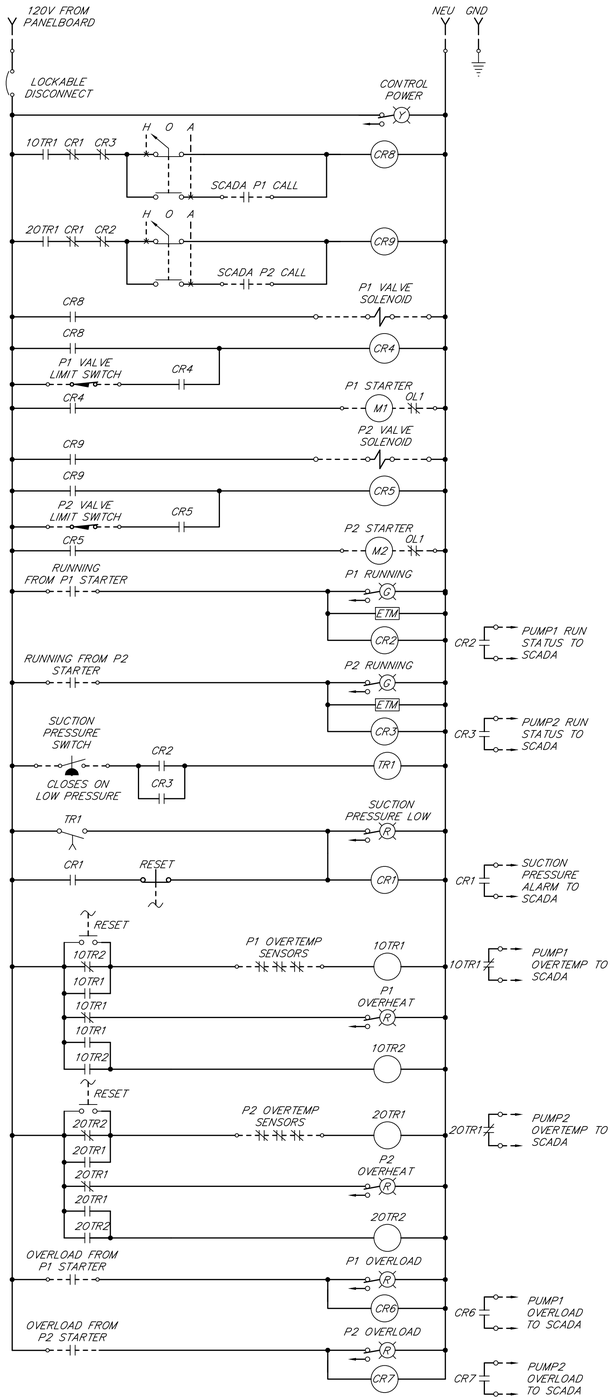
STATE OF KENTUCKY
BENJAMIN L. MURPHY
25348
LICENSED PROFESSIONAL ENGINEER
5/15/2025

DRAWN BY: JM
CHECKED BY: BLM
CHECKED BY: BRW
DATE: July 2022
SCALE: 1/2" = 1'-0"
REVISIONS

KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

SHEET NO.
E-3

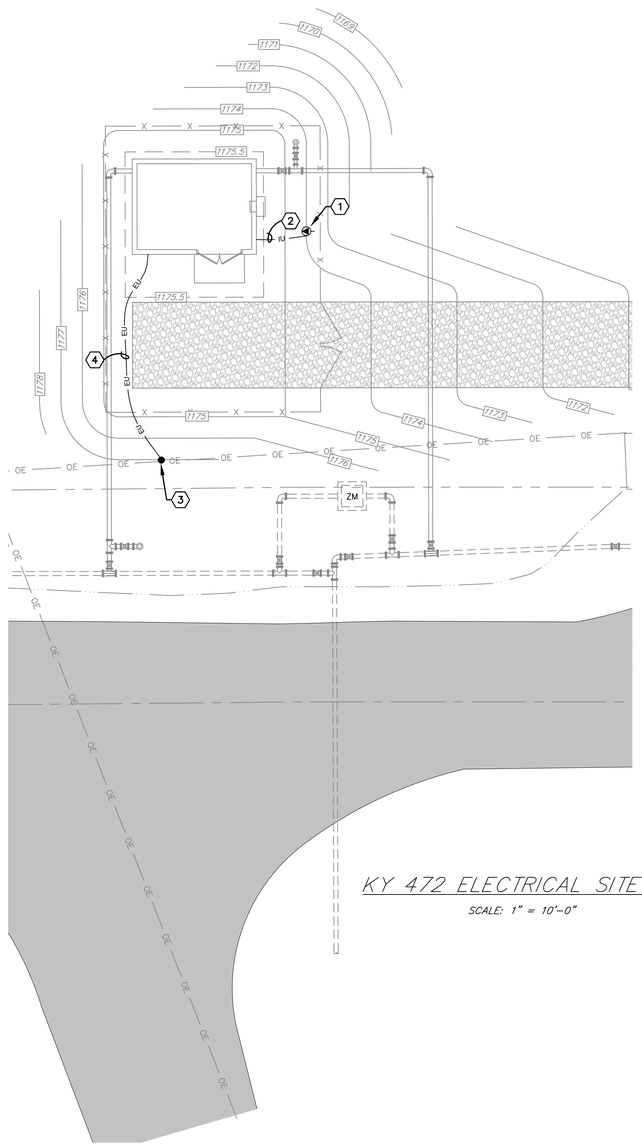


BOOSTER PUMP PILOT CONTROL PANEL

NOT TO SCALE

SHEET NOTES:

1. PROVIDE 20' ANTENNA, TOWER, AND FOUNDATION PER ANTENNA TOWER DETAIL
2. PROVIDE 1.25"C FROM SCADA RTU TO ANTENNA TOWER
3. NEW TRANSFORMER POLE BY UTILITY, APPROXIMATE LOCATION. COORDINATE WITH UTILITY FOR ACTUAL LOCATION
4. PROVIDE 3" CONDUIT WITH LONG-SWEEP ELBOWS INSTALLED PER UTILITY REQUIREMENTS



KY 472 ELECTRICAL SITE PLAN

SCALE: 1" = 10'-0"

KY 472 PUMP STATION ELECTRICAL SITE PLAN AND TYP. PUMP CP

EAST LAUREL WATER DISTRICT
WATER SYSTEM IMPROVEMENTS
CONTRACT 2
LAUREL COUNTY, KENTUCKY

5/15/2025

COMMONWEALTH OF KENTUCKY
BENJAMIN L MURPHY
25348
LICENSED PROFESSIONAL ENGINEER

DRAWN BY: AM
CHECKED BY: BLM
CHECKED BY: BRW
DATE: July 2022
SCALE: 1" = 10'
REVISIONS

KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

SHEET NO.
E-4

DESIGN CRITERIA

Building Code	ASCE 7 / 2018 Kentucky Building Code, 3rd Edition Each as only as applicable
County	Laurel
Risk Category	III

Floor Loads

Floor live load	100 psf
Floor dead load	actual weight of floor system plus weight of equipment

ROOF LOADS

Roof live load	20 psf
Roof dead load (superimposed)	15 psf
Roof snow load	
Ground snow load	Pg = 15 psf
Snow exposure factor	Ce = 1.0
Thermal factor	Ct = 1.2
Importance factor	Is = 1.10
Rain on snow surcharge	Pr = 0 psf
Flat-roof snow load	Pf = 13.9 psf
Sloped-roof snow load	Ps = 13.9 psf
Minimum roof snow load	Pm = 16.5 psf
Snow drift	no snow drift locations

WIND LOAD DATA

Basic wind speed (3 second gust)	112 mph (ultimate) 83 mph (service)
Wind exposure category	C
Wind importance factor	Iw = 1.15 (service)
Components and cladding wind design pressures	28 psf (service)

EARTHQUAKE LOAD DATA

Seismic site class	D
Mapped short period spectral response acceleration	Ss = 0.250
Mapped 1 second spectral response acceleration	S1 = 0.091
Design short period spectral response acceleration	Sds = 0.267
Design 1 second period spectral response acceleration	Sd1 = 0.146
Seismic design category	C
Seismic importance factor	Ie = 1.25
Basic structural system	Bearing Wall System
Seismic force resisting system	Intermediate Reinforced Masonry Shear Walls
Seismic response factor	R=2
Method of analysis	Equivalent Lateral Force Procedure
Seismic coefficient	Cs = 0.22

MATERIAL STRENGTHS USED IN DESIGN

(for reference in calculations – see specifications or notes for actual material specifications)

Concrete:

Class A (structural)(see specifications)	28 day f'c = 4,500 psi
class b (non-struct)(see specifications)	28 day f'c = 3,500 psi
Reinforcing bars (ASTM A615 OR A706 GRADE 60)	fy = 60,000 psi
Welded wire fabric (ASTM A185)	fy = 65,000 psi
Prestressing strand (ASTM A416 GRADE 270 LO LAX)	fu = 270,000 psi
Deformed bar anchors (ASTM A496)	fy = 80,000 psi
Structural steel sections W AND WT (ASTM A992)	fy = 50,000 psi
Structural steel sections C, L, M, S, HP, MT and ST (ASTM A36)	fy = 36,000 psi
Structural steel plates bars, and rods u.n.o. (ASTM A36)	fy = 36,000 psi
Structural steel sections HSS (ASTM A500 GRADE B)	fy = 46,000 psi
Structural steel pipe (ASTM A53 GRADE B)	fy = 35,000 psi
Structural bolts (ASTM A325)	fu = 120,000 psi
Concrete masonry (VARIOUS)	f'm = 1,500 psi
Soil allowable bearing pressure for foundations	qa = 3,000 psf
Rock allowable bearing pressure	qa = 30,000 psf

GENERAL

1. The requirements of these general notes apply unless otherwise noted on plans or in specifications.
2. All dimensions of existing conditions shall be verified prior to commencing work. Discrepancies between existing conditions or between the drawings and specifications shall be communicated to the structural engineer and architect.
3. This structure is designed to be stable and self-supporting only when fully completed. Stability of the structure during construction is the responsibility of the contractor. All necessary temporary bracing required to stabilize and support the structure during all construction phases shall be furnished and installed by the contractor. If required, temporary bracing shall be designed by a licensed engineer employed by the contractor.
4. Construction loads imposed on the structural framing shall not exceed the design capacity of the framing at the time such loads are imposed.
5. Non-structural elements of the building (architectural finishes, masonry veneer and associated ties, insulation, sheathing, ductwork, piping, etc.) are generally not shown on these structural drawings. Certain non-structural elements that are shown on the structural drawings are shown for reference only. Non-structural elements shall be constructed as shown on the architectural and trade drawings.
6. Any material ordered or work performed prior to the engineer's review and approval of the shop drawings is at the contractor's sole risk.

FOUNDATIONS

1. The foundations have been designed based on assumed bearing capacities.
2. Foundation design is based on an allowable bearing capacity of 2,000 psf for native soil (undercut as may be required) and controlled fill and 6,000 psf for bedrock.
3. If required, a qualified testing company shall be engaged by the contractor to verify bearing capacities prior to installing foundations.
4. All footings shall be supported on undisturbed soil, engineered fill or competent bedrock where indicated.
5. Fill shall be compacted to 98% of optimum laboratory density in accordance with ASTM D 698 Standard Proctor Method in maximum 8" lifts unless noted otherwise.
6. All piers and spread footings are centered on column centerlines and all wall footings are centered under walls unless indicated otherwise.
7. Location of existing foundations, if any are shown on drawings, are approximate. exact condition shall be verified at time of construction.
8. The structural engineer shall be notified if soft, loose or lower bearing capacity soils or rock are encountered.
9. Existing underground utilities in areas of foundation construction shall be located prior to construction of foundations. appropriate measures shall be taken to avoid damage to existing utilities and to ensure adequate foundation bearing around utilities.
10. Foundations shall not be placed on mud or muck, soft or loose soil, in standing water or on frozen ground.
11. All non-cantilever walls shall be be adequately braced prior to backfill.
12. Cantilever retaining walls shall not be backfilled until the concrete has developed 100% of the required 28-day compressive strength for the class of concrete specified.

CAST-IN-PLACE CONCRETE

1. All concrete construction shall be performed in accordance with aci 301-10, aci 318-11, ACI 117-10, ACI 308.1-11, and ACI SP-66, the ACI Detailing Manual-2004. Hot and cold weather concrete construction shall be performed in accordance with ACI 305 and ACI 306 as required. Shoring and reshoring of concrete structures shall be performed in accordance with ACI 347. Structural design and removal of concrete formwork, shores and reshores shall be the responsibility of the contractor.
2. Shop drawings showing the size, length, quantity, location and mark of all reinforcing bars, supports and accessories shall be submitted for approval prior to fabrication.
3. Mix designs and admixture product data shall be submitted for approval prior to ordering concrete.
4. Concrete properties shall be in accordance with the specifications.
5. Reinforcement and accessory properties shall be in accordance with the specifications.
6. Reinforcement compression splices shall be lapped 30 bar diameters of the larger bar.
7. Reinforcement tension splices shall be lapped in accordance with the following table:

bar size	3,000 psi conc. lap length	>=4,000 psi conc. lap length
#3	17"	15"
#4	23"	20"
#5	28"	24"
#6	34"	29"
#7	49"	43"
#8	56"	49"
#9	69"	60"

add 30% for horizontal top bars with more than 12" of concrete below.
add 50% for bar spacing less than two bar diameters.
lap length adds are cumulative.

8. Concrete protection for reinforcement shall be in accordance with the following table:

condition	clear cover over bars
concrete cast against and permanently exposed to earth	3"
concrete exposed to earth or weather	
#6 through #18 bars	2"
#5 bar, W31 or D31 wire and smaller	1 1/2"
concrete not exposed to weather or in contact with ground	
slabs, walls, and joists	
#14 and #18 bars	1 1/2"
#11 bar and smaller	3/4"

9. The typical details on these drawings contain additional general concrete construction notes and information.
10. All concrete shall be reinforced unless noted otherwise.
11. supports to adequately position reinforcing bars during construction shall be installed.
12. Foundation dowels of the same size and spacing as vertical steel shall be installed for all walls, piers, and columns.
13. All reinforcing at wall and footing corners and intersections shall be continuous by the use of bent bars or corner bars unless indicated otherwise.
14. Construction joints shall be positioned so as not to adversely affect the structural performance. Construction joint locations not indicated on the structural drawings shall be approved by the structural engineer.
15. Pipe sleeves and inserts shall be installed in concrete work at all penetrations. penetrations of beams, joists, columns or structural slabs not indicated on the structural drawings shall be approved by the structural engineer.
16. Only weldable reinforcing bars may be welded.
17. Admixtures containing chloride or other corrosive chemicals shall not be used in concrete.
18. Aggregates shall be free of deleterious or non-durable materials such as cherts.
19. reinforcing shall be adequately tied and supported to hold it in the correct position during construction.
20. Concrete shall be consolidated adequately during placement by mechanical vibration in accordance with published practices.
21. Unshored slab construction shall be finished level and have the minimum required thickness of concrete at the thinnest section. Beam camber shall be verified prior to placing unshored concrete slabs.
22. Plastic chairs shall be used in all concrete that will be exposed to view in the completed structure.
23. Exposed concrete corners shall be chamfered minimum ¾".
24. Fill pockets around connections with concrete flush and smooth unless indicated otherwise.
25. Concrete finishes shall be in accordance with the specifications.
26. Concrete slab-on-grade flatness and levelness shall be in accordance with the specifications.

CONCRETE MASONRY

1. Concrete masonry walls shown on the structural drawings are structural walls. concrete masonry walls not shown on the structural drawings are partitions. Refer to architectural drawings for details of partitions unless indicated otherwise on the structural drawings.
2. Concrete masonry walls shown on structural drawings shall be constructed in accordance with ACI 530.1 "Specifications for Masonry Structures".
3. Installation drawings, product data and material certifications shall be submitted for approval. The submittals shall conform to the specifications.
4. Concrete masonry materials shall conform to the requirements of the specifications.
5. Minimum compressive strength of concrete masonry (f'm) shall be 1,500 psi determined in accordance with the specifications.
6. Mortar cement shall be portland-lime cement. Masonry cement shall not be used.
7. The typical details on the drawings contain additional general masonry notes and details.
8. Bearing walls shall be anchored at intersections by galvanized steel straps 1 1/2" x 1/4" x 24" with 2" bend at 90 degrees each end. Install straps into grouted cores of c.m.u. at 24" maximum vertical spacing. do not install anchors at control joints or where non-bearing partitions abut bearing walls.
9. Corners of load bearing concrete masonry walls shall be laid in running bond.
10. Provide solid grouted concrete masonry around bearing ends of all beams and joists.
11. No openings for trades shall occur in concrete masonry walls within 16 inches of beam bearing centerlines.
12. Pipe sleeves and inserts shall be installed in concrete work at all penetrations.
13. Embedded item locations shall be coordinated with the approved shop drawings of the trades.
14. Only weldable reinforcing bars may be welded.
15. Concrete masonry is supposed to absorb water from mortar and grout. do not place or grout wet concrete masonry units.
16. Webs of masonry units for piers, columns, pilasters, and the starter course shall be mortared. webs of masonry units shall also be mortared where required to confine grout.
17. Cells of masonry in piers, columns, pilasters and where otherwise indicated shall align. this may require the use of block styles other than stretchers (e.g. square-end block).
18. Spaces to be filled with grout shall be kept clean and free from protrusions of masonry or mortar.
19. All cells of below-grade concrete masonry units shall be grouted .
20. The maximum grout pour height for each specific type and size of concrete masonry unit shall not exceed the limits specified in ACI 530.1.
21. Masonry grouting shall conform to the specifications.
22. Vertical control joints are indicated on the civil or architectural drawings.
23. Vertical control joints shall be installed between all non-loadbearing partitions and bearing walls.
24. Spacing of control joints shall not exceed 24 feet unless noted otherwise.
25. Splice lap lengths for reinforcing shall be in accordance with the following table:

bar size	lap length
#3	18"
#4	25"
#5	31"
#6	57"

26. Do not embed any non-structural items in structural masonry without written permission from the structural engineer.

STRUCTURAL STEEL

1. Detailing, fabrication, and erection of structural steel shall conform to the AISC "Specification for Structural Steel", (ANSI/AISC 360-10), AISC "Code of Standard Practice for Structural Steel Buildings and Bridges", AISC / RCSC "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" and AWS D1.1 "Structural Welding Code."
2. Shop drawings shall be submitted for approval prior to fabrication of structural steel. Shop drawings shall conform to requirements in the specifications.
3. Structural steel members shall conform to the following specifications:

member type	specification
wide flange	ASTM A 992
standard beam	ASTM A 36
channel	ASTM A 36
angle	ASTM A 36
plate	ASTM A 36
bar and rod	ASTM A 36
rectangular, square & round tube (hss)	ASTM A 500 Gr B
pipe	ASTM A 53 Gr B
threaded rod	ASTM A 36
anchor rod	ASTM F 1554 Gr 36
common bolts	ASTM A 307 Gr A
high strength bolts (twist off)	ASTM F 1582
high strength bolts (snug tight)	ASTM A 325
direct tension indicating washers	ASTM F 959
hardened washers	ASTM F 436
nuts	ASTM A 563
shear connectors (studs)	ASTM A 108
welding electrode	AWS D1.1 E70XX (except as otherwise req'd)

4. Grout shall conform to requirements in the specifications.
5. The typical details on the drawings contain additional general steel construction notes and details.
6. High-strength bolted connections shall be fully pretensioned unless noted as snug tight on the drawings.
7. Hardened washers shall be installed under all nuts for fully pretensioned bolts.
8. Hardened washers shall be installed over all oversized holes, standard slots and short slotted holes. plate washers 5/16" thick shall be welded over large holes and long slots.
9. Bolted joints where relative movement is allowed shall have jam nuts to prevent unthreading.
10. Structural steel surface preparation and finishes shall conform to the requirements in the specifications.

PREFABRICATED WOOD TRUSS CONSTRUCTION

1. Truss design and manufacture shall conform to the current building code authorized edition of ANSI TPI-1, "National Design Standard for Metal-Plate Connected Wood Truss Construction."
2. Truss handling and erection shall conform to the latest edition of BCSI guides. See www.sbcindustry.com.
3. Truss layout and truss shop drawings shall be submitted for approval. These drawings shall include:
   - 3.7. a copy of the bcsi jobsite package, which are instructions for safe handling and erection of wood trusses.
   - 3.8. truss layout showing dimensioned location and shipping mark of each truss and locations of all compression web and chord bracing.
   - 3.7. truss configuration, including span, pitch and location of all member intersections.
   - 3.8. species, stress grade, and nominal size of lumber used.
   - 3.9. design loads including point loads and reactions and load combinations used in design.
   - 3.10. printout of member axial and flexural stresses plus interaction of combined stresses for the controlling load combination.
   - 3.11. printout of truss deflections under service load combinations.
   - 3.12. joint, splice, and truss to truss girder connection design and details.
4. Truss shop drawings, and calculations shall be sealed by a professional engineer licensed in the state of Kentucky.
5. Trusses shall be designed for a maximum vertical deflection of 1/480 of the span for 100% live load and 1/240 of the span for 100% total load.
6. Truss framing members shall be Southern Pine No. 2 or better.
7. All connections plates shall be hot-dipped galvanized according to ASTM A 153.
8. Trusses shall be spaced at 2'-0" o.c. maximum. Web arrangement shall be manufacturer's standard unless otherwise indicated. See all drawings for openings that may be required in trusses.
9. Permanent bracing for individual members of a wood truss shall be shown on the truss design drawings and shall be installed by the building contractor. Permanent bracing shall be installed as indicated on the truss manufacturer's drawings and instructions.
10. All bracing that terminates at or is interrupted by structural bearing walls shall be attached thereto.
11. Lateral brace splices shall be lapped at least two trusses.
12. Trusses delivered to the project in more than one piece and all multi-ply trusses shall be connected before installation or according to truss design drawings if indicated otherwise.
13. Concentrated loads from construction materials (e.g. roof sheathing bundles) shall not be placed on trusses until all required bracing has been installed and roof sheathing is permanently nailed in place. Trusses shall not be overloaded with construction materials.
14. Temporary bracing to prevent lateral movement during erection shall be installed according to the handling and installation guidelines.
15. Work points, overhangs and other dimensions not indicated on the structural drawings should be determined from the appropriate drawings. Conflicting dimensions shall be clarified in writing.

ROOF AND WALL PLYWOOD SHEATHING

1. All sheathing shall be plywood (not OSB) manufactured in accordance with industry specification PS-1 and shall bear the stamp of either the American Plywood Association (APA) or Timberco inc. (TECO).
2. All sheathing shall be exterior grade.
3. All roof and wall sheathing shall have veneer grade C-C or better.
4. Roof sheathing shall have tongue and groove edges and be either APA "Sturd-i-Floor" or TECO "Floor Span" with thickness and/or span rating as indicated on the drawings or as required.
5. Wall sheathing shall have plain square edges and be APA "Rated Sheathing" or TECO "Sheathing Span" with thickness and/or span rating as indicated on the drawings or as required.
6. All edges of wall sheathing shall be blocked with a 2x wood member and nailed.
7. Minimum nailing for roof and wall plywood sheathing shall be 10d common nails at 12" o.c. in the panel interior and 6" o.c. at panel edges and boundaries.

STRUCTURAL WOOD

1. All structural wood dimension lumber shall be Southern Pine No. 2 species stress grade and shall bear a stamp by the southern pine inspection bureau (SPIB) indicating this.
2. All structural composite lumber (LVLs) shall have the following allowable design stresses:

Fb =	2,750 psi	FcPERP =	750 psi
Fv =	285 psi	E =	2.0 Mpsi
Ft =	1,150 psi	Fc =	2,600 psi

3. Submit product data of structural composite lumber for approval prior to ordering.
4. Two-ply and three-ply LVLs shall be fastened together with two rows of Simpson SDS25312 screws or approved equal at 12 inches on center on each face.
5. All structural wood construction shall be in conformance with the AF&PA National Design Specification for Wood Construction (NDS).
6. All horizontal lumber members shall be fabricated and installed with natural camber (crown) upwards.
7. Nails shall be common wire nails unless noted otherwise. Nails exposed to weather or in preservative treated wood shall be hot dipped galvanized to ASTM A 153. Wood members shall be nailed as indicated in the wood nailing schedule of the International Building Code if not indicated otherwise.
8. Bolts in wood members shall be ASTM A 307 with factory zinc coating. Holes in wood for bolts shall be 1/16" oversize. USS flat washers conforming to ASTM F 844 shall be used under bolt heads and nuts against wood. Bolts, nuts and washers exposed to weather or in preservative treated wood shall be hot dipped galvanized to ASTM A 153.
9. Connectors indicated as "Simpson" on the drawings shall be manufactured by Simpson Strong-tie, Inc. or approved equal. These are also referred to as "framing connectors" or "framing anchors" herein.
10. Simpson connectors shall be hot-dipped galvanized to ASTM A 123 where indicated or where exposed to weather. Simpson connectors shall be galvanized to ASTM A 653 G180 where in contact with preservative treated wood and not exposed to weather and shall be ASTM A 653 G90 otherwise or unless indicated otherwise.
11. Product data and a plan and schedule of Simpson connectors showing the model number, quantity, finish and type and number of fasteners for all connections shall be submitted for approval prior to ordering Simpson connectors.
12. Simpson anchors shall be installed in accordance with all of the manufacturer's instructions.
13. Preservative treated wood appropriate for the service shall be used where in direct contact with concrete or masonry or where exposed to weather.
14. Cutting structural lumber members other than as indicated on the structural drawings requires approval of the structural engineer. Notching of lumber will not be permitted.
15. Nominal 1x3 wood crossed bridging with beveled ends or Simpson TB36 steel joist bridging shall be installed at maximum 8'-0" spacing on all joists with a minimum of one row of bridging on all joists longer than 10 feet.
16. Structural wood members shall be protected from dirt, moisture, sunlight and damage during manufacture, fabrication, shipping, storage and construction.

SDG LLC
306 W Main St Ste 410
Frankfort, KY 40601
(859) 351-9169

STRUCTURAL GENERAL NOTES

EAST LAUREL WATER DISTRICT
WATER SYSTEM IMPROVEMENTS
CONTRACT 1
LAUREL COUNTY, KENTUCKY

DRAWN BY: BWC
CHECKED BY: MWC
DATE: July 2022
SCALE: AS NOTED
REVISIONS

KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

SHEET NO.
S1

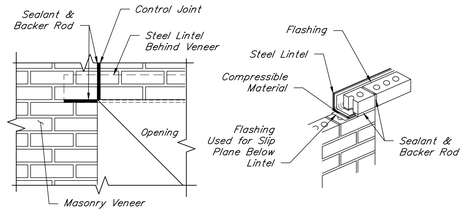
SPECIAL INSPECTION & CONSTRUCTION INSPECTION & TESTING

1. Special inspection is required according to section 1704 of the building code.
2. Special inspection on this project applies only to the following construction:
   2.1. the pump station building

   All other structures shall be inspected according to these notes, but those inspections are not considered "special inspections" as required by the building code because these structures are not primarily for human occupancy and are not in the scope of the building code. The inspector shall keep special inspections and non-"special" inspections reports and tests separate and identifiable for record keeping purposes.
3. Special inspections shall be performed for the following work as required in the building code:
   - 3.1. Contractor's statement of responsibility in accordance with section 1704.4
     - 3.1.1. Contractor shall submit a statement that:
       - 3.1.1.1. acknowledges the requirements stated in this statement of special inspections.
       - 3.1.1.2. acknowledges that control will be exercised over the quality of construction to conform to the approved construction documents.
       - 3.1.1.3. acknowledges that there are organizational procedures in place for exercising control of quality of the construction including:
         - 3.1.1.3.1. appointment of a person within the contractor's organization to exercise control quality of construction
         - 3.1.1.3.2. the persons within the contractor's organization to whom the quality control reports are distributed
         - 3.1.1.3.3. the method and frequency of reporting the quality control results within the contractor's organization.
   - 3.2. Fabricators in accordance with section 1704.2
     - 3.2.1. Submit report of inspector's approval of fabricator's qc plan or fabricator's nationally recognized qc certification.
     - 3.2.2. Submit fabricator's certificate of compliance stating that the work was performed in accordance with the approved construction documents. submitted at the completion of such work.
   - 3.3. Steel construction in accordance with section 1705.2
     - 3.3.1. Submit mill test reports and material certifications for all steel members, fasteners, bolts, nuts, washers, deck, and reinforcement steel for concrete and masonry.
     - 3.3.2. Submit report of inspection of marking and connection details for all members and connections. verify all steel members and steel deck are installed in the correct locations and are connected in accordance with the construction documents and approved erection drawings.
     - 3.3.3. Submit report of inspection of bolt tensioning for each applicable connection.
     - 3.3.4. Submit report of visual inspection of all field welds.
   - 3.4. Concrete construction in accordance with section 1705.3
     - 3.4.1. Submit material certifications of cement, aggregate, admixtures and reinforcement.
     - 3.4.2. Submit report of compressive strength, slump and air content test results. sample and test concrete at least once per day and once for every additional 100 cubic yards of concrete per day thereafter.
     - 3.4.3. Submit report of inspection of forms, reinforcement, and concrete delivery tickets prior to each placement of concrete.
     - 3.5.4. Submit report of inspection of installation of all wedge and chemical adhesive anchors in concrete.
   - 3.4. Masonry construction in accordance with section 1705.4
     - 3.4.1. Submit material certifications of cement, aggregate, admixtures and reinforcement.
     - 3.4.2. Submit report of test of mortar aggregate ratio and air content and observation of mortar proportioning. test once at beginning of project and once every 5,000 s.f. of wall thereafter.
     - 3.4.3. Submit report of placement of masonry, reinforcement and grout prior to and during each placement of grout.
     - 3.4.4. Submit report of installation of chemical adhesive anchorage in concrete at base of masonry walls. inspect installation of 10% of anchorage installations.
   - 3.5. Wood construction in accordance with section 1705.5
     - 3.5.1. See "Inspection of Fabricators" for inspection of prefabricated wood trusses.
     - 3.5.2. Submit material certifications for wood members, sheathing and fasteners.
     - 3.5.3. Submit report of inspection of connection of roof roof trusses to structure.
     - 3.5.4. Submit report of inspection of all wood framing members and their connections. verify all wood framing members are the correct size and grade and are installed in the correct locations, and are connected in accordance with the construction documents.
     - 3.5.5. Submit report of inspection of nailing of roof sheathing to trusses and structure.
   - 3.6. Soils construction in accordance with section 1705.6
     - 3.6.1. Submit report that soil bearing capacity is adequate according to the geotechnical report prior to each placement of foundation concrete.
     - 3.6.2. Submit report of density and moisture content of controlled fill for each lift under building structure.
   - 3.7. Cast-in-place deep foundations in accordance with section 1705.8
     - 3.7.1. Submit report of continuous observation of all drilling operations including complete and accurate records for each drilled shaft.
     - 3.7.2. Submit report indicating the location, plumbness, diameter, length, concrete volume, embedment into bedrock, and adequate end-bearing strata capacity of each pier.
     - 3.7.3. For concrete, perform tests & inspections as required by the concrete special inspection requirements.
4. The type and extent of each test and inspection required for each type of work shall be as indicated in the specifications and/or the building code and the references incorporated therein.
5. Inspection reports shall include the:
   - 5.1. name, address, and telephone number of special inspector performing the inspection and making the report.
   - 5.2. dates and locations of samples and tests or inspections, date of report.
   - 5.3. record of temperature and weather conditions at time of sample taking and testing and inspecting.
   - 5.4. description of the work, identification of products, specification section, tests, and inspection methods.
   - 5.5. photographs of the work inspected for that report
   - 5.6. complete test or inspection data.
6. Special inspection shall be performed by a qualified inspection and testing agency approved by the building official and the structural engineer.

SPECIAL INSPECTION & CONSTRUCTION INSPECTION & TESTING (CONTINUED)

7. Work requiring special inspection shall be inspected by the special inspector for conformance with the approved drawings and specifications. Inspection reports indicating the results of special inspections shall be promptly submitted to the contractor, the civil engineer, the structural engineer.
8. The special inspector shall observe activities, actions, and procedures performed before and during execution of the work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
9. All special inspections indicating non-conforming work shall be reported immediately to the contractor, the civil engineer and the structural engineer. Impending construction work that would impede economical correction of non-conforming work shall not proceed without written approval. The contractor shall maintain a discrepancy log on the site. log shall list each discrepancy documented by the special inspector, state the date of discovery and special inspector's report number, and room for the special inspector to sign and date when said discrepancy is corrected. Cost of additional retesting that are required due to non-conforming work may be charged to the contractor.
10. A final report certifying completion of all required special inspections and correction of any non-conforming work noted in the inspections shall be submitted by the special inspector at the completion of the project, or if not, detailing non-inspected and/or unresolved non-conformances.
11. The contractor shall notify the inspector when construction is ready to be inspected. contractor shall give timely and adequate notice to the special inspector.
12. The contractor shall provide the special inspector access to plans, shop drawings, and change orders at the jobsite.
13. The contractor shall retain at the jobsite all special inspection records submitted by the special inspector and provide these records for review by the engineer and building inspector upon request.



LOOSE LINTEL SCHEDULE (FOR MASONRY VENEER)

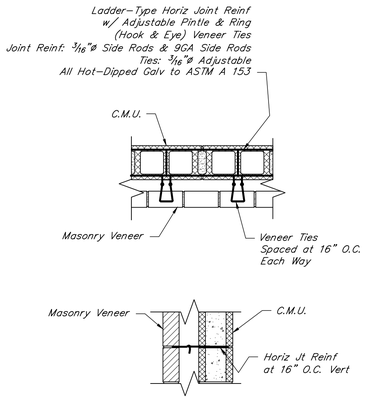
This schedule is for lintels over masonry openings not otherwise shown or noted on drawings.

SPAN	ANGLE SIZE	PLAN MARK
Up to 4'-0"	L3x 3½ x 5/16 LLV	AL-1
Up to 5'-6"	L4x 3½ x 5/16 LLV	AL-2
Up to 7'-6"	L5x 3½ x 5/16 LLV	AL-3
Up to 9'-6"	L6x 3½ x 5/16 LLV	AL-4

NOTES:
1. *Provide one angle for each 4" of masonry wall.*
2. *Angles exposed to weather shall be galvanized.*
3. *Minimum bearing length shall be 4" each end.*

TYPICAL MASONRY VENEER LINTEL DETAIL

Not to Scale



TYPICAL HORIZ JT REINF & VENEER TIE DETAIL

Not to Scale

EXPANSION ANCHORS

1. Expansion anchors shall be one of the following products:
   - Kwik Bolt TZ by HILTI
   - Trubolt+ by ITW Red Head
   - Strong-bolt by Simpson Strong-tie
   - Other approved equal
2. All expansion anchors for the project shall be produced by the same manufacturer unless approved by the structural engineer.
3. Expansion anchor product data and a keyed plan showing the location, diameter, length, material and finish of each expansion anchor shall be submitted for approval.
4. The expansion anchor manufacturer's installation instructions shall be strictly followed, particularly with regard to drilling and cleaning out the hole.
5. If any of the following minimum distances are not indicated or available then verify the detail and field conditions with the structural engineer prior to installing:

anchor dia	c to c distance	edge distance	embed distance	mat'l thickness
1/2"	3 1/2"	4"	3 1/2"	5 1/2"
5/8"	4"	5"	4"	6"
3/4"	6"	6"	5"	8"

6. If any of the following conditions are indicated or present then verify acceptability of expansion anchor type, material or finish with the structural engineer prior to installing:
   - cracked concrete or masonry near installation (see edge distance above)
   - corrosive, chemical or abnormal temperature environment
   - vibratory or fatigue loading of anchor
   - impact or shock loading of anchor
   - continuous tension (e.g. hanging loads from ceilings)

CHEMICAL ADHESIVE AND PROPRIETARY ADHESIVE ANCHORS

1. Chemical adhesives and proprietary adhesive anchors shall be produced by one of the following manufacturers:
   - HILTI, Inc.
   - ITW Red Head
   - Simpson Strong-tie
   - Other approved equal
2. All chemical adhesives and proprietary adhesive anchors for the project shall be produced by the same manufacturer unless approved by the structural engineer.
3. Proprietary adhesive anchors shall be fastened with compatible chemical adhesive from the same manufacturer.
4. Chemical adhesive and proprietary adhesive anchor product data and a keyed plan showing the location, type of chemical adhesive and installation conditions of each adhesive anchor shall be submitted for approval. installation conditions are:
   - dry, damp or wet hole
   - cored hole or hammer drilled hole
   - standard (per manufacturer) or oversize hole
   - horizontal, vertical or overhead surface
   - temperature range of installation.
5. The chemical adhesive and proprietary adhesive anchor manufacturer's installation instructions shall be strictly followed, particularly with regard to drilling and cleaning out the hole and the installation conditions.
6. If any of the following minimum distances are not indicated or available then verify the detail and field conditions with the structural engineer prior to installing:

anchor dia	c to c distance	edge distance	embed distance	mat'l thickness
1/2"	3 1/2"	4"	3 1/2"	5 1/2"
5/8"	4"	5"	4"	6"
3/4"	6"	6"	5"	8"

7. If any of the following conditions are indicated or present then verify acceptability of chemical adhesive or proprietary adhesive anchor type, material or finish with the structural engineer prior to installing:
   - corrosive, chemical or abnormal temperature environment
   - vibratory or fatigue loading of anchor
   - impact or shock loading of anchor
   - continuous tension (e.g. hanging loads from ceilings).

MATERIAL PATTERN LEGEND

- COMPETENT ROCK
- CONCRETE
- UNDISTURBED SOIL ENGINEERED FILL
- LEAN CONCRETE FLOWABLE FILL GROUT
- CRUSHED STONE DENSE GRADED AGGREGATE

SDG LLC
306 W Main St Ste 410
Frankfort, KY 40601
(859) 351-9169

STRUCTURAL GENERAL NOTES

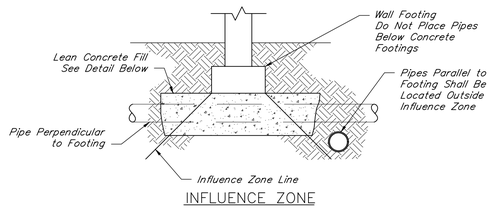
EAST LAUREL WATER DISTRICT
WATER SYSTEM IMPROVEMENTS
CONTRACT 1
LAUREL COUNTY, KENTUCKY

DRAWN BY: BWC
CHECKED BY: MWC
DATE: July 2022
SCALE: AS NOTED
REVISIONS

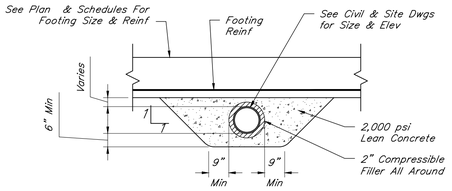
KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

SHEET NO.
S2



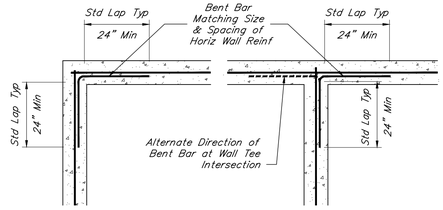
INFLUENCE ZONE



NOTE:
Provide concrete protection around utility line when line is within footing influence zone. See detail above for influence zone definition.

TYPICAL UTILITY LINE BELOW FOOTING

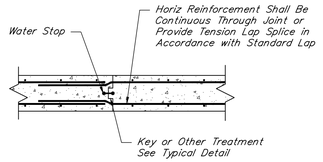
Not to Scale



NOTES:
1. Where bar sizes differ, lap for larger size.
2. If bend radius creates problems fitting hairpins in wall, provide more smaller hairpins with equal total area to main bars.
3. Construction joints shall not occur within 5'–0" of a corner or tee unless indicated otherwise on the drawings.

TYPICAL WALL INTERSECTION REINF

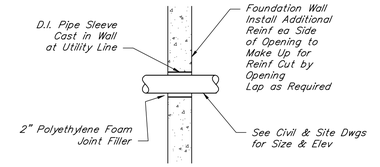
Not to Scale



NOTES:
1. Maximum Length of Wall Pour = 40'–0".
2. Minimum 48 Hours Between Adjacent Pours.
3. See Plans for Additional Joint Locations.
4. Submit Construction Joint Location Plan For Approval Prior to Construction.
5. Do Not Form Joints Within 5'–0" of a Corner or Tee Intersection.

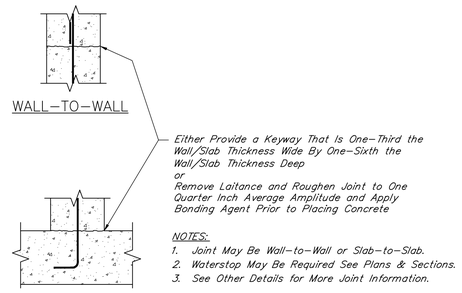
TYPICAL WALL CONSTRUCTION JOINT

Not to Scale



TYPICAL UTILITY LINE THRU FDN WALL

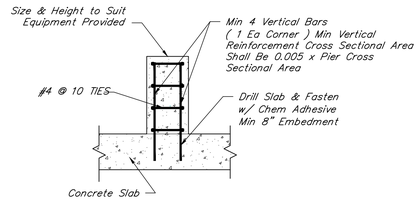
Not to Scale



NOTES:
1. Joint May Be Wall–to–Wall or Slab–to–Slab.
2. Waterstop May Be Required See Plans & Sections.
3. See Other Details for More Joint Information.

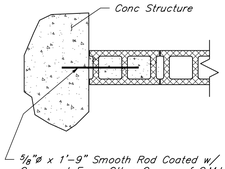
TYPICL CONSTRUCTION JOINT CONCRETE PREPARATION

Not to Scale

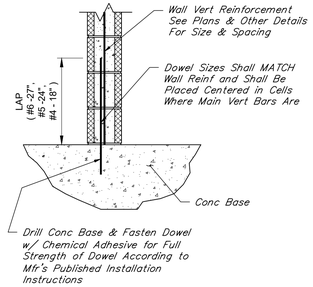


TYPICL CONCRETE EQUIPMENT PEDESTAL

Not to Scale



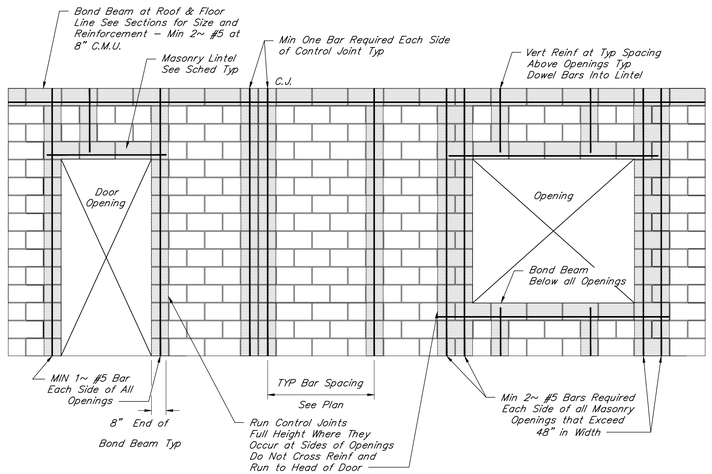
PLAN VIEW



SECTION VIEW

TYPICAL C.M.U. WALL DOWEL DETAIL

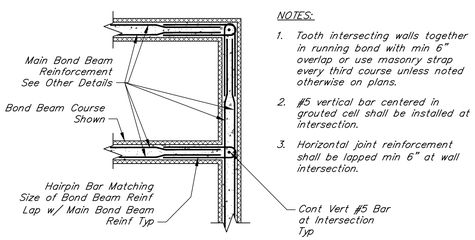
Not to Scale



NOTES:
1. Minimum vertical wall reinforcing shall be #5 @ 2'–0" unless noted otherwise.
2. Vertical wall reinforcing shall be continuous.
3. See typical detail for dowels required at base of walls.
4. Center reinforcing bars in grouted cells unless noted otherwise.
5. Use bar positioners at minimum 4'–0" spacing to support reinforcing bars.
6. Follow specified grouting procedures.
7. Clean mortar from edges of cells so grout can flow smoothly and fill entire cell.
8. Use lintel block over openings and continue with open–bottom bond beam from edge of opening into wall so that vertical reinforcing at jamb can pass.
9. Control joints shall extend full height of wall and align from floor to floor.
10. Where a control joint occurs through a bond beam or lintel bearing, provide 2~ ½" dowels across joint with grease on one side. Do not continue horizontal reinforcing across control joint.

TYPICAL C.M.U.WALL REINFORCEMENT DETAILS

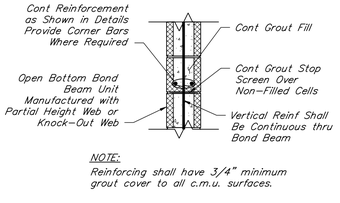
Not to Scale



NOTES:
1. Tooth intersecting walls together in running bond with min 6" overlap or use masonry strap every third course unless noted otherwise on plans.
2. #5 vertical bar centered in grouted cell shall be installed at intersection.
3. Horizontal joint reinforcement shall be lapped min 6" at wall intersection.

TYPICAL MASY WALL INTERSECTION DETAIL

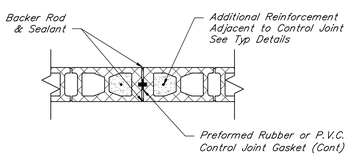
Not to Scale



NOTE:
Reinforcing shall have 3/4" minimum grout cover to all c.m.u. surfaces.

TYPICAL C.M.U. BOND BEAM DETAIL

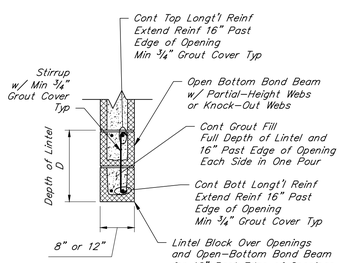
Not to Scale



NOTES:
1. See architectural drawings for control joint locations.
2. Discontinue horizontal joint reinforcing at control joints.
3. Unless otherwise shown or noted, spacing of control joints shall not exceed 24 feet.

TYPICAL C.M.U. CONTROL JOINT DETAIL

Not to Scale



MASONRY LINTEL SCHEDULE					
MARK	MAX. OPENING SIZE	D	BOTTOM REINF	TOP REINF	STIRRUPS
ML–1	5'–0"	8"	2~#5	None	None
ML–2	8'–0"	16"	2~#5	None	None
ML–3	11'–8"	24"	2~#5 (8" C.M.U.) 2~#6 (12" C.M.U.)	None	None
ML–4	18'–0"	24"	2~#5 (8" C.M.U.) 2~#6 (12" C.M.U.)	2~#5	#3@8"

NOTES:
1. Do not use this schedule if concentrated load is applied to the lintel at a height less than half the span above the lintel or if stack bond is specified.
2. In lieu of using lintel block on the bottom of lintels which, requires shoring during construction, contractor may use prestressed, precast concrete lintels by "cast–crete" (www.costcrete.com) or approved equal. submit product data and a plan and schedule of lintel locations and sizes for approval for this option.

TYPICAL C.M.U. LINTEL DETAIL

Not to Scale

SDG LLC
306 W Main St Ste 410
Frankfort, KY 40601
(859) 351-9169

STRUCTURAL TYPICAL DETAILS

EAST LAUREL WATER DISTRICT
WATER SYSTEM IMPROVEMENTS
CONTRACT 1
LAUREL COUNTY, KENTUCKY

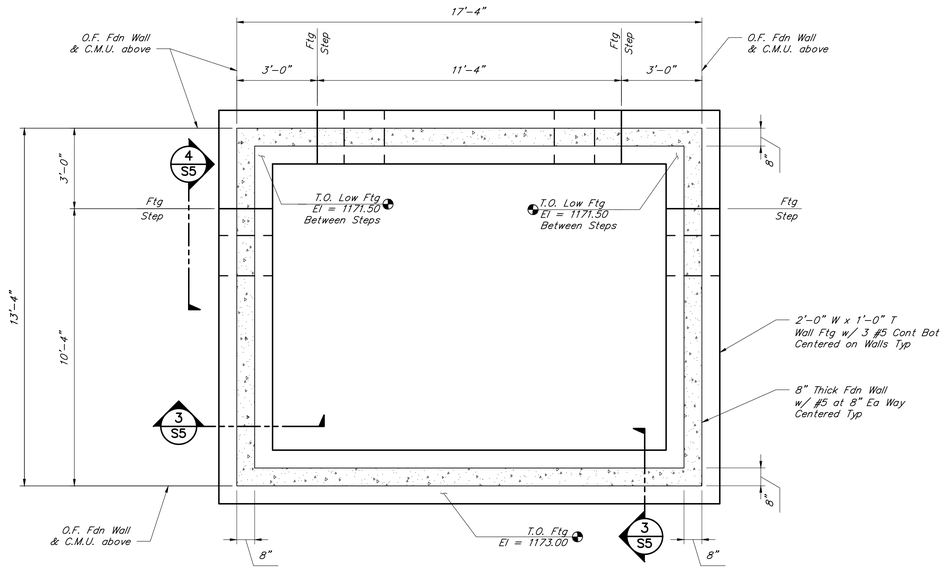
COMMONWEALTH OF KENTUCKY
MATTHEW W. CRAIG
24113
LICENSED PROFESSIONAL ENGINEER

DRAWN BY: BWC
CHECKED BY: MWC
DATE: July 2022
SCALE:AS NOTED
REVISIONS

KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

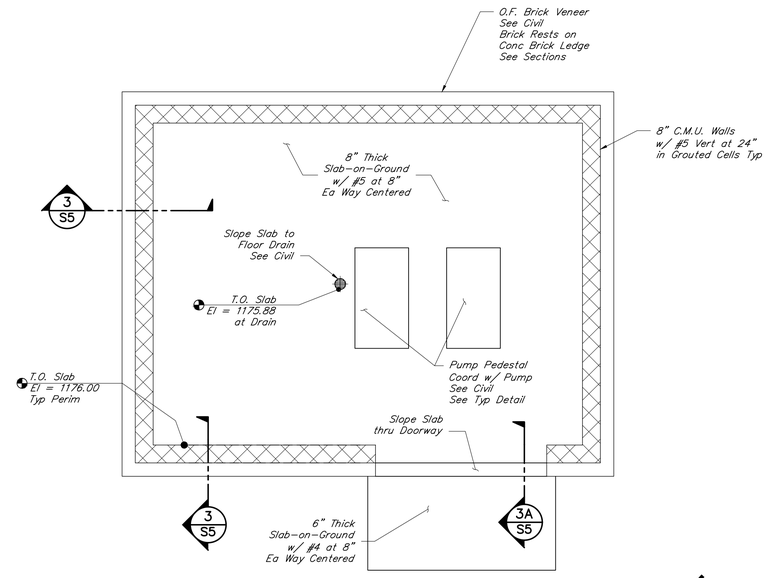
SHEET NO.
S3



FOUNDATION PLAN

3/8"=1'-0"

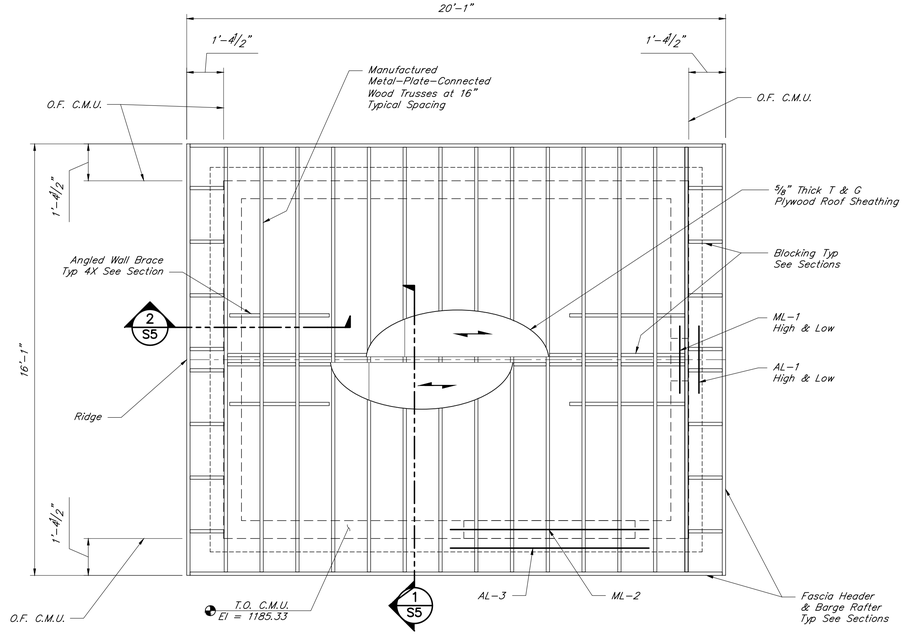
Note:
Backfill foundation walls balanced inside and out so that the grade elevation difference on either side of the walls is no more than 24" at any time.



SLAB PLAN

3/8"=1'-0"

Note:
Backfill foundation walls balanced inside and out so that the grade elevation difference on either side of the walls is no more than 24" at any time.



ROOF FRAMING PLAN

3/8"=1'-0"

EAST LAUREL WATER DISTRICT
WATER SYSTEM IMPROVEMENTS
CONTRACT 1
LAUREL COUNTY, KENTUCKY

DRAWN BY: BWC
CHECKED BY: MWC
DATE: July 2022
SCALE: AS NOTED
REVISIONS

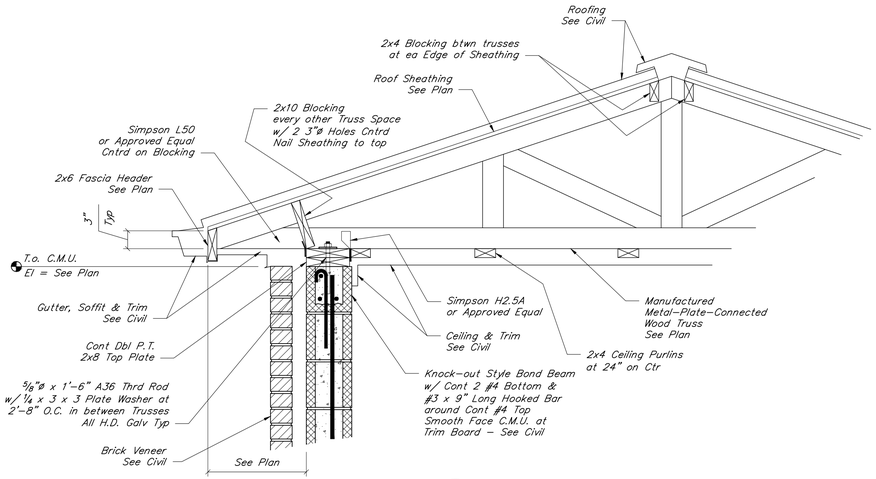
KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

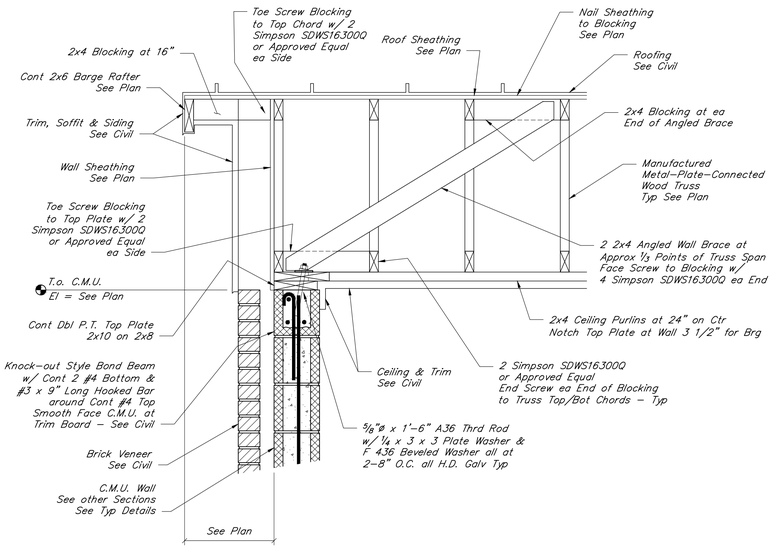
SHEET NO.
S4

SDG LLC
306 W Main St Ste 410
Frankfort, KY 40601
(859) 351-9169

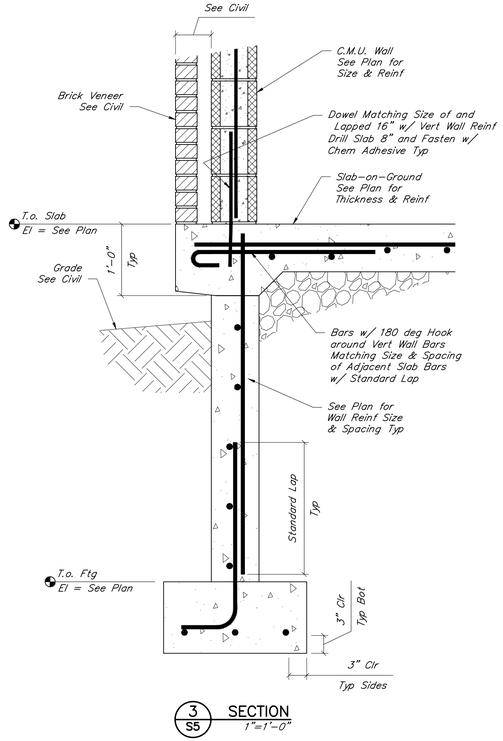
KY 472 P.S. – STRUCTURAL PLANS



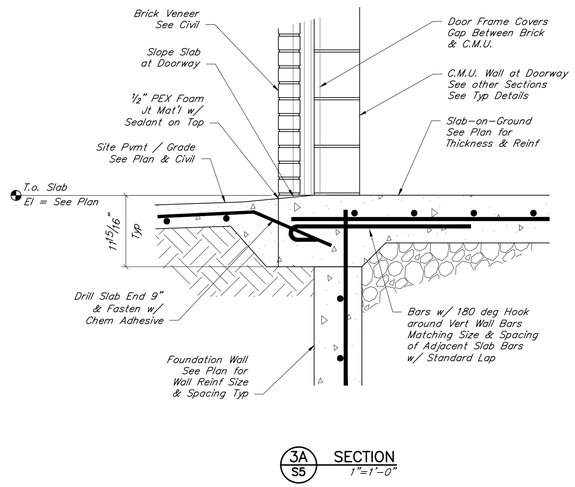
1 / S5 SECTION 1"=1'-0"



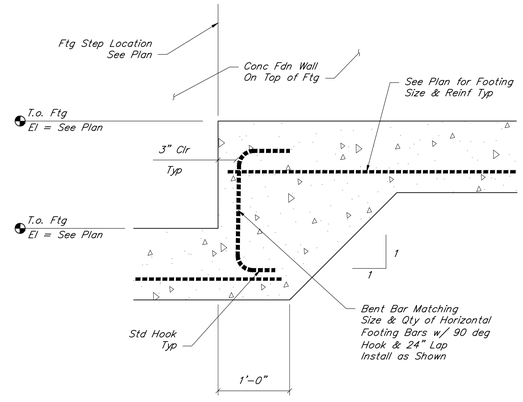
2 / S5 SECTION 1"=1'-0"



3 / S5 SECTION 1"=1'-0"



3A / S5 SECTION 1"=1'-0"



4 / S5 SECTION 1"=1'-0"

EAST LAUREL WATER DISTRICT
WATER SYSTEM IMPROVEMENTS
CONTRACT 1
LAUREL COUNTY, KENTUCKY

COMMONWEALTH OF KENTUCKY
MATTHEW W. CRAIG
24113
LICENSED PROFESSIONAL ENGINEER

DRAWN BY: PWC
CHECKED BY: MWC
DATE: July 2022
SCALE: AS NOTED
REVISIONS

KENVIRONS
Civil & Environmental Engineers

PROJECT NO.
2020052

SHEET NO.
S5

SDG LLC
306 W Main St Ste 410
Frankfort, KY 40601
(859) 351-9169

STRUCTURAL DETAILS